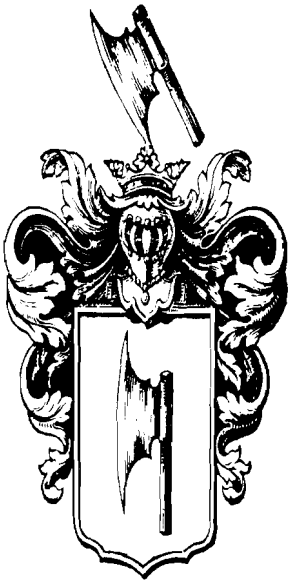
STRZELECKI'S ASCENT OF MOUNT KOSCIUSKO

1840

by

Lt. Col. H. P. G. Clews



'OKSZA'

COVER

'OKSZA' the coat-of-arms belonging to Sir Paul Strzelecki and his family Strzelecki of Strzelce,

well-known in Poland since the year 1391

Photograph taken at the NATIONAL LIBRARY, WARSAW.

FOREWORD

In August, 1965, the 11th International Congress of the History of Sciences was held at Warsaw and Krakow, and about 700 scientists gathered there from all over the world, including 80 Americans. Unfortunately, Australia was not represented at the Congress.

Sir Paul Strzelecki probably never dreamed that such a body would pay him a tribute, 92 years after his death, when Mr. W. Slabczynski was invited to deliver the address in English, entitled "Paul Strzelecki and his contribution to the Opening Up of Australia." This address was published in English, in the Actes du XI Congres International d'Histoire des Sciences (Papers of the 11th International Congress of the History of Sciences, Warsaw, 1968, vol.IV, pp.248-251), but it is practically unknown to Australian readers. Thus, I think, it should be proper to quote here a few thoughts of the speaker, who is the author of the most reliable biography of Sir Paul, published in Warsaw in 1957, and not yet equalled by any writer: - "Much had been written already on Strzelecki. During the last decade no less than six books on him have been published, in English and Polish - not counting numerous articles and essays... It is my bold opinion that the six books just mentioned are the best proof that Strzelecki's work has left us something vital, everlasting..."
Mr. Slabczynski also said that first of all Strzelecki's achievements in Australia was "investigation and mapping of the highest and the most important part of the Great Dividing Range" - adding in conclusion, that the Snowy Mountains Hydro-Electric scheme" is nothing else than the fulfilment of his dreams for Australia", which Strzelecki expressed in the early 1840's, in one sentence: "Irrigation then becomes the first measure with which the agricultural improvements of Australia must begin."

The climbing and naming of Mount Kosciusko was only an incident in Strzelecki's exploration of the Great Dividing Range. I believe that Sir Stephen Henry Roberts, in his History of Australian Land Settlement (Melbourne, 1924, p.345; 2nd ed. 1968, p.368) was the first to indicate the value of Strzelecki's plans for irrigation in NEW South Wales.

Lionel Gigmore in his book Struggle for the Snowy (Melbourne, 1968, p.47) also mentioned Strzelecki's broad view of the future regarding irrigation and conservation of water in this country.

We should remember as well, that already in the early 1840's Strzelecki fortold a very bright future for the Australian wool industry.

During the last twenty years I have collected, and I am still collecting, the biographical material about Sir Paul Strzelecki. My interest in him stemmed from my study of the history of Polish travellers and settlers in Australia. I have also gathered a number of articles and other items referring to the controversy whether Strzelecki climbed Mount Kosciusko or Mount Townsend. I had always hoped that one day a man with an intimate knowledge of the local topography would examine the existing evidence and will give an answer to this question.

I think that we are very fortunate that Lieutenant Colonel H.P.G.Clews undertook this rather difficult task. I have read his thoroughly scientific and cool examination of James Macarthur's testimony not only with deep interest but also with admiration for the author's skillful approach to this suhject.

I have little to add to this valuable paper by Lt.Colonel Clews, but perhaps it should be streesed, that Strzelecki came to Australia, in 1839, as an experienced explorer, who spent five years of his life on travels from the wilderness of Canada to the deserts of Utah; from the mines of California, Mexico and Brazil to the volcanoes of Hawaii, and in the Chilean Andes climbed the peaks of 15,000 feet. He was familiar with almost all climatic conditions.

However, it is not my intention to write here a biographical sketch of Sir Paul Strzelecki. It is refreshing to read this excellent article by Lieutenant Colonel Clews based on a scientific research, especially, in times when manyprinted pages are filled with misleading and irresponsihle statements.

Melbourne, March 1970. Lech Paszkowski.

INTRODUCTION

Many descriptions have been written of the ascent of Mount Kosciusko by Paul Edmund Strzelecki. Most of these have been written by people not intimately acquainted with the topographical features of the approaches to Mount Kosciusko, and perhaps most of the writers have been persons normally working in an office, not being field men, and also having no personal experience of pushing into absolutely unknown, or unmapped country.

The present writer claims that he is thoroughly acquainted with the western approaches to Mount Kosciusko, having performed much of the work in mapping the western escarpment from air photos when the first military map of the area was made in about 1948. To this is added the knowledge gained when working as a surveyor with the Snowy Mountains Authority from 1950 to 1958. At present, he is living in the foothills of the western escarpment and probably not more than a mile from Strzelecki's route up to Mount Kosciusko.

He has also had the experience of pushing into unknown country and finding routes by looking about from any available vantage point as neith ierial reconnaissance nor air photos were available at the time. In more recent times, the use of aeroplanes for observation and also air photography took the 'chanciness' out of this kind of investigation. The reader is referred to the article "The Bad Bit Across the River", by the present writer.

Having made these personal explanations it is proposed to follow Strzelecki's movements from somewhat before, to just after, his ascent of the mountain. It is important to remember that his trip to Mount Kosciusko was not a separate expedition, but a minor diversion from his bigger expedition across Gippsland.

PRELIMINARIES

Strzelecki left Sydney on 21st December, 1839. This is attested by a letter written by him on that date to his friend Donaldson in Melbourne, "I am off for the Snowy Mountains this very moment - from thence for Port Phillip and Launceston - Hobart Town - Sydney again". He was at Camden on 26th December, and on the 20th January at Bagalong (midway between Yass and Jugiong) - according to a letter by Philip Gidley King to John Hay of Welaregang recommending Strzelecki to him. He arrived at Ellerslie - Hannibal Macarthur's station on 5th February, 1840, with a pack horse and convict servant.

However, on the way from Sydney he had made many deviations as can be deduced from his book "Physical Description". Being a keen geologist, he had examined the country from the Shoalhaven River to Yass Plains and visited many properties.

On first arriving in Australia at Sydney in 1839, Strzelecki spent three months getting to know the country and the people. He made friends with many people being a pleasant, agreeable companion, including James Macarthur and, in view of subsequent events, this was important. Strzelecki then left Sydney on a tour of the Upper Blue Mountains and westwards to the Canobolas. After this first trip he wished to examine the dividing range as far as Wilson's Promontory and inspect the Alps, all with the view of extending his geological knowledge of the country.

In the meantime Macarthur had gone to Tasmania and while returning as a passenger aboard H.M.S. Pelorus was blown off course to the west of Wilson's Promontory and fairly close to the Gippsland coast. He noticed that the ranges did not rise until well back from the coast line and considered it likely that good grazing land existed between the mountains and the coast. He thereupon decided to take an expedition in to inspect this country. On arrival in Sydney he met Strzelecki again and found that he wanted to look at the geology of the same country. Therefore they agreed to join forces with Macarthur finding most of the food supplies, extra men and horses, which cost him some £500 sterling. Macarthur, of course, had no particular reason to climb the Alps, but accompanied Strzelecki on the trip up what is now known as Kosciusko.

Strzelecki's movements between 5th February, when he arrived at Ellerslie Station, and 2nd March when he left it with Macarthur require some guesswork. The only verified dates in this period of over four weeks are the tables in "Physical Description" pp 209/211 which show Strzelecki at Ellerslie on 26th, 28th and 29th February engaged in temperature investigations. These dates are verified by Sun Declinations used in the tables. There is a letter written by Riley to his mother in England and dated, "Melbourne, May 30th, 1840 - My dear mother, my last was dated from Ellersburgh, February 7th - I was then on the eve of starting with Count Strzelecki and James Macarthur on an expedition". W.L. Havard, p. 59. It would appear that Riley

made an error in this date - another in the amazing amount of incorrect dating in connection with the Kosciusko ascent. It is stated that Macarthur left Gunning for Ellerslie - presumably accompanied by Riley on February 3rd. (See Chas Daley's account to the Victorian Historical Society on 28th April, 1941). This date is not verified but a letter from Riley to his stepfather dated from Ellersburgh, February 23rd, 1840, appears to place the arrival of Macarthur's party at Ellerslie at a day or two earlier. Riley further states that they were assisting with the lambing, which accounted for the delay in moving forward. Strzelecki used this period to make his temperature readings referred to elsewhere.

It is thought that Strzelecki after a few days rest at Ellerslie, left for Welaregang to deliver the letter of recommendation, given him by Philip Gidley King at Bagalong on 20th January, to Mr. (afterwards Sir) John Hay. He was hospitably received and probably made some observations there - sextant fix for geographical position and barometer readings, etc. Also he probably took bearings to Dargal, Tumburumba and possibly Kosciusko, which can be seen from Welaregang. He mentions in "Physical Description" that he occasionally used triangulation for fixing positions. It is fairly certain that he did not visit either Dargal or Tumburumba although both are correctly placed on his map, and Dargal is heighted reasonably accurately. But he had no knowledge that the Tooma River ran to the east of Dargal and thought that this mountain was on the divide between the Murray and Murrumbidgee waters. Neither mountain is mentioned in his geological notes.

He returned slowly to Ellerslie making observations at Bago and visited Dutztin (Dutson? Station (P. King) where he probably obtained the geographical values already known. After returning to Ellerslie he undertook the temperature readings referred to earlier on 26th, 28th and 29th February, while waiting for Macarthur to make ready to leave.

It is to be noted that although the Snowy Mountains were not quite unknown before Strzelecki went up Kosciusko, he was totally unaware of the Snowy River country to the east. It is reported that a Mr. Charles Huon, guided by an aborigine, crossed the mountains from the Monaro to Welaregang in 1837 keeping between the Murray and Murrumbidgee waters.

There was a small possibility that Kosciusko was climbed by a John Lhotsky in 1834. An article in the Cooma-Monaro Express dated 16.5.69 by Dr. D. N. Jeans and Mr. W.G. R. Gillfillan states that in approaching from the south east direction Lhotsky crossed the Crackenback River and climbed on to the Rams Head Range. From there he dropped into the Snowy River Valley and followed it up to Kosciusko which he named "Mt. William the Fourth".

Against this a very short article in "The Age" (Melbourne) dated 13.4.70 by Norman Wakefield states that Drift Hill on the south side of the Crackenback River was the hill climbed and named. The writer is inclined to doubt Lhotsky's ascent of Mount Kosciusko, first because it is difficult to understand any person making his way to the highest point on the Mountains and reaching the top of the Rams Head Range not proceeding directly up the Range instead of dropping into the Snowy Valley. Secondly, it is to be noted that Lhotsky never challenged Strzelecki's claims regarding Kosciusko when he lived in London and certainly knew the contents of the "Physical Description" by Strzlecki. Perhaps it is preferable to return the verdict "Not Proven" with regard to Lhotsky's identification of "Kosciusko" with his "Mount William the Fourth".

THE DOCUMENTATION

The documentation of the climb was extremely weak depending solely on Strzelecki's reports, until portion of Macarthur's diary covering the detour trip to the top of Kosciusko became availablein 1942, when a few pages came into the possession of the Mitchell Library. Strzelecki scarcely ever recorded a date for any of his travels, and of the three he did record for the whole of the Gippsland episode the day he left Sydney and the day he arrived at Westernport appear correct, but the date for the ascent of Kosciusko is wrong. This is surprising because every time he used the sextant to obtain position he must have referred to the Nautical Almanac under the correct date for the sun or star co-ordinates.

Strzelecki carried a chronometer which he would have used in longitude determinations. Practically no chronometers are correct, but all such instruments have an extremely accurate variation, so every time he used the

chronometer he must have referred to the correct date to ascertain what the variation was.

It is surprising that the date was not queried before Macarthur's diary became available, because in Strzelecki's book "Physical Description...", on pages 209/211 there is a table showing that he was at Ellerslie on 26th, 28th and 29th February reading the thermometers at hourly intervals. The sun declinations in this table verify the dates. In his own account, after descending from Kosciusko he went straight on down to Omeo, and did not return to Ellerslie. He was at McAlister's out-station on the Tambo River on the 27th March. Allowing for "several days" at Omeo this would concur with Macarthur's date for the Kosciusko ascent of March 12th. Strzelecki's date for climbing Kosciusko, namely February 15th, would make this interval six weeks instead of two.

Apart from his carelessness in dating events, Strzelecki was very general in any topographical descriptions. He dismisses the climb up Kosciusko in a few words. "I followed the windings of that valley (the Murray) for about 70 miles (query) to the (part) foot of the highest protuberance of the Australian Alps, which it was my object to ascend and examine. The steepness of the numberless ridges, intersected by gullies and torrents, rendered this ascent a matter of no small difficulty, which was not a little increased by the weight of the instruments, which, for safety, I carried on my back. Once on the crest of the range, the remainder of the ascent to its highest pinnacle was accomplished with comparative ease. On the 15th February, about noon, I found myself on an elevation of 6510 feet above the level of the sea, seated on perpetual snow".

The chief difficulty in verifying any of Strzelecki's findings arises from the loss of his Field Book and perhaps his computation sheets. This Field Book would record the date and time of every station fixed by sextant readings plus the crude barometer readings with thermometer readings and atmospheric moisture conditions. It is against all survey ethics for such a book to be destroyed. But it must be remembered that Strzelecki was a gifted amateur and not a professional in any of the disciplines which he practiced. In his last will, in London, he left instructions for all his papers to be destroyed. Although the will was challenged by distant relatives

from Poland, it is probable that his papers were destroyed before the Court intervened.

The only known map showing the route up Kosciusko is the one accompanying Strzelecki's " Report to Governor Gipps". While the positions obtained by sextant, and also some by triangulation are plotted reasonably accurately, his topographical detail between these points is often ludicrous. Any modern topographer armed with a pencil and sheet of paper would make a better sketch of the route up Kosciusko than appears on the map. But he made copious notes - probably in the missing Field Book - of the geological features encountered, which are referred to in his "Physical Description".

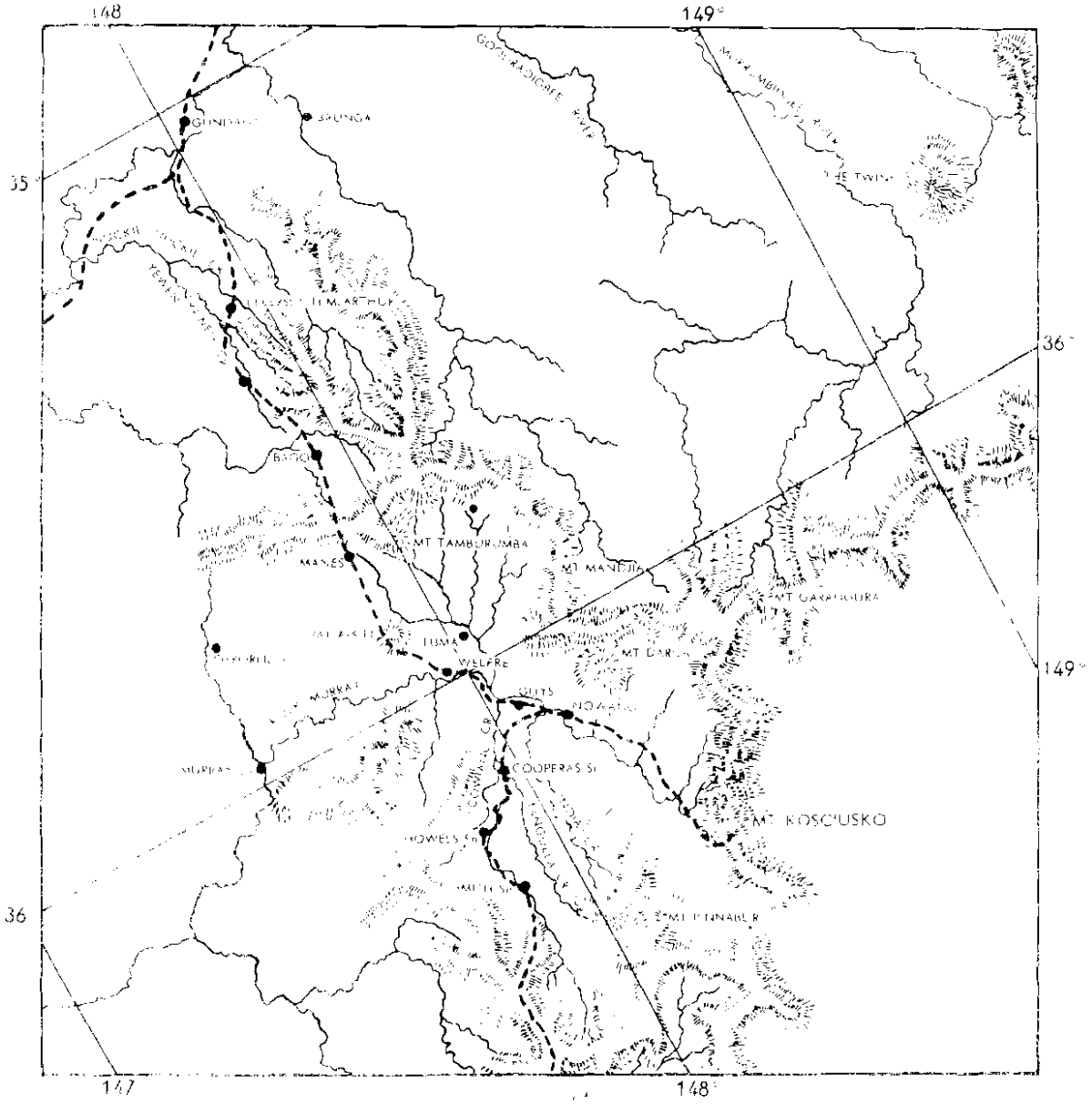
Although he plots Dargal it is thought that the position of this mountain was obtained by triangulation. He states that he used triangulation at times. He did not go there, and was not aware that the Tooma River ran behind it on the East side. His knowledge of the Tumut River - or Doomutt as he calls it - was obtained from Mr. P. King who had made a survey of its lower reaches.

It is to be noted that Strzelecki never mentions that anybody accompanied him on the Kosciusko trip, and judging solely on his written description he made the trip entirely on his own. But the "Port Phillip Herald" June 2nd reported" -- Count and Mr. Macarthur ascended the Australian Alps on the 12th February, about noon, they found themselves sitting on the most elevated peak of Australia ——". It can be assumed that this information (not very accurate but mentioned Macarthur), was given to the press by Strzelecki himself.

When Macarthur's "diary" became available the documentation of the trip was vastly improved. Appendix I gives a copy of the diary, and also a letter from Mr. Charles Daly of the Victorian Historical Society explaining how the diary came into his hands. Instead of Strzelecki's sketchy and misleading description, an apparently accurate and detailed story of the ascent is given. Also, it names the persons making the trip, with a description of their camps. This enables the progress of the approach and ascent to be followed step by step, and the positions of their three camps to be determined reasonably accurately. While any person knowing the western approaches could make a reasonably correct assumption of the route followed, Macarthur's diary turned

PORTION OF STRZELECKI'S MAP

ATTACHED TO HIS REPORT TO GOVERNOR SIR G.GIPPS IN 1840



SCALE APPROX 15 MILES 1 INCH

this assumption into a very probable certainty. The earlier thoughts on the ascent were be-devilled by the later mistake of Townsend for Kosciusko made by the Victorian Triangulation. Macarthur's Diary shows that Townsend was first climbed and that then Strzelecki went south to Kosciusko. Curiously, Strzelecki verifies this by "once on the crest of the range, the remainder of the ascent¼ to its highest pinnacle was accomplished with comparative ease".

The mistaken date of the ascent given by Strzelecki may be discussed under this heading of 'documentation'. Strzelecki only once gives the date as 15th February, 1840, - in his report to Governor Sir G. Gipps. He also gives a most brief description of the ascent in the same report, but mentions neither the date nor description in "Physical Description". So that the date of 15th February is solely Strzelecki's record and not supported by any other evidence. It would be thought that the date of an event of this nature would persist in a man's mind, and in any case a reference to his Field Book, or computation sheets, would immediately give the correct date.

It is thought that Strzelecki at the time of making the report to Governor Gipps was not completely sure of his English and was assisted in its compilation by Henry Fysche Gisborne, an official in Melbourne. It was signed by Strzelecki on June 26th, 1840. He left by boat for Tasmania on 10th July having been in Melbourne for some six or seven weeks, whilst waiting for the return of Riley and party, who had gone back to recover the horses and gear which they had left when they decided to make the forced march to Westernport. It is possible that Strzelecki's field book was with this gear, and that Strzelecki after consulting it would realise the incorrect date given for the ascent. But, if so, this was not acknowledge, and the date was never subsequently referred to by him.

Riley's letters may also be accepted as documentation but the existence of a letter quoted by Rev. Go. Cox supposed to be dated at "Ellersburgh", February 7th, is doubtful. A letter to his stepfather dated at Ellersleigh February 23rd, 1840 is extremely interesting. He mentions the prices of his horses at £75 and £55, which appear extraordinarily high. No wonder he went back to try and recover his horses left behind in Gippsland. An interesting quotation is given, "I am now staying with James Macarthur, helping in the

lambing. We start next week on an expedition to look for station(s). We take two pack horses and two men of our own, and there is a Polish count, a great geologist and a very scientific man, who accompanies us: he has also his man and a pack horse."

In general the documentation for the ascent being on February 15th is very weak, depending solely on Strzelecki's report. The credence for the ascent on March 12th is supported in detail by Macarthur's diary and also by Riley's letters. Also the date when the party was reported at Numbla Mungee (or Ensay) in the Tambo Valley agrees with the March 12th date for the ascent.

THE ASCENT

On Monday, 2nd March, 1840, Paul Strzelecki and James Macarthur left Ellerslie Station, near the present day town of Adelong, with four others, six in all, on a trip to Corner Inlet on the Western Coast of what is now known as Gippsland. It was intended to make a detour trip to the highest point of the Australian Alps, then believed to be unvisited by previous explorers. The party consisted of 'Count' Paul Strzelecki, a Pole who was making a study of the physical aspects of New South Wales. (At that time Victoria was portion of New South Wales) and James Macarthur who was with the party to investigate the possibility of using, for pastoral purposes, the country south of the Great Dividing Range now known as Gippsland. Macarthur had financed the trip stating that it had cost him £500, quite a large sum in those days. James Riley, an Englishman, was a protege of Macarthur and would correspond to what we now call a Jackeroo. Also there were two convict servants and an aboriginal, Charlie Tarra, who originally came from the Goulburn Plains. The number of horses they had, both pack and riding, is uncertain.

Although the destination was to be Corner Inlet, this was altered to Westernport when they ran out of provisions. For the last three weeks they were without food other than what they could procure in the bush; the main item mentioned is Koala Bears. As the trip only took some 10 weeks, the first three or four being through stations in partly settled country, the running out of supplies indicates rather poor management. It would be interesting to see how Macarthur's £500 was expended.

But these hardships were in the future and no trouble was experienced with the mountain climb, except that Macarthur mentions the pleasure of drinking from springs and rock pools, so it would appear that they did not carry water

with them. They arrived at Welaregang Station - "Messrs Hay and Chalmers Station on the Hume" probably on the 7th March. They spent the Sunday there reorganizing for the mountain trip and the mountain party left on the 9th. They left the two servants at Welaregang but added another aboriginal to the party, so that the party leaving the station consisted of Strzelecki, Macarthur, Riley and two aboriginals. It is probable that Macarthur's aboriginal, being from the Goulburn country, was not acquainted with the topography of the mountains, whereas the local man had accompanied other aboriginals on their trips up the mountains to feast on the Bogong moths. Macarthur mentions that they saw remains of aboriginal camps, above the timber line, on the way up.

To follow the climbers on their ascent of the mountain, it is necessary to depend entirely on Macarthur's diary. The only help given by Strzelecki is a reference to "The steepness of the numberless ridges, intersected by gullies and torrents". This is not very helpful. It is worth noting that Strzelecki calls the river the "Murray", while Macarthur always refers to it as the "Hume." To both gentlemen the present day Swampy Plains River with its upper reaches of the Geehi River is the Murray or Hume. The real upper Murray or Indi river is noted as a minor creek, mapped as the India Creek. Evidently the original native pronunciation was 'Indy', which Strzelecki corrupted to "India".

The party, on leaving Welaregang, crossed immediately to the south side of the river (The Murray) and followed it upstream until they arrived at a ford known to the aboriginals as Nowong Ford. There is some doubt as to which ford this was. The writer was inclined to think that Nowong was a mispronunciation of Towong - at present a small township with a bridge across the river east of the township. But other persons are inclined to think that the Bringenbrong Ford is meant. As Macarthur states that they passed Guise's Station, the Bringenbrong crossing is probably correct. Guise occupied the property now known as Towong Hill and owned by T. Mitchell, M.L.A., and it is probable that the station was near to the present Towong Hill. If the ford at Towong is meant they could not have passed Guise's Station. They camped there on the first night out from Welaregang.

Next morning they crossed the river. It is surprising that the crossing was not made the previous evening, as it is an axiom of exploration parties, to always cross a river which it is intended to cross before camping. There are obvious reasons for this course. They followed the northern bank of the river and reached a small plain known as "Gobollin". No present local people know where this was. Macarthur states that "From this point we ascended the higher ranges". There is only one place that could have given cause for Macarthur to make this statement. A short distance past the present Bringenbrong homestead the hills close in on the river for a short distance, but soon open out to the Khancoban flats near the present Khancoban Station. From there going upstream quite extensive flats are found - practically treeless now but probably lightly timbered at the time when the party crossed them.

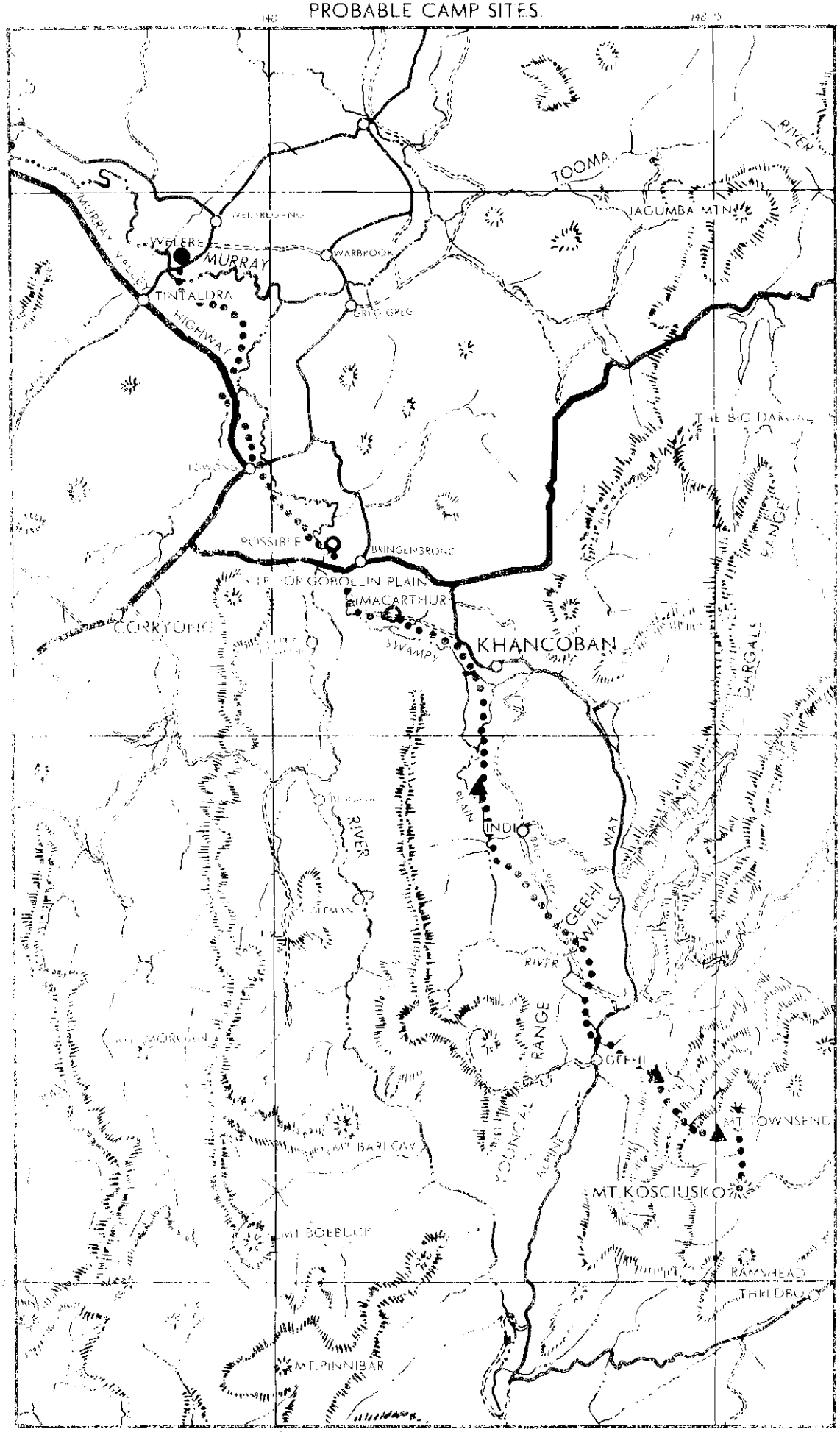
Macarthur's small plain "Gobollin", from his description of the country would appear to be a little downstream from the present Bringenbrong homestead, and in this case the ford used would appear to be the modern Towong ford and not Bringenbrong. It is possible that the original Guise homestead was near the present township of Towong and not at Towong Hill.

When the hills closed on the flats the party made their second camp - probably early in the day. They intended to leave the horses there and proceed on foot. Riley had evidently volunteered to remain in charge of the horses, while the two white men and two aboriginals made the climb. The writer has little doubt that this camp was right at H. Barlee's present property Macarthur's ensuing description of the country confirming, and Strzelecki's height at "Camp under the Snowy Range", although a little high, also confirming.

Next morning the climbing party - Strzelecki, Macarthur, and tow aboriginals Charlie Tarra - Macarthur's man, and Jacky - an aboriginal probably borrowed from Welaregang Station as a local guide, started at 7 a.m. in high spirits. As Macarthur observes "the weather intensely hot, we marched on with our blankets and provisions 'au militaire'". The Count carried in addition a heavy case of instruments for scientific observations. Macarthur also carried a gun. Strzelecki's instruments are discussed elsewhere (See Appendix II).

They followed up the river at first; the river known nowadays as the Swampy Plains River or to the party, mistakenly, as the Hume or Murray River.

SKETCH SHOWING STRZELECKI'S TRACK TO THE SUMMIT OF MT. KOSCIUSKO AND PROBABLE CAMP SITES.



They would cross the Black (or Back) Creek in less than a mile and then moving away from the river slightly up the easy slopes to the tope of the Geehi Walls. This top of the Geehi Walls is important, because from there the whole of the way up to Townsend is visible, and except perhaps for the route up the river to the foot of the climb there would be no occasion to need the services of the guide.

They descended the Geehi Walls, a drop of some 1,000 feet, finding it "so steep that we only accomplished it safely by clinging to the shrubs and small saplings". At the foot of the drop they crossed the Bogong Creek, probably very close to the junction of Walls Creek, and climbed the ridge on the other side which Macarthur thinks was equally as steep as the Geehi Walls. This may be so for a short distance but the rise would be only two or three hundred feet in all and then they dropped down onto the flat used by the Snowy Mountains Authority for its first camp in the area, and here they crossed the river. They did not seem to have noticed the river when they crossed the Bogong Creek although it could only have been a short distance away.

It is worth noting that Macarthur does not seem to be aware of the conventions governing the banks of a river. The right bank of any river is that bank to the right when looking downstream. Macarthur states "He crossed to the right bank", but as he was already on the right bank, he crossed to the left bank. The ford, if it was the same 125 years ago, is a very wide stony one with the water under 12 unches deep all the way across. With "the thermometer ranging upwards of 90^{0}", it would be very pleasant wading across it.

They then proceeded up the left bank of the river for about two or three miles, crossing over the present day lucerne paddock of Mr. Nankervis and the present day Alpine Way just south of the Bailey Bridge, and finally crossing the Geehi Creek at the foot of Hannels Spur near the present day Stony Rises hut. Macarthur made a simple error here - he thought he had recrossed the river and the main river was a branch. Anyhow the party was now at the foot of the climb after a very hot day "upwards of 90 degrees". They decided to start the climb in the moonlight. Climbing an unknown timbered ridge in moonlight is usually frustrating and not very sensible,

but they seemed to have climbed the ridge probably as far as the sedimentary belt crossing the granite. However, as next day, they took five hours to reach the present Byatts Flat, they may not have reached the sedimentary belt. If they had, it would have put them up about 2000 feet on their climb. They secured a lyre bird for supper but had no water.

Now the moon on Thursday 12th March, 1840 had Right Ascension (R.A.) of 6 hours 53 minutes 59 seconds with a Northern Declination of 27^{o} 11' 29". This declination is very close to the maximum northern declination and would mean that the moon was low in the northern sky and would set earlier than its R.A. implied. The sun at that date would have a R.A. of about $23\frac{1}{2}$ hours and would rise about 5 minutes to six a.m. and set about 30 minutes past 6 p.m. At the foot of Hannels Spur the sun would set behind the mass of Mt. Youngal at about an hour earlier than the time estimated above owing to the fact that the tope of Mt. Youngal would have about 15^{o} inclination at that point. The moon, being some 7 hours behind the sun, would set well to the North of Mount Youngal at about midnight. It was scarcely a bare half moon low in the Northern sky.

Macarthur states that they "only camped when the bright moonlight failed us". He does not state whether it failed by setting or whether clouds obscured it. In view of the hot day and the cool change the following morning there may have been the passage of a trough of low barometric pressure during the night or early next day. If this was so there would be a strong possibility of clouds developing during the early night, and in any case the half moon with a low declination could hardly give a 'bright moonlight'. It was considered formerly that the position of the moon would check the date of the ascent, but the interval between the two dates 15th February and 12th March 26 days - is too close to the moon cycle of 29 days to enable any definite conclusion to be drawn.

So on Thursday, 12th March, 1840, the party left their night camp on the lower slopes of Hannels Spur on what was to be their final day of ascent. Macarthur syas "The early dawn of the 12th found us again on our way". Sunrise would be about 6.55 a.m. but would be made later by their position which was well under the Western Escarpement. But it can safely be assumed that they

were under way by about 5.30 a.m. After five hours of steady climbing through the timber they came out in an open spot with water in it. As they were not carrying water and had been without it for some time, this was welcomed. It cannot be certain whether this spot was Moiras Flat or Byatts Camp. Moiras Flat would be the first available water but Macarthur states that they were on the edge of the timber which would indicate Byatts Camp. If so, it is difficult to see how they missed the running water of Moiras Flat. Anyhow, they had breakfast and decided to leave their blankets etc. there to return to at night.

From there, they started to climb the steep and rocky Abbott Range. Although Jacky - the aboriginal from Welaregang - knew the natives' usual route round the end of the Abbott Range into the cirque at the head of the Wilkinson Creek, which is a much easier approach than the rocky, spiny-backed Abbott Range, Strzelecki had seen the Abbott Range approach from the top of the Geehi Walls, and would be more inclined to follow the route he had seen. "After two hours of toilsome ascent", they were still far from the top of the mountain they were aiming for which, of course, was Townsend. As they had doubts about getting back at night to their gear, they (Strzelecki and Macarthur) sent the two natives back to bring the gear up to where they stood, while they proceeded up to the summit which they reached after a "very laborious climb".

When they arrived on the summit of Townsend, a very rocky top, they found that there were several other mountains in the near vicinity. As Macarthur says "The Count by the aid of his instruments quickly detected one of them as being considerably higher than where we stood". This of course was Kosciusko some 2 miles due south and about 60 odd feet higher. In descriptions of what can be seen Strzelecki gets very mixed up with what can be seen from each of the two mountains. The upper reaches of the Geehi River - which he calls the Murray - are fairly obvious from Townsend, and the fearful gorge 3,000 feet deep is under-estimated. The drop from Townsend to the bend in the Geehi River turning north is 5,350 feet, the biggest clean drop in Australia. Whilst not a precipice it is very sttep, the horizontal distance being $3\frac{1}{4}$ miles. It is possibile that Strzelecki having the clinometer in his hand to determine the highest point, turned it to the nearest river which he could see and while reading the correct depression angle of about 17^{o} under-estimated the distance

While on Townsend, Strzelecki named Kosciusko after a Polish national hero as "Kosciusko". The configuration of Kosciusko as viewed from Townsend reminded Strzelecki of an elevated tumulus in Krakow named in memory of Kosciusko. This was done in the presence of Macarthur, and then Strzelecki left Macarthur to proceed to Kosciusko. He then makes one of his rare comments on the route - "Once on the crest of the ridge, the remainder of the ascent to its highest pinnacle was accomplished with comparative ease".

The movements of Macarthur are related first. He had decided that as the day was far advanced it was more prudent to return to the spot where the natives had been instructed to bring the blankets and gear. He made a leisurely descent to the selected camp site which he reached towards evening. But there was no sign of the camp or the natives. He shouted and fired a shot but got no reply, so he collected firewood and got a fire burning. He then heard a faint coo-ee and discovered the natives' camp below him on the top slopes of Wilkinsons Cirque. The natives naturally did not see much sense in climbing back on to Abbott Range where probably there was no water and little firewood, so had camped beneath it. Macarthur got down to them "making a perilous descent through a dark glen". The moon would be up but possibly not high enough to throw light into the crevice as he descended.

But where was Strzelecki? Macarthur promptly sent Jacky, the Welaregang aboriginal, to look for him and the native soon had him back in camp. He had had falls while coming down Kosciusko in the moonlight. Walking down a gross covered slope strewn with rocks can be treacherous even in good moonlight. But there falls are important as a solution to the problems of barometer heights. The writer has carried modern aneroid barometers for many years, and a bump or fall can cast immediate doubt on their accuracy. Strzelecki brought down a small bit of rock from the extreme summit and, although not mentioned by Macarthur, an 'everlasting' flower which he afterwards sent to his fiancee in Poland. While on the summit, which he could not have reached until between 3 and 4 p.m., not noon as he states, he made several sextant observations and other survey observations, and he also made copious notes on the geology of the top. In his "Physical Description" the geology of Kosciusko is mentioned quite frequently.

As the sun set a little after six in the evening, Strzelecki would have about 3½ hours to complete his observations after arriving on top of Kosciusko at say 3.30 p.m. In that time he had to make observations with the sextant for latitude and longitude and check his compass against the geographical bearing. He also had to read his barometer which would include temperature and atmospheric humidity observations in addition to making quite extensive notes on the geology of the summit, in all, a rather ambitious programme to complete in 3½ hours .

Owing to the loss or probable destruction of his Field Book, it is not possible to say how he went about this, but some guesses may be made which may not be far astray. As he had learnt his sextant work as a guest on survey vessels engaged on Hydrographic Surveys, he generally followed the nautical routine of shooting the sun at Midday and using these readings to calculate for latitude and longitude, with the use of a chronometer, of course. The writer agrees that reasonable accuracy would be obtained with a latitude determination but considers that such a longitude determination would be crude. A somewhat crude determination oftrue north could also possibly be made at the same time. But Strzelecki was not on Kosciusko at midday, and could only treat the sun as a "Time" (longitude star) and even then he would be handicapped by having only a Western observation. It is possible that he used the early night stars to complete his observations, but enough is not known of the lighting arrangements on a sextant used for night work to make any reliable deduction. The measurement of horizontal angels to obtain geographical bearings may necessitate holding the sextant face dowowards to bring the two objects into coincidence, and it may be necessary when the levels of the two objects differ considerably to reduce the observed angle to its horizontal equivalent. The remainder of his observations were fairly simple which only required close attention.

It is worth noting that Strzelecki's description of the route between Townsend and Kosciusko differs from that which he gave Macarthur, on arriving back in camp. He then states that he had "experienced more difficulties than he expected" owing to "the endless confusion of rocks and the tall growth of the nunnong grass". It has not been possible to obtain a modern name for this nunnong grass". Macarthur gives a description in one place of "a peculiar gigantic grass. It is from 2 to 3 feet high, bright-green and succulent".

Having Strzelecki and Macarthur reunited in their second night's camp after leaving Riley with the horses, it may be interesting to construct a possible time schedule for the day's events. Here it is:

Left camp on Lower Hannels Spur at "early dawn"	say 5.30
Byatts Camp "5 hours tedious ascent"	10.30
Byatts Camp "fine spring - hearty breakfast"	11.00
Sent back for blankets "after 2 hours toilsome ascent"	1.00
Top of Townsend "reached after a very laborious climb"	say 2.30
Strzelecki and Macarthur parted("the day was far advanced")	3.00
Strzelecki on top of Kosciusko	say 3.45
Strzelecki left Kosciusko	" 7.30
Macarthur at proposed camp (leisurely descent)	" 5.00
Macarthur at natives' camp	" 8.00
Strzelecki and Macarthur reunited	" 9.00

While much of the above must be guesswork it is supported in the earlier timings by Macarthur's diary.

The day following the ascent the party returned to their base camp where Riley was looking after the horses. This would be quite a good walk but nothing unusual, although the thousand foot steep climb up the Geehi Walls must have seemed hard to them. Next day they were in camp with Riley while Strzelecki made his computations. He probably did not want these to fall behind knowing there would be much further work in front of him. He told Macarthur that the height of Kosciusko was 7,800 feet, although in the report to Governor Sir G. Gipps he gives the height at 6,510. Comment on this will be given later.

Macarthur's diary ends here - or at least as much as has been recovered. Appendix 1 gives the diary and a letter explaining how it was recovered. Strzelecki only states "My steps were consequently retraced to Cowrang Creek, along which I made my way". No mention is made of how those left at Welaregang Station were reunited with the climbing party. The writer is of the opinion that the climbing party went back to Welaregang, where they returned their borrowed aboriginal guide, and picked up their two servants and supplies, gear and possibly horses, and started south on about the 16th March.

Geoffrey Rawson in his book "The Count" states "On descending from

Mount Kosciusko, Strzelecki and his party retraced their steps up the Murray Valley, fording the river at the point now known as Lighthouse Crossing." This appears to the writer unlikely. If they were not returning to Welaregang the party would cross at the 'Nowong' Ford and rounding the Towong Hill Range, proceed in the direction of the present day town of Corryong - as Strzelecki shows on his map. If, as is most probable, they returned to Welaregang, the party would cross the river at Welaregang and proceed across the flats and low rises to Corryong. The Lighthouse Ford would not be used in either case.

So the party, six men and five horses and packs started their trip across present day Gippsland, taking about 8 weeks to reach Westernport on the 12th May. During the last fortnight they were on starvation rations.

STRZELECKI'S HEIGHT FOR KOSCIUSKO:

The method of obtaining heights before any chains of accurate levels became available was by either a hypsometer reading, using the boiling point of water, or a mercury barometer reading. Both methods depended on the prevailing barometric pressure which might vary considerably as the procession of atmospheric highs and lows passed over. The average sea level pressure of 29.91 inches was used. (At least this is the value given by the Admiralty Manual, 1938, and probably would not differ much from that used in 1840. As the normal swing of the barometer would be $\pm$ .3 inches (equal to about 600 feet), this would indicate that an accuracy to within about 300 feet could usually be expected. Occasionally however, swings could be larger.

Now referring to Macarthur's weather description, very hot on the 11th and cold with passing mist on the 12th, this would indicate that very probably a trough of low pressure was passing. Both men, Macarthur while descending to the natives' camp and Strzelecki while descending Kosciusko, appear to have had little assistance from moonlight, so it was possibly cloudy. Thus with a low barometric pressure Strzelecki's height would be expected to be high; the height for Kosciusko which he gave to Macarthur of 7,800 feet would confirm this, however, this is higher than would be expected, with a barometer reading of some 29.5 inches indicated. But the height he afterwards gave in his report to Sir G. Gipps of 6,510 feet would indicate a barometer reading

of some 30.6 inches which is extremely improbable.

Strzelecki reported falling while descending from Kosciusko to the camp. This would very probably damage his barometer which is not at all a sturdy instrument and can be damaged very easily. It is possible that he discovered an error in the instrument when checking back at the camp where Riley was waiting. Not realising that the error had arisen after the Kosciusko reading, he probably endeavoured to correct his Kosciusko height and made it 800 feet too low. His next recorded height, at Pinnibar, is given as 4,100 feet against the now known height of 5,811 feet. An abstract from "Physical Description" p.40 is given: "The check on the errors which may have arisen in the barometrical survey, was the fack survey, whenever such could be effected. In addition to that precaution, I used two barometers in each observation, and took the mean of their indications. I also used the boiling-water apparatus of Dr. Wollaston, constructed by Messrs. Troughton and Simms".

It is not known if Strzelecki was using two barometers on Mount Kosciusko, but, to lighten his load, he may have left one with Riley for 'hack checking', and when he had completed the Gippsland crossing he must have informed Sir John Franklin, then Governor of Tasmania, that his own barometers were faulty or broken. A letter from Sir John to Strzelecki dated August 4th, 1840, states "I am happy to tell you that I have procured a Mountain Barometer which will be at your service - it is unfortunately an old one and some additional mercury was required in the tube before it could be either carried safely or used satisfactorily. This has been supplied and it is now ready for sending to you".

In conclusion, on the height controversy, it is pointed out that any determination of isolated heights at this time (1840) would be somewhat crude, but even so such determination could reasonably be expected to be close to the correct altitude. His height for Riley's Camp is within about 100 feet of the true height. The letter of Sir John Franklin indicates that Strzelecki had damaged barometers.

It is possible that on arriving back at Riley's Camp Strzelecki found his barometer reading some 1300 to 1400 feet too high and made a correction to his Kosciusko height of that amount. It is significant that his next height at Pinnibar is some 1700 feet too low.

APPENDIX I.

JAMES MACARTHUR'S DIARY.

5 Clarinda St., Caulfield, S.E.8.

VICTORIA. 27th March, 42.

The Chief Librarian,

Mitchell Library, Sydney.

Dear Sir (or Madam),

Some years ago, when organizing the erection of a line of cairns in Gippsland to mark the courses of the explorers Angus McMillar and Count Strzelecki, the son of James Macarthur, who had accompanied Strzelecki, sent to me the three or four pages enclosed herewith which he had extracted from his father's field-book of the journey into Gippsland. These pages deal with the ascent of Mt. Kosciusko, preliminary to entering Gippsland. They are undoubtedly genuine. I regret that I have not retained Macarthur's letter sent to me. He also sent me a copy of his "Australian Mines A.B.C. Practical Mineralogy", of which you my probably have a copy in the library. At the time I mention about 1929 Macarthur who seemed to have had a roving life and occupied good positions was engaged in prospecting for oil near Terang, Vic. He became ill and died a few years later in Melbourne, "Leslie W.F. Macarthur, F.G.S. Mineralogist, etc".

In the last number of the Historical Magazine (Vic), there was published an article by myself on Strzelecki's ascent of Kosciusko and Gippsland journey in which I have embodied the matter from the notes. An important point is the definite fixing of the date of the ascent.

I believe that you have some of James Macarthur's notes in your library, and think that these pages would supplement them. It affords me much pleasure to present them to the library, if you will kindly accept the same. I also forward a copy of the Victorian Historical Magazine previously referred to.

Yours Sincerely,

(Chas. Daly)

(Ex-President Historical Society of Victoria)

P.S. The writing in red ink is by Leslie Macarthur.

C.D.

EXPLORATION TO DISCOVER MT. KOSCIUSKO.

Notes from late James Macarthur's field note book:

March 9 - 1840. I started from Messrs Hay and Chalmers station on the Hume accompanied by Count Trrzelecki and two native guides determined to reach the highest point of the Australian Alps. Ascending the beautiful and highly picturesque valley of the Hume on the Southern bank of the river passing Guise's Station we found our first camp at a ford known by the natives under the name of "Nowong". On the 10th we crossed the river to the Northern bank and following the valley upwards reached a small circular plain, "Gobollin". It was more regular than picturesque; the margin of the forest was so formal and unbroken. From this point we ascended the higher ranges and in about four miles reached a small but rapid creek. There we determined to leave our horses under the charge of a friend who had accompanied us so far, but did not feel the same ardour of discovery that incited the Count and myself to ascend the highest known point in Australia.

March 11. Count Strzelecki, myself and two natives started at 7 a.m. in high spirits to accomplish our object. The weather intensely hot we marched on with our blankets and provisions "au Militaire". The Count carried in addition a heavy case of instruments for scientific observations. Ascending at once through a narrow gully in about three miles we reached a gap overhanging the course of the river - before us the deep valley of a tributary flowing from Dargal mountains at the head of the Tumut. We found the descent to this river so steep that we only accomplished it safely by clinging to the shrubs and small saplings - this locality is peculiarly the habitat of the Black Oppossum an animal common in V.D. land. On the opposite side of this fine stream we ascended an equally steep range and descending again found ourselves on the main stream of the Hume. We crossed to the right bank, and passing the junction of another branch or tributary recrossed to the left bank, reaching the spot at which our actual ascent of the mountain was to commence. The thermometer ranging upwards of 90^{0} during the day we determined after refreshing ourselves to accomplish as much of the ascent as we could during the cooler hours of the night, and only camped when the bright moonlight failed us. A fine lyre-bird furnished an ample supper and consoled us for the want of water. The early dawn of the 12th found us again on our

way, and after five hours of tedious ascent we reached a small open spot. A fine spring afforded us the means of making a hearty breakfast. The only water we had had during these many hours of toil was a single quart afforded by our guide Jacky descending over some perpendicular rocks to a roaring torrent which we could hear far below us but could not see. The spot we had now reached was the favourite camping ground of the natives during their annual visits to feast on the Boogan Moth. Traces of their camps were visible in all directions our sable friends arrive here thin and half starved: A few weeks' revelling in this extraordinary food clothes their skinny joints in aldermanical contrast. Dr. Bennett published in 1834 some very interesting details on this subject, observed by him on the adjacent ranges of the Boogan Mountains. Being on the margin of the timber we determined to leave our blankets, etc, calculating that we could descend to this spot after accomplishing our object. Pushing through first a belt of thick brush wood and seeondly a belt of dead timber we reached the open summit clothed with a peculiar gigantic grass called by the natives "Monnong" it is from 2 to 3 feet high - bright green and succulent. It was very difficult to travel through. Flying mist occasionally enveloped us accompanied by a keen freezing air. After two hours of toilsome ascent we found ourselves still far from the highest point. After consultation we determined to send back our guides for the blankets and provisions and directed them to form a camp on the spot where we then stood. Strzelecki and I then proceeded towards the extreme summit which we reached after a very laborious climb - the air was bitterly cold. We found the actual summit divided into six or more points. The Count by aid of his instruments quickly detected one of these as being in fact considerably higher than where we stood. A deep ravine separating us from this, did not deter my adventurous friend. He determined to reach it. As the day was far advanced I thought it more prudent to return towards the point where I had ordered the natives to wait our return. Before leaving the Count, he told me of his intention of recording his visit to the highest point in Australia by associating the name of Kosciusko with our successful ascent. I could not but respect and feel deep sympathy with my friend when with his hat off he named the Patriot of his Country. Parting on the summit I commenced my descent leisurely enjoying the ample supply of fine water cress that abounded in every crevice of the rocks. The beautiful flowers then in full bloom, afforded me great pleasure.

These were the flowers of early spring - below - principally Euphorbiaceae. Immense masses of mica slate form groups here and there on the mountain side. Towards evening I reached the spot where I had ordered our camp to be formed but could see no trace of our sable friends. I shouted, fired my gun, but could get no answering signal. The approaching night made me feel deeply anxious not only with my own position but that of my friend. My first care was to collect fuel and light a fire to direct Strzelecki's descent by its light. The night was passing on; just as I was placing myself in the best position that I could find to feel the warmth of my small fire, I thought that I heard a faint shout or coo-ee. I climbed up a high rock overhanging a deep precipice about 100 feet below me. I saw the reflection of the native's fire. I scrambled back, and, making a rather perilous descent through a dark glen, reached the terrace upon which my friends were comfortably established. I could hear nothing of Strzelecki but immediately despatched Jacky to look for him, and very soon had the satisfaction of shaking my friend by the hand. He had experienced many falls by the way but was unhurt. He produced from his bag the extreme summit of the rocky height he had gained. I imagine he still has in his collection this interesting trophy. The Count had experienced more difficulty than he expected. The rather deep hollow he crossed after we parted offered serious obstacles to his progress from the endless confusion of rocks and the tall growth of the Munnong grass. He remarked the escape of carbonic acid gas from the fissures in the rocks. I had noticed the regular hissing noise, but did not know its cause. The air after night fall was alive with the Boogan Moths causing a deep sounding humming noise in character like that of a gigantic beehive. On the most shaded side of the mountain there was still an extensive patch of snow, judged to be by my friend perpetual as it was more or less stained by the decay of vegetation. This season was remarkable as being one in which the mountain was more free from snow than it had been before observed. On the 13th we made a rapid descent to the camp where we had left our horses. On the 14th the Count was engaged in completing and verifying his observations. He fixed the height he had reached as 7, 800 feet.

APPENDIX II

SURVEY AND OTHER INSTRUMENTS USED BY STRZELECKI

Schmalders $3\frac{1}{2}$" reflecting Compass, "in conjunction with a clinometer (which supplied remarkably well the place of a theodolite), for the trigonometric part of the Survey".

A Chronometer.

Full size sextant and artificial horizon for latitude and azimuth observations.

Syphon Gay Lussac Mountain Barometer
(Page 40 "12 made under my directions by Troughton & Simms").

Hygrometer and thermometer.

A dokimastic and chemical portable apparatus.

"Also used boiling-water apparatus of Dr. Wollaston constructed by Troughton and Simms".

Would carry a Nautical Almanac and a book of logarithmic tables.

Carried in pack on back weight 45 lbs.

APPENDIX III

SURVEY INFORMATION GIVEN BY STRZELECKI VICINITY OF KOSCIUSKO ASCENT

Geographical co-ordinates given by Strzelecki (p.50 Physical Description) in connection with table of Compass Variations.

Not given named positions:

Latitude	Longitude	Probable Position
34^{o} 50'	148^{o} 18'	? near Gundagai
35^{o} 19'	147^{o} 55'	Ellerslie
35^{o} 27'	147^{o} 53'	Dutzton (Dutson) (Sheep Station of P. King)
35^{o} 30'	148^{o} 00'	? near Bago
36^{o} 00'	148^{o} 00'	Welaregang
36^{o} 20'	148^{o} 15'	Kosciusko
36^{o} 54'	147^{o} 55'	? probably Tambo

It is probable that the first three placed on the above list are values given to Strzelecki by ex-naval officers who had determined the geographical positions of their stations.

The now known value of Kosciusko is Latitude (S) 36^{o} - 27' - 27.624" and Longitude (E) 148^{o} - 15' - 50.356". As Strzelecki was too late arriving at the summit to obtain latitude in his usual way by midday observations of the sun and had to use a different method, the discrepancey in latitude is not surprising. It means an error of displacement of some 7 miles North.

HEIGHTS GIVEN BY STRZELECKI IN THE VICINITY OF UPPER MURRAY AND KOSCIUSKO. (P. 43 'PHYSICAL DESCRIPTION')

	feet
Ellerslie (sheep station of Hannibel Macarthur)	1261
Welaregang (on the river Hume)	753 (about 800)
Camp under the Snowy Range	1223 (about 1100)
Mount Kosciusko Australian Alps	6500 (7314)
Mount Dargal	5490 (5622)
Mount Pinnibar	4100 (5811)
Dutzton (a sheep station of P.King, Esq.)	1844

Figures in brackets are approximate present day heights.

Mount Dargal height was probably obtained by triangulation.

EXTRACT FROM CALENDAR, 1840.

	FEBRUARY					MARCH				
S.	2	9	16	23		1	8	15	22	29
M.	3	10	17	24		2	9	16	23	30
T.	4	11	18	25		3	10	17	24	31
W.	5	12	19	26		4	11	18	25	
Th.	6	13	20	27		5	12	19	26	
F.	7	14	21	28		6	13	20	27	
Sa. 1	8	15	22	29		7	14	21	28	

FULL MOON -- 17 Feb.
18 Mar.