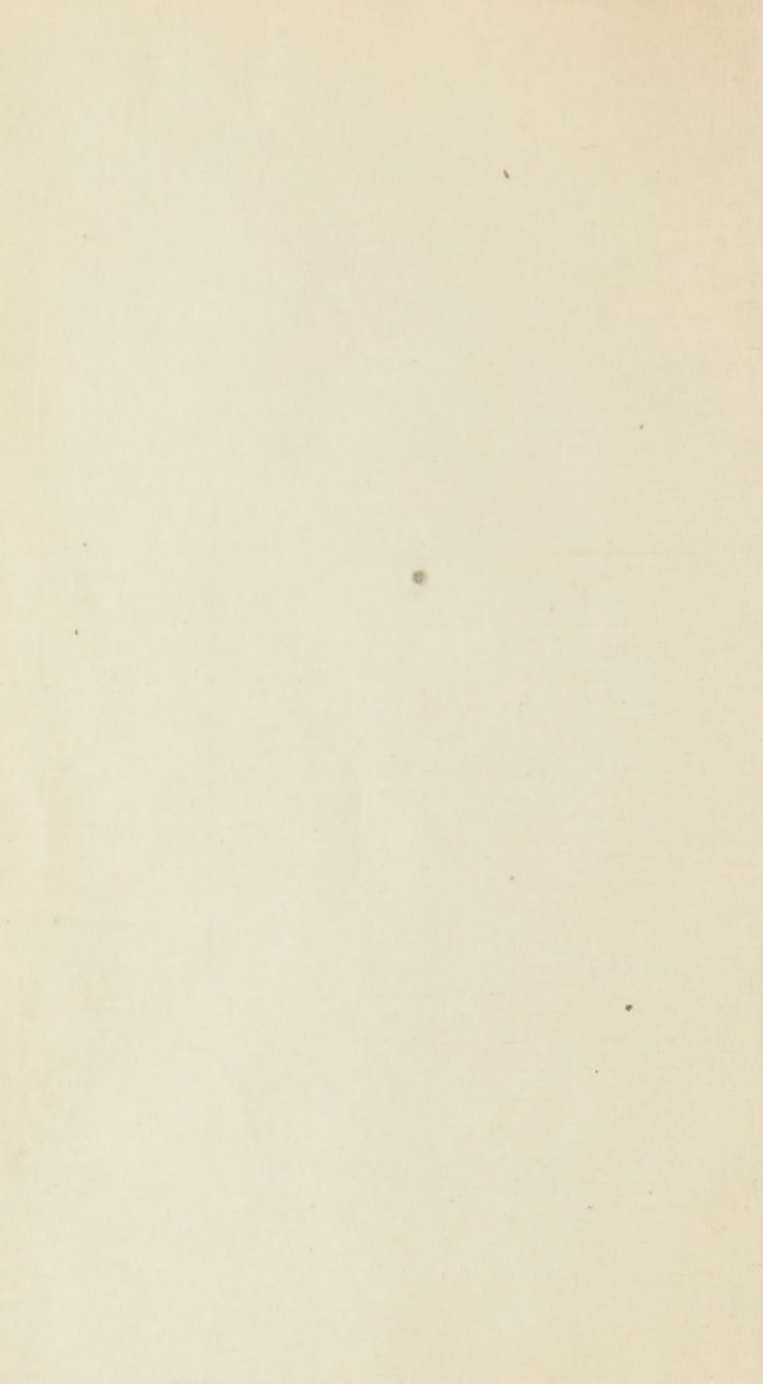


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David Scott Mitchell.



AUSTRALIA AND ITS GOLD REGIONS.



T will perhaps help us to form an idea of the climate and situation of Australia, if we imagine it brought up into our own part of the world, and twisted round, so that the parts nearest the equator in the southern hemisphere shall be those nearest it in the northern.* Let us imagine, then, the meridian of Greenwich to represent the 140th meridian of east longitude, and let us proceed to arrange Australia in the northern hemisphere with reference to that meridian, putting each place in its corresponding latitude. In this case, Melbourne would be near Gibraltar; Sydney and Moreton Bay would be places on the coast of Morocco; and Cape York would be in the interior of Africa, about the latitude of Sierra Leone; Port Essington would be situated between the Niger and Lake Tchad, the coast-line running thence through the heart of Africa to the borders of Nubia; Swan River would be on the Mediterranean coast of Egypt; King George's Sound about Candia; and the Great Australian Bight would correspond with the shore of Africa stretching from the Levant to Algeria, Adelaide lying in the country between Algiers and Mount Atlas. If, indeed, the great Desert of Sahara, with all the neighbouring parts of Africa and a portion of Spain, were to remain above water, while all Europe and the greater part of the rest of Africa were sunk beneath the sea, we should have, in the great island thus formed, a tolerable representation of Australia, so far as climate at least is concerned, if not perhaps in some other respects.

Our object in introducing this bit of hypothetical geography, is to impress on the reader's mind the necessity of dismissing from his imagination all comparisons between *Europe* and Australia, and especially all preconceptions derived from our own green islands here at home. Let him rather call up to his memory, and furnish his imagination with ideas derived from the burning suns and the glowing air of Africa; let him think of the parched sands of the desert, the arid rocks, the boundless plains, the almost inaccessible mountain-ranges, that we read of as existing in many parts of that country. Nor let him altogether dismiss from his recollection, that under the Roman Empire the northern shores of

* The reader is here presented with a paper which we are not disposed to see ranked below any work on the same subject, of whatever external pretensions, as it is the composition of a gentleman of distinguished scientific attainments, who writes from intimate personal knowledge of Australia.—Ed.

Africa were the granary of the world; though it would be well if he prepared himself not to hear of any majestic rivers like the Niger and the Nile rolling with unabated flow from the distant mountains to the sea.

Having offered this correction of local prejudices and associations, let us now proceed to Australia, not where it might have been, but where it is, and endeavour to give to the reader some idea of its physical structure and characteristics.

Every one knows that Australia is a great squarish-shaped continental island, about 2000 miles across from north to south, and 2500 from east to west, with the tropic of Capricorn running through the middle of it, so that its northern coasts reach within 11 degrees of the equator.

Along its eastern side there runs a band of mountainous country, from Cape York on the north, to Wilson's Promontory on the south. This mountainous tract stretches even across Torres Strait, in the shape of a line of rocky steep islets, up to the shores of New Guinea, and across Bass's Strait, by a similar chain of islands, into Van Diemen's Land. Van Diemen's Land itself is entirely composed of lofty and broken mountains, with their accompanying valleys and hollows, having several points 5000 feet above the sea, and many mountainous masses 3000 or 4000 feet high.

In Australia, the mountains of the eastern chain rise 6500 feet in a part called the Australian Alps, or Snowy Mountains, in about south latitude 36° , and this is the loftiest point at present known in the country. There are numerous mountains rising 4000 feet all along its course, as far north as Cape Melville, near south latitude 14° , beyond which the chain gradually declines in height and importance. This great eastern chain must not be looked on as a single range of mountains, but as it is here described, a band of mountainous country, 50 or 100 miles in width, and altogether about 2500 miles long.

In the Port Phillip District, or the province of Victoria, as it is now called, are several short ranges of mountains, fifty miles long or so, running north and south, and rising 3000 or 4000 feet above the sea. In South Australia, also, is a north and south mountain-chain running from Cape Jervis, about 400 miles long, the peaks of which rise sometimes between 2000 and 3000 feet high. This chain terminates on the north in a very curious horseshoe-shaped depression, about thirty miles in width, and scarcely above the level of the sea, called Lake Torrens.

Between the high lands of the eastern chain and those of Victoria and South Australia, lies the basin of the Darling and the Murray, the two principal rivers of south-eastern Australia, which empty their united waters into the shallow Lake Alexandrina, whence they ooze rather than flow into the sea.

All the interior of the country, from the Darling and Lake Torrens to the Gulf of Carpentaria, and thence to the borders of Western Australia and the north-west coast, is probably for the

most part one vast plain, unbroken by any important range of mountains. The rivers that flow into the interior from the flank of the eastern chain are gradually absorbed by the sands of this plain, and no large rivers come out anywhere on the coast, either of the great Australian Bight, along the north-west coast from Sharks Bay to the Buccaneer Archipelago, or round the Gulf of Carpentaria.

We now must say a word or two on the geological structure of these mountains and plains. The great eastern chain is very largely composed of granite, which forms some of its most lofty and massive mountain groups, and often appears in the beds of its ravines beneath the other rocks. On the granite rest great but irregular masses of gneiss, mica-slate, chlorite-slate, clay-slate, and other metamorphic rocks. These are frequently traversed by granitic dikes and veins, as also by large intrusive masses of granite, syenite, porphyry, greenstone, and other similar igneous rocks. Upon this metamorphic set of rocks rest here and there large and regularly stratified sheets of unaltered rocks, principally sandstone, with interstratified beds of shale, and some beds of limestone. These rocks are full of fossils, resembling those found in the Devonian and Silurian rocks of Western Europe. Beds of coal of wide extent, but of no great aggregate thickness, are associated with these rocks. The total thickness of these palæozoic rocks, as they are called, probably does not exceed 3000 or 4000 feet—the coal-beds being probably confined to about 400 feet of them. The palæozoic rocks are found principally on the flanks of the chain, stretching in basin-shaped expansions between its lateral spurs. The country around Sydney is one of these slightly basin-shaped districts. Igneous rocks of several kinds traverse these palæozoic rocks likewise, but never, so far as is known, in sufficient quantity to produce any great alteration in them; neither are any of the fossiliferous rocks at present known to be affected by slaty cleavage.

From the Glenelg River to the mountain-range of South Australia stretch great tertiary plains, traversed by the lower part of the Murray River. It is probable that these tertiary rocks spread into the great desert plains of the interior. The mountain-chain of South Australia contains no granite; it is composed partly of clay-slate, traversed by great quartz veins, partly of mica-slate, gneiss, and other similar rocks.

Having thus briefly described the skeleton of the country, let us endeavour to give the reader an idea of its general aspect, the character of its vegetation, and its climate.

If we sailed across Bass's Strait to Port Phillip, after passing the bare granitic ridge of Wilson's Promontory, we should see before us a shallow bay. Entering this, and passing through a narrow opening in a low woody shore, we should find ourselves in an inland sea, about thirty miles in width; on reaching the centre of which, we should just perceive the tops of the trees on the horizon all around us. On the right, we might discern in the

distance the high land forming the mountains of the eastern chain; while before us, and on our left, we should see single groups of hills rising at intervals, with a graceful sweep from the low land around them. On our right, a few miles up the creek of the Yarra-Yarra, is the straggling, half-finished town of Melbourne; on our left, the smaller, but snugger and pleasanter, town of Geelong. Both stand on gently undulating ground, but little raised above the sea, a plain stretching from one to the other, and thence far into the interior to the north and west. Excellent wheat-land abounds here, and the country has a pleasanter and more cheerful aspect than many other portions of Australia. Still, the monotonous gum-tree forest spreads its unfailling wilderness of trees far and wide over the land, broken here and there perhaps by groves of banksia (called the honey-suckle), or of casuarina (called the she-oak), the mimosa (or tea-tree), and other spiny, thorny, or bristly-looking denizens of the Australian 'bush.'

Over the undulating plains, whether covered by forest or not, we could gallop our horses, without the least hinderance, in almost any direction; and if they were old bush-horses, they would take care to steer clear of all stumps and stakes, to leap the fallen logs at the right places, and to carry us safely and pleasantly through mile after mile of the bush without much trouble on our part. Nor would there be likely to be anything of interest to detain us on the way. The greenness and freshness of forests in other parts of the world, the luxuriant underwood, the dark shady recesses, and cool grassy glades associated in our minds with the word forest, have but little counterpart in the Australian bush. Imagine an illimitable expanse of untidily-kept gravel-walk, bare, dry, and dusty, with a few long, straggling blades of living hay, not grass, occurring at intervals, and the leafless stems of ragged-looking trees rising in regular open order all around you, and you have a picture of the ordinary bush of Australia. The multitude of trees is sufficient to check all ordinary currents of wind, and produce a lifeless stillness in the air, which the aromatic smell of the gum-trees renders heavy and oppressive; meanwhile, the leaves and branches overhead are too few and far between to intercept all the rays of the sun, which still fall hot upon your head, so that the heat of the bush is often more overpowering than that of the most open and shelterless country. Still, we may canter on and up the swelling sides of Station Peak, Mount Macedon, or Mount Alexander itself, without meeting any serious impediment. If, however, we were to attempt to penetrate the recesses of the eastern chain, we should probably be soon stopped by deep, inaccessible gullies, and impenetrable masses of 'scrub.'

If, now, we transfer ourselves to the neighbourhood of Sydney, and prepare to penetrate into the interior, we should see before us a portion of this eastern chain, usually called the Blue Mountains, composed of a low, very gently sloping bank, of a level and uniform height at top, about 2800 feet above the sea. A peak

here and there rises to 3300 or 3400; but to look at the hills from a distance, no one would anticipate any difficulty in driving a herd of cattle or a flock of sheep across the range. When they come to be traversed, however, the uniform gentle slope, which they appear to have towards the low land between them and the sea, is found to be worn and worm-eaten, as it were, by a thousand winding and branching glens and gullies, so that the surface is completely cut up in every direction into a mazy net-work of ravines and separating walls of rock. Each of these glens has precipitous, sometimes overhanging sides, made of thick-bedded sandstone, nearly horizontal, or inclining only with the general inclination of the ground—the glen being only just wide enough to admit of a rocky and broken water-course at its bottom. The further we go up the sides of the range, the deeper and wider do these glens become, until, as is the case with the grand valley near the Weather-boarded Hut, the cliffs are 1500 feet high, and five miles apart, winding in headland after headland like the shore of some great sea-coast; and so unbroken and perpendicular, that if you drop a stone, you can see it strike the trees below; while to pick it up again, you would have to make a circuit of fifteen or twenty miles. Sir T. Mitchell says, that some of the surveyors, when tracing part of this system of glens in which the Cox River rises, emphatically ‘thanked God when they found their way out of them.’

All this broken country, rocky and bare as it may be, with scarcely a foot on its higher part of anything but hard brown sandstone to be seen, is yet covered by the everlasting gum-tree bush; not mere scrub, but lofty, well-grown trees, that contrive somehow to send down their roots between the crevices of the rocks, and for the rest, live upon air.

The reader of Australian travels frequently finds mention made of ‘plains’—Bathurst, Liverpool, Goulburn Plains, &c. He must not, however, imagine a great flat country stretching to the horizon all round him. The Australian ‘plains’ are very often rolling, undulating country, surrounded by hills, or even mountains. Their characteristic is to have few trees, and those scattered in park-like clumps, and an open grassy country. The grass of Australia never forms turf; the blades are few and scattered, or grow in tufts like Italian rye-grass, so that, however green a country looks at a distance, you can usually, in riding over it, look down through the blades of grass on the brown ground below. It takes from three to five acres to feed one sheep. The herbage, however, is sweet and wholesome. After rain, it of course looks green and luxuriant; but during the dry season, as might be imagined, it looks more like hay than grass, and a lighted match falling in it would instantly set it in a blaze. In some of the three-year droughts with which the country has ere now been afflicted, every blade of grass withered away and disappeared, and the plains then became a mere expanse of dust and sand.

When high land strikes out upon the coast, so that the lower slopes of its cliffs and the hollows of its ravines are kept frequently damp by the moisture of the sea-air, or the springs that trickle from the rocks, we find a totally different vegetation from that composing the bush, or that found upon the plains and downs. Instead of the dry, shadeless gum-trees, we get lofty spreading trees, with thick umbrageous foliage, and a dense growth of underwood, from which rise slender and elegant palm-trees, leafy fern-trees, and other beautiful trees and plants. These thick jungly spots are known as 'brushes.' They increase in number and richness towards the north, and on the north-east coast the trees are tangled and matted together by huge creepers and climbers—great lianas, that stretch their cable-like stems from tree to tree, and from bough to bough, hanging in graceful festoons between them, and giving to the dark glades of the forest the appearance of decorated halls.

Although the brushes or jungles increase in richness and beauty towards the north, or as we approach the equator, this is by no means the case with the gum-tree forest or bush. The largest and finest gum-trees and most beautiful bush are those of Van Diemen's Land. The most meagre, stunted, monotonous, and dreary bush is that of the north-east coast between Cape Melville and Cape York, and that on the low shores of Port Essington. Except this gradual deterioration, there is but little change in the general aspect of the vegetation over the whole of Australia. The bush around Sydney and that of Swan River has the same general aspect, as well as that of Melbourne and Adelaide, although the species of gum-tree differ more or less in each locality. Other small and local exceptions are to be made also for the country around Moreton Bay, and some other spots on the north-east coast, as about Whitsunday Passage. Forests of araucarian pines here give a totally different character, and a much richer and more beautiful aspect to the country, though it is perhaps almost equally sombre and monotonous.

If we were to penetrate, with Captain Sturt, into the heart of this great country, we should meet with scenery stranger and more repulsive than any we have yet attempted to describe, and should have the African illustration with which we commenced forcibly recalled to us. We should, in fact, penetrate into a great sandy and stony desert, second only in aridity and barrenness, and perhaps in extent, to the desert of Sahara. It is from this great central plain that the 'hot winds' blow, which are an occasional annoyance to an Australian summer. These are felt in all the colonies, in Sydney, and Victoria, and even in Van Diemen's Land; they are, however, worst in South Australia, where they have been known to last nine days, and where some of the houses have a double wall towards the north, to protect the inhabitants from the heat. A hot wind, or, as it is called in Swan River, a 'land wind,' always blows from the

interior. It is frequently a strong breeze, or even a gale, raising up clouds of dust, and drifting even small pebbles along. It is as hot and dry as the blast of a furnace, just like what may be felt by opening rapidly the door of a very hot oven, and holding the face to it. It licks the perspiration from the skin, and makes it feel hot, dry, and feverish; crackles the leaves of the trees; splits the shingles of the roof; makes the knob of the door-handle too hot to clasp comfortably; curls up the bindings of the books that may be lying on the table; and drives man and beast to lurk in the darkest and closest recesses they can find that are sheltered from its influence, and where yet some little stock of cool air may linger, untouched by its parching breath.

The climate of Australia is noted for its dryness; not but that a very large quantity of rain falls in the course of the year, but for the most part it falls all together, and runs rapidly off in floods, leaving the greater part of the year with scarcely a drop. In the southern or colonised part of Australia, rain usually falls in great quantity in their three winter months—June, July, and August. At Sydney, snow is unknown, a few hoar-frosts in the early morning being the only sign of what we should call winter. In the mountains, however, it occurs more and more plentifully, in proportion to the altitude, till in the Australian Alps, or Snowy Mountains, it reigns through the greater part of the year.

In consequence of this abundance of snow on this lofty group, perpetual streams of running water flow from its sides, running on the one side into the plain of Gipps' Land, and on the other forming the head-waters of the Murray. These are the only rivers in all Australia that have a constant stream of water. All other rivers and lakes are full only in wet seasons. For the greater part of the year, the lakes are mere swamps—sometimes not even that, but dry grassy flats. The rivers, in the same way, are for the most part a mere succession of pools, called 'water-holes.' This peculiar character is common to the smallest 'creeks' or brooks, and the largest and longest rivers of the country, except the Murray, and the rivers of the Moreton Bay District. There is the river-valley, and the river-bed or channel, often with steep cliffy banks, and all the apparatus for a deep river, *except the water*. The river-channel is often for miles as dry as a turnpike-road, covered with sand and gravel, lying here and there in heaps, and often full of young trees and clumps of grass. A stranger is apt to ride across a river without being aware of it. Perhaps by looking very attentively, a little slowly-trickling rill might be found, stealing somewhere among the stones, or oozing through the sand. Following such a river-channel upwards or downwards, perhaps for a few yards only, perhaps for many weary miles, the traveller suddenly comes on a water-hole, which may be a mere pond, a few yards across, but sometimes is a fine reach of water, a hundred yards, or even a mile or two in length. In the latter case, the river looks like a river

indeed, with wide-sweeping reaches of clear deep water; so that a stranger to the country could have no doubt that with a boat he could row down it to the sea. Yet it would end as suddenly as it began, and the channel beyond would be as dry again as ever. How these deep water-holes were formed, is a riddle that is not very easy of explanation. They are often excavated in hard rock, and have square perpendicular sides. It seems indeed as if a number of people, taking advantage of some extraordinary drought, having determined to deepen the river-bed, had commenced a number of excavations in different places, and had all left off suddenly, with their work unfinished, or only just begun. Some of these water-holes are saline or aluminous—in many districts all have a slight taste of that quality—but some are so impregnated as to be utterly undrinkable. Sometimes one hole as salt as a brine-spring may be found within a few yards of another perfectly fresh.

In endeavouring to describe the peculiarities of Australia, it happens that one naturally selects those most striking to a stranger, and those are not often the most agreeable ones. If the selection just placed before the reader should have the effect of giving him a disagreeable or repulsive idea of the country, let him be warned that such an idea needs correction. It is the feeling with which many, perhaps most persons, look upon the country on their first landing, and possibly for some time afterwards. When once, however, their association of ideas and local prejudices have received the necessary correction, they begin to perceive beauties springing up and pleasures arising where at first all appeared barren and distasteful. Beautiful or magnificent scenery abounds in most parts of Australia. If the land be, on the whole, barren rather than fertile, there is enough of it to make extent compensate for want of richness. If the dryness of the climate renders navigable rivers impossible, and flowing streams rare and uncertain, it is, on the whole, a heavenly climate to live in—wholesome and invigorating in spite of the heat, with one unclouded glorious day succeeding another in almost certain succession for eight or nine months out of the twelve. To the traveller, houses become luxuries rather than necessities. Any spot where he can find water enough for his horse, and to make his own pannikin of tea, is for the night his inn. Few things in nature are more fresh and inspiring than the Australian bush at early dawn, while the dew is yet upon the leaves; or a canter across some open, grassy plains, just sparkling in the rising sun, with their occasional clumps of trees casting long shadows on the ground; or little bosky dells marking the course of a river-channel, from which light wreaths of mist are beginning to rise. The Australian magpie, or 'break-o'-day bird,' is then in full voice, pouring forth one or two slightly hoarse, but rich, full notes; while many strangely twittering, queer-songed birds join in the chorus; and the laughing jackass (a kind of large kingfisher) breaks in with the grotesque and discordant braying cachinnation from which

he derives his name. There is an exulting sense of freedom and independence which at such times sends the blood bounding along the veins, derived partly from the pure air and perfect health of body one possesses; partly, perhaps, from the sense of the unbounded country around us, and our power of roaming over it in any direction or to any extent, according to the dictates of our own sweet will and inclination, which we denizens of an old, densely-peopled world, cramped and penned in by hedges and walls and fences, and condemned to travel along turnpike-roads, rarely if ever experience. Having now endeavoured to convey to the reader a sort of rough notion of the general aspect and characteristics of Australia, as depending on its geology, botany, and meteorology, we will proceed to give him the best account we can of its gold districts, of the circumstances under which the gold is found, the way of procuring it, and the manner of life of the gold-diggers.

In order to avoid interrupting our narration, however, with occasional explanations, we will first give a brief general sketch of the method of occurrence of gold generally at or near the surface of the globe. Gold occurs sparingly in many hard rocks, such as granite, gneiss, mica-slate, chlorite-slate, clay-slate, &c., and sometimes even in limestone and other such rocks. It occurs far more abundantly in quartz, not in quartz-rock, as is often said—because quartz-rock is nothing more than a sandstone indurated by heat—but in quartz, the pure unmixed flint or siliceous. In igneous or metamorphic rocks this usually occurs in veins, or in large, irregular bunches or lumps, with veins diverging from them. These veins are most commonly only a few feet wide, and for the most part traverse the rocks in a vertical or highly-inclined position. Sometimes, however, veins or irregular masses occur many yards across in every direction, and sometimes, but very rarely, quartz is found in such abundance as to make what even might be called hills of itself. The gold is disseminated in this quartz, sometimes in such exceedingly minute particles as to be invisible, not only to the naked eye, but even to the eye aided by a powerful lens. Nevertheless, some Californian quartz of this kind, when crushed to powder, and treated with quicksilver, has been found to contain gold enough to pay the expenses of the operation and leave a profit. More commonly, the gold is seen as little yellow specks, flakes, or grains scattered through the quartz. When the quartz has a crystalline structure, which it often has, little nests of gold, likewise crystalline, may be seen imbedded between the interlacing crystals* of the quartz. Where the interstices in the

* The general reader must be reminded, that by crystals mineralogists do not mean anything necessarily clear and transparent; they apply the term to those regular forms which *all minerals* assume naturally, each having its one peculiar form. The most dense and opaque minerals and metals—lead, copper, iron, and gold—are often found in their natural state in a crystalline form.

quartz are large, these are sometimes entirely filled up with gold; and not unfrequently irregular holes and crevices seem to have been formed in the quartz by decomposition or rottenness, which have sometimes been subsequently filled with gold. In such cases, the gold often assumes irregular forms, such as melted lead will when poured into water—forms which have given people the idea of the gold having been deposited in a state of fusion, a notion in all probability utterly unfounded. How the gold got into the quartz, is a point at present so uncertain, that no man of science would take upon himself the responsibility of answering the question. The size of the irregular lumps thus entangled in the quartz varies greatly, the largest hitherto known single lump in the world being a Russian one, weighing 78 pounds avoirdupois, equal to 1137·5 Troy ounces. It is, however, usually found in small flakes, grains, and dendritic strings, weighing only a few grains.

Now, geologists tell us, that not only have large portions of the solid rocks forming the crust of the globe been formed beneath the sea, and lifted up subsequently into the air, during which process many of them were penetrated by great masses of molten rock, and baked, hardened, fractured, contorted, dislocated, and altered, but that, since all that took place, and since the veins, metalliferous and otherwise, were formed in the rocks, that which was once land has been again depressed beneath the sea, and subject to the wearing action of its waves, and again lifted up to form dry land. This may have occurred not once only, but many times, during that immense series of ages which have elapsed since the early rocks were formed—a series too vast, probably, for the human mind to form even a rough notion of.

Now, the last time the land of every country on the earth slowly rose from beneath the sea, it must of course have been subject to the degrading and destructive power of the breakers, and of the waves and tides and currents, and all that wearing action we now see going on on our own shores daily and hourly before our eyes. The consequence is, that portions of every rock, large or small, have been broken off, washed and dashed about upon beaches, or under shallow water, rolled into pebbles, pounded into sand, or ground down into mud and clay. These pebbles, sand, mud, and clay, have been transported by these moving waters often to great distances from their parent site, the largest and heaviest being generally removed the least distance, but the finer and lighter particles swept sometimes tens, sometimes hundreds of miles away from the rock they were first broken off. Such is the origin of all the mud, clay, sand, gravel, and other loose and incoherent materials we so commonly find beneath the surface in all countries when we dig below the soil, interposed between it and the main body of the solid rock* below. Some-

* By rock here, we mean any large regularly formed mass of earthy matter, whether it be hard or soft.

times these accumulations are entirely wanting, even over large spaces; sometimes they are but a few inches thick, often but a few feet; but occasionally they occur in masses 100 or 150 feet in thickness. They are disseminated with great irregularity, sometimes lying on the tops, or resting on the sides of hills of considerable elevation; but most frequently we find them in the valleys, and in the lowest levels of a country, whither moving water would have, of course, the greatest tendency to sweep them.

We need hardly stop to remark, that all the present rivers of any country, from the tiniest rill upwards, naturally seek these same valleys and low levels, and are continually helping, therefore, to carry down 'drift,' sand, gravel, or clay. Not a shower that falls and 'muddies' our brooks and rivers, but is a helper in this process.

Now, whenever the moving waters of the sea, by which these drift-materials were thus formed and deposited, attacked rock containing gold, it would of course break off lumps of it, just the same as any other rock, and equally wash, roll, and knock it about, and thus break it up into smaller fragments, round it into pebbles, and grind it into sand. In this way, much of the gold would be knocked out of the rock, and much water-worn gold accumulated, or water-worn fragments of gold and quartz together.

From this point of time, however, there is a remarkable difference observable in the action of the water on the gold, and on rock which contains no gold. All kinds of rock, or earth, or stone, at all events all the common kinds, are pretty nearly of the same specific gravity—that is to say, of the same weight, bulk for bulk. Chalk, clay, limestone, compact sandstone, granite, marble, basalt, have all specific gravities varying from 2 to 3—that is to say, they are twice or thrice the weight of their bulk of water. Pure gold, however, has a specific gravity of 19, or is nineteen times as heavy as its bulk of water; and the most impure ore of gold that occurs in nature, has at least a specific gravity of 12 or 15. Gold, then, is about six or seven times as heavy as quartz, or any other stone it is likely to be associated with. The consequence of this is, that moving water has at least seven times less power over it, less power to move it along, either suspended in the water or rolling along its bed.* When the drift, therefore, was formed, vast quantities of stone might be removed to great distances, while the gold was left behind, not far from its native site. All the large lumps of gold will certainly be but little removed, as also all the large lumps of quartz heavily freighted with gold. Grains of gold and small lumps may be carried further, while scale-gold and fine dust, especially if flat and thin, may be carried to very considerable distances, and

* We shall see this more clearly, perhaps, when we reflect, that stone suspended in water loses one-third of its weight; but that gold suspended in water loses only one-nineteenth of its weight.

spread far and wide over a large surface of ground. If there was any place near an auriferous vein where the currents of water were checked from any cause—such as a deep hole, or a meeting of two streams, or any eddy caused—such a place would be likely to have a very rich mass of drift deposited there, as the gold would be the first substance to fall down under such circumstances. It follows from these considerations, that in any country the rocks of which contain gold, the drift will likewise contain gold; and that the whole mass of the drift in the neighbourhood of the auriferous rocks will be richer in gold than the whole mass of the rocks from which it was derived, much of the broken rock having been removed to a vast distance, while the gold was left behind.

It follows, moreover, that of all the drift-sand, gravel, and mud of any country, that found in the bed of a river is likely to be the richest, because the river has been constantly engaged in resisting, washing, and sorting the materials formerly sifted by the sea that formed the drift, carrying forward all the lighter portions still further away, but leaving the gold in all the deep pools, or holes, or eddies, on all the sand-spits, or against all the rocky bars, or wherever the swiftness and strength of its stream is most likely to be checked.

Now, gold appears to be about the most widely diffused of all metals, with the exception of iron, on the face of the globe. Hardly a granitic and metamorphic district is known on the earth, that has not at one period or other yielded gold. It is, therefore, a pretty safe prophecy, when a new and unexamined district of granitic and metamorphic rocks is discovered, to foretell its probable auriferous character. It has been remarked by Humboldt and others, that most of the auriferous mountain-chains run in a north and south direction. This is very likely, because most of all the great mountain-chains of the globe have that direction. That the meridional direction, however, has anything to do with *the production of gold*, is not only *à priori* unlikely, but is disproved by the fact of gold not being confined to such meridional mountain-ranges.

It has even been publicly suggested by an Australian writer on the gold-districts of that country, that some particular meridians were more likely to be productive of gold than others—one of those meridians being that of 148 degrees east longitude, if we recollect rightly. Such vague, dreamy speculations, resting on no other foundation than one or two half-perceived, half-fancied analogies, are the bane of true science. We will therefore dismiss, with no further notice, all the prophecies, whether scientific or otherwise, as to the probable auriferous character of the Australian rocks.

The discovery of gold in Australia, like that of California, was reserved for an individual who proceeded upon no scientific view of the subject. Mr Edward Hargreaves, having had a farm on the flanks of the Conobolas, some thirty miles west of Bathurst, went to

California in search of gold. While there, he was struck with the similarity between the rocks and earthy matters of California and those of his own district. He returned, accordingly, to Australia, 'prospected' in his own neighbourhood, and after one or two month's search (April 1851), found some gold. Unless we imagine the whole metamorphic and granitic rocks of the great eastern chain of Australia, from the south-west cape of Van Diemen's Land to Torres Strait, to be equally rich in gold, it is evident that his finding an auriferous district, even in two months' time, was a lucky accident. Moreover, unless it turn out that the high lands of Western Australia, or Swan River District, are likewise auriferous, we must still look upon it as a chance that gold was found at all in the eastern chain, because the rocks and all the apparent geological conditions of those two districts are precisely the same.

Being assured of the valuable nature of his discovery, Mr Hargreaves applied to the colonial government for reward; and on his report being verified by Mr Stutchbury,* the colonial geologist, Mr Hargreaves was rewarded by a bonus of L.500, and an appointment as 'Commissioner of Crown Lands for the Exploration of Gold Districts'—his salary and allowances being L.920 per annum.

The excitement of course became intense throughout the colony of New South Wales, and spread rapidly into that of Victoria. People, many of them ill provided and ill suited for the work, rushed to the gold-diggings; wages rose to great rates; and the prices of provisions to extravagant heights. It was soon found, however, that gold-digging was hard and weary work, and that, carried on without proper preparation of tools and division of labour, without shelter and with scanty food, it was too much either for the health, the strength, or the resolution of most people to endure. A considerable reaction took place accordingly, and wages and food sank again nearly to their original prices in New South Wales. A slight accession of the gold-fever occurred, in consequence of the discovery of a hundredweight of gold, or L.4000 worth in one block, on the Murroo Creek, fifty miles north of Bathurst; but since then, gold-digging seems to have assumed in New South Wales the character of a regular steady occupation, taken up by those best adapted to it, and by them pursued as almost a permanent employment.

The finding of a hundredweight of gold is so singular a

* We observe that Mr Stutchbury was subject to an official reprimand from the governor, as to his not reporting on the gold, and ordered to go in search of it. Now, we must distinctly protest against its being supposed that it is any but a very small part of the duties of a geological surveyor of any country to hunt for mineral veins or for drift-metal. His business is to map the surface boundaries of all the different formations, and to note their appearances, so as to give an account of the solid structure of the whole country. As a result of this survey, will come out the knowledge of the districts in which it is possible for mineral veins to occur, and many other useful pieces of information, that would never be discovered by the mere metal or mineral hunter.

circumstance in the world's history, that a particular account of it may be acceptable. 'In the first week of July [1851], an educated aboriginal, formerly attached to the Wellington Mission, and who has been in the service of W. J. Kerr, Esq., of Wallawa, about seven years, returned home to his employer with the intelligence, that he had discovered a large mass of gold amongst a heap of quartz upon the run whilst tending his sheep. He had amused himself by exploring the country adjacent to his employer's land, and his attention was first called to the lucky spot by observing a speck of some glittering yellow substance upon the surface of a block of the quartz, upon which he applied his tomahawk, and broke off a portion. At that moment, the splendid prize stood revealed to his sight. His first care was to start off home and disclose his discovery to his master, to whom he presented whatever gold might be procured from it. As may be supposed, little time was lost by the worthy doctor. Quick as horseflesh would carry him, he was on the ground; and in a very short period the three blocks of quartz, containing *the hundredweight of gold*, were released from the bed where, charged with unknown wealth, they had rested perhaps for thousands of years, awaiting the hand of civilised man to disturb them.

'The largest of the blocks was about a foot in diameter, and weighed 75 pounds gross. Out of this piece, 60 pounds of pure gold were taken. Before separation, it was beautifully incased in quartz. The other two were something smaller. The auriferous mass weighed, as nearly as could be guessed, from two to three hundredweight. Not being able to move it conveniently, Dr Kerr broke the pieces into small fragments, and herein committed a very grand error. As specimens, the glittering blocks would have been invaluable. Nothing yet known of would have borne comparison, or, if any, the comparison would have been in our favour. From the description given by him, as seen in their original state, the world has seen nothing like them yet.

'The heaviest of the two large pieces presented an appearance not unlike a honeycomb or sponge, and consisted of particles of a crystalline form, as did nearly the whole of the gold. The second larger piece was smoother, and the particles more condensed, and seemed as if it had been acted upon by water. The remainder was broken into lumps of from two to three pounds and downwards, and were remarkably free from quartz or earthy matter.

'In the place where this mass of treasure was found, quartz-blocks formed an isolated heap, and were distant about one hundred yards from a quartz-vein which stretches up the ridge from the Murroo Creek. The neighbouring country has been pretty well explored since the discovery, but, with the exception of dust, no further indication has been found.

'In return for his very valuable services, Dr Kerr has presented the black fellow and his brother with two flocks of sheep, two saddle-horses, and a quantity of rations, and supplied them with a

team of bullocks, to plough some land in which they are about to sow a crop of maize and potatoes. One of the brothers, mounted on a serviceable roadster, accompanied the party into town, and appeared not a little proud of his share in the transaction.' Dr Kerr, having no licence to raise gold, was obliged to compound with the government by paying a royalty of 10 per cent. upon the amount of treasure he had secured.

On the first reports of the discovery of gold near Bathurst reaching Victoria, many people started, and more were preparing to start from Port Phillip and the neighbourhood to Bathurst and the Turon. This would be a journey of between 400 and 500 miles, through a difficult and thinly-peopled country, and would require ten days, even under the most favourable circumstances. The mass of the people attempting it would probably require a month. It began soon to be whispered, however, that this arduous journey might be spared, and that gold existed within two-days' walk or ride of Melbourne in even greater abundance than in Ophir itself. After many flying rumours and reports during the winter months of 1851—namely, June to September—certain information came to Mr Latrobe, the governor of Victoria, which induced him to make a journey to examine for himself. He says in his report to Earl Grey, dated October 10, 1851:—

'The locality now known by the name of the "Ballarat" Diggings, lies about six miles in a direct line from the remarkable volcanic hill still known by the native name of "Buninyong," and to the west of "Warrenneep," another eminence of similar origin, rising on the same ridge or water-shed. The geological formation of the country would appear to be the ordinary quartzose iron-sandstone and clay-slate which is so general throughout this colony. "Golden Point," where the principal workings at Ballarat have been opened, presents, superficially, no feature to distinguish it from any other of the numerous forested spurs which descend from the broken ranges at the foot of the higher ridges, and which bound the Valley of the Leigh on either side. Yet, although it is now seen that the gold is to be found in one position or another in greater or less quantities, in the whole of the surrounding country, both on the ranges or in the flats, or in the water-courses, various causes would seem to have given this particular point a superficial structure at least very distinct from others in its neighbourhood as far as they have been examined, and made it the depository of a far greater quantity of the precious metal, within a limited area, than has hitherto been discovered.

'Roughly stated, a section of a working shews under the superficial soil—1. Red ferruginous earth and gravel: 2. Streaked yellowish and red clay: 3. Quartz-gravels of moderate size: 4. Large quartz-pebbles and boulders; masses of ironstone set in very compact clay, hard to work: 5. Blue and white clay: 6. Pipe-clay, below which none of the workings have yet been carried. Yet, although such may be the general order of the

strata, nothing is more striking than the irregularity of the proportions in which they are found to be distributed, the variety of inclination observable within a limited space, or the unequal depth at which any given stratum may be found to lie below the surface. In some workings, the pipe-clay may be reached at the depth of 10 or 12 feet; in others, not at 30 and upwards. In fact, there are hardly two workings, however approximate, which furnish similar sections.* Gold has been detected, I believe, in all the superior formations, even in the superficial soil. But by far the richest deposit is found in the small veins of blue clay which lie almost immediately above the pipe-clay, in which no trace of the ore has been discovered. The ore is to all appearance quite pure. It is found occasionally in rolled or water-worn irregular lumps of various sizes, from a quarter or half an ounce to two ounces in weight, sometimes incorporated with round pebbles of quartz, which appears to have formed its original matrix; at other times, without any admixture whatever, in irregular rounded or smooth pieces, and again in fused † irregular masses of pure metal of great beauty, weighing in some instances seven to nine ounces. . . . I have met with no instances in this locality of the form called scale-gold. . . . The seams of the auriferous blue clay, the general position of which I have described, are found to be most irregular in their deposit, and seldom more than four or five inches in thickness. They appear, disappear, and break off and thin out continually. . . . I may give your lordship some idea of the value of this partial deposit, however, when hit upon, by stating that I witnessed during my visit the washing of two tin dishes of this clay, of about twenty inches in diameter, the yield of which was no less than 8 poundweights ‡ of pure gold; and I have seen two, or at most three cubic inches of the same yield four ounces.'

Other accounts speak of the ground at Ballarat being perfectly mined in search of this vein of blue clay, so that a person could go for several yards under ground from one hole to the other. Governor Latrobe, in the same dispatch, afterwards says: 'One party is known to have raised 16 poundweights at an early hour of the day, and to have secured 31 poundweights—value about L.1300—in one day's work. Many parties of four men have shared, day after day, 10 ounces per man—value at least L.30. I can testify to the fact of 10 poundweights—value about L.400 or L.440—and upwards being the produce of a single working during one of the days of my visit, and I have no reason to believe that this case was at that time an isolated one.'

In attempting to describe the state of excitement into which the population was thrown by the news of these occurrences, he says: 'Within the last three weeks, the towns of Melbourne and

* This irregular character is common to all drift accumulations.

† This idea of fusion is, as we have before noticed, in all probability a complete mistake.

‡ The value of this would be from L.320 to L.350.

Geelong, and their large suburbs, have been in appearance almost emptied of many classes of their male inhabitants. Not only have the idlers, to be found in every community, and day-labourers in town and the adjacent country, shopmen, artisans and mechanics of every description, thrown up their employments, and in most cases leaving their employers and their wives and families to take care of themselves, run off to the workings, but respectable tradesmen, farmers, clerks of every grade, and not a few of the superior classes followed—some unable to withstand the mania and force of the stream, or because they were really disposed to venture time and money on the chance, but others because they were, as employers of labour, left in the lurch, and had no other alternative. Cottages are deserted, houses to let, business is at a standstill, and even schools are closed. In some of the suburbs, not a man is left, and the women are known, for self-protection, to forget neighbours' jars, and to club together to keep house. Even masters of vessels, foreseeing the impossibility of maintaining any control over their men otherwise, have found the only way was to join them, make up a party, and go shares with them at the diggings.'

When the excitement consequent on the discovery of the Ballarat Diggings was beginning to abate, and many men returning to their employments, it received a fresh accession of strength, and was turned into a new direction, by the report of those found at Mount Alexander. This is a hill about seventy miles north-west of Melbourne, part of the granitic district of Mount Macedon and Mount Byng. In a subsequent dispatch of October 30, 1851, Governor Latrobe describes it as follows:— 'It appears that the first gold in this quarter—the search for which originated in a small piece, combined with quartz, being picked up by a shepherd on his folding-ground—was discovered in a seam of compact quartz of about a foot in thickness, lying between the strata of clay-slate and mica-slate. It was chiefly worked by one party, who followed the seam, with great labour, into the face of the hill, for ten or twenty yards, obtaining, either from the quartz-rock itself, or from small deposits in the narrow layers of clay which lay between it and the adjacent rock, in the course of a fortnight, gold to the value of L.300, or more. The report of the fact becoming known, others joined in the search, but with little success. Within the last fortnight, however, the discovery of gold in the bed of an adjoining creek, descending from the Mount Alexander ranges, and forming a junction with a branch of the East Loddon River, drew off the attention of all from the quartz-veins. The result of the work commenced here was found to be so considerable, that there was an immediate rush to the spot; and although the certain intelligence could only have been spread a few days previous, I found on my arrival 250 men on the spot. The produce of a few hours' labour in various instances was seen to be very considerable—as much as four or

five poundweights of gold, in large-sized grains, falling to the share of a party of two or three hands.'

'There is nothing,' he says, 'to distinguish the Forest Creek, or the adjacent ranges, with their iron sandstone, quartz-rock, broken ridges, and ravines, from thousands of similar localities presenting similar internal and external structure, in this colony. But the bed of the valley, which appears to be formed of the inclined beds of slate-rock, is covered with an irregular deposit of gravelly clays, of much the same character as those at Ballarat. The deposited matter, however, is neither as deep nor as compact as at the former place, and little labour is requisite, comparatively, to reach the veins of clay immediately above the slate, in which the gold is generally found.'

In a subsequent dispatch, bearing date December 19, 1851, Governor Latrobe says: 'I will here only briefly state, that the gold raised upon the Mount Alexander gold-fields is now calculated by hundredweights, and arrives in the cities by the government escort or private conveyance at the rate of probably two tons per week—so it has been at least for the last two weeks. Some 20,000 individuals are calculated to be congregated at the principal fields in that quarter, now four in number, and scattered over the adjacent country on a space of twenty miles square. A large proportion of the numbers actually working are making large profits, and on all hands undoubted proofs of the easy acquisition of great wealth by the labouring class abound. A poundweight of gold a day is small remuneration for a party, and many secure five or six, and there are instances of as much as fifty being the result of but a few hours' labour. Large quantities have likewise been scraped from the very surface. Even when the ore lies beneath it, having been deposited under the alluvion, immediately above, and in the fissures of the slate-rock, the labour of reaching it is trifling compared with that at Ballarat.'*

Notwithstanding the vast wealth accumulated in the aggregate, at such a comparatively small outlay of time and labour, there were numbers of people who failed to obtain any share in it. On this point we will again quote from Governor Latrobe's dispatch of October 10th:—

'Let the quantity of gold distributed under the surface of the country be what it may, hundreds who have followed the stream and first impulse, and adventured themselves in the gold-field, shortly find that they are physically unfitted for the labour and self-denial which it entails. Large numbers will find that they are equally morally unfitted for it, and will gladly return to the steady gains and comfort of a fixed sphere of labour and home. In the vicinity of the workings, labour, even at the time of my visit,

* We quote thus largely from Governor Latrobe's report, because he has not only the best opportunity of gaining certain information from his official position, but because he is himself one of the most competent observers, and most able to give a true and accurate account of what he observes of any man now in Australia.

could be readily secured on the very ground amongst those who, while they saw gold drawn by handfuls from an adjacent hole, had slaved for a week and had got none; or who at once, on arrival on the ground, saw that it was harder work than shearing, and held out a chance of *less certain* profit.'

Those of the labouring class who returned successful, naturally committed all sorts of extravagance: some ordered the best and most expensive silks and dresses for their wives and children, as well as gold watches and chains, the most costly that could be got; bank-notes were eaten between slices of bread and butter, and other stories are current, such as one reads as told of sailors paid off with prize-money during the war. One deep old file, an *old soldier* in every sense of the term, had a child born to him at one of the diggings, and instantly seeing his chance, went round with a hat to make a collection for 'the little stranger'—'the first child born at the diggings:' the value of his hatful was found to amount to about L.3000!

All ordinary employments, and all the ordinary relations of society, were meanwhile undergoing a strange revolution in Melbourne. One of the judges was so deserted of all servants, that, but for the assistance of his sons, he, being lame, could not have been drawn in his wheeled-chair from his house to his court. A gentleman offered a man half-a-crown to take a letter to the post-office, a distance of a few hundred yards. The 'gent.' looked disgusted. 'Why,' he replied, 'I would not take my pipe out of my mouth for that sum.' Another offered a digger a shilling to lift a bag of sugar off his dray. The digger looked at him a moment, and then, putting his foot on a stump, said: 'There, tie my shoe, and I'll give you five shillings.' It was also related, that a sheep-farmer, who had been deserted by his men, went after them to the diggings, and tried to wile them back by an offer of what would, in ordinary circumstances, have been extravagantly high wages, when they coolly made the counter-proposal to him of a still higher salary, provided he would stay and act as their cook. All the successful gold-diggers did not act with extravagance. Captain Chisholm, within seven weeks after his arrival at Port Phillip, had received not less than L.2000 in gold-dust, from labouring-men, to pay the passage out of their relatives at home. There is not an emigration agent in the United Kingdom but what could tell numerous instances of remittances having reached home for this purpose. Many prudent investments also have been made in the colonies by working-men.

It may easily be imagined, that the colonial governments of New South Wales and Victoria had some difficulty in dealing with the novel circumstances under which they were placed. They had first of all to guard, as far as possible, the rights of the crown, since all gold and silver, wherever found, belong of right to the crown—in other words, *to the public*. It was therefore the bounden duty of the colonial governments to take care that the crown—that is, the

commonwealth, or general public of the United Kingdom—should have their fair legal share of the wealth discovered on their property. Even where land had been granted or sold to individuals, still, by the common law of England, the precious metals are always reserved. If the government of the country, therefore, had had the power, they undoubtedly had the right, both legal and equitable, of absolutely prohibiting the removal of any gold out of the ground at all, and consequently the power of deciding under what regulations any of it should be removed. It is, however, clear that a government such as that of the colonies, ruling over a scanty population spread over a vast territory, and with but a small force at its command, has but very little power to restrain any large portion of the population from doing anything which they all unite to do. It was necessary, then, that they should devise some system—*1st*, For getting the share of the gold fairly due to the public; *2d*, For maintaining order and preventing crime among the people under their care. This system had to be devised, moreover, on the spur of the moment, and in spite of the difficulties arising from the diminution and disorganisation of the force at their command.

The system adopted, which we think, on the whole, a good one, if not the only one that could have been carried out, was the following:—A Gold Commissioner was appointed in New South Wales, and subsequently seven Assistant Commissioners, each of whom was to have a serjeant and ten troopers as his party. The commissioner, Mr J. R. Hardy, had L.600 per annum; the assistant-commissioners, L.365 per annum each. Their duties are to station themselves each in a central portion of the district assigned to them for the issue of monthly ‘gold licences,’ at 30s. each, and to take care so to post their men and themselves, that no one is allowed to continue at work without providing himself with a licence. They have also to act as magistrates, to hold courts of petty-sessions, to adjust disputes among the gold-diggers, and to measure off to each man, or to each party, the amount of land to work on which he can properly claim.

In addition to this, there was established a government escort of gold weekly from all the principal gold-diggings to the chief towns of Bathurst and Sydney. This consisted of a light but strong spring-cart, guarded by armed constables, and attended by mounted troopers. L.1 per cent. was the cost of the transmission of gold by this means of conveyance. Additional police were also appointed to all the principal stations. All this, of course, had to be done at heavy cost, because many of the old police, and others who could have supplied their places, resigned their situations, and rushed to the diggings. Very high wages had consequently to be given to all the men employed.

The government of New South Wales at one time contemplated issuing a joint commission to the surveyor-general, the geological surveyor, and the Rev. W. B. Clarke (a colonial geologist), to

search for fresh gold-fields: they afterwards, however, determined that each should pursue his researches alone. The cost of the whole of the commissioners on account of the gold-fields, with their attendants, is about L.9500 per annum, besides forage and rations. The proceeds of the sale of gold licences, from July 24 to October 31, 1851, was L.15,023; the amount received during the same time for the transmission of gold by the escort was L.1485; but the expense of that escort was L.1027.

In the colony of Victoria, no chief-commissioner of gold-fields had yet been appointed permanently; but eight assistant-commissioners, together with four corporals and thirty-five troopers of the mounted police; two sergeants, a corporal, and fifteen troopers of the native mounted police; clerks, escort-officers, and constables. The total annual cost of this establishment would be about L.6626. The amount received for gold licences in this colony, from September 30 to December 31, 1851, was L.25,482. The amount received for escort-fees for same time was L.3634. An increase of 50 per cent. had been authorised on all the salaries of the persons employed by government in every department. In consequence of the recent establishment of this colony, and its much scantier executive staff, on the one hand, and of the nearness of the most productive fields to its chief towns, and of its shores generally to Van Diemen's Land, saturated with a convict population, on the other, the colonial government of Victoria was placed under much more difficult circumstances than that of New South Wales.

The home government have recently sent the 40th Regiment to the assistance of the colony, which is to pay all its extra expenses, and an additional pay of 10s. per diem to each officer, and 3s. to each private; and the men are to be allowed a certain portion of leave, in turn, at the diggings. If they are not detained by General Cathcart for earnest business at the Cape, the 40th Regiment will be to be envied by their military brethren.

It has been found by experience, that a gold-digging party should consist of not fewer than four people. To pursue the occupation to the best advantage of health and comfort, and therefore permanent profit, they should be provided with a small tent, with a stock of blankets, and a sufficiency of coarse clothing to afford a change from wet to dry, with a cradle, and a stock of pickaxes, crowbars, and shovels. A wheel-barrow, a sieve or two, and one or two flat tin dishes, like milk-pans, are also necessary. For food, a stock of flour, of tea and sugar, and perhaps of salt pork, is necessary. A strong, light one-horse dray or cart, is about the best conveyance on which to pack and carry these articles, the party proceeding for the most part on foot. If they are going to explore new ground, they should have some previous knowledge or experience to guide them in the search, it being absolutely necessary that they should know

what kind of rock, or what kind of ground, will *not produce* gold, in order that they may avoid wasting their time on it. We will suppose them to have reached a probably auriferous region, through which it is possible somehow to get their dray. They arrive at the bed of a water-course or river, and they succeed in finding a water-hole. The dray is stopped in the most convenient spot, and set up for the night without unpacking. The horse is taken out and watered, and then tethered in the best spot of grass that can be found; meanwhile a fire is lighted, and the kettle set on to boil. If the 'damper' has been all exhausted at the last meal, one of the party proceeds to make another after the following fashion:—He selects some smooth flat stone, or slab of rock, on which he lights a fire, and accumulates a mass of glowing embers. He then takes one of the tin dishes, half fills it with flour, which he mixes with water into a stiff paste; and when the slab of stone is sufficiently heated, he brushes aside the embers, spreads the paste upon it, and then piles the embers over it again, till it is baked into a roundish flat cake, about a foot in diameter, and an inch in thickness. With a segment of this, a quart pannikin of tea, and perhaps a rasher of salt pork, or, if in extreme good-luck, a kangaroo steak, or a pigeon or two, our party 'solace their evening hours,' as old Johnson phrases it. A short pipe is stuck into each man's mouth as soon as the meat is down, and is probably a permanent tenant of that situation for the rest of the evening. The horse is rewatered and retethered in a fresh locality, if necessary, and then wrapping himself in a blanket, each man lies and sleeps where he finished his supper. If it were in a very remote district, it would be wise if each one kept watch in turn through the night, with a gun loaded in his hand, to guard against the probability of an attack from the 'black fellows;' but such a precaution would be little needed in any part of the country our party were likely to reach.

At earliest dawn, or before it, all hands would be astir, and while one prepared the breakfast, and another attended to the horse, the two others would probably be searching the bed of the river, or prospecting for gold. Digging down at some sandy spot, spadeful after spadeful of the earth would be carried in the tin pan to the water, half immersed, and then gently agitated, and shaken round and round till any particle of gold would have time to sink to the bottom of the mass. The coarse stuff is frequently skimmed off and thrown away, taking care, of course, to throw away no visible pebble or nugget of gold; and the washing and sifting continued until nothing but a little sand perhaps is left, and this is carefully examined to see if it contain gold. When gold occurs, and probably also when it does not, there is often found a heavy metallic sand, said to be titaniferous iron ore (called in Australia 'emery'), and possibly other minerals in a fine state of comminution. Should this trial be unsuccessful, our party pack up their traps and continue their journey, choosing the

easiest and openest route for their cart, which one or two of them accompany, while the others explore the river at other places, or search in the beds of its lateral creeks. Eventually, perhaps, they stumble on some rich diggings, when of course they set up their tent, unpack their cradle and tools, and set to work in real earnest. One of their number will then perhaps have to start to the nearest town or station for a fresh supply of provisions, and thus the news of their success becoming known, other persons follow them, and a great camp, or perhaps the elements of a town, is formed.

If in place of exploring for themselves, our party went at once to a well-known locality already partially occupied, they will of course have to select a spot still untouched, or to purchase a partially explored one. In either case, they will have a certain plot of ground marked out for them by the assistant-commissioner, and each will have to take out a licence to dig. For the licence to dig, which only lasts a month from the date of issue, each person will have to pay 30s. The plot of ground, by the last regulations in New South Wales, bearing date 7th October 1851, will be on the following scale; namely—

1. Fifteen feet frontage to either side of a river or main creek to each person.

2. Twenty feet of the bed of a tributary to a river or main creek to each person.

3. Sixty feet of the bed of a ravine or water-course to each person.

4. Twenty feet square of table-land or river-flats to each person.

These 'claims' shall be voided in every case if not worked within ten days; and if the licence-fee be not previously paid, its amount will be doubled.

Having procured their licences, settled their claims, set up their tent, and made arrangement for the supply of food, the party set to work. If they have any depth of soil or earth to clear away, it will be necessary that two should work at the actual diggings, one should wheel the earth to the cradle, which the fourth should rock and keep supplied with water. The ordinary cradle very much resembles in form the domestic article from which it takes its name. It is, however, open at the foot; while at the head, instead of a hood, it has a sieve fixed like a gravel-sifter's; and across the bottom, inside, there are one or two cleets or wooden bars nailed.

On bringing the earth to the cradle, a shovelful of it is thrown upon the sieve, and a ladleful of water poured over it. More earth and more water is added alternately, the cradle all the while being kept in motion by rocking, until the sieve is full of the larger pebbles or fragments of rock. When that is the case, the sieve is carefully examined to see whether it contains any large nuggets of gold, and the fragments are then thrown away. The water thrown into the head of the cradle carries away all the mud and sand out at the foot; but as its current is arrested by the

cleets or bars across the bottom, it deposits against them most of the golden dust and scales that it contained. This common cradle is, however, a rather wasteful contrivance, as a large quantity of the very finest and thinnest gold-dust is apt still to be carried away with the mud and sand out of the cradle, and lost. The Californian cradle is, therefore, adopted whenever it can be obtained. This contains a compartment full of quicksilver, through which all the mud and sand is made to pass. Now, quicksilver has such a love for gold, and the affection is so mutual, that whenever they come in contact, they immediately unite and form an 'amalgam,' a compound of gold and quicksilver, which it requires a very powerful heat to dissolve. The quicksilver thus licks every particle of gold out of the earth; and when the amalgam is put into a proper apparatus, and the requisite heat applied, it is sublimed into fumes, lets go the gold, which falls down pure, while the fumes may be caught in a separate chamber, and recooled back into quicksilver again.

Whichever cradle they may use, our adventurers must now live a life of great toil, of some hardship and privation, and of great monotony. The rising sun must find them at their work, and when setting, look with an approving eye as they are preparing only to finish their labours. As the sun himself is, in those latitudes, a very regular and steady-going character, rarely varying more than half an hour from six o'clock in his rising and setting, this will give twelve regular hours of labour throughout the year. To unwonted hands and sinews, twelve hours at pickaxe and spade, even if varied by a turn at the wheelbarrow, or at the water-scoop and cradle, are quite sufficient to make sunset no unwelcome sight. Then comes the hour of tea and damper, of lying at the tent-door in the cool air, made fragrant by the evening pipe, with the dews falling around from the clear Australian sky, in which the stars glisten and sparkle like living gems—the hour of silence broken only, perhaps, by the distant howl of a wild-dog, or the plaintive cry of the thick-knee'd plover, or perhaps by the confounded hum of half-a-dozen mosquitoes, that come buzzing around you, looking for a soft place in which to insinuate their long, stinging proboscides, and make you start from your reveries, inclined to devote all the race of gnats as an offering to the infernal deities. Still, wearied with the day's toil, our party sleep, in spite of mosquitoes and all other discomforts—soothed, perhaps, by the remembrance of the ever-expanding little bag of gold-dust, the reward of their labours. Even at their daily digging, the constant chance of a rich prize, that may turn up at any moment, tends to keep men to their work as no other inducement would, and perpetuate an excitement which makes labour pass unnoticed, that, under other circumstances, would be felt as irksome and distressing beyond endurance.

Partly, perhaps, from this cause, partly from the richness and extent of the diggings, and partly from the natural good disposition

of the people (a disposition very little to be expected, perhaps, by those who have not visited Australia), the order and regularity among the gold-diggers of that country, and especially of New South Wales,* has been something wonderful. Sunday has been kept sacred from toil, as it were by common consent, and in many places service has been performed with great regularity. Disputes have been referred to the commissioners, and their decision at once accepted; and little robbery or violence has as yet taken place. With the consciousness of this peace and order reigning among so rough and miscellaneous an assemblage, it must be an interesting sight to look down from some wooded eminence on one of these auriferous valleys, to see the lines and clusters of tents of all kinds, from the canvas marquee to the little bark 'gunyah,' gleaming in the sunshine, or peeping out here and there among the bush; and to look on several thousand men, in red or blue woollen shirts, with cabbage-tree hats, and 'bearded like the pard,' all busily and eagerly intent on their work: some digging, some wheeling and carrying, some washing and rocking, each acting independently, and yet all working together, with a willingness, intentness, and pertinacity, that nothing but the expectation of immediate gain could rouse in so many men at once.

Notwithstanding the business and the work, or perhaps in consequence of it, silence is said to reign over the scene, undisturbed except by the hum of the rocker or the wheel-barrow, or the taps of the picks. This order, and this voluntary silence and intent industry, we may, I think, claim as one of the peculiar characteristics of our Anglo-Saxon race, just tinged as it is with Celtic blood. Only let the reader picture to himself a few thousand Frenchmen similarly occupied: what a row there would be! Even if there were no quarrels (and duels would probably be coming off by the dozen), what shouts and gesticulations, what screams of rapture when a large lump was found, and what a cluster of admiring and loudly applauding spectators and congratulators!

There are, however, interruptions to this scene of busy industry. The water will sometimes gradually fail, so that, after reducing every drop in the river to the consistency of pea-soup, the diggings will perforce have to be suspended for want of means to render them useful. Sometimes, moreover, storms of rain will occur, that bring too much water, and cause great damage, and even loss of life.

* In Victoria there has been much more crime, both robbery and violence, than in New South Wales. This is to be attributed principally to its vicinity to Van Diemen's Land, from which place a rush of convicts, exiles, or ticket-of-leave men, across to the diggings immediately took place; and these men, as was to be expected, at once resorted to their old habits. To meet this rush of scoundrelism, the government of Victoria had but a small and insufficient police force, and borrowed some of the Van Diemen's Land convict police; but these men, having been themselves convicts, were but little to be depended upon under new conditions and less strict regulations, and were at once tyrannical and corrupt. Still, in spite of all these things, and notwithstanding all the exaggerated stories we hear, the order and good conduct of the gold-diggers has been remarkable.

A lively sketch of some of the scenes connected with the diggings appeared in the *Port Phillip Magazine*, under the name of a 'Tandem Drive to Ballarat.' 'Having cleared the city,' says this writer, 'we overtook the golden army of bullock-drays moving northward, surrounded by companies of men and lads: occasionally a female is seen. Four bulldogs pull one carriage, a great dog in the shafts of another, and a man pushing behind at a load of near five hundredweight.

'Presently, the splendid panorama opened to view an extensive sweep of plains, encircled by mountain-ranges in the remote distance. Far as the eye can reach, the pilgrimage, its line moving along the undulations, now hid, now rising into view—English and Germans, Irish and Scotch, Tasmanians. . . .

'Sixteen drays at Yuille's Ford, and nearly 200 people. It is nearly impassable, from the fresh current of yesterday's rain. But the men, tailing on to the ropes by dozens, pull both the horses and carts through. Some there are pulling, some cooking their mid-day meals, some unloading the drays, some moving off the ground. Over the ford, the road is delightful, the scenery charming, the land more broken, and timbered like a park. Ladidak comes in view—a beautiful ravine, formed by the convergence of several hills, at the base of which the river so winds that it must be crossed thrice.

'Where formerly was silence, only broken by the voice of the bell-bird, now bullock-drays, bullocks, and bullock-drivers are shouting, roaring, and swearing up the hill, or descending splashing through the once clear stream. On, on until the expanse of Bacchus Marsh opens, until lately a favourite meet of our hounds.

'A camp of tents has been formed by those who think it discreet to put off the crossing struggle until their beasts have had the benefit of a night's rest; loud is the ringing of bullock-bells; meanwhile, an impromptu bridge of a tree has been thrown across the river, and men are crossing and recrossing like a stream of ants. A dray deep in the stream makes a complete capsize before it can be hauled through.

'Our tandem dog-cart dashes through gallantly; we reach the Pentland Hills, where another encampment has been formed in the long ravine; we trot on slowly, the moon bright, the sky cloudless, a sharp frost nips the uplands, the campers eating, drinking, and smoking; architects, jewellers, chemists, booksellers, tinker, tailor, and sailor, all cold, but cheerful. At the next station, we halt and enjoy our friend's fire and supper.

'The next morning broke bright and fresh; the ground was white with frost; at daylight, the train of pilgrims was crossing the plain—the Germans with wheel-barrows led the way. At Ballan, we find the inn eaten out. A horse passes at speed, bearing on his back two horsemen. We meet sulky parties of the unsuccessful returning, and see signs, in small excavations, of prospecting parties. The forest grows denser. Towards evening,

we reach the hospitable roof-tree of Lal Lal, where at daybreak all the laughing jackasses of the colony seemed to have established a representative assembly. Ha, ha, ha! ho, ho, ho! hu, hu, hu! ring forth in every variety of key innumerable.

‘The cavalcade in motion splashes through the broad river, where one driver, in his shirt, without breeches, walks beside and urges on his horses, fearful of his dray sticking on the way. Our next point is Warrenneep, where we refresh with a draught from the delicious mineral spring. Two miles from Warrenneep, the hills begin gradually to slope toward Ballarat. The forest-trees are loftier and denser, but the surface soil is not so richly grassed. The road emerges on to a rich bottom of considerable extent, and the hill to the left extends upwards in such a gentle slope as to diminish the appearance of his height. Within a mile and a half of Golden Point, the tents begin to peer through the trees. The Black Hill rises precipitously on the right from a creek that washes its base, and through its thick forest-covering the road is visible down which the carriers are conveying their earth.

‘The bank of the creek is lined with cradles, and the washers are in full operation. Round the base of the mountain, on the further side, at right angles with this creek, the River Leigh flows; and for half a mile along its bank the cradles are at work. We descend, leave the road, cross the bottom, spring over a dam, and are among the workmen. “Rock, rock, rock! swish, swash, swish!” such the universal sound.

‘The cradle is placed lengthwise with the water. The *cradleman*, holding the handle in his left hand, with a stick or scraper to break the lumps of earth or stir up the contents, keeps the cradle constantly going. The *waterman*, standing at the head of the cradle with a ladle of any kind, keeps baling water continuously into it. A third man washes carefully into a large tin dish the deposit that has fallen through the sieves of the cradle on to the boards beneath, carries it into the stream, where he stands knee-deep, and, tilting the dish up under the water, and shaking its contents, the precious metal falls to the bottom, while the earth and sand are washed out by the water.

‘After long washing, the glittering dust is seen along the bottom edges of the dish. This residuum is carefully washed into a pannikin, dried over the fire, and bottled or packed for exportation. Meanwhile, the cradleman and waterman examine the quartz-stones in the upper sieve for quartz-gold. Occasionally some are found with pieces of quartz adhering, the rest are thrown aside. The cradle filled, the men are at work again, and the rock-rock recommences. On the top of the hill, the diggers are hard at work; the carriers descend the steep side, dragging a loaded sled filled with the gold-impregnated earth, some with tin vessels on their heads, others with bags on their backs. The earth thrown down, they reascend the toilsome way; and this is the process “from morn till dewy eve.”

‘Returning to the road, the outer encampment this side of Golden Point became visible. A sound is heard like the continuous beat of a thousand muffled drums, or the rushing of a mighty waterfall. As we issue from the trees, the cause is beheld. From the margin of the forest a broad swamp spreads, through which the Leigh runs. Over against you, the broad shoulder of a bold hill is pushed out to meet its attacking waters, and round its base run the swamp waters, uniting with the river. Along this the cradles are ranged for about half a mile, on both sides of the creek and down the river, forming the letter T with the ends upturned. They are crowded so closely together as barely to permit being worked—in some places in triple file. At this distance you see some of the excavations, and the carriers swarming up and down hill with all sorts of vessels, from the bag to the wheel-barrow. The enormous ant-hive swarms like a railway cutting, where the crown of a hill is carried down to fill a valley.

‘Higher up the hill’s crest, along its sides, and stretching down to the swamp far away to the right and left, are the tents, thickly clustered and pitched, and, far beyond, the lofty, white-barked trees form a background. This is Ballarat!

‘Crossing the swamp, we reach the commissioner’s tent, where he is trying a depredator, who, for want of a lock-up, has been tied to a tree all through the hard night’s frost.

‘Troops of horses, drays, carts, and gigs, with their owners, are all around. Squatter, merchant, farmer, shopkeeper, labourer, shepherd, artisan, law, physic, and divinity, all are here. . . . You meet men you have not seen for years, but they recognise you first, for even your most intimate friends are scarcely to be known in the disguise of costume, beard, and dirt. . . . “Welcome to Golden Point!” “Ah, old friend! hardly knew you. How are you getting on?” “Did nothing for a week; tried six holes, and found no gold. My party, disheartened, left me. I formed another party; sank eighteen feet until we came to the quartz, and dug through it, and now I have reached the blue clay. It is a capital hole; come and see it.”

‘Imagine a gigantic honeycomb, in which the cells are eight feet wide, and from six to twenty-five feet deep, with the partitions proportionately thin, and to follow a friend to find a hole in the very midst is dangerous work—

“Lightly tread, ’tis hollowed ground.”

‘The miners move nimbly about, with barrow, pick, and bag, swarming along the narrow ledges; while below, others are picking, shovelling, and heating the stove.

“No danger, sir; our bank is supported by quartz. We’ve got to the gold at last. Made an ounce yesterday. There was a man killed yesterday three holes off; the bank fell down on him as he was squatting down this way, picking under the bank, and

man with one eye can see a flock of sheep, and a man with one arm tend them by day and drive them to the fold at night.

As to the more general question of the effect of the recent influx of gold on the value of property, and the prices of things here and elsewhere, we would hesitate longer to pronounce a decisive opinion. That the effect is already felt in the markets of the world is, we believe, the opinion of most commercial authorities—felt, perhaps, as much in anticipation as in actual present pressure. How far any great and continued accession would be absorbed in manufactures, in the substitution of a gold for a silver or paper currency, or in other ways, it is difficult to foresee, though we all know there must be a limit to these and other channels of absorption; and when they are filled, the overplus must immediately act in lowering the value of gold and gold coins throughout the world. However beneficial this effect might ultimately be, either to the world at large or to the possessors of other things that were exchangeable for gold, this would of course be a disagreeable operation for those who only possessed gold or securities for the payment of gold. We have been informed that such capitalists are even now commencing to invest their gold in land, and that it is to such a feeling, among other things, that the very marked rise in the price of land—in Ireland, for instance—is due.



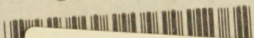
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