THE DUNDAS GOLDFIELD.—This goldfield was examined by Mr. Woodward, who furnished the following report thereon:—

Although the area proclaimed as a goldfield is of considerable extent, the actual portion over which gold has been discovered is small, and seems to be confined to the Dundas Range and its Northern extension, or, in other words, the belt of land that lies between Lake Cowan and Lake Dundas.

Gold was first discovered in the year 1892, at the Southern end of the Dundas Range; but as the reefs did not prove to be very rich, little mining is being carried on at that locality at the present time. The gold produce of the district from its discovery until September of this year has been 173,799oz.

The rocks of the gold bearing belt are similar to those of the Coolgardie district, and, like that locality, the richest lodes are situated in the contact zone, upon the Eastern side of the granite. The belt is dislocated and considerably disturbed in places by the intrusion of large diorite dykes which rise as rough, reddish, black hills here and there, running in an almost East and West direction.

There are about three distinct main lines of auriferous lodes, most of which dip at an angle of about 45° and vary considerably in size and richness. A very considerable amount of development work has been done upon them, and it is difficult to understand why some of them, which are undoubtedly payable propositions, should have been abandoned, whilst in some instances it is strange to find that so much money should have been expended upon such valueless lodes.

There are several small scattered groups of mines to the North and East, but the main Northern group is called the Royal, after the Princess Royal mine, which is the principal one now at work upon the field.

The lode worked in this mine has an Easterly dip, an 80 feet vertical, giving 100 feet of backs. In the upper levels the lode is not continuous between the two underlay shafts, a cross dislocation having apparently taken place, which has also slightly altered the course of the lode. In this upper portion it is very often accompanied by that, and termed "Consort" lodes, *i.e.*, lodes which follow it lying parallel in either foot or hanging wall; these sometimes are of greater size and richness than the main lode, and are thereupon worked in conjunction with it. In this mine water was struck at 60 feet from the surface; it is very salt and in considerable volume. The lode varies in width from a few inches to 10 feet, the stone being oxidised down to the 260 feet level where pyrites makes its appearance. The main vertical shaft has been sunk to a total depth of 367 feet, passing through the reef at a point where it was very small, and consisted of only one ore channel. This will lead one to the belief that as depth is attained all the consort reefs and leaders will probably make into one body.

The two adjoining properties—the Princess Royal North and the Princess Royal South—have not yet cut the lode, but it is expected that it will be shortly. The "Desirable" is about one mile West of "Princess Royal," the lode being very similar, *i.e.* broken in the middle. The dip is, however, not so steep, in fact it sometimes lies horizontally, and varies from a few inches to four feet in width. It has been opened by two underlay shafts to a depth of 160 feet, or 80 feet vertical, which is the water level. A considerable amount of work has been done upon this mine, which, at one time, had 20-head of stampers that crushed 4,605 tons of stone for 3,925ozs. of gold, or nearly one ounce to the ton, without cyaniding the tailings. It is generally stated that the battery was a very bad gold saver, and that the stone crushed assayed about two ounces. It is difficult to understand why this property should have been abandoned, since even the results obtained should be payable.

The "Three Colonies" lies upon the edge of the lake to the West of the last mentioned, and was one of the sensational proprieties in its prospecting stage. The lode is an irregular cross-country reef, from which about 350 tons of stone have been crushed for a little over half an ounce. Water is a serious matter here as it is struck quite close to the surface, and it is in such large quantities that a tank has to be kept going to keep it down at all. A shaft is now being sunk further up the hill to open a formation that was cut in a bore, which is probably the Eastern continuation of the lode in the main workings.

Between the "Princess Royal" and the "Desirable," a deep lead has been discovered flowing in a Northerly direction, and has been opened up for a distance of about half a mile, but as the lower portion of the lead contains a great deal of water, it has only been worked in the upper.

In the prospector's claim the gutter is 102 feet from the surface, the wash being from two to three feet in thickness, but only the bottom six inches is found to be worth raising. This wash is a mottled clay with ironstone nodules and rounded quartz pebbles, whilst the gold is often found in considerable sized pieces. The gutter is 90 feet in width, resting upon a decomposed schistose bottom, the Eastern bank of which rises abruptly and the Western gradually. This lead must be of considerable antiquity as the slides that have taken place in the bed rock are often continued through the wash itself.

At Norseman itself, things are at present very quiet owing to the cessation of work at the Norseman Gold Mines, Limited, which Company owned a very large property and employed a large number of men. This Company has a subsidy from the Government to sink to a depth of 700 feet, but at present this work has been discontinued, and the lower workings are full of water, whilst the upper are let to a party of tributers.

The No. 1 North Norseman is one of the mines upon which a considerable amount of money was spent and then abandoned. The reef, which varies from a few inches to four feet in width, dips at an angle of about 40 degrees, and opened to a depth of 300 feet by a large inclined shaft, and levels at the 100, 200 and 300 feet, having a total length of about 2,000 feet. The shaft and levels are well timbered, and tram line laid throughout, but the battery and winding engine have been removed. It is now being

worked by a party of three, who raise the stone, and have it treated at the Government battery, where it generally yields two ounces to the ton. The "North Star" is a very similar class of reef to the No. 1, but the stone is not so rich nor the workings so extensive, the main shaft being 200 feet in depth with a level North and South at 160 feet. The reef varies from two feet to four feet in width.

The "Lady Jean" is situated upon a line upon the Eastern side of the hills, and has been opened up by an underlay shaft to a depth of 85 feet, with a level at the bottom, and at the 45 feet. The auriferous chutes are short, and the reef itself varies from a few inches to 3 feet, but it is lost entirely at the Northern end of the workings.

The "Mararoa" is a large quartz body upon which a considerable quantity of work has been done. Two shafts have been sunk about 5 chains apart upon the lode, which dips at an angle of 45° to a depth of 120 feet; these are now being connected by a level, which is nearly through. In the South shaft the quartz reef is of great size, sometimes being as much as 20 feet in width; this is not very rich, but at the Northern shaft a very rich chute was worked quite up to the surface.

To the Southward of the Norseman group, upon some rough hills which break the North and South gold belt, are a group of mines in which the lodes are entirely different in character, strike, and dip. The first of these is the Mt. Benson, from which a considerable quantity of stone has been crushed, yielding nearly 1oz. This stone came mostly from an adit level, but now that this has been worked out, shafts are being sunk to test a series of cross and irregular reefs at a depth, but as yet sufficient progress has not been made to determine their courses.

The "Cumberland," another of this group, has been opened up to a vertical depth of 227 feet, and four levels totalling more than 1,000 feet in length. The reef is, as a rule, small, varying from a few inches to 2 feet in width, whilst only a limited quantity was worth stoping. At the 143 feet level a new development took place in the form of a series of cross reefs, of which there are five, all of which contain stone that crushes about 1oz. These cross reefs are 3 to 4 feet in width and short in length, but will probably increase in length with depth. At the 227 feet level, seven of these cross reefs were cut, thus proving that two more have made their appearance between the two levels.

A few miles South of this group is the "Lady Mary," upon which a considerable quantity of work has been done, and a fine plant erected. The reef now being worked is of the Norseman type in the upper portion, where it dips at an angle of 45°, but lower down it pitches away at an angle of 70°.

The underlay shaft is 360 feet in depth, with a level at the bottom 170 feet in length, in which there is a fine body of lode matter, the chute being 120 feet long. The stone at this level is mineralised, but also shows gold freely in places.

The "Alikazander," although close to the "Mary," is entirely different from anything else upon this field, it being a large ferruginous formation of low grade. A shaft has been sunk to a depth of 120 feet upon it, and at the bottom there is a level and crosscut, which latter proves the lode to be 30 feet in width. By battery treatment this stone yields from 12 to 15 dwts., but the sands and slimes contain a quantity of fine gold. A great deal of work has been done on this property in the way of tunnels, of which there are about three, each being of considerable length, and in which the large lode was crosscut.

It is rather distressing to see so many apparently payable properties upon which so much money has been expended, either abandoned or being worked by one or two working miners. However, when the railway system connects with Norseman, this field is bound to have a revival.

The Phillips River Goldfield.—In the year 1900, Mr. Blatchford, the then Assistant Geologist, reported upon this field in its earlier stages, and the following Report by Mr. H. P. Woodward, furnished during the year, serves to supplement the information already obtained:—

This, the most recently discovered goldfield in the State of Western Australia, is situated upon the Southern coast, about 150 miles to the Eastward of Albany, and immediately adjoins the Dundas Goldfield upon the West.

Its port is Mary Ann Harbour (the township being called Hopetoun) which is served by a weekly steamship service from Albany, whilst there is a telegraph station both here and at Ravensthorpe, the official centre 30 miles to the Northward.

The coast line in the vicinity of Hopetoun is low and sandy, along which numerous granite reefs are encountered even for a considerable distance out to sea.

Behind the town a semicircular sandy plain extends, measuring about 20 miles East and West, and 10 North, behind which the country gradually rises towards a low range which runs in a crescent shape from East Mt. Barren upon the West in a North-East direction, then East and then South-East to the coast. The whole of this basin is drained by the Steere River, which discharges itself into Culham Inlet, near the base of East Mt. Barren; but since this river has not run for a considerable time, the pools are quite salt, and the Inlet (large lake behind the coastal sand hills) contains only a few inches of water.

After crossing this range, the country is hilly and broken to the foot of the Ravensthorpe Range, which is a fairly defined range of hills that run from North to East, and then turn South-East, attaining its greatest elevation at Mt. Desmond, which is situated to the South of the gap, at which point the range takes its Southward turn.

This basin, which lies between the first-mentioned low range and the Ravensthorpe, is drained by the Phillips River, which discharges itself into the sea to the Westward of East Mt. Barren.