

THE ASCENT OF MOUNT HUYGENS

J. McCoss.

“ O God, I thank Thee that set high the hills and stars.”

IN front of me is a colossal aeroplane, and I watch the men take their places in it. They are fine specimens of manhood and obviously have the enthusiasm of youth. These men have been busy preparing for this day, and now the work is finished and everything is ready down to the smallest detail. The massive structure moves forward and gains height immediately. In thirty-six seconds I have lost sight of it. They are gone. The initial speed of the plane is 500 m.p.h. in the atmospheric friction near the earth, but after clearing the stratosphere the designers guarantee 2,500 m.p.h., without using very much fuel.

The personnel number sixteen, consisting of a crew of nine, whose average age is twenty-two years, and Newton, the captain, aged thirty. Besides being an excellent aviator, he is also an astronomer of some importance. The other six men are the mountaineers, who are about twenty-six years of age. In four days this climbing party is timed to reach the foot of the screens. I am specially interested in the expedition because I had been out in 1922 (*S.M.C.J.*, vol. xvi, p. 182), and also because Towers, one of the climbers, is a friend of mine and a most accomplished rock climber.

After the return of the expedition I visited Towers and found him with Newton. I very cordially shook hands with both of them; we sat down and, without more ado, I said to them, “ Go ahead.”

“ Well,” began Newton, “ I shall tell you about our outward voyage. We started at 3 p.m. and, with our nose heading for Aldebaran, we were doing easily 2,500 m.p.h. away out in soundless space. The February moon was about 50 degrees and the sun about 100 degrees on our starboard, but in four days the moon had travelled to come nearly into

line with Aldebaran, and the sun was rising on the particular part of the moon's surface on which we wished to land.

"The interior of the plane was an oxygen cylinder, and we could produce much more oxygen than we required. Inside the plane we had inky black shadows and brilliant sunlight; there was no merging of one into the other. In the first twenty-four hours we had traversed a little under 60,000 miles, and looking back at the earth a wonderful spectacle met our gaze. The earth, slightly less than half illuminated on the left side, had an apparent diameter sixteen times that of the sun. It stood out brilliantly against the dark violet sky. As it was February the North Pole was in darkness, but the ice-cap at the South Pole was very conspicuous. The moon, now five days old, illuminated the dark side, and the complete disc was well seen because of the sun's illumination of the atmosphere round the surface. Immediately below the earth was the great red star Antares, the nearly burned out sun with a diameter larger than the orbit of Mars and a real brightness 386 times that of the sun. (What must its size and brightness have been when it was young and, probably, blue in colour?) I now began to operate the 10-inch telescope, and turned it on the nebula of Orion and had an entrancing view of the trapezium. I also examined the nebulous stars in the Pleiades and, as a contrast, inspected the Coal Sack near the Southern Cross.

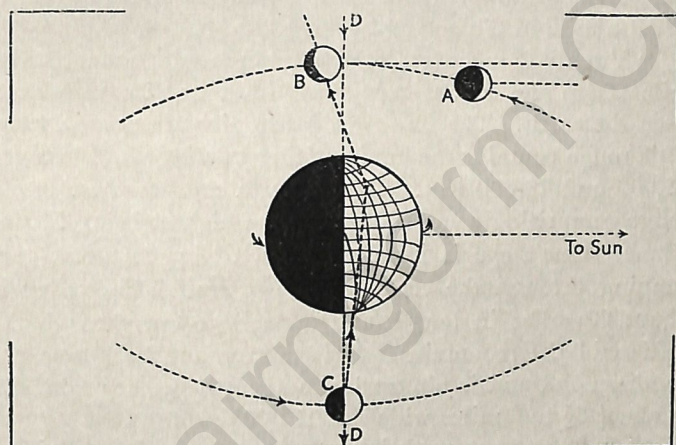
"I was thrilled with the feeling of being the first man to gaze through a 10-inch telescope on any individual part of the complete celestial sphere, and I followed the Milky Way, powdered with stars, until I arrived back where I started, and the words of Henry Vaughan came to my mind:

" ' I saw Eternity the other night,
Like a great ring of pure and endless light,
All calm, as it was bright—
And round beneath it, time, in hours, days, years,
Driven by the spheres,
Like a vast shadow moved, in which the world
And all her train were hurled.'

"I turned the telescope on the most wonderful spectacle of which we know in the universe, the planet Saturn. From

my privileged position it was wonderfully brilliant, and the staccato shadow of the ring rested on the highly illuminated ball of the planet and the shadow of the planet rested on the ring.

“It seemed to me that our objective was now worthy of attention, so I switched on to the moon, which is now 36 degrees to the starboard. The first object that attracted my attention was the Altai Mountains. The illuminated summits of the western end of the range were protruding out into the dark



POSITION OF MOON WHEN PLANE—

A, STARTS FROM EARTH.

B, ARRIVES AT MOON.

C, STARTS FOR EARTH.

D-D, EARTH'S PATH.

side of the moon to the east of the crater Piccolomini, while their lower slopes were still in inky blackness. The sun had risen on the Pyrenees twenty-four hours ago, and now they were throwing dark shadows to the east.

“In another twenty-four hours we had traversed half the journey, and the moon's apparent diameter had doubled. The Hœmus Mountains stretched far beyond the dark side of the moon, and many summits showed as bright beads of light. Farther north is Aristotles, a crater 48 miles in diameter, with a circular rampart 10,000 feet high. The crater presents all the true volcanic characteristics in a

remarkable degree. The outside, as well as the inside, of its vast surrounding wall displays on the grandest scale the landslip feature of subsidence of its overloaded banks, the result of overpiling of ejected material and the consequent crumbling down and crushing of the substructure. A group of conical mountains occupy the central floor of the crater and stand over what was once the vent from which the ejected matter was discharged. On the exterior slopes radiate ridges, the result of flowing down of streams of very fluid lava, while all round for miles are hundreds of craters about a mile in diameter.

“Twenty-four hours later we were only about 60,000 miles from the moon, now four times its size as viewed from the earth. The Caucasus Mountains are now in view. This range contains mountains rising to a height of between 11,000 and 19,000 feet. To the north-east are the Alps, a range comprising some 700 peaks, the highest being Mount Blanc. One’s eye is instantly attracted by the great glen running through the centre of the group. This valley is about 90 miles in length and appears to cut through the loftiest of the mountains. It is narrow and broken at the southern end and is almost lost among the great peaks. It is about $3\frac{1}{2}$ to 6 miles wide and 11,500 feet deep.

“At 20 degrees north latitude we now see the sun rising on the magnificent volcanic range of the Apennines. This chain runs north-west to south-east and is upwards of 450 miles in length, and contains some 3,000 peaks. It is the grandest range on the lunar surface and rises gradually from a comparatively level surface on the south-west side in the form of innumerable small hills of exudation, which increase in number and altitude towards the north-east side, where they culminate and suddenly terminate in a sublime range of peaks whose altitude and rugged aspect form the most terrible and wonderful scene the imagination can conceive. The almost vertical north-east face is casting intense black, spire-like shadows on the level plain beneath, some of which extend fully 90 miles until they lose themselves in the general shading due to the curvature of the lunar surface. It is especially wonderful when the sun

climbs its shining pinnacles and slowly discloses the tremendous chasm that lies below its terrible precipices. Many of the summits rise at one bound to heights of 18,000 to 21,000 feet from the plain at their north-east base. Mount Huygens at the centre of the range is 18,000 feet high, and this is the mountain that our friend Towers and his climbers went out to ascend.

“As we were now nearing the moon’s surface we put in operation the electro-magnetic apparatus at the tail of the plane and gradually slowed down to the required speed for landing. Along the north-east precipitous base of the Apennines are two more or less parallel cracks about 15 and 30 miles from the foot. They are fully a mile wide in some parts and are partially filled by masses of material from the sides which have fallen inward and partially choked them. The depth of the chasms is very great, and they owe their existence to some mighty upheaving action at a profound depth. They have been estimated to be at least the appalling depth of 10 miles.

“We made a splendid landing closer up to the mountains than the cracks and well into a deep and flat recess running into the range north of Mount Huygens. We were now right at the foot of our mountain, and I think that Towers could best tell you what happened afterwards.”

Towers then gave me the details of the ascent of Mount Huygens, and, to say the least of it, I was fascinated as I listened to his narrative. “We got into our full kit,” he began, “and it comprised a complete overall inside which temperature had no effect and each climber could breathe, eat, and drink in comfort. We were all expert in semaphoring, as speech was impossible; the lips may move but no sound comes forth. There was no air and, hence, no sound. Little time was wasted, and we started at once in two parties of three working close together. This arrangement gave us the strength of six men and the mobility of three, and we found it worked very well. As 6 lbs. weigh only 1 lb. on the lunar surface, our equipment, though heavy, did not inconvenience us very much, and we were climbing under conditions as favourable as on the earth. We went into the

heart of the range to the west, then we turned south and afterwards due east to the summit. At first the going was fairly good, but as we turned south the route became extremely rough and absolutely baffles description. The worst of your boulder-strewn slopes on the Cairngorms would seem a carpet to it. The sharp angles of the rocks have never been rounded off by the action of air and water.

“ We reached the height of 10,000 feet after ploughing through volcanic dust and loose debris. To the south-west side of the range the hills gradually became lower and lower until they reached to the plain 100 miles away. On the moon the visible distance in miles is equal to the square root of (the height in feet over 2·442), therefore we could not see farther than some 64 miles owing to the acute lunar curvature; therefore the plain was not visible. On the earth the view would have been as extensive at a height of 2,277 feet. However, the objects that were visible were lit by dazzling sunlight, flecked with black shadows, and distant objects were seen as clearly as those at close quarters.

“ It was now apparent that the real climbing was in front of us, and the general angle appeared to be at least 50 degrees all the way to the summit. The rock was wholly igneous, without any denudation. Most of it had oozed up and slowly flowed down from small, high volcanic openings. This does not apply to the north-east face, that seemed to have broken away and fallen into molten lava at the foot or to have been afterwards covered by lava, as there was very little sign of the fallen material at the base. It was obvious this face could not be climbed owing to its great smoothness and steepness.

“ On the south-west side that we were ascending there were no clean-cut gullies, nor chimneys, nor horizontal terraces, nor cracks whose softer rocks had worn away, nor dykes whose harder rocks were left standing. Nearly everywhere convex and bulging faces presented themselves to us. The best ally we had was the spaces between the smaller individual streams of lava that had gently flowed downwards. In these recesses we always found firm footing, but care had to be exercised, as there were very few belays.

We very quickly grasped what was required of us for this kind of climbing, and indeed we all realised that we had been in more difficult places on the earth. We came to a drop very like the Third Pinnacle on Sgùrr nan Gillean, and we could not turn it. The rock had broken off and the debris could be seen lying around the base of it. It turned out to be an impostor, however, and we descended very easily, but in case of trouble we left a length of rope hanging for our return. At last, after an exceedingly strenuous ascent and after encountering difficulties of various kinds, all of which were within the range of our climbing experience, we reached a fairly flat space just under the final ridge leading to the summit, and very quickly we fell fast asleep. In four hours we rose refreshed, and found the ridge to be quite like the traverse of the four summits of Sgùrr a' Mhadaidh, only it was about six times as long, and it rose gradually to the south. On our left steep rounded slabs of lava ran sharply downwards, and on our right was an appallingly vertical drop, so terrible that we kept away from the immediate edge as we moved along the ridge. A short distance from the actual top we were held up by a gap of 25 feet on the ridge, and it nearly proved too much for us, but by threading the rope behind a flake of rock, the only one we saw on the mountain, we overcame the difficulty and walked quietly on to the summit. The elevation of 18,000 feet had been reached on the lunar surface.

“ In a death-like silence which reigned unbroken we looked along the terrible range of peaks for some 150 miles in either direction, north-west and south-east, as far as the horizon. Never had I seen anything like it on the earth. There is something almost nerve-racking in an absolute stillness, and there was a sinister calm on this mountain-top in which fear and death had a footing. On the north-east side, below the precipice, stretched a comparatively flat floor of lava to the horizon.

“ We returned by the same route and arrived back safely at the plane, where we received a splendid welcome. We had been seen on the summit with the aid of Newton's telescope. To descend from the high mountains to the

pasture lands is the most delicious experience that mountaineering affords, for the soft beauty of the valley, where flowers decorate the pastures in tender profusion, is an ideal contrast to the harsh glare of the upper regions. But here, at the foot of the mountains, the aspect is as sterile as on the summit ridge.

“The earth had turned its dark side to us, which was lit up by full moonlight. The situation was vastly enhanced by the unchanging pitch-black aspect of the heavens and the stars shining brilliantly in the dazzling sunlight.

“The moon’s long day of 304 hours was nearly at a close and night was approaching, the darkness was creeping up from the west, and the time for leaving the moon had now arrived. We arranged to leave by rocket, starting with three successive bursts. These had to be sufficiently powerful to carry us a tenth of our journey, as the gravitational equilibrium of the earth and the moon is at this point. Afterwards it would be quite easy, as we were now right on the earth’s track and it would be rushing towards us at $18\frac{1}{2}$ miles per second. The great moment arrived and everything went according to plan; we reached the earth in less than a quarter of the time that it took us on the outward journey.

“We leave it to those that come after us to visit the other side of the moon when it is illuminated from last quarter to first quarter, and there to discover a new mountain range worthy of the name—The Cairngorm Mountains.”