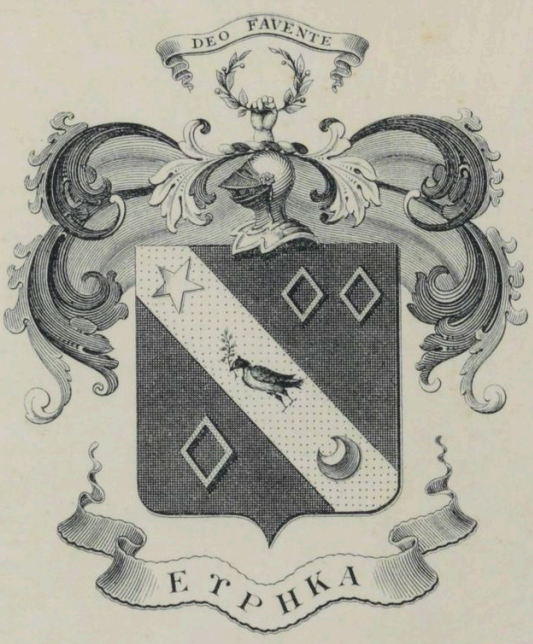
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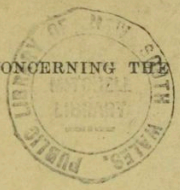
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David Scott Mitchell.

PRÉCIS OF INFORMATION



CONCERNING THE

COLONY OF VICTORIA.

PREPARED UNDER THE DIRECTION OF THE VICTORIAN GOVERNMENT BY VARIOUS OFFICERS IN THE PUBLIC SERVICE OF THE COLONY,

FOR

THE INTELLIGENCE BRANCH OF THE QUARTERMASTER-GENERAL'S DEPARTMENT, WAR OFFICE, LONDON.

EDITED BY

THE GOVERNMENT STATIST OF VICTORIA.

By Authority:

JOHN FERRES, GOVERNMENT PRINTER, MELBOURNE.

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Map showing proposed defences of Port Phillip Bay.

INTRODUCTION.

DETAILED information as to the matters enquired of in the schedule on Colonial Defensive Organization, attached to Lord Carnarvon's Secret Despatch of the 9th December 1875, is given in the following pages, the subjects under each branch having been reported upon, as far as possible, by the officer whose province it might be to deal with similar matters in the course of his official duties. Where information has not been furnished, or has been furnished in an incomplete form, it has, as far as possible, been supplied by the Editor.

2. As concerning the matters treated of, so far as they affect the military occupation of Victoria, it should be stated that they would be materially changed were either New South Wales on the north, or South Australia on the west, to be occupied by an adverse force. At the present time the only seeming danger of hostile operations against the colony lies from the seaboard. Port Phillip probably would be the first place an invading fleet would attempt to occupy, with a view to the spoils of Melbourne, or further to take possession of the capital city as being the focus of communication with all parts of the interior.

3. Defensive operations, as regards the Australian colonies collectively, could scarcely be thoroughly and exhaustively considered until the précis of information from this colony should be collated with that of the others.

4. The climate of Victoria is highly salubrious and favorable to the location or movement of troops in the field. Although the mortality is somewhat greater in summer than in winter, there are, strictly speaking, no sickly periods or seasons.

5. Generally it may be said that Victoria has ample material resources for sustaining in time of war a large army in food, fuel, and forage; the horses of the colony are second to none in the world; and the colonists, as to their *physique* and *morale*, differ in no respect from their fellow British subjects in the United Kingdom. The mercantile navy of Victoria is considerable, and of a high class. Railway or road communication is to be found all over the country, and the former system is being rapidly extended.

HENRY HEYLYN HAYTER,
Government Statist of Victoria.

Office of the Government Statist,
Melbourne, 15th May 1877.

VICTORIA.

Section A.—GEOGRAPHY.

[*The following paper is by Major Thomas Couchman, Secretary for Mines, Chief Inspector of Mines, &c., to the Colony of Victoria.**]

Situation and extent.

VICTORIA is situated at the south-east end of, and is the most southern colony on, the Australian continent. It lies between the 34th and 39th parallels of south latitude and the 141st and 150th meridians of east longitude. Its extreme length from east to west is about 420 geographical miles, and its greatest breadth is about 250 miles. On the north and east Victoria is bounded by the River Murray and by a right line running in a south-easterly direction from a place near the head waters of that stream called the "Springs," on Forest Hill, to Cape Howe. On the west it is bounded by South Australia, the dividing line being about 242 geographical miles in length, approximating to the position of the 141st meridian of east longitude, and extending from the River Murray to the sea. The southern boundary is formed by the Southern Ocean, Bass's Straits, and the Pacific Ocean. The area of Victoria is 88,198 square miles, or 56,446,720 acres.

The whole continent of Australia is estimated to contain 2,983,264 square miles, and Victoria therefore occupies about a thirty-fourth part of its surface.

Physical features.

Victoria is traversed with more or less regularity, throughout its whole length from east to west, by a chain of mountains and lesser hills, completely dividing it into two parts, and known as the "Dividing Range." The summit line of this range runs generally at a distance of 60 or 70 miles from the coast. The streams to the north of it flow towards the River Murray, and those to the south of it towards the sea. The eastern part of the range, which divides the Gippsland district from that of the Murray, is named the "Australian Alps," and that part which separates the county of Ripon from that of Borung, and extends northwards into the county of Kara Kara, is named the Pyrenees. The higher peaks of the Dividing Range are covered with snow for several months in the year. The mountainous country is for the most part densely wooded to the very summits with fine timber, but the peaks above the winter snow line are quite bare or only partially covered with dwarfed trees or shrubs. From near Kilmore eastward, a distance of about 200 miles, the mountains are generally so steep and inaccessible as to present a considerable barrier between the parts of the

* Major Couchman expresses his obligation for much of the information he has given in this paper to the *Victorian Year-Book* 1874, by H. H. Hayter, Government Statist of Victoria; also to the works of Messrs. R. Brough Smyth and A. R. C. Selwyn.

colony north and south of them, and they can only be traversed with great labor by the few passes that exist. From Kilmore westward the range rapidly dwindles so that, although presenting in places points of considerable height, such as Mount William and Mount Macedon, it is easily crossed. From Mount Macedon it becomes, as it stretches away to the Western District, a chain of hills, in parts only of considerable altitude, and offering no serious obstructions to crossing in very many places.

That portion of the Murray basin commencing at Wodonga on the east as a point, and extending in the form of an irregular triangle to a width of about 200 miles along the western boundary of Victoria, has almost a flat surface, with a very slight inclination towards the Murray. The remaining country north and south of the Dividing Range and its spurs is moderately undulating, it is in some parts destitute of timber, but closely wooded in others.

Mountains.

Besides the main divide there are also other ranges extending in different parts of the country, many of them being offshoots of the main chain. The principal are the Benambra and Gibbo Ranges, in the county of Benambra; the Bogong Range, in the county of the same name; the Buffalo and Strathbogie Ranges, in the county of Delatite; the Futter Range, in the counties of Delatite and Moira; the Baw Baw Range, dividing the counties of Evelyn and Buln Buln; the Hoddle Range, in the county of Buln Buln; Mount Delegete, in the county of Croajingolong; Mount Wellington, in Wonnangatta; the Dandenong Ranges, in Evelyn and Mornington; Mount Alexander and Jim Crow Ranges, both in the county of Talbot; the Pyrenean Range, in the county of Kara Kara; Mount Cole, in the county of Ripon; the Grampians, in the county of Borung; the Sierra Range, between the counties of Dundas and Ripon; the Victoria Ranges, in the county of Dundas; and the Black Range, in the county of Lowan.

The highest peaks are found in the Dividing Range and its offshoots between St. Clair and the eastern boundary of Victoria. The chief of these are Bogong Range, county of Bogong, 6,508 feet; and Mount Feathertop, county of Bogong, 6,303 feet; Cobberas, county of Tambo, 6,025 feet; Mount Cope, county of Bogong, 6,015 feet; Mount Hotham, county of Bogong, 6,100 feet; Mount Buller, county of Wonnangatta, 5,911 feet; Gibbo Range, county of Benambra, 5,764 feet; Mount Wills, county of Bogong, 5,758 feet; Mount Howitt, county of Wonnangatta, 5,715 feet; Mount Buffalo, county of Delatite, 5,645 feet; the Twins, county of Delatite, 5,575 feet; Mount Wellington, county of Tangil, 5,363 feet; Mount Tamboritha, county of Wonnangatta, 5,381 feet; Mount Cobbler, county of Delatite, 5,342 feet; and Mount Kent, county of Wonnangatta, 5,129 feet. So far as at present known by observation there are at least fifteen peaks over 5,000 feet high, and fifteen between 4,000 and 5,000 feet. There are, however, many peaks above 4,000 feet whose actual heights have not yet been determined.

Rivers.

The rivers in Victoria are for the most part inconsiderable, and some of them in the low-lying portions of the country become in the summer season nothing more than chains of pools or water-holes.

The Murray, which forms the northern and part of the eastern boundary of the colony, is the largest river in Australia. Its total length is 2,400 miles, for 670 of which it flows along the Victorian border. The Goulburn, which has its source in the north-western parts of the great bend of the Dividing Ranges, runs north-westerly to

Seymour, where it turns northward and enters the Murray about five and a half miles east of Echuca. Its length is 250 miles.

The Avoca River has its sources in the Amphitheatre, a small patch of granite lying on the northern slopes of the Dividing Range, and takes a course nearly north towards the Murray. Its length is 130 miles, for 75 of which it flows through a flat country.

The Glenelg, in the county of Normanby, of which it forms part of the western boundary, is 205 miles in length.

The Wimmera, in the district of the same name, is 105 miles long.

The Loddon, 150 miles long, has its sources in the Dividing Range, and its feeders run through an area which has been the centre of once active volcanoes.

The Campaspe and Coliban are respectively 85 and 45 miles in length.

The Ovens River, which joins the Murray 23 miles below Wangaratta, is 100 miles long; and the Wannon, which forms part of the south boundary of the county of Dundas, is 105 miles long.

The La Trobe River has its sources near the head of the Cordilleras and, after running through Gippsland for a distance of 90 miles, falls into Lake Wellington. Its largest tributaries are the Macalister and the Thomson streams.

The Mitchell River, forming the boundary between Dargo and Tangil, is 60 miles long. It falls into Lake King.

The Yarra, upon the banks of which stands Melbourne, the capital of Victoria, rises in the Dividing Range at St. Clair; and, after running a distance of 90 miles, falls into Hobson's Bay.

With the exception of the Yarra, the Goulburn, and the Murray, and one or two of the Gippsland streams, not one of the Victorian rivers is navigable, except by boats.

The rivers Loddon, Avoca, Wimmera, Avon, and the Yarriambiack, Dunmungle, and other minor creeks in the north-western portion of the colony, are gradually lost in the absorbent tertiary flat country through which they pass. With the exception of the Loddon, whose bed at its embouchure into the Murray dwindles to a small dyke, they have no outlet to the Murray; they terminate in each instance in a shallow lake, a lagoon, or a swamp.

Lakes. There are numerous salt and fresh water lakes and lagoons bordering the south-east coast, and in the western district, but many of these are little more than swamps during dry seasons. Some of them are craters of extinct volcanoes. The largest inland lake (Corangamite) covers 76 square miles, is quite salt, and has no visible outlet.

Regions. Victoria possesses within its comparatively limited area a compendium of climatic advantages which, in some other regions of the globe, must be sought for over a very largely extended range of latitude. Taking the entire extent of the country north and south, from the Murray to the sea, the range of climate equals that which prevails in Europe between such distantly-separated points as, for instance, Chalons, the centre of the champagne wine districts of France, in N. lat. 49°, and Lisbon, in N. lat. 38° 49′. In other words, there is as great range of climate within the limits of three degrees of latitude in Victoria, as there is within an area covering from 10° to 11° of latitude in the more favored regions of Europe. The main cause of this is due to the coast mountain range previously described. The general rise of the land upwards from the sea to the bases of the mountain spurs is so

gradual as to be scarcely perceptible; yet it is sufficiently marked to cause the entire coast region to present a decided slope facing the great Southern Ocean, and to be directly exposed to the cooling influence of the winds that blow from the water upon the land. This gives for the latitude a comparatively cool summer climate to the coast region, though the value of the mean temperature readings of the season is generally made to appear high by reason of the occasional hot winds of December, January, and February, from the north. The coast district is, therefore, on the whole, exceedingly mild in climate. On the other hand, the country inland from the Dividing Ranges to the Murray descends with a very gradual slope, facing the northern aspect. Its large extent of low and absorbent plains, but little sheltered by vegetation from the sun's rays, and its less exposure to the winds from the sea, secures to it an enhanced degree of solar heat, which heightens the mean temperature in the north of the colony, as compared with the temperature in the south.

Gippsland, in the south-eastern portion of the territory, is cut off from the Murray basin by the Coast or Great Dividing Range of mountains, which in this part is of considerable elevation, and which occupies with its spurs a great extent of thickly-timbered country. The north winds from the interior, heated by solar radiation from the open or lightly-timbered low, dry plains, over which they pass, are lowered in temperature to a very considerable extent in passing over this elevated mountainous region towards the coast. The district is also directly open to the winds and rains from the sea; so that it is on the whole cooler and moister than the rest of the colony.

Frontiers. On the east the frontier is occupied by the Dividing Range, inaccessible except by a very limited number of passes. The length of the mountain frontier is 100 miles, and a barrier of another 50 miles is formed by the Murray gorge—a ravine 3000 feet deep—in the bed of which is received the tributary streams forming the head waters of the river. On the north-east the frontier between Victoria and New South Wales is formed by the River Murray, behind which, on the New South Wales side, stretch away the level plains of Riverina; and on the west the frontier line which separates Victoria from the colony of South Australia passes over level or very slightly undulating country.

Geology. In general structure, character, and composition; in geological sequence, and in physical and palæontological relations, the rock formations in Victoria are in all respects analogous to those of other regions. The younger members of the tertiary series and the older members of the primary series are by far the most widely distributed, and in all other respects the most prominent and important formations. With their associated granitic, plutonic, or igneous and volcanic rocks, they occupy nearly nine-tenths of the surface of the country.

The Great Dividing Range from Forest Hill to St. Clair is composed principally of palæozoic rocks; near Omeo granite, porphyry, limestone, and patches of middle palæozoic and trappean rocks, are to be found. At Baw Baw, on the southern extension of the main divide, granite is found abutting on the silurian claystone. The western side of the range is composed of plutonic rocks, and the eastern of sedimentary strata. From St. Clair westward, the divide to the 143rd meridian is composed of granites, palæozoic sandstones, mudstones, shales, and porphyritic rocks.

The Sierra and Grampian ranges are formed of thick-bedded sandstones. The formation of the country north of the divide, from its eastern extremity as far as Kilmore, is Lower and Upper Silurian, greatly metamorphosed, with here and there large patches of granite; and the extensive tract of flat country bordering the Murray is composed of tertiaries, the result of extensive denudation of the older rocks of the Great Dividing Ranges.

Vegetation

The prevailing vegetation of the mountain regions in the eastern part of Victoria, and also near Cape Otway, consists of stringybark (eucalyptus obliqua), messmate (eucalyptus nervosa and eucalyptus fissilis), bluegum (eucalyptus globulus) and whitegum (eucalyptus amygdalina var. radiata). These trees, on some of the ranges containing good soil, and with other favorable conditions, are of enormous growth, rivalling, if not surpassing in size the far-famed trees of the Yosemite Valley, California, (Wellingtonia gigantea or sequoia gigantea). Where these wonderful specimens of the vegetable kingdom occur are also usually found fine growths of lightwood or blackwood (acacia melanoxylon), woolly butt (eucalyptus longifolia), black butt (eucalyptus pilularis), native beech (fagus Cunninghami), sassafras (atherosperma moschatum), pepper tree (Drimys aromatica), pittosporum, bloodwood (eucalyptus corymbosa), fern trees (Dicksonia Antarctica and alsophila Australis), which with numerous shrubs often form a dense impenetrable jungle.

The lower spurs and undulating country north and south of the Great Dividing Range, in the eastern portion of the colony, are as a rule free from undergrowth, and are chiefly timbered with stringybark, box (eucalyptus amygdalina and stellulata), peppermint (eucalyptus piperita), golden wattle (acacia pycnantha), native cherry (exocarpus cupressiformis), honeysuckle (Banksia Australis, &c.), sheoak (casuarina suberosa, &c.), with redgum (eucalyptus rostrata) and apple (eucalyptus Stuartiana) in the alluvial bottoms and flats.

The Dividing Ranges of the western half of Victoria, which are much less extensive and of lower elevation than those of the eastern half, consist generally of timbered country with very little undergrowth. The timber is composed chiefly of stringybark, box (eucalyptus melliodora), whitegums, and lightwood. The lower hills in the mining districts to the north of these ranges are timbered chiefly with box (eucalyptus melliodora and stellulata), and in some parts with ironbark (eucalyptus sideroxylon), the intervening flats containing red and white gums.

The volcanic plains of the south-western part of Victoria, and also north and west of Melbourne, are mostly treeless, but with fringes of redgums along the banks of the rivers and creeks, and sometimes with whitegums along the margins of swamps.

The undulating volcanic, carbonaceous, and tertiary country in the south-west corner, is generally timbered, the former with red and white gums, and the latter to a limited extent with the same trees, but chiefly with stringybark.

The Murray flats, east of the Loddon River, are partly open and partly wooded; the timbers are principally box, and red and white gums. The extensive flats of the Murray basin, immediately west of the Loddon, are either open, or covered with mallee shrubs (eucalyptus gracilis, fasciculosa, Behriana, &c.), and farther to the north-westward they are almost entirely covered with the mallee and with Murray pine

(callitris verrucosa) along the open watercourses and in the moister portions.

To recapitulate. The higher mountain regions of Victoria are heavily timbered, and generally have thick undergrowths of shrubs in those parts within a reasonable distance of the coast, and sloping towards the sea. The lesser hill ranges, and even those of considerable elevation lying farther inland, are also timbered, but are generally free from undergrowth. The lower undulating country is more or less timbered ; the volcanic plains are mostly treeless ; and the low tertiary plains are open or lightly timbered, or covered with mallee shrubs. When the country is not covered by an undergrowth of scrub, it is generally well grassed, except in some limited sandy areas which are covered with heaths.

Defence. The following remarks, bearing on the features of the country with reference to their value for offensive and defensive operations, are offered by the writer with great diffidence, from a feeling that the subject would be dealt with in an abler and more comprehensive manner by others who, from their greater military experience, are more competent to form and to give expression to sound practical views on such matters.

The coast line of Victoria is very much exposed, and, except at a few parts, such as Western Port, Port Phillip, Portland, Belfast, and Warrnambool, offers no favorable points for the landing of troops. It is true that a landing might be effected at Corner Inlet, and, under favorable conditions of weather, by boats at Apollo Bay, Loutitt Bay, Curdie's Inlet, Waratah Bay, and at a very few other points ; but having regard to the generally impracticable or otherwise unfavorable character of the country adjacent to these places, and to the difficulties which an invading force would be likely to encounter, even if successfully landed, it is not considered that they would, under any circumstances, be chosen as points of debarkation.

As regards Corner Inlet and Waratah Bay, in Gippsland, the country inland is generally mountainous, covered by dense growths of timber and scrub, with no suitable routes for the transport of war *matériel* except indifferent tracks leading from Alberton inland towards Rosedale and Sale.

Gippsland has been up to the present time, in a great measure, isolated from the rest of Victoria, owing to the impracticable nature of the mountain ranges already described, which occupy its northern side, and to the densely timbered, scrubby, or swampy character of the country on its western margin, both of which have, hitherto, rendered communication by land with Melbourne and the more populous districts costly and difficult, and at times even dangerous to ordinary travellers. It is certain that no danger could arise from any naval attack on this part of the country ; and it is assumed, for the reasons just given, that no hostile land force would select it as a base for offensive operations.

A railway, some considerable distance back from the coast, is now in course of construction from Melbourne to Gippsland, but this when completed would, under ordinary circumstances, afford facilities for the rapid transport of troops and *matériel* from Melbourne to Gippsland if required for defensive purposes.

Apollo Bay, Loutitt Bay, and Curdie's Inlet, in the Western district, are backed by steep, rugged, or otherwise generally impracticable country, and do not afford favorable sites for effecting a landing. Belfast, Portland, and Warrnambool, also in the Western district, are small coast

towns possessing a local corps of artillery. They are remote from any larger centres of population, but the lines of communication inland are not of a difficult nature. Railways are in course of construction to these places which, in a short time, will afford ready means for the transport of troops from Melbourne, Ballarat, and other centres of population possessing local forces. It is, however, considered that these ports would not be likely to be chosen as points of attack, as their possession would be of no great advantage to a naval force; and any force intended to operate on land would of necessity have to traverse a considerable extent of purely grazing and sparsely populated country before reaching any of the more vulnerable parts of the colony; and unless such a force were in considerable numbers it would run great risk of defeat and capture.

The writer assumes that, for some such reasons as the above, it is considered by those military authorities who have given attention to the subject, that Melbourne, from its shipping, population, wealth, and importance, would by an enemy be deemed the only vulnerable point in Victoria worthy of attack.

It is not supposed that an enemy would seriously entertain the idea of holding long possession of the country, but that he would endeavor to destroy the shipping in the port of Melbourne, and lay the city under heavy contribution, and then depart.

If this were attempted by a purely naval force the ships would necessarily enter Port Phillip and Hobson's Bay; and if by a land and sea force combined it is quite likely that Western Port would be used as a point for the debarkation of troops, to co-operate with ships of war by attacking Melbourne from the land side.

Strategical points.

Under existing circumstances it appears to the writer that, for the defence of Victoria, Melbourne offers the best and only strategic point worthy of consideration for occupation by a main body of land forces, and that the sheltered roadsteads of Port Phillip and Hobson's Bay are the only strategic points that need be held along the whole coast line by naval forces. As regards the former, in addition to the desirability of having a powerful force at hand to operate in opposing any immediate attack upon the city, the central position of Melbourne and the lines of railway (either completed or in course of construction), which radiate from it to all important parts of the country, offer surpassing facilities for the rapid despatch of troops and war *matériel* to any point of attack, which no other place in Victoria possesses.

As Port Phillip and Hobson's Bay afford the only means of approach to Melbourne by sea, the advantages attached to their occupation by a naval force for the defence of that city are at once apparent. On the other hand, their central position and close proximity to Western Port, and also nearness to the seaports of the Western districts, give them a pre-eminence as strategic points, that it is supposed could not well be disputed, especially when it is borne in mind that the existing lines of land telegraph to every important point along the coast afford means for rapidly communicating the presence of an enemy.

Value of the existing means of internal communication for military movements.

In addition to the railways, good macadamized roads now exist from the metropolis to most of the chief centres of population in Victoria, and also along many of the principal lines of traffic between inland towns, villages, and hamlets; and in many of the remoter parts, where artificial roads are wanting, the tracks over the natural surface are, owing to the absorbent nature of the soils, and the natural dryness of the atmosphere, good and sound throughout nearly the whole year.

Excepting the swampy and timbered mountain country of Gippsland, there are few parts of the colony that are not easily accessible by railway and roads at nearly all seasons of the year.

If an enemy were successful in landing troops at some indifferently guarded point on the coast, distant from Melbourne, it is considered that without the use of locomotive engines the railways would be of no great service to him, and steps it is supposed could be taken to render it difficult for him to obtain horses to accelerate his progress along the ordinary roads.

An important branch of the land forces.

Having regard to the fact that many parts of the country are very thinly populated, and that much travelling would be necessary to reach the scattered townships, it is the opinion of the writer that a body of light-horse artillery, and another of mounted riflemen to act as skirmishers, would be invaluable in harassing and opposing an enemy, and that they would form a very important adjunct to the land forces.

Suggested character of some of the ships of war for defensive purposes.

In referring to the naval forces for the defence of the country the writer suggests that one or two very fast steam sloops, armed with a few heavy long range guns, would be found to be an effectual aid both in protecting the mercantile shipping and in moving rapidly along the coast to defend any point of threatened landing.

Remarks on torpedo defence.

In alluding briefly to the subject of torpedo defence it may be mentioned that in Port Phillip, Hobson's Bay, and Western Port, the open character of the channels, and their great distance from shore, would necessarily render a complete system of defence by ground or other stationary torpedoes and artificial obstructions very costly; further, the rapid placing of torpedoes of the above description, except in very calm weather, would be a somewhat difficult task. Without any desire, therefore, to underrate the value of such a subsidiary but necessary means of defence, it is suggested that it should, as much as possible, be supplemented by torpedoes which could be placed in immediate contact with an enemy's ship, either by propulsion or towing, as it is assumed that our open waters are peculiarly favorable for the use of torpedoes of this class.

In consideration of the great moral effect upon the mind of an enemy created by a knowledge of the fact that the ports of a country are defended by a system of movable torpedoes and stationary submarine mines, and also of the very destructive action of these engines of warfare upon ships of the most powerful class when exploded under favorable conditions; and having regard also to the comparatively small number of trained men required to manage and work such a system, it would be undoubtedly desirable for defensive purposes that a properly trained torpedo force for operating both on sea and land, with all necessary appliances, should be in a state of readiness for immediate action in any case of emergency that may arise.

[*The following remarks are by Mr. A. J. Skene, Surveyor-General of Victoria.*]

Surveys, &c.

On the accompanying four-sheet map of the colony of Victoria, drawn to a scale of eight miles to an inch,* have been compiled the results of all the surveys effected since the settlement of the colony. These surveys were plotted originally on a scale of either two or four inches

* Not forming portion of this work but transmitted therewith.

to a mile, and were subsequently connected and tied together by the trigonometrical survey that has been recently completed.

On this map are shown all the water-courses and rivers, mountain-chains and roads, railways, and lines of telegraphic communication established throughout the colony.

The parish surveys were plotted originally on a scale of two and four inches, these surveys are now being re-compiled on a uniform scale of four inches to a mile. Copy of one marked A* is transmitted, as well as copy of county map,* on scale of half an inch to a mile.

The smaller two-sheet map,* on a scale of sixteen miles to an inch, indicates the relative position of Victoria in reference to the capital cities of the adjacent colonies of New South Wales, South Australia, and Tasmania.

The portions of territory colored on the map, showing the alienation of land, indicate the localities where the population is chiefly concentrated, engaged either in mining, agricultural, or urban pursuits.

The photograph of the model of the colony* will give a better general idea of the configuration of Victoria than can be afforded by any map produced from a plane surface.

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* Not forming portion of this work but transmitted therewith.

Section B.—HARBORS, ROADSTEADS, AND LANDING PLACES.

[*The following information has been furnished by Capt. C. B. Payne, Chief Harbormaster of Victoria.*]

PORT PHILLIP.

1. *Size.*—Exclusive of Hobson's Bay and Geelong Bay, the size of Port Phillip is 30 miles north and south by 25 miles east and west.

2. *Anchorage.*—Can be obtained either in the channels leading to bay or in the bay itself. West Channel limited to draught of 17 feet; South Channel, 22 feet; general depth over bay, 6 to 13 fathoms.

3. *Safety.*—Good holding ground.

4. *Prevailing winds.*—Spring (September to November): northerly, 52·7 per cent.; southerly, 46·3 per cent. Summer (December to February): northerly, 28·5 per cent.; southerly, 70·6 per cent. Autumn (March to May): northerly, 45·9 per cent.; southerly, 52·7 per cent. Winter (June to August): northerly, 76·9 per cent.; southerly, 22·1 per cent.

5. *Currents.*—Regular tides.

6. *Surf.*—None.

7. *Rocks.*—At entrance of port:—Lonsdale, with 18 feet over it at low water; Corsair, with 8 feet over it at low water; Lightning, with 18 feet over it at low water.

8. *Shoals.*—The whole of southern portion of bay from St. Leonard's to Arthur's Seat. *Vide* Chart of Port Phillip.

9. *If surveyed.*—Yes.

10. *Length of available seaboard.*—About 80 miles.

11. *Its nature.*—Generally sandy beach, with exception of about 10 miles from Martha Point to Davy Point, which is rocky.

12. *Whether commanded, defended, or defensible.*—It is commanded; a portion only defended, but is defensible.

13. *Character of immediate neighboring country.*—On the east side from Nepean to Arthur's Seat, broken, sandy, and scrub; Arthur's Seat to Frankston, hilly and timbered; thence to Melbourne, level, sandy, and scrub; Melbourne to Werribee, level grassy plains; Point Richards to St. Leonard's, open cultivated land; St. Leonard's to Point Lonsdale, scrub.

14. *Communications leading through it inland from landing places.*—Roads and telegraph communication, Geelong and Melbourne.

15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—The number and class of boats available for receiving troops and landing guns and stores are small. Steamboats capable of being fitted as gunboats and for towing purposes always available, but any deficiency can be made good from resources always at hand at Melbourne and Geelong.

MELBOURNE.

1. *Size.*—About 9 square miles of bay anchorage, and a river (Yarra), having a depth of 14 feet 6 inches at high water spring tides, to the Melbourne wharfs.

2. *Anchorage.*—Good ; sand, soft mud, and clay.

3. *Safety.*—Good holding ground.

4. *Prevailing winds.*—See Port Phillip Bay.

5. *Currents.*—Regular tides.

6. *Surf.*—None.

7. *Rocks.*—None.

8. *Shoals.*—The St. Kilda bank shoal runs out about a mile and a half; but there is a fairway into Hobson's Bay of six cables' length, averaging over 20 feet at low water.

9. *If surveyed.*—Yes.

10. *Length of available seaboard.*—Seven miles.

11. *Its nature.*—Principally sand.

12. *Whether commanded, defended, or defensible.*—Partially, and is defensible.

13. *Character of immediate neighboring country.*—All inhabited and cleared.

14. *Communications leading through it inland from landing places.* —By rail and vehicles, and telegraph.

15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—Embarkation easy.

GEELONG.

1. *Size.*—Inner bay, six miles long by two and a half miles wide ; outer harbor, six miles long by two and a half miles wide.

2. *Anchorage.*—Good ; sand and clay.

3. *Safety.*—Good holding ground.

4. *Prevailing winds.*—See Port Phillip.

5. *Currents.*—Regular tides.

6. *Surf.*—None.

7. *Rocks.*—None.

8. *Shoals.*—Sandbank between Pt. Henry and Pt. Lilias, and dividing the outer from the inner harbor.

9. *If surveyed.*—Yes.

10. *Length of available seaboard.*—Twelve miles.

11. *Its nature.*—Generally sandy beach.

12. *Whether commanded, defended, or defensible.*—Defensible ; but no works of any importance have yet been constructed. The inner bay is approached by an artificial channel of about a mile in length ; depth, 18 feet at low water, 21 feet at high water springs.

13. *Character of immediate neighboring country.*—Agricultural land cleared, table land.

14. *Communications leading through it inland from landing places.* —Rail ; also good roads, and telegraph.

15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—Embarkation and disembarkation at all times easy.

BELFAST.

1. *Size.*—About one square mile.
2. *Anchorage.*—Open roadstead, sandy bottom.
3. *Safety.*—Fair holding ground; open from south to east.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—Regular tides.
6. *Surf.*—Heavy, with southerly winds.
7. *Rocks.*—Rocky patches to the southward of the anchorage off Griffiths' Island.
8. *Shoals.*—None. See 7.
9. *If surveyed.*—Yes.
10. *Length of available seaboard.*—About four miles.
11. *Its nature.*—Sandy beach; a few rocks near east end of Griffiths' Island.
12. *Whether commanded, defended, or defensible.*—Defensible; but no works of any kind erected at present.
13. *Character of immediate neighboring country.*—Agricultural, and sandy downs.
14. *Communications leading through it inland from landing places.*—Good roads, and telegraph.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—In fine weather may be landed anywhere on the beach, inside the bay.

WARRNAMBOOL.

1. *Size.*—The anchorage is about half a mile square.
2. *Anchorage.*—Open roadstead, protected by reefs to the southward and westward.
3. *Safety.*—Good holding ground.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—Regular tides.
6. *Surf.*—Heavy, during southerly gales.
7. *Rocks.*—Rocks to the southward and westward, forming natural breakwater between west and south.
8. *Shoals.*—Banks to the northward and eastward.
9. *If surveyed.*—Yes.
10. *Length of available seaboard.*—Three miles.
11. *Its nature.*—Sandy beach.
12. *Whether commanded, defended, or defensible.*—Not defended, but is defensible.
13. *Character of immediate neighboring country.*—Rich agricultural table land and undulating downs.
14. *Communications leading through it inland from landing places.*—Good roads, and telegraph.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—Troops can be landed anywhere in fine weather; in bad weather at the jetty.

PORTLAND.

1. *Size.*—About one square mile.
2. *Anchorage.*—Good.
3. *Safety.*—Good holding ground. Safe except in strong south-easterly gales.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—Regular tides.
6. *Surf.*—Heavy, during easterly gales.
7. *Rocks.*—Laurence rocks lie about a mile from the shore, off Danger Point.
8. *Shoals.*—Small shoal with six feet over it, off Whaler's Point.
9. *If surveyed.*—Yes.
10. *Length of available seaboard.*—Ten miles.
11. *Its nature.*—Sandy hummocks to northward ; rocky to southward.
12. *Whether commanded, defended, or defensible.*—Commanded, and readily defended.
13. *Character of immediate neighboring country.*—Agricultural land and timbered country.
14. *Communications leading through it inland from landing places.*—Roads and telegraph ; railway constructed to Melbourne and interior.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—May be landed anywhere in fine weather except in strong south-east or easterly winds.

WESTERN PORT.

1. *Size.*—The inlet or bay is about 30 miles in extent from eastern to western entrance.
2. *Anchorage.*—Good.
3. *Safety.*—Perfectly landlocked.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—Regular tides.
6. *Surf.*—None.
7. *Rocks.*—None.
8. *Shoals.*—Full of mud flats. Navigable channel seven fathoms deep.
9. *If surveyed.*—Yes.
10. *Length of available seaboard.*—About 120 miles.
11. *Its nature.*—Grazing and swampy lands.
12. *Whether commanded, defended, or defensible.*—Channels defensible.
13. *Character of immediate neighboring country.*—Agricultural and grazing land ; swampy beaches.
14. *Communications leading through it inland from landing places.*—Roadway to Melbourne ; no rail communication ; telegraphic communication from Flinders.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—May be landed and embarked in any weather.

CORNER INLET.

1. *Size.*—A large sheet of water full of mud flats, intersected with channels having three fathoms of water.
2. *Anchorage.*—Good inside the inlet.
3. *Safety.*—Perfectly safe.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—Regular tides.
6. *Surf.*—None
7. *Rocks.*—None.
8. *Shoals.*—Mud flats of large extent.
9. *If surveyed.*—Yes.
10. *Length of available seaboard.*—Between 60 and 70 miles.
11. *Its nature.*—Low swampy land with mangroves on east side; west, hilly and grassy.
12. *Whether commanded, defended, or defensible.*—Not defended.
13. *Character of immediate neighboring country.*—Grazing country.
14. *Communications leading through it inland from landing places.*—Roads, and indifferent telegraph from Stockyard Creek.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—May be landed in parts where the flats do not exist.

PORT ALBERT.

1. *Size.*—Bar harbor of small extent, available only for vessels drawing seven to eight feet of water.
2. *Anchorage.*—None, except inside bars in Albert River.
3. *Safety.*—An unsafe and shifting bar at entrance, and very exposed.
4. *Prevailing winds.*—See Port Phillip.
5. *Currents.*—None ; regular tides.
6. *Surf.*—Heavy on the bars.
7. *Rocks.*—None.
8. *Shoals.*—Large shifting sandbanks at the entrance.
9. *If surveyed.*—Yes.
10 and 11. *Length and nature of available seaboard.*—None.
12. *Whether commanded, defended, or defensible.*—Not defended.
13. *Character of immediate neighboring country.*—Low swampy land.
14. *Communications leading through it inland from landing places.*—Roads, and telegraph.
15. *Other details affecting embarkation and disembarkation of troops and stores in presence and absence of enemy.*—Easy inside the harbor.

[*The following memorandum has been supplied by Commander Stanley, R.N., Admiralty Surveyor.*]

Coast surveys.

The whole of the outer coast of Victoria has been surveyed, and the surveys are all in the possession of the Admiralty. The names of the

various published charts, including harbors, bays, inlets, &c., are as follow:—

1. Glenelg River to Cape Otway.
2. Portland Bay.
3. Port Fairy.
4. Lady Bay and Warrnambool Harbor.
6. Bass' Strait, having plans of Refuge Cove and other places (two sheets).
7. Bass' Strait Anchorages, Apollo and Loutitt Bays, &c.
8. Port Phillip.
9. Port Phillip Entrance.
10. Hobson's Bay and River Yarra.
11. Geelong Harbor.
12. Western Port.
13. Wilson's Promontory, with Corner Inlet and Port Albert.
14. Bass' Strait to Gabo Island.

Waratah Bay has been surveyed, so also has Venus Bay near Anderson Inlet, but these places have not yet been deemed worthy of separate publication.

Section C.—COMMUNICATIONS.

(A.) ROADS AND TRACKS.

[*The following paper has been supplied by Mr. A. J. Skene, Surveyor-General of Victoria.*]

Roads from Portland, Belfast, and Warrnambool to Melbourne.

PRESUMING that an attack was meditated on the metropolis of Victoria, the expeditionary force might possibly be landed at three points to the westward of Cape Otway, viz., Portland Bay, Belfast, or Warrnambool, the two latter ports being distant from Portland Bay forty-five and sixty-three miles respectively to the eastward. The main road connecting the ports runs parallel with the coast line from Portland to Narrawong, along the immediate beach ten miles, where the Surry River is crossed by a wooden bridge; at fourteen miles and at fifteen miles two small watercourses are crossed by wooden bridges—in the former only a small supply of water, but the latter (Darlot's Creek) a fine perennial stream; the mile that intervenes between these streams passes over a very rough volcanic formation, which would be difficult of passage except along the cleared road. Up to this point the country is clear of timber, open, and sound; on crossing Darlot's Creek the track passes through timbered country, gradually becoming more open as the Eumerella River is approached; the bridge (wooden) over this stream is distant from Portland twenty-five miles. The passage of this river would interpose some difficulties if the bridge were removed, as its banks are swampy and the bed soft and treacherous. Up to this point the road has been but partially formed. From the Eumerella to Belfast, a distance of twenty miles, the road is cleared and macadamized, passing over quite clear country, crossing the Shaw River, by a wooden bridge, about midway. This stream affords an abundant supply of fresh water, but would be crossed without difficulty at any point over half a mile above the bridge. A small hamlet (Yambuk) is situated on the left bank of the stream, and there is a considerable quantity of land under cultivation in the neighborhood. Between Yambuk and Belfast there is a morass, ten chains in width, crossed by a causeway; between the causeway and the sea there is no practicable passage, but the swamp may be turned by making a detour to the northward of about four miles—during the winter months the ground would be rotten. The distance between Belfast and Warrnambool is eighteen miles, covered by an excellent macadamized road, over level and gently undulating country, the greater part of which is under cultivation. The Moyne River, which falls into the harbor of Belfast, is spanned near the mouth by a wooden bridge leading to the line of sand hummocks that fringe the coast between Port Fairy and Warrnambool. This line of connection between the two ports is but seldom used, as the road is unmade and heavy on account of the loose sandy nature of the soil. The main road crosses the Moyne by a wooden bridge, about three miles from the township, near a natural rocky ford, the steep earthen banks overlooking which could with little trouble be made passable. Within two miles of Warrnambool this road crosses another wide and deep stream (the Merri River) by a wooden bridge. The removal of this bridge would cause a serious impediment were it not

that, at a distance of four miles up stream, there is another bridge (wooden) where the stream is quite narrowed, and where but little difficulty would be experienced in making a temporary crossing. From Warrnambool towards Geelong and Melbourne many routes may be taken, so I shall proceed to describe them, taking first in order the most southerly, and premising that there is no practicable route between that line and the coast.

This southern line is macadamized along its entire course, and has hitherto formed the main line of communication from Geelong, being at the same time the line of telegraphic communication from the metropolis to Portland ; its general bearing is about a point to the north of east.

Leaving Warrnambool the River Hopkins may be crossed by a wooden bridge, about half a mile above its confluence with the sea, or, following a more direct line parallel with and on the north side of the river, which for five miles runs close along the coast, by another bridge (wooden) at Allansford. This ford could be made passable during the summer season with little trouble. Between Warrnambool and Allansford, and for a few miles to the eastward, the country is under cultivation. At fourteen miles the Mount Emu Creek is crossed by a wooden bridge at Panmure, near a natural ford available for traffic during the dry season. About midway between these two points there is a deep narrow stream (Brucknell Creek) spanned by a wooden bridge. This creek might be readily crossed by temporary contrivance, there being abundance of fine timber along the banks, or the difficulty might be overcome in the summer season by crossing the Hopkins at the basaltic bar which forms the Hopkins Falls. That this is practicable I proved in 1848, by taking my survey equipment and dray by that route, before any bridges were constructed in this part of the colony. Leaving Panmure the road passes through undulating forest till the township of Terang, situated on Lake Terang, is reached at twenty-seven miles, the country being occupied almost entirely for grazing purposes ; about midway between these two points a swampy creek is crossed by a wooden bridge, but the swampy ground may be evaded by passing about a mile to the south, where there is a rocky passage across the creek, flanked by rather steep banks down which a practicable passage might be cut. Around Terang there is a small extent of cultivation but very extensive cattle stations.

This lake is situated on the western margin of the Great Western Volcanic Plain that stretches eastward to Winchelsea, on the Barwon, and northward to the Great Dividing Range which forms the watershed between the streams that fall directly into the Southern Ocean and the great basin of the Murray River. Except where otherwise noted the road onward to Winchelsea skirts the southern edge of this great plain. Proceeding from Terang the road passes through some very open timber to the bridge (wooden) across Mount Emu Creek, a stream somewhat difficult of passage owing to soft and treacherous character of its banks and bed. There is another wooden bridge across this stream, about four miles up stream, where passage is somewhat less difficult, but to the south of the road the river is an effectual bar. At forty miles Camperdown is reached, a thriving inland township, where there is a considerable extent of cultivation, and extensive cattle and sheep farms. East and north-east of this township lies the great salt lake Corangamite, which must be rounded either on the south or north. This lake is sixteen miles in length, N. and S., with an average width of about five miles, and its waters are intensely salt. Keeping along the southern road, at forty-

seven miles a belt of rough volcanic country is traversed for a distance of ten miles, where it would be almost impracticable to diverge from the macadamized road, the country on either side being intersected by steep stony barriers. It was not till after many months of patient reconnoissance that, in 1848, I was enabled to trace out a practicable line of road through this rugged and stony patch of lava formation. On emerging from this stony country, which is also thinly timbered with dwarfish trees, the Pirron Yalloak Creek is reached at fifty-eight miles; this creek falls into Corangamite about two miles below the wooden bridge that spans the little creek; here there is a continuous supply of fresh water, unless in exceptionally dry seasons. There is no possibility of evading the ten-mile belt of stones, as it extends northward to the waters of the lake and southward into dense forest trackless country. Passing over a narrow belt of timber and some slightly undulating country the township of Colac is reached, situated on the south end of Lake Colac, an oval sheet of fresh water five miles in length and about three and a half in width, the distance from Warrnambool being sixty-eight miles. A considerable population is settled here whose attention is devoted to agricultural and pastoral pursuits; and from this point to Melbourne railway communication will be completed, *viâ* Geelong, in a few weeks. From Colac to Birregurra Creek the distance is ten miles, skirting the edge of the Cape Otway Forest; and thence across a bay of the Great Western Plain the road leads to Winchelsea, situated on the Barwon River, the entire distance from Colac being twenty-two miles. At Birregurra an alternative road is open to Winchelsea, by crossing the Barwon at the first-mentioned place and following its right bank down to the last-named. This road, however, is not so well formed, and it has to cross a deep narrow valley known as Wormbete. At Winchelsea the river is spanned by a stone bridge, on the upper side of which there is a rocky ford, with steep banks on the east side, to surmount which some time would be consumed.

From Winchelsea to Geelong the distance is twenty-two miles, the first five miles being along the edge of the great plain; then a volcanic plateau of some sixty feet is ascended, which extends to the base of Mount Moriac, the western extremity of the Barrabool Hills, across the undulations of which the road runs till reaching a lateral branch of the Waurn chain of ponds it dips into and follows the course of that valley downwards till within a mile and a half of the Barwon. On the Barrabool Hills a large extent of land is under cultivation, and where not cleared and cultivated the forest is very open. The River Barwon at Geelong may be crossed at three points within a distance of two and a half miles—the central point being opposite the town, where an expansive iron bridge is constructed; another up the river about a mile, at Fyan's Corner, the structure being of wood; and the third point at the Breakwater, where a stone causeway has been thrown across the stream to stop the upward flow of the tidal waters.

The distance from Geelong to Melbourne by road may be taken at forty-eight miles; the open plain that stretches between these points is intersected by six streams, which, as a rule, the road crosses at the lowest practicable spot in their course to Port Phillip Bay. All these streams are bridged, but no difficulty would be experienced in crossing them at many points above the sites of the existing bridges, there being numerous natural fords quite practicable, except in seasons of flood.

Starting again from Portland, if it were deemed inexpedient to follow the coast road leading first to Belfast and Warrnambool, the route would necessarily take the direction of Hamilton, in order to turn the extensive swamps that infest the lower course of the Eumerella River, the stones of Mount Eccles, the Condah Swamp, the stones of Mount Napier, and the Napier Swamp. The distance from Portland to Hamilton would be about sixty miles, and but little progress would up to that point be made in lessening the direct distance to Melbourne. The road is in many places unformed, and in moist weather heavy. This main road, as in the case of all the others in the same class, is closely followed by the railway in course of construction from Portland to Hamilton. From Hamilton to Dunkeld the main road is very heavy in winter, but limited portions of it having been formed up to the present time. From Dunkeld the main road skirts the southern side of a great bay of the Western Plain before referred to up to Wickliffe; it there strikes across the centre of that plain, passing through the small townships at Lake Bolac, Streatham, and Skipton, preserving a general eastward course towards Ballarat. At Skipton the main roads towards Ballarat and Geelong diverge. Avoiding the former as traversing an intricate and in places a thickly timbered country the main road to Geelong takes a south-easterly general direction, skirting the north-east edge of the Great Western Plain and passing through the townships of Pitfield and Rokewood, and then across the north-east bay of that plain, reaches Shelford on the River Leigh. From Dunkeld up to this point there is little or no cultivation, and the distance is over 100 miles. The population is sparse, the country being entirely occupied for grazing purposes, the stock being almost exclusively sheep. The streams that are crossed are all bridged, but, as their sources are not far distant, the volume of water contained in their channels is insignificant; and no difficulty would be experienced in crossing them at any point on the general line of this road. Water can be obtained at convenient stages, but firewood is scarce. The Leigh, the Moorabool, and Sutherland's Creek, in cutting a passage for their waters through the elevated basaltic plateau, have left valleys ranging in width from forty to eighty chains, and these are overlooked on either side by abrupt banks rising to a height of 150 to 180 feet. No difficulty would, however, be experienced in crossing the actual channels of these streams. A good road leads from Shelford across the valleys by way of Teesdale, Wabdallah, and the junction of Sutherland's Creek with the Moorabool. On crossing this last stream entrance is gained to the basaltic plain that intervenes between Geelong and Melbourne, as more particularly described in the coast route.

In describing the southern coast route mention was made of a road branching to the northward from Camperdown. This road leads also towards Geelong, passing round the northern extremity of Lake Corangamite; but, used as a route towards Melbourne, would fall into the inner route last described at Shelford. But a small portion of this road has been metalled, and consequently in the winter season would prove heavy for draught cattle. The country is destitute of timber and badly watered, a supply being obtainable in any quantity only at the township of Cressy, distant from Camperdown twenty-eight miles and from Shelford twenty miles. The River Woady Yallock at this point of crossing is a fine broad and deep stream, but three-quarters of a mile down stream there is a natural ford quite practicable, except in times of flood.

Referring back to Skipton, on the interior route, where it was noted that a main road to Ballarat diverged, this route towards Melbourne may be described as macadamized through its whole course, but presents many features of difficulty from a point seven miles east of Skipton till the valley of the Woady Yallock is reached at Scarsdale. From this point to Ballarat and thence to Ballan, on the Werribee River, the road is good, and presents no peculiar difficulties. From Ballan to Bacchus Marsh (eastern extremity) the road passes through the Pentland Hills, where many obstacles might be raised to the passage of an expeditionary force. On emerging from Bacchus Marsh the road passes over a basaltic plateau clear of timber, but intersected by several deep and difficult ravines till Keilor, on the Saltwater River, is reached, a point but ten miles distant from Melbourne.

Of the several routes described, that along the southern line would likely be preferred, as stores and provisions in considerable quantity would be obtained at Warrnambool, Belfast, Terang, Camperdown, and Colac.

Along the interior route Hamilton is the only point at which provisions and stores would be obtainable in quantity. An expeditionary force, supported by cavalry, would be able along any of the routes mentioned to collect a sufficient supply of animal food.

The southern route is the more direct; the road in its entire length is quite equal to the strain that would be put on it by the passage of troops or artillery, and may be traversed without any assistance being depended upon in respect of existing bridges. A little delay might be caused in making suitable access to the natural fords by which the usual bridge crossings could be evaded. The general characteristic of the rivers and streams between Portland and Melbourne is that during the wet season, extending from June to October, a considerable body of water passes along their channels, sufficient to render the natural fords impracticable; during the remaining months of the year the streams are insignificant, and, in some instances, cease to flow, sufficient water however being obtainable from the numerous waterholes or deep depressions in the beds of the channels. At the several crossings of the streams mentioned and on the banks of the lakes suitable positions for camping will be found. From Cape Otway eastward to the entrance of Port Phillip Bay, there are no points that would present a favorable occasion for landing an expeditionary force.

Western Port Bay to Melbourne.

Apart from an attack delivered directly from the waters of Port Phillip Bay, Melbourne is specially assailable from the side of Western Port Bay. This bay would assure shelter in all weathers to the vessels conveying an expeditionary force; while the distance of the place of landing troops would not be more than thirty-five miles in a direct line from Melbourne; traversed by macadamized roads in excellent condition, with no engineering difficulties to interpose delay; the Dandenong Creek being situated about midway, and affording a good site for camping ground. Provisions and stock would be obtainable in considerable quantities in and around Cranbourne.

The routes described are indicated by color on the sheet of the general map of Victoria.*

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* Not forming portion of this work but sent herewith.

(B.) RAILWAYS.

[*The following information has been furnished by Mr. Thomas Higinbotham, C.E., Engineer-in-Chief of Victorian Railways.*]

RETURN I.—SHOWING THE MILEAGE OF RAILWAYS OPENED FOR TRAFFIC ON THE 31ST DECEMBER 1876. Length of lines.

Name of Line.	Double line of way.	Single line of way.
	Miles.	Miles.
Melbourne and River Murray Railway.		
First section, Melbourne to Sandhurst	100·25	
Second section, Sandhurst to Echuca	...	56·00
Williamstown Branch.		
From River Murray Line at Footscray junction (3 miles 40 chains from Melbourne)	6·20	
Geelong and Melbourne Line.		
From Williamstown branch, at 6·65 miles from Melbourne, to West Geelong junction (43·30 miles)	...	36·65
West Geelong junction to Geelong	1·85	
Geelong and Ballarat Line.		
West Geelong junction, at 1·85 miles from Geelong, to Ballarat	52·40	
Essendon Line and Racecourse Branch.		
From junction with River Murray Line, at 1·59 miles from Melbourne, to the Newmarket junction	1·11	
From this junction to Essendon	...	2·20
Racecourse branch, from Newmarket junction	1·50	
North-Eastern Line.		
From Essendon to the River Murray at Wodonga	...	181·98
Branch Line to Everton and Beechworth.		
From Wangaratta junction with the North-Eastern Line, at 145·50 miles from Melbourne, to Everton and Beechworth...	...	22·37
Castlemaine, Maryborough, and Dunolly Line.		
From Castlemaine (on first section of the River Murray Line), 78 miles from Melbourne, to Maryborough	...	34·00
From Maryborough to Dunolly	...	13·50
Ballarat and Ararat Line.		
Branching from Ballarat to Ararat	...	57·00
Ararat and Stawell Line.		
Branching from Ararat to Stawell	...	18·85
Ballarat and Maryborough Line.		
Branching from Ballarat to Maryborough	...	42·50
Sandhurst and Inglewood Line.		
Branching from Sandhurst to Inglewood	...	28·93
Maryborough and Avoca Line.		
Branching from Maryborough to Avoca	...	14·86
Geelong and Colac Line (Geelong to Winchelsea).		
Branching from Geelong towards Colac	...	25·75
Total	163·31	534·59

Total mileage (single and double line of way), 697·90 miles.

Return II.—Giving a Description in general terms of each Line opened for Traffic, 31st December 1876.

The gauge of the whole of the Government Railways in this colony is 5 feet 3 inches.

Name of Line.	Length.	Width of Formation.	Ruling Gradient.	Description of the Works.	Ballast.	Sleepers.	Permanent Rails, Fastenings, &c.	Average Speed of Passenger Trains, including stoppages.
	Miles.	Ft. ins.						
Melbourne and River Murray Railway (first section), from Melbourne to Sandhurst	100·25	33 0	1 in 50 The longest of this rate is 2½ miles.	Double line of way. The line crosses, at 58 miles from Melbourne, and at an altitude of 1,900 feet, the main dividing range which separates the Murray waters from the coast streams. The viaducts and bridges are of stone (bluestone or granite), or of stone and iron, and some of brick with granite or bluestone dressings. The station buildings are of brick or stone. Watering stations are 25 miles apart. There are two tunnels on this line, one at 71¾ miles from Melbourne, between Elphinstone and Castlemaine, 413 yards in length; and another at 93½ miles, between Castlemaine and Sandhurst, 417 yards in length.	Chiefly bluestone (basaltic), broken to 2" gauge; also natural gravel. Quantity used 5 cubic yards per lineal yard of railway	Colonial hardwood, chiefly of red gum, a very hard and durable timber. Size, 9′ × 10″ × 5″	Rails, double-headed, 80 lbs., fished joints, and chairs fastened to sleepers with iron pins (without fang bolts)	25 miles per hour
Melbourne and River Murray Railway (second section), from Sandhurst to Echuca	56·00	17 0	1 in 90	Single line of way. The bridges and culverts are of brick and iron. The station buildings are of brick	Natural gravel, 3 cubic yards per lineal yard of way	Red gum timber. Size, 9′ × 10″ × 5″	Rails, double-headed, 72 lbs. per lineal yard, and chairs attached to sleepers with iron pins (without fang bolts)	25 miles per hour
Williamstown Branch, from Footscray to Williamstown	6·20	33 0	1 in 139	Double line of way. The bridges have substantial abutments in masonry and wrought iron girders. At the port of Williamstown there are two piers for large vessels, giving a depth of from 22 to 25 feet of water at low water. The construction of a third similar pier is commenced. There are lines of way from the graving dock and patent slip. There are extensive workshops for the locomotive branch and for the dock	Broken bluestone metal	Red gum timber, sawn rectangular. Size, 9′ long × 10″ × 5″	Rails, double-headed iron, 80 lbs. per lineal yard, chairs 34 lbs. each, attached to sleepers with iron pins. Iron bridge rails, 63 lbs. per yard, are laid on the piers	20 miles per hour
Geelong and Melbourne Line	38·50	33 0	1 in 94	From the junction of the Williamstown line to West Geelong (the junction with the Ballarat line) 36·65 miles, the formation, the bridges, and culverts are constructed for double line, but there is only a single line of way laid. For 1·85 miles from the Geelong and Ballarat junction to Geelong, the double line of way is laid. The bridges and culverts are generally of stone, or brickwork, with wrought iron girders, but there are two river bridges, of 120 feet span, with laminated arches o deal	The line was originally ballasted with sand, but this is being replaced with bluestone metal	The renewals (now a large portion of the whole) are made with red gum sawn. 9′ × 10″ × 5″	Rails of the Vignoles pattern, 75 lbs. per yard, and double-headed rails, 72 lbs. per yard, are being replaced with double-headed iron rails, 72 lbs. per yard; chairs, 26 lbs. each, fastened with iron pins	25 miles per hour

Geelong and Ballarat Line	52·40	33 0	1 in 72 down, 1 in 52 up	Double line of way throughout. The viaducts and bridges, with abutments and piers of masonry, and iron girders. The largest viaduct has 10 openings of 130 feet each. The culverts are built of stone. The station buildings, platforms, &c., are of bluestone masonry	Crushed bluestone metal	Originally half round of the best gum of the locality; more than half of which are now replaced with red gum, brought 225 miles by train	Rails, double-headed iron, 80 lbs. per yard; chairs, 34 lbs. each. Treenails are now being replaced with iron pins	25 miles per hour
Essendon Line (from junction 1·59 miles from Melbourne), Racecourse branch	4·81	33 0 and 21 0	1 in 80	From North Melbourne junction to Newmarket junction (1·11 miles), and the Racecourse branch (1·50 miles), there is a double line of way, and from Newmarket to Essendon (2·20 miles), a single line. The bridges have abutments and piers of stone or brickwork, and wrought iron girders	Bluestone metal..	Red gum, sawn rectangular. 9′ × 10″ × 5″	Rails, double-headed iron, 75 lbs. per yard, with chairs 24 lbs. each, fastened with iron pins, excepting 1·11 miles of single way of 66-lbs. steel rails	20 miles per hour
North-Eastern Line, Essendon to Wodonga	181·98	20 6 for the first 60 miles, for the rest of the line it is 17 ft. in bank, and 18 6 in cutting	1 in 50 for the first 60 miles, 1 in 75 for the rest of the line	Single line of way except at stations. Slopes of banks generally 1½ to 1, and cuttings 1 to 1. The culverts are principally of brickwork; the bridges and viaducts have generally brick or stone piers and abutments, with wrought iron plate girders. The principal viaducts have cast iron columns for piers. The largest viaducts are:—that over the Goulburn, with 8 openings, 40 feet each, and 2 openings, 100 feet each; the Hughes' Creek viaduct, with 10 spans, 42 feet each; the Broken River viaduct, with 16 openings, 40 feet each, and 1 opening, 120 feet; the Ovens River viaduct with 14 spans, 40 feet each, and 1 opening, 120 feet; and Reid's Creek viaduct, 130 openings, 40 feet each	Natural gravel and quartz tailings; also sandstone and bluestone in some parts. Depth of ballast is 13½ inches, 10 inches of which is under the sleepers	Red gum. 9′ × 10″ × 5″	Rails of Vignoles pattern, steel, 66 lbs. per yard for the first 116 miles, the remainder is laid with 75-lbs. iron rails	20 to 25 miles per hour
Branch Line to Everton and Beechworth	22·37	16 6	1 in 30	Single line of way except at stations. Slopes of banks are 1½ to 1, of cuttings 1 to 1. The viaducts and bridges are of wood, the culverts of wood and brick. The principal viaduct is Reid's Creek viaduct, having 20 openings, 15 feet each	Natural gravel and quartz tailings, laid 11½ inches deep, of which 8 inches is under the sleepers	Red gum and other colonial hardwood timber. Size, 8′ 6″ × 9″ × 4½″	Rails, iron, 60 lbs. per yard, Vignoles pattern	18 miles per hour
Castlemaine, Maryborough, and Dunolly Line	47·50	16 6	1 in 40	Single line. The bridges and larger culverts are of colonial hardwood timber; the smaller culverts are of brick. The station buildings and platforms are of brickwork	Natural gravel and tailings from miners puddling machines. 1 cube yard per lineal yard of way	Chiefly of red gum. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern. 50 lbs. per yard, fastened to the sleepers with dogspikes and pins	20 miles per hour
Ballarat and Ararat Line	57·00	16 6	1 in 50	Single line. The bridges and larger culverts are of timber, chiefly red gum; the smaller culverts are of brick or masonry	Quartz tailings from puddling machines chiefly, also natural gravel	Of red gum, sawn rectangular. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 50 lbs. per yard, fastened to sleepers with dogspikes and pins	20 miles per hour
Ararat and Stawell Line	18·85	16 6	1 in 50	Single line. The bridges and larger culverts are of red gum timber; the smaller culverts are of brick, with concrete foundations	Quartz tailings from puddling machines, and natural gravel	Of red gum, sawn rectangular. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 50 lbs. per yard, fastened to sleepers with dogspikes and pins	20 miles per hour

RETURN II.—GIVING A DESCRIPTION IN GENERAL TERMS OF EACH LINE OPENED FOR TRAFFIC, ETC., 1876.—*continued.*

The gauge of the whole of the Government Railways in this colony is 5 feet 3 inches.

Name of Line.	Length.	Width of Formation.	Ruling Gradient.	Description of the Works.	Ballast.	Sleepers.	Permanent Rails, Fastenings, &c.	Average Speed of Passenger Trains, including stoppages.
	Miles.	Ft. ins.						
Ballarat and Maryborough Line	42·50	16 6	1 in 40	Single line. There is one bridge, with cast iron cylinder piers and abutments, with wrought iron girders; and another is of brick. The other bridges and large culverts are chiefly of red gum timber. The smaller culverts are of brick	Quartz tailings as above	Of red gum, sawn rectangular. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 50 lbs. per yard, fastened to sleepers with dogspikes and pins	20 miles per hour
Sandhurst and Inglewood Line	28·93	16 6	1 in 40	Single line. The principal bridge is that across the River Loddon, at Bridgewater, it is constructed of ashlar abutments and piers, and wrought iron girders. The other bridges and the larger culverts are of red gum or ironbark timber, the smaller culverts are of brick	Quartz tailings from puddling machines, and natural gravel	Of red gum and ironbark. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 50 lbs. per yard (except at the terminals, where they are 60 lbs. per yard), fastened to sleepers with dogspikes and pins	20 miles per hour
Maryborough and Avoca Line	14·86	16 6	1 in 40	Single line. The principal bridges and larger culverts are of red gum or ironbark timber; the smaller culverts are of brick, with concrete foundations	Quartz tailings from puddling machines, and natural gravel	Of red gum and iron bark. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 50 lbs. per yard (except at the terminals, where they are 60 lbs.) fastened to sleepers with dogs and iron pins	20 miles per hour
Geelong to Colac, completed to Winchelsea	25·75	16 6	1 in 50	Single line. The principal bridges and smaller culverts are of red gum or other hardwood timber; the larger culverts are of brick. There is a tunnel under a portion of the town of Geelong, 462 yards in length, lined with brick	Natural gravel and broken bluestone	Of red gum and other hardwood. 8′ 6″ × 9″ × 4½″	Rails, iron, Vignoles pattern, 75 lbs. per yard for first five miles, the remainder, 60 lbs, fastened to sleepers with dogs and iron pins	20 miles per hour

GENERAL REMARKS.

The gauge on all the lines is 5 feet 3 inches. The joints of the rails of the permanent way are fished on all the lines. The fences on all the lines are of split hardwood post and rails, and wires, generally; but there are dry rubble walls where stone is easily obtained. English elm compressed creosoted keys are preferred to any others.

The single lines of railway are worked on the "Staff" system. The "Block" system has not been introduced on any of the Victorian railways.

The Electric Telegraph is carried along all the older lines of railway, and is being brought on to those on which it is not already as quickly as arrangements can be made for shifting it from the existing routes, which are generally parallel with, and not far from, the lines of railway.

All the principal, and many of the roadside, railway stations are in telegraphic communication with the Melbourne terminus, and with each other.

RETURN III.—SHOWING THE MILEAGE OF RAILWAYS UNDER CONSTRUCTION AT THE 31ST DECEMBER 1876. Length of lines under construction.

Name of Line.	Length.	Weight of Rails.	Remarks.
	Miles.	Lbs.	
Ararat to Hamilton...	66·00	60	These railways are authorized by Parliament, and in progress of construction. The gauge of the line is, in all cases, 5 ft. 3 in.; the rails are of iron of the Vignoles pattern, and of the weight shown for each line. On the Geelong to Colac line the rails are 75 lbs. per yard for five miles out of Geelong, so that heavy engines may be used for the race traffic. All these railways have single lines of way.
Portland to Hamilton	53·00	60	
Geelong (Winchelsea) to Colac	24·49	75 & 60	
Oakleigh to Sale (Gippsland line) ...	118·28	60	
Total ...	261·77		

RETURN IV.—SHOWING APPROXIMATELY THE AVAILABLE SIDING ACCOMMODATION AT EACH PRINCIPAL STATION ON THE LINES OPENED FOR TRAFFIC, AND THE PROPOSED SIDING ACCOMMODATION ON THE LINES UNDER CONSTRUCTION. Siding accommodation.

At the Melbourne terminus	15,000	yards.
„ Williamstown station, including piers and docks	9,000	„
„ Geelong station	800	„
„ Ballarat station	2,000	„
„ Ararat station	1,000	„
„ Stawell station	1,250	„
„ Castlemaine station	1,400	„
„ Sandhurst station	3,400	„
„ Echuca station	3,200	„
„ Maryborough station	2,150	„
„ Dunolly station	500	„
„ Avoca station	700	„
„ Inglewood station	900	„
„ Wodonga station	800	„
„ Hamilton station will be	1,300	„
„ Portland station will be	900	„
„ Sale station will be	700	„
The available siding accommodation at the roadside stations on the double lines is about	420	„
And on the single lines about	300	„

Rolling-stock.

Return V.—List of Rolling-stock on the Victorian Railways at 30th June 1876.

Locomotives.		Carriages.						Wagons.							Vans.				Horse Boxes.	Carriage Trucks.
Goods.	Passenger.	State.	First Class.	Second Class.	Second Class, with Brakes.	Third Class.	Composite.	Low-sided and Ballast.	Double Bogie.	Hopper, Coal.	High-sided covered.	Medium.	Cattle.	Sheep.	Brake.	Mail.	Powder.	Hearse.		
63	58	1	62	94	6	2	40	422	13	40	679	651	50	125	80	8	11	1	26	23

List of Rolling-stock Ordered and in course of Construction at 30th June 1876.

...	12	...	5	...	...	...	...	...	...	...	100	55	...	...	10	...	...	...	...	...

General observations on railways.

General Observations.

The total length of railway now open for traffic is ... 697·90 miles.
The total length of railway under construction is ... 261·97 „

Making together ... ... 959·87 miles,

the whole of which it is expected will be open for traffic by the middle of 1878.

The railways constructed are shown by a firm "red" line, and those in course of construction by a dotted "red" line on the accompanying map of Victoria, marked No. 1.

In addition to the railways constructed or in course of construction preliminary surveys have been made of upwards of 900 miles of lines, which have not yet been dealt with by the Legislature. These lines are shown upon the map of Victoria, marked No. 2, by "blue" lines.

On the map marked No. 3, embracing the city of Melbourne and town of Geelong, with Port Phillip Bay, the State railways are shown by "red," and those of the Melbourne and Hobson's Bay United Railway Company, which are the only other railways in Victoria, by "brown" colors respectively.

The Melbourne and Hobson's Bay United Company has nearly nineteen miles of lines, which accommodate the principal suburbs on the south side of the city of Melbourne, and also connect it with the shipping in Hobson's Bay by means of a pier which the company built at Sandridge.

There is no connection between the railways of the Hobson's Bay Company and those of the State.

There is also no present connection between the Oakleigh and Sale railway, now in course of construction by the Government, and the general terminus of the State railways, on the western side of the city of Melbourne.

Many schemes for effecting this junction have been considered, but as yet no determination has been arrived at.

(C.) RIVERS AND CANALS.

[*The following paragraphs are by the Editor.*]

Rivers. The Murray forms the northern boundary of Victoria, and flows past its territory for a distance of 670 miles, along the whole of which it is navigable for a great portion of the year. The only other streams navigable for vessels are the Yarra Yarra, and that only for the short distance (about seven and three-quarter miles) between Hobson's Bay and Melbourne, the Goulburn, which empties itself into the Murray, and one or two Gippsland rivers which discharge their waters into lakes, to which there is a sea entrance liable to be closed at intervals. (For further information respecting Victorian rivers *see* Section A. *ante.*)

Canals. There are no canals in Victoria.

(D.) TELEGRAPHS AND MAIL SERVICES.

Telegraphs, mails, &c. The Honorable the Postmaster-General forwards two maps,* the one map showing the telegraph lines and stations, the course of each line, the number of miles of line, and the number of miles of wire erected, &c.; and the other showing the various mail roads. He also forwards his report on the Post and Telegraph Department for 1875,* which shows the frequencies of the mail services and details of their working, &c. No material change has been made in the mail services since the date of that report.

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* Not forming portion of this work but sent therewith.

Section D.—TOWNS.

[*By Colonel W. A. D. Anderson, Commanding H. M. Forces in Victoria.*]

Towns. In reporting on this subject, it seems useless to consider towns other than those of value in connection with the defence of the capital, Melbourne.

The towns of the interior are safe, unless Melbourne were first occupied; and such the case, they would only be of value in a long struggle against a permanent occupation.

It will facilitate explanation to consider the several places in order as they occur on the coast, from the narrow entrance to the inland sea, termed Port Phillip, following the western shore up to Melbourne, and from thence the eastern shore as far as St. Kilda and Brighton.

Queenscliff. Queenscliff is situated on an elevated cliff at the narrowest part of the entrance to Port Phillip, opposite Point Nepean on the eastern shore, from which it is distant 4000 yards, and occupies a commanding position.

The difficulties of approaching this place by sea and the advantages offered by its natural features for defence are such that it may be regarded as certain that any hostile ships would run past it without attempting in its vicinity to effect a landing.

Other than a small work standing at the brink of the cliff, and forming part (the inner and left flank) of a proposed plan of defensive batteries, which has been recommended to be ultimately constructed at this spot, there at present exist no fortifications.

The population consists (exclusive of visitors, who resort to Queenscliff as a watering place) of fishermen, men in the pilot and customs departments, &c., most of whom are enrolled and trained as artillerymen (volunteers).

Queenscliff is not approachable by boats on the seaward side, but has a pier and good anchorage for ships under the lee of the cliff and immediately under its command. The present works and any which may be added are dominated by the lighthouse tower, a narrow round column of much strength, loopholed and arranged for defence. Queenscliff, properly armed and with a fire crossing from opposite and other points, would exercise at least a very deterrent effect on a hostile fleet, both as to entering and from considerations connected with a possible repulse. A ship disabled in steering or propelling power at the Heads would become a wreck to a certainty from the rapid current and dangerous navigation.

Distances.—By water to Melbourne, ships drawing over 18 feet—by South Channel ... ... 39 miles.
Ships drawing under 18 feet—by West Channel 26½ „
By water, to Geelong ... ... 30½ „
By land, to Geelong ... ... 23 „

N.B.—Railways, none, but contemplated. Telegraphic communication with all towns. Road, good and practicable for all arms.

Geelong. The town of Geelong, to which Queenscliff is connected by a road twenty-three miles in length, passable at all seasons for troops of all arms, stands at the head of Corio Bay, at the termination of a harbor commanded

from land at every point by positions suitable for defence. This harbor is sufficiently large to contain the whole fleet of merchant shipping which trades with Victoria. Its access from the outer waters of Port Phillip is by a short tortuous channel running between sand banks, and on both sides commanded by land positions. So easy to make secure do I consider this harbor, that should foreign aggression during my command be threatened, I should without hesitation cause all merchant vessels in the waters of Port Phillip to be placed therein.

The town itself possesses no fortifications, but presents features which afford every facility for resisting attack from sea and land.

Geelong is connected by rail and road both with the metropolis and with the inland city of Ballarat (the centre of a large district). The single line of railway and the road which connect Geelong with Melbourne traverse throughout their whole extent open and perfectly level plains, and until reaching Williamstown, nine miles (by land) from the capital, pass through no towns or defensible positions. Interruption could be caused by destruction of bridges over two intersecting rivers, narrow but seldom fordable.

Distances.—By land, to Melbourne ... ... 45 miles.
By land, to Ballarat ... ... 55 „
By water, to Melbourne ... ... 33 „

N.B.—Railways, single line to Melbourne; double line to Ballarat. Telegraph, to all towns. Road, good and practicable for all arms.

Williamstown.

Williamstown is without doubt to be regarded as the key to Hobson's Bay (the indentation from Port Phillip, on which is situated the capital and its suburbs), standing as it does on a salient point on the western shore thereof at its juncture with the wider waters of Port Phillip. The works it now possesses are obsolete in armament and are dangerously encumbered by the work-shops and sheds of the Government railways.

Large ships moving to an attack on Melbourne must pass within range of and engage these batteries.

The town itself affords few advantages for defence, and its safety must ultimately be provided for by artificial means. Its importance, as connected with the security of the capital, a glance at the map will show.

Williamstown affords a force of 150 Volunteer artillerymen and a similar number of the Naval Reserve, but would be strongly reinforced in case of war.

Distances.—By water, to Sandridge ... ... $1\frac{5}{6}$ miles.
By land, to Melbourne, by outer road ... 9 „
By ferry to Sandridge ... ... 5 „

N.B.—Railways, complete; telegraph, to all towns; road, practicable for all arms.

Melbourne.

Melbourne does not stand on the shores of Hobson's Bay, but on the banks of the river Yarra, and is distant two miles from the nearest point of the Bay; but is so connected with its suburbs, that it may practically be considered as encircling the whole inlet, from Williamstown on the west to St. Kilda on the east shore thereof.

Melbourne is in every respect badly situated for purposes of defence, and, in the event of a naval attack, its security must entirely depend, failing an outer line of defence, upon the success of the forces defending Hobson's Bay; and, in the event of a land attack, from that of the forces covering it on either flank.

The present remarks having reference to the strategical value of towns only, it is now necessary to pass on to the eastern positions.

Emerald Hill and Sandridge.

The towns (or suburbs) of Emerald Hill and Sandridge take up the eastern line from Melbourne to St. Kilda, a distance of two miles, in which are the positions crossing the fire from the opposite or Williamstown shore. These positions are valuable to the extent that working at long ranges the water is too shoal to allow them being severely menaced or enfiladed, whilst the nature of the ground (sandy hummocks) favors defence.

Emerald Hill and Sandridge furnish a large proportion of Volunteer Artillery and Naval Reserve.

Sandridge possesses no facilities for defence. Emerald Hill would afford a good position against a direct attack on Melbourne, by forces approaching from the base of Hobson's Bay; but unfortunately is directly under the covering shelling power, without which no such attack could be at this point attempted.

St. Kilda and Brighton.

St. Kilda, three miles distant from Melbourne proper, and the foreshore up to Brighton, six miles beyond (both towns resting on the Bay), abound in strong positions, lines at right angles to the shore intersecting all roads by which troops landed either at the inlet from the main ocean called Western Port, or the eastern shores of Port Phillip, could approach the city.

Camping Grounds, Food, Forage, Materials, Transport, etc.

Camping grounds.—In the neighborhood of all the coast towns to which allusion has been made are to be found every facility for the purposes of encampment.

Food, forage, transport, &c.—Supplies of food, water, forage, fuel, straw, wheel carriage, and other means of transport, being everywhere abundant, it would be superfluous to enter at length into the several details.

Material.—If by the word "material" be meant munitions of war, Victoria is dependant upon supplies from England.

Population and Hospitals.

Population.—The following is the population (approximately) of the towns reported upon*:—

Town.	Population.
Queenscliff	1000
Geelong	15,000
Williamstown	7000
Melbourne	55,000
Emerald Hill and Sandridge (17,000 + 6400)	23,400
St. Kilda	9000
Brighton	3000

Hospitals.—The hospital accommodation need not be particularized, other than as ample for all requirements.

* According to estimates made in 1876 the population of Queenscliff was 1,050; Geelong and suburbs, 21,000; Melbourne, 61,000; Williamstown, 7,800; Emerald Hill, 24,500; Sandridge, 7,500; St. Kilda, 9,500; Brighton, 3,800; other suburbs of Melbourne within a radius of ten miles, 130,000.—Editor.

Section E.—FORTS, ARSENALS, STORES, BARRACKS, AND MEANS OF SHELTERING TROOPS.

[*The subjoined memorandum, compiled from official documents, shows the principal steps taken in the matter of the Military and Naval Defences of the Colony from* 1854 *to the present date, giving recommendations of the various Defence Commissions, &c., &c.*]

1854.

Steps for defence taken at various periods.

PREVIOUS to the year 1854 the defence of Victoria was entrusted solely to Imperial forces. In that year the whole cost of their remuneration, including their Imperial as well as colonial pay and allowances, was, with sundry exceptions presently named, borne (and continued to be borne until the end of 1857) by the colony ; and the sum placed on the 1854 Estimates to be applied to this purpose was £111,232 1s. 7d.*

The total protection thus provided for consisted of about 700 troops of all arms, including infantry, royal engineers, and sappers and miners, and commissariat; in addition to which there was Her Majesty's ship *Electra*, a small sailing vessel, carrying a few marines. In the two latter cases, viz., the commissariat and the *Electra*, the colony provided only colonial allowance.

The earliest report to the local Government upon the subject of the defences of Melbourne and Port Phillip appears to have been that of Captain Ross, R.E., under date 21st January 1854.† After expressing himself opposed to the idea of fortifying the Heads by means of forts or batteries, Captain Ross recommended that two steam guard ships should be stationed there instead, and that 2,000 troops of the line, with a company of engineers and also one of artillery (together with arsenal, magazine, barracks, &c.), should be stationed at the port.

Immediately upon the submission of this report, or upon the 27th January 1854, a Select Committee of the Legislative Council on the Defences of the Colony was appointed "to take evidence and report as to the probable manner in which the colony might be attacked by an enemy, and to devise the best means of meeting such a calamity."

This Committee sent in its report on the 3rd March of the same year. In it (after alluding to the proximity to Melbourne of the newly formed French settlement and naval force thereat, also to the small land force of Her Majesty then stationed here, and the inadequate naval protection afforded by the *Electra*) the Committee recommend—

(1.) Application to the Imperial Government for a war steamer.

(2.) That a supply of guns, six 9-pounders and two 24-pound howitzers, with harness and a moderate supply of ammunition, should be obtained by purchase from Her Majesty's arsenal at Woolwich.

(3.) That Her Majesty's 40th regiment should be immediately increased to the establishment of a corps in the East Indies, and stationed solely in this colony.

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* By the subsequent arrival, however, of the head-quarters' staff, and other incidental expenses, the expenditure for the year was increased to £121,380.

† No copy of this document appears to be among the records of the Treasury, but its substance, as given above, is gathered from a memo. on the subject of defences, and printed as "Appendix B" to the "Report from the Select Committee on Military and Naval Forces and Defences," Session 1861–2.

The Committee further recommended the establishment of volunteer rifle corps.

The adoption of this report was subsequently negatived by the Legislative Council, on the ground that it was matter for consideration by the Executive.

One of the next steps taken was the transmission of instructions (dated 19th July 1854) by Governor Sir Chas. Hotham to Captain Lockyer, R.N., in England, to "proceed in the construction and fitting of a wooden steam vessel, for which £27,000 had been voted."

This vessel, which was afterwards called H.M. Colonial steam sloop *Victoria*, and cost ultimately considerably more than the above sum, arrived in the colony on the 31st May 1856, being placed under the command of Captain Norman.*

About this period the British Government, "consequent on the rapidly increasing importance of the colony of Victoria, and regarding Melbourne not only as the capital of the Australian colonies, but also the most central military point in the command, added to which its postal proximity to England," directed the removal of the head-quarters of the army in Australia from Sydney to Melbourne, and in August 1854 Sir Robert Nickle, then Commander-in-Chief in these colonies, reached Melbourne, and established his head-quarters there accordingly.

On the 30th November 1854 an "Act for Volunteer Corps in Victoria" received the Lieut.-Governor's assent; the number authorized to be enrolled not to exceed 2,000, and the whole to be "under the superintendence of a field officer of H.M.'s regular forces." On the same day Col. W. A. D. Anderson (the present Commandant of the forces of the colony, and the first Victorian officer sworn in under the Act) was gazetted "Lieut.-Colonel of the Melbourne Volunteer Rifle Regiment."†

In addition to the above there were also formed under the provisions of the new Act, the Geelong Volunteer Rifle Corps, and a mounted troop, the Victorian Yeomanry Corps.

1858

Beyond the enrolment from time to time of small numbers of volunteers, the commencement of extensive military barracks on the St. Kilda road, which cost ultimately £86,000, and the partial completion, under Sir Charles Hotham's administration, of two batteries, one each at Sandridge and Williamstown, no further steps of any importance were taken in the matter of defence prior to the year 1858. In the beginning of that year an agreement was come to with the Imperial Government‡ that for the future 400 regular troops should be stationed in the colony, the Imperial pay and allowances of which should be defrayed by the mother-country, the colony undertaking to provide barrack accommodation and colonial pay and allowances.

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* The *Victoria* has mainly been employed in marine surveys and in rendering assistance to and proceeding in search of shipwrecks, &c., &c. In the year 1860 she was despatched to the assistance of the New Zealand Government during the war with the natives, and for her services there, in part reimbursement of expenses for over twelve months, a sum of £15,000 was subsequently paid by the Imperial Government. She is at present used as a surveying vessel.

† The title of this corps was subsequently altered to "The Victorian Volunteer Artillery Regiment."

‡ *Vide* evidence of the Hon. W. C. Haines, contained in report of Select Committee, 1861–2, of Military and Naval Forces and Defences; also see despatch from Secretary of State to Governor Barkly, dated 9th March 1858.

On the 13th January 1858, Captain Pasley, R.E. (then Commissioner of Public Works), prepared a report upon the subject of defensive works. There were, he stated, at that date, only 20 garrison guns (32-pounders) in the colony, the distribution of which was as follows :—

Sandridge battery	6
Williamstown battery	8
On board police hulk	6
	20

Captain Pasley, in his report, expressed his concurrence with the views of Captain Ross, as to the inutility of fortifying the Heads, and also as to the little reliance to be placed upon shore batteries, unsupported by either guard ships or other central bay defences, combined with a large regular land force. His principal direct recommendation, however, was that a fort or tower, armed with very heavy guns, should be erected in Hobson's Bay at the white beacon shoal. No action appears to have resulted from this recommendation.

On the 26th May 1858 the Secretary of State forwarded to Governor Sir Henry Barkly, a memorandum from Sir J. Burgoyne (the Inspector-General of Fortifications) on the subject of the defence of Victoria. Sir John totally disagreed with Captains Ross and Pasley as to the inutility of fortifying the Heads. He assented to the probable usefulness of Captain Pasley's central bay fort, but demurred upon the score of cost. His main recommendations were—

(1.) The establishment of a militia.
(2.) The fortification of the Heads.
(3.) The erection of shore batteries, to be combined with floating defences.

In July 1858 the total strength of the regular and volunteer forces in the colony of all arms was 1,112, for the maintenance of which, in addition to the "staff," a provision of £38,075 14s. 2d. for the regular, and £5,677 15s. for the volunteer forces, making a total of £43,753 9s. 2d., had been made for the year, as against £94,029 0s. 10d. for 1857, the saving (£50,275 11s. 8d.) resulting of course mainly from the withdrawal of the charge against the revenue of the colony of the Imperial pay and allowances of the regular troops.

Upon the reception of Sir John Burgoyne's report, a Royal Commission on the Defences of the Colony, under the presidence of Major-General Macarthur, was appointed (15th July 1858) by the Governor in Council.

On the 9th September of the same year, this Commission submitted a series of resolutions unanimously adopted by them. These recommended the protection of Melbourne and its shipping by—

(1.) Shore batteries of 68 and 32-pounders.
(2.) A heavily armed floating battery or steam block-ship.
(3.) Infantry forces (militia).

Subsequently, in their report dated 9th December 1858, the Commissioners went more fully into the matter. They expressed themselves opposed to the fortification of the Heads recommended by Sir J. Burgoyne, giving as their reasons for this, the very short time during which an enemy's ship would remain under fire, and that at a very long range, in passing through. They repeated their recommendations for

the establishment of batteries around Hobson's Bay, advised application to the Imperial Government for a company of Royal Artillery* to be permanently stationed here, and strongly advocated the completion of the armament of the *Victoria*. They also submitted a militia scheme.

1859.

In the following year a fresh Commission was appointed to consider the best means of carrying out the recommendations of the Commission of 1858. This Commission brought primarily under the notice of the Government the great improvements in artillery being made at the time in England, and referred to the invention of the Armstrong gun as likely to go far to remove one of the main existing objections to fortifying the Heads, its effective range being so great. So, in their first progress report, dated 14th July 1859, they recommended :—

(1.) That twenty-four Armstrong guns of heavy calibre should be procured in lieu of the steam block-ship or floating battery suggested by the first Commission.
(2.) The protection of the Heads by martello towers, one each at Points Lonsdale and Nepean, and another near the Quarantine Station.
(3.) The erection of a fort or tower at Shortland's Bluff, and another on one of the flat islands or shoals.

The report further recommended the distribution of twelve of the Armstrong guns among the works above referred to, and the distribution of the other twelve partly among the shore batteries of Hobson's Bay, and partly on board the *Victoria*, and any other steam gun-boats procurable.

The Commissioners also suggested the increase of the number of the 40th regiment stationed here, the enrolment of additional volunteers, the training of the police force to do military duty if necessary, and the erection of armories, magazines, &c.

In a second progress report, dated 15th December 1859, the Commissioners stated that they had reason to believe that the Armstrong guns (which had in the interim been ordered) would be unobtainable for a considerable period, owing to the great demand for them, but that a new and most effective mode had been discovered of rifling guns of old patterns, and it was anticipated that Captain Clarke (then military agent of the colony in England) would, in default of the Armstrongs, send the other guns out.

In accordance with the recommendations of this Commission, orders were sent to England in the year 1859 for supplies of war material to the estimated aggregate value of £43,975. These included armament and stores for defensive works, rifles, stores, &c., for local troops, and armament for the s.s. *Victoria*; and of the amount thus to be expended £29,000 was transmitted to England in the year 1859.

In further accordance with the Commissioners' recommendations, Sir Henry Barkly, on the 15th July 1859, issued a proclamation calling for

* A battery of Royal Artillery was obtained in the year 1861, and stationed in Victoria up to 1866, with slight intermissions.

the enrolment of additional volunteers, and proposing the formation of volunteer rifle corps at the following places, viz.:—

Melbourne Proper,
North Melbourne,
Collingwood,
Richmond,
Prahran and South Yarra,
St. Kilda,
Emerald Hill,
Hawthorn and Kew,
Pentridge,
Williamstown,
Portland,
Belfast,
Warrnambool.

In all thirteen corps, to consist each of one company of 100 men. In addition to the above, the then existing Geelong rifle corps to be increased to three companies. This would make up a total, when complete, of 1,600 riflemen, besides the volunteer artillery and mounted corps.

Captain G. D. Pitt, an Imperial staff officer (inspector of musketry) at the time stationed here, was then appointed Colonel of Volunteers, a position held by him until summoned on active service to New Zealand in 1862.

1860.

In July 1860 the regular force of Her Majesty stationed in Victoria being ordered upon emergency to proceed to New Zealand, the volunteers were entrusted with garrison duties.

In the same month Captain (now Lieutenant-Colonel) Scratchley, R.E., an officer specially sent by the Imperial Government for the purpose, and who had just arrived in the colony in charge of a small detachment of engineers, was gazetted to superintend the construction of all the defence works of the colony.

On the 22nd September 1860 Captain Scratchley submitted his first report on the defence of the colony.* After showing the points required to be defended, and stating that any then existing fortifications were practically valueless and even dangerous, as tending to give the colonists a false idea of security, Captain Scratchley recommended, for the defence of Hobson's Bay, the erection of batteries at Williamstown, Sandridge, St. Kilda, and Point Ormond; and the construction of a fort in deep water.

For the defence of the Heads and channels he proposed forts at Points Nepean and Lonsdale, a battery at Queenscliff or Shortland's Bluff, a battery on Swan Island, and a fort in the South Channel.

For Geelong he suggested a fort and two batteries.

He indicated that Western Port was the most vulnerable point in the colony, and the readiest spot for landing an enemy's forces. He therefore

* Sir H. Barkly, in placing this report, which he characterized as an "able" one, before his Ministers of the day, urged most strenuously the immediate adoption of some scheme of defence, and the setting apart by Parliament of adequate provision for carrying it out, adding (with reference to then existing probabilities of war)—"Should the anticipated struggle come, Great Britain will have to concentrate all her forces on her own shores with a view to self-preservation, whilst her colonies, instead of crying to her for help in the hour of utmost need, must be prepared to fight their own battles." (*Vide* memo. of Sir H. B., dated 8th October 1860, prefixed to Captain Scratchley's first printed report.)

proposed a land force to resist this and similar landings on the shores of Port Phillip.

He advocated a militia in preference to a volunteer force.

Simultaneously with the submission of Captain Scratchley's report came the third progress one of the second Royal Commission, Captain Scratchley himself being now a member of that Commission. In accordance with its suggestions, a letter, dated 25th October 1860, was addressed by the Treasurer to Captain Clarke, R.E., informing him that it had been determined that he should procure for the colony the whole of the guns, stores, &c., amounting in the aggregate to an estimated value of £77,375, recommended by the Commissioners. Of these, quantities representing a value of £43,975 had already (as above stated) been ordered, and a portion of the cost, viz., £29,000, remitted. Captain Clarke was now informed that the balance requisite, viz., £48,375, would be forwarded to the Colonial Agent-General in time to make the necessary payments.*

On the 24th December 1860 Captain Scratchley forwarded to the Treasurer a further memorandum on defences, together with a revised estimate of the cost of defensive works proposed by him. Subsequently other estimates of Captain Scratchley brought up the amount required to complete the defence works in accordance with his scheme to £205,978, in addition to sums already paid.

1861.

On the 25th January 1861 a Select Committee of the Legislative Assembly was appointed to consider the question of defences, and the amount necessary to expend on them.

This Committee sent in its report on the 5th March 1861. In it they stated that, having considered the large sum required for the carrying out of all the works recommended by Captain Scratchley (£205,978), the Committee had asked him "if, without departing from his general plan, he could not reduce the extent and proportionate expense of the works to be immediately constructed, leaving their full completion to some future period." Captain Scratchley had accordingly submitted such a reduced scheme, requiring a total sum of £124,518†—in addition to amounts already paid—to complete the defence works (with their armaments, stores, &c.) set down for present construction.

This reduced scheme the Committee recommended should be proceeded with immediately.

The Committee further drew attention to the necessity pointed out by Captain Scratchley for a company of Royal Artillery to be permanently stationed here in charge of the batteries, &c. Finally the Committee urged the importance of maintaining an efficient volunteer force.

Meanwhile, with reference to this latter item, the Governor's proclamation of the previous year, calling for the formation of additional volunteer corps, had been well responded to. By the Act 24 Vict. No. 113, the limitation of the number to be enrolled to 2,000 (as fixed by the old Statute of 1854) was altered to 10,000, and by a return furnished to the Legislative Assembly on the 1st December 1860, that

* This amount (£48,375) was voted in 1861 for purchase of arms and ammunition.

† Of his sum, £64,950 was for erection of defensive works, making (with £13,000 for protecting batteries with iron plates) a total of £77,950 for this purpose.

on that date the total actual strength of the force, exclusive of commissioned officers, was 4,002, while the estimated total establishment, inclusive of commissioned officers, and reckoning also numbers expected to complete sundry corps then in course of formation, amounted to 4,750.

Notwithstanding, however, the strenuous recommendations of the different Commissions, of Sir Henry Barkly, and Captain Scratchley, the erection of defensive works made but little progress. The sea wall of a fort at Queenscliff had been commenced, and portions of batteries on the shores of Hobson's Bay; but all were retarded for want of funds. In the year 1861 a sum of £10,000 only was provided for the purpose by Parliament, out of the £77,950 shown by the Committee to be necessary for even the "reduced scheme." No regular system for future operations appears to have been decided on.

During 1859, 1860, and a portion of 1861, Her Majesty's ship *Pelorus* was stationed at the port, the colony providing her colonial pay and allowances.*

In two several memoranda (the first dated 19th April 1861, and addressed to the Defence Commission for consideration of Government; and the second dated 28th November 1861, addressed to the Major-General Commanding the Forces), the superintendent of local military works, Captain Scratchley, complained strongly of "the very unsatisfactory condition in which matters connected with the defences now are," speaking of the condition of the colony as "utterly defenceless and unprepared." Captain Scratchley concluded the second memo. by saying—"It is owing to this system of voting small sums of money for defensive works, without regard to any general scheme of defence, and in opposition to my repeated representations, that I now have to report that not a single gun can be mounted, although, inclusive of the pay of a detachment of engineers, more than £22,000 has been already expended upon defensive works alone."

On the 12th February 1862 a further Select Committee of the Legislative Assembly was appointed on the Military and Naval Forces and Defences of the Colony. This Committee, by their report dated 17th June 1862, recommended—

(1.) That pending results of experiments then being developed in the science of gunnery and defence, the further construction of fortifications should be delayed.

(2.) That a fully equipped floating steam battery should be procured.

(3.) The Committee refrained from recommending the maintenance of a large regular military force, and advised amendments in the Volunteer Act.

1862.

The procuring of armaments, stores, &c., for defensive works seems to have been proceeded with at a quicker rate than the works themselves, as in another long memo. of a recapitulative nature, under date

* Captain Seymour, of the *Pelorus*, in November 1859, addressed two letters to Governor Barkly on the subject of defences, advocating gun-boats.

1st March 1862, Captain Scratchley states—"No steps were taken to provide the funds necessary for mounting the ordnance ordered from England until after the greater portion of it had arrived."

On the same date (1st March 1862) the Defence Commissioners addressed a letter to the Minister of Finance. In it, among other things, they strongly urged the immediate erection of a pile battery in the Bay, a work considered by both them and Commodore Seymour of the *Pelorus* (whose opinion on the subject had been obtained) "indispensably necessary."

The Commissioners further dwelt upon the urgent importance of the other batteries being proceeded with, and also of the proclamation of (as reserves for defensive works) the various sites for the purpose indicated by Captain Scratchley.

To this letter a reply was sent by the Minister of Finance on the 29th March, stating, with regard to the pile battery, that although such a work would doubtless be very valuable for the defence of the Bay, the Government declined asking for a vote for the purpose at present. Also, that no further sum for defensive works erection would be placed on the Estimates for that year.

On the 26th March 1862 an additional sum of £35,000 was remitted to Captain Clarke (through the Colonial Agent-General) for purchase of ordnance, ordnance stores, &c., making, with the £29,000 previously remitted, £64,000 for this purpose.*

On the 13th May 1862, and again on the 18th June, Captain Scratchley was again informed, through the Public Works Department, that the Government had decided against proceeding for the present with the completion of military works of all kinds unincluded in then existing contracts.

By numerous subsequent letters (22nd May, 12th, 21st, 24th June, &c.) Major-General Pratt, Captain Scratchley, and Colonel Anderson wrote strenuously protesting against the decision of the Government as above, and urging a reconsideration.

On the 5th July 1862 Mr. Haines informed the Assistant Military Secretary that the Government had resolved that the batteries then in course of erection should be completed and their guns mounted.

On the 12th August 1862 the second Royal Defence Commission was dissolved by the Governor in Council, the Commissioners, in their closing letter, expressing an opinion that, "had their recommendations been attended to, the expenditure for defences would at all events have produced a comparative degree of defence against any possible attack."

It was in this year that the earliest foreshadowings of the ultimate resolve of the colony to dispense with Imperial troops and rely upon local forces seem to have shown themselves. By a lengthy letter of the Minister of Finance, dated 21st October 1862, and addressed to the Deputy Adjutant-General, the views of his Government were expressed on the subject of the local forces. They were to the effect that for the future, in any time of war, the colony would have mainly to depend for protection upon those forces, the pretty well understood probability being that any troops of Her Majesty which might be then stationed

* Meanwhile a portion of the 1859 order, viz., for 100-pounder Armstrong guns, had been countermanded (in December 1861), their trials at home not proving satisfactory. A battery, however, of 12-pounder Armstrongs was duly procured.

here would then be withdrawn for the defence of the mother-country. Mr. Haines also expressed an opinion that, for the reasons above quoted, the local troops should be under the command only of officers in the pay and control simply of the local Government—a probable allusion to the recent inconvenience occasioned by the sudden removal on military service to New Zealand of Colonel Pitt of the regular troops, also Colonel of Volunteers.*

1863.

By a circular despatch dated 26th June 1863, the Secretary of State for the Colonies informed Governor Barkly of the decision arrived at by the Imperial Government, as to how far the Australian colonies should be required to contribute to their own defence. This was to the effect that—

Firstly. The protection afforded by the mother-country would be mainly a naval one, "which must form," said the Duke of Newcastle, "both in peace and war, the true Imperial contribution to the security and protection of Australia."

Secondly. His Grace stated that with the colonists themselves must rest the making of such other provision as they might think expedient in the way of local land forces, fortifications, floating batteries, &c.

Thirdly. The despatch stated that it was proposed for the future to allot to the Australian colonies fifteen companies of infantry, viz., one entire regiment, and head-quarters wing of another regiment. The colonial contribution to the maintenance of this force was to be £40 per man per annum (officers included) to be paid in monthly or quarterly "lump" sums, instead of the old system of colonial allowances, and the strength to be allotted to Victoria to consist of five companies, including the head-quarters of a regiment.

The proposed arrangement further provided that in case the Imperial Government increased this force *for its own convenience*, the colonial contribution was *not to be increased in consequence*. If, however, the Imperial Government, at the request of the colony, sent out infantry in excess of the number, *or any artillery whatever*, the annual payment for the addition was to be at the rate of £70 per man.

In addition, the Duke's despatch stated very plainly that it was "impossible for H. M.'s Government to guarantee, *under all circumstances*, a definite number of troops," thus hinting, as Mr. Verdon in his reply pointed out, that the troops would probably "be removed for Imperial purposes at the time they were most needed for colonial defence."

The reply of the Government to this despatch was embodied in a memo. of Mr. Verdon's, dated 19th August 1863, and laid before Parliament. This demurred to two portions of the Duke's proposal—1st, to the absence of any guarantee that the troops should be allowed to remain here in time of war, and 2ndly, to the provision of infantry only, the opinion of the Government being that two batteries of artillery (*i.e.*, an additional battery to the one already stationed here) would be much more serviceable to the colony than the proposed five companies of the other arm.†

* This officer was succeeded in the command of the Volunteer Force by Colonel W. A. D. Anderson, previously chief of the local artillery.

† The number of regular troops at that period in the colony was exceedingly small (one company of artillery and 150 of the 40th Regiment), every man that could be spared being away in New Zealand.

By despatches of 26th March 1864 and 25th January 1865, the Secretary of State informed the Governor of the conditions under which the wishes of the colonists for an additional battery of artillery would be complied with, viz., payment for them at a capitation rate of £55 per head, and the garrison duties to be such as the two batteries of artillery alone would suffice for.

No acceptance of these conditions was returned.

On the 26th February 1866, the Secretary of State again addressed the Governor on the same subject.

Mr. Cardwell stated—

First. That no acceptance of the conditions above referred to having been notified, the offer of an additional battery of artillery under them was withdrawn.

* Secondly. That the withdrawal of a large number of troops from New Zealand enabling Her Majesty's Government to now provide for Victoria its full quota of infantry, as set forth in the despatch of 26th June 1863, the colony must at once provide the £40 per head for them.

Thirdly. That if the Government desired to retain the battery of artillery already stationed here, the full rate of £70 per head must also be paid for it.

Mr. Verdon being then about to proceed to England, on, among other matters, those of defence, the question was left to his mediation, and a total sum of £8,000 only was voted for "troops in garrison," year 1866.†

To return to the year 1863.

In 1863 the Volunteer Force of Victoria underwent a new organization, an "Act to amend the Law relating to Volunteer Corps" becoming law on the 11th September of that year.

By the regulations issued by the Governor in Council (21st September 1863) under that Act, the "effective" system was introduced. This provided that each corps returning at the commencement of a year not less than 75 members who had qualified as "effectives" (*i.e.*, undergone a certain number of drills and other duties during the year previous) was credited with sundry capitation sums for uniform, allowances, &c., amounting in the aggregate for full qualification to £5 per man. At the same time the corps was debited with an annual sum of £182 10s. for cost of drill instruction. The services of any corps returning at the beginning of a year a less number of effectives than 75 to be dispensed with.

By *Gazette* notice of 14th October 1863 the Governor in Council dispensed with the services of all volunteers (except cavalry)‡ enrolled under the old regulations, and accepted the services of twenty-three corps as under :—

Naval Brigade	2	corps
R. V. V. Artillery	7	„
V. V. Engineers	1	„
V. V. Rifles	13	„
	23	„

* Mr. Cardwell also stated that the Imperial Government would be prepared to send out trained instructors for any local artillery force.

† In the following year the battery of artillery previously stationed in Victoria was withdrawn.

‡ The different mounted troops (which had been established under various titles at Melbourne, Sandhurst, Castlemaine, Kyneton, Bacchus Marsh, &c.) had previously been amalgamated into one regiment, under the designation of the "Prince of Wales V. V. Light Horse."

A further notice of same date set forth the desire of the Government that civil servants being volunteers should be afforded, by the heads of their departments, facilities for attending to their military duties.

About this date, upon the pressing application of the New Zealand Government (engaged in war with the natives) the Victorian field battery of 12-pounder Armstrong guns which had been procured from England was disposed of to that Government at cost price, Mr. Childers* being at once written to and requested to replace it.

On the 25th September 1863 Captain Scratchley submitted his "final report upon the defences, military buildings, and store department of the colony." In this he showed what had been done and what remained to be done as regarded defensive works, deprecated once more the delay in adopting some definite plan of defence. Captain Scratchley suggested application to the Imperial Government for a block-ship, to be armed with 12 heavy guns.

Finally, he advised the postponement of the actual completion of any defence scheme and of the outlay of any large additional sums until more certain information was obtained on the subject of ironclads and the use of iron for coast defences, &c., together with decisions as to the best kind of heavy guns.

His report was supplemented by detailed accounts of the state of the military buildings and of the engineer and local military store departments of the colony, and by an appendix containing various estimates of cost of defensive works.

At the close of 1863 the total strength of the Volunteer Force of all arms under the new organization was 3,628.

1864.

On the 23rd March 1864 Mr. Verdon (then Treasurer) addressed the Secretary of State, through the Governor, on the subject of the colonial defences.

He asked, firstly, that one of the old Imperial line of battle ships (wooden) should be given to the colony free of charge for a block-ship, to be used in time of peace as a naval training vessel ; secondly, that a partially plated steamer, not exceeding 800 tons burden, and carrying a few large guns, should be supplied, a portion of her first expense and total subsequent maintenance to be borne by the colony.

The above vessels were intended, said Mr. Verdon, in lieu of the central pile fort so frequently recommended, but which the Government hesitated to construct on the score of cost.

On the 29th August 1864 Governor Darling wrote to Commodore Sir William Wiseman, of Her Majesty's ship *Curaçoa*, then in charge of the Australian station, asking for his advice on the subject of defences.

On the 30th September the Commodore sent in his report, signed also by Colonel Ward, R.E., and other officers. The scheme of defence recommended by them was intended to provide for the protection of "the city and suburbs of Melbourne from bombardment, and the shipping of Hobson's Bay from predatory attack by one or two vessels of war." It was, however, not advanced as "sufficient to resist the landing in force of a body of troops, or the assault of a powerful fleet."

The recommendations comprised the erection of forts or batteries to the estimated value of £125,000 at the Heads and bay, and the

* Then military agent of the colony in England.

procuring of a war steamer ; also the arming of the *Victoria* with heavy Armstrong guns.

A copy of the Commodore's report was transmitted to the Secretary of State in connection with Mr. Verdon's letter above referred to.

In the following year, under date 25th July 1865, a reply was received from the Home Government offering to transfer to the colony under certain conditions Her Majesty's ship *Rodney*, to be converted into an ironclad for the defence of the port.*

No advantage was taken of this offer.

During the years 1863, 1864, and 1865 a lengthy correspondence took place between Colonel Anderson (as secretary for military affairs in Victoria), Captain Pasley, R.E., and Mr. Childers, on the subject of the best description of heavy ordnance, no positive decision being arrived at.†

1865.

On the 7th June 1865 a fresh Select Committee of the Legislative Assembly was appointed to "consider the question of National Defences."

By the first progress report of this Committee (dated 14th June) it was recommended—

(1.) That an address should be forwarded to Her Majesty, asking that the mother-country should defray a proportion of the proposed expenditure on harbor defences.

(2.) That the Government should be authorized to expend £100,000 in purchase of ordnance, &c., to be charged to a defence loan to be obtained for the purpose.

(3.) That a member of the Government should be sent to England to press upon the Imperial Government the claims of the colony in relation to its defences.

An address was accordingly agreed to by both Houses and forwarded to Her Majesty, in accordance with the first of the above suggestions.‡

After considerable delay, a reply was received in the year following, stating that, although in time of war Her Majesty's navy would receive due instructions for the protection of colonial ports, yet the Imperial Government declined to saddle the mother-country with any portion of the cost of erecting colonial defensive works.

With regard to the second recommendation of the Select Committee : On the 12th October the Public Loan Act of 1865 became law. Under it the Government was authorized to issue debentures representing £850,000, a portion of the proceeds of the sale of which, amounting to £100,000, was to be devoted to "the purchase of arms, guns, ammunition, and the erection, building, furnishing, and equipment of works,

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Accompanying this reply was the copy of another long and elaborate memo. from Sir John Burgoyne, urging, *inter alia*, as of "paramount importance," the strong fortification of the Heads. Also copy of correspondence with the Admiralty and War Office on the general subject of the defence of the colony.

† Subsequently a number of 80-pounders were sent out, also 300-pounders.

‡ In it allusion was made to the fact that since 1856 had been expended upon—

Arms, defensive works, and barrack accommodation	£233,000
Upon the maintenance of an armed vessel	123,000
Upon Her Majesty's forces in Victoria..	356,000
Upon volunteers	169,000
Or a total of	£881,000

forts, and ships, and the providing of all other things necessary or useful for the defence of the colony of Victoria against invasion or attack in time of war."*

Referring to the third recommendation of the Committee, it was decided that the Honorable G. F. Verdon (Treasurer) should proceed to England.

In a second progress report, dated 18th July 1865, the Select Committee advocated the establishment of a gunpowder manufactory in Victoria. (This recommendation has not, up to the present time, been carried out, though the subject has been under consideration by the Government, at whose request Captain Pasley, R.E., prepared and forwarded from England a lengthy report on the matter, dated 14th November 1866. — *Vide* Papers Presented to Parliament on Defences, session of 1867, vol. 4.)

During this year (1865) a further Act for "consolidating the laws relating to the Volunteer Force" received the Royal assent, and the force became subject to the regulations under this Act issued by the Governor in Council on the 26th March 1866. †

1866.

In May 1866 Mr. Verdon proceeded to England, one main object of his mission being to obtain assistance from the Imperial Government in regard to the defences of the colony.

A report of his proceedings at home appears (undated) in vol. IV. of Papers Presented to Parliament, session of 1867.

The three principal results of his defence negotiations were—

(1.) The presentation to the colony of a line of battle ship, the *Nelson* (to be used in time of peace as a training ship), the colony defraying cost of outfit, passage, &c. (£30,117 5s. 4d.), with, of course, maintenance on arrival.‡

(2.) The contribution by the Imperial Government of £100,000 towards the construction of an ironclad for the additional naval defence of the colony.

(3.) The colony to be given credit by the Imperial Government for a sum of £15,000 for the services of the *Victoria* in New Zealand, the amount to be handed to the Crown agents for expenditure upon the ironclad.§

The much-vexed question as to the number and nature of the Imperial troops to be stationed in the colony was also gone into by Mr. Verdon when in England. He again submitted the proposal (made in 1863) that, in lieu of the proportion of infantry allotted to the colony, two batteries of artillery should be stationed here instead. Before Mr. Verdon's departure, however, for Melbourne again, it having been finally decided by the Imperial Government to allot infantry only to the service of the colonies in future, Mr. Verdon withdrew the proposal for artillery.

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* All expenditure under this head out of the loan has to receive the special sanction of the Governor in Council.

† By the Amending Land Act of 1865 volunteers of five years' service were presented with land certificates to the value of £50.

‡ The *Nelson* arrived in the colony in January 1868, and has since been fulfilling her destined service as a training vessel.

§ This vessel (the *Cerberus*) was built, and was sent out through the Suez Canal, the Imperial Government having, at the request of the Colonial, agreed to her being placed under the sole control of the latter. She arrived in April 1871.

1867.

In April 1867 the War Office Fortification Committee, of which Admirals Sir Frederick Grey and Sir A. Cooper Key, General Sir J. W. Gordon, R.E., Generals Dickson, Collingwood, and Lefroy, R.A., Mr. Fergusson, C.E., were members, and Colonel (now His Excellency Sir William) Jervois was Secretary, submitted a report upon the Defences of Port Phillip to the Secretary of State for War.

In this report they stated that the plan of preventing the entry of Port Phillip, by an enemy's ships, by means of defences at the Heads and torpedoes could not be entertained.

They considered "that the defence of the Harbor of Melbourne or Hobson's Bay must mainly depend upon such means as can be adopted for the immediate protection of the Bay itself." At the same time, the Committee were of "opinion that means of defence should also be provided at the Heads, with a view of rendering it hazardous for an enemy to pass them ; and thus, supposing Hobson's Bay itself to be effectually defended, it would not be likely that hostile ships would attempt to enter Port Phillip at all."

The Committee therefore recommended the following works, at a cost of £426,500 :—

For the Defence of Hobson's Bay.

At Williamstown.

(1.) Enclosed work for 4 7-inch guns behind shields.

(2.) Existing battery to be armed with 6 80-pounders, with iron shields.

(3.) A two-tier iron fort for 10 9-inch and 2 10-inch guns, on the shoal, off Point Gellibrand.

(4.) A similar fort, with 16 guns, in deep water, 2,000 yards from the former fort.

(5.) Existing battery at Lighthouse to be armed with 4 9-inch guns, behind shields, and 4 80-pounders.

At Sandridge.

(6.) Existing battery to be armed with 2 9-inch guns and 1 80-pounder, behind shields, and 3 80-pounders, *en barbette.*

Between Sandridge and St. Kilda.

(7.) Existing battery to be armed with 3 80-pounders.

Near St. Kilda.

(8.) Open battery for 4 80-pounders.

Point Ormond.

(9.) Enclosed work for 4 80-pounders.

For the Defence of the Heads.

At Point Nepean.

(10.) Tower, with 2 23-ton guns in a turret.

At Queenscliff.

(11.) Enclosed work for 4 23-ton guns, behind shields.

They further advised a reference to the Admiralty as to whether gun-boats could not be advantageously employed for the purpose of assisting in the defence of the inner waters of Port Phillip.

No action was taken upon this report.

1869.

After sundry further correspondence on the subject of the troops, Mr. McCulloch addressed a memorandum, dated 24th March 1869, to His Excellency the Governor, informing him that the only conditions upon which the colony would agree for the future to contribute to the maintenance of Imperial troops here were :—

(1.) That they should remain in the colony in time of war as well as in time of peace.

(2.) That they should consist of artillery.

This resolution having been communicated to the Home Government, a reply was received by His Excellency, dated 16th July 1869, from the Secretary of State. This announced that the conditions above referred to, not being such as could be acceded to by H. M.'s Government, the troops would probably be withdrawn at the end of the year, not only from this, but the other Australian colonies. The despatch added, however, that the Imperial Government would not adopt any definite conclusion on this subject before receiving more complete information as to the wishes of the other colonies.

On the 8th November 1869, Mr. MacPherson (who had succeeded Mr. McCulloch as Chief Secretary) addressed a memo. to the Governor stating, with reference to the Secretary of State's despatch as above, that his Ministry saw no reason to deviate from the views expressed by Mr. McCulloch's memo. of 24th March.

Mr. MacPherson added that, as some little time would probably yet elapse prior to the final departure of the troops, Parliament would be asked to vote the requisite supplies for that period.

1870.

Accordingly a final sum of £6,000 for "Allowances and Contingencies—Troops in Garrison," was voted on the Estimates for 1870; and on the 21st August the troops at length took their departure from the colony, the Major-General Commanding delaying the exit of himself and staff until the 8th October.

Immediately after the loss of the troops, news having reached the colony of the outbreak of war in Europe, the Government set to work to supplement the local artillery force.

By a memorandum issued from the Treasury, dated 6th September, the formation of a permanent paid Artillery Corps was announced to consist :—

(A.) Of 70 picked and experienced men, trained originally as artillery or engineers in the British army or navy.

(B.) Of 80 additional men to be enrolled as recruits, to act with the above-named force, to be drilled both as infantry and artillery, and also to be employed in mounting guard and general garrison duty.

Appointments to the police, penal, and gaol departments to be conferred upon members of the latter body as rewards for good conduct.

The formation of this artillery corps was immediately proceeded with.*

* A considerable impetus was given to the Volunteer Force by the outbreak of war in Europe. Numerous recruits were enrolled, and several of the corps volunteered, *en masse*, their services as militia if required.

In addition, the Government sent a special agent to Galle to provide for the immediate transmission to the colony of the earliest news of the outbreak of any war in which England was concerned ; and also wrote requesting the home authorities to allow the services of a despatch boat to be available for the same purpose.

The Treasurer also requested the Agent-General to forward immediately the necessary machinery for the conversion into Snider breech-loaders of the different rifles of the muzzle-loading patterns now in the colony ; further to procure, if possible, the loan of 2,000 Snider rifles from the Home Government, and to forward a supply of ammunition, &c.

Instructions werealso issued to the Commandant of the local forces to prepare in every way for possible attack, and further to take steps for enrolling a torpedo corps.

The defensive works at present existing, in a more or less complete state, are some nine batteries—one at Queenscliff, and the remainder adjacent to Sandridge and Williamstown. The whole of these underwent revision, alteration, and remounting of armament. Earthworks in support were thrown up, several additional batteries were constructed, and the question of the final and definite distribution of the ordnance in stock was settled.

The formation of a Naval Reserve was also proceeded with ; its members to be resident on the coast, to receive (in addition to uniform, &c.) £10 each per annum, and to be bound to serve whenever called upon, at wages of the period. This force to be 250 strong.*

This completes to the 25th October 1870 the narrative of the principal action taken in the matter of the defence of the colony since 1854.

The more important events in connection with the Victorian defences which have taken place between that date and the present are as follow, viz. :—

(1.) The passing of the Discipline Act 1870.
(2.) The establishment of the paid Artillery Corps and of the Naval Reserve, both referred to as contemplated in 1870.
(3.) The arrival of H.M.V.S. *Cerberus.*
(4.) The re-arming (now in progress) of the local forces with the Martini-Henry rifle.
(5.) The appointment of a Royal Commission to enquire into the condition of the Volunteer Force, &c.

The Discipline Act 1870 (*No.* 389) enables the Governor to commission armed vessels, to engage persons to serve in the forces, military and naval, of Victoria, to issue commissions to officers, to make regulations for the government of persons engaged under it, to constitute courts for the trial of offenders, &c., &c. It prescribes that persons engaged under its provisions shall be liable to actual service in case of invasion, or alarm of such ; that all such persons shall, during actual service, be subject to the provisions of the Mutiny Act, and it provides for the punishment of offending members of the forces and for allowances to persons wounded in actual service, or, if they be killed, to their wives and families. It also provides for bringing under its operations any volunteer, militia, or other armed corps, on application of the majority

* Information taken from speech of Mr. Francis, 15.11.70.

of such corps, subject, however, to the condition that each member shall voluntarily make the requisite oath. Regulations under the Act were made on 2nd October 1871, and presented to Parliament (*see* Parliamentary Papers, vol. III., 1871).

The Paid Artillery Force of Victoria consisted, on 31st December 1874,* of 118 men of all ranks, the total establishment being 196. The gunners, 97 in number, are divided into the two classes indicated in preceding page, 15 belonging to Class A, and 82 to Class B, and they are subjected of course to regular military discipline and instruction. As appointments to the police, gaol, and penal departments are made from the members of Class B, that class is constantly undergoing a process of change. But when the unusual demand for the police, occasioned by the superannuation of several of that force, has ceased, it is calculated that the Class B men will remain in barracks from two to three years, nor do the authorities desire that they should have a longer military service.

The Naval Reserve, at the same period, consisted of 224† men of all ranks, the establishment being 227. In addition to possessing the requisite moral and physical qualifications, every applicant for admission to the reserve must either have served afloat as seaman, waterman, &c., or be at the time engaged in some occupation directly connected with shipping. The men of this force are subject to regular periodical drill (specified in the regulations), they receive an annual "retainer" ranging from £12 to £16, and, in the event of their being called out for actual service, are entitled to proper pay and allowances.

The Cerberus—which arrived in Hobson's Bay on the 9th April 1871, under the command of Captain Panter, who had been sent home specially to take charge of the vessel—constitutes the principal central defence of the harbor. She is a twin-turret ship, carrying four 300-pounder guns, is plated with 8-inch iron armor, and is of 2,107 tons, with engines of 250 horse-power. The regular crew provided for her on account of the year 1874–5 was 81 all told, which number would of course be supplemented from the Naval Reserve or otherwise in time of actual service. The cost of the *Cerberus* has been about £175,000, of which £100,000 was defrayed by the Imperial Government.

The gradual re-arming of the local forces with the Martini-Henry rifle is now in course. In a despatch dated 9th August 1872—for some time previous to which, however, correspondence had passed between the Colonial Government and the Agent-General on the subject of the best armament for the Victorian forces—the Secretary of State forwarded to the Governor a copy of a letter from the War Office, notifying that the Martini-Henry rifle had been definitely adopted for the Imperial service, and pointing out the advantages that would arise from the same weapon being selected by the Colonial Governments. It was resolved to follow this course, and in June 1873 instructions were addressed to the Agent-General to procure 500 of the Martini-Henry rifles, and to endeavour to sell 2,000 Snider actions, which had been previously purchased, but not sent out to Victoria. In November following, the Agent-General telegraphed an offer from the Imperial authorities to supply 2,420 of the rifles required by April 1874, which offer was immediately accepted. Considerable correspondence ensued respecting

* On the 31st December 1876 the number of men of all ranks was 130.
† Two hundred and twenty-five at end of 1876.

the bayonets, or swords, and the ammunition to be used with the new arm. A demand was eventually made for 4,270 rifles, of which 3,720 have been received; also, 2,030,000 rounds of ammunition. The remaining weapons are to be Martini-Henry carbines, and have been kept back pending improvements in the arm, the nature of which has not yet been decided upon. The breech actions above referred to have been disposed of in England.

Anticipating the early arrival of the Martini-Henry rifle, the Commandant, on the 19th March 1874, brought under notice the advisability of disposing of the small arms then in use, recommending that application be made on the subject to the Government of New Zealand as the most likely purchaser. That Government was accordingly communicated with, and, after some negotiation, agreed to take the few Snider rifles in stock, with the corresponding ammunition and appliances. Shipment was made of these to Wellington in February 1875.

Royal Commission on the Volunteer Force.—In March 1875 the Government, having regard to the discussions which had for some time been occupying the public attention, through the press and otherwise, as to the condition, as respects discipline, organization, and other matters, of the local forces, appointed a Royal Commission to enquire into the same. This Commission has sent in its report, which embraces the following recommendations :—

(1.) That a competent officer of the Royal Engineers be procured from the Imperial Government to report upon and carry out the best means for defending Port Phillip Heads and Hobson's Bay.

(2.) That the *Cerberus* be placed in a thorough state of efficiency and fitted with "Forrester's steam-steering apparatus."

(3.) That the strength of the Naval Reserve be increased, with a proper complement of officers, to 300; and that they be instructed in garrison drill, and in the work of laying torpedoes in addition to their duties on board ship.

(4.) That a supply of material for stationary torpedoes be procured without delay.

(5.) That the Victorian forces be placed under the command of an Imperial officer, exchangeable every five years.

(6.) That, if possible, the services of a small body of men be obtained, chosen from the non-commissioned officers of the Royal Engineers, to superintend the construction of coast batteries; failing this, that the services of picked men from the drill instructors of the existing local forces be retained for a fixed period.

(7.) That the following local forces, to take the place of the present Volunteer Force, and to be regimental in their organization, be raised within a radius of ten miles from the General Post Office, Melbourne, and enrolled by voluntary enlistment for three years :—

Engineers, torpedo, and signal corps	200
Garrison artillery and field artillery	2,000
Infantry	1,200
Total	3,400

(8.) That when not on actual service six months' notice of retirement from this force be required; when called out for actual service no retirement to be allowed.

(9.) That the command of the naval and military forces be vested in the Crown and administered by its representative in Victoria, assisted by a small military council.

(10.) That the appointment of non-commissioned officers be made by the commanding officer, and of commissioned officers by the Governor on the recommendation of the commanding officer, subject in both cases to previous examination and certificate as to fitness.

(11.) That all paid officers and instructors be selected from those who have served for not less than five years, and who at the time of selection are actually serving in the regular army. That they hold office subject to the Mutiny Act, and for five years only.

(12.) That the local military force be, as far as practicable, subject to the Queen's regulations and orders for the army; their dress to be adapted to the climate, and the patterns of their arms and accoutrements to be approved by Her Majesty.

(13.) That a rifle-range with suitable butts and targets be permanently appointed for the use of the force.

(14.) That the force be called out each year for a period of not less than eight or greater than fourteen days for daylight drill, and that every such drill of not less than three hours' duration be paid for at the rate of one shilling per hour. The force so called out to be under the Mutiny Act.

(15.) That allowances be made for clothing and regimental expenses at the following rates per man in the respective corps:—

	£	s.	d.
Engineer, torpedo, and signal corps	4	0	0
Artillery	3	10	0
Infantry	3	0	0

(16.) That power be taken for establishing and regulating the functions of courts of enquiry and courts martial.

(17.) That grants in aid be given for the organization of rifle associations and the construction of armories and drill sheds throughout the colony.

(18.) That a school of military instruction be established, and encouragement given to military instruction in all schools and colleges throughout the colony.

(19.) That the services of the present Volunteer Force be discontinued.

(20.) That the local artillery force be absorbed as soon as possible into the Police and Penal Departments, and that recruiting for such force be discontinued.

(21.) That the police force be trained to the use of the rifle and ordinary company drill.

(22.) That permanent provision be made for the manufacture of gunpowder within the colony.

(23.) That application be made to the Imperial authorities to strengthen the present small wooden squadron kept on the Australasian station by the addition of at least two heavily armored and armed ironclads.

It may be mentioned, in addition to the foregoing, that, with a view to increase the efficiency of the local artillery forces, the step was taken in 1872 of sending Captain W. H. Snee, the instructor of gunnery and ordnance officer, to England, for the purpose of prosecuting a course of study in modern gunnery, &c. Captain Snee, to whom every facility was rendered by the Imperial authorities for the attainment of this object, arrived in England on 1st November 1872, and remained until near the close of 1873. During the intervening period he passed through the several courses of study prescribed for him, visited the various military establishments, and used every other means of acquiring information in connection with the immediate purposes of his mission and other cognate subjects. Captain Snee returned to Victoria in January 1874, and the several artillery corps are doubtless now receiving the benefit of his acquired knowledge.

[*The following remarks are by Colonel W. A. D. Anderson, Commanding Her Majesty's Forces in Victoria.*]

Works. The defensive works already provided are only intended for the protection of Hobson's Bay. To man them and for their protection, as will be seen under section O, there are in round numbers about (4,000) four thousand men, exclusive of about (1,300) one thousand three hundred police, who would no doubt be made available in some capacity.

The works were constructed before the introduction of rifled ordnance, but the smooth-bore guns have been replaced by a better armament.

Several schemes for new works have been proposed, but none have yet been adopted.

Garrisons. There is only one garrison maintained in Victoria, viz., that in Melbourne. It is composed of one battery of artillery, the organization of which is given under section O.

The guards furnished are those on the Government House, Treasury, and Barracks.

In the event of the forces being called out, on an emergency, for garrison duty at the works on the shores of the Bay, temporary huts would be constructed or tents used.

Magazines. The magazines of the colony until lately consisted of the Royal Park magazine, and small magazines in all the principal inland towns, the latter chiefly used for the powder of commerce, but available for military purposes.

The Royal Park magazine is capable of containing 3,888 quarter-barrels and 1,104 whole barrels of powder, but, owing to the population becoming more dense in its vicinity, has lately only been used for small arms ammunition ; and the Government has nearly completed a magazine on the newest principles, capable of containing all supplies required for military and civil purposes. This magazine is situated near the banks of a river, and will be approached by a canal therefrom.

Arsenals military depôts, factories. No national arsenal has yet been formed, nor do any factories exist.

The main depôt is at the Victoria Barracks, to which are attached sheds, store-rooms, artificers' workshops, &c.

Barracks. The Victoria Barracks, built of bluestone, is situated one mile south of Melbourne, and about two miles from the batteries on the northern or Sandridge side of the Bay—intended to accommodate 400 men, but at present one-half the buildings are temporarily occupied as industrial and reformatory schools, the other half is in the occupation of the Victorian Artillery Corps and the Head-quarters Staff offices.

War material. As the supplies of war material can only be obtained from England, it follows that the quantity on hand must fluctuate considerably, particularly as to small arms ammunition, large quantities of which are annually consumed in the training of the forces, and in rifle shooting, to which they are much given.

Before the introduction of the Martini-Henry rifle, this was of little consequence. It is now a subject for serious consideration.

Although fairly provided with ordnance ammunition, there is not a sufficient quantity kept on hand, when the probable interruptions in war time are considered.

For supplies in store see section O. There being no separate Engineer, Artillery, and Control departments, the whole of the materials of war are under one control and supervision.

With the exception of the Main Reserve, shot and shell are distributed at the works.

Although no doubt a considerable supply of arms of an irregular character could be collected, the Government possess sufficient for any probable requirement, irrespective of torpedo stores.

Clothing, food, and hospital stores, as a matter of course, would be both abundant and immediately at hand.

There is not the slightest necessity to lay in stores of provisions.

Method of sheltering troops, &c. The climate of Victoria during the summer months (6) being dry and temperate, troops can bivouac, and generally at all times light tents are sufficient for shelter. Tentage accommodation is in store for (3,000) three thousand men.

The local forces have frequently been encamped for instruction purposes with satisfactory results.

[*The following is a report, slightly abridged, sent in by Captain W. H. Snee, Instructor in Gunnery, to the Royal Commission on the Volunteer Forces* 1875.]

Guns in possession of the land forces of Victoria on the 30th May 1875 were as follow:— Guns in possession.

GUNS.

1st, Garrison Guns. 2nd, Guns of Position. 3rd, Field Guns.

The number of *Garrison* muzzle-loading rifled, and smooth-bored guns are—

Muzzle-loading rifled, 9″	6
Ditto, ditto, 80-pr.	25
Smooth-bored, 68-pr.	30
Ditto, 32-pr	38

Guns of Position.

Breech-loading rifled, 40-pr.	6

Field Guns.

Breech-loading Armstrong's rifled, 12-pr. ...	6
Ditto, ditto, 6-pr.	6
Muzzle-loading rifled, Whitworths, 3-pr. ...	6
Smooth-bored howitzer, 24-pr.	1
Ditto, ditto, 12-pr.	9
Ditto, ditto (gun), 6-pr.	2

In all, 135 guns of all calibres.

I divide these guns into *Serviceable, Obsolete-Serviceable, Unserviceable.*

The *Serviceable* guns are the following:—

M.L.R., 9″...	6
Ditto, 80-pr.	25
B.L.R., 40-pr.	6
Ditto, 12-pr.	6
Ditto, 6-pr.	6
Total	49

The *Obsolete-Serviceable* guns are—

M.L.R., Whitworth, 3-pr.	6
S.B., 68-pr.	29
Ditto, 45 cwt., 32-pr.	11
Ditto, 25 cwt., 32-pr.	16
Ditto, howitzer, 24-pr.	1
Ditto, ditto, 12-pr.	9
Ditto (gun), 6-pr.	2

The *Unserviceable* guns are—

S.B., 68-pr.	1
S.B., 45 cwt. 32-pr.	11

Projectiles.

The number of projectiles in the colony for the service of these guns is as follows :—

Nature of projectile.	Nature of Guns.										
	9″ M.L.R.	M.L.R. 80-pr.	A. 40-pr.	A. 12-pr.	A. 6-pr.	W. 3-pr.	S.B. 68-pr.	S.B. 32-pr.	S.B. 24-pr.	S.B. 12-pr.	S.B. 6-pr.
Shot, Palliser ..	50	..	..	..	..	..	..	..	..	..	..
Shot, Solid ..	..	..	228	392	338	1,201	1,793	2,213	..	..	1,574
Shot, Case ..	30	250	..	202	298	..	740	264	71	180	53
Shot, Grape ..	..	..	..	..	..	..	615	181	..	..	..
Shell, Shrapnell ..	25	..	..	..	..	..	..	..	..	..	..
Shell, Common ..	536	3,774	1,114	399	..	1,164	1,518	786	197	1,159	..
Shell, Diaphragm ..	..	..	..	..	..	..	416	309	244	1,025	..
Shell, Segment ..	..	..	285	2,001	2,432	..	..	..	..	..	..
Shell, Martin's, for hot shot	..	..	..	..	..	..	996	..	..	..	..
Totals ..	641	4,024	1,627	2,994	3,068	2,365	6,079	3,753	512	2,364	1,627

Giving an average number of rounds per serviceable gun of :—

9″	106	68-pr.	209
80-pr.	160	32-pr.	139
40-pr. A.	271	24-pr. howitzer ...	512
12-pr. A.	499	12-pr. howitzer ...	262
6-pr. A.	511	6-pr. gun	813
3-pr. W.	394		

Cannon powder.

The quantity of cannon powder in the colony is as follows, viz. :—

Pebble powder	29,569 lbs.
R.L.G. powder	67,510 „
L.G. powder	56,850 „
F.G. powder	337 „

The first description being used for the battering charges for the 9″ guns and upwards, the second for the service charges for muzzle-loading and breech-loading rifled garrison and field guns, the third kind for the smooth-bored garrison and field service.

There is sufficient powder in the colony for the projectiles for the rifled ordnance, but a deficiency for the smooth-bored ordnance.

Of the 9″ guns there are but 4 in position, viz., 3 at Williamstown, 1 at Sandridge.

Of the 80-pr. guns there are but 14 in position.

Of the 68-pr. guns there are but 14 in position.

Sites for guns.

The sites selected for guns at the outbreak of the Franco-Prussian war were—

WILLIAMSTOWN.

Right Battery	4	68-pr. guns*
Central Battery	1	9″ gun
	3	80-pr. guns
Lighthouse Battery	2	9″ guns
	4	80-pr. guns
	2	68-pr. guns*
Breakwater Pier	1	9″ gun
	3	80-pr. guns
Railway Pier	2	80-pr. guns
Steamboat Pier	2	80-pr. guns

* These guns were at that time mounted at the places above named.

SANDRIDGE.

In the Fisherman's Bend ...	4	68-pr. guns
Lagoon Battery	1	9″ gun
	2	80-pr. guns
Central Battery	3	80-pr. guns
St. Kilda Right Battery... ...	2	80-pr. guns
	1	68-pr. guns*
Railway Pier	2	80-pr. guns
Town Pier	2	80-pr. guns
Queenscliff	3	68-pr. guns*

Thus leaving to be determined positions for garrison rifled and smooth-bored guns, viz. :—

1 9″ at present in the Victoria Barracks
15 68-pr. guns
27 32-pr. guns†

Volunteer artillery.

The present means at the disposal of the colony for working the guns in time of war, assuming that *all* the serviceable guns would be placed in position, is as follows :—

There are on the roll of the Volunteer Artillery non-commissioned officers and gunners numbering 1,488.

The number of guns which are serviceable and obsolete-serviceable are 123.

The 9″ guns would require 25 men each	150
54 of the garrison guns would require 20 men each	1,080
27 would require 15 men each	405
The 40-pr., 12-pr., 6-pr. Armstrongs, and 3-pr. Whitworths, at least 15 men each	360
Total men which would be required ...	1,995

This detail is exclusive of the smooth-bored field guns, consisting of the howitzers and bronze guns, some of which have hitherto been horsed and worked by the Prince of Wales Light Horse.

Forts, batteries, &c.

At the Sandridge side of the bay, four 68-prs. (now obsolete) are mounted in the Fisherman's Bend, on rear-chock carriages on common wood platforms ; they were placed in this locality for the purpose of resisting any attack which might be made by vessels within Hobson's Bay.

The site is good, and if proper works were constructed on which heavy muzzle-loading rifled guns could be mounted in place of the 68-prs., the guns would prove an efficient support to our Naval Force, if compelled to retire inside the bay.

SANDRIDGE LAGOON BATTERY.

The works in this battery are in a very bad state, the sod-work is destroyed, and the sand has been driven by the wind inside the works ; that part of this battery which was constructed for guns mounted on standing carriages is a sand heap, the four guns hitherto mounted for practice purposes have from this cause been dismounted and removed inside the Battery Reserve. The only gun which would be of any use

* These guns were at that time mounted at the places above named.
† Most of these guns are at present distributed for drill purposes at the various artillery orderly rooms.

on the Sandridge side of the bay would be the 9″ gun if mounted on a proper serviceable platform; the work in which this gun is mounted is much out of repair, and offers no protection to the gun or men working it. Two 80-pr. guns form the remainder of the armament of this battery; but they would be of but little assistance, as although these guns are known for their accuracy of fire, still, at the distance a ship could stand off shore, their shells would be of little use against iron-clad ships of the present day. Against wooden vessels at long ranges, or an attack by boats, these guns would be effective.

The guns in the Central and Right Batteries are of no support to our Naval force, for the reasons already advanced.

The works in the Central Battery are in an unserviceable state, and totally unprotected. The whole of the guns now mounted on the Sandridge side could be rendered for a time unserviceable in a night by any ill-disposed person tampering with the vents.

On the Williamstown side the guns are distributed thus:—

Lighthouse Battery.

Two 9″ guns, with some 80-prs. and 68-prs.

The only guns which could form any support to a Naval Force, should it be forced to retire under their protection, are the 9″ guns; but as they are incapable of being traversed more than about 70°, a vessel approaching the bay would be safe from the fire from these guns for about 600 yards after she passed the lightship, and at a long range the other guns in this battery would prove of little support to the Naval Force.

The guns in the Central Battery have a range laterally of about 90°, and any vessel lying outside the lightship would be secure against the fire of the 9″ gun now in position in this work, the only guns which could be made available being the 80-prs. and 68-prs.

The Right Battery at Williamstown is at present not serviceable; the magazine and traverses are constantly being flooded from rain, and the earthworks crumbling away. The powder stored in this battery has, from this cause, been removed to places of security. The guns in this battery are obsolete.

The guns in this battery would form no support to a Naval Force.

Queenscliff Battery.

The guns mounted in this battery are obsolete, and would offer little or no support.

To sum up: the only guns available, if mounted on serviceable platforms, having increased lateral range, and commanding the approaches to the bay, are the six 9″ guns.

The 80-prs. would be useful against wooden ships if they approached within range, but as no ship need approach the shore on either side within 3,000 yards and upwards, a vessel would be tolerably safe against any fire which might be brought against her from these guns.

The 9″ and 80-pr. guns at present mounted are suitable for the support of a Naval Force, and that there are still in reserve—Two 9″ guns, 1 at Williamstown, 1 at Victoria Barracks; eleven 80-pr. guns; which should be placed in position in battery.

A sudden landing could doubtless be made from very many points along the shore.

Beyond the Right Battery (St. Kilda) on the Sandridge side, there are no coast batteries; there are, however, the battery of 40-pr. Armstrongs in charge of the Brighton Volunteer Artillery, and a battery of 3-pr. Whitworth guns in charge of the St. Kilda Artillery. The former, from their weight, and the slow pace at which they would be moved from place to place, could not be available for any sudden attack; and in the event of an attack, in all probability the enemy's boats would be provided with 9 or 12-pr. field guns, rifled, which would engage our field batteries, covered by the fire of their own ships. Within the radius of the fire from the batteries at present in existence, it would be difficult for boats to approach shore, always supposing the guns to be manned by trained gunners.

On the Williamstown side, on account of the rocky nature of the shore in the vicinity of the batteries, it would be hazardous for boats to attempt a landing, but if such was contemplated to the westward of the batteries the attempt would be met by infantry, with the co-operation of the field batteries of artillery; with a judicious distribution of rifled guns of small calibre, mounted behind inexpensive earthworks along the shores of the bay, a boat attack could probably be defeated, but a sudden attack on both sides of the bay simultaneously by the boats of a superior fleet at the present time might tax the powers of our force to repel it.

Hobson's Bay, from its extensive area, would prove an advantage to an attacking force, as vessels carrying long range guns, always steaming, momentarily changing their position, and at a considerable distance from shore, could drop their shells into our works, and inflict much injury. It is an extremely difficult matter to hit a ship in motion at long range, even if the guns are worked by experienced gunners.

The size of a vessel, the speed at which it may be moving, the distance it may be from the guns defending a position, atmospheric changes, &c., &c., render the chances of disabling a vessel somewhat remote.

Suggestions on defence.

For years past the question of the best method to be adopted to render the shores of Hobson's Bay secure against any sudden attack, the co-operation of the Naval Force always supposed, has received the mature and careful consideration of, and been reported upon by, most able officers in Her Majesty's army and navy, including Colonels Scratchley and Pasley, of the Royal Engineers. The following remarks are therefore confined chiefly to the character of guns which should be mounted, with a few suggestions as an addition to the reports above alluded to.

The colony possesses but six 9″ guns, capable, with the Palliser projectile of 250 lbs. weight each, of penetrating iron-clad ships of the present day. These guns, although very powerful for their weight, as armor-piercing guns, should be replaced by heavier ordnance, having superior range and penetrating power.

These 9″ guns should be mounted on dwarf traversing platforms in place of those provided for them, viz., the "casemate."

The platforms in this colony are of the "Elswick" pattern. They rise but a limited height above the level of the ground, and in consequence the parapets in front of them must of necessity be only of a height sufficient to admit of the guns being "run up" and "laid" above them.

The platforms on which these 9″ guns are mounted should be supplied with proper traversing gear. This matter ought to receive immediate

attention, as the heavy muzzle-loading rifle guns, as now mounted, are comparatively speaking useless, simply because they cannot be "trained" excepting with great difficulty.

The works in the present batteries should (if they are to be retained) be at once placed in serviceable condition.

The following alterations and additions to the armament are recommended:—

In the Fisherman's Bend, at Sandridge, the 68-pr. guns should be replaced with not less than two 9″ or 10″ guns, properly mounted on platforms of the most improved principle, with the construction of ammunition and shell stores.

The 9″ gun in the Lagoon Battery at Sandridge should be replaced with a 10″ or heavier gun, capable of being traversed in the direction of Point Ormond and commanding the bay.

One 10″ gun should be mounted in the Central and St. Kilda Right Batteries respectively.

Two 25-ton guns should be mounted at Point Ormond, with small ammunition and shell stores.

Light rifled guns should be placed at intervals along the shore, behind earthworks, between St. Kilda Right Battery and Point Ormond, to protect mines or resist boat attacks.

On the Williamstown side it is of paramount importance that the Right Battery should receive a 10″ or heavier gun, to oppose the fire of any vessel approaching in the direction of the west shore.

In the Central Battery, in the centre of the right flank, a 10″ or heavier gun should be mounted, having great lateral range; and the 9″ gun, mounted on the right of the left flank, should be rendered capable of giving more lateral range seawards.

In the Lighthouse Battery a 10″ gun should take the place of the two 80-pr. guns now mounted on the right flank, and have great lateral range. All the smaller ordnance would be of great use if mounted in the vicinity of, and to protect, submarine mines or resist boat attacks. The two 9″ guns in the left flank of this battery should have greater lateral range seawards.

The end of the Breakwater Pier, if made capable of receiving a heavy M.L. rifled gun, 12″, of 25 tons, mounted on a central pivot, would be an admirable site for a battery.

The guns mounted at Queenscliff should be replaced by heavy M.L. rifled guns, and a 35 or 38-ton gun might be placed in the work (at present unoccupied) already constructed for a piece of heavy ordnance. One heavy rifled gun at both Point Lonsdale and Point Nepean would add vastly to the defence of the port.

Along the shores of the bay, between Point Lonsdale and Shortland's Bluff, small rifled guns 80-prs. should be mounted, behind earth works, to resist boat attacks or protect mines if submerged in that locality.

At present a vessel of modern construction, with wind and tide in its favor, could steam past this fort and be out of range in a few minutes, and if struck by a shot at the range it would probably be fired at, would receive but little, if any, damage.

A ship could anchor in the anchorage ground, near the Swan Spit, and be out of harm's way from this battery, as at long ranges the projectiles from the smooth-bored guns are uncertain in their flight; this uncertainty increasing with the range.

The following important subjects should receive most serious consideration :—

Defence by torpedoes. Torpedoes.

Hostile ships should be prevented from entering the Heads.

Whether it would be practicable, when circumstances required it, to submerge mines at the entrance, owing to currents, &c., is a matter for discussion. Without doubt the channels nearer Melbourne could be defended by mines. These mines must be laid with great care; and a great amount of drill is required on the part of those entrusted with the work.

The Royal Engineers are engaged in this service throughout the year; it is a study of itself; and the men receive special training at the School of Military Engineering at Chatham, in preparing and laying them down.

Torpedoes are applicable to almost all circumstances, and could be used for the defence of harbors of large area and small ports. Should a scheme of submarine mines be carried out, it would be necessary to protect them from shore by covering them with the fire of guns to prevent their being searched for and grappled. In point of fact, mines and batteries would afford mutual support to each other.

The moral effect of mines would be great. If it became known that torpedoes could be readily submerged at the entrance to Port Phillip, in the channels, and in all our ports, and that the colony has at its command a force capable of laying them down at any moment, an enemy might be deterred from venturing to make an attack on the colony.

Section F.—DOCKYARDS AND NAVAL ESTABLISHMENTS.

[*The following information has been taken partly from Hayter's "Victorian Year Book* 1874," *and partly from a statement furnished by Captain C. B. Payne, Chief Harbormaster of Victoria.*]

DOCKS, SLIPS, ETC.

Docks, slips, &c.

THE Alfred Graving Dock at Williamstown is the property of the Government, and is by far the largest dry dock at present in the southern hemisphere. It is constructed of the basalt or bluestone of the neighborhood, and is 450 feet in length on the floor, and 465 feet over all. It is 97 feet between the copings, and 80 feet wide at the entrance ; and it has a depth of water, over the sill, at ordinary tides of 24 feet 6 inches at low water, and of 26 feet 6 inches at high water. The cost of the dock proper has been about £223,000, and the pumping machinery and caisson, both of which were made in the colony, cost about £20,000 in addition. In the Government workshops adjoining, machines of all kinds are provided, capable of performing almost every kind of work required in connection with shipping or machinery. There is no intention at present to enlarge this graving dock, but it could be extended to twice its present length. There is no special defence for the dock beyond that of the port generally. There are no defects in any of the docks or slips. The only new work of the kind at present projected is the enlargement of Messrs. Wright and Orr's private dock on the River Yarra, which, when completed, will be sufficient, with the others enumerated in the return which follows, for all the trade of the port for some time to come.

Subjoined is an enumeration and description of all docks, slips, &c., in the port of Melbourne, and a statement of the general capabilities of each :—

Name of Dock.	Length. — Floor.	Breadth. — Floor.	Depth.	Depth of Water over Sill.	Remarks.
	Feet.	Feet.	Feet.	Feet.	
Alfred Graving Dock, Williamstown	450	80	28½	24½ L.W. 26½ H.W.	Government property.
Deane's Floating Dock, Williamstown	156	35	11	11	Private property.
Duke's Dock (Graving), River Yarra	300	53	14	14	Private property.
Wright and Orr's Dock (Graving), River Yarra	250	40	13½	13½	Private property.

PATENT AND OTHER SLIPS.

Name.	Capacity of Slip.	Water at Outer End.	Water at Inner End.	Remarks.
	Tons.	Feet.	Feet.	
Government Patent Slip, Williamstown	2,000	18½	11½	Government property
Wright's Patent Slip, Williamstown	500	11½	8	Private property.
White's Slip, Williamstown ...	79	9	5½	Private property.
Deane's Slip, Williamstown ...	79	9	5½	Private property.
Legg's Slip, Williamstown ...	60	9	5½	Private property.

NAVAL ESTABLISHMENTS.

Naval establishments.

The only naval establishment in the colony is the hulk *Success*, which is moored in Hobson's Bay, and is used for storing spare shot and shell and other naval stores for the *Cerberus* and *Nelson*.

Section G.—CLIMATE, AS AFFECTING PRODUCTIONS AND HEALTH.

[*The following remarks are by the Editor.*]

Temperature

THE most important meteorological element, and the one by which, more than any other, the healthfulness and rate of mortality in a country are affected is undoubtedly the temperature.

The mean temperature of the air in Melbourne, derived from observations* extending over a period of fourteen years, is 57·6°. Upon examining a chart showing isothermal lines, it will be found that Melbourne is situated upon or near the line corresponding with that in the northern hemisphere on which Marseilles, Bordeaux, Bologna, Nice, Verona, and Madrid are situated. The difference, however, between winter and summer, and the hottest and coldest month, is far less in Victoria than in any of these places; and, with regard to the differences referred to, Melbourne more closely resembles Lisbon, and still more so Maffra, eighteen miles to the north-west of Lisbon, situated 700 feet above the level of the sea, and in latitude 38° 55′ north.

The three months from September to November are considered in Victoria to be the spring quarter; those from December to February the summer quarter; those from March to May the autumn quarter; and those from June to August the winter quarter.

The mean temperature of the autumn quarter in Melbourne is, on the average, nearly two degrees (1·7°) higher than that of the spring quarter; and the mean temperature of the summer quarter is, on the average, over sixteen degrees (16·1°) higher than that of the winter quarter. This will be observed from the following figures based upon observations extending over fourteen years:—

	Mean Temperature of Air at Melbourne.			Mean Temperature of Air at Melbourne.
	°			°
Spring ...	57·0	Autumn ...		58·7
Summer ...	65·3	Winter ...		49·2

January and February are the warmest months in Melbourne, June and July the coldest. This will be seen by the following figures, which give the average for sixteen years:—

	Mean Temperature of Air at Melbourne.			Mean Temperature of Air at Melbourne.
	°			°
January ...	66·7	July ...		47·7
February ...	65·6	August ...		50·1
March ...	63·8	September ...		53·3
April ...	58·8	October ...		57·1
May ...	53·3	November ...		60·8
June ...	49·8	December ...		63·9

During the nineteen years ended with 1876, the thermometer in the shade, at Melbourne, rose seventy-three times to or above 100°

* These observations are obtained from readings of the thermometer in the shade, but fully exposed to the open air.

Fahrenheit. The following are the dates and the highest readings. It will be observed that 1861 and 1864 are omitted, as the thermometer never reached 100° in those years :—

HOTTEST DAYS AT MELBOURNE.

	°		°		°
1858.—Jan. 5 ...	101·6	1867.—Jan. 25 ...	101·0	1872.—Jan. 9 ...	101·0
„ 27 ...	106·8	„ 26 ...	103·0	„ 10 ...	102·0
„ 28 ...	107·8	Dec. 19 ...	104·6	„ 16 ...	103·3
„ 31 ...	101·0	1868.—Jan. 25 ...	100·3	„ 21 ...	100·8
Nov. 22 ...	103·2	Mar. 1 ...	104·6	1873.—Jan. 20 ...	101·0
1859.—Feb. 6 ...	104·0	„ 6 ...	100·7	Feb. 16 ...	102·4
„ 3 ...	100·3	„ 20 ...	100·0	Dec. 8 ...	101·2
Dec. 4 ...	103·0	Nov. 28 ...	101·3	„ 9 ...	100·6
„ 20 ...	100·1	Dec. 11 ...	101·0	„ 15 ...	100·1
1860.—Jan. 21 ...	108·8	„ 24 ...	110·0	1874.—Feb. 14 ...	101·0
„ 22 ...	111·0	1869.—Feb. 19 ...	100·8	Dec. 17 ...	102·7
1862.—Jan. 13 ...	105·0	Dec. 15 ...	100·0	„ 28 ...	102·2
„ 14 ...	111·2	„ 20 ...	108·4	1875.—Jan. 5 ...	101·1
Dec. 31 ...	107·2	„ 21 ...	101·3	„ 19 ...	106·8
1863.—Jan. 8 ...	104·6	1870.—Jan. 12 ...	104·1	„ 20 ...	110·4
Feb. 1 ...	103·9	„ 23 ...	107·0	„ 21 ...	109·9
„ 2 ...	104·0	„ 24 ...	107·1	„ 22 ...	101·8
1865.—Feb. 27 ...	103·4	Feb. 3 ...	102·8	Feb. 3 ...	100·3
Dec. 27 ...	101·8	„ 15 ...	109·0	1876.—Jan. 28 ...	100·1
1866.—Jan. 15 ...	103·0	„ 21 ...	102·0	„ 29 ...	102·0
„ 16 ...	108·2	1871.—Dec. 4 ...	101·0	„ 30 ...	102·9
Feb. 7 ...	100·9	„ 21 ...	100·2	Feb. 7 ...	102·9
„ 8 ...	102·5	„ 22 ...	106·0	Dec. 14 ...	102·6
„ 11 ...	102·0	„ 30 ...	102·8	„ 15 ...	110·7
1867.—Jan. 12 ...	108·4				

During the winters of the same nineteen years fifty-six instances were recorded of the thermometer falling to or below the freezing point. The thermometer never fell so low as 32° in 1862, 1871, or 1872. The lowest point indicated (27°) was reached on the 21st July 1869.

The mean temperature of the air has been ascertained at the following places for a series of years. It will be observed that Portland, a seaport near the extreme west of the colony; Gabo Island, close to the point where the dividing line between Victoria and New South Wales meets the ocean, at the extreme east of the former; and Sandhurst, a city to the north of the Dividing Range, are warmer than Melbourne; but that Cape Otway, on the coast to the west of Port Phillip, and Ballarat, a city seventy miles in the interior, and south of the Dividing Range, are colder than Melbourne :—

	Number of Feet above Sea-level.	Mean Temperature of Air.
		°
Ballarat	1,438	53·9
Cape Otway	270	55·2
Gabo Island	40	58·7
Melbourne	91	57·6
Portland	37	61·1
Sandhurst	758	58·6

The Observatory at Melbourne is 91 feet above the level of the sea. The following figures, derived from observations taken at that Observatory over a period of fourteen years, show, for each of the four seasons, the mean height and mean monthly range of the mercury. The height

of the column is reduced to 32° Fahrenheit, but not to the level of the sea :—

	Mean Height of Barometer at Melbourne.	Mean Monthly Range of Barometer at Melbourne.
	inches.	inches.
Spring	29·887	·812
Summer	29·835	·810
Autumn	30·004	·983
Winter	30·002	·932
Year	29·932	·884

Subjoined is the mean height of the barometer during a series of years at the stations already named, and, in addition, at Ararat, an inland town situated near the Dividing Range, and at Port Albert, a seaport town in Gippsland, 120 miles to the south-east of Melbourne :—

Stations.	Number of Feet above Sea-level.	Mean Height of Barometer.
		inches.
Ararat	1,050 ...	28·850
Ballarat	1,438 ...	28·517
Cape Otway	270 ...	29·730
Gabo Island	40 ...	29·896
Melbourne	91 ...	29·932
Port Albert	10 ...	29·993
Portland	37 ...	29·981
Sandhurst	758 ...	29·211

Rainfall.

The rainfall in Melbourne varies greatly in different years. Observations are here given extending over a period of the thirty-six years ended with 1875. The spaces opposite the year of separation from New South Wales (1851), and the three subsequent years, are blank, as no observations were recorded in those years. The year of greatest rainfall during the period was 1849, in which 44·25 inches of rain fell; then 1863, with 36·42 inches; then 1870, with 33·77 inches. The year when least rain fell was 1865, with 15·94 inches; then 1868, with 18·27 inches; then 1843, with 21·54 inches.

RAINFALL AT MELBOURNE, 1840–1875.

Year.	Number of Days on which Rain fell.	Number of Inches of Rain.	Year.	Number of Days on which Rain fell.	Number of Inches of Rain.
1840		22·57	1859 ...	156	21·80
1841		30·18	1860 ...	133	25·40
1842		31·16	1861 ...	159	29·16
1843		21·54	1862 ...	139	22·08
1844		28·26	1863 ...	165	36·42
1845		23·93	1864 ...	144	27·40
1846		30·53	1865 ...	119	15·94
1847		30·18	1866 ...	107	22·41
1848		33·15	1867 ...	133	25·79
1849		44·25	1868 ...	120	18·27
1850		26·98	1869 ...	129	24·58
1851		...	1870 ...	129	33·77
1852		...	1871 ...	125	30·17
1853		...	1872 ...	136	32·52
1854		...	1873 ...	134	25·60
1855		28·21	1874 ...	134	28·11
1856		29·75	1875 ...	158	32·87
1857		28·90			
1858 ...	158	26·02	Means ...	137·7	27·747

The mean for fourteen years of the rainfall in Melbourne during the various seasons is set down as follows :—

RAINFALL AT MELBOURNE DURING THE VARIOUS SEASONS.

Seasons.	Mean Number of Days' Rainfall.	Mean Number of Inches of Rain.
Spring	40·3	7·79
Summer	24·4	6·41
Autumn	28·9	5·78
Winter	41·9	5·67
Year	135·5	25·65

The following table shows the rainfall at various stations in each of the thirteen years ended with 1875. It will be observed that the mean number of days on which rain falls is greatest at Cape Otway and Portland, next at Melbourne and Ballarat, next at Ararat, and least of all at Sandhurst; also, that the mean rainfall is greatest at Cape Otway, next at Portland, next at Ballarat, next at Melbourne, next at Ararat, and least at Sandhurst.

RAINFALL AT VARIOUS STATIONS, 1863–1875.

Years.	Ararat.		Ballarat.		Cape Otway.	
	Number of Days on which Rain fell.	Total Amount of Rainfall.	Number of Days on which Rain fell.	Total Amount of Rainfall.	Number of Days on which Rain fell.	Total Amount of Rainfall.
		inches.		inches.		inches.
1863	131	37·37	173	37·27	...	...
1864	131	...	133	24·02	...	...
1865	79	15·71	110	20·09	185	38·62
1866	115	18·21	127	23·35	182	34·28
1867	105	25·28	132	29·87	172	38·98
1868	115	23·27	111	17·23	162	31·99
1869	129	20·68	132	22·85	132	36·84
1870	141	28·20	138	36·38	149	36·60
1871	143	25·75	122	27·51	174	36·66
1872	141	28·79	134	31·81	173	37·90
1873	107	21·45	119	27·49	163	32·11
1874	80	23·17	130	27·83	157	42·44
1875	99	24·92	148	33·36	166	40·33
Means ...	116·62	24·40	131·46	27·62	165	36·98

RAINFALL AT VARIOUS STATIONS, 1863–1875—*continued.*

Years.	Melbourne.		Portland.		Sandhurst.	
	Number of Days on which Rain fell.	Total Amount of Rainfall.	Number of Days on which Rain fell.	Total Amount of Rainfall.	Number of Days on which Rain fell.	Total Amount of Rainfall.
		inches.		inches.		inches.
1863	165	36·43	178	45·31	150	33·92
1864	144	27·40	153	33·06	105	23·03
1865	119	15·94	161	34·37	74	10·85
1866	107	22·41	160	31·75	106	21·41
1867	133	25·79	164	33·87	110	26·66
1868	120	18·27	175	30·32	102	17·34
1869	129	24·58	156	23·53	99	21·29
1870	129	33·77	135	...	127	38·37
1871	125	30·17	...	...	118	27·12
1872	136	32·52	175	37·01	111	26·25
1873	134	25·61	186	30·77	115	20·54
1874	134	28·10	170	32·11	80	19·58
1875	158	32·87	195	35·97	107	24·82
Means ...	133·33	27·22	167·33	33·46	108	23·94

Winds.

All writers upon the meteorology of Victoria agree that the alternation of the equatorial and polar currents is the main feature of the wind system. Near the sea the character of the winds is influenced by land and sea breezes, and in the interior the currents of air are affected by mountain chains and other features of the country.

The following table gives the average for six years of the percentage of hours in each of the seasons during which the wind blew at Melbourne from the different points of the compass :—

WINDS IN MELBOURNE DURING THE VARIOUS SEASONS.

Winds.	Spring.	Summer.	Autumn.	Winter.	Year.
North	16·2	7·4	14·4	31·8	17 5
N.W.	8·6	4·0	6·2	13·5	8·1
West	15·9	8·6	10·4	13·9	12·2
S.W.	17·0	19·3	13 3	8·7	14·5
South	16·1	24·9	16·0	5·3	15·6
S.E.	8·9	20·2	16·7	4·8	12·6
East	4·3	6·2	6·7	3·3	5·1
N.E.	12·0	8·5	14·9	17·7	13·3
Calms	1 0	·9	1·4	1·0	1·1
Total ...	100·0	100·0	100·0	100·0	100·0

The mean number of miles travelled by the wind are set down as 7,838, the mean hourly velocity as 10·7 miles, and the greatest hourly velocity during six years as 58 miles, from midnight to 1 h. a.m. on the 8th March 1866.

The strongest winds in Melbourne are those from the north and south-west. Westerly winds are throughout the country at all seasons frequent, and blow generally with great violence and in heavy squalls. East winds are usually light.

It has been noticed that the wind is lightest on the average at 1 a.m. and strongest at 1 p.m., and shows a regular increase and decrease between those points.

It has been observed that winds from the north and south prevail at Ararat, Ballarat, Castlemaine, Geelong, Heathcote, Melbourne, and Sandhurst; and that winds from the east and west are most frequent at Alberton, Beechworth, Camperdown, and Portland.

The hot winds of Victoria form the peculiar feature of its climate which is most talked about in other countries, and is most dreaded by new arrivals. They frequently set in about 9 a.m., and blow from the north with great violence, raising clouds of dust. Vegetation becomes parched up, fruit falls from the trees, and most descriptions of animals appear to be greatly oppressed. The time is a trying one for young children and invalids. The wind often changes to the south towards evening, but sometimes continues to blow from the north for two and even three days. When the welcome southerly wind sets in it frequently does so in a heavy squall, accompanied with drops of rain and thunder and lightning, and the thermometer sometimes falls as much as twenty or thirty degrees in half an hour. The average number of hot winds for the colony is said to amount to eight or nine per annum, but the average is different in different localities, according to the following classification :—

	Average Number of Days of Hot Wind per Annum.
Melbourne and Castlemaine	14
Sandhurst, Heathcote, and Portland	11
Beechworth, Ararat, and Swan Hill	8
Geelong and Ballarat	6
Alberton and Camperdown	3

Thunderstorms in Victoria are often exceedingly heavy, and are accompanied with torrents of rain. The yearly average for Victoria has been observed to be sixteen, distributed over the different seasons as follows :— Thunderstorms.

	Mean Number of Thunderstorms in Victoria
Spring	5
Summer	6
Autumn	3
Winter	2
Year	16

The average frequency of thunderstorms differs in different localities. It is said that these may be grouped as follow :—

	Average Number of Thunderstorms in the Year.
Ararat, Beechworth, and Melbourne	26
Camperdown, Heathcote, and Alberton	19
Ballarat, Sandhurst, Castlemaine, and Portland ...	13
Geelong and Swan Hill	3

Lightning.

Besides thunderstorms, lightning without thunder is frequently seen, the average number of days in Melbourne being thirty-five in the year. These are divided into the different seasons as follow :—

	Average Number of Days of Lightning without Thunder at Melbourne.
Spring	12
Summer	8
Autumn	8
Winter	7
Year	35

Hail.

Storms of hail occur chiefly in spring and in the end of winter, although they sometimes take place in summer. The average number of hailstorms in different localities has been recorded as follows :—

	Average Number of Hailstorms in the Year.
Camperdown	9
Beechworth	6
Ballarat, Heathcote, and Portland	5
Melbourne and Swan Hill	4
Ararat, Castlemaine, and Sandhurst	3
Port Albert	1

Hoar-frost and ice.

Hoar-frost and ice occur pretty frequently in Melbourne in the month of July, sometimes also in June and August—rarely as late as September. It is mentioned as a fact worthy of notice that on one occasion hoar-frost was seen in Melbourne as late as the 22nd September. At the mountainous stations, however—Ballarat, Beechworth, Castlemaine, Heathcote, Sandhurst, and Warrenheip—ice occurs as early as the last days of March, and as late as the middle of October ; whilst at stations near the seacoast it is never seen before the last days of May or after those of September. According to observations, the average number of days on which ice occurs are thirty-five for Heathcote, sixteen for Ballarat, and eleven for Beechworth. In one year, a very favorable one for the formation of ice, it occurred on seven days in Melbourne.

Death-rate at different periods of the year.

The death-rate in Victoria, in the eleven years ended with 1875, averaged 15·92 per 1000 of the living population ; the average in the year of greatest mortality during that period (1866) being 19·37 per 1000, and that in the year of least mortality (1871) being 13·43 per 1000. In England and Wales, during the twenty years ended with 1873, the average death-rate was 22·26 per 1000.

The relative mortality of the different seasons is very different in Victoria from that obtaining in England and Wales. Thus the greatest mortality occurs in the summer quarter in Victoria, and in the winter quarter in England and Wales. The next greatest mortality is in the autumn quarter in Victoria, and the next in the spring quarter ; but in England and Wales the mortality of the autumn quarter and that of the spring are nearly identical. The period of least mortality in Victoria is the winter quarter, and in England and Wales the summer quarter. The following is the proportion of deaths in each quarter in Victoria during a period of ten years :—

	Deaths per 100 at all Seasons.
Summer	30·94
Autumn	26·43
Winter	20·66
Spring	21·97
Year	100·00

The first five months and the last month in the year are those in which the greatest mortality occurs. The relative fatality of the respective months varies, however, in different years. Subjoined is the percentage of deaths in each month ranging over a period of ten years :—

	Percentage in Ten Years.
January	10·72
February	9·52
March	10·70
April	9·76
May	8·93
June	7·74
July	7·42
August	6·89
September	6·35
October	6·65
November	6·58
December	8·74
Year	100·00

[*The following paper has been contributed by W. McCrea, M.B., Chief Medical Officer of Victoria.*]

Climate as affecting health.

When uncontrolled by adventitious circumstances the effect of the climate of Victoria, pure and simple, on the health of Europeans is unquestionably beneficial, from the simple fact that it is drier and has more sunshine than the climate of Europe, thus enabling the inhabitants to spend more of their time in the open air. The nature of the flora of the country has, I think, also an important bearing on the greater comparative salubrity of Australia compared with Europe; the trees are mostly eucalypti, possessing several qualities which tend to render the air more pure; they grow very rapidly, and thus convert the moisture and carbonic acid in the air into woody fibre; their roots absorb moisture from the soil in great quantities, and thus tend to dry up marshy ground and prevent malarial fever; their leaves are particularly rich in an essential oil, which possesses valuable antiseptic and disinfectant properties; and they shed their bark annually rather than their leaves, the decay of the bark being unattended with the evolution of noxious gases which results from the decomposition of fallen leaves in Europe.

1. With regard to the natives born in Victoria of European parents, the climate of the colony is likely to have similar effects, and to be similarly beneficial when not counteracted by insanitary influences; the youth of the colony generally, when the offspring of healthy parents, promising to be a strong, active, and healthy race. Regarding the native population—the blacks—scarcely any opinion can be formed of the effects of climate on their constitutions; their history since they came into contact with Europeans is a sad one, from the fact of their unusual subjection to the vices of civilization, through the effects of which they are becoming rapidly extinct; but there is no reason to believe that the climate of the colony has any injurious effect on them, or is in any way a factor in the causes which are steadily sweeping them away.

2. The sickly periods of the colony are, undoubtedly, the four hot months of the year—December till March; during these months zymotic

disease is more prevalent, and the causes of it have greater influence than at other times. This arises partly from the depressing effect of heat on the vital powers, and partly from the habits of the colonists, who, in common with their European ancestors, do not take into consideration the fact that a considerable portion of the food we consume is required to supply heat to the body, and that less food is required in hot than in cold weather. They, however, pay little or no attention to this important point, and usually consume in the summer time a much greater amount of food, both in solids and liquids, than is necessary to preserve them in good health; consequently the digestive organs become weakened from over work, and the vital powers are lowered in the hot weather from both external and internal causes. The heat during these months operates in another manner less evident, but becoming, as shown by the results of careful investigations, of constantly increasing importance as a factor in the unhealthy season, that is the drying of the surface of the ground in thickly peopled places. It has been noticed in Europe, particulary by Petenkofer, in Germany, that there was a remarkable fluctuation in the public health synchronous with the rise and fall of subsoil water—increased sickness accompanying a fall in the subsoil water, and diminution of sickness accompanying its rise. Similar observations have been made in this colony with a similar result. When it is considered that the ground to the depth of one or two feet becomes, during moist weather, in populous places the recipient of a vast amount of animal and vegetable matter suspended or dissolved in the subsoil water; and that, so long as the water is high in the subsoil these matters remain in it, but when the water becomes low, simply through drying, these matters are evaporated in a decomposing form into the atmosphere, it is natural to conclude that the atmosphere thus polluted will cause a greater amount of sickness in the summer than in the winter.

Sanitary rules.

3. The sanitary rules to be observed to preserve a fair amount of health in this colony are few and simple.

Clothing.

A. As regards clothing, this, as in all other places, must be regulated by the seasons; light clothing should be worn in the summer, and warmer clothing in the winter. Care should be taken to wear such articles of clothing as will best protect the body against sudden changes of temperature, for though the temperature on the whole is tolerably uniform in the different seasons, sudden changes do very frequently take place without any warning—there is probably no place in the world where coming weather can be less foretold than in this colony; it is a notorious fact that all the weather prophets who have hitherto tried to predict future atmospheric changes have utterly failed in their prognostications. Woollen garments should be generally worn, especially next the skin—crimean shirts and woollen socks especially—heavy or light, according to the season of the year, are best qualified to resist the effects of the sudden changes. At no period of the year is the weather very cold, as will be perceived by reference to the thermal tables in the appendix; it is not, therefore, advisable to wear much overclothing, even in the winter, by persons engaged in bodily exercise, but those who are exposed to the inclemency of the elements, such as sentinels and mounted men, should be protected by suitable garments—of these a loose, waterproof, woollen poncho is, I think, preferable to heavy overcoats fitting closely to the body, or to macintosh waterproof material.

Diet.

B. Diet is, in my opinion, the most important element of health in troops. I have no doubt whatever that a good deal of the sickness to

which natives of Great Britain are subject arises from eating and drinking too much ; very few people are free from this vice, and troops are not to be numbered among them. Their time is not generally sufficiently occupied, and they have more leisure, during which they relieve the tedium by eating and drinking. In this colony, the high rate of pay and the low price of food and drink enable them to gratify their cravings in this respect to the utmost, especially in regard to animal food, which is more plentiful and the practice of consuming it more general in Australia than in most other places. The ration supplied to soldiers is the same all the year round ; this is a mistake ; it is impossible for any one to eat as much food with the thermometer ranging about 80° as he can when it ranges about 40° and retain his health, so that what is sufficient to support the body in winter is too much in summer ; the digestive organs cannot assimilate it, they become weakened by the overwork, the vital powers become lowered, and the frame becomes more liable to external influences, causing disease. There should be, in my opinion, two or three rations, to suit the different seasons of the year, for the soldier, instead of the present single one. The winter ration should consist of substances which contain more nitrogen and carbon, and the summer ration should consist of a greater amount of green vegetables and fruit, a third ration combining the two for the spring and autumn would be both useful and sanitary. The late Dr. Parkes' book on military hygiene is probably the best authority on this subject. If troops are brought out here from Europe, a board composed of medical men of long experience in the public institutions in this colony would be able to draw out a scale of diet which would be suitable for the soldier at the several seasons of the year, and correct the unhealthy tendencies of the present one.

C. As regards the habits of soldiers, it is a notorious fact that they are usually very idle, their time not being fully occupied. If some means could be adopted to occupy the time in which troops are not actually engaged in military matters the benefit would be great, and the harder the work the better ; trades should be taught to the more intelligent, and fatigue parties could be formed among the others to perform manual labor ; the public works, parks, and gardens might be made fields for this labour. There is nothing like hard work to promote health ; tired men are more disposed to go to sleep at night than to indulge in drink and immoral amusements. Habits.

4. Most of these suggestions are applicable to troops both in barracks and in the field ; in both there is a necessity for good drainage and healthy sites, whether for barracks or tents, and in both a supply of pure water is necessary. In barracks the ventilation is a matter for urgent consideration, the space necessary for each man being 600 cubic feet in a well-ventilated sleeping room, and from 1,500 to 2,000 cubic feet in hospitals. Tents could be utilized to a much greater extent in this country than in Europe, provided the site on which they are pitched be well situated for drainage purposes, and, sheltered from vicissitudes of weather, tent life is a most healthy one. As hospitals for contagious diseases tents are most useful ; their facilities for movement from one place to another, their easy isolation, and the perfect ventilation of which they admit, are strong sanitary reasons for treating contagious diseases in tents, especially in this climate, where there is so much dry weather.

5. The only sanatorium at present in Victoria is the Sanatory Station at Point Nepean, where there are stone hospitals erected which are Sanatorium.

capable of accommodating 500 men. It comprises an area of 1,400 acres, situated on a point of land about two miles long and varying in breadth from 200 yards to a mile, having a frontage on one side to Port Phillip Bay and on the other to the Southern Ocean. The land is composed of a surface stratum of earth (the debris of decayed vegetable matter) covering sand and sandstone rock, the contour is undulating, the hills rising to 200 feet. It is well wooded with trees suitable for firewood. It is probably as healthy a spot as there is in any part of the world, and is in other ways admirably suited to the purposes of a sanatorium. This is the only place permanently set apart for sanatory purposes, but with the use of tents there is no limit to possible sanitaria in the colony.

Opinions.

6. The opinions which are of greatest weight in sanitary matters are contained in Parkes' treatise on hygiene ; I do not see the necessity of quoting them, as it is the standard work in Great Britain on this subject, and is as well known to the Imperial Government as it is to me.

Section H.—TRADE, AGRICULTURE, PRODUCTIONS, with their bearing on Resources and Transport, Price of Labor, &c.

[*The following remarks are by the Editor.*]

THE declared values of imports and exports in 1875,* their sum being the total value of external trade, were as follow :— Imports and exports.

Value of imports	£16,685,874
„ exports	14,766,974
Total trade	£31,452,848

The imports of Victoria in 1875 were exceeded by those in the years 1854, 1857, and 1874 only; the exports in 1875 were exceeded only by those in the years 1856, 1857, 1868, 1873, and 1874.

The imports in 1875 amounted to £20 9s. 6d. per head of the population, the exports to £18 2s. 4d. per head, and the total trade to £38 11s. 10d. per head.

Of the articles imported in 1875, 45 per cent. were the produce or manufacture of the United Kingdom, 38 per cent. of other British possessions, and 17 per cent. of foreign countries. Of the articles exported, 72 per cent. were the produce or manufacture of Victoria, and 28 per cent. were of other countries, viz., 9 per cent. of the United Kingdom, 14 per cent. of other British possessions, and 5 per cent. of foreign states.

Forty-seven per cent. of the imports were from the United Kingdom, 42 per cent. from other British possessions, and 11 per cent. from foreign states. Of the exports, 47 per cent. were to the United Kingdom, 52 per cent. were to other British possessions, and only 1 per cent. to foreign states.

The following are the values of twenty of the principal articles imported in 1875 :—

IMPORTS.

	£		£
Apparel and slops ...	345,342	Live stock	1,145,751
Bags and sacks ...	172,404	Oil	234,435
Beer and cider ...	173,774	Silks	231,775
Boots and shoes ...	202,532	Specie	143,965
Coals	263,267	Spirits	375,339
Cottons	575,134	Sugar and molasses ...	1,040,410
Gold (exclusive of specie)	869,419	Tea	749,368
Grain (including rice)...	616,582	Tobacco, cigars, and snuff	235,709
Haberdashery and drapery	361,796	Wool	2,310,477
Iron and steel ...	733,000	Woollens	898,073

* The declared value of imports in 1876 was £15,705,354, that of exports in the same year was £14,196,487.

The exports of 1875 included certain articles of the following values :—

EXPORTS.

	£		£
Apparel and slops ...	173,080	Machinery	67,587
Bones and bonedust ...	14,000	Provisions, preserved and salted	140,622
Boots and shoes ...	76,047	Specie	1,486,678
Drapery	160,249	Sugar	322,619
Flour and biscuits ...	35,593	Tallow	203,243
Gold, exclusive of specie	3,177,905	Tea	248,224
Grain	75,585	Tin, tin-ore, black sand	5,022
Hides, skins, and pelts...	50,454	Tobacco, cigars, and snuff	199,224
Horns and hoofs ...	3,153	Wool	6,096,958
Leather	248,503	Woollens	79,665
Live stock	146,662		

Shipping.

In 1875, 2,171 vessels, of an aggregate burden of 840 386 tons, and carrying 38,681 men, entered Victorian ports; and 2,223 vessels, of 833,499 tons burden, and carrying 38,454 men, cleared therefrom.* About 90 per cent. of this shipping arrived at and departed from the port of Melbourne.

Of the vessels entered, 296, of 297,127 tons, were British ; 1,781, of 483,880 tons, were colonial ; and 94, of 59,379 tons, were foreign. Of the vessels cleared, 268, of 274,245 tons, were British ; 1,869, of 505,691 tons, were colonial ; and 86, of 53,563 tons, were foreign.

Of the foreign vessels entered and cleared, 79 were American, 29 were French, 20 were German, 17 were Norwegian, 15 were Dutch, 9 were Swedish, 3 were Hawaiian, 2 were Russian, 2 were Danish, 2 were Spanish, and 2 were Nicaraguan.

The only vessels built in Victoria are a few small craft. In the ten years prior to 1875 the whole number amounted to 74, viz., 23 steamers and 51 sailing vessels, the total tonnage of the former being 1,668, and that of the latter 3,801.

The vessels on the register at the end of 1875 numbered 458, viz., 61 steamers and 397 sailing vessels. The former, in the aggregate, measured 12,656 tons, and carried 865 men ; and the latter measured 61,228 tons, and carried 2,564 men.

Live stock.

Victoria was originally settled as a pastoral country, and it was not until the first excitement consequent upon the gold discoveries had subsided that agriculture made much progress. As cultivation advanced the breeding of animals was still attended to, and, according to returns made at the end of the first quarter of 1876, more live stock was kept then than at any former period. The following are the figures :—

LIVE STOCK IN VICTORIA, 1876.

	Number.
Horses	196,184
Cattle	1,054,598
Sheep	11,749,532
Pigs	140,765

* In 1876, the number of vessels entered was 2,086, of an aggregate burden of 810,062 tons, carrying 38,960 men ; the number cleared was 2,150, of 847,026 tons burden, carrying 39,600 men.

The land under tillage in 1876 amounted to 1,126,831 acres. The following is a statement of the area under each description of crop, and the quantity of produce raised:— Agriculture.

AGRICULTURE IN VICTORIA, 1876.

Crops.	Acres.	Produce.
Wheat	321,401	4,978,914 bushels
Oats	124,100	2,719,795 „
Barley	31,568	700,665 „
Maize	2,346	37,177 „
Other cereals	1,292	19,356 „
Peas and beans	18,854	450,948 „
Potatoes	36,901	124,377 tons
Other root crops	2,866	28,511 „
Hay	155,274	206,613 „
Green forage	308,405	...
Tobacco	782	501 cwt. *
Vines	5,081	755,000 gallons of wine
Other tillage	117,961	...

Agriculture is carried on and live stock is depastured in every district in the colony. It may be stated generally that there is no part of Victoria which does not possess ample resources for supplying food to troops.

Resources for transport are also to be found distributed over the length and breadth of the colony. The farmers all possess carts, and many of them waggons. At the beginning of 1876, 37,961 of the former and 8,390 of the latter were returned as being scattered throughout the country districts. These are independent of the large numbers kept in towns and upon goldfields. Any number of horses, either for mounting cavalry or for purposes of draught, could be obtained without difficulty at a short notice. Transport.

The gold deposits of Victoria are of world-wide fame. From the period of the first discovery of the precious metal in 1851 to the end of 1875, it is estimated that 45,509,964 ounces were raised, of a value of £182,039,857. Of this quantity 1,095,787 ounces, valued at £4,383,148, were produced during the last-named year.† Mining.

Traces of a number of metals besides gold have been discovered in the Victorian rocks; but the only ones which have been worked profitably have been antimony and tin. Coal exists in various localities; but in consequence of the thinness of the seams, and numerous faults, attempts to work it at a profit have hitherto been unsuccessful. The following are the values of metals and minerals, other than gold, which have been raised in the colony between 1851 and the end of 1875. Of these productions, the values in 1875 amounted to £35,452:—

METALS AND MINERALS OTHER THAN GOLD, 1851 TO 1875.

	£		£
Silver	14,617	Kaolin	7,444
Tin	333,870	Flagging	37,961
Copper	8,331	Slates	940
Antimony	104,865	Magnesite	12
Lead	4,700	Diamonds	107
Iron	2,101	Sapphires	575
Coal	8,233	Total ...	£525,928
Lignite	2,172		

* The tobacco crop of 1876 failed in most of the districts. In 1875, 6,839 cwt. of tobacco was raised from 733 acres.

† The quantity of gold raised in 1876 amounted to about 963,760 ounces, valued at £3,855,040.

Stone quarries.

The most widely distributed stone in the colony as well as that most extensively used for building and road-making purposes is basalt (bluestone of the colonists). Granites and sandstones also abound in various localities. One hundred and sixty quarries, which produced in the previous year 332,593 cubic yards of bluestone, 894 yards of slate and flagging, 11,203 yards of sandstone, and 2,645 yards of granite, were being worked in 1876. For the distribution of the various rocks see the geological maps issued from the Mining Department.*

Forests.

Forest timber is plentiful in localities not far removed from the centres of population. The different varieties of trees have been already referred to under section A. For the position of the various forests see Forest Map of Victoria sent herewith.

Manufactories.

Victoria has made great efforts to establish manufactures, and to this end protective duties have been placed upon all articles supposed to be capable of being produced in the colony. The following manufactories were in existence at the beginning of 1876.

MANUFACTORIES, WORKS, ETC., 1876.

Description of Manufactory, Work, &c.	Number of Establishments.
Books and Stationery.	
Account-book manufactories, manufacturing stationers	16
Printing establishments	34
Musical Instruments.	
Organ-building establishments.. ..	1
Pianoforte manufactories	9
Prints, Pictures, &c.	
Picture-frame makers	6
Carvings, Figures, &c.	
Carving and gilding establishments ..	2
Indiarubber stamp manufactories ..	3
Modelling (architectural and figure), &c.—works	2
Statuary works	1
Turnery works	7
Wood-carving and ornamental works ..	1
Wooden pipe manufactories	2
Designs, Medals, and Dies.	
Diesinkers, engravers, medalists, trade-mark makers	4
Philosophical Instruments, &c.	
Philosophical instrument manufactories	3
Spectacles manufactories	1
Surgical Instruments.	
Surgical instrument, truss—manufactories	4
Arms, Ammunition, &c.	
Blasting powder, dynamite, &c.—manufactories	6
Fuse manufactories	1
Gunmakers	3

Description of Manufactory, Work, &c.	Number of Establishments.
Machines, Tools, and Implements.	
Agricultural implement manufactories	47
Bellows manufactories	1
Cutlery, machine-tool—manufactories	9
Engine, machine—manufactories ..	52
Carriages and Harness.	
Coach, wagon, &c.—manufactories ..	105
Perambulator manufactories ..	2
Saddle, harness—manufactories ..	19
Saddle-tree, &c.—manufactories ..	4
Saddlers' ironmongery and coach-spring manufactories	2
Whip manufactories	5
Ships and Boats.	
Ship, boat—builders	17
Ships' wheels, blocks, &c.—manufactories	1
Floating-docks	1
Graving-docks	3
Patent-slips	5
Houses, Buildings, &c.	
Lime works	28
Patent ceiling ventilator manufactories	1
Roof covering composition manufactories	1
Furniture.	
Bedding and upholstery manufactories	6
Cabinet works, including billiard-table makers	20
Earth closet manufactories	3
Iron safe manufactories	2
Looking-glass manufactories	3
Chemicals.	
Chemical works	5
Dye works	17
Essential oil manufactories	4
Ink, blacking, blue, washing-powder, &c.—manufactories	8
Japanners	1
Match (vesta) manufactories	1
Paint, varnish—manufactories ..	1
Photographic apparatus manufactories	1
Salt works	7
Tar-distilling, asphalte—works ..	2

* Not forming portion of this work but transmitted therewith.

Manufactories, Works, etc., 1876—*continued.*

Description of Manufactory, Work, &c.	Number of Establishments.
Textile Fabrics.	
Woollen mills	6
Dress.	
Boot manufactories	46
Clothing factories	47
Fur manufactories	4
Hat, cap—manufactories	15
Oilskin, waterproof-clothing—manufactories	4
Umbrella and parasol manufactories	7
Fibrous Materials.	
Jute factories	1
Rope, twine—works	10
Animal Food.	
Cheese factories	17
Meat-curing establishments	17
Vegetable Food.	
Biscuit manufactories	7
Confectionary works	8
Flour mills	157
Jam manufactories	7
Macaroni works	1
Maizena, oatmeal, starch—manufactories	3
Rice mills	1
Drinks and Stimulants.	
Aërated waters, gingerbeer, liqueur, &c.—works	124
Breweries	103
Coffee, chocolate, spice—works	11
Chicory mills	2
Distilleries	5
Malthouses	16
Sauce, pickle—manufactories	3
Sugar refineries	1
Tobacco, cigars, snuff-manufactories	12
Vinegar works	6
Animal Matters.	
Boiling-down establishments	22
Bone-cutting mills	1
Bone manure manufactories	16
Brush manufactories	4
Catgut manufactories	1
Curled hair manufactories	2
Fancy-dyed-wool, mat, and rug factories	1
Fellmongeries, wool-washing—establishments	52
Flock manufactories	4
Glue, oil—manufactories	10
Manure (poudrette) manufactories	1
Animal Matters—continued.	
Morocco, fancy leather—manufactories	1
Portmanteau, trunk—manufactories	8
Soap, candle, tallow—works	43
Tanneries	91
Vegetable Matters.	
Bark mills	4
Basket making works	6
Blind (window) manufactories	9
Broom manufactories	2
Chaff-cutting, corn-crushing—works	185
Cooperage works	15
Fancy-box manufactories	3
Firewood sawing mills	2
Hat-box manufactories	1
Ladders and steps joineries	1
Moulding, framing, turning, and saw mills	165
Paper manufactories	2
Paper-bag manufactories	8
Coal.	
Gasworks	15
Stone, Clay, Earthenware, and Glass.	
Brick-yards and potteries	241
Filter manufactories	2
Glass manufactories, works	5
Marble and monumental works	19
Stone-breaking works	4
Stone-sawing, polishing works	7
Water.	
Ice manufactories	1
Water works	5
Gold, Silver, and Precious Stones.	
Assaying works	1
Electro-plating and gilding works	4
Goldsmiths and jewellers (manufacturing)	15
Lapidaries	1
Metals other than Gold and Silver.	
Antimony-smelting works	5
Bell foundries	1
Iron and tin works	45
Iron, brass, and copper foundries	76
Lead works	2
Tin-smelting works	
Wire-working establishments	5
Total	2,246

As far as woollen clothing, blankets, and boots and shoes are concerned, the manufactories in Victoria would be quite equal to any demands which might be made upon them for the supply of troops. The woollen mills produced, in 1875, 644,714 yards of tweed, cloth, flannel, &c., 2,973 blankets, and 1,776 shawls. In the tanneries during the same year, 316,394 hides and 514,832 skins were turned into leather. No cotton or flax mills have yet been established, but large stocks of calicoes and linen piece goods are always kept on hand by merchants and shopkeepers in Melbourne, Geelong, Sandhurst, Ballarat, &c.

Wages.

The rates of wages have not varied greatly during the last few years. The following may be set down as the average for Melbourne. In country districts the rates are generally a fraction higher :—

RATES OF WAGES IN MELBOURNE.

Description of Labor.		Average Rates of Wages.
Agricultural Labor.		
Farm laborers	per week, with rations	12s. 6d. to 20s.
Ploughmen	„ „	20s. to 25s.
Reapers	per acre, „	12s. to 15s.
Mowers	„ „	3s. to 5s.
Threshers	per bushel, „	5d. to 7d.
Pastoral Labor.		
Shepherds	per annum, with rations	£35 to £52
Stockkeepers	„ „	£40 to £65
Hutkeepers	„ „	£25 to £40
Generally-useful men on stations ...	per week, „	15s. to 20s.
Sheepwashers	„ „	15s. to 25s.
Shearers	per 100 sheep sheared, „	11s. to 15s.
Artisan Labor.		
Masons	per day, without rations	11s. to 12s.
Plasterers	„ „	10s.
Bricklayers	„ „	10s.
Carpenters	„ „	10s.
Blacksmiths	„ „	10s. to 13s.
Servants—Males and Married Couples.		
Married couples, without family ...	per annum, with board and lodging	£60 to £80
Married couples, with family ...	„ „	£40 to £50
Men cooks, on farms and stations ...	„ „	£40 to £52
Grooms	„ „	£45 to £60
Gardeners	per week, „	20s. to 40s.
Servants—Females.		
Cooks	per annum, with board and lodging	£35 to £60
Laundresses	„ „	£30 to £40
General servants	„ „	£26 to £35
Housemaids	„ „	£25 to £35
Nursemaids	„ „	£20 to £35
Miscellaneous Labor.		
General laborers	... per day, without rations	6s. to 7s.
Stonebreakers	per cubic yard, without rations	2s. to 3s. 6d.
Seamen	... per month, with rations	£5 to £6
Miners	... per week, without rations	£2 to £2 10s.

The laborers and artificers of Victoria may be considered to be quite equal in skill and capacity to those of the United Kingdom. The recognised working day is eight hours.

Game.

In some districts there is an abundance of native game. The principal kinds are kangaroos, wallabies, emus, black swans, wild geese and ducks,

teal, native companions (a large bird of the crane species), quail, snipe, &c. Of introduced animals the principal are rabbits, which are found running at large in most parts of the colony, and in some localities have multiplied to such an extent as to become a nuisance. The axis, sambur, and fallow deer have also been introduced, and exist in large numbers in certain districts. Other varieties, such as the Indian hog deer, have also been liberated, but have not yet increased as those mentioned. Hares have been introduced, and are spreading rapidly over the whole country. Pheasants and Californian quail have been turned out in large numbers, and are fast increasing. Several varieties of English fish have also been introduced, such as the brown trout, perch, and carp. In addition to the different varieties of game introduced, a large number of Angora goats were imported some years since, and promise to be of great value to the colony.

Section I.—INHABITANTS: CHARACTER, PURSUITS, AND LANGUAGES.

[*The following remarks are by the Editor.*]

Birthplaces of colonists.

THE birthplaces and allegiance of the people of Victoria, according to the returns of the last census (2nd April 1871), are given in the following table. Since the census there is no doubt that a considerable increase has taken place in the Victorians by birth, and probably a slight decrease in the numbers of other nationalities:—

BIRTHPLACES, 1871.

Where Born.	Numbers.		
	Persons.	Males.	Females.
British Possessions:			
Victoria	329,597	165,573	164,024
Other Australasian Colonies	28,669	14,308	14,361
England	164,287	97,796	66,491
Wales	6,614	4,189	2,425
Scotland	56,210	31,475	24,735
Ireland	100,468	49,198	51,270
Other British Possessions	3,870	2,641	1,229
Foreign Countries:			
France and French Colonies	1,170	857	313
Germany	8,995	6,591	2,404
Austria	269	256	13
Other European Countries	6,206	5,672	534
United States of America	2,423	1,776	647
China	17,857	17,826	31
Other Countries	315	214	101
At Sea	2,064	1,095	969
Total specified	729,014	399,467	329,547
Unspecified	2,514	1,583	931
Total Population	731,528	401,050	330,478
Allegiance:			
British subjects	695,932	369,228	326,704
Foreign subjects	34,854	31,415	3,439
Allegiance unknown	742	407	335

Aborigines.

The aborigines of Victoria are included in the returns of the Victorian born. They numbered only 1,553, and their existence in respect to any influence they may exercise in military operations demands no consideration whatever.

According to estimates made by the local authorities, the following were the populations of the various cities, towns, and boroughs in Victoria during 1875 :— Towns.

CITIES, TOWNS, AND BOROUGHS, 1875.

Name of City, Town, or Borough.	Estimated Population.	Name of City, Town, or Borough.	Estimated Population.
Amherst	3,400	Inglewood	1,050
Ararat	4,000	Kew	3,860
Ballarat...	18,442	Koroit	1,459
Ballarat East	12,880	Malmsbury	1,100
Belfast	2,250	Maryborough	3,000
Brighton	3,692	Melbourne	60,150
Browns and Scarsdale ...	1,900	Newtown and Chilwell ...	5,000
Brunswick	5,242	Portland	2,400
Buninyong	1,814	Prahran	16,309
Carisbrook	800	Queenscliff	1,050
Castlemaine	8,000	Raywood	550
Chewton	2,650	Richmond	18,732
Clunes	5,991	Rutherglen	500
Collingwood	21,054	Sale	2,800
Craigie	1,000	Sandhurst	28,306
Creswick	3,770	Sandridge	7,369
Daylesford	4,351	Sebastopol	3,800
Dunolly...	1,500	Smythesdale	920
Eaglehawk	7,405	St. Arnaud	2,695
Echuca	3,000	Stawell	6,897
Emerald Hill	24,250	Steiglitz	750
Essendon and Flemington...	2,000	St. Kilda	10,000
Fitzroy	16,667	Tarnagulla	984
Footscray	3,619	Walhalla	1,681
Geelong...	11,000	Wangaratta	1,445
Geelong West	5,000	Warrnambool	4,500
Graytown	360	Williamstown	7,650
Hamilton	2,600	Wood's Point	750
Hawthorn	4,281		
Heathcote	1,580		
Hotham...	14,800	Total	395,005

All these places have municipal institutions. There are besides several hundreds of unmunicipalized townships and villages, the populations of which, as returned at the last census, will be found in the "Victorian Year-Book, 1874."* (*See* table following paragraph 46 of that work.)

* Copies of the Victorian Year Book for 1873, 1874, 1875, and 1876-7 are sent with this work.

Shires.

The shire authorities estimated the populations of their respective districts during 1875 to be as follow :—

SHIRES, 1875.

Name of Shire.	Estimated Population.	Name of Shire.	Estimated Population.
Alberton	2,800	Leigh	2,276
Alexandra	1,200	Lexton	2,500
Ararat	8,600	Lilydale	1,278
Avoca	7,500	Maffra	*
Avon	3,754	Maldon	6,000
Bacchus Marsh	2,500	Mansfield	3,500
Bairnsdale	4,500	Marong	8,920
Ballan	8,000	Melton	1,285
Ballarat...	5,000	Meredith	1,272
Bannockburn	2,580	Merriang	1,255
Barrabool	2,300	Metcalfe	5,000
Beechworth	7,798	Minhamite	1,300
Belfast	2,805	Moorabbin	2,895
Bellarine	3,368	Mornington	2,000
Benalla	11,000	Mortlake	2,580
Berwick...	2,000	Mount Alexander ...	7,500
Bet Bet	6,500	Mount Franklin ...	3,960
Boroondara	1,385	Mount Rouse	3,300
Braybrook	1,121	McIvor	3,000
Bright	5,000	Newham	4,000
Broadford	1,100	Newstead	4,800
Broadmeadows	2,246	North Ovens	2,277
Bulla	2,400	Nunawading	1,442
Bulleen	1,580	Oakleigh	1,800
Bungaree	4,146	Omeo	1,300
Buninyong	11,280	Oxley	3,400
Caulfield	2,100	Phillip Island and Woolamai	1,300
Chiltern...	2,200		
Coburg	1,450	Portland	5,300
Colac	5,500	Pyalong	4,500
Corio	2,630	Ripon	5,602
Cranbourne	1,450	Romsey	1,350
Creswick	6,500	Rosedale	2,700
Dandenong	1,125	Rutherglen	2,800
Darebin	960	Seymour	2,000
Dundas	4,000	South Barwon	1,446
East Loddon	2,200	Springfield	900
Echuca	6,000	St. Arnaud	10,000
Eltham	2,000	Stawell	3,500
Flinders and Kangerong ...	1,670	Strathfieldsaye ...	4,000
Gardiner	1,380	Swan Hill	5,000
Gisborne	2,500	Talbot	4,500
Glenelg	4,181	Towong	1,567
Glenlyon	2,250	Tullaroop	7,000
Goulburn	1,954	Wannon	2,650
Grenville	8,650	Waranga	7,119
Hampden	4,642	Warrnambool	7,713
Heidelberg	2,600	Whittlesea	1,400
Howqua...	1,494	Wimmera	6,164
Huntly	3,500	Winchelsea	2,300
Jika	2,500	Wyndham	1,500
Keilor	670	Yackandandah... ...	4,616
Kilmore...	2,737	Yea	900
Korong	8,500		
Kowree	2,000	Total	387,473
Kyneton	9,000		

* No information. Shire only recently formed when returns were made up.

The area embraced in the two descriptions of municipal districts, of which the populations have been given in the foregoing table, amounts to over five-sixths of the area of the colony; and their joint populations are equal to twenty-four twenty-fifths of its inhabitants.

Ages of colonists.

At the last census, the number of males at the so-called soldiers' age (20 to 40) was 133,175, and the number between 16 and 50 was 206,495. The proportion at the former period of life as compared with the total number of males living was greater than that prevailing in England and Wales.

Character of colonists.

In character the people of Victoria are worthy descendants of the race from which the bulk of them has sprung. They are eminently industrious, energetic, and trustworthy. In loyalty to the mother country they are unsurpassed, and, as each man has a vote, they are equally attached to their own Government. Political feeling sometimes runs high, but they have no grievances either imaginary or real. They would no doubt make admirable soldiers, and would readily fight and die in defence of their hearths and homes.

Occupations of colonists.

The employments most in favor may be gathered from the following figures, which give in a condensed form a statement of the occupations of persons of both sexes, according to the returns of the last census:—

Occupations, 1871.

Occupations.	Males.	Females.
Ministering to Government	3,980	170
„ religion	838	61
„ health	1,275	1,177
„ law	1,137	1
„ education	2,089	3,678
„ art, science, and literature	1,696	164
Traders	9,122	1,302
Assisting in the exchange of money or commodities ...	7,614	229
Ministering to entertaining and clothing	12,505	14,371
Domestic servants	2,336	22,705
Contractors, artisans, and mechanics	41,664	402
Miners	52,447	14
Engaged in pursuits subsidiary to mining	665	2
„ pastoral pursuits	6,883	154
„ agriculture	50,789	3,499
„ pursuits subsidiary to grazing and agriculture	2,436	6
„ land carriage	12,136	87
„ sea navigation	2,701	12
Dealing in food	13,052	1,036
Laborers	18,220	16
Engaged in miscellaneous pursuits	355	36
Persons of independent means	1,342	517
Wives, widows, children, relatives, &c.	72,908	205,010
Scholars	72,329	70,355
Public burden	6,791	3,513
No occupation, unspecified	3,740	1,961
Total	401,050	330,478

Languages of colonists.

The English is the only language in common use in Victoria. The aborigines have their own dialect, but speak also a broken English. The Chinese converse amongst themselves in their native tongue, but, in common with all other foreigners, they speedily acquire a sufficient knowledge of English to enable them to hold intercourse with the other colonists.

Section K.—HISTORY.

[*The following sketch of the History of Victoria is by the Editor, and with a few alterations has been taken from his "Notes on the Colony of Victoria." Melbourne: McCarron, Bird, & Co.*, 1876.

Discovery, &c.

It is believed that the first Europeans who ever sighted any portion of the land now embraced within the limits of the Colony of Victoria were Captain James Cook, of the Royal Navy, and the crew of His Majesty's ship *Endeavour*. This vessel had been sent to Tahiti to observe the transit of Venus over the sun's disc, and Cook, who was in command, having accomplished that object, and having also made a survey of New Zealand, continued his course westward in order to explore the eastern coast of "Terra Australis Incognita." He made the land on the 19th April 1770, and estimated a prominent point—which he named after the first discoverer, Lieutenant Hicks, one of the officers of his vessel—to be in latitude 38° south, longitude 211° 7′ west (148° 53′ east). Cook, however, did not attempt to land, or even to approach near the shore, but passed on to other discoveries. It may be observed that Point Hicks appears to be identical with the present Cape Everard, in Gippsland, situated about midway between Cape Howe and the mouth of the Snowy River.*

On the 18th January 1788, Captain Arthur Phillip, R.N., landed in Botany Bay, whither he had been despatched from England in charge of a squadron of eleven vessels, in order to found a penal colony in Australia. Finding Botany Bay unsuitable for settlement, in consequence, as he says, of "the openness of the bay and the dampness of the soil, by which the people would probably be rendered unhealthy," he sailed northward to Port Jackson, only a few miles distant, and took formal possession of the country in the name of His Majesty George the Third on the 26th January 1778.

For nearly ten years little was known of the coast to the south of Sydney Harbour.† The island of Tasmania, then called Van Diemen's Land, was believed to be joined to the Australian continent, and Bass's Straits, the entrance only to which had been observed, was thought to be a deep bay. At length two officers, George Bass and Matthew Flinders,‡ the former a surgeon, the latter a midshipman in the Royal Navy, being possessed of more enterprise and probably more leisure than most of the colonists, determined to make an effort to explore the

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* The latitude of Cape Everard according to the latest computation is 37° 49′ S., and the longitude 149° 17′ E. A point between Point Hicks and Cape Howe, Cook named Ram Head, from its supposed resemblance to the point at the entrance of Plymouth Sound. This name it still bears.—*See* "Cook's Voyages," vol. iii., p. 483; London, 1773.

† About the middle of February 1797 a ship called the *Sydney Cove*, while on a voyage from India to New South Wales, was wrecked at Furneaux Islands, in Bass's Straits. Mr. Clarke, the supercargo, the chief mate, and fifteen men, endeavoured to reach Sydney in the launch, but were driven on shore somewhere to the south of Cape Howe, and therefore on the coast of Victoria. They started off by land for Sydney, but three only, viz., Clarke, an English sailor, and a lascar, reached it alive. Clarke and his party were probably the first Europeans who ever set foot upon the Victorian shore.—*See* "Australian Discovery and Colonization," by Samuel Bennett, pp. 219 and 220; Hansen and Bennett, Sydney, 1865.

‡ Flinders appears to have been the first to suggest that the name of Australia should be given to the southern continent. He says, at page iii. of the introduction to his work, "A Voyage to Terra Australis":—"Had I permitted myself any innovation upon the original term (Terra Australis), it would have been to convert it into Australia, as being more agreeable to the ear and an assimilation to the names of the other great portions of the earth."

coast. These officers went to sea together on more than one occasion in a small open boat called the *Tom Thumb*, and in the course of these excursions they made some important discoveries and encountered much risk and hardship. At length Bass started singly in a whale-boat, manned by six seamen, and, passing Cape Howe, coasted along the shore of that portion of Victoria now called Gippsland to Wilson's Promontory, the southernmost point on the Australian continent. This point—after exploring Corner Inlet, which is on the east side of the peninsula on which the promontory is situated—he rounded, and continued his course until he reached Western Port, which he entered on the 4th June 1798. It was on this voyage that Bass first conceived the idea of the existence of a strait between Tasmania and Australia,* to which conclusion he was led by the fact of a strong current and swell setting from the westward, which he judged must come direct from the Southern Ocean. This question was afterwards decided in the affirmative by Bass and Flinders, who, starting from Port Jackson on the 7th October 1798, sailed right through the strait and around the island of Tasmania in a small decked sloop called the *Norfolk*. On their return to Sydney, in January 1799, the Governor, Captain Hunter, R.N., on the recommendation of Flinders, decided that the channel separating Tasmania from Australia should receive the name of Bass's Straits.

About two years after this, in December 1800, Lieut. James Grant, in His Majesty's small armed brig, *Lady Nelson*, bound from England to Sydney, passed through Bass's Straits from the westward. She first made the land at Cape Banks, in South Australia, and afterwards sailed along the coast of the present colony of Victoria, sighting Capes Bridgewater and Nelson ; Portland Bay, the site of the first permanent settlement in Victoria ; Cape Otway ; Point Nepean, at the entrance of Port Phillip Bay, where an inlet was noticed ; and Cape Liptrap.

On the 15th January 1802, Port Phillip Bay was discovered by Acting Lieutenant John Murray, R.N.,† who had been sent from Sydney to survey the south coast in the *Lady Nelson*, and about three months afterwards, on the 26th April, it was entered by Flinders, who, having been promoted to the rank of Commander on his return to England, had been sent out again in the *Investigator*, a vessel of 334 tons, to examine and survey the coasts of Australia, commencing with the south coast. Flinders did not know of the bay having been already discovered, and spent a week in examining it.‡ Captain Baudin, in the French ship *Le Géographe*, had, four weeks previously, on the 30th March, passed the entrance to the bay without noticing it, but he subsequently laid claim to be its discoverer, as also to be the discoverer of all the land

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* A similar idea seems to have occurred to Captain Cook from the following expression used by him. Writing of Point Hicks, he says, "To the southward of the point no land was seen, though it is very clear the body of Van Diemen's Land ought to have borne due south. *I cannot determine whether this land joins Van Diemen's Land or not.*"—"Cook's Voyages," vol. iii., p. 483; London, 1773.

† He first named it Port King, after the then Governor of New South Wales. The name was afterwards changed to Port Phillip, after the first Governor. Murray also gave the hill called "Arthur's Seat," on the east side of the bay, near the Heads, the name it now bears.

‡ Flinders remained in Port Phillip from the 27th April to the 2nd May. He seems to have gone only as far as Station Peak on the west side, and nine miles to the north of Arthur's Seat on the east side of the bay. He ascended Station Peak to the summit, and Arthur's Seat as far as "the clearest part to be found on the north-western bluff part of the hill," whence he took "an extensive set of bearings." He says, "I find it difficult to speak in general terms of Port Phillip. On the one hand it is capable of receiving and sheltering a larger fleet of ships than ever went to sea, whilst on the other the entrance in its whole width is scarcely two miles, and nearly half of it is occupied by the rocks lying off Point Nepean, and by shoals on the opposite side. . . . No runs of fresh water were met with in my excursions. . . . The country round Port Phillip has a pleasing, and in many parts a fertile appearance, and the sides of some of the hills and several of the valleys are fit for agricultural purposes. It is in great matter a grassy country, and capable of supporting much cattle, though better calculated for sheep."—"Voyage to Terra Australis," vol. i., page 218.

between Nuyts Archipelago and Western Port, which he called "Terre Napoléon." The whole of this coast, including Spencer's Gulf, called by Baudin "Golfe Bonaparte"; St. Vincent's Gulf, called by him "Golfe Josephine;" and Kangaroo Island, called by him "L'Ile Decrés," had been previously minutely examined by Flinders, who, falling in with *Le Géographe* at sea, communicated his discoveries to Baudin, and allowed him to examine his charts.*

First attempt at colonization.

The first attempt to colonize the territory of Port Phillip was made by an expedition, under the command of Lieutenant-Colonel David Collins, a marine officer, who had previously held the post of Judge-Advocate in Sydney. The party, which consisted of a Lieutenant-Governor and Captain-Commandant (Colonel Collins), a chaplain, a deputy commissary, a surgeon, 2 assistant-surgeons, a surveyor, a mineralogist, 2 superintendents and 4 overseers of convicts, a superintendent of artificers, 3 officers of marines, 3 sergeants, 3 corporals, 2 drummers, and 39 rank and file of the same corps, 5 women and 1 child belonging to the marines, 307 convicts, 17 convicts' wives, and 7 convicts' children, or in all 402† persons, set sail, on the 26th April 1803, in the *Calcutta* frigate of 1200 tons, carrying 50 guns, accompanied by the *Ocean* storeship of 600 tons. The *Ocean* arrived at Port Phillip on the 7th, and the *Calcutta* on the 11th October. It appears that Collins first landed at "Seal Island,"‡ near the entrance to the bay, and that, after several days spent in examination of the coast, he decided on disembarking his party on a narrow neck of land forming the southern shore of the bay, some four or five miles from the Heads,§ not far from the site of the present fashionable township of Sorrento.

Whatever attractions this spot may now have as a watering-place, a more unsuitable locality for settlement could not have been chosen. The only fresh water to be obtained, and that of bad quality, and but scanty in quantity, was got by sinking casks pierced with holes in the sand, through which the water filtered. Such timber as was required had to be brought from Arthur's Seat, some fourteen miles distant. The roar of the surf breaking upon the back beach was a constant source of annoyance. The land was sandy and sterile. In a short time the brackish water disagreed with the men, and many of the best of them became laid up in hospital. Several of the convicts deserted. Some of these were killed by the aborigines or died of starvation. One

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* The following is an extract from the work of M. Peron, the naturalist to the French expedition:—"De ce grand espace [the south coast of Australia] la partie seule qui du Cap Leuwen s'étend aux îles St. Pierre et St. François, était connue lors de notre départ d'Europe. Découverte par les Hollandais en 1627, elle avait été dans ces derniers temps visitée par Vancouver et surtout par D'Entrecasteaux; mais ce dernier navigateur n'ayant pu lui-même s'avancer au delà des îles St. Pierre et St. François, qui forment la limite orientale de la terre de Nuyts, et les Anglais n'ayant pas porté vers le Sud leurs recherches plus loin que le Port Western il en resultait que toute la portion comprise entre ce dernier point et la terre de Nuyts était encore inconnue au moment où nous arrivions sur ces rivages." That is on 30th March 1802. At this time Captain Grant, of the *Lady Nelson*, had discovered the eastern part from Western Port to longitude 140° 10′ E., in the year 1800, before the French ships had sailed from Europe; and on the west Captain Flinders had explored the coast and islands from Nuyts Land to Cape Jervis, in 138° 10′ E., and was on the day specified at the head of the Gulf of St. Vincent. The part actually discovered by Captain Baudin lies between latitude 37° 36′ and 35° 40′ south and longitude 140° 10′ and 138° 58′ east, making, with the windings, about 150 miles of coast, in which there is neither river, inlet, nor place of shelter.—*See* Flinders' "Voyage to Terra Australis," vol. i., page 191; London, 1814.

† These numbers are taken from "An Account of a Voyage to establish a Colony at Port Phillip, in Bass's Strait, on the south coast of New South Wales, in His Majesty's ship *Calcutta*, in the years 1802-3-4, by J. H. Tuckey, first lieutenant of the *Calcutta*;" London, Longman and Co., 1805. Other accounts give the number of convicts as 367 instead of 307. The late Honorable J. P. Fawkner, in a lecture delivered at Collingwood on the 6th June 1862, says—"At the prisons," whatever that may mean, "there were between 350 and 360." He also mentions, besides the convicts and persons connected with them or with the Government establishment, 12 free male settlers, 6 settlers' wives, 1 widow, 1 settler's sister, and 15 settlers' children as having formed part of the expedition.

‡ This may possibly have been the present Swan Island, situated to the north of Queenscliff.

§ This distance from the Heads is that given by Fawkner. Tuckey says—"The people were landed in a small bay *eight* miles from the harbour's mouth."

convict, William Buckley by name, managed to make friends with the natives, and lived with them until the arrival of the party who formed a permanent settlement at Port Phillip—thirty-two years after. Some returned in a starving condition. One of these, named Gibson, reported he had discovered a river flowing into the northern part of the bay. The existence of such a stream was afterwards verified by Lieutenant Tuckey of the *Calcutta** ; but Collins took no notice of the discovery, and, from the first, appears to have been determined to abandon the country.

No move could, however, be made without instructions from Sydney. Collins was in such a hurry to get these that he would not wait for the departure of the *Ocean*, which, having been discharged, was about to sail for China *viâ* Sydney, but sent away a party in a six-oared cutter to report the state of affairs to the Governor, Captain P. G. King, R.N. After being nine days at sea, and encountering much bad weather, this boat-party was picked up within sixty miles of Port Jackson by the *Ocean*, which had sailed six days after them, and was by her conveyed to Sydney. The permission sought for was at once accorded. The *Ocean* was sent back to take Collins and his company to Van Diemen's Land, and the *Lady Nelson* was ordered round to assist. The vessels reached Port Phillip Bay in December 1803 ; and the *Calcutta*, which had awaited their arrival, sailed for Sydney a few days after.

Collins was allowed to make his choice between Port Dalrymple in the north and the Derwent in the south of Van Diemen's Land. Having received an unfavorable report of the former, he chose the southern port, and hastily shipping men and stores on board the vessels, he set sail on the 27th January 1804. The vessels were not able to accommodate all the party at once, so the *Ocean* had to return for the remainder. All, however, were at length embarked, and in this manner the territory now forming the fertile and prosperous colony of Victoria, the Australia Felix of Sir Thomas Mitchell, was abandoned as a place not fit for the abode of civilized beings.

Further attempts at colonization.

For the next twenty years this district appears to have attracted but little attention. In 1824, however, the explorers, Hamilton Hume, and W. H. Hovell, travelled overland from Sydney to Port Phillip. In their journey they discovered, on the 16th November, the Murray River, which now forms the northern boundary of Victoria, and this river they named the Hume.† On the 3rd December they discovered the present Goulburn River, which they called the Hovell, and on the 16th December they reached that part of Port Phillip now called Corio Bay, near the site of the present town of Geelong. Hume at once rightly declared the water they had reached to be Port Phillip, but Hovell insisted it was Western Port, and upon the representations of the latter, when he returned to Sydney in the early part of 1825,‡ respecting the excellence of the soil and adaptability of the country for colonization, it

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* If this river was the Yarra, Gibson and Tuckey were not its first discoverers, for, prior to the arrival of Collins, Mr. Charles Grimes, Surveyor-General of New South Wales, had been sent round by Governor King to survey Port Phillip, and had discovered the Yarra and Saltwater rivers. Tuckey says that Grimes's report of the district was unfavorable ; but this I have no means of verifying, as I have not been able to discover that any copy of the report in question exists in this colony. I hope, however, to look further into the matter.

† They made this river about the present site of Albury, and ascending it in search of a crossing-place, at last they found one, on the 20th November, to the eastward of the present Mitta Mitta, which they named the Oxley. Here their cattle were able to ford the stream, and they themselves, with their supplies, crossed in "a temporary boat constructed of wicker." On the 24th November they discovered a river, which they named the "Ovens," after Major Ovens, Governor Sir Thomas Brisbane's Private Secretary. On the 2nd December they ascended Mount Disappointment, which they thus named in consequence of a check they experienced there. From this point they saw Mount Macedon, which they named Mount Wentworth.

‡ They crossed the Hume on leaving this territory on 2nd June 1825.

was determined to attempt to establish a convict settlement there. Accordingly in the following year (1826) a small party of prisoners, with soldiers to guard them, was landed at Western Port, under the command of Captain Wright.* This is to the present day one of the most unpromising parts of the colony. Extensive mud flats stretching far into the water, barren sandy heaths and swamps, are the characteristics of the district. The settlers pitched their tents on the eastern shore of the Port, about a mile to the north of Red Point, not far from the site of the present township of Corinella. They were not, however, allowed to remain long, as the Home Government soon gave orders for their withdrawal. On the receipt of these, nothing loath, they struck their tents and departed. Thus on a second occasion was the territory abandoned.†

In 1830, further knowledge of the course and position of the river which forms the northern boundary of Victoria was gained by the celebrated explorer, Captain Charles Sturt. He started from New South Wales, and passed down the Murrumbidgee in a boat until it joined another river, which he named the Murray. He continued his course down the latter stream for nearly 1000 miles, until it reached the sea at Encounter Bay. He then returned. It was afterwards known that this river was one originally discovered by Hume, and named after himself. It still, however, retains the name given it by Sturt.

The first permanent settlement founded in Victoria was at Portland Bay. The pioneer was Mr. Edward Henty, a merchant of Launceston, Tasmania. He had examined the locality in 1833, and formed the idea of establishing a station there. With a few followers he crossed Bass's Straits in the *Thistle* schooner, and landed on the 19th November 1834. After a short time he was joined by his brother Francis, and the party commenced to till the soil, to run and breed stock, and to carry on whaling operations. The barrenness of the ground forbade much success in the first-named pursuit, and of good pasture land there was but little in the immediate vicinity of the Port. Rich country was, however, afterwards discovered in the interior, and to this they removed their flocks and herds, and formed large pastoral establishments. Other settlers followed, and in the course of years some considerable fortunes were amassed. The sterility of the soil, however, around the original settlement, and the openness of the bay, which renders it unsafe for shipping during the prevalence of certain winds, have always acted as drawbacks to the advancement of Portland. The town now contains about 2,400 inhabitants, which is a smaller number than it contained twenty years ago.

In the year following that in which the Messrs. Henty settled at Portland, two parties from Van Diemen's Land established themselves at Port Phillip, and led the way to the permanent colonization of the district. The leader of the first party was John Batman, who acted on behalf of an association of Government officers, bankers, merchants, and one lawyer, numbering in all seventeen persons, resident in Van Diemen's Land, and he brought over with him three white men

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* Hovell was sent to guide this expedition. Of course he found the country quite different from that of which he had reported the discovery whilst in company with Hume.

† I have not been able to find any official account of this attempt to colonize Western Port. In the account of Victoria given in the *Encyclopædia Britannica*, Captain Wetherall is stated to have been the commander of the party, and Captain Wright to have been in charge of the military. All other accounts I have met with state the party was commanded by Wright.

and seven New South Wales aborigines. His determination was to purchase a tract of land from the Port Phillip natives, and he thought the semi-civilized blacks from Sydney would be useful to him in conducting the necessary negotiations. The party arrived in Port Phillip in a small vessel called the *Rebecca* on the 29th May 1835, and anchored off the Indented Heads, on the west side of the bay, about twelve miles from its entrance.* Here Batman landed and found the country to be of the most splendid description, with the grass growing higher than his knees. He saw tracks of natives, but could not fall in with any ; so two days after he weighed anchor and stood up the bay, keeping the west side all the way, for a further distance of fifteen miles, to near the entrance of the small river Werribee, where he again anchored. Landing, he soon met with natives, and after some time spent in negotiating with them and examining the country, he got seven of the principal chiefs to affix their marks to two deeds, dated 6th June 1835, whereby, in consideration of a certain number of blankets, knives, tomahawks, looking-glasses, pairs of scissors, handkerchiefs, red shirts, flannel jackets, and suits of clothes, and a certain quantity of flour, they granted to him and his heirs and assigns for ever 600,000 acres of land within certain defined limits.†

Having accomplished his object, Batman returned to Tasmania, leaving most of his party at the Indented Heads with instructions to build and cultivate. He came back afterwards with some members of the association, several of whom settled permanently in Port Phillip. Their bargain with the natives was, however, disallowed by Sir Richard Bourke, the Governor of New South Wales, as being in violation of the rights of the Crown. This decision was appealed against by the members of the association, but was upheld by the Home authorities.

The other expedition, and that which led to the most important and lasting results, was organized and fitted out by six residents of Van Diemen's Land, acting under the direction of John Pascoe Fawkner, an innkeeper of Launceston, the principal port on the north side of that island. Fawkner was the son of one of the convicts who were brought out to Port Phillip by Colonel Collins in 1803, and accompanied his father into banishment. He had therefore been at Port Phillip before, although at that time he was only eleven years of age ; and although the expedition of which he was a member had abandoned the country as unfit for human habitation, it seems he always entertained a desire again to test its capabilities. The party of which he was the leader contemplated attempting to form a settlement in Port Phillip before Batman went there, but they were delayed from various causes. On Batman's return, however, giving a glowing description of the excellent country he had purchased, they lost no time in completing their prepara-

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* Speaking of this part, Flinders says—"Indented Head, at the northern part of the western peninsula, had an appearance particularly agreeable" (p. 219). It is now a flourishing agricultural district.

† A copy of the map of the country purchased by Batman from the natives, taken from the report of the Committee of the House of Commons on the Disposal of Colonial Lands, 1836, is attached to Mr. G. W. Rusden's work, "The Discovery and Settlement of Port Phillip," George Robertson, Melbourne, 1871. This map shows Batman's block to have been bounded on the south and south-east by Bass's Straits and Port Phillip Bay ; on the west by a line extending from Point Roadnight to Melbourne Hill (in the map called Mount Iramoo), two or three miles south of Lancefield ; on the north by a line from Melbourne Hill, running due east forty miles, and on the east by a line running from the eastern extremity of that line, in a south-easterly direction, to a point in Hobson's Bay between St. Kilda and Sandridge. It took in the sites of Queenscliff, Geelong and its suburbs, Wyndham, Williamstown, Footscray, Sandridge, Emerald Hill, Melbourne, Hotham, Fitzroy, Collingwood, Flemington, Brunswick, Coburg, Keilor, Melton, Bulla, Sunbury, Romsey, Kilmore, Whittlesea, and a number of other townships. A block extending from Batman's Swamp to the junction of the Yarra and Saltwater Rivers is marked "Extensive marsh reserved for a public common," and a block taking in Fisherman's Bend and Sandridge is marked "Reserved for a township and other public purposes."

tions. A schooner named the *Enterprise*, of fifty-five tons measurement, was purchased and freighted with stores, farming implements, grain, seeds, plants, fruit trees, three horses, and other requisites. The vessel sailed from Launceston on the 27th July 1835, but had to put back from stress of weather. Fawkner, having been taken ill, was obliged to land, so the expedition proceeded to sea without him, Captain John Lancey being recognised as the head of the party in Fawkner's absence. Probably in order to avoid coming into collision with Batman, they went first to Western Port; but not finding that place to their liking, they left it, and entered the adjoining bay of Port Phillip. Although warned off by Batman's party, they pursued their course to the head of the bay, and entering the Yarra Yarra River, they sailed up it; and, on the 28th August, they made their vessel fast to trees opposite the spot on which Melbourne now stands. The people landed, and soon began to erect habitations and to cultivate the soil. The *Enterprise* returned to Launceston, where Fawkner and his family embarked, taking a further supply of stores, two horses, two cows, also a few passengers. On the 18th October they landed at their destination.*

Exploration by Sir T. L. Mitchell.

Soon after this, in March 1836, Major, afterwards Lieutenant-Colonel Sir Thomas Livingstone Mitchell, the Surveyor-General of New South Wales, started on an exploring expedition in the direction of Port Phillip. Crossing the Murray not far from its junction with the Murrumbidgee, he travelled up its southern bank until he came to Swan Hill. Here he turned to the south, and following up the Loddon River for thirty miles, then struck off to examine Mount Hope and the surrounding country. Returning to the Loddon further south, he crossed that stream and the Avoca, Avon, Richardson, and Wimmera rivers; passed to the north of the Grampians, and made the Glenelg, not far from the site of the present township of Harrow; followed down that river past the point at which it is joined by the Wannon, as far as Fort O'Hare, near the site of the present village of Dartmoor, where, leaving his party and heavy baggage, he took to boats, and descended the river until stopped from entering the sea by the bar at its mouth. This point was reached on the 20th August. Re-ascending the river to Fort O'Hare, he then crossed the Crawford at Mount Eckersley, from which point he saw Portland Bay. Here he again left his party, and crossing the Fitzroy where Heywood village now stands, and afterwards the Surry, he entered Portland Bay from the north-east on the 29th August. Here he obtained from the Messrs. Henty a small supply of flour, and as many vegetables as his horses could carry. Returning to Mount Eckersley, and remaining there for a short time to recruit his party, he started on his homeward journey; in this he kept more to the eastward than while on his outward route. Passing Mount Sturgeon and the plains to the north-east of it, he crossed and named the Hopkins River and made Mount Alexander,† since so famous for the gold discoveries in its vicinity; then, keeping still in a north-easterly direction, and crossing the Goulburn at the present site of Mitchellstown, and the Ovens at that of Wangaratta, he eventually crossed the Murray, on the 18th of October, near the point at which "The Major's Creek" flows into it from the north.

* Fawkner mentions that a small vessel, the *Endeavour*, chartered by Mr. John Aitken, followed the *Enterprise* over. This vessel landed her passengers and stock at Arthur's Seat, whence the sheep were driven to Aitken's Gap, about twenty-four miles from Melbourne.

† From "Mount Byng" Mitchell made an excursion to the Mount Wentworth of Hume, which he re-named Mount Macedon. He ascended to its summit, and thence saw Port Phillip Bay, and "at its highest northern point a mass of white objects, which might have been either tents or vessels."

It was after this journey that Mitchell gave the country he had explored the designation of "Australia Felix."* He had passed through some of the best parts of this colony, and the accounts he gave of the richness and capabilities of the soil, and the magnificence of the scenery, caused great excitement, not only in Sydney and Van Diemen's Land, but also in the mother country. Herds of cattle and sheep, driven overland from New South Wales, speedily occupied the best parts of the territory. Every available craft capable of floating was put into requisition to bring passengers and stock from Van Diemen's Land, and after a time ship-loads of immigrants began to arrive from the United Kingdom.

Regular government established.

The colonists soon found themselves in want of some form of government, so they petitioned the Governor of New South Wales, Sir Richard Bourke, to take steps to make this provision for them.† Sir Richard sent an officer, Mr. George Stewart, to examine into the state of affairs. He reached Port Phillip on the 25th May 1836, and having returned and reported, Captain Lonsdale, formerly an officer of the 4th regiment, was despatched to act in the capacity of resident magistrate. He arrived in H.M.S. *Rattlesnake* on the 29th September, from which date the regular government of the settlement may be said to have commenced. Six days after Lonsdale's arrival, the remainder of the Government staff, consisting of a customs officer, a commissariat officer, three surveyors, three constables, a few prisoners to aid in the construction of public works, and about thirty soldiers, arrived in the *Stirlingshire* brig.

One of the first acts of the new magistrate, after he had become settled, was to decide upon the site of the future metropolis. He examined several places, but eventually adhered to the spot first fixed upon by Fawkner's party. Six months afterwards, on the 2nd March 1837, Sir Richard Bourke first visited the district from Sydney. He concurred in Lonsdale's choice, and named the town Melbourne. He also approved of a plan for a town on a point to the westward of Hobson's Bay, which he called Williamstown.

In 1839 the population of Port Phillip amounted to nearly 6,000, and was being rapidly augmented from without. The sheep in the district exceeded half a million, and of cattle and horses the numbers were in proportion equally large. The place was daily growing in importance. The Home Government therefore decided to send an officer, with the title of Superintendent, to take charge of the district, but to act under the Governor of New South Wales. Charles Joseph La Trobe, Esq., was appointed to this office, from which he was afterwards promoted to the rank of Lieutenant-Governor. He arrived at Melbourne on the 30th September 1839.

Mania for speculation and subsequent reaction.

Soon after this all classes of the new community appear to have become affected by a mania for speculation. Not only in ordinary commercial transactions did this disposition show itself, but in the purchase and sale of allotments of land in Melbourne and elsewhere, in which a regular traffic was kept up until the nominal value of land became enormous. Sheep, cattle, and horses were sold, resold, and

* Lieutenant John Oxley, R.N., Surveyor-General of New South Wales, had previously reported respecting this country:—"We had demonstrated beyond a doubt that the country south of the parallel 34° S. and west of the meridian 147° 30′ east was uninhabitable and useless for all the purposes of civilized man."—"Oxley's Journals of Two Expeditions into the Interior of Australia," p. 372; London, 1820.

† Prior to this, when disputes arose, Mr. James Simpson, formerly a magistrate in Van Diemen's Land, acted as arbitrator by general consent of the colonists.

sold again at increased prices on each occasion. As is always the case when speculation takes the place of steady industry, the necessaries of life became fabulously dear. Of money there was but little in consideration of the amount of business done, and large transactions were effected by means of paper and credit. From highest to lowest, all lived extravagantly. Even rough laborers and bullock-drivers indulged in champagne and other luxuries of a similarly expensive character.

Such a state of things could not last for ever. In 1842, by which time the population had increased to 24,000, the crash came. The bankers restricted the advances to their customers, so that it became necessary either to force property into the market to realize what it would fetch, or to obtain advances from money-lenders at ruinous rates of interest. In a short time the value of landed property and stock became almost nominal.* To add to the confusion, a fall in the price of the chief article of export, wool, took place in England.

From this depression the colony slowly recovered, and a sounder business system took the place of the speculative one which had formerly prevailed. The system of boiling down sheep for tallow was introduced, and this proved a real boon to the pastoral settlers.†

Separation from New South Wales.

All this time, however, the colony was a dependency of New South Wales, and a strong feeling had gained ground that it suffered in consequence. Complaints were made that the expenditure of Government moneys in the district was not equal to the amount of revenue yielded by the taxes levied and lands sold within its borders. The distance from the capital was also found to operate injuriously to the interests of the colonists, and a cry was raised for separation. The demand was, as a matter of course, resisted by New South Wales, but as the agitation was carried on with increased activity, it was at last yielded to by the Home authorities. The vessel bearing the intelligence arrived on the 11th November 1850. The news soon spread, and great was the satisfaction of the colonists. Rejoicings were kept up in Melbourne for five consecutive days, on three of which not even a newspaper was published, and on the night of one the city was illuminated. Before, however, the separation could be legally accomplished it was necessary that an Act should be passed in New South Wales to settle details in connection with the establishment of a Legislature in the new colony, and that sundry other observances should be gone through. The requisite forms were at length given effect to, and, on the 1st July 1851, a day which has ever since been scrupulously observed as a public holiday, it was proclaimed that the Port Phillip district of New South Wales had been erected into a separate colony to be called Victoria, after the name of Her Most Gracious Majesty. At the same time the Superintendent, Mr. C. J. La Trobe, was raised to the rank of Lieutenant-Governor.

At the commencement of the year of separation the population of Port Phillip numbered 76,000, the sheep 6,000,000, the cattle 380,000, the horses 21,000, and the land in cultivation 52,000 acres. In the preceding year, the public revenue had amounted to £260,000, the

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* "Real property became so reduced in value that only about one-tenth of its former price could be realized for it. Sheep had depreciated so much that flocks, worth from £1 10s. to £2 in the first phase of Port Phillip settlement, had been sold from 1s. 2d. to 4s. per head."—"History of Victoria," by the Hon. Thomas McCombie, page 104; London, Chapman and Hall, 1858.

† McCombie says that Mr. O'Brien, of Yass, New South Wales, was the first to come forward and show his fellow-colonists how a standard value of nine shillings per head could be given to sheep by this practice. The same process had been carried on for many years in Russia, but until then it had never been thought of in Australia.—McCombie's "History of Victoria," page 105.

public expenditure to £196,000, the imports to £745,000, the exports to £1,000,000. The ships which arrived numbered 555, of an aggregate tonnage of 108,030, and the ships which departed numbered 508, of an aggregate tonnage of 87,087. The wheat grown amounted to 550,000 bushels, the oats to 100,000 bushels, the hay to 21,000 tons. The wool exported amounted to 18,000,000 lbs., and the tallow to 10,000,000 lbs.

On separation it was of course necessary that an adjustment of accounts should be made between the two colonies, and this was done in a manner which appears to have been by no means fair or equitable to Victoria, inasmuch as the principle acted upon was to divide the balance remaining in the New South Wales Treasury at the time of separation between that colony and Victoria, in the proportion of their respective revenues during the year prior to that of separation, leaving out of sight altogether the amount by which in former years the revenues of Port Phillip—all of which had gone to New South Wales—had exceeded the amount expended by the latter in or on account of the Port Phillip district. Looking at a statement laid upon the table of the Legislative Council of Victoria, on the 13th July 1852, of the revenue raised in and amount expended on the Port Phillip district, during the 15½ years from the beginning of 1836 to the 30th June 1851, it appears that the former exceeded the latter by £489,492. The amount handed over on separation was, however, £95,063 only. Victoria, by this arrangement, was therefore a loser of £394,429 ; or, if an estimate, which seems to be purely imaginary, of the proportion chargeable to Victoria by New South Wales on account of the expenses of General Government amounting to £102,842, or about £6,635 a year, be admitted, the amount of loss will be reduced to £291,587.*

By the New South Wales Act above referred to, the number of members of the Legislative Council of Victoria was fixed at thirty, of whom twenty were to be elected, and ten nominated by the Governor. The first meeting of this Legislature took place on the 11th November of the year of separation.

Discovery of gold.

In little more than a month after the establishment of Victoria as an independent colony, it became generally known that rich deposits of gold existed within its borders. Two years and a half previously a lump of gold had been exhibited in the shop of a jeweller at Melbourne, named Brentani, which it was said had been found in the locality of the Pyrenees Ranges by a shepherd named Chapman. This created some little excitement at the time, but as the man could never point out the

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* I have taken some pains to examine into this matter, and believe the following to be a correct statement of account between the two colonies :—

VICTORIA IN ACCOUNT WITH NEW SOUTH WALES.

Dr.		*Cr.*	
To Amount of Port Phillip Revenue, 1836 to 30 | 6 | 51	£1,909,415 4 2	By Expenditure on Port Phillip, 1836 to 30 | 6 | 51..	£1,419,923 10 6½
To Amount repaid New South Wales in adjustment of advance on account of General Revenue	236 2 1	By Advance at separation on account of General Revenue..	33,688 3 3
To Amount repaid New South Wales in adjustment in advance on account of Territorial Revenue..	11,124 14 8	By Advance at separation on account of Territorial Revenue	72,669 11 8
		By Payment on Account of Denominational Schools	66 2 10
		By Balance, being amount of Port Phillip Revenues not accounted for by New South Wales	394,428 12 7½
	£1,920,776 0 11		£1,920,776 0 11

This statement does not include an amount of £102,842 said to be chargeable to Victoria on account of expenses of General Government. If this be admitted, the balance of unaccounted for revenues would be reduced to £291,586 12s. 7½d.—*See* "Parliamentary Papers of Victoria," Session 1852-3, vol. ii., p. 89 ; also Session 1853-4, vol. ii. pp. 453 to 469.

place at which he had found the specimen, and indeed soon deserted a small searching party he had undertaken to guide to the spot, it was readily supposed he was an impostor, and had obtained the gold by melting some articles of jewellery he had stolen, and so the belief in the existence of a goldfield gradually grew weaker. The discovery of gold, however, in New South Wales, by Hargreaves, in February 1851,* caused numbers to emigrate to that colony. This being considered detrimental to the interests of Victoria, a public meeting was held in Melbourne on the 9th June, at which a "gold-discovery committee" was appointed, which was authorized to offer rewards to any that should discover gold in remunerative quantities within the colony.

The colonists were already on the alert. At the time this meeting was held, several parties were out searching for, and some had already found gold. The precious metal was first discovered at Clunes, then in the Yarra Ranges at Anderson's Creek, soon after at Buninyong and Ballarat, shortly afterwards at Mount Alexander, and eventually at Bendigo.† The deposits were found to be richer and to extend over a wider area than any which had been discovered in New South Wales. Their fame soon spread to the adjacent colonies, and thousands hastened to the spot, desirous of participating in the newly found treasures. When the news reached home, crowds of emigrants from the United Kingdom hurried to our shores. Inhabitants of other European countries quickly joined in the rush. Americans from the Atlantic States were not long in following. Stalwart Californians left their own gold-yielding rocks and placers to try their fortunes at the southern Eldorado. Last of all, swarms of Chinese arrived eager to unite in the general scramble for wealth.

Riots on Ballarat.

The payment for a license to dig for gold was first fixed at £1 10s. per month, and this was afterwards reduced to £1 10s. per quarter.‡ The license fee was not seriously objected to in the early days of the goldfields when gold was found in large quantities by almost all who sought it, but in the course of a year or two the number of gold diggers had increased so enormously that a considerable proportion were necessarily unsuccessful, and to these the payment of even the reduced license fee became a grievous burden. The mode of collecting this tax by

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* The first discoverer of gold in Australia is believed to have been the Rev. W. B. Clarke, of Sydney, who, in 1841, found gold in the mountainous regions to the west of the Vale of Clwyd, in New South Wales; and in 1844 exhibited a specimen of gold in quartz to the then Governor, Sir George Gipps, and others. But the subject was not followed up, "as much from considerations of the penal character of the colony, as from general ignorance of the value of such an indication." Mr. E. H. Hargreaves returned to Sydney from California in 1850, for the express purpose, as he states, of searching for gold; and on the 12th February 1851 he succeeded in finding gold at Summer Hill Creek, in New South Wales. This discovery afterwards led to gold being found in other places in that colony, and to the discovery of the goldfields of Victoria.—*See* Report of Select Committee of Legislative Council on claims for discovery of gold in Victoria, Session 1853-4.

† The following is a short statement of the order in which the Select Committee appointed by the Legislative Council to consider claims for rewards for gold discoveries in Victoria, placed the various claimants in their report dated 10th March 1854:—The Hon W. Campbell discovered gold in March 1850, at Clunes; concealed the fact at the time from the apprehension that its announcement might prove injurious to the squatter on whose run the discovery was made; but mentioned it in a letter to a friend on the 10th June, and afterwards on the 5th July 1851, which friend, at Mr. Campbell's request, reported the matter to the gold-discovery committee on the 8th July. Mr. L. J. Michel, and six others, discovered gold in the Yarra Ranges, at Anderson's Creek, which they communicated to the gold-discovery committee on the 5th July. Mr. James Esmond, a California digger, and three others, obtained gold in the quartz rocks of the Pyrenees, and made the discovery public on the 5th July. Dr. George Bruhn, a German physician, found indications of gold in quartz "two miles from Parker's station," in April 1851, and forwarded specimens to the gold committee on the 30th June. Mr. Thomas Hiscock found gold at Buninyong on the 8th August, and communicated the fact to the editor of the *Geelong Advertiser* on the 10th of the same month. This discovery led to that of the Ballarat goldfields. Mr. C. T. Peters, a hut-keeper at Barker's Creek, and three others, found gold at Specimen Gully on the 20th July; worked secretly to the 1st September, then published the account. This led to the discovery of the numerous goldfields about Mount Alexander.

‡ Towards the end of the first year of the gold discovery the Government determined to raise the license fee to £3 per month, and actually issued a proclamation, dated 1st December 1851, stating that on and after the 1st January 1852 such amount would be charged. This was met by strong protests on the part of the diggers, which resulted in the proclamation being rescinded on the 13th December 1851. No licenses therefore were ever issued at the increased rate.

means of armed troopers, who surrounded parties of diggers whilst at their work and apprehended all who were found without licenses, was also particularly obnoxious. The miners had, besides, other grievances, the chief being that they were denied the franchise, and were not allowed to cultivate ever so small a portion of land to help towards the maintenance of themselves and their families.

Public meetings were held on some of the goldfields to protest against this state of things, but as little notice was taken by the Government, a wide-spread feeling of discontent ensued. This culminated in an outbreak which took place at Ballarat towards the end of 1854, when the diggers erected a stockade at that portion of the gold-workings called the Eureka, and set the authorities at defiance. All the troops that could be mustered were immediately despatched to Ballarat, and the riot was quelled, with some bloodshed on both sides.* A number of prisoners were taken by the troops, and some of these were brought to trial. The charge set down in the indictment was high treason. There were several trials, but the juries would not convict the prisoners of this offence, and they were consequently all acquitted.

As a result of the Ballarat outbreak, a Royal Commission was appointed, on the 7th December, by the Governor, Sir Charles Hotham, to enquire into the grievances of the gold miners. This led to the oppressive license fee being removed, and other concessions being made. The miners have since been no less loyal than any other of Her Majesty's subjects.

Victorian constitution.

The important position which the Australian colonies had obtained in consequence of the discovery of gold, and the influx of population consequent thereon, was the occasion of the Imperial Government determining in the latter end of 1852 that each colony should be invited to frame such a constitution for its government as its representatives might deem best suited to its own peculiar circumstances.

The Constitution framed in Victoria, and afterwards approved by the British Parliament, was avowedly based upon that of the United Kingdom. It provided for the establishment of two Houses of Legislature, with power to make laws, subject to the assent of the Crown as represented generally by the Governor of the colony; the Legislative Council, or Upper House, to consist of thirty, and the Legislative Assembly, or Lower House, to consist of sixty members. Members of both Houses to be elective and to possess property qualifications. Electors of both Houses to possess either property or professional qualifications, the property qualification of both members and electors being lower in the case of the Lower than in that of the Upper Chamber. The Upper House not to be dissolved, but five members to retire every two years and to be eligible for re-election. The Lower House to be dissolved every five years, or oftener, at the discretion of the Governor. Certain officers of the Government, four at least of whom should have seats in Parliament, to be deemed "Responsible Ministers." Any member of either House accepting a place of profit under the Crown to vacate his seat, but to be capable of being re-elected.†

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* The Eureka Stockade was taken by storm on the morning of Sunday the 3rd December. It occupied about an acre, and was situated in Ballarat East, between the present Eureka, Stawell, Rodier, and George streets.

† The Constitution has since been modified by the reduction by one-half of the property qualification of members and electors of the Upper House; the total abolition of the property qualification of members and electors of the Lower House; the increase of members of the Lower House from sixty to eighty-six, and the shortening of the duration of the term of their election from five years to three.

This Constitution was proclaimed in Victoria on the 23rd November 1855. The history of the colony from that period to the present consists of a series of political struggles, which have resulted in the rise of eighteen and the retirement of seventeen Ministries. To give the details of the causes by which these events have been brought about would occupy space to no purpose, and would be out of place in this work. Suffice it to say that such party feeling as has at times prevailed has had no permanent effect in setting class against class, or in any way lessening the good feeling which exists between all sections of the community.

When the Constitution was proclaimed the population of the colony numbered 364,000, it now (December 1876) numbers 840,000; the land in cultivation amounted to 115,000 acres, it now amounts to over 1,000,000 acres; the bushels of wheat grown in a year numbered 1,150,000, they now number 5,000,000; the sheep numbered 4,600,000, they now number nearly 12,000,000; the cattle numbered 530,000, they now number over 1,000,000; the horses numbered 33,000, they now number not less than 200,000; the public revenue amounted to £2,728,000, it now amounts to over £4,300,000; the value of imports was £12,000,000, it now amounts to £17,000,000; the value of exports was £13,500,000, it now amounts to £15,000,000, and this although the export of gold has fallen off during that period from £11,000,000 to a little over £3,000,000.

Section L.—INTERNAL ADMINISTRATION.

[*The following remarks are by the Editor.*]

Governor.

The Governor of the colony is styled, in his commission, "Governor and Commander-in-Chief of the colony of Victoria, and Vice-Admiral of the same." He is subordinate to the Government of Her Majesty the Queen only.

War Minister.

The defences of the colony are in the department of the Treasurer for the time being, and that officer is, politically, the responsible head of the war office, &c.

Parliament.

The Parliament of Victoria consists of two elective chambers.

The number of districts and of members for the representation of the Upper House, or Legislative Council, remains the same as when the Constitution Act became law. The districts are called provinces. Of these there are six, each of which returns five members. A member for each province retires every two years, but is eligible for re-election.

The qualification of members and electors of the Upper House was reduced by the Act 32 Vict. No. 334, which came into force on the 1st January 1869. The qualification of a member now is that he be of the full age of 30 years, a natural-born subject of the Queen, and possessed of freehold property in Victoria of the value of £2,500 absolute or £250 annual value, above all charges or encumbrances affecting the same. Judges and ministers of religion are incapable of being elected, as also are criminals.

The qualification of an elector is that he be at least 21 years of age, a natural-born or naturalized subject of Her Majesty, and be possessed of freehold or leasehold property or be the occupier of property as a tenant rated in some municipal district or districts within the province at not less than £50 a year. Graduates of any university in the British dominions, matriculated students of the Melbourne University, members of the learned professions, certificated teachers, military and naval officers, have also a right to vote at the election of members of the Legislative Council in the province in which they reside.

The number of members of the Lower House, or Legislative Assembly, was increased in 1858 from 60, as named in the Constitution Act, to 78, who were returned for 49 districts ; and by a recent Act the number has been further increased to 86, who are returned for 55 districts. Of these districts 5 are represented by 3 members, 21 by 2 members, and 29 by 1 member.

That part of the Constitution Act providing for a property qualification of members of the Legislative Assembly was repealed on the 27th August 1857, by Act 21 Vict. No. 12. The only qualification now necessary for a member is that he be either a natural-born subject of the Queen, or an alien legally naturalized for the space of five years and resident in Victoria for the space of two years, and that he be of the full age of 21 years.

The property qualification of electors for the Legislative Assembly, provided for by the Constitution Act, was abolished by the Act 21 Vict. No. 33. Since then, universal manhood suffrage has obtained so far as this House is concerned.

The voting at elections for both Houses of the Legislature is by ballot. The number of electors on the rolls is as follows :—

ELECTORS, 1876.

Legislative Council	...	...	29,110
Legislative Assembly	...	...	181,228

Local government.

Besides the general government, a very complete system of municipal government exists in Victoria. The following is a short description of the initiation and growth of this system of government and of its form :—

Melbourne, the metropolis of Victoria, was incorporated as a town on the 12th August 1842, under Act 6 Vict. No. 7. It was afterwards made a city on the 3rd August 1849, under Act 13 Vict. No. 14. Geelong, then the second place in point of importance in the colony, was incorporated as a town on the 12th October 1849, under Act 13 Vict. No. 40.

But on the 29th December 1854 an Act was passed (18 Vict. No. 15) providing that any place in Victoria, of a certain limited size, containing a given number of inhabitants, might be erected into a municipality upon the petition of a stated number of its resident householders. The proclamation of district road boards had previously been provided for on the 8th February 1853, under Act 16 Vict. No. 40. Out of these two systems of local self-government have sprung the present municipal institutions in Victoria.

The existing municipal bodies are of two kinds, the first being called cities, towns, or boroughs, and the second shires. Both these bodies are regulated under the Local Government Act (38 Vict. No. 506), and are called municipal districts. Each municipal district is a body corporate, with perpetual succession and a common seal, and is capable of suing and being sued, purchasing, holding, and alienating land, &c.

A borough must not be of greater area than nine square miles, and, on being constituted, must have a population of inhabitant householders of not less than three hundred. No point within its limit must be more than six miles distant from any other point. Any borough having a gross revenue of not less than £10,000 may be declared by the Governor in Council a town, and any one having a gross revenue of not less than £20,000 may be declared by the Governor in Council a city.

Portions of country containing rateable property capable of yielding, upon a rate not exceeding one shilling in the pound on the annual value thereof, a sum of £500, may be proclaimed as shires.

The Governor in Council may divide any municipal district into any number of subdivisions not exceeding eight.

The number of councillors in a municipality is fixed by the Governor in Council. It must, by the Statute, be some multiple of 3, and must not be less than 6 or more than 24. The number is usually 9. If the district is subdivided, the number of councillors is 3 for each subdivision.

Male persons liable to be rated in respect of property of the rateable value of £20 at least in any municipal district are qualified to hold the office of councillor. Being a contractor or the holder of any office of profit under the council, being an uncertificated or undischarged bankrupt or insolvent, or being convicted or attainted of felony, perjury, or any infamous crime, renders a person incapable of being or continuing to be a councillor.

The election of councillors takes place annually. A third part of the councillors retires each year by rotation, but retiring councillors may be re-elected.

The councillors elect their own chairman, who in the case of boroughs is called the mayor; in the case of shires, the president. The chairman becomes a justice of the peace by virtue of his office during the time he holds such office and one year longer.

Every person (male or female), of 21 years of age or upwards, liable to be rated in respect of property within a municipal district, is entitled to be enrolled as a voter, provided the rates on such property have been duly paid.

Plurality of votes for the election of councillors is allowed upon the following scale:—

In Boroughs.

Properties rated at an annual value of	less than £50 ...	One vote.
„ „ „ „ „	from £50 to £100...	Two votes.
„ „ „ „ „	over £100 ...	Three votes.

In Shires.

Properties rated at an annual value of	less than £25 ...	One vote.
„ „ „ „ „	from £25 to £75 ...	Two votes.
„ „ „ „ „	over £75 ...	Three votes.

No person is entitled to vote for property of less than £10 annual value, unless he is the occupier thereof. In other cases, either the owner or the occupier, but not both, may vote.

Where any municipal district is subdivided, the ratepayers are enrolled for the subdivision in which the property in respect of which they are enrolled is situated.

All land situated in a municipal district, except land used for public purposes, is rateable property.

General rates are made and levied once at least in every year on all the rateable property in each municipal district. They must not be more than 2s. 6d. or less than 6d. in the pound of the net annual value of such property. Separate rates in addition, not exceeding 6d. in the pound, may, by consent of one-third of the ratepayers in a particular portion of the district, be levied upon the property within such portion, for the execution of works intended for its special benefit.

In the year 1875 there were, including Melbourne and Geelong, 59 cities, towns, and boroughs in existence, and 108 shires. The estimated total value of property rated was £65,761,061, and the estimated annual value was £6,448,313.

Judicial system.

The judicial system in Victoria is formed upon the model of that in England. The common law of England obtains generally as in the old country, save where rights are restrained or conferred by colonial statute, or where, by the latter, restrictions are specially removed or imposed. The statute law of England, also, to the date of 13 and 14 Vict., c. 59, runs here where not affected by subsequent local legislation.

Five supreme court judges, a master-in-equity, a judge in insolvency, a master-in-lunacy, a commissioner of titles, eight county court judges (each also the chairman of general sessions within his district), and thirty-three police magistrates, are engaged in the administration of the law. There are also some 1,200 unpaid justices of the peace.

Victoria is on perfect equality with all neighboring colonies, and has no dependencies.

Section M.—FINANCE.

[*The following remarks are by the Editor.*]

THERE is no Imperial contribution to the revenue of Victoria.

Revenue and expenditure.

During the year ended 30th June 1876 the revenue of the General Government of Victoria amounted to £4,325,150, and the expenditure to £4,572,844. These were the largest amounts ever raised and spent in the colony in one year.

The growth of the revenue and expenditure is shown in the following table, which contains a statement of the estimated mean population, the amount of revenue and expenditure, and the rate of each per head of the population for each year, commencing at that in which the colony was separated from New South Wales :—

POPULATION, REVENUE AND EXPENDITURE, 1851 TO 1875–6.

Year.	Average Population.	Net Revenue.		Net Expenditure.	
		Total Amount.	Amount per Head.	Total Amount.	Amount per Head.
		£	£ s. d.	£	£ s. d.
1851 ...	86,825	392,455	4 10 5	410,864	4 14 8
1852 ...	132,905	1,634,448	12 5 11	978,922	7 7 4
1853 ...	195,378	3,235,546	16 11 2	3,216,609	16 9 3
1854 ...	267,371	3,087,986	11 11 0	4,185,708	15 13 1
1855 ...	338,315	2,728,656	8 1 4	2,612,807	7 14 6
1856 ...	380,942	2,972,496	7 16 1	2,668,834	7 0 1
1857 ...	430,347	3,328,303	7 14 8	2,968,658	6 17 11
1858 ...	483,827	2,973,383	6 2 11	3,092,720	6 7 10
1859 ...	517,226	3,261,104	6 6 1	3,393,946	6 11 3
1860 ...	539,337	3,082,461	5 14 4	3,315,307	6 2 11
1861 ...	541,012	2,952,101	5 9 1	3,092,021	5 14 4
1862 ...	548,450	3,269,079	5 19 2	3,039,497	5 10 10
1863 ...	561,322	2,774,686	4 18 10	2,882,937	5 2 8
1864 ...	589,160	2,955,338	5 0 4	2,928,903	4 19 5
1865 ...	616,375	3,076,885	4 19 10	2,983,777	4 16 10
1866 ...	634,077	3,079,160	4 17 1	3,222,025	5 1 8
1867 ...	649,826	3,216,317	4 19 0	3,241,818	4 19 9
1868 ...	671,222	3,230,754	4 16 3	3,189,321	4 15 0
1869 ...	696,942	3,383,984	4 17 1	3,226,165	4 12 7
1870 ...	709,838	3,261,883	4 11 11	3,428,382	4 16 7
1871 (six months)*	731,528	1,691,266	2 6 3	1,754,251	2 8 0
1871–2 ...	749,964	3,734,422	4 19 7	3,659,534	4 17 7
1872–3 ...	770,306	3,644,135	4 14 7½	3,504,953	4 11 0
1873–4 ...	789,438	4,106,790	5 4 0½	4,177,338	5 5 10
1874–5 ...	806,760	4,236,423	5 5 0¼	4,318,121	5 7 0½
1875–6 ...	822,231	4,325,156	5 5 2½	4,572,844	5 11 2¾

It will be observed that in the last three years the revenue and expenditure have been increasing somewhat faster than the population, but that the amounts raised and expended per head are not nearly so large as they were in the years from 1852 to 1861.

* The financial year was changed in 1871, so as to terminate on the 30th June instead of the 31st December as formerly. The figures in this line are, therefore, for six months only.

The figures of revenue given in the table are exclusive of the amounts raised by loan, but the figures of expenditure include the repayment of loans, which has been as follows:—

REPAYMENT OF LOANS.

Year.	Amount Repaid. £	Year.	Amount Repaid. £
1857	30,000	1867	71,500
1858	30,000	1868	60,300
1859	45,000	1869	50,000
1860	45,000	1870	50,000
1861	50,000	1871	50,000
1862	56,100	1872	50,000
1863	52,400	1873	67,800
1864	48,800		
1865	61,200	Total	£868,100
1866	50,000		

No amounts have been repaid since the year 1873.

The following are the heads of revenue and the amount received under each head, during the year 1874–5:—

NET REVENUE, 1874–5.

	£
Customs	1,628,235
Excise	32,475
Ports and Harbors	19,935
Licenses (Business)	10,714
Duties on Estates of Deceased Persons	32,526
Land Sales (including rents counting towards purchase-money)	767,030
Rents of Crown Lands (not counting towards purchase-money)	174,194
Railways	921,714
Water Supply	88,556
Public Works (exclusive of Railways and Water Supply)	6,834
Post and Telegraphs	198,326
Fines, Fees, and Forfeitures	116,832
Rents (Ordinary)	749
Reimbursements, Recoups, &c.	107,867
Interest and Exchange	75,025
Miscellaneous Receipts	55,411
Total	£4,236,423

The Customs revenue, of which the total amount is given above, was raised under the following heads:—

HEADS OF CUSTOMS REVENUE, 1874–5.

	£
Spirits	507,631
Wine	36,012
Beer and Cider	32,100
Tobacco and Snuff	111,523
Cigars	12,271
Tea	67,508
Sugar and Molasses	82,062
Coffee, Chicory, Cocoa, and Chocolate	13,910
Opium	15,719
Rice	15,108
Hops	10,807
Malt	14,392
Dried and Preserved Fruits and Vegetables	28,930
Articles subject to *ad valorem* duties	337,582
All other articles	241,885
Wharfage rates	100,795
Total	£1,628,235

The following are the heads of expenditure in 1874–5, and the amounts expended under each head :—

NET EXPENDITURE, 1874–5.

	£
Legislature	56,552
Civil Establishment	105,681
Judicial and Legal	172,975
Public Instruction, Science, &c. (including school buildings)	596,102
Charitable Institutions, Medical, &c.	273,537
Mining	30,653
Police	198,312
Gaols and Penal Establishments	60,469
Mint	20,000
Crown Lands and Survey	140,246
Railways	437,931
Water Supply	24,240
Public Works (exclusive of Railways and Water Supply)*	669,740
Customs	57,364
Harbors and Lights	35,035
Defences	53,507
Post and Telegraphs	357,890
Retiring Allowances and Pensions	34,694
Liquidation of Corporation Bonds	35,000
Interest	742,008
Civil List†	68,984
Aborigines	6,209
Placed to Railway Loan and Construction Account‡ ...	100,000
Miscellaneous Services	40,992
Total	£4,318,121

The amounts of which the revenue is made up may be divided into two classes, viz., those raised by taxation and those raised otherwise. Of the former class are the receipts from Customs and Excise duties, from wharfage rates, from port and harbor dues, from tolls, from business licenses, and from duties on estates of deceased persons. Of the latter class are the amounts derived from the sale or occupation of crown lands, from railways, water supply, and other public works, from post and telegraph offices, from fees, fines, and forfeitures, from the labor of prisoners, from the interest on the public account, &c. The following figures show the amount of taxation resulting from a division of the Victorian revenue, based upon this principle, for each year from

---

* Including endowments of municipalities under the Local Government Act. Not including school buildings.

† Including Governor's salary, salaries of Ministers, Executive Council, and Public Worship.

‡ This account was created under an Act, whereby it was provided that an amount of £200,000 proceeding from the alienation of land should be placed annually to a trust account, the moneys standing to the credit of which should be available for the repurchase of debentures, or the further construction of railways. The total amount which had been paid to this fund up to the 30th June 1875 was £1,000,000, of which £910,369 had been expended, leaving a balance to the credit of the fund amounting to £89,631.

1853 to 1875–6, also the average amount of taxation per head of the population during each year :—

TAXATION, 1853 TO 1875–6.

Year.	Taxation.		Year.	Taxation.	
	Gross Amount.	Average Per Head.		Gross Amount.	Average Per Head.
	£	£ s. d.		£	£ s. d.
1853	800,577	4 1 11½	1865	1,214,479	1 19 4¾
1854	1,052,462	3 18 8½	1866	1,219,567	1 18 5½
1855	1,193,309	3 10 6½	1867	1,516,231	2 6 8
1856	1,458,647	3 16 7	1868	1,352,818	2 0 3¾
1857	1,331,362	3 1 10½	1869	1,539,495	2 4 2
1858	1,414,511	2 18 5¾	1870	1,394,333	1 19 3½
1859	1,414,760	2 14 8½	1871 (6 months)	724,261	0 19 9½
1860	1,330,761	2 9 4¼	1871–2... ...	1,612,034	2 3 0
1861	1,244,389	2 6 0	1872–3... ...	1,784,056	2 6 4
1862	1,183,194	2 3 2	1873–4... ...	1,896,842	2 8 0¾
1863	1,158,219	2 1 3¼	1874–5	1,724,822	2 2 9
1864	1,167,036	1 19 7½	1875–6	1,780,392	2 3 3¾

NOTE.—An export duty on gold existed from May 1855 to the end of 1867. The receipts from that source have not, for the purpose of this table, been considered as taxation.

In connection with general revenue and expenditure of the colony, the local or municipal revenue and expenditure should also be considered. The latter amounts for the year 1874–5 are given in the following table, and are added to the former, as already given :—

GENERAL AND LOCAL REVENUE AND EXPENDITURE, 1874–5.*

—	Amount Received and Expended.
	£
Revenue.	
General Government	4,236,423
Municipal Government	683,002
Total	4,919,425
Expenditure.	
General Government	4,318,120
Municipal Government	572,243
Total	4,890,363

It thus appears that the sums raised and expended in Victoria for general and local purposes amount to little less than five millions sterling. In proportion to each individual in the population the total amount raised in 1875, under the two systems of Government, was £6 1s. 11½d., and the total amount expended was £6 1s. 2¾d.

* In 1875–6 the General and Local Revenue amounted to £5,009,847, and the General and Local Expenditure to £5,222,499.

The amount of taxation under the general and local governments is given in the following table, the items being specified in each case :—

GENERAL AND LOCAL TAXATION, 1874–5.*

	Amount Received.
General Government Taxation.	£
Customs duties	1,527,440
Wharfage rates	100,795
Ports and harbors	19,935
Spirits distilled in Victoria	32,475
Licenses (not territorial)	10,714
Duties on estates of deceased persons	32,526
Toll receipts	937
Total	1,724,822
Municipal Government Taxation.	
Rates	364,338
Toll receipts	69,107
Licenses	107,071
Registration of dogs and goats	10,293
Market dues	27,982
Total	578,791
Total general and local taxation ...	£2,303,613

It will be observed that the general and local taxation together amount to close upon two and one-third millions sterling. The exact sum, divided by the numbers of the population, gives a proportion of £2 17s. 1¼d. to each individual.

Public debt.

The Public Debt of Victoria amounted, on the 30th June 1875, to £13,992,582 12s. This consisted of—

	£	s.	d.
Debentures	12,993,220	0	0
Stock...	999,362	12	0
Total	£13,992,582	12	0

The following is the condition of the loan and stock account and the steps whereby it reached its present amount :—

				£	s.	d.
Amount authorized to be borrowed				15,448,100	0	0
Less debentures unsold ...	£500,000	0	0			
„ stock unsold ...	100,519	6	0			
„ amount repaid ...	868,100	0	0			
				1,468,619	6	0
				13,979,480	14	0
Increase by bonus paid on conversion of 5 and 6 per cent. debentures into 4 per cent. stock				13,101	18	0
Total				£13,992,582	12	0

The following were the purposes for which the debt was contracted :—

* In 1875-6 the General and Local Taxation amounted to a total of £2,351,492.

	£	s.	d.
Construction of railways	12,107,000	0	0
Waterworks	960,000	0	0
Public works and water supply	512,480	14	0
Alfred graving dock	300,000	0	0
Defences	100,000	0	0
	13,979,480	14	0
Increase by bonus on conversion of debentures ...	13,101	18	0
Total	£13,992,582	12	0

The rates of interest payable on the various amounts were as follow :—

Rate of Interest.	£	s.	d.
6 per cent.	9,073,320	0	0
5 per cent.	2,419,900	0	0
4 per cent.	2,499,362	12	0
Total	£13,992,582	12	0

On the 30th June 1875 the estimated population of Victoria was 813,588. If the public debt at the same period (£13,992,582 12s. 0d.) be divided by this number, the result will show an average of indebtedness on behalf of every man, woman, and child in the colony amounting to £17 3s. 11¾d. As compared with the amounts on the 30th June 1874, the total debt shows an increase of £1,507,150, and the average indebtedness per head shows an increase of £1 10s. 11½d.*

The following was the amount of interest payable on loans, and of expenses connected therewith during 1874–5 :—

	£
Interest on loans, 1874–5	765,369
Expenses connected with loans, 1874–5 ...	4,409
Total	£769,778

The interest and expenses of loans in 1874–5 represented a charge of 19s. 1d. per head of the mean population, as against a charge per head of 17s. 11¾d. in the previous year.

Expenditure on immigration.

During the last twenty-six years more than two millions sterling have been spent on the payment of the passages of immigrants from the United Kingdom. Latterly, however, it has not been the policy of the State to spend much money with this object, and in 1875–6 the amount so expended was less than £800. The following are the amounts spent on the introduction of immigrants in each of the years between 1850 and 1875–6. In 1870 and subsequent years the departmental expenses are not included :—

EXPENDITURE ON IMMIGRATION, 1851 TO 1875.

	£		£		£
1851 ...	116,363	1861 ...	63,739	1871 (six months)	14,840
1852 ...	206,552	1862 ...	115,209	1871–2 ...	21,808
1853 ...	209,925	1863 ...	50,081	1872–3 ...	4,094
1854 ...	390,352	1864 ...	47,887	1873–4 ...	2,251
1855 ...	187,355	1865 ...	41,808	1874–5 ...	1,583
1856 ...	115,716	1866 ...	35,813	1845–6 ...	760
1857 ...	115,877	1867 ...	38,401		
1858 ...	59,023	1868 ...	32,548	Total	£2,011,692
1859 ...	48,809	1869 ...	50,637		
1860 ...	6,948	1870 ...	33,313		

* On the 30th June 1876 the public debt of Victoria was £13,996,823. At the same date the estimated population was 829,284. The amount of indebtedness per head was thus £16 17s. 6¾d. News has reached the colony of the successful floating in London, during the month of October 1876, of a further loan of £3,000,000, bearing 4 per cent. interest. The minimum price fixed by the Victorian Government for the £100 was 95½, and the average amount obtained was about 96¼.

Expenditure on public works.

From the time Victoria was separated from New South Wales to the 30th June 1875 not less than thirty millions sterling have been expended by the Government on public works. This amount includes the expenditure on railways, which dates from 1858 ; that on Melbourne water supply, which dates from 1853 ; that on country water supply, which dates from 1865 ; and that on roads and bridges and on other public works, both of which are given from 1851. The following are the total amounts expended under each of these heads:—

EXPENDITURE ON PUBLIC WORKS, 1851 TO 1875.

		£
Victorian railways	1858 to 1874–5	13,240,656
Roads and bridges	1851 „	6,773,817
Melbourne water supply (Yan Yean)	1853 „	1,318,423
Other water works	1865 „	1,427,504
Other public works	1851 „	7,244,663
Total		£30,005,063

Expenditure on defences.

The following figures show the military and naval expenditure from 1854 to the 30th June 1875. It will be observed that the amount expended on defences in the twenty-one and a half years has exceeded two millions sterling :—

EXPENDITURE ON DEFENCES, 1854 TO 1875.

Year.	Military Expenditure (including Buildings and Works of Defence).	Naval Expenditure.	Total.
	£	£	£
1854 and 1855	287,973	...	287,973
1856 to 1864	758,000	123,000	881,000
1865	38,434	7,743	46,177
1866	47,647	14,453	62,100
1867	64,606	17,243	81,849
1868	58,873	19,061	77,934
1869	34,200	12,672	46,872
1870	37,102	10,570	47,672
1871 (6 months)	21,014	6,305	27,319
1871–2	38,634	19,604	58,238
1872–3	35,367	18,641	54,008
1873–4	41,050	17,643	58,693
1874–5	37,847	17,135	54,982
Towards cost of *Cerberus*	...	73,520	73,520
„ „ *Nelson*	...	28,446	28,446
Total	1,500,747	386,036	1,886,783
Arms, ammunition, and stores for defences generally			47,408
Land certificates issued to volunteers, including naval brigade, computed at £1 per acre			139,683
Grand Total			2,073,874

The financial situation of Victoria may be stated generally to be perfectly sound and satisfactory. The revenue is unlikely to be adversely affected by any sudden cause which can be at present foreseen.

Section N.—MONEY, WEIGHTS, AND MEASURES.

[*The following remarks are by the Editor.*]

Coins.

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

A branch of the Royal Mint was opened in Melbourne in 1872. The following is a statement of the gold received thereat, and of the coin and bullion issued from the date of its first opening to the end of 1875 —

ROYAL MINT, 1872 TO 1875.

Year.	Gold Received.		Value of Gold Issued.		
	Quantity.	Value.	Coin.	Bullion.	Total.
	ozs.	£	£	£	£
1872	190,738	764,917	748,000	3,610	751,610
1873	221,870	887,127	834,500	11,035	845,535
1874	335,318	1,349,102	1,373,000	10,417	1,383,417
1875	489,732	1,947,713	1,888,000	13,857	1,901,857
Total ...	1,237,658	4,948,859	4,843,500	38,919	4,882,419

Weights and Measures.

The weights and measures used in Victoria are in every respect similar to those in use in Great Britain and Ireland.

Section O.—ARMY.

[*The following particulars have been supplied by Colonel W. A. D. Anderson, Commanding Her Majesty's Forces in Victoria.*]

Liability of inhabitants to military service.

THE inhabitants of Victoria are not liable to compulsory military service; and it has not hitherto been found necessary by Government to introduce any such liability.

The required number of Volunteers has always been forthcoming, and it may be said that their training and discipline far exceeds the meaning generally conveyed in the designation "Volunteer."

The following return shows the strength of the Victorian military force on the 23rd June 1876 :—

VICTORIAN MILITARY FORCE.

Branch of Service.	Designation of Regiment or Corps.	No. of Officers.	No. of Non-Commissioned Officers and Men.	No. of Horses.	No. of Field Guns.
Regular Local Force ...	Head Quarters Staff ...	5	30	4	...
„ „ ...	Victorian Artillery (Garrison)	2	134	1	...
Volunteer Force—					
Cavalry	Prince of Wales Regiment of Victorian Vol. Light Horse	31	223	254	5
Field Artillery ...	1st Brigade R.V.V. Artillery	16	448	3	18
Garrison Artillery ...	2nd „ „ ...	44	958	3	...
Engineers ...	Vol. Engineer Corps ...	5	104	1	...
Torpedo and Signal Corps	Vol. Torpedo and Signal Corps	4	20	1	...
Rifles	1st Metropolitan Battalion ...	17	422	3	...
„	2nd „ „ ...	18	459	3	...
„	Ballarat Battalion	13	308	3	...
„	Mount Alexander Battalion ...	14	448	3	...
District Vol. Staff ...	... ...	13	...	13	...
		182	3,554		
	Total	3,736		292	23

Organization of Victorian Artillery Corps.

The organization of the Victorian Artillery Corps is detailed in the following memorandum :—

The only regular paid force maintained by Victoria is the battery of garrison artillery.

Its organization obviates many of the difficulties which would result from a small permanent force constantly remaining unchanged in "personnel," and in one quarter.

On the departure of the Imperial troops the battery was formed from the candidates for the police force, the Government announcing that in future all appointments to the police must be from its ranks. At the same time the high qualifications for the police heretofore in force

were to be continued, recruits having to pass the same examination as to education, character, and physical fitness as had former candidates for the police.

The standard height is 5 ft. 9 in.

Crime (in the military sense) is prevented by the dread of discharge, and so of forfeiting entry into the police, and by the superiority of the class of men who alone can join.

It is calculated that three (3) years' service is the average a man will have to perform before passing on to the police or penal departments.

The excellent discipline and drill, and the *physique* of the men, would make this battery remarkable in any of H.M. garrisons.

Their uniform, arms, &c., approach generally to that of the Royal Artillery.

It is also calculated that by this system the police, &c., will by degrees become serviceable in time of war, and it is possible the system may be extended to other departments.

The organization of the Volunteer Force is described in the following memorandum, originally addressed by the Commandant of Her Majesty's forces in Victoria to the the Royal Commission on the Volunteer Force, 1875.

Organization of Volunteer Force.

The Honorable the Chairman, during my examination before the Committee yesterday, having requested to be furnished with a statement of the organization of the force, I beg to state:—

The force consists of the several corps whose services have been accepted under the Act. The word "corps" is to be understood as corresponding to a company or detachment, and forms the "unit" of the Volunteer system.

Corps are independent of each other as regards finance and everything appertaining to their interior economy.

Of necessity promotion goes in each corps, though a system of brevet, introduced some years past, tends to regulate rank generally in the force.

Cavalry.

The Cavalry consists of seven troops, administered as one regiment, each troop providing one gun detachment, which, on the assembly of the regiment, act as artillery.

Artillery.

The corps composing the "Regiment of Artillery," which is the collective name for that branch of the service, are divided into two brigades, "field" and "garrison," the latter when away from their guns forming battalions which act as infantry.

Engineers and Torpedo Corps.

The Engineers and Torpedo corps form in all respects distinctive commands. The former, in addition to their special duties, are trained to form part of an infantry battalion; and the latter, under the same circumstances, are entrusted with all military signalling.

Infantry.

Where Infantry corps are located sufficiently near to each other they are formed into administrative battalions for general drill and discipline, retaining notwithstanding their separate privileges as above described. Corps not located sufficiently near to each other to admit of such an arrangement form non-administrative battalions, which only meet in battalion on occasions of muster.

It will thus be seen that each "*unit*," or corps, belongs to a "regiment," "brigade of artillery," or "battalion," provided with the usual staff thereof.

The above forces, when in their own localities, are under the command of district commanding officers, who have general supervision, and report to the Commandant.

The force, when assembled together, forms a "Divisional" command, each corps belonging to a regiment, &c., each regiment to a brigade.

The force in the field stand thus:—

Cavalry and Field Artillery (mounted batteries) brigade.

1st. Infantry brigade, battalions, &c., of the Home District, including the garrison artillery, when acting as infantry.

2nd. Infantry brigade, battalions, &c., other than those of the Home District.

N.B.—*Regiments, &c., are, when found necessary, movable to either brigade.*

Each of these commands has a brigade staff assigned to them, the whole being commanded as a division by the Commandant, assisted by a "divisional staff."

The general supervision of the force is exercised thus:—

Commanders of corps (units) over their commands.

Battalion field officers over the corps of their battalions (when administrative).

District field officers over the battalions serving within their district and the component parts thereof.

Inspector of artillery over artillery corps *as inspector.*

N.B.—Nothing in the above arrangements is allowed to interfere with instruction parades under officers of the Head Quarters Staff, or inspections by the Commandant.

The following table shows the detail for the above arrangement:—

VOLUNTEER STAFF.

DISTRICTS.

I.—*Home District.*—(Head Quarters, Melbourne.)—Comprising Melbourne, Carlton, Collingwood, East Collingwood, Richmond, Coburg, Bacchus Marsh, St. Kilda, Brighton, Prahran, South Yarra, Emerald Hill, Sandridge, and Williamstown.

DISTRICT STAFF.

Lieut-Colonels on the Staff ...	* * * * * * * *	commanding
Field Aide	* * * *	
Staff Officers	* * * *	
	* * * *	Williamstown.

II.—*North-Western District.*—(Head Quarters, Ballarat.)—Comprising Ballarat, Creswick, and Clunes; Geelong, Drysdale, and Queenscliff are also attached to this command.

DISTRICT STAFF.

Lieut-Colonel on the Staff ...	* * * *
Field Aide	* * * *
Staff Officer...	* * * *

III.—*Northern District*—(Head Quarters, Castlemaine.)—Comprising Castlemaine, Sandhurst, Maldon, and Kyneton; Maryborough is attached to this command.

DISTRICT STAFF.

Lieut-Colonel on the Staff	...	*	*	*	*
Field Aide	...	*	*	*	*
Staff Officer	...	*	*	*	*

IV.—*Western District*—(Head Quarters, Portland.)—Comprising Portland, Belfast, and Warrnambool.

DISTRICT STAFF.

Commanding	...	*	*	*	*
Field Aide	...	*	*	*	*

ARTILLERY (GENERAL).

Inspector of Artillery (Lieut-Colonel on the Staff)	...	*	*	*	*
Field Aide	...	*	*	*	*

The following memorandum on the efficiency of the force as a means of defence, and the desirability of extending the force in its present or some similar form, or of superseding it by some other system of defence, which, besides being economical in time of peace, might be more effective in case of attack, was addresssed by the Commandant to the Royal Commission on the Volunteer Force upon the 26th April 1875.

Efficiency of Volunteer Force as a means of defence.

This memorandum, if confined to the subject-matter, should relate to the "efficiency of the Volunteer Force as a means of defence," without reference to the means and appliances provided in the shape of works of defence, armaments, torpedo stores, and munitions of war generally.

I submit that my report, dated 21st May 1874, now before the Commission, whilst doing complete justice to the Volunteer Force as to its zeal, expertness in arms, and general discipline, fairly sets forth the weakness of the system in paragraph 1 (as under):—

* * * * * * * "and I feel compelled in duty to continue the subject up to date, and to place before the Government the fact that the introduction of arms of the present excellence, into all the forces with which a war with Great Britain might involve this portion of the empire, has effected such a revolution in tactics that it is impossible to suppose a force, exercised exclusively in the formations hitherto practised, could compete on an equality with an enemy trained to the extended order now recognised as absolutely necessary in the field, in presence of the rapid fire of the arms alluded to."

I can add little to the representations made in the reports of 1870 and 1874 without encumbering this memo. with unnecessary details. I, however, wish to make it clear that I consider that all ranks of the Volunteer Force have done their utmost to render themselves as efficient as circumstances admit; and I am confident that, if afforded opportunities under a better system, they would cheerfully contine their exertions.

In the memoranda already laid before the Commissioners I have frequently used the word "unit" as applying to the corps of the force, and I have explained that these corps correspond with "companies," "detachments," &c., of the army, and form the "units" of regiments ("brigades of artillery").

An inspection of these "units" would show that they have been brought to a state of efficiency highly to be commended, and equal to any possible requirement of them as detachments, all being especially proficient in company drill, the use of the rifle, &c.; but with this degree of efficiency as single and independent corps high proficiency ends.

I have already shown, in my "memo." on "The Organization of the Force when assembled in the Field," how the "units" form "regiments," "regiments" "brigades," &c.

The disadvantage under which the force thus assembled labors will be best understood when it is remembered that the battalions are made up of "units" (*i.e.* corps) rarely mustered as battalions by daylight; these battalions have again to form brigades (that is, bodies of two or more battalions), and consequently thereon a series of brigade movements have to be performed, depending on, though in themselves differing from, the evolutions of a single battalion; thus companies, well trained to act as single companies, have *suddenly* to form and act in battalions, and battalions with the most limited instruction in battalion drill and formations have suddenly to form and act in brigades, in the drill of which little previous instruction can possibly have been imparted.

These brigades are formed into a division under equally adverse conditions.

From the large extent of ground occupied by forces when in division or brigade instruction in these movements after dark, or even dusk, is impracticable.

The necessity of parading by daylight equally applies to the instruction and practice of skirmishing, and the extended formations rendered a *sine quâ non* by the improvements in artillery, and the range and rapid fire of modern arms of precision, and in which, by the reasons as aforesaid, the force must be pronounced not sufficiently instructed.

It is highly to the credit of the force that, notwithstanding the drawbacks which have been alluded to above, so long as close formations be adhered to, the movements of a field-day can be performed without confusion. See my report (1874), as follows :—

"This drilling by night has, doubtless, caused a development of individual intelligence, highly useful to a large extent; and whatever minor faults may have been observed at reviews and field-days, it is not in the power of any military critic to say that any important errors or confusion have been witnessed.

"The several generals of Her Majesty's service who have commanded here have always testified to this fact; and I can say that, during a long command, I have never experienced any difficulty in any of our field-days, notwithstanding that, from an unusual proportion of artillery and also of engineering works, they are always of a more complicated and dangerous nature than those undertaken in England, where generally the presence of large numbers of troops, especially of infantry, render the manœuvres more simple for those performing them, if more difficult for the commander.

"The notably few accidents which have occurred, especially those to which artillerymen are liable, is an absolute evidence of the expertness which the Volunteers have acquired in the use of arms."

I may conclude this part of the subject by repeating the statement that the Volunteer system does not afford means of training the force in a manner to enable "*it to compete on an equality with an enemy trained to the extended order now recognised as absolutely necessary in the field* * * * * * * and that our forces cannot under the present system obtain this training."

I now give my opinion upon each arm of the Volunteer Force separately.

Cavalry. The cavalry regiment furnishes a field battery sufficiently well worked for all practical purposes, and surprisingly so, considering that the horses used for the guns are untrained. The remainder of the regiment not required as artillery is quite equal to the task of keeping open commu-

nications, escort duty, &c.; but the present system does not admit of the men being fully trained or instructed in the important duties of vidette, scouting skirmishing, &c. In numbers, the regiment is too weak to be used as cavalry and yet provide for the above requisite duties.

Field Artillery.

The field artillery are efficient as individual batteries, and if examined upon their own parades will be found very expert. When the guns are horsed they suffer, as do the cavalry, from the disadvantage of untrained horses.

Garrison Artillery.

The garrison artillery are fair artillerymen, but have not the same advantages as the field artillery, who have their guns always with them on their parade grounds, the guns of the garrison artillery, except those for drill purposes in the rooms, being mounted on works, &c. When away from their guns at reviews, they act as infantry, it is therefore necessary that they should be instructed as such.

Engineers.

The engineer corps is excellent, and efficient beyond expectation. Reference to the examination papers for promotion, as given in my memo. on "Principles of Promotion," will show how high is the standard required for promotion in this branch of the service.*

Torpedo and Signal Corps.

The torpedo corps is expert and efficient. I can speak very highly of the qualifications for their peculiar duties of the officers of this corps.

Infantry.

The efficiency of the infantry branch of the service is even more impaired from the absence of daylight training and more frequent assembly than that of the above-mentioned arms.

The remarks made at the first part of this memo. particularly apply to infantry.

The corps (companies) separately will pass inspection with honor by any general officer; the failings when brought into battalion and brigade have already been pointed out; and they are unpractised in extended formations, except as regards a limited amount of company skirmishing drill.

The shortness of the occasional periods during which, at present, the force assembles for instruction seriously militates against the utility of such musters, seeing that just as each person commences to comprehend his duties the assembly breaks up.

The weak points in the present system, as from long experience ascertained, have been plainly set forth in the reports of 1870 and 1874 furnished to Government and the memoranda already laid before this Commission, in which the changes recommended to be made have been generally indicated.

The average *physique* of the Volunteer Force is all that can be required.

That the present system admits of the efficient training of small bodies only has been explained.

As regards the capabilities of the Volunteers for resisting an enemy in the field, taken individually, the men are all that could be desired; and further, if separate corps (companies) could be opposed to individual companies, there would be no anxiety as to the result; but with the lack of training in large bodies, before alluded to, the terms on which the Volunteer Force would encounter an invading regular army, trained to act in unison, would be disadvantageous; and indeed the greater the number of men brought into the field, the less able would the force be to engage *on terms of equality* an opposing army of *corresponding strength.*

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* The Engineer Badge is open to the whole Volunteer Force.

The proposal to create a Volunteer militia, or, failing which, a compulsory levy, is neither more nor less than a scheme for the introduction of a more complete and advanced system of training for the forces, at present termed the "Volunteer Force." A compulsory levy is only suggested as a pressure to be brought to bear on the community, in the unlikely event of it being found impossible to carry out the scheme of a Volunteer militia. It must further be borne in mind that when by law it becomes an obligatory duty for a country to provide a militia for its own defence, a militiaman is not subjected to the annoyance which Volunteers earnestly performing their duties undergo, of not being recognised in their military capacities by their fellow-citizens.

Whatever system may be adopted it would seem advisable that there should be provision by law to place all persons passing from the Regular Force of this Government (Victorian Artillery) into Government employment, whether as police, railway, or post office employés, &c., under the "Mutiny Act," on the occasions provided in the Discipline and Volunteer Acts for so subjecting the Naval Reserve and Volunteer Forces.

Further information respecting the efficiency of the forces is contained in the following Report of the Commandant of the Military Forces for 1874 :—

Commandant's Office,

SIR, Victoria Barracks, 21st May 1874.

In 1870 I had the honor to submit a report on the steps which I considered should be taken on the withdrawal of the Imperial troops from Victoria ; and I feel compelled in duty to continue the subject up to date, and to place before the Government the fact that the introduction of arms of the present excellence, into all the forces with which a war with Great Britain might involve this portion of the empire, has effected such a revolution in tactics that it is impossible to suppose a force, exercised exclusively in the formations hitherto practised, could compete on an equality with an enemy trained to the extended order now recognised as absolutely necessary in the field, in presence of the rapid fire of the arms alluded to.

Our forces cannot, under the present system, obtain this training.

The time now given to drill by the Volunteers should be made available, under different circumstances, and chiefly in daylight, for assembling troops in larger bodies.

There appears no reason to alter the recommendation contained in Part 2 of Report of 1870, as to a militia applicable to the circumstances of the country, except in some matters of detail.

This report is purposely unencumbered with references or quotations from acknowledged authorities, which are however at hand, and in order to be fully understood must be read in conjunction with the one rendered in 1870, of which it may be considered an addendum.

That portion of Part I of Report of 1870, relative to the maintenance of a small regular force, has been met in a better way than was there proposed, by the formation of the Victorian Artillery Corps ; and the system of drafting men for the Police and Penal department from this corps, if extended to other Government departments, would increase this force perhaps with advantage to the service of railways, post office, &c.

The work which the least zealous volunteer must devote to qualify himself as an " effective" is sufficient to prove the good will of the force.

Annexed is a return showing the requirements of an "effective;" and to the hours spent in acquiring this qualification must be added those given to camps, special reviews, rifle matches, &c.

A table also is given showing the number of effectives who have qualified since the introduction of the effective system in 1864.

The policy of this office has always been rigorously to exact, and, by a system of check, to insure that each man classed as "effective" has actually performed the conditions, and no excuse, even from the best men, is allowed for their non-fulfilment, hence the correctness of the returns can be vouched for.

The great fault is that, in the absence of all compulsory laws, nearly all training, in consequence of the vocations of all ranks, takes place at night; and although with the use of the drill-rooms, and by parades by moonlight, much has been done, yet it is simply impossible to instruct in the new system unless power of assembling by *daylight*, and in *masses*, is provided for.

The drilling by night has, doubtless, caused a development of individual intelligence, highly useful to a large extent; and whatever minor faults may have been observed at reviews and field-days, it is not in the power of any military critic to say that any important errors or confusion have been witnessed.

The several generals of Her Majesty's service who have commanded here have always testified to this fact; and I can say that, during a long command, I have never experienced any difficulty in any of our field-days, notwithstanding that, from an unusual proportion of artillery and also of engineering works, they are always of a more complicated and dangerous nature than those undertaken in England, where generally the presence of large numbers of troops, especially of infantry, render the manœuvres more simple for those performing them, if more difficult for the commander.

The notably few accidents which have occurred, especially those to which artillerymen are liable, is an absolute evidence of the expertness which the Volunteers have acquired in the use of arms.

These remarks are made in justice to the Volunteer Force, and I affirm that its general discipline is extraordinary, in the total absence of the usual and indispensable military laws of coercion, even in a mitigated form.

However, it is not only my duty to Government, but just to the force that I should state most emphatically, that the introduction of some more advanced system, such as that indicated in my Report of 1870, is imperatively necessary to place the forces of this Government in a position to encounter an enemy, armed and worked as he surely will be.

It is satisfactory to be able to express the belief, that the individual intelligence of the material of which the forces of this colony are likely to be composed will, if opportunity be provided by law, enable them to acquire with facility the new system of training, and that local knowledge of the site of operations will give a more decided advantage than heretofore.

I have the honor to be, Sir,
Your most obedient servant,

(Signed) W. A. D. ANDERSON,
Commandant.

Means by which forces could be put in the field, and probable time required.

In time of war, by proclamation from the Governor, the forces pass under the "Mutiny Act," and as nearly all the corps are formed in towns, on lines of railway within (100) one hundred miles of Melbourne, they could be put into the field within a few hours.

It must be remembered that these forces, including the field batteries, are constantly in possession of their arms, take great pride in them, and are very expert in their use.

Armament.

The following is a Return of Ordnance, Small Arms, and Ammunition, in possession of the Commandant, Commanding the Military Forces of Her Majesty's Government in Victoria on the 23rd June 1876 :—

ARMAMENT OF MILITARY FORCES.

Description.			Number of—							
			Guns.	Shot.	Shell.	Filled Cartridges.	Powder—Lbs.		Rifles.	Ball Cartridges.
							Pebble	R. L. G.		
Ordnance.										
Guns	Rifled	9″ M.L. ...	6	67	571	588	2,036	...		
		80-pr. M.L.	25	250	3,719	813	...	82,254		
		40-pr. A., B.L.	6	178	1,389	...	...			
		12-pr. A., B.L.	6	593	2,228	1,156	...			
		6-pr. A., B.L.	6	605	2,430	262	...			
		3-pr. W., M.L.	6	1,002	1,164	48	...			
	Smooth-bore, 68-pr., M.L.		25	2,950	2,793	...	...			
Small Arms.										
Rifles	Martini-Henry ...		...	...	...	...	...	...	2,250	832,600
	W. R. B. Loading Carbine ...		...	...	...	...	...	...	555	195,340
	Muzzle Loading, of sorts		...	...	...	...	...	...	6,626	661,020

Military Statutes.

The system of discipline and powers of the officers and the law in dealing with military offences may be gathered from the following Statutes, namely, *The Discipline Act* 1870, and *The Volunteer Statute* 1865 :—

VICTORIA.

ANNO TRICESIMO QUARTO VICTORIÆ REGINÆ.

No. CCCLXXXIX.

Discipline Act 1870.

An Act to provide for the Regulation and Discipline of the Military and Naval Forces in the service of Her Majesty's Government in Victoria. [29th *December* 1870.]

Preamble.

Be it enacted by the Queen's Most Excellent Majesty by and with the advice and consent of the Legislative Council and Legislative Assembly of Victoria in this present Parliament assembled and by the authority of the same as follows :—

Short title.

1. This Act shall be called and may be cited as "*The Discipline Act* 1870."

Governor authorised to engage services of persons to serve in the armed forces of the colony.

2. The Governor may on behalf of Her Majesty place in commission any armed vessels that the Parliament of Victoria may from time to time direct to be maintained and may engage the services of any persons to serve in the military and the naval forces of Victoria upon the terms and conditions hereinafter contained.

Regular and occasional service.

3. All persons whose services are engaged as aforesaid and who have taken and subscribed to the oath hereinafter provided whether they are regularly or occasionally employed shall during such period of employment be subject to the provisions of this Act and of the regulations as hereinafter provided.

Oath to be taken.

First Schedule.

4. Every person so engaged shall before he is subject to the provisions of this Act take and subscribe before some justice or before any commissioned officer as hereinafter provided in command of any vessel of war or corps and such officer is hereby empowered to administer to the same the oath in the First Schedule to this Act. Every person taking and subscribing such oath as aforesaid shall be deemed and taken to have thereby entered into a written agreement with and shall be thereby bound to serve Her Majesty as a member of the force in which he may have engaged and in the capacity in which he shall have taken such oath until legally discharged from the day on which such oath shall have been taken and subscribed. No such agreement shall be set aside cancelled or annulled for want of reciprocity; but every such agreement may be cancelled at any time by the lawful discharge dismissal or other removal from office of any such person or by the acceptance of the resignation of any such person in the manner prescribed by the rules made hereunder. And all oaths administered and subscribed in accordance with the provisions of this Act shall be transmitted by the justice or officer as the case may be before whom the same were taken to the Governor or such person as he may appoint in that behalf.

Governor to issue commissions.

5. The Governor may appoint fit and proper persons as officers to the military and the naval forces of Victoria and issue commissions to such persons under his hand and the seal of the colony and may withdraw annul alter or amend all such commissions.

Warrant petty and non-commissioned officers to be appointed by the Governor or by person to whom he may delegate his authority.

6. The Governor or any person to whom he may delegate his authority in that behalf may appoint fit and proper persons as warrant and non-commissioned or petty officers.

Pay and allowances.

7. The Governor may fix the amount of pay and allowances to be received by all persons engaged by virtue of this Act: Provided such pay and allowances shall not exceed in amount the respective sums voted by Parliament for the services of such persons.

Governor may make rules and regulations for the better government of persons whose services have been accepted by virtue of this Act.

8. The Governor may make rules and regulations for the employment removal or dismissal and for the better government of persons engaged by virtue of this Act and for enforcing good order and discipline among them and otherwise carrying out this Act, and from time to time annul alter or amend the same and substitute others in lieu thereof, which rules and regulations shall after publication thereof in the *Government Gazette*, be judicially taken notice of by all judges in all courts whatsoever, and all such rules regulations and orders shall be laid before both Houses of Parliament within fourteen days after the making thereof, if Parliament be then sitting, and if Parliament be not sitting then within fourteen days after the commencement of the next sitting of Parliament.

Liable to go into actual service when summoned in case of invasion, &c.

9. On a summons by a proclamation in the *Government Gazette* by the Governor and in all cases of actual invasion of the colony or hostile attack thereon or upon the making of any general signals of alarm as provided in the regulations to be made as aforesaid every person whose services shall have been so engaged as aforesaid shall forthwith assemble and shall be liable to march or embark on board any ship or vessel and to serve according to the terms and conditions of the regulations to be made as aforesaid for their respective services.

Refusal or neglect to obey summons.

10. If any person so engaged and not labouring under any infirmity disabling him from active service refuse or neglect to join as may be directed and to assemble and march upon any such summons or general signal of alarm as aforesaid he shall be deemed a deserter and shall be liable to punishment as such.

Mutiny Act to apply during actual service.

11. All persons so engaged and assembling to serve in the forces aforesaid shall upon and from the time of such assembling, and until their services shall be legally dispensed with, continue and be subject if serving in the military forces to all the provisions contained in the Act of Parliament now in force in the United Kingdom of Great Britain and Ireland for the government of Her Majesty's army, and if serving in the naval forces aforesaid, whether within the colony or elsewhere, to the enactments and regulations now in force for the discipline of the royal navy.

Power to constitute courts.

12. The Governor may from time to time appoint three or five persons being commissioned officers under this Act or of the volunteer or militia forces of Victoria or being police magistrates or justices of the peace to be a court to hear and determine all offences committed against this Act or the regulations made in pursuance hereof

and shall appoint one of the persons aforesaid to be president of such court. And the procedure of such court and all matters connected therewith shall be regulated by the rules to be made hereunder.

Power to take evidence and punish for contempt.

13. Every such court may hear receive and examine evidence and shall have the power of punishing for contempt of court by fine not exceeding Five pounds or by imprisonment for a time not exceeding twenty-four hours, and shall have the same power of adjournment and of enforcing the attendance and the examination of witnesses as a court of petty sessions has.

Power of court.

14. Every court shall have power to censure fine imprison with or without hard labor and with or without solitary confinement and dismiss for offences against this Act or the rules and regulations so to be made as aforesaid: Provided that no person shall be liable to pay a fine of more than Fifty pounds or be imprisoned for more than six months.

Offender may be ordered to pay amount of damage in certain cases.

15. In addition to any other punishment which such court may award such court may further sentence any offender to pay such amount as shall make good any loss of or damage to the Government property with which he may have been entrusted or any part thereof in all cases where such loss or damage shall have been occasioned by his wilful neglect or misconduct, and such amount may be recovered by summary proceedings before any two justices at the suit of any person appointed by the said court to sue for the same or may be stopped from the pay of the offender.

Proceedings at court.

16. In all trials by such court as soon as the president and other members appointed to serve thereon are assembled, their names shall be read over in the hearing of the accused, who shall thereupon be asked if he objects to be tried by the president or by any of such members, and if the accused shall then object to the president such

Right of challenge

objection unless disallowed by a majority of the members so appointed to form the court shall be referred to the decision of the authority by whom such president shall have been appointed, but if he object to any member other than the president such objection shall be decided by the president and other members so appointed; and when the place of the president or other members in respect of whom any challenge shall have been made and allowed shall be supplied by some member in respect of whom no challenge shall have been made or allowed, or if no challenge shall have

Second Schedule.

been made or if made not allowed, the oath in the Second Schedule to this Act shall be administered by the president to the other members and afterwards by any sworn member to the president.

Proceedings of court to be drawn up signed and sent to the Governor.

17. When any such court has by a majority of its members decided upon and recorded their sentence the proceedings shall be drawn up in writing and signed by the president of such court, who shall thereupon forward them to the Governor for confirmation.

Sentence of court to be confirmed.

18. No sentence passed by any such court under this Act shall be put into execution until confirmed by the Governor and it shall be lawful for the Governor to withhold his confirmation and to remit either wholly or in part any such sentence.

As to swearing and summoning witnesses.

Third Schedule.

19. The president of every such court shall administer the oath contained in the Third Schedule hereto to every witness or take his affirmation or other person who shall be examined before such court in any matter relating to any proceeding before the same, and every person as well civil as military who may be required to give or produce evidence before a court may be summoned by the president of the court, and

Witnesses not liable to arrest.

all persons summoned and attending as witnesses before any such court shall during their necessary attendance in or on such courts be privileged from arrest, and shall if unduly arrested be discharged by the court out of which the writ or process issued by which such witness was arrested, or if such court be not sitting then by any judge of the Supreme Court upon its being made to appear to such court or judge by any affidavit in a summary way that such witness was arrested in going to or attending upon or returning from such court, and all witnesses so duly summoned as aforesaid who shall not attend on such courts or attending shall refuse to be sworn or being sworn shall refuse to give evidence or not produce the documents under their power or control required to be produced by them or to answer all such questions as the court may legally demand of them shall forfeit and incur such penalty not exceeding Five pounds as the court may direct and adjudge.

Penalty on persons giving false evidence.

20. Every person who upon any examination upon oath before any such court held in pursuance of this Act shall wilfully and corruptly give false evidence shall be liable to the penalties of wilful and corrupt perjury.

Accused to attend court.

21. Whenever it is intended to bring any person employed as aforesaid to trial before any such court the president of the court shall issue a summons under his hand to such person commanding him to attend at a time and place to be therein specified, and if such person do not appear at such time and place he shall be deemed to have waived his right of challenge and the proceedings shall be carried on as if the accused were present.

22. When the proceedings of such courts have been duly confirmed and the sentence promulgated the proceedings are to be returned to the president who shall transmit the same to the Attorney-General for record in his office. Proceedings to be deposited in the Attorney-General's office.

23. Any person who has been tried by such court or any person in his behalf shall be entitled on demand to be made within the space of six months from the date of the final decision on the proceedings to a copy of such proceedings (paying for the same at the rate of sixpence per folio of seventy-two words) whether such sentence shall be approved or not as soon after the receipt of the proceedings at the office of the Attorney-General as such copy can be conveniently supplied. Copy may be obtained on demand.

24. In all cases in which the same court tries more offenders than one and they are arraigned upon separate and distinct charges the members of the court shall be re-sworn at the commencement of each trial, and the proceedings shall be made up separately and signed as if each offender had been tried by a court composed of different members. Same court trying more offences than one.

25. No person who has been acquitted or convicted of any offence by any court under this Act shall be liable to be tried a second time by the same or any other court for the same offence, and no finding opinion or sentence given by any court and signed by the president thereof shall be revised more than once, nor shall any additional evidence in respect of any charge with which the offender is then charged be received by the court on any revision except evidence as to his previous character in the service. No second trial for same offence, but revision may be allowed.

26. No person engaged under this Act shall be entitled to receive any pay or allowances when in confinement under a sentence of any court or during any absence from duty without leave or under any charge of which he shall be afterwards convicted either by such court or by any court of criminal jurisdiction. Stoppage of pay in certain cases.

27. The commanding officer may (subject to the regulations to be made hereunder) take notice of any minor offence against discipline by fine not exceeding Twenty shillings, or solitary confinement for a time not exceeding twenty-four hours in a place set apart for the purpose. Minor offences with their punishments.

28. If any person engaged as aforesaid do not when on service or during the times of training and exercise or of his being under arms or wearing the clothing or accoutrements of his corps and going to or being at or coming from any place of exercise or assembly of the corps conduct himself in a decent and orderly manner or do not obey the lawful command of his commanding officer or the regulations to be made as aforesaid, the person so offending may be ordered by such officer into the custody of any person or persons belonging to such forces and be detained as such officer may direct until such offence is dealt with as provided by this Act. Power to arrest.

29. Any person engaged as aforesaid who shall abscond or desert may be apprehended by a written order under the hand of the officer in command of the vessel or corps to which such absconder or deserter belongs, and such person may be conveyed on board such vessel or to any place named in such order; and all constables and other peace officers are hereby directed to take cognizance of such order and to aid and assist in the apprehension and conveyance on board or to such other place named in such order of the person therein referred to and in the meantime to lodge such person in some place of security until such order can be obeyed. Absconders may be apprehended on officer's warrant.

30. Every gaoler or keeper of any public prison or gaol in any part of Victoria shall receive into his custody any offender under sentence of imprisonment by a court under this Act upon delivery to him of a warrant of commitment in the form contained in the Fourth Schedule hereto under the hand and seal of the president of the court, and such gaoler or keeper shall keep such offender in a proper place of confinement with or without hard labor and with or without solitary confinement according to the sentence of the court and during the time specified in the said order; and every gaoler or keeper of any public prison or gaol shall receive into his custody any absconder or deserter upon delivery to him of an order in writing in that behalf from the officer commanding the vessel or corps to which such person belongs or is attached. Power to detain. Fourth Schedule.

31. In the event of any person engaged as aforesaid being killed or wounded in actual service or whilst on duty such wounded person or the widow or family of such person killed shall be entitled to such pension or gratuity as Parliament shall provide. Allowances to persons wounded and to widows or families of persons killed whilst on duty.

32. All officers and members of the military or naval forces being on actual duty and all prisoners under their charge and all carriages and horses exclusively employed in carrying or conveying such persons or their prisoners or baggage or returning therefrom and not otherwise engaged and employed shall be exempt from payment of any tolls or dues otherwise demandable in passing any tollgate turnpike road bridge or ferry, and every toll collector who shall demand or receive any duty or toll contrary to this Act shall forfeit and pay any sum not exceeding Five pounds for every such offence. Penalty for demanding toll.

Penalty for personating.

33. Any person who shall falsely and fraudulently personate or represent himself to be an officer or member of the military or of the naval forces as aforesaid with the intent to evade payment of any dues duties pontage or toll to which he would otherwise be liable shall forfeit and pay for every offence a sum not exceeding Five pounds.

Unauthorised persons not to wear uniform.

34. It shall not be lawful for any person whose services have not been engaged as aforesaid to wear the uniform or any part thereof of any military or naval force formed under the provisions of this Act, and if any person wilfully offend against the provisions of this section he shall for every such offence forfeit and pay a sum not exceeding Ten pounds.

Persons ceasing to belong to corps to give up arms &c. under penalty.

35. When any person engaged as aforesaid has ceased to be a member of any military or naval force under this Act if he afterwards wear the uniform of such force or any part thereof or if he refuse or neglect to give up on demand by the commanding officer any arms ammunition accoutrements clothing or appointments or any public stores or property he shall in addition to any civil liability that he may have incurred forfeit for every such offence a sum not exceeding Ten pounds.

Penalty for buying arms accoutrements, &c.

36. If any person knowingly and wilfully buy take in exchange conceal or otherwise receive any arms accoutrements clothing or appointments or any public stores property or ammunition delivered for the use of any persons whose services have been engaged as aforesaid the person so offending shall forfeit for every such offence the sum of Ten pounds.

Provisions of Act to apply to volunteer militia or other armed corps.

37. On application of the majority through the officer in command of any volunteer militia or other armed corps the Governor may direct that the members of such corps shall be subject to the provisions of this Act and of the regulations to be made as aforesaid and thereupon such corps shall become and be deemed to be part of the military or naval forces of Victoria under this Act and shall rank before any local corps that have not become subject to its provisions: Provided always that each member as aforesaid shall voluntarily take and subscribe the oath as aforesaid.

Members of the force not to vote.

38. No person regularly employed in any military or naval forces formed under the provisions of this Act shall during such period of employment be capable of giving his vote for the election of a member to serve in the Legislative Council or Legislative Assembly of Victoria, nor shall by word message or writing or in any other manner endeavour and persuade any elector to give or dissuade any elector from giving his vote for the choice of any person to be a member to serve in such Council or Assembly, and if any person offend against the provisions of this section he shall for every such offence forfeit and pay a sum not exceeding Ten pounds or be imprisoned for a time not exceeding one week: Provided that nothing in this section shall apply to the members of any volunteer or militia corps coming under the operation of the preceding section.

Proceedings not to be void for want of form or removable by *certiorari*.

39. No complaint conviction order or other proceeding before the court appointed under this Act shall for want of form only be quashed or set aside or be deemed void or insufficient or be removed or removable by *certiorari* or other writ or process whatsoever into the Supreme Court.

Interpretation clause.

40. In the construction of this Act and of the rules and regulations so to be made as hereinbefore contained the word "Governor" shall mean and apply to the Governor in Council; the words "commanding officer" shall mean and apply to the commissioned officer in command of the corps or ship to which such person is attached; the word "officer" shall be taken to apply to all commissioned and warrant officers; and the expression "superior officer" shall apply to all commissioned warrant petty and non commissioned officers; the expression "regularly employed" applies to those persons engaged on regular pay and duty; the expression "occasionally employed" applies to those persons engaged on an annual allowance or otherwise and subject to be called out for service by proclamation or otherwise.

SCHEDULES.

Section 4.

THE FIRST SCHEDULE.

I A.B. do swear that I will well and truly serve Our Sovereign Lady the Queen in the for a period of years or until sooner legally discharged dismissed or removed, and that I will oppose and resist Her Majesty's enemies and cause Her Majesty's peace to be kept and preserved whether employed upon land or at sea, and that I will prevent to the best of my power all offences against the same, and that while I continue to act in the same I will to the best of my skill and knowledge faithfully discharge my duty according to law.

So help me God.

THE SECOND SCHEDULE. Section 16.

OATH TO BE TAKEN BY MEMBERS OF A COURT.

You shall well and truly try and determine according to the evidence in the matter now before you and shall duly administer justice according to the rules and regulations for the better government of the paid military and naval forces and the Acts in force in Victoria relating thereto without partiality favor or affection, and if any doubt shall arise which is not explained by the said rules and regulations or by the said Acts then according to your conscience and the best of your understanding. And you shall not divulge the sentence of the court until it shall be duly approved, neither shall you upon any account at any time whatsoever disclose or discover the vote or opinion of any particular member of the court unless required to give evidence thereof as a witness by a court of justice in due course of law.

So help you God.

THE THIRD SCHEDULE. Section 19.

OATH TO BE ADMINISTERED BY THE PRESIDENT TO A WITNESS.

The evidence which you shall give before this court shall be the truth the whole truth and nothing but the truth.

So help you God.

AFFIRMATION IF WITNESS OBJECT TO TAKE AN OATH.

I A.B. do solemnly sincerely and truly affirm and declare that the taking of any oath is according to my religious belief unlawful, and I do also solemnly sincerely and truly affirm and declare that the evidence which I shall give before this court shall be the truth the whole truth and nothing but the truth.

THE FOURTH SCHEDULE. Section 30.

WARRANT OF COMMITMENT.

To W.X.Y.Z. and their assistants and to the keeper of the gaol at

Whereas in pursuance of the "*Discipline Act* 1870" His Excellency the Governor of Victoria did upon the day of under his hand and the seal of the colony appoint A.B. C.D. and E.F. being justices of the peace or commissioned officers under the said Act or of the volunteer or militia forces of Victoria to be a court to hear and determine offences against the said Act, and did also appoint me the undersigned A B. to be president of the said court: And whereas M N. was this day duly convicted before the said court for that [*here state the offence*] and the said court did thereupon adjudge the said M.N. for this his said offence to be imprisoned in the gaol at for the space of and to be kept during of such term at hard labor or in solitary confinement [*as the case may be*]: These are therefore to command you the said W.X. Y.Z. and your assistants to take the said M.N. and him safely to convey to the gaol aforesaid and there to deliver him to the said keeper thereof together with this precept. and I do hereby command you the said keeper to receive the said M.N. into the said gaol and there to imprison him for the space of and during the said term to keep him at hard labor or in solitary confinement [*as the case may be*], and for your so doing this shall be your sufficient warrant.

Given under my hand and seal this day of in the year of our Lord 187 .

A.B. President.

VICTORIA.

ANNO VICESIMO OCTAVO VICTORIÆ REGINÆ.

No. CCLXVI.

An Act to Consolidate the Laws relating to the Volunteer Force.

[1st *June* 1865.]

BE it enacted by the Queen's Most Excellent Majesty by and with the advice and consent of the Legislative Council and the Legislative Assembly of Victoria in this present Parliament assembled and by the authority of the same as follows:—

1. This Act shall come into operation on the first day of June One thousand eight hundred and sixty-five and shall be called and may be cited as "*The Volunteer Statute* 1865." Title of Act.

2. The Act mentioned in the Schedule hereto to the extent to which the same is therein expressed to be repealed shall be and the same is hereby repealed. Nothing herein shall be deemed to affect or render invalid any regulation appointment or promotion lawfully made or any act or thing lawfully done before the coming into operation of this Act under the authority of the Act hereby repealed. Repeal of Act. Schedule.

3. The Governor in Council may on behalf of Her Majesty accept the offers of service of any corps of volunteers naval as well as military upon such terms and conditions as to the said Governor in Council may seem fit and proper and may discontinue the services of and cause to be disbanded any such corps and may with or without previous enquiry dispense with the services of any volunteer whether officer Governor in Council may on behalf of Her Majesty accept services of naval or military volunteers.

or private and of any person appointed to the paid staff of or serving for pay in the volunteer force and may after enquiry discharge any such volunteer or person for disobedience of orders neglect of duty misconduct as a member of or in connexion with a corps or for any other sufficient cause whatsoever and the Governor in Council shall be the sole judge of the existence and sufficiency of such cause. Provided that the whole number of volunteers whose services shall be so accepted shall not at any time exceed ten thousand.

Governor in Council to make regulations for enrolment &c. of volunteer corps.

4. The Governor in Council may from time to time make regulations and orders respecting the enrolment and disbanding of any volunteer corps the appointment promotion and rank of all volunteer officers and the relative rank of such officers and of the officers of any military and naval force and officers holding any military or naval staff appointment in the service of the local Government of Victoria the requisites to require a volunteer to be deemed an effective the constitution assembling and proceedings of courts of enquiry to hear receive and examine evidence relating to and to report on any matter connected with the government or discipline of the volunteer force or of any corps thereof or on any charge brought against a member of any such corps the maintenance of discipline the power of arrest the payment and recovery of subscriptions fines and penalties, and the general government discipline and management of the volunteer force and the several corps thereof and the persons appointed to the paid staff of or serving for pay in the said force and may from time to time alter or repeal any such regulations and orders and may call for such returns as may from time to time seem requisite and all such regulations shall be laid before both Houses of Parliament within fourteen days after the making thereof if Parliament be then sitting and if Parliament be not sitting then within fourteen days after the commencement of the next sitting of Parliament.

Commissioned officers.

5. The commanding and other officers of the rank of commissioned officers in each corps shall be appointed by commission under the hand and seal of the Governor and all such officers shall rank with the officers of the regular troops in Her Majesty's service as juniors of their respective ranks.

Corps to recommend for appointment their own officers.

6. Every volunteer corps may recommend its own non-commissioned and commissioned officers under the rank of captain for appointment by the Governor in Council by submitting for each vacancy the names of three candidates who shall have been balloted for by the members of their corps at a meeting specially convened for the purpose and thereupon received the greatest number of votes and who shall have previously passed a satisfactory examination as to their fitness for promotion before a board to be appointed by the Governor in Council.

Every member to take oath of allegiance.

7. Every person who shall be accepted as a member of a corps shall upon such his acceptance and before he shall be ranked as an effective member thereof take and subscribe before some justice the following oath of allegiance—

> "I A.B. do sincerely promise and swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria as lawful Sovereign of the United Kingdom of Great Britain and Ireland and of this Colony of Victoria dependent on and belonging to the said United Kingdom and that I will faithfully serve Her said Majesty in the said colony for the defence of the same against all Her enemies and opposers whomsoever. So help me God."

Majority of members of volunteer corps may make rules &c.

8. The majority of the members of any volunteer corps present at any special meeting of the corps to be convened by the commanding officer for the purpose may make and rescind and alter rules for the management of the affairs of the corps. Provided that every such rule shall be consistent with the regulations herein mentioned and that no such rule shall have any force or effect until the same shall have been forwarded by the commanding officer to and approved by the Governor in Council and notice of such approval shall have been published in the *Government Gazette*.

Subscriptions fines &c. may be recovered.

9. The officer commanding any corps may recover by summary proceedings before two or more justices any subscription fine or penalty whatever which shall have accrued from or become payable by any member of the corps under any of the regulations or rules aforesaid. Provided that all such proceedings shall be taken within twelve months after such subscription fine or penalty has become due. Provided also that for the purposes of this section any officer in actual or temporary command of a corps shall be deemed and be taken to be the officer commanding the corps.

Conditions on which volunteer may quit corps.

10. It shall be lawful for any volunteer when not on active service to quit his corps on the following conditions—

(1.) Giving to his commanding officer fourteen days' notice in writing of his intention to quit the corps ·

(II.) Delivering up in good order and condition fair wear and tear only excepted all arms clothing and accoutrements being public property or the property of the corps issued to him :

(III.) Paying all money due or becoming due by him under any of the regulations or the rules aforesaid either before or at the time of or by reason of his quitting the corps :

and thereupon he shall be struck out of the muster-roll by the commanding officer.

Appeal.

11. If any volunteer claims to have fulfilled these conditions and his commanding officer notwithstanding refuses to strike his name off the roll, the volunteer may appeal to the court of petty sessions nearest the head quarters of the corps who shall hear and determine the appeal and the decision of the said court shall be final.

Subscriptions arms &c. vested in the commanding officer.

12. All money subscribed by or for the use of any corps and all arms stores ammunition or musical instruments or other articles whatever belonging to or used by any such corps not being the property of any particular individual shall be vested in the commanding officer of such corps for all purposes of any proceedings criminal or civil at law or in equity and shall for such purpose be deemed to be his property and may be so laid in any information action or suit and no such information action or suit shall be discontinued by the death resignation or removal of a commanding officer but the same may be proceeded in by the succeeding commanding officer and upon the disbanding of any corps the volunteers who previously to such disbanding had served in the said corps shall forthwith deliver up as they shall be required all arms accoutrements and clothing furnished to them.

Unauthorised persons not to wear the uniform of the corps.

13. It shall not be lawful for any person not being duly enrolled a member of a volunteer corps to wear the uniform of any such corps and any person so unlawfully wearing the uniform of any such corps or any person who after his services have been dispensed with or after he has quitted or has been discharged from any corps shall afterwards wear the uniform of such corps shall be liable to a penalty not exceeding Twenty pounds to be sued for and recovered in a summary way before any two justices

Inspection of corps.

14. All volunteer corps in Victoria shall be under the superintendence of a field officer of Her Majesty's regular forces and every such corps shall be subject to be inspected once at least in every six months by some field officer of Her Majesty's regular forces or by some captain in Her Majesty's navy as the case may require according to the nature of the services for which such corps shall have been enrolled.

Volunteers to go into actual service when summoned in case of invasion &c. or upon general alarm.

15. In all cases of actual invasion of Victoria or hostile or predatory attack thereon or of imminent danger thereto all such corps of volunteers shall whenever they shall be summoned by the Governor in Council or upon the making of any general signals of alarm by order of the Government, forthwith assemble and shall be liable to march or embark on board ship or otherwise according to the terms and conditions of their respective services and all such corps of volunteers and the several members thereof shall upon and from the time of such assembling as aforesaid and so long as their services shall be required by the Governor in Council continue and be subject to all the provisions contained in any Act of Parliament then in force in the United Kingdom of Great Britain and Ireland for the punishment of mutiny and desertion and to any articles of war made in pursuance thereof or (in case of engagement to serve in aid of Her Majesty's naval forces) to all the laws and customs for the time being in force for the government of Her Majesty's ships vessels and forces by sea and applicable to any person in or belonging to the Royal Navy or to any person being in actual service and full pay and being part of the crew of any of Her Majesty's ships or vessels. Provided that at least one-half of the members of any court martial which may be summoned for the trial of any volunteer shall be officers of volunteers.

Mutiny Act &c. to apply during actual service.

Corps may be put under the command of officers of regular forces

16. When any such corps shall be assembled or marched on any summons or general signal of alarm the Governor in Council may order them to be put under the command of such military officer or such naval officer as he may appoint or as may then be commanding within Victoria but they shall be led by their respective officers under such command as aforesaid

Volunteers when assembled on invasion &c. may receive pay and be billeted as other forces.

17. All persons enrolled in any corps of volunteers when assembled on any of the occasions above stated shall be entitled to pay (if demanded) during the period of their so remaining assembled as aforesaid in such manner and after such rates according to their respective ranks and situations, and to be quartered and billeted in like manner in every respect and under and subject to the same regulations as Her Majesty's regular forces within Victoria so far as the same shall by the Governor in Council be deemed applicable to volunteer corps.

Allowances to persons wounded and to widows or families of persons killed in actual service.

18. In the event of any member of any such volunteer corps being killed or wounded in actual service the Governor in Council shall within twenty-one days after the commencement of the then next session of Parliament propose the grant out of the public revenue of such pension or gratuity to such wounded person or to the widow or family of such person killed as aforesaid as the Governor in Council shall think fit.

Section 2.

SCHEDULE.

Date of Act.	Title of Act.	Extent of Repeal.
27 Vict. No. 205 ...	"*An Act to consolidate the Laws relating to the Volunteer Force*"	The whole.

The distinction which exists between the foregoing Acts is explained in the subjoined memo. addressed by the commandant of the forces to the Royal Commission on Volunteer Force 1875 :—

The Honorable the Chairman, during my examination before the Commission on the 26th instant, requested to be furnished with a memorandum of "*the distinctions that subsist between those serving under the Discipline Act and those serving under the Volunteer Statute;*" which memorandum I now submit.

DISCIPLINE ACT.

All persons serving for pay in the naval and military forces of Her Majesty's Government in Victoria, including military artificers and the naval reserve, serve under the Discipline Act, and are, in time of peace, without distinction of rank, liable to the penalties therein set forth; and, on the occasions therein provided, are subject to the Mutiny Act.

Clause 37 extends this Act to Volunteer militia or other armed corps, on application of a majority of their members, and gives precedence to any corps so admitted over any other local corps not subject to this Act.

Clause 38 prohibits persons "*Regularly Employed*" under this Act from voting at the elections of Members of Parliament, or from endeavouring to influence such elections, under a penalty of Ten pounds or imprisonment not exceeding one week; the word "*Regularly*" being used in contradistinction to Naval Reserve militia or Volunteer corps serving under the Act. *See* clause 37.

Clause 40 (the interpretation clause) defines "*regularly employed*" as applying to persons engaged on regular pay and duty; and "*occasionally employed*" as applying to persons engaged under an annual allowance, or otherwise (example, naval reserve), and militia and Volunteer corps subjecting themselves to the Act under clause 37.

Clause 42 of the Orders in Council under clause 4 of the Volunteer Statute, which gives power to define "the relative rank of officers of any military or naval force, and officers holding any naval or military staff appointment in the service of the Local Government of Victoria," provides that officers of the Volunteer Force rank with officers serving under the Discipline Act, as juniors of their respective ranks, and with officers "occasionally" serving under the Discipline Act (*see* above) "according to the rank and date of their respective commissions in the respective forces."

VOLUNTEER ACT.

All persons serving without pay in the military forces of Her Majesty's Government of Victoria are under the provisions of the Volunteer Statute, Orders in Council under clause 4, and "Standing Orders and Instructions" under Order in Council No. 61, which clause authorises the "officer appointed to command the force" "to issue, from "time to time, orders for the general government, discipline, and manage- "ment of such force, and the formation of corps, brigades, regiments, or "battalions, provided that such orders shall not be *ultra vires* of the

"Volunteer Statute or the regulations made thereunder by the Governor "in Council."

This Order in Council was lately procured for the purpose of allowing the various Standing Orders and Instructions from time to time issued by the Commandant being consolidated, and of adding to them the subjects alluded to in the preface to the *issue*, viz. :—

"*Orders in Council, Regulations, and Standing Orders, and Instructions for the Volunteer Force of Her Majesty's Government in Victoria.*

"MEMORANDUM.—The Commandant is pleased to notify to the forces generally that the Regulations and Orders contained in this publication are to be, by all ranks, literally and rigidly adhered to and carried out.

"Part I. consists of Regulations under the Orders in Council of 1874.

"Part II. is a compilation from the 'Queen's Regulations and Orders for the Army' (with considerable alterations and modifications to meet local and existing conditions), containing the matters comprehended in such sections and parts thereof as the Commandant deems applicable to the local forces.

"Although some portions of Part II. treat of circumstances and positions in which it is improbable that the local forces will be placed, yet it has been considered advisable that such parts should be retained, for the sake of instruction, not only in duties of ordinary occurrence, but also in those which, under other conditions, might become necessary to be performed.

"*Part III. treats of such minor details and minutiæ as are nowhere laid down in H. M. Regulations or Field Exercise; but are based upon the usages of the service and the 'custom of war.'*

"*The Imperial Regulations being written for the guidance of regular troops, in many cases treat only generally, and pass over—assuming it to be known—much detail, which, for the information and instruction of irregular forces, it is expedient should be clearly defined.*

"All previous orders on the subjects to which reference is made in these regulations are hereby cancelled."

This publication has been delayed, first, from the nature of its compilation, and, secondly, from the conviction of the necessity of reducing to writing the detail described in the sixth paragraph of the above memorandum (*printed in italics*).

It may be asserted that no military work for the information of Her Majesty's army or volunteers contains such detailed information concerning the duties of all ranks, the unwritten customs of the service applicable to volunteers being also included.

A copy of this publication will be furnished to the Commission next week for reference.

The relative rank between officers serving under the Volunteer Act and those serving "*regularly*" and "*occasionally*" under the Discipline Act has already been described in the first part of this memorandum, and the rule is in accordance with the Queen's Regulations, section 2, paragraph 12, which provides—

"(*a*) Officers of the Regular and Marine Forces command the officers of equal rank belonging to other branches of the military service."

"(*b*) * * * * *"

"(*c*) * * * *"

"(*d*) All officers of yeomanry cavalry and volunteer corps, when serving with officers of the Regular, Marine, and Militia Forces, rank as juniors of their respective ranks."

Volunteer officers are subject to the Mutiny Act on the occasions mentioned in the Volunteer Statute, clause 15.

W. A. D. ANDERSON, Commandant.

28/4/75.

Section P.—NAVY.

[*The following remarks have been furnished by Captain W. H. Panter, the Senior Naval Officer.*]

The Colonial Navy of Victoria consists of the following vessels :—

War vessels.

The *Cerberus*, 2,107 tons, turret ship, carrying four 18-ton guns. She has a permanent crew of 10 officers and 87 men. This crew is sufficient to man the ship, but in active service it would be increased by 20 men from the Naval Reserve. The ship is now in a perfectly efficient state, and would probably be more than a match for any vessels that are likely to be sent here. Her armour plates vary from 6 in. to 10 in. in thickness. She is 250 horse-power, but works up to 1,700 horse-power. When her bottom is clean she steams 10½ knots. She is having a steam steering apparatus fitted, which will soon be completed, and it is expected that she will steer very well with it. The crew are constantly drilled and are efficient. She has two steam boats, one of which carries a 12-pounder gun, and two other boats which also carry one 12-pounder gun each. The crew are practised with these boats. No torpedo arrangements are at present fitted to any of these boats, but the fittings could be made in a short time.

The *Nelson*, an old line-of-battle ship, built in 1814. She now carries two 7-inch rifled guns, twenty 64-pounder rifled guns, and twenty 32-pounder guns. She would be very little use for active service, as her hull is in a very bad state of repair, and she draws too much water to navigate the channels if the marks were removed. She is manned by 5 officers and 196 men of the Naval Reserve. These officers and men are practised once a month on board her, and are efficient. She would require fifty more men in active service, and these could be obtained without much difficulty. I consider a gunboat would be a much more efficient defence than the ship. She has no steam boats or boats carrying guns. Her engines are 500 horse-power, and she steams 10 knots. She steers very well and is a handy ship.

The *Victoria*, despatch vessel, which could be manned by seamen from the shore, and would be useful for carrying despatches, but is not strong enough for carrying guns.

The Naval Reserve consists of 5 officers and 216 petty officers and men, who would be used for manning the *Nelson*, on board which ship they are drilled once a month. This corps, as well as the permanent crews, are sworn in under "*The Discipline Act* 1870."

All the Naval force are armed with Martini-Henry rifles.

What assistance could be derived from colonial resources.

With regard to transports, there are a great many steamers belonging to Victoria which could be used for this purpose, and could also be made to carry small guns. For number and tonnage of vessels arriving and departing, and for number and tonnage of those on the Victorian Register, *see* Section H ; *see* also Mercantile Navy List of Victoria sent herewith.

I consider the service would be much more efficient than at present if it was placed under a non-political head.

Section Q.—BOOKS OF REFERENCE.

Name of Author.	Name of Work.	Remarks.
Cook, Capt., R.N.	"Voyages of Discovery by Captain Cook and other Commanders." Lettered in Public Library, Melbourne, as "Capt. Cook's Voyages." London, Strahan and Cadell, King's Printers, Strand. 8 vols., 4to. Published from 1773.	Contains account of the first discovery of the territory now called Victoria.
Flinders, Commander, R.N.	"A Voyage to Terra Australis." London, G. and W. Nicol, Pall Mall, 1814. 2 vols., 4to.	Important as showing the earliest and still reliable survey of the south coast of the Colony of Victoria.
Tuckey, Lieut., R.N.	"Account of a Voyage to Establish a Colony at Port Phillip, Bass's Straits, 1802–4." London, Longman and Co., 1805. 1 vol., 8vo.	Narrative of the failure of the first attempt to establish a settlement (a penal establishment) at Port Phillip.
Oxley, Lieut., R.N.	"Journal of Two Expeditions into the Interior of Australia." London, Jno. Murray, Albemarle street, 1820. 1 vol., 4to.	Written by Lieut. Oxley, R.N., Surveyor-General of New South Wales, who states, at page 372—"We had demonstrated beyond a doubt that the country south of the parallel 34° S. and west of the meridian 147° 30′ E. was uninhabitable and useless for all the purposes of civilized man." The country thus untruly described comprises the entire of the Colony of Victoria.
Mitchell, Sir T.	"Three Expeditions into the Interior of Australia, 1839." London, Boone, New Bond street, 1839. 2 vols., 8vo.	Narrative of exploration, travel, and discovery, which led to the settlement of Australia Felix (now the Colony of Victoria) by flockmasters and others. (*See* remarks on Lieut. Oxley's work.)
Bonwick, J.	"Discovery and Settlement of Port Phillip up to 1839." Melbourne, 1856. 1 vol., 8vo.	A short account of the earlier events of the colony. A compilation in a convenient form.
McCombie, Thos.	"History of the Colony of Victoria." London, Chapman and Hall, 1858. 1 vol, 8vo.	A succinct and generally accurate account of social and political affairs during the years over which the history extends.
Westgarth, W.	"The Colony of Victoria, its History, Commerce, and Gold Mining, its Social and Political Institutions, down to the end of 1863." 1864, London, Sampson Low, Son, and Marston.	Considered a useful compilation to its date.

BOOKS OF REFERENCE—*continued.*

Name of Author.	Name of Work.	Remarks.
Woods, Rev. J. E. T.	"History and Exploration of Australia." London, Sampson Low, Son, and Marston, 1866. 2 vols., 8vo.	A full and clear résumé of the work of exploration in Australia to 1865–66. Contains, in a pleasant and concise form, a great deal of valuable information; the author is also recognized as an authority on the geology of Australia.
Rusden, G. W.	"Discovery and Settlement of Port Phillip." Melbourne, G. Robertson, 1871. A Lecture.	A lecture embodying a reliable account of how Port Phillip District (now the Colony of Victoria) was first visited and some country settled upon by Batman, Fawkner, Henty, and other earliest settlers.
Neumayer (Professor)	"Results of the Meteorological Observations taken in the Colony of Victoria, 1859–62; and of the Nautical Observations collected and discussed at the Observatory, Melbourne, 1858-1862." Melbourne, 1864. 1 vol., 4to.	A compilation of high scientific value.
Smyth, R. B.	"Gold-fields and Mineral Districts of Victoria, 1869."	
Government of Victoria.	"Statistical Registrar of Victoria." Ferres, Melbourne.	Official Statistics of the Colony, published annually, with information to latest dates.
Hayter, H. H.	"Victorian Year Book." Ferres, Melbourne.	An official publication, containing a complete digest of the contents of the Statistical Register; also a table of principal events and other information, published annually.
Government of Victoria	"Mining and Mineral Statistics of Victoria." Ferres, Melbourne.	Published annually.
Government of Victoria	"The Victorian Military Force Lists, 1876." Ferres, Melbourne.	
Bailliere ...	"Victorian Gazetteer and Road Guide." London and Melbourne, Bailliere, 1865. 1 vol. 8vo.	Contains accurate topographical information of every place in the colony (down to the date of the publication).
	Charts of Exploration across Australia.	Placed in the Public Library, Melbourne.
Wildey, W. B.	"Australasia and the Oceanic Region." Melbourne, George Robertson, 1876. 1 vol.	A useful compilation, giving statistical and other information respecting Victoria and several of the other Australian Colonies.
Gordon and Gotch	"Australian Handbook." London, Gordon and Gotch, St. Bride street. 1 vol.	An annual publication containing information respecting each Australian Colony, together with maps, &c.
Ballantyne, Rev. J.	"Homes and Homesteads in a Land of Plenty, a Handbook to Victoria." Melbourne, Mason, Firth, and McCutcheon. 1 vol.	Chiefly useful as a guide to intending emigrants.

Books, Maps, etc., sent herewith.

[*Many of these are referred to in the body of the work.*]

Section.	Name of Work.
A	"Physical Geography and Geology of Victoria" 1866. By A. R. C. Selwyn, late Director Geological Survey of Victoria.
„	"Progress Report Nos. I. and II. of the Geological Survey of Victoria," 1874. By R. B. Smyth, late Secretary for Mines in Victoria.
„	Map of Victoria on scale of eight miles to an inch.
„	Map of Victoria showing portions of the adjacent Colonies of New South Wales, South Australia, and Tasmania.
„	Photograph of the Model of the Colony of Victoria, conveying a general idea of its configuration.
„	Geological Sketch Map of Victoria 1873."
„	Geological Sketch Map of Australia, including Tasmania.
„	Map showing the distribution of forest trees in Victoria 1869.
C (*a*)	Map of portion of Victoria between meridians 141° and 145° showing coast line and interior and alternative routes to Melbourne.
C (*b*)	Three Maps showing Railway System of Victoria.
C (*d*)	Report upon the affairs of the Post Office and Telegraph Department for the year 1875. By the Hon. the Postmaster-General.
„	Map of Victoria (in four portions) showing mail routes, &c.
„	Skeleton Map of Telegraph Circuits, Victoria.
O	Report of the "Royal Commission on Volunteer Forces of Victoria" 1876.
P	Mercantile Navy List 1876.
Applies to various sections	"Statistics of Victoria" from 1861 to the year 1874 (inclusive), and "Statistical Register" 1875.
„	"Census of Victoria" 1871.
„	"Victorian Year Book" for 1873, 1874, and 1875. By H. H. Hayter, Government Statist of Victoria.
„	Official Record of the London International Exhibition of 1873; with Essays and Statistics on the Social and Economic Resources of the Colony of Victoria.
„	Official Record of the Philadelphia Centennial Exhibition of 1876; with Essays and Statistics on the Social and Economic Resources of the Colony of Victoria.
„	Government Astronomer's "Monthly Record of Results of Observations in Meteorology," &c., from 1872, brought down to date.
„	Map of Victoria (in eight portions) showing, September 1874, the alienation and occupation of lands in Victoria.

APPENDIX.

NOTE.—Whilst the earlier portion of this work was passing through the press, the following correspondence and reports were made public. As they embody the latest information respecting the Naval and Military defences of Victoria, and contain the opinions of high authorities upon the subject, it has been thought desirable to append them.

CORRESPONDENCE AND REPORTS RESPECTING THE NAVAL DEFENCES OF VICTORIA.

Commodore Hoskins, R.N., to His Excellency the Governor of Victoria.

SIR, *Pearl*, at Sydney, 16th November 1876.

Having been requested by you to record officially the substance of a correspondence in which, at your request, I gave you my views as to the best course to be pursued for rendering the *Cerberus* thoroughly efficient, and for improving the Naval defences of Port Phillip; and also my opinion as to the proposed appointment of a naval officer to be gunnery lieutenant of the *Cerberus*, to superintend the drill of the naval volunteers, and to take charge of and inspect the Torpedo corps, I have the honor to make you the following report :—

In December of last year I consented to appear before the Royal Commission, somewhat reluctantly, as I had but just arrived from England, and was quite ignorant of all local circumstances and requirements, and had no time to examine closely the charts of the place ; but since then the subject has been much in my mind, and I have no doubt as to the main features of the system of defence which you require, and which I should recommend for adoption.

1. The first great and immediate requisite for the defence of the entrance to Port Phillip is, in my opinion, a well planned and devised torpedo system ; and, as that class of defence is being daily experimented on and developed at home, I should recommend that the services of an officer of Royal Engineers specially instructed in that branch be procured immediately, to examine the locality, and decide on the best principle to be applied to the special case.

I should recommend that he bring out with him, or order before leaving, all the equipment and stores that may be primarily necessary and indispensable, so that no delay may take place in starting the system, and that he may fit things into their places as soon as possible, leaving the extension or elaboration of the system to be proceeded with afterwards ; and I have no doubt that the charts and plans to be seen at home will be a sufficient guide to these first requirements.

2. The next question is how the torpedoes, when laid down, are to be covered and protected, as, without being so, they are liable to be taken up or destroyed by an enemy, and I consider that in the *Cerberus* this requirement is already half provided for. She would be a powerful and effective support of the system against any squadron likely to be sent against you, and the combination would alone constitute a moderately complete defence. But as the torpedoes could not be laid down in the narrows, in the strength of the tide, she would not by herself be sufficient, and the point next to be considered is whether another *Cerberus* or land batteries are most desirable. I have no hesitation in recording my strong opinion in favor of the turret ship.

In this opinion I may be thought to be biased ; but I hope to give good and sufficient reasons for it.

These are principally drawn from the position of your city in being so far from the entrance at the Heads.

If you have land batteries there must be a sufficient force of trained artillerymen to man them, and these again will require a considerable infantry in support, the whole of which land force, divided on both sides of the entrance, would be so distant from Melbourne, that if the entrance were once forced, they could hardly fall back in time to aid in the last struggle ; moreover, the men stationed on the opposite sides could not communicate with each other ; and again, an active enemy might threaten the Heads, and while your forces were expecting them there, effect a landing at night at Western Port, and interpose between them and the capital. The turret ships, on the contrary, could be moved to suit varying conditions, would be able to take up positions to cover successive or varying lines of torpedoes, and, in the event of the entrance being forced, might reasonably be expected to be able to fall back on Hobson's Bay, while a signal could at any time recall them to the defence of Melbourne itself from a land attack. Another reason for making the addition a naval one is the unity of effort it would produce, by enabling the senior naval officer to direct himself so large a proportion of the defence, the combined action of ships with land forces being at all times more or less uncertain, and too often productive of disputes resulting in loss of power. Again, with the ships you would be enabled to meet an enemy, if desirable, outside the Heads, and to follow him when anywhere repulsed, and so prevent a renewal of the attack.

For the defence of the inner line of Hobson's Bay and of the city itself, I should recommend the construction of land batteries armed with the heaviest possible guns.

Supposing the entrance to the Heads forced, a battery on each side of the Bay would probably be sufficient, with the turret ships fallen back into the best positions and your local forces concentrated to oppose an attempt to land, or a force which had landed elsewhere, to give every prospect of a final successful resistance.

The guns in these batteries ought to be 18 tons at least, and would be better if 25 tons, and the site might be selected by the Engineer officer sent out.

The new turret ship should carry 25-ton guns ; she should be fitted with all the newest improvements, and she should, if possible, be also fitted for and provided with the Whitehead torpedo. This is now being done at home with all our large ships, turret and broadside ; and the power of employing that most formidable weapon is another reason for adding a turret ship rather than land batteries to the defences.

The *Cerberus* I consider very efficient and well cared for, and with the addition of the steam-steering gear, which I understand is already ordered, will probably be very handy. It would be very advantageous if she also could be fitted for the Whitehead torpedo, but I do not imagine that it would be possible, though it might be worth while to ascertain.

With reference to the appointment of a gunnery officer : if the increase of the naval force is decided on, I should recommend the appointment of a captain of the Royal Navy for the chief command, with a staff of say two lieutenants, two gunners, one or more torpedo engineers, and a sufficient number of gunnery and torpedo instructors.

He might be on the same footing as the officer who formerly commanded the Bombay Marine, and be replaced with his staff at stated intervals, by which means the introduction of new ideas, and the results of further experience would be ensured.

Many captains newly promoted would, I imagine, be glad of such employment during the time they would otherwise be kept on enforced half-pay.

The details might be easily arranged when the Admiralty had given their consent to the plan.

In giving the above sketch of what I consider desirable, in compliance with your request, I have looked only at the Naval defensive side of the question, and have not of course taken into consideration its political, economic, or other bearings ; nor have I thought it necessary to dwell on the advantage it would be to a colony without a regular army to develop a force which already exists, and make the most of one arm, rather than to divide effort and authority by having several of equal importance.

Should my suggestions, from any reason of cost or otherwise, not be considered feasible or desirable to adopt, I should recommend that batteries of the heaviest possible guns should be constructed on the Heads to command the entrance and cover the torpedo system, which I consider a *sine qua non*. The Engineer officer would probably, in view of the double requirement, be the best judge of the sites, and it should be left for him to decide upon them.

In this case I should recommend that the services of two qualified gunners and a torpedo engineer should be obtained from the Admiralty with the necessary instructions ; that they be appointed to the Commodore's ship to give them their naval time, and that they be relieved at stated intervals; the latter provision being absolutely necessary to ensure the knowledge of the latest appliances and inventions, &c.

The gunnery lieutenant of one of our ships visiting the port might, on requisition, examine and report on all details of the drills and gear, and, if the colonies united in the request, and could show reason for it, it is possible the Admiralty might appoint a special officer for the purpose of visiting and inspecting all the colonial naval defences periodically and systematically.

It cannot be too much insisted on that all engines of war, to be effective, must be periodically examined, tested, and worked ; there is no certainty of their efficiency in case of need without it—indeed the certainty is the other way.

The gunnery lieutenant of the *Wolverene*, which vessel is shortly expected, is an officer in whose capacity and judgment I have confidence, and he will be in possession of all the newest plans and inventions from his recent experience at Portsmouth, &c. ; and I shall be happy, should Your Excellency wish it, to send him to Melbourne for a short time, in order that he may be consulted, but, as the ship is newly commissioned, I shall only be able to spare his services for a very limited period.

I shall be happy at any time to give any further information which may be in my power and which the Government of Victoria may desire.

I have the honor to be, Sir,

Your Excellency's obedient servant,

(Signed) A. H. HOSKINS,

Commodore.

His Excellency Sir George F. Bowen, G.C.M.G.

His Excellency the Governor of Victoria to Commodore Hoskins, R.N.

Government House, Melbourne, 24th November 1876.

Sir,

I have the honor to acknowledge the receipt of your letter of the 16th instant, respecting the Naval Defences of Port Phillip, and to convey to you my own thanks, and those of the Victorian Government, for the valuable recommendations contained therein. They will be taken into careful consideration.

2. With respect to your offer to send here, for a short time, the gunnery lieutenant of the *Wolverene*, to point out the best methods for rendering the *Cerberus* thoroughly efficient, to establish a good Torpedo Corps, and to instruct the naval gunners and naval volunteers, &c., I am requested by Sir James McCulloch to state that the Government accepts, with many thanks, this offer; and will be glad to give the officer in question whatever remuneration or allowances you may think right during his stay at Melbourne.

I have, &c.,

G. F. BOWEN.

Commodore Hoskins, R.N., &c., &c., &c.,
H.M.S. *Pearl*, Sydney.

Lieutenant Dugdale, R.N., to His Excellency the Governor of Victoria.

Melbourne, 12th February 1877.

Sir,

I have the honor to inform Your Excellency that, in obedience to your commands, I have inspected the Naval Forces of Victoria, and made myself acquainted with the interior economy and the drill system pursued in your ships.

The *Cerberus*, your armored turret ship, is a very powerful vessel, mounting four 18-ton guns, drawing little water, and is a good steamer. The hull and interior are in a good condition and fairly clean. The turrets, guns, ammunition, carriages and slides are in very good order, and have been well cared for. The ship's engines work very smoothly and well. The officers and ship's company are instructed in gunnery by Mr. Tubbs, gunner, Royal Navy, who is a good instructor and takes great interest in his duty.

Such a powerful vessel should undoubtedly be always kept properly officered and manned; otherwise she is of no value as a protection to the habors of this colony. It is not necessary for me to lay before Your Excellency the regulations under which your officers and men are entered.

The following statement will show how the *Cerberus* ought to be manned:—

Officers.

1 captain.
1 lieutenant, who should be the executive officer, and also have charge of the *gunnery* department.
1 lieutenant, who should assist the captain in navigating, and have charge of the *stores*.
1 sub-lieutenant.
1 paymaster.

1 chief engineer.
1 engineer.
3 gunners, who should be good gunnery instructors, and one a torpedo instructor.
1 boatswain.
1 carpenter.

For War Service.—One doctor and two additional engineers would be required.

SHIP'S COMPANY.

Ship's police, servants, and cooks, as at present.
2 carpenters' mates.
1 armorer.
15 petty officers (seamen).
2 leading stokers.
8 stokers.
30 able seamen.
9 boys, including 3 buglers.

The petty officers, seamen, and stokers should, after very careful selection, be engaged for three years.

For War Service.—Thirty able seamen and 10 stokers would be required in addition to the above.

The following suggestions will tend to make the *Cerberus* more efficient :—

(1.) The men to be regularly drilled in all the exercises, including aiming drill, judging distance practice, and skirmishing.
(2.) All men who prove themselves to be good and quick shots to be specially trained for the duties of captain of turret.
(3.) Four rounds to be fired from each turret gun, quarterly, at targets placed at known and unknown distances.
(4.) Nos. 1, 2, 3, 4, 5, 6, 7 to fire two rounds, quarterly, from 12-pounders.
(5.) Annual prize firing (as laid down in the Admiralty Gunnery Manual) to be carried out during the most convenient time of the year.
The ship's company to be filled up for war service during this exercise.
(6.) Ten rounds to be fired quarterly from each rifle.

I have witnessed the *Cerberus* at target practice. The firing was very slow indeed, but fairly accurate. The *Cerberus* is very well adapted for the defence of your harbors.

The torpedoes will be very useful in the channels, and could be supported by vessels of the *Cerberus* class, and gunboats, steam launches, &c.

Your wooden line of battle-ship, *Nelson*, might, in the case of an emergency, be anchored on a shoal near the South Channel ; her guns manned by your Naval Artillery Volunteers.

I recommend that the 32-pounders be moved from the main to the upper deck and half the 64-pounders from the lower to the main deck ; the guns being placed in every other port. This will give the guns' crews more room. No money should be spent on the *Nelson*, except what is necessary to keep her as a hulk.

I have inspected your Naval Reserve. It consists of about 216 men, ten per cent. of whom are seamen ; the remainder being chiefly recruited

from the stevedore population. They are a fine body of men; I cannot call them efficient as a Naval Reserve, there being so few seamen in the force. The title Naval Artillery Volunteers would be much more suitable. The retainer you give does not have the effect of confining their labor to the precincts of the port. Under these circumstances a force of Naval Artillery Volunteers would be more efficient and less costly.

I have the honor to be, Sir,
Your most obedient humble servant,
EDWARD S. DUGDALE,
Lieutenant, Royal Navy.

His Excellency Sir G. F. Bowen, G.C.M.G., &c., &c., &c.

His Excellency the Governor of Victoria to Commodore Hoskins, R.N.

Government House, Melbourne, 20th February 1877.

SIR,

Adverting to previous correspondence on the same subject, I now request you to accept my thanks, and those of the Victorian Government, for sending hither Lieutenant Dugdale, R.N., to inspect the naval forces maintained by this colony. At the same time I would ask you to convey to Lieutenant Dugdale our high sense of the value of the services which he has rendered.

2. That officer will, of course, have placed you in possession of a copy of the valuable report which he addressed to me on the 12th instant.

3. At the instance of my constitutional advisers, I now request you to have the goodness to acquaint me with your opinion of the suggestions made by Lieutenant Dugdale, and to specify exactly (in continuation of your letter of the 16th November ultimo) what you recommend the Government and Parliament of this colony to do with the object of improving our naval defences.

I have, &c.,
(Signed) G. F. BOWEN.

Commodore Hoskins, R.N., &c., &c., &c.,
H.M.S. *Wolverene*, Sydney.

Commodore Hoskins, R.N., to His Excellency the Governor of Victoria.

Wolverene, at Hobart Town, 21st March 1877.

SIR,

In compliance with the request contained in the third paragraph of your letter of 20th February 1877, I have the honor to inform you that I approve of the report made by Lieutenant Dugdale on the *Cerberus* and Naval Forces of Victoria, and concur with the suggestions made by him for rendering them efficient.

But it is evident to me that the only course for the Victorian Government to pursue, in order to put them in a really satisfactory state, is to obtain the services of a competent officer from England, who will be able to work out all the details of organization and equipment under the Minister responsible for the naval administration.

It is quite impossible for me to state exactly what I should recommend the Government and Parliament of the colony to do with the object of improving its naval defences. I have already given my general opinion on the subject, and the details must be enquired into and worked out on the spot, and in connection with those responsible to the Parliament. Further, as officers of high rank are shortly expected to report on the general question of Defence, and the naval portion of it must in great measure depend on that report, it seems to me that to go further into the matter at present would be labor thrown away.

I have the honor to be, Sir,

Your Excellency's obedient servant,

A. H. HOSKINS,

Commodore.

His Excellency Sir George F. Bowen, G.C.M.G., &c., &c., &c.

INSPECTION OF "CERBERUS" AND "NELSON."

REPORT OF CAPTAIN TOWNSEND, R.N., TO HIS EXCELLENCY THE GOVERNOR OF VICTORIA.

H.M.S. *Nymphe*, at Melbourne, 3rd July 1877.

SIR,

In compliance with the request contained in your letter of the 27th ultimo, I have the honor to inform you that I have inspected the *Cerberus* and *Nelson*, belonging to the Victorian Government, and beg leave to report as follows :—

1st. With reference to the *Cerberus :* This vessel, so far as regards her equipment in general, appears to be in good order, her crew fairly up in their drill, and the ship clean throughout ; she is not, however, provided with any system of protection against torpedoes ; and I would wish to call Your Excellency's attention to this point, recommending at the same time that outriggers and nets similar to those fitted to the turret ships of the Royal Navy, or upon the plan submitted by Captain Panter, be at once supplied ; also, that measures be taken to ascertain whether she could not be fitted for the service of the Whitehead torpedo. It being obvious that this vessel will have to act in conjunction with torpedoes, which are now universally adopted for the protection and defence of ports and harbors, it is essentially necessary that her officers should be thoroughly acquainted with the practical working of this system of modern warfare ; none of her officers have gone through the requisite course of instruction as now carried out at Portsmouth and Chatham ; and only one of her officers (Captain Panter) has qualified in gunnery. That so powerful and valuable a vessel should have but one such on board seriously affects her efficiency ; any casualty occurring to him might possibly be attended with serious consequences. It is therefore desirable that the appointment of thoroughly competent officers, on the system as proposed by Commodore Hoskins, in his report of 16th November 1876, be carried out. The periodical change would ensure having officers intimately acquainted with all the newest improvements and systems. Under such officers a torpedo corps might be formed, and a school of instruction established, which would be invaluable in the event of a hostile attack.

2nd. As regards the *Nelson:* This vessel's hull is defective in several places, particularly in the after part ; to render her fit for active service a considerable outlay would be necessary. She at present has no crew, and twenty of her guns are of an old pattern, and but little suited for the requirements of the present day. Her engines and boilers are reported to be in good order. Taking all these circumstances into consideration, as well as her great age and heavy draught of water, which would prevent her moving amongst the shoals of the Bay without incurring considerable risk, this expenditure cannot be recommended. A smaller vessel, capable of going to sea if requisite, with all modern improvements, would be much more efficient as a means of defence.

I have the honor to be, Sir,

Your Excellency's most obedient servant,

SAMUEL P. TOWNSEND,

Captain.

His Excellency Sir George F. Bowen, G.C.M.G., &c., &c., &c.

DESPATCHES AND CORRESPONDENCE RESPECTING THE MISSION OF HIS EXCELLENCY SIR W. F. D. JERVOIS, R.E., K.C.M.G., C.B.; ALSO REPORTS BY THAT OFFICER ON THE DEFENCES OF VICTORIA.

The Secretary of State for the Colonies to the Governor of Victoria.

Victoria.—No. 23.

Sir, Downing street, 27th February 1877.

You will have already learned by my telegram, dated the 20th instant, that Governor Sir. W. Jervois, R.E., K.C.M.G., C.B., assisted by Lieutenant-Colonel Scratchley, R.E., will shortly proceed to Australia to advise the Colonial Government upon works of defence, in compliance with the application which I received by telegraph.

2. After further consideration, and after receiving the despatches in which the name of Sir W. Jervois was specially mentioned as acceptable to the colonies, I succeeded in arranging that he should be employed on this service in lieu of Colonel Laffan, R.E., who will be appointed to the Government of Bermuda. It is a cause of pleasure to me, and I am sure will be very satisfactory to your Government, that I have been able to arrange that you should have the benefit of Sir W. Jervois's great experience.

3. Sir W. Jervois will leave Singapore for Sydney on the 2nd of April, and Colonel Scratchley will proceed from this country by the mail steamer of the 8th of March.

4. I enclose, for the information of your Government, copies of the instructions which I have given to Sir. W. Jervois and to Colonel Scratchley, and as the period of Sir W. Jervois's stay in Australia is necessarily limited, I shall be glad if your Government will at once endeavor to arrange with him as to his proceedings, in order that no time may be lost by him in fulfilling the objects of his mission.

Enclosures I. and II. 27th and 26th February 1877.

5. You will see that Sir W. Jervois has been instructed to guide himself, so far as may be in his power, by the views and wishes of the Governments of the different colonies which are desirous of availing themselves of his services.

I have, &c.,
(Signed) CARNARVON.

Governor Sir G. F. Bowen, G.C.M.G., &c., &c., &c.

[Enclosure No. I.]

The Earl of Carnarvon to Col. Sir. W. Jervois, R.E., K.C.M.G., C.B.

(Copy.)

SIR, Downing street, 27th February 1877.

You have already been informed by my telegram of the 20th instant that Lieutenant-Colonel Scratchley, R.E., will leave this country on the 8th of March for Sydney, to act as your assistant in connection with your mission to Australia to advise on defensive works. He has been instructed to place himself under your orders, and to be in Sydney to await your arrival.

New South Wales, Victoria, Queensland, South Australia.

2. The Governors of the colonies named in the margin, to the defences of which your attention will be given, have been informed that the period of your stay in Australia is necessarily limited, and they have been requested to concert with you at once as to your proceedings, in order that no time may be lost by you in fulfilling the object of your mission. You will of course be guided, so far as may be in your power, by the views and wishes which may be expressed to you by the respective Governors of these colonies on the part of their Governments, and I cannot doubt that you will co-operate cordially with them in the execution of the work you have undertaken.

3. With these observations, I think it desirable to leave entirely to your discretion the manner in which you should employ the brief time at your disposal. In the event of your desiring that Lieutenant-Colonel Scratchley should, after your departure, complete the details of any work which you may have thought it advisable to postpone, you will instruct him accordingly.

4. The Governments of these colonies have acquiesced in my proposal that you shall receive remuneration for your services at the rate of £1,500 a year, besides expenses.

27th Feb. 1877., 26th Feb. 1877.

5. I enclose copies of a despatch addressed to the Governors of the Australian Colonies, and of a letter, which has been written by my direction, to Lieut.-Colonel Scratchley, R.E.

I have, &c.,
(Signed) CARNARVON.

Col. Sir W. Jervois, R.E., K.C.M.G., C.B.,
Sydney, New South Wales.

[Enclosure No. II.]

The Colonial Office to Colonel Scratchley, R.E.

(Copy.)

SIR, Downing street, 26th February 1877.

I am directed by the Earl of Carnarvon to inform you that, having been selected to assist Sir W. Jervois, R.E., K.C.M.G., in advising the Australian Colonies on works of defence, your services have been placed by the War Department at the disposal of this office.

His Lordship would be glad if you would make arrangements for leaving England for Australia by the mail steamer of the 8th of March. It will be desirable that you should proceed from Melbourne to Sydney without delay, in order to be there before the arrival of Sir W. Jervois, who leaves Singapore for Sydney on the 2nd April, and to whom you will report yourself in order to receive instructions as to your future proceedings in connection with his missson.

You will of course understand that, beyond acquiring information, you should take no action and will express no opinions before Sir W. Jervois's arrival as to the object for which you are sent, it being of great importance that he should decide in the first instance the whole course of the proceedings.

You will receive remuneration for your services at the rate of £1,000 a year, as recommended by the Secretary of State for War.

An allowance will also be made for your travelling and living expenses.

I am, &c.,
(Signed) R. H. MEADE.

Lieut.-Colonel Scratchley, R.E.

The Secretary of State for the Colonies to the Governor of Victoria.

Victoria.—No. 43.

SIR, Downing street, 15th April 1877.

With reference to my despatch (No. 41) of the 29th ultimo,* I have the honor to transmit to you, for your information, a copy of a letter which has been received from the War Office, in reply to the one which I caused to be addressed to that department, in respect of the continued employment of Lieutenant-Colonel Scratchley, R.E., in Victoria, after the completion of the service on which he has proceeded to Australia. Enclosure.—27th March 1877.

I have, &c.,
(Signed) CARNARVON.

Governor Sir G. F. Bowen, G.C.M.G.,
&c., &c., &c.

[Enclosure.]

The War Office to the Colonial Office.

(Copy.)

SIR, Pall Mall, 27th March 1877.

I am directed by the Secretary of State for War to acknowledge the receipt of your letter of the 20th instant, and to acquaint you in reply, for the information of the Earl of Carnarvon, that he has no objection to the continued employment of Lieut.-Colonel Scratchley, Royal Engineers, in organizing a scheme of defence and in constructing the necessary works in Victoria, after he shall have assisted Sir William Jervois in reporting upon the Defences of the Australian Colonies generally.

I have, &c.,
(Signed) J. C. VIVIAN.

P.S.—This department will be happy to assist the Agent-General of Victoria in procuring submarine defences for the harbor of Melbourne.

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* Stating that Lieut.-Col. Scratchley, R.E., had left England for Australia.

Sir W. F. D. Jervois, R.E., K.C.M.G., C.B., to His Excellency the Governor of Victoria.

SIR, Melbourne, 20th July 1877.

As your Excellency is aware, I arrived here about the middle of last month, and on various occasions since that time I have been engaged in visiting the several places and positions in Victoria which could in any way be considered to bear on the question of the defence of Port Phillip, together with the City of Melbourne, and the other towns within that important estuary. I have not yet been able to visit the harbors of Warrnambool, Belfast, and Portland, but I propose to do so on a subsequent occasion.

Meanwhile I have the honor to submit for the consideration of Your Excellency and your Government a preliminary report upon the defences of the colony.

I have great pleasure in acknowledging the ready assistance which, in the course of my investigation, I have received from Lieutenant-Colonel Scratchley and from the officers of the different departments of Government concerned in the object of my enquiry.

I have the honor to be, Sir,
Your obedient humble servant,
WM. F. DRUMMOND JERVOIS.

His Excellency Sir George F. Bowen,
G.C.M.G., &c., &c.

PRELIMINARY REPORT OF HIS EXCELLENCY SIR W. F. D. JERVOIS, R.E., K.C.M.G., C.B., ON THE DEFENCES OF VICTORIA.

(See map at end of this work.)

Probable nature and degree of attack.

I have already pointed out in a preliminary report on the defences of New South Wales that there is no probability of an expedition on any extensive scale being despatched against Australia. In the improbable event of Great Britain ceasing to hold the command of the seas, such an expedition might perhaps be undertaken with a view of subjugating the colonies, finally annexing them, and instituting some form of despotic government. The very existence of the British Empire, however, depends upon her naval supremacy, and the question must obviously be considered on the assumption that that supremacy is, as it undoubtedly will be, maintained.

In the event of Great Britain being engaged in hostilities with any great maritime power, the enemy would retain the most powerful portion of his fleet in European waters, or in the Atlantic, for the protection of his country, or for operations in the immediate neighborhood of hostilities. If he sent his fleet, or any considerable portion of it, on an expedition against the Australian Colonies, a sufficient part of our Home fleet would in turn be set free to intercept it, and our squadrons in the Pacific, on the China, the Australian, and Indian stations, might, if necessary, be concentrated to oppose it.

But whilst the bulk of the enemy's naval forces would be occupied in the immediate scene of action in Europe or America, he might no doubt despatch one or more cruisers to operate against our maritime commerce, or make a descent upon any of our colonial possessions ; and the Australian Colonies, owing to their wealth and prosperity, would, if undefended at certain points, be tempting objects of attack.

A squadron intended for such an operation might consist of some three or four vessels, one or two of which would probably be armoured, and might issue from the Russian ports of Vladivostok or Petropaulovski, from the French port of Saigon, from San Francisco, or from some other quarter. Eluding our cruisers, and appearing suddenly before Sydney, Melbourne, Adelaide, or in Moreton Bay, it might capture the merchant vessels lying in the harbors ; intercept any of the numerous vessels conveying valuable shipments of gold ; or under threat of bombardment, or after actually firing into one of the large towns, demand and obtain a payment of many millions of money.

Or this object might possibly be attained by an enemy landing a small force in the vicinity of one of the places named, if the configuration of the country were favorable to such a plan, and if steps were not taken to prevent it.

Description of seaboard

It is obvious that an attack upon Victoria can only be made at some point along the seaboard, which forms the southern boundary of the colony. This seaboard extends for a distance of nearly 600 nautical miles, from Cape Howe,—the S.E. point of Australia and the seaward extremity of the boundary between Victoria and New South Wales,—to the S.E. extremity of the boundary of South Australia, at the mouth of the Glenelg River.

The coast of Victoria is all more or less inaccessible ; a considerable portion of it is iron-bound, with high cliffs, and even in places where there are low sandy hills and beaches, the sea breaks more or less heavily throughout the year, and a landing thereon is almost impracticable.

The estuary of Port Phillip, situated near the centre of the coast, is the only harbor in the colony which is, at present, of any importance. This estuary is about 30 miles in length, and averages about 20 miles in breadth ; in the centre there is an extensive bay on the eastern shore ; and a branch estuary, averaging 5 miles in width, extends westwards for a distance of 15 miles. The extreme breadth of Port Phillip from east to west, inclusive of the branch estuary, is about 35 miles. The total area of Port Phillip is about 700 square miles (nautical). At the western extremity is the town of Geelong, a shipping port for wool and produce from the westward, and containing about 15,000 inhabitants. At the northern extremity of the estuary is Hobson's Bay, about 3 miles in length by 1½ in depth, and on or near the shores of which are situated the City of Melbourne, with its numerous suburbs, extending from Williamstown on the western, to Emerald Hill and Sandridge on the northern, and St. Kilda and Brighton on the eastern side. The population of Melbourne and its suburbs is no less than 250,000. There are numerous factories in the neighborhood, including the extensive Government railway workshops and storehouses at Williamstown, and crowds of shipping are usually lying in Hobson's Bay.

Close to Port Phillip, on the eastern side, is Western Port, where there is a good land-locked harbor, capable of accommodating ships of any size, but there are only two or three small villages on its shores. About 110 miles S.E. of the entrance to Port Phillip is Wilson's Promontory, the southernmost point of Australia. Near the extremity of this promontory on its eastern side is the anchorage of Waterloo Bay ; on its west side is Waratah Bay ; and to the eastward of it are Corner Inlet and Port Albert. Between the latter and Cape Howe there are no harbors. To the west of Port Phillip are the small harbors of

Warrnambool, Belfast, and Portland, respectively at distances of 120, 130, and 165 miles. At Warrnambool there are 4,600 inhabitants, and at each of the other two places there is a population of about 2,500; but, with these exceptions, there are no settlements of any importance on the seaboard of Victoria, either to the eastward or the westward of Port Phillip.

Local defences only required for Port Phillip and places within it.

Special local defences will only be required for the protection of the shipping, the capital, and other towns within the estuary of Port Phillip.

The measures of defence required must be considered—

1st. With reference to an enemy's entering Port Phillip with a view of capturing or destroying the shipping in Hobson's Bay, and of bombarding, or landing a force to attack, Melbourne and other places on the shores of the estuary.

2nd. With regard to an enemy occupying Western Port, landing a force, and marching to attack Melbourne therefrom.

Defence of Port Phillip against naval attack.

First, then, as regards the defence of Port Phillip against direct naval attack.

The entrance to Port Phillip is between two headlands about 4,000 yards apart; that to the eastward being called Point Nepean, and that to the westward Point Lonsdale. Facing the channel, at a distance of about 3,500 yards from Point Nepean and about 4,500 yards from Point Lonsdale, is Queenscliff, on which are two lighthouses, so placed that, when seen from seaward in one line, they form a leading mark for vessels passing in mid-channel between the two outer heads. Owing to the existence of rocks and shoals on either side of the entrance, the navigable channel, which is called "The Rip," is only about 1,600 yards wide. The tide runs through this passage with great velocity, so that during the ebb the progress of any vessel entering the port must be comparatively slow, whilst a fast steamer taking the tide at the flood and directing her course (N.E. by N.) on the Queenscliff lighthouses, can pass at the rate of about 20 miles an hour. Having run through "The Rip," she would turn to the eastward, and after passing the line between Point Nepean and Queenscliff, would find herself in an open deep-water harbor, about 3 miles in length and 1½ in breadth. From thence the route to the inner waters of Port Phillip is by one of two channels, through shoals, which for a distance of from 6 to 10 miles render the navigation more or less difficult.

Vessels drawing under 18 feet of water take a nearly N.E. course by the "West Channel," in an almost direct line to Hobson's Bay; but ships of greater draught, *i.e.*, up to 25 or 26 feet (which is the limit), have to make a détour, about E. by S., by the "South Channel," and then turn northward to Hobson's Bay. This détour adds about 10 miles to the length of the passage; the distance from "The Rip" to Hobson's Bay by the "West Channel," being about 30 miles, and by the "South Channel" about 40 miles. Besides these, there are four other passages through the shoals, viz., Cole's, Lœlia, Symonds', and Pinnace Channels; but owing to the water in parts of them being more or less shallow, and to difficulty of navigation, they are seldom, if ever, used.

After passing the shoals, the course is clear for ships of any draught the whole distance up to Hobson's Bay, on arriving at which a hostile squadron would be in a position to fire into Melbourne, carry off or destroy the shipping, and levy a large contribution upon the colony.

The existing defences of Port Phillip were constructed in the year 1861–2, and consist of batteries at Sandridge and at Williamstown, and a battery at Queenscliff. Nothing has been done in recent years to adapt these works to modern requirements, and they are now more or less in an unserviceable condition. The armament of these batteries is as follows :— Existing defences.

——	9-in. 80-pr. M.L.R. Guns.		68.-pr. S. Bore.	Total.	Remarks.
At the Heads.					
Queenscliff	...	1	3*	4	* 1 dismounted.
In Hobson's Bay.					
Sandridge	1	9†	11†	21	† 3 80-prs. and 4 68-prs. dismounted.
Williamstown ...	3‡	8‡	8‡	19	‡ 1 9-in. and 5 68-prs. dismounted.
Total ...	4	18	22	44	

Besides these batteries, the colony possesses two men-of-war, which are stationed in Port Phillip ; one, the *Nelson*, an old two-decked line-of-battle ship ; the other, the *Cerberus*, a low free-board ironclad vessel with two turrets, each containing two 18-ton guns. The former, owing to her obsolete character and her deep draft of water (which renders her unsuitable for service in the channels through the shoals), may almost be put out of account as a means of defence. The *Cerberus*, however, is a very powerful vessel, and, so long as she is well handled and no accident occurs to her, is well calculated to perform very efficient service.

In almost all projects that have hitherto been submitted for the defence of the port, whether emanating from local authorities or from naval and military officers of the Imperial service in England, it has usually been concluded that whilst works of defence should be constructed at Point Lonsdale, Point Nepean, and Queenscliff, with a view of possibly deterring an enemy from attempting to enter Port Phillip, the protection of Hobson's Bay and its shipping, as well as of Melbourne and its extensive suburbs, must necessarily depend upon defences immediately protecting Hobson's Bay itself. It has always been held—and correctly—that, owing to the width of the channel, the depth of water, and the strength of the tide at the entrance, torpedoes could not be applied in connection with batteries at these headlands, and that, without such obstacles, artillery fire from the forts, even with the aid of the *Cerberus*, could not be relied on to prevent the passage of hostile ships. Projects of defence hitherto submitted.

With this view, it was suggested by the War Office Fortification Committee (which included two of our highest Naval authorities), that,—in addition to the construction of batteries at Queenscliff and Point Nepean, and the retention of some of the existing batteries at Sandridge and Williamstown,—a work should be erected at Point Ormond, the most salient point of the Bay on the eastern side, and two

forts erected in the sea between that point and the western salient of the Bay at Williamstown. The cost of the works and armaments for this project was estimated at £426,500 ; but I think it probable that the expense would not have been less than £500,000.

Enemy should be prevented passing shoals.

If the conclusion were correct, that no means that could reasonably be proposed would prevent an enemy obtaining access to the inner waters of Port Phillip, it would no doubt be only prudent to provide defences for the immediate protection of Hobson's Bay and Melbourne. As, however, such defences must be close to the objects to be protected, they would be subject to the disadvantage of drawing an enemy's fire upon those objects, and, moreover, would not defend them from distant bombardment. I have therefore, since my arrival in Victoria, carefully considered whether a plan cannot be adopted which will not be open to these objections, and which, without excessive expenditure, will absolutely prevent an enemy from passing to the inner waters of the Port Phillip estuary, and so render unnecessary any defences immediately covering Hobson's Bay and Melbourne.

Increased efficiency of torpedoes.

The conditions under which the question has been considered on former occasions are in one important respect very different from those which exist at the present time. As stated in my preliminary report on the defences of New South Wales, great improvements have taken place in the application of torpedoes to the defence of channels ; submarine cables and charges of gun-cotton, with their necessary appurtenances, can, in favorable situations, be laid permanently on the actual spots where they are required for defence, and arrangements can be made for firing the mines with as much facility as great guns can be discharged. There need, therefore, now be no fear that torpedoes will not be in their places when required, and will not be effective should an attempt be made to force the entrance to the harbor. The submarine wires will be better kept under water than in store on land, and gun-cotton can now, through a detonating medium, be fired when wet, so that in the event of any of the charges becoming damp, owing to their being placed at the bottom of the sea, they will be as capable of action as if they had been kept dry on land.

Batteries of artillery still necessary.

It must, however, be borne in mind, notwithstanding the greatly increased efficiency of torpedoes, that batteries of artillery are still essential to bear on attacking ships, under whose fire the submarine mines might otherwise be removed.

Proposed plan of defence.

The questions then arise : whether there are any positions where torpedoes can be applied in such manner as effectually to prevent the passage of an enemy's vessels to the inner waters of Port Phillip estuary ; and, if so, whether, having regard to questions of construction and expense, it be possible to erect batteries which shall absolutely protect torpedoes in such positions from being removed.

Although, for the reasons before stated, it would be impracticable to adopt at the headlands a system of defence of which submarine mines would form part, the conditions are favorable for the application of torpedoes in the channels through the shoals within the entrance. I find, also, from borings which have been made at several points on the shoals, that the bottom consists of a layer of firm sand upon rock, and that forts can be constructed thereon with facility, on sites well adapted for the protection and working of the torpedoes, where the width both of the West Channel and of the South Channel is about 1,400 yards. Thus, by a combination of forts and torpedoes at the channels through

the shoals, the passage of an enemy's squadron to the inner waters of Port Phillip can be absolutely prevented.

Defence of passages through shoals.

To effect this object, I propose to construct two small forts, one on the shoal between West Channel and Symonds' Channel, the other on the north side of South Channel, near No. 5 buoy ; and to place four lines of ground and buoyant torpedoes, with two lines of electro-contact mines in their front, across the three channels, under fire of the works. It should be observed that the torpedoes will not be operative unless the electric circuit is completed, and that the channels may always be open for the passage of friendly vessels.

In order to prevent the possibility of an enemy passing at night, the channel and approaches to it may be so illuminated by the magneto-electric light as to prevent any vessel attempting to remove the obstructions without being seen from the forts. It has been also suggested that an enemy might pass unseen in thick weather, but, not to mention the difficulty of passing at any time if he could not see his way, there is not the least probability that he would attempt to do so, when, in addition to the entrance being obscured by a fog, he would run the great risk of being blown up by torpedoes.

It will be observed that Cole's and Lœlia Channels will be within the line of defence of West Channel, and that the fort at No. 5 buoy, besides fulfilling its main object of defending South Channel, will also close the access to Pinnace Channel. By the plan now proposed, therefore, the whole of the channels through the shoals will be effectually defended, and it will be unnecessary to construct any works in the immediate vicinity of Hobson's Bay. Such batteries as may be necessary for the drill and practice of the artillery at Williamstown or Sandridge should, however, be retained.

Defence of outer passage and anchorage.

The forts defending the channels through the shoals will necessarily be too far distant from the anchorage between the shoals and the headlands to prevent an enemy's ships occupying that outer harbor, and so closing Port Phillip both against the ingress and egress of trading or other vessels. A battery of powerful guns should therefore be placed at Queenscliff, and another at Point Nepean, to bear upon hostile ships approaching the outer channel, as well as to cross fire upon them in their passage through the channel, and, in conjunction with the *Cerberus*, to prevent an enemy occupying the outer anchorage if he succeeded in reaching it. The *Cerberus* will also aid in the defence of the passages through the shoals.

It has often been suggested that a fort should also be placed at Point Lonsdale ; and no doubt such a work would be of advantage as affording a cross-fire with the guns on Point Nepean in the passage of a vessel through the " Rip." I think, however, that this additional work would be an unnecessary expense. It would not oblige a ship to pass any nearer to Point Nepean, and the narrowest part of the channel is not between Point Lonsdale and Point Nepean, but between the latter point and Queenscliff. An enemy, knowing that access to Hobson's Bay and Melbourne was absolutely barred by the defences at the shoals, would not risk the running of the gauntlet between the fire of the *Cerberus* and the two outer works which I propose.

Proposed works of defence, and armaments.

The works at Point Nepean and Queenscliff will be constructed, the former for four, the latter for six powerful muzzle-loading rifled guns. At Point Nepean, the battery will be arranged in a semi-circle, and each gun with a wide sweep ; the left gun will bear on the deep water

outside the harbor towards Western Port, the right on the harbor inside the Heads ; and the whole will be arranged so as to afford the greatest amount of fire that can be obtained from them upon the entrance channel and on the passage between Point Nepean and Queenscliff. The work must be secure in itself against assault, and there should be one or two light pieces in its rear commanding the approach to it from the land side. At Queenscliff, the battery will be divided in two ; that on the left for three guns on the site of the old work, that on the right, also for three guns, on the swell of ground on a somewhat lower level to south-westward of it. The right battery will face the entrance to the port and, in conjunction with the Point Nepean work, will also bear upon the bay between Point Lonsdale and Queenscliff; the left battery will bear more especially on the adjacent anchorage. Both batteries should, however, be arranged so as to bring the fire of their guns to bear as much as possible both on the entrance to the harbor and on the anchorage. As regards the defence of the Queenscliff batteries against assault, a four-sided defensible enclosure should be formed, the eastern side of which will be the cliff, and which will include the existing work and the premises occupied by the light-keeper's quarters and telegraph office. The right battery, which cannot conveniently be included in this enclosure, should be surrounded by a stockade and ditch. Both the batteries, as well at the adjacent ground, will be commanded by a tower projecting into the road at the north-west angle of the main enclosure, and flanking it on the north and west sides. This tower will contain barrack accommodation for about 50 artillerymen, will mount two light guns on its roof, and will generally act as a keep to the whole position.

As regards the works for the defence of the passage through the shoals, I propose that each should be constructed for five powerful muzzle-loading rifled guns to seaward, and three 80-prs., bearing on the shoal water in flank and rear. The borings already referred to indicate that, at the site between West Channel and Symonds' Channel, there is a depth of about 10 feet, and, at the site near No. 5 buoy, about 20 feet, of sand resting upon sandstone. In either case a good foundation may be formed by enclosing the requisite space by piling of practically imperishable material, shod with iron, and placing a thick layer of concrete, up to a level of about 18 inches above low water on the space thus enclosed. A ring of rubble stone should be thrown in round the foundation, to protect it against injury that might otherwise occur from the action of the sea at the level where the piling enters the sand. On the foundation thus formed, a basement of masonry and concrete may be built, which will contain the requisite torpedo and store rooms, the tanks and magazines for the work, and upon this basement will be placed the battery and the accommodation for the artillerymen to man the guns. The five seaward guns will be in casemates, protected by an iron front, and the three other pieces will be in open battery, each gun having a wide sweep.

Considering the length of the ranges, both at the entrance and upon the anchorage, I propose that the heavy M.L.R. pieces at the two forts on the shoals, as well as at Point Nepean, shall be 11-inch 25-ton guns. It would also have been desirable to have had similar pieces at Queenscliff, but as there are already in the colony six 9-inch 12-ton guns, I would propose to utilize them by mounting them in this last-named position.

Wires should be laid placing the forts on the shoals as well as those at Point Nepean and Queenscliff in telegraphic communication with each other; and, in order to afford more rapid communication by land between the capital and the defences, it would be desirable that the railway from Melbourne to Geelong should be continued to Queenscliff whenever an appropriation can be made for this object.

Telegraphic communication between forts, and railway to Queenscliff.

I should mention that I have fully considered whether, instead of defending Port Phillip by forts and torpedoes in conjunction with the *Cerberus*, it would be better, as has been proposed on a previous occasion, to provide an ironclad vessel, in addition to the *Cerberus*, in lieu of the forts. I am decidedly of opinion that it would not be desirable to adopt this course. I have long been aware of the advantages of floating defences, and for upwards of twenty years I have been a strong advocate for their employment; but I think that the case under consideration is not one in which the floating should be substituted for the fixed element of defence. Indeed, in the proposal to which I refer, it is conceded that if it were adopted it would still be necessary to have land batteries for the defence of Hobson's Bay and Melbourne, and it is thereby admitted that the floating defences might not succeed in preventing an enemy obtaining access to the inner waters of Port Phillip. In considering whether it is desirable to employ floating batteries in lieu of forts it must be borne in mind that the vessel is liable to be sunk, not only by artillery fire, but by the action of offensive torpedoes, or by ramming; she may be disabled by damage to her machinery, her screw, or her steering apparatus; she affords an unsteady gun-carriage, and consequently the fire of her guns must, comparatively speaking, be more or less inaccurate. It may be added, as regards vessels of the monitor class, that in anything like rough weather they may be unable to fight their guns; again, the very advantage claimed for the vessel of being available for general service renders her liable to be absent when required at the particular spot where local defence is essential. As regards the relative expense of forts and ironclad ships, it must be observed that whilst the expense of the maintenance of fixed defences is insignificant, and the work once constructed is permanent, the cost of maintaining the vessel is considerable and it is necessary to provide for her periodical renewal.

Considerations relating to employment of floating defence in lieu of forts

The question under consideration is the defence of Port Phillip and Melbourne, and if the artillery requisite for that defence can be mounted on fixed platforms, whence an effective fire can be brought to bear on the channels of approach, no object is gained by placing that artillery in a vessel afloat. There can be no object in substituting an unsteady platform, on which the amount of protection that can be afforded is limited by considerations inherent to floating structures, and which is liable to be taken away or to be sunk, for a fixed and perfectly steady platform, which can be fully protected either against its fire being silenced or from capture by an enemy. Further, if floating defences were substituted for forts, it would still be necessary to erect stations from whence the torpedoes could be worked, whereas the fort at once not only provides such stations, but perfectly fulfils the conditions required for the artillery defence.

For the protection of an important city like Melbourne the defences should always be surely present; they should be capable of affording perfect accuracy of fire; they should be unsinkable, and practically indestructible and impregnable. Whilst these conditions would not be

answered by an additional ironclad vessel, they would all be obtained by the construction of the works which I have proposed.

The *Cerberus* not being a sea-going vessel, an additional ironclad would no doubt be valuable for the protection of commerce at sea; but the provision of such a ship is a question that rests upon a different basis to that of the purely local defence of Port Phillip and the wealthy places upon its shores. I have already recommended that an ironclad should be provided by New South Wales, for the protection of the commerce of that colony, and of certain harbors on its seaboard; and it would be desirable that this principle of defence should be adopted for the defence of Australian commerce generally, and for the general protection of harbors on the Australian coast for which local defences cannot be provided. This question, however, may probably be better dealt with by arrangement with the Imperial Government, the colonies undertaking to share the extra expense in proportion to their respective populations.

Considerations relating to an attack from Western Port.

If Port Phillip be rendered secure against naval attack in the manner which I have proposed, it becomes unnecessary to provide against the landing of a hostile force upon the shores of the estuary. An enemy finding, however, that access to Port Phillip had been barred to him, might turn his attention to the possibility of landing a force at Western Port, and thence marching upon Melbourne. No doubt there is very good anchorage for ships of any size in Western Port, and there are certain points on its shore at which an enemy might land. One of these is at Flinders, in a bay just within the West Head; another is at Sandy Point, and there is a third at the township of Hastings. At all these points there are wooden piers. Between Flinders and Sandy Point and between the latter point and Hastings, as also to the northward and eastward of Hastings, the main shore of Western Port is, either from the existence of long mud flats, or from other causes, not available for the landing of an attacking force. The distance to Melbourne from Flinders is about 61 miles, from Sandy Point about 50 miles, and from Hastings about 42 miles. For about the first 15 miles the route from Flinders runs across the peninsula which divides Western Port from Port Phillip to Dromana, and thence passes through Frankston and Mordialloc, skirting the eastern shore of Port Phillip between those two places, for a distance of 10 miles. The routes from Sandy Point and Hastings to Melbourne unite with that from Flinders at Frankston. For a considerable distance these roads are only bush tracks, and at many points there are favorable positions at which a field force could oppose the advance of an attacking body with every prospect of success. Moreover, throughout a considerable part of the route along the shore an enemy may be subjected during his progress to the fire of the *Cerberus*, or of any other vessels on which guns may be mounted. If in order to avoid the fire from seaward on his left flank the enemy, on arriving at Frankston, turned off to his right, with a view of marching upon Melbourne through Dandenong, he might be met by a field force at that place, where there is a good fighting position. But the best plan would be to throw up entrenchments at Mordialloc and Dandenong, and whilst holding those points by small bodies, send the main part of the field force by water to Frankston, land it there under cover of the guns of the *Cerberus*, attack the enemy in rear, cut off his communications, and leave his ships half denuded of their crews.

It will be observed that, by adopting the plan of preventing an enemy from entering Port Phillip, the power is afforded of acting upon his flank or rear in the event of his attempting an attack upon Melbourne from Western Port. Bearing this in mind, considering moreover the distance he would have to march, his want of transport (for of course all horses and other means of transport would be removed from the neighborhood directly an enemy appeared in Western Port)—in short, taking into account the whole conditions of the case, it does not appear at all likely that the operation would be attempted. If attempted, the amount of field force which the colony can command would be amply sufficient to deal with any number of men,—probably not more than 1,000 or 1,200,—at all likely to be available for landing from a hostile squadron. It will be desirable to have a torpedo vessel to disturb an enemy if anchored in Western Port ; and for this purpose an arrangement might be made by which the mail-boat that runs between Hastings and Cowes should be a specially swift vessel, adapted for this purpose. Beyond this, and the maintenance of a sufficient field force, I think it unnecessary to make any special provision to meet an attack from that quarter.

Considerations relating to a landing near Geelong.

It is sometimes stated that an enemy might land a force on the coast to southward of Geelong, and thence make a raid upon that place. It appears to me that it is very unlikely that he would throw a force on shore on an open beach, where, even if he succeeded in obtaining a footing, he must calculate on a change of wind or weather cutting him off from his boats. In any case, whatever probability there may be of such an operation being attempted, it may be easily disposed of by a portion of the field force being despatched from Melbourne by railway to Geelong.

Number and description of forces required.

I will now advert to the number and description of forces necessary in connection with the proposed system of defence. The naval and military forces at present at the command of the colony are as follows :—

—	Officers and Non-Commissioned Officers.	Men.	Total.
General Staff	35	...	35
Permanent Artillery	21	124	145
Volunteer Cavalry	56	179	235
„ Field Artillery ...	69	424	493
„ Garrison Artillery ...	142	697	839
„ Engineers	15	108	123
„ Infantry	209	1,375	1,584
Torpedo and Signalling Corps ...	6	20	26
Naval Reserve	26	200	226
Cerberus	12	98	110
Nelson...	1	9	10
Total	592	3,234	3,826

It is generally admitted that the regulations under which the Volunteer Force is governed are defective, and it appears to me that the force is more than sufficient in point of numbers.

Garrisons of forts.

As regards the manning of the forts, it should be observed that it is unnecessary to provide for working the whole of the guns in the batteries at one time. The full complement required for all the works will be about 400, and there should always be a sufficient number of trained artillerymen in each work to take charge of the guns and stores, and to be able to open fire in case of necessity. There is already in Victoria a very efficient regular force of Artillery, 150 strong ; and there is also a Naval Reserve of 218 men, who are under the Discipline Act, and are to some extent trained to the working of guns. In point of numbers, therefore, there is already a force which is nearly sufficient for the manning of the proposed defences.

To meet the requirements of the case, the force of regular Artillery should consist of two batteries, and be maintained at a total strength of 200 officers, non-commissioned officers, and men. The number of permanent paid officers should be increased to four, so as, in conjunction with the officers of the Naval Reserve, to provide two officers for each of the proposed works. The present arrangement, by which men who enlist in the Artillery obtain appointments in the Police and as warders of gaols, might probably be extended with advantage to such employments as porters on the Government railways, letter-carriers for the Post Office, and messengers for the public offices. By thus holding out inducements to well-conducted men in the Artillery, a superior class of recruits is obtained, and at a lower rate than would otherwise be possible. As the Naval Reserve will be employed in manning the guns in the works of defence, it should, in order to avoid division of authority, be placed under the direction of the Colonel-Commandant. This body, which is at present only drilled for a few hours in a month, should, as in England, have continuous drill for a certain period during the year ; and should be rendered thoroughly efficient in the working of heavy artillery. In obtaining fresh men for this body, it would appear desirable to recruit, as far as possible, from Queenscliff and the districts near the entrance to the Port.

It is to be observed that at Queenscliff there are about 50 Artillery Volunteers, who belong to different departments of the Government. There are also 50 Volunteer Artillery at Drysdale, about 13 miles from Queenscliff, and 100 at Geelong. I recommend that these 200 men should be retained as a reserve of Garrison Artillery for the defences.

It is commonly urged that, in addition to the garrisons of works for the defence of the port, it would be necessary to have a large infantry force to "support" the batteries. This representation is, however, founded on an erroneous conception of the case. On a field of battle, infantry are, no doubt, required for the support of artillery ; and, in cases where coast-batteries are open and accessible from the sea, "supports" of infantry may be necessary ; but the circumstances in the present instance are entirely different. Two of the forts will be in the sea, the other two will mutually support one another, and each will be self-defensible, and not liable to be taken by assault, provided it be sufficiently garrisoned. If support be required to the forts, it will be against a naval not against a land attack, and such support would be afforded by the *Cerberus* and not by bodies of infantry on shore.

Torpedo corps.

Besides the garrisons of the works, it is essential that there should be an efficient Torpedo Corps, consisting of about 100 officers and men. One-half of this body should consist of employés from the Telegraph

and other departments, and should be conversant with electrical and mechanical appliances ; the other half should be sea-faring men, and might form an addition to the Naval Reserve, but trained only to torpedo work. The whole of the arrangements connected with the torpedoes should be under the direction of one officer specially selected on account of his qualifications for the position, and an officer of his corps should be stationed at Queenscliff to look after these defences.

Field force

To oppose an enemy attempting an attack from Western Port, and for other contingencies, it will be desirable to maintain an efficient field force of two battalions of Infantry, two batteries of Field Artillery, and one company of Engineers, and a small body of Cavalry, the whole forming in time of war a body of about 2,000 men.

I fully recognize that the value of the Volunteer Forces to the colony is not solely to be measured by requirements to oppose foreign aggression, and that there are objects for which it may be desirable to maintain such forces, irrespective of the necessity for preparation to meet external attack. These considerations scarcely come under the head of the military necessities of the colony, and I do not, therefore, express an opinion upon them. It is, however, only just to recognize the devotion shown by the volunteers in applying their time, their energies, and in many cases their money, to the service of the State.

The following points should be borne in mind in the organization of a force required for purely military purposes. It is essential that powers should be obtained for retaining men for a fixed period of service,—for continuous training in daylight during a certain number of days in the year, besides a certain number of drills at detached periods,—for their permanent embodiment during war,—for the strict enforcement of discipline, and for the appointment of officers only after passing a proper examination.

The precise mode in which the local forces should be controlled by the Executive Government is rather a constitutional than a military question, and it is perhaps undesirable that I should offer an authoritative opinion upon it, beyond remarking that it is indispensable that all questions relating to the maintenance of military discipline should be kept entirely clear of party and political influence.

Naval defence.

As regards the *Cerberus*, that vessel has been inspected by Commodore Hoskins, R.N., by Captain Townsend, R.N., and by Lieutenant Dugdale, R.N., and the reports of those officers have already been presented to the Parliament of Victoria. It appears to me that their recommendations respecting the appointment of officers, the manning and other matters relating to this vessel, are well worthy of adoption ; and so long as there is no other means of defence for Port Phillip, I think that the ship should be kept fully officered and manned. When, however, the defences which I have proposed are constructed, and the torpedoes are supplied, it would be possible greatly to reduce the annual expense of maintaining this vessel, if, in peace time, the principle (Scheme B), proposed by Captain Panter in his report to the Defence Commission, dated 11th May 1875, were adopted. The cost of maintenance would thus be reduced to about £10,000 a year.

With regard to other vessels, I would recommend that one good, swift, unarmoured vessel should be obtained in lieu of the *Victoria*. Such a vessel armed amidship with the two 7-inch guns now on board the *Nelson*, and two lighter pieces, would go a great way to protect the commerce and seaboard of the colony against all but armoured

ships, and in peace time would perform the duties on which the *Victoria* is now employed. Part of the cost of the vessel which I recommend might be met by the sale of the engines of the *Nelson*, which ship is no longer required to go to sea, and is only of use as a training hulk.

Recapitulation.

To recapitulate : the following are the measures proposed, viz. :—

I. The passage of an enemy through the shoals near the entrance to Port Phillip to be prevented by two forts and by torpedoes.

II. The outer anchorage and the passage to it to be defended by two land batteries.

III. The *Cerberus* to act in conjunction with the forts and land batteries, both in the protection of the outer anchorage, and in the defence of the passages through the shoals.

IV. A possible attack from Western Port or from the westward of Port Phillip to be met by a field force.

V. The Naval and Military Forces to be maintained should be as follows :—

(*a.*) *For manning Batteries.*

Permanent Artillery ...	... 200	officers and men.
Naval Reserve	... 200	„
Volunteer Garrison Artillery	... 200	„

(*b.*) *For Torpedo Defences.*

Torpedo and Signalling Corps	... 100	„

(*c.*) *For Field Force.*

Infantry	2,000 officers and men.
Cavalry	
Field Artillery	
Engineers	

(*d.*) *For Naval Defences.*

The *Cerberus*	110 officers and men in time of war, with a reduced establishment in time of peace, when the system of defence is completed.
A swift gun vessel ...	To take the place of the *Victoria*, and to be employed on survey and other duties in time of peace.

The total land forces, therefore, to be maintained would amount to 2,700 officers and men, for which a staff of 35 officers and instructors should be provided.

Capital expenditure.

The capital cost for the scheme I recommend would be approximately as follows :—

Defence of passages through shoals—	
Forts and armaments	£225,000
Torpedo stores and equipment ...	50,000
Defence of entrance outer anchorage—	
Forts and armaments	75,000
Total	£350,000

The following is an estimate of the annual expenditure :— Annual expenditure.

Land Forces, including Naval Reserve and General Staff	£43,000
Cerberus on a reduced establishment ...	10,000
Annual supply of Ammunition and Torpedo Stores for practice	7,000
Camps of Instruction and Training generally...	2,500
Repairs to Military Works and Buildings ...	1,000
Ordnance Store Department	4,000
Contingencies as now provided annually ...	5,500
Total	£73,000

The present Naval and Military expenditure, as provided in the Estimates for 1877–8, amounts to £83,265 ; viz., £19,856 for the *Cerberus* and *Nelson,* and £63,409 for Military purposes, including Naval Reserve.

WM. F. DRUMMOND JERVOIS.

Melbourne, 20th July 1877.

Sir W. F. D. Jervois, R.E., K.C.M.G., C.B., to His Excellency the Governor of Victoria.

Government House, Adelaide, October 1877.

Sir,

In my letter to Your Excellency, dated 20th July last (covering my preliminary report of same date on the Defences of Victoria), I stated that I had not up to that time been able to visit the harbors of Warrnambool, Belfast, and Portland, but that I proposed to do so on a subsequent occasion. I now have the honor to inform you that, from the 25th to the 28th ultimo inclusive, whilst *en route* from Melbourne to Adelaide, I was engaged in inspecting those harbors and the country in their vicinity, and I herewith enclose a memorandum respecting their defence, for the information of Your Excellency and your Government.

I have included in the memorandum some remarks respecting the design and construction of the harbor at Warrnambool, as I was given to understand that Your Excellency's Government would be glad to receive an expression of opinion from me on the subject.

I have the honor to be, Sir,
Your obedient humble servant,

WM. F. DRUMMOND JERVOIS.

His Excellency Sir George F. Bowen, G.C.M.G.,
&c., &c., &c.

MEMORANDUM OF HIS EXCELLENCY SIR W. F. D. JERVOIS, R.E., K.C.M.G., C.B., ON DEFENCE OF THE HARBORS OF WARRNAMBOOL, BELFAST, AND PORTLAND.

These ports are the outlets by which produce from the neighboring districts finds its way to Melbourne, and, as is well known, the country about the two first-named places is exceedingly rich. Near Portland the country is not of so productive a character as it is about the other two places; on the other hand, a railway about 110 miles in length has recently been constructed between Portland and Ararat, and this, besides putting Portland in railway communication with Melbourne, *viâ* Ballarat and Geelong, will tend to augment the exports from Portland.

The value of imports and exports for the year 1876 was as follows:—

Warrnambool	...	...	...	£860,000
Belfast	...	...	...	£979,000
Portland	...	...	...	£405,222

The amount stated for Portland does not, however, include the value of imports coastwise, which I have been unable to obtain.*

At Warrnambool, harbor works have been projected, and have already, to some extent, been carried out. At Belfast, harbor works which have been in progress for some time are now nearly completed. At Portland, a project for extensive harbor works has been prepared, but as its cost would be far in excess of present local requirements, no steps have been taken for carrying it out.

Before proceeding to deal with the question of the defence of these three harbors, it will, I trust, not be considered out of place—indeed I have been given to understand that it will be deemed advantageous—if I state my opinion on the harbor works at Warrnambool, which as yet have only been carried out to a small extent. Those at Belfast having been practically completed, there appears to be no object in my entering into any detail respecting them, further than to say that it appears to me that the principle on which they have been constructed has been successful, and that by enabling vessels drawing eight feet of water to go up the River Moyne—on which the town is situated—and load and discharge at a wharf instead of in the Bay from lighters, a considerable advantage, and one that must lead to much economy, has been obtained.

The harbor works at Warrnambool have been designed to afford improved jetty accommodation, and for the protection of vessels from gales from the southward of east, and from between that and about S.S.E. The anchorage is already well covered by natural features from other quarters.

The breakwater has been designed to extend in a direction a little to the northward of east, from the eastern point of the "Breakwater Rock" to a distance ultimately of 600 yards. As yet, however, it has not been determined to carry out the work beyond a length of 200 yards; and a contract has been entered into to this extent. This shorter length will suffice to protect the new jetty and a small portion of the anchorage; and so an appreciable advantage will be derived

* *See* my report of July last respecting population, and distances from Melbourne, of the three places. —(Page 144 *ante*.)

from the extent of breakwater already determined upon. A considerable extension of the breakwater beyond the 200 yards will, however, be necessary, in order sufficiently to shelter the harbor. The degree in which the work shall be extended must depend of course on the area which it is desired to protect; but if the work be carried out to the extent of 600 yards, as originally designed, there can be no doubt of its affording full protection to the whole of the anchorage required to be occupied by shipping frequenting the port.

It is to be observed, with regard to the direction in which the breakwater shall be formed, that, in determining this point, it is of importance that there should be no interruption to the scouring of the harbor by the currents that set in from the westward between the adjacent islands and Point Pickering. Taking this point into consideration, in conjunction with the main object of affording protection to the anchorage, it appears to me that (although it may be a debatable point whether the outer 300 yards should not be laid in a more northerly direction, say about N.E.) that the line taken up will fulfil all required conditions, and is on the whole the best that can be adopted.

With respect to the mode of forming the breakwater, I am of opinion that the principle which has been adopted of constructing it in *pierres perdues* is that which is best adapted to the conditions of the case. This principle has been adopted in the breakwaters at Holyhead, Kingstown, Portland (England), Alderney, Alexandria, Port Said, Table Bay, and Colombo. Other places might no doubt be named. In most of the cases referred to, stone has been readily available, and consequently the works have been constructed of large blocks of stone, sent by rail, or by rail and barge, from the quarry to the place of deposit in the sea. At Alexandria and Port Said, however, where stone is not procurable, except at greatly increased cost, the breakwaters are constructed of concrete blocks, formed of small pieces of stone and cement, in the same manner as at Warrnambool. Large blocks of stone might probably be obtained at some distance from the port, but the cost of quarrying and transporting them would cause so large an increase of expense as to render it out of the question to employ them. The concrete blocks used in the Warrnambool works are of ten and twenty tons weight respectively. They are made of sandstone rubble, obtained from the adjacent rocks, built up with Portland cement mortar, and the blocks, after being built, are allowed to remain fer eight or ten weeks, to set, before being deposited in the sea. Bluestone, which is of course harder than sandstone, might no doubt be obtained, and rubble of this material substituted for sandstone in building up the blocks. The schedule price of bluestone is, however, 7s. per cubic yard, whilst that for sandstone is only 4s. per cubic yard; so that the cost of the whole work, which, if constructed of concrete blocks formed of sandstone, will be about £110,000, would, if the blocks were built of bluestone, be about £190,000.

I see no reason for incurring the larger expenditure. Concrete blocks formed of sandstone with Portland cement mortar are thoroughly hard and durable; and I consider that those which are now being used in the works at Warrnambool will form a very efficient breakwater. A small annual expense will of course be necessary for maintenance after the work is completed.

I will now proceed to consider the question of the defence of the three harbors referred to in this memorandum.

It is not at all likely that either of these ports would be attacked by such a squadron as might be brought to bear against Port Phillip or Port Jackson; and it should be observed, that the armed vessel which —at page 18 of my report of 20th July last—I recommended should be obtained by the Government of Victoria would afford them a general protection. It would nevertheless be prudent to supply them with local means of defence against a hostile man-of-war, cruiser, or privateer, which might otherwise, in the absence of naval defence, make a raid upon them for the purpose of capturing vessels at anchor, or of levying a contribution.

In considering the means of defence which should be adopted, it should be remarked that, owing to the open character of the anchorages, and the absence of any defined channels of approach to them, stationary torpedoes could not be advantageously applied. The number of mines that would be required, and the great expense involved in carrying out any system of torpedo defence that would be effective, preclude the adoption of this mode of defence. Any vessels at the ports which are employed for ordinary harbor purposes might, however, be utilized for defence in war time, by fitting them with spar torpedoes, and directing them against an enemy's ships.

The best means of local defence will be to establish at each place an efficient battery of rifled guns, bearing on the anchorage, and on the approach thereto.

It is to be observed that there are already two pieces of ordnance—one a rifled, the other a smooth-bore gun—mounted at each of the three ports; but these being unprovided with requirements, either for the service of the guns or for their protection—not to mention other considerations—would be of little if any use if an attack took place. The gunners would be unable to work pieces so entirely unprotected, and the guns would be silenced directly a fire was opened upon them.

Each of the new batteries should be armed with four or five 80-pounder* M. L. R. guns, be provided with the necessary accessories of cover for men, ammunition, and stores, and rendered secure against assault. It should be arranged so as to afford a lateral range of about 120° for each gun, and so that, whilst the approach to the harbor and any space within effective range to seaward whence an enemy's fire might be directed against the battery will be commanded, two or three guns will bear upon the anchorage.

Thus the use of the anchorage will be secured to friendly and denied to hostile vessels, and any part of the beach within range of the guns upon which a small attacking party might attempt to land would be commanded.

At Warrnambool, the best site for the proposed battery would be on the Breakwater Rock; at Belfast, to the westward of the lighthouse in the vicinity of the quarters of the lighthouse keeper; at Portland, on either side of the lighthouse on the Observatory Hill.

With respect to the manning of the works, there are already seventy-five artillery volunteers, including officers, at each of the places named; and these, if properly drilled and rendered efficient, as has been recommended in my report of July last as regards the military forces of

* I propose these pieces, as I understand there is a sufficient number of them, with the necessary ammunition, already in possession of the colony of Victoria. Should there not be enough 80-pounders, a portion of the armaments might be 64-pounders, of which I am informed there is a considerable number on hand at Melbourne.

Victoria generally, will suffice for the garrisons of the proposed batteries. It will, however, be necessary that some artillerymen should be always in charge of the works and armaments, and I would recommend that a small detachment of a non-commissioned officer and two or three men from the permanent artillery force of Victoria should be stationed at each place for this purpose.

The cost of the three batteries may be estimated approximately at £30,000.

The annual cost of the artillerymen at the three places, including officers, practice ammunition, and contingencies, would be about £2,400.

WM. F. DRUMMOND JERVOIS.

Adelaide, October 1877.



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SKETCH MAP

to accompany

PRELIMINARY REPORT

by

His Excellency Colonel Sir W. F. Drummond Jervois, R.E., C.B., K.C.M.G.

on

DEFENCES. VICTORIA

20TH JULY 1877.



SCALE OF YARDS

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MILES

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Lith^d at the Dep^t of Lands & Survey Melbourne by S. B. Bonney 20. 7. 77.

Compiled from a sketch by Staff Comm^dr Stanley R.N.

NOTE. Soundings in Fathoms.

Torpedoes shewn by a thick black line.

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PRÉCIS OF INFORMATION

CONCERNING THE

COLONY OF VICTORIA.

PREPARED UNDER THE DIRECTION OF THE VICTORIAN GOVERNMENT BY VARIOUS OFFICERS IN THE PUBLIC SERVICE OF THE COLONY,

FOR

THE INTELLIGENCE BRANCH OF THE QUARTERMASTER-GENERAL'S DEPARTMENT, WAR OFFICE, LONDON.

EDITED BY

THE GOVERNMENT STATIST OF VICTORIA.

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