

Over the Alps in a Balloon.

BY CHARLES HERBERT.

IN the June Number of THE STRAND MAGAZINE a number of photographs of Switzerland, taken by the famous aeronaut, Captain Edward Spelterini, during his balloon trips, were given, and promise was then made that some of the captain's beautiful mountain photographs would appear in an early number. We are now able to fulfil this promise, and to present to our readers a series of pictures which we have no hesitation in proclaiming absolutely unique.

As everyone knows, the camera has been very successfully applied to the photography of mountain scenery, and the Alpine views of Signor Vittoria Sella, Mr. Clinton T. Dent, and others are beautiful specimens of this branch of the art. What gives to the photographs here reproduced their extraordinary charm and interest is the fact that they have been taken from a balloon. To take photographs from a balloon is, of course, in itself nothing new, but no one before Captain Spelterini conceived the idea of crossing the Alps in a balloon, and of utilizing a camera to depict the scenery through which it travels. On the difficulty of balloon photography we touched in the article to which reference has just been made. It will be enough, therefore, to say that to attain the best results great patience, ingenuity, resource, and skill are required.

The pictures in these pages could not have been obtained in any other way, for although striking photographs may be taken from the tops of high peaks, still, the effects are

nothing compared to the grandeur and magnificence of photographs taken from a swiftly moving air-ship of the country below.

Captain Spelterini's original intention was to go from Sion, in Canton Valais, to Lake Constance. In conjunction with many eminent savants, he had studied, for some time past, the direction of the principal wind-currents of Switzerland. It was discovered

that the currents in the Central Alps flowed, as a rule, either from north-east to south-west, or west-south-west to east-north-east. As a matter of fact, instead of being carried north-east, Captain Spelterini and his companions were taken in a north-westerly direction.

Starting from Sion, the "Vega" (so the balloon was named) went towards the Lake of Geneva, then crossed the Jura, and was brought down at a place called Rivière les Fosses, on the boundaries of the Depart-

ments of Haute-Marne and Côte d'Or, between Dijon and Langres. It may be as well now to describe the photographs taken on this trip which appear in these pages.

No. 1 is Sion, the capital of Canton Valais, whence the start was made. The old

town, with its castles on isolated hills and its background of mountains, has a romantic appearance. On the height to the left of the photograph are the ruins of the episcopal castle of Tourbillon, erected in 1294, and burned down in 1788. On the lower hill to the right, on the site of a Roman fort, stands the old castle of Valeria, surrounded by towers and other buildings, among which is the Church of Notre Dame de Valère.



*Yours Truly ..
Spelterini
Paris
May '99.*

CAPTAIN EDWARD SPELTERINI.
From a Photo. by C. Ruf, Basel.



1.—SION, WHERE THE BALLOON STARTED.

This photograph of Sion was taken at a height of 900 mètres at 10.53, just after the "Vega" had slowly been released from her moorings. "We rose," said Captain Spelterini, "in bright sunshine towards a magnificent blue sky. Thousands of lusty throats below shouted their farewells to the fast-disappearing

now ascended to a height of 4,100 mètres.

"The glorious Valley of the Rhone," writes Dr. Maurer, who accompanied Captain Spelterini, "extended far below us; the mountains rising on both sides were seen with beautiful clearness. Further south, half hidden by seas of wondrous clouds, we

adventurers. We rose to 1,000 mètres and then to 2,000 mètres. A grand sight was presented to our wondering gaze, and so beautiful and inspiring was the picture that no one of the occupants of the car could find words to adequately express his feelings."

No. 2 was taken at 11.15 at a height of 3,000 mètres. It shows the Valley of the Rhone, looking towards Sion. No. 3 was taken fourteen minutes later than the preceding one, and the "Vega" had



2.—THE RHONE VALLEY, LOOKING TOWARDS SION.



3.—THE RHONE VALLEY FOURTEEN MINUTES LATER.

discerned the mountains of Savoy. The glorious expanse of the dark blue Lake of Geneva greeted us from below, but words are not to be found wherewith even the very faintest description can be given of the glorious panorama that unfolded itself before our awestruck eyes."

In No. 3 the Rhone can just be seen winding its way between its watershed. No. 4 is a striking picture of mountains and clouds. It was taken at a height of 4,300 mètres at 11.42 $\frac{3}{4}$. We are looking north-east over the valley known as Ormont-Dessus to the heights of the Bernese Oberland. No. 5 was taken a few minutes later, and the cloud effects are quite different. In the foreground we have a great billowy mass completely obscuring the view, but in the distance majestic peaks rear their heads. No. 6 was taken at an altitude of 4,200 mètres while the "Vega" was almost directly over the rocky Creux de Champ, the base of the Diablerets. The valley of Ormont-Dessus lies to the

left. When No. 7 was taken the "Vega" had reached an altitude of 4,300 mètres (over 2 $\frac{1}{2}$ miles): the photograph will give some idea of the magnificent sights which rewarded those who undertook the historic voyage we are now describing. The huge masses of snowy clouds certainly obscure the view beneath, but we get, nevertheless, a picture of sublime beauty.

Still pursuing its course to the north-west the "Vega" comes again within sight of the Rhone Valley. From Sion the Rhone flows south till it reaches Martigny, where it turns sharply to the north and makes for the Lake of Geneva. In No. 8 the Rhone is visible



4.—MOUNTAINS AND CLOUDS. THE ORMONT-DESSUS VALLEY.



5.—SAME VIEW A FEW MINUTES LATER.

to the left of the photograph. The next two photographs (Nos. 9 and 10) were taken while the "Vega" was making its way towards the eastern end of the Lake of Geneva, at heights varying from 4,500 to 5,000 mètres.

In No. 11 the river is seen running right across the middle of the photograph, which was taken while the "Vega" was at a height of 5,300 mètres.

No. 12 shows us that the Lake of Geneva has been reached, and Villeneuve, Veytaux, Montreux, and Clarens are visible. The time was eight minutes past twelve. On leaving the Lake of Geneva the "Vega" was carried almost in a straight line to the south-west end of the Lake of Neuchâtel, when the balloon was almost over Moudon and at an altitude of 5,200 mètres.

No. 13, taken at three minutes past one, shows us that the "Vega" has arrived at the Lake of Neuchâtel. The town at the extremity of the lake is Yverdon.

The last photograph (No. 14) was taken one

hour and twenty minutes later, when the "Vega" was at a height of 6,500 mètres. The cloud effects here are of extraordinary beauty, and from the picture some faint idea of the loveliness of the actual scene may be obtained. The voyagers were now over French soil, and right below the clouds in our illustration is the Valley of the Oignon.

Captain Spelterini was interviewed after his ascent, and expressed himself as follows:—

"The balloon at first ascended to a height of 2,500 mètres. I sought a favourable wind-current, but I was taken to the north-west and driven over the Diablerets and the Glacier of the Fleuron, at an altitude of 4,500 mètres. Then we mounted perpendicularly over the Rochers de Naye, and over Oron we sailed 6,300 mètres high, the temperature being 21deg. Centigrade below zero. We were then 2,100 mètres higher than the summit of the Jungfrau. The view over the whole of Switzerland was of immense grandeur. Towards the west all was bright. On the



6.—OVER THE CREUX DE CHAMP.

east Rigi, Pilatus, and Saintes reared their heads above the seas of cloud. We suffered but little from the cold, scarcely shivered, in fact; but we felt sleepy. For a long time the balloon hovered above the mountains to a height exceeding 5,000 mètres, and travelled at about fifteen mètres per second. When over Le Grey, near Besançon, the 'Vega' again attained an altitude of 6,300 mètres, or 20,670ft. From that point we sought a landing-place, and the balloon eventually descended at 4.30 p.m. in a field between Langres and Dijon, in the Côte d'Or. A strong east wind was blowing, but after some dragging the anchor held fast, and we all landed in safety."

The photographs of mountain scenery and of Swiss towns, taken by Captain Spelterini, are the finest of their kind in existence. The point of view from which they were taken, in order that they might be of the greatest use

for cartography, geography, and geology, was carefully planned and thought out before the balloon started on its journey.

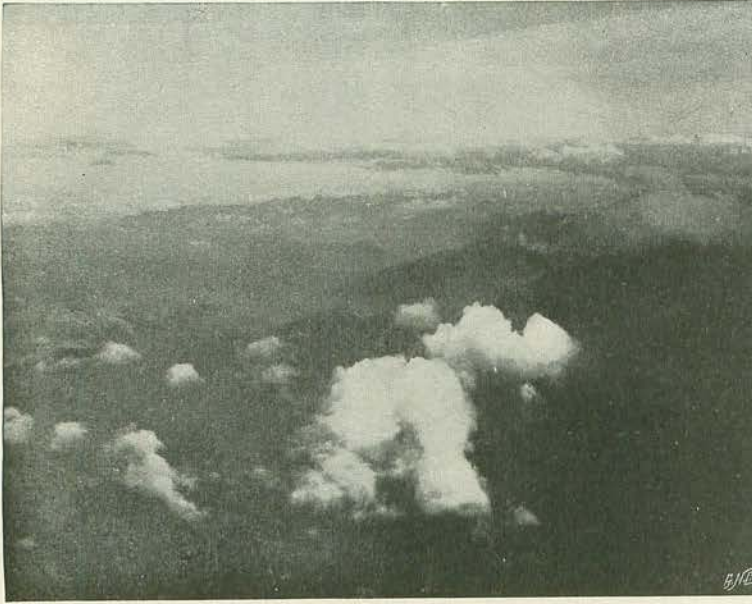
During the voyage frequent observations were made simultaneously at the Swiss meteorological stations, and by various instruments (such as registering aneroid barometers and controlling quicksilver barometers) carried in the balloon itself. By this plan the differences of the direction and rapidity of the wind in the various high



7.—CLOUDS ON ALPINE SUMMITS. FROM AN ELEVATION OF OVER 2½ MILES.



8.—THE RHONE, NEAR MARTIGNY.



9.—APPROACHING LAKE GENEVA.

strata of air were obtained. Careful observations were made from the air-ship as to the humidity, temperature, air-pressure, the radiation of solar heat, the colour phenomena of the atmosphere, the various strata of vapour, and the formation of clouds.

Dr. Maurer, Director of the Meteorological Institute at Zurich, who accompanied Captain Spelterini on his journey, has been good enough to write for THE STRAND MAGAZINE

a little account of the voyage of the "Vega" over the Alps, and some extracts from this may here be given. Dr. Maurer remarks that for a journey such as this it was necessary to have the very latest balloon fittings and material, and that the purest hydrogen gas had to be used.

"A special commissioner was appointed to decide upon the route to be taken and to fix upon the starting-point, and the advice of experts in meteorology, geology,

geography, and photography was requisitioned. A special balloon of great size was constructed in the factory of George Besaçon, at Paris, for the purpose of the expedition. Great care was taken in its manufacture, and no fewer than 6,336 different pieces of silk were used. The dimensions were as follows: Diameter, 60ft. 3in.; contents, 115,414 cubic feet; weight of balloon, basket, and network, about 2,020lb.; carrying power,



10.—STILL APPROACHING THE LAKE.

7,400lb. The 'Vega' contained 3,268 cubic metres of gas, was nearly 200ft. in height, and two tons of ballast were carried. The car contained a complete set of observatory fittings wherewith to register and record permanently important meteorological observations on air-pressure, temperature, and moisture.

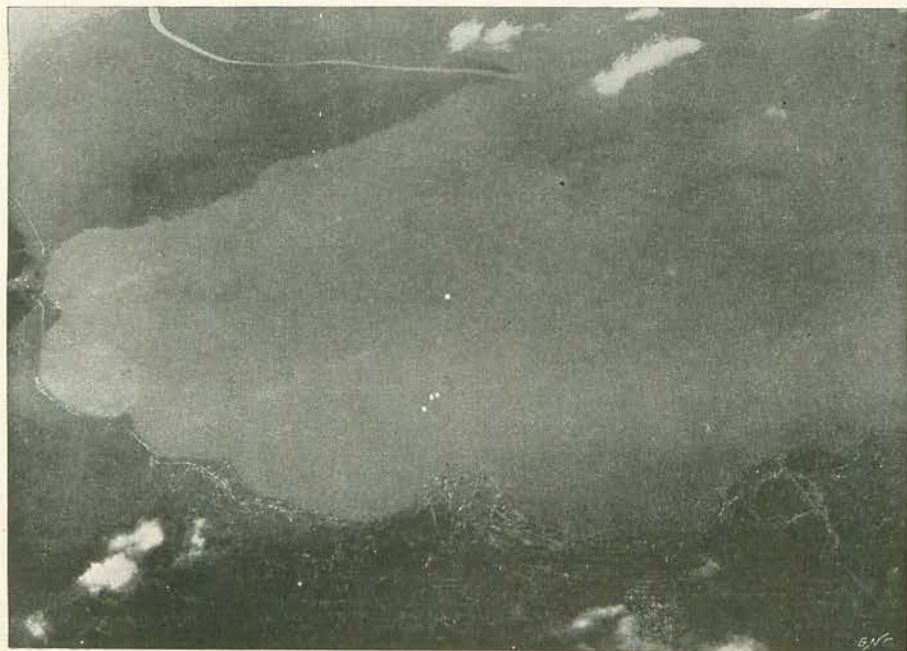
"The directing of the 'Vega' and the photographic work were intrusted to Captain Spelterini. I myself (viz., Dr. Maurer) accompanied the expedition as special scientific observer of meteorological phenomena. Professor Heim, of Zurich, and Dr. Biedermann, of Warsaw, a former pupil of Professor Heim, made up the party. Captain Spelterini's original inten-

tion was to start towards the latter end of September, as from former experiments it had been found that a suitable south-westerly wind blowing over the Alpine crest might then be expected.

"Sion was chosen as the place of ascent, because if the expected south-westerly wind



11.—THE RHONE NEAR THE LAKE.



12.—THE RHONE ENTERING THE LAKE OF GENEVA.



13.—YVERDON, ON LAKE NEUCHATEL.

were to fail it would at least be possible to pass over some of the other glacial stretches of Switzerland. Much sympathy and interest at home and abroad were shown in this remarkable expedition, the International Aeronautical Commission arranging for simultaneous scientific ascents to take place at as many European centres as possible. Passenger balloons rose simultaneously from the Trappe Observatory, near Paris, and also from Munich, Vienna, Berlin, and St. Petersburg. Balloons without passengers, but carrying recording instruments, were also sent from Sion and St. Petersburg, and were destined to reach specially high altitudes.

"The 'Vega' was ready at Sion on the 2nd of October, 1898, but only on Monday, October 3rd, at 8 a.m., did messages arrive from the Meteorological Institute and mountain stations on Pilatus and Saintes to the effect that the atmospheric prospects were considered favourable. Immediately Professor D. Hergesell, President of the Aeronautical Commission, telegraphed to the various International stations throughout Europe that the other balloons were to be liberated on the stroke of 11 a.m. on the same day.

"The weather on the day of the ascent was magnificent, and a great crowd assembled to see the 'Vega' start, for immense interest

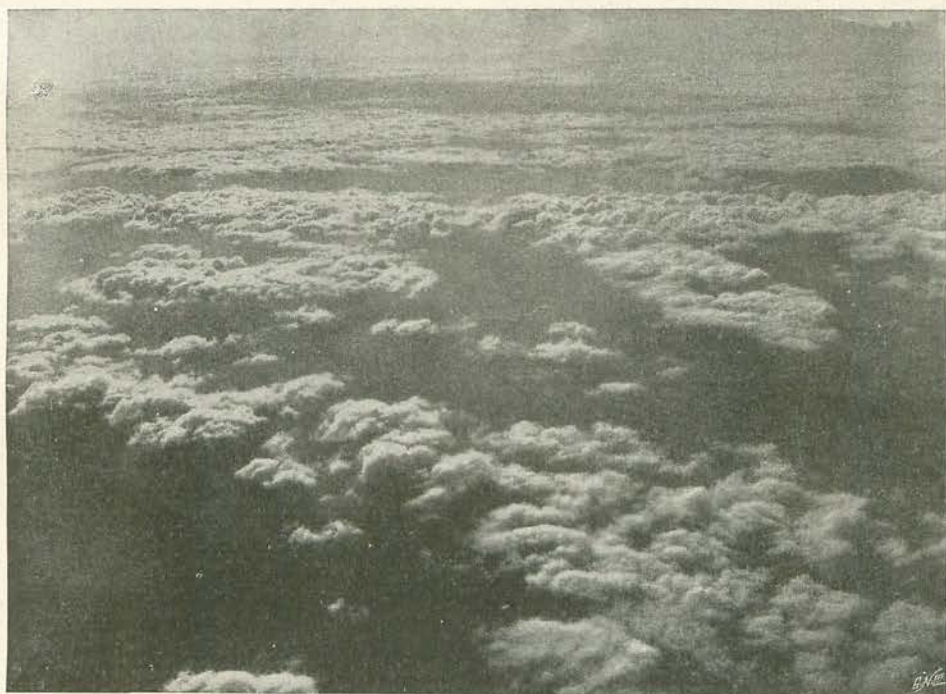
had been aroused in this daring attempt to cross the Alps. At 10.53 M. Surcouf, the Paris engineer who had superintended the filling of the balloon with hydrogen, gave the order to let go. Immediately it shot upwards in a straight line to a great height, while the crowd below gave us a right good send off.

"The 'Vega' was seized by air-currents and driven in a north-westerly direction towards the Diablerets. The Matterhorn and Monte Rosa bowed their snowy heads to us as we were whirled along, and through broken seas of clouds we obtained glimpses of nearly the whole of Northern Switzerland as far as Saintes, whilst Pilatus, Rigi, and other giants towered high above the sea of clouds. Far ahead of us lay the mountains of the Bernese Oberland, Jungfrau, Monch, and Finster-Aarhorn, partly hidden by clouds, yet recognisable. At 12.40 we had risen to nearly 6,000ft., and the barometer registered 17deg. C. I began to feel weaker, little by little; an almost overpowering desire for sleep possessed me, and I had to rouse myself with a will. My pulse increased rapidly. I seized the tube that led from the oxygen-cylinder, and inhaled the life-giving gas deep into my lungs. The headache and heart-thrilling ceased like magic, and I became myself once more.

"Looking round at my companions I saw that Professor Heim's beard was one mass of icicles and his usually fresh complexion was as yellow as wax. Captain Spelterini's complexion assumed a dark-brown hue; his usually powerful voice sounded hollow and toneless, not unlike a voice from another world. The silence was almost unbearable and painful in its intensity. A little after four o'clock we decided to descend, and it was only when the 'Vega' began to seek lower regions that I noticed how cold it must have been in spite of the beautiful sunshine we had enjoyed. My fingers were numbed with the cold. We descended speedily, however, as the rapid falling of the barometer showed. Two bags of ballast were thrown overboard,

My neighbour on the right and I grasped the ropes above our heads and lifted ourselves as best we could, whilst the captain again pulled the valve-strings, and the gas escaped with a tremendous hiss. The car struck mother earth with considerable force, and the 'Vega' lifted itself once more and dragged us yet farther; we experienced more bumps and then a tremendous pull, the anchor held fast, and we were safe, while the instruments escaped with but slight injuries.

"We came down on French soil at Rivière les Fosses at 4.30. The direct north-westerly route of the 'Vega' measured 232 kilomètres, and this distance was covered in 5hrs. 42min. The average speed of the whole voyage was about 11·3 mètres per second.



14.—CLOUDS ABOVE THE VALLEY OF OIGNON—FROM AN ELEVATION OF OVER 4 MILES.

covering both instruments and passengers with a fine layer of sand, as the 'Vega' fell ever so much quicker than the fine sand which our bags contained. The earth seemed to fly towards us with amazing rapidity.

"Captain Spelterini's sharp eye had quickly chosen an advantageous landing-place, and the anchor was thrown. I proceeded to pack up the various instruments, when Spelterini cried out, 'Beware, we are bumping!'

The lowest temperature recorded (at an altitude of 6,400 mètres) was 21deg. below zero.

"Never before has a balloon been known to travel in a direct horizontal line for so long a distance, considering the great altitude of nearly 7,000 mètres. Needless to add, the wonders of the journey will never be forgotten by those who had the good fortune to accomplish it, so long as they live."