

in the province of Quebec, especially when considered in connection with the known wide distribution of gold in the region, which has been abundantly proved by the researches of Sir W. E. Logan, the details of which are given in a pamphlet entitled *Notes on the Gold of Eastern Canada*, issued in 1864 by the Geological Survey. This contains a summary of all the information on the subject up to that date; and in the report of Mr. A. Michel, addressed to Sir W. E. Logan, and published in the *Geology of Canada*, in 1866, further and more recent information has been given.

#### MR. LOCKWOOD'S WORKINGS.

On the 14th February last, Mr. Lockwood informed me that in their shaft then sinking the bed-rock had been struck at 100 feet below the level of the Gilbert River, dipping three feet in the width of the shaft. This indicates still deeper ground, as does also the character of the gold met with, of which he states, "We took out nearly one ounce of gold yesterday, and six pennyweights, thirteen grains to-day. It is all fine scaly gold and, I fancy, all from the gravel. We have found 'colors' since first striking it, about twenty-eight feet." This must be considered an exceedingly satisfactory commencement, and quite sufficient to warrant further exertion.

#### ANCIENT CHANNELS.

The worn and comparatively heavy character of much of the gold which has hitherto been procured from the shallow washings in the Chaudière district, does not, I think indicate that it has been derived from distant sources, so much as that it has been subjected to repeated and long continued abrasion in the drifts. I believe it to be strictly of local origin, and to have come from the quartz veins in the neighbourhood. The chief reason why the rich spots where it has hitherto been worked are so limited in extent is that they represent the places where the old channel or river-bed has been intersected by the existing one, and cut into, down to the bed-rock; re-distributing its contents along the present river course, and thus enriching, for a limited distance, the recent alluvions. If instead of extending explorations, as has commonly been done, solely in the direction and along the course of the present river, they are pushed boldly into every part of the adjacent banks where no rocky ledges are seen in place, there is but little doubt that the old channels from which the present streams have derived most of their gold would speedily be discovered, and often richly reward the enterprise of the explorer. These are facts which are well known in Australia, and acted upon frequently with the most successful results. Here no one appears to have directed attention to them, and they have not been alluded to in any published descriptions of the gold fields of this country.

Mr. Lockwood states in his report to the Directors of the Company, dated 4th August, 1870: "During the last five years I have observed closely all the work done, and have not seen one intelligent attempt made to obtain a knowledge of the nature and origin of the rich alluvial deposits; no man except myself has done anything to establish the fact that the alluvions

have their origin in the local reefs, or that we have a distinct system of old river-channels at a considerably lower level than the present ones."

"On lot fifteen the lead leaves the present river-channel and strikes under the high ground; here an old river-channel was discovered; it is from thirty-five to fifty feet below the present river-bed. A drive has been run across this channel 250 feet. The water being heavy, and the ground dipping, we were unable to determine its width. The whole of the gravel found in this channel is auriferous, and it is composed entirely of the material from the local rocks. In the sand of the roof drift-wood was found about eighty-five feet below the present surface."

From the returns already obtained, Mr. Lockwood estimates the average yield per acre of the old channel at \$45,000, and the cost of working at \$12,500 per acre. It is, however, next to impossible to make an estimate of this kind, which shall be at all reliable for practical purposes.

#### CHAUDIÈRE QUARTZ VEINS.

The quartz veins of this district have already been examined and reported on, and their auriferous character has been established.\* I examined the out-crops of several of those from which samples were taken by Mr. Michel and carefully assayed by Dr. Hunt. No efforts appear to have been made since the date of the reports above referred to, for their further development. The result of Dr. Hunt's assays was certainly not very encouraging, but when compared with other assays made by Dr. Hayes of Boston, they only serve, as he remarks, to prove the "irregularity with which the gold is distributed in the gangue."

Some of the veins are well situated for working, and so far as can be judged from the very limited extent to which any of them have yet been opened there would be no difficulty in raising very large quantities of quartz. Considering the heavy and often nuggety character of much of the alluvial gold of the Chaudière district, it is in the highest degree improbable that none of the veins from the abraded portions of which this gold has without doubt been derived, should be sufficiently rich to yield a fair profit to well directed enterprise applied to their exploitation, and it seems extraordinary that so little has hitherto been done in this direction.

#### GOLD MINING IN NOVA SCOTIA.

The system on which mining and mining business is conducted in Nova Scotia, like all other subjects connected with the gold-fields, has been commented on in numerous publications. Its many defects have been repeatedly pointed out, and much sound advice and a number of practical suggestions for its amendment have from time to time been offered, without however, having produced any very marked effect; notwithstanding that the success of a very large majority of the mining enterprises in the province is unquestionably in a great degree dependant on these remedial measures being adopted; and their total

\* Reports of Mr. A. Michel and Dr. T. Sterry Hunt addressed to Sir W. E. Logan, in the Report of Progress, Geological Survey of Canada, 1866, pages 69-90.