singular fact that none of the many reviewers who have noticed this work seem to have observed it.

Mrs. Delmard went to live at Bex for the sake of economy, and gives many valuable items of information as to prices and supplies. She certainly was successful in attaining *the cheap*, but not without a considerable admixture of what most people would deem *the nasty*. Independently of actual dirt, bad drainage, &c., she and her family were content to live without servants, finding the native maid-of-all-work an expensive, useless, and troublesome article, and to live on very simple food. She declares that the whole party soon came to prefer the meagrest of soups and most miscellaneous of salads to more substantial fare; and this might very likely be the case, but it altogether disturbs any comparison between the cost of living in Bex and in an English village. As the authoress very justly observes, 'I don't deny that people (English I mean) spend less money abroad, not that things taken in the aggregate are cheaper, but simply because they learn to do without many things that they considered indispensable, indeed necessary to health and life when at home, and make use of many articles of food at which, in England, we turn up our noses in disgust. If we *will* do the same things there as here (in Bex) we *can*, and find great advantage and profit accruing to our health and purses.'

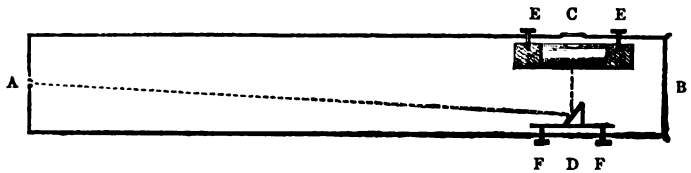
Mrs. Delmard appears not to be devoid of interest in mountain scenery and climbing, and her husband contributes a good account of a ramble up the little-visited Dent de Morcles; but her evident and more feminine predilection is for the valleys. She seems to have a lurking suspicion that most of the people who profess to climb mountains do not really do so, but merely disappear from inhabited regions for a time, long enough to make the statement that they have ascended some peak decently probable. If there are any such benighted mortals, we can only pity them, and wonder how on earth they manage to kill so many hours of time. True lovers of the Alps will almost always appreciate the attraction of low elevations as well as high ones, and endorse Mrs. Delmard's advice, that those who prefer the former should boldly say so, and abstain from encumbering the more able-bodied or more actively-inclined with their presence, without any fear that they will lose any credit in mountaineers' eyes by doing so. If there is a class of travellers whom the climber more especially dreads and dislikes, it is the people who are always seeking to join his expeditions, and betray throughout a total inaptitude for any real enjoyment of them.

NOTES AND QUERIES.

To the Editor of the Alpine Journal.—Dear Sir,—Having often during an alpine excursion felt the want of a portable and moderately accurate level, I hope that you will allow me to call your attention to a very simple and ingenious contrivance which I saw the other day in the possession of an American gentleman of this town.

As a diagram will best illustrate my meaning, I venture to insert one. Here A B represents a brass tube about 8 inches long and 1¼ inch in

diameter. The end B is closed by a plate of glass, having a line of collimation drawn across its centre. At the end A is a simple eye-hole, accurately centered.



C represents a small level inside, and at the top of the tube A B, attached to it by the adjusting screws E E. This level is transparent, and in the tube A B and at the point C is situated a longitudinal hole, covered with ground glass, corresponding with the position of the bubble in the level below.

D is a silvered mirror, inclined at such an angle as to throw the reflection of the bubble when in the centre into the eyehole at A. A line is drawn across the mirror to bisect the image of the bubble. The adjustment of the level is effected by the screws E E, and that of the mirror by the screws F F.

The line of collimation must correspond of course very accurately with the position of the eyehole, but this is a matter of workmanship, in which accuracy is easily secured.

The actual idea of this instrument is not new, but the illumination of the image of the bubble from above is ingenious, and this was very defective in all former modes of construction.

Should any members of the Club think of procuring this useful companion, I believe I am right in stating that Mr. Browning, of the Minories and 179 Strand, would undertake its construction at a price somewhat below £3, with a leather-sling case complete.

The error of the instrument is not great. The one I saw could be depended upon up to two feet in a mile, and as it is not intended for very accurate observation, but for taking approximate levels, such an error is of no consequence. Yours truly,

British Legation, Turin. NASSAU JOCELYN.

ALPINE BYWAYS, IX.—The following expedition cannot, perhaps, with strict propriety be termed a byway, lying as it does in the directest line between Chamouni and Zermatt. But we have inserted it in the series of Alpine Byways, as coming within the category of short and easy expeditions as yet unknown, and practicable for those who would not venture to undertake the High-Level Route as a whole, though of little practical value to such travellers.

The High-Level Route.—Col des Planards.—In devising the 'High-Level Route' between Chamouni and Zermatt, and in describing it in 'Peaks, Passes, and Glaciers,' second series, vol. 1, page 229, I suggested that, instead of the *détour* involved in descending from La Folie to Orsières, after passing the Col d'Argentière, and in reascending to St. Pierre, in order to commence the next link in the chain, viz., the Col du Sonadon, the route between those passes should traverse the intermediate ridge. It was not until the 31st of August, 1864, that I

had an opportunity of ascertaining the feasibility of the passage, and thus of completing the High-Level Route. The campaign of Mr. J. A. Hudson and myself in 1864 terminated at Martigny, which we reached by way of the Col de la Reuse d'Arolla, another link in the chain of passes forming the High-Level Route. The height of this col being apparently not precisely known, I may add that my instruments, after comparison with Geneva, St. Bernard, and Aosta, give a result of 11,004 feet. From Martigny, Mr. Hudson went to lose his mountaineering appetite, and regain the skin of his face, in the effeminacy of Wiesbaden, whilst our two guides started for Visp, in order to fulfil other engagements. Three days of my holiday still remained, and I proposed to leave the country by way of Chamouni. I concluded that I could not employ the interval better than in testing the practicability of my suggested pass, and going thence to Chamouni by the Col d'Argentière. The departure of the two guides introduced me to the first difficulty, Martigny not being exactly the place where one is likely to stumble upon efficient men for the work of the Argentière. My inquiries resulted in the appearance of one Maurice Nicholas Joris of Orsières, between which place and Martigny he was employed in the less soul-inspiring occupation of driving a *char-à-banc*. As however he had, two years previously, crossed the Argentière, and knew a young porter at Orsières who, on the strength of half a glacier expedition, considered himself qualified, I engaged them. Another difficulty which presented itself, in the fact of neither of them possessing an ice-axe and none being procurable, was got over by mine being considered sufficient for the party. So Joris drove my knapsack to Orsières, whilst I escaped that hackneyed route by leaving the char-road at Les Vallettes, and making my way to Orsières *viâ* the Col de Champey.* As a col, it is unique, a water channel forming the summit-level. I measured its height at 5,046 feet. Dinner over, I walked on to St. Pierre, previously arranging for Joris following me thither against the ensuing morning, whilst the porter, with provisions for the Argentière, was to meet us in the evening at the châlets of La Folie, on our arrival from the suggested pass. Leaving St. Pierre in the morning, Joris and I followed the St. Bernard road for half an hour, and at the second bridge turned west, up the valley called on Dufour's map 'Les Planards.' As we approached the head of the valley we climbed its northern slopes to the col, which was reached in less than three hours from St. Pierre. I measured its height at 9,386 feet, and propose to call it the Col des Planards. To the east stands out, in bold relief, the Graffeneire, overhanging the Cols Sonadon and Maison Blanche, whilst on the west stretches the long line of Aiguilles of the Mont Blanc chain, the actual summit being however concealed by the Grandes Jorasses, which from this point of view presents a remarkably formidable aspect. Extending its hands thus, on the east to the Sonadon, and on the west to the Argentière, this Col des Planards truly becomes the connecting link of the High-Level Route. In descending we bore at first slightly to the left, and after

* This route is described as a Byway in No. I. of the Alpine Journal.

passing above the châlets of Les Ars, on the route of the Col de Fenêtre (St. Bernard), reached the châlets of Ferrex in less than an hour of easy walking. Here we took up our night quarters, finding we could not do so at La Folie, fifteen minutes below. The porter joined us, and the following day we descended to La Folie, and crossed the Col d'Argentière to Chamouni. As the exact height of the latter col appears somewhat in doubt, I may add that, by my observations, it comes out at 12,118 feet (mean of comparisons with Aosta, Geneva, and St. Bernard). F. W. JACOMB.

THE ENGLISH AND METRICAL BAROMETRIC STANDARDS.—I must own that my friend Mr. Mathews by his ingenious suggestion (see Vol. I. p. 441) of employing a hybrid measurement, and graduating the barometer with millimètres taken at a temperature of 62° Fahrenheit, instead of true millimètres, succeeds in reconciling the double scale on the same instrument. I cannot, however, allow that he has proved my 'conclusion erroneous' as to the cause of the discrepancy between French and English barometers as compared with the boiling point, nor does he seem prepared to offer any other explanation. Of course, the only *real* difference between the barometers is owing to the decrease of gravity, and if all French barometers were graduated on Mr. Mathews' plan, with millimètres taken at a temperature of 62° Fahrenheit instead of the freezing point, the difference between the two barometer readings, equivalent to the boiling point, would be only ·007 inch; but as this is not the case, we always find that the atmospheric pressure expressed by any boiling point reads by a fraction very nearly =·017 inch higher on the French than on the English barometer.

In Guyot's tables, both in those that give the comparison of the metrical and English barometers, and in those that give the equivalent of the boiling point, the English inches are, so to speak, a literal translation of the French millimètres, and no account is taken of the difference of the standard temperature and gravity: the consequence is, that any one possessing a barometer and boiling-point thermometers which exactly coincide according to Guyot's tables, if he takes them to the Kew Observatory for verification, and there compares them with the standard instruments, will find that they no longer tally, but that there is a difference in the atmospheric pressure, as shown by his barometer and thermometer, amounting to ·017 inch, the barometer being the highest. CHARLES PACKE.

FRENCH AND ENGLISH BOILING POINTS.—In the Alpine Journal for June, my friend Mr. Packe stated that he had discovered a discrepancy between the barometric pressures corresponding to the French and English boiling points, as the latter has been defined by the Kew Committee of the British Association, and he offered an explanation of it, to which I took exception in the last number of the Journal. My friend has since challenged me to give my own version of the cause of the discrepancy. I did not attempt this in the first instance, because I was unable at the time to lay my hand on the Kew definition, but having since done so, I have great pleasure in accepting the challenge. The definition will be found at page xxxii. of the Report of the British Association for 1854, where 212° upon Fahrenheit's scale is stated to be:—'The

temperature of steam under Laplace's standard atmospheric pressure, or the atmospheric pressure corresponding to the following number of inches in the barometric reading, reduced to 32° F.

$$29{\cdot}9218 + (0{\cdot}0766 \times \cos.\ 2\ \text{latitude}) + (0{\cdot}00000179 \times \text{height in feet above the sea}).'$$

As 29·9218 inches is the exact equivalent of 760 millimètres, the barometric pressures corresponding to the French and English boiling points are precisely identical, the Kew Committee having merely adopted the French definition.

The discrepancy discovered by Mr. Packe has therefore no existence in fact, and its appearance in his observations was probably due to his having used a barometer erroneously graduated, in the manner described by Mr. Tuckett in the 'Reader' of December 10th, 1864, and by me in the 'Phil. Magazine' of January last. W. Mathews, Jun.

Flora of the Pyrenees.—I am anxious to learn how many varieties of the Papaver Alpinum exist in the Swiss Alps. I have found three varieties—almost, if not quite, amounting to distinct species—of the Papaver Pyrenaicum:—

1st. A poppy, six to eight inches high, with a white flower, growing on a débris of micaceous schist towards the summit of the Pic de Cambiel, at a height of 2,800 mètres—June 30. This seems to me to be identical with the Papaver Alpinum.

2nd. A poppy with a bright orange flower, large in proportion to the size of the plant, which is much shorter than the last, from three to four inches; growing on the summit of the Pic du Midi, on the schistose rocks on the north side, at a height of 2,870 mètres. This variety seems to be common on the Alps of Dauphiné. Mr. W. Mathews describes it as growing in profusion on the Grandes Rousses (see Alpine Journal, Vol. I. p. 300); and M. Charles Martins of Montpellier says that it is found on the north side of the Mont Ventoux on calcareous rock, at the comparatively low elevation of 1,900 mètres. In the Central Pyrenees I have seen this species nowhere but on the Pic du Midi, and there it is not abundant.

3rd. A poppy, with a flower smaller than either of the preceding, of a bright brick red. The leaves also are more deeply incised, and very hairy, the plants growing on the most exposed situations being the most hirsute. In company with M. Fourcade, a botanist of Luchon, I found this plant in great profusion on the rocks of the Pic Malibierne, and the uppermost rocks of the mountains of Castanèse, south of the Maladetta, on the 28th of July in this year. It was then in full flower; three weeks before I had been on the same mountains with my friend Mr. Mathews, and had observed the leaves of this plant, but could not find a single specimen even in bud. This poppy was growing at an elevation of 2,600 to 2,700 mètres, side by side with a very hirsute variety of the Viola Cenisia, on a graphitic schist (schist carburé) strongly impregnated with iron, to which probably this poppy owes its red colour. The plant was completely new to us; and I have since shown it to several French botanists, including M. Charles Martins, director of the Jardin des Plantes at Montpellier, to all of whom it is unknown.

I should be glad to know if this variety has been found on any of the Swiss Alps or elsewhere. I should also be glad to learn what is the true and normal form of the Papaver Alpinum, and on what kind of rock, and at what elevation, it is generally found. I may mention that the rocks of Malibierne are well worth a visit from any botanist. On some of the rocks I found that generally rare fern the Woodsia Hyperborea growing in great quantities, at a height of about 2,100 mètres; and lower down there is a perfect garden of beautiful and uncommon plants, including the Adonis Pyrenaica, Ranunculus Parnassifolius, Vicia Argentea, and many others. C. PACKE.

ALPINE PHOTOGRAPHS.—It is not surprising that photographs of alpine scenery are taken annually in great numbers, and very widely appreciated, more widely perhaps than similar views of any other localities. The effects of snow and ice are reproduced with singular clearness and beauty by photography; and the absence of colour, which is the great drawback to all photographic pictures, matters comparatively little where light and shade, and the dark rocks and bright snow, form the chief features of the scene. The great clearness of the air in fine weather enables the photographer to work at great advantage, and the views annually offered to the public are marvellous both for beauty and cheapness. Of the enterprising artists who have thus made stay-at-home people familiar with every region of the Alps, the best known is probably M. Braun of Dornach, whose *camera* has visited the Grand Mulets and the Théodule Pass, the summit of the Titlis and the icefall of the Morteratsch Glacier; and whose alpine pictures, of all sizes and of all localities, may be reckoned by thousands. But the adventurous Frenchman has recently been rivalled by one or two others, of whom Mr. England is the most skilful. By the untravelled eye, indeed, Mr. England's work might fairly be judged the best of all; for his pictures excel Braun's both in perfection of workmanship and in artistic grouping. He has a better eye for the picturesque than his French rival; and has the experience of his predecessors to aid him. The mountaineer, however, will for the present prefer Braun, who seems very often to take a view simply for the topographical detail included in it, so that a collection of his pictures contains a large store of information valuable to the intending climber. We can only express a hope that Mr. England will include in his next photographic tour visits to a few scenes which the hoof of the tourist's mule cannot reach. He will find views equally picturesque with those he has already published, and the great mechanical skill displayed by him will be a guarantee for his reproducing accurately the forms and proportions of the mountain scenery.

THE ORTELER SPITZE.—We have received a letter from Mr. F. J. Headlam explaining, with reference to Mr. Tuckett's paper in our last number, that his guide carried away the bottle left by Mr. Tuckett's party on the summit of the Orteler Spitze, contrary to his express orders. He also says that the danger from avalanches, though much lessened by not going up the Tabaretta Glacier, is not so entirely avoided as Mr. Tuckett believed. Mr. Headlam found the débris of several avalanches lying across the track made by Mr. Tuckett's party, and himself saw three fall on it.