

The Oxygen Illusion

Perspectives on the business of high-altitude climbing

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During the first attempts to summit the 8000-meter peaks, it was generally believed humans could not ascend the heights without the use of supplemental oxygen. The first attempts on what we now call the normal routes were incomparably more difficult than climbing those routes today. You need only look attentively at the clothes and equipment in the old photos to understand what a dramatically different experience we now have in the mountains. Any professional considering the use of the cumbersome and temperamental old oxygen apparatus or the clothing and sleeping gear that was available to the early explorers will wince. As for me, even my own ascents without oxygen seem incomparable in effort and level of difficulty to what Mallory and Irvine endured in their heroic 1924 attempt on the north side of Everest, or what Hillary and Tenzing Norgay Sherpa overcame on their successful 1953 ascent.

The use of oxygen in these early ascents set a standard for the professional alpinist that is no longer relevant. Mountaineering has expanded from an extreme sport on the one hand to a form of commercially profitable recreation on the other. I feel we need to re-examine our attachment to oxygen as an aid to climbing at altitude. We need to look at the overall picture and our objectives using a different perspective.

Since 1970, mountaineering equipment and clothing have improved much like technology in the space industry: in seven-league steps. New metals, new fabrics, and better designs have advanced the boundaries of what is humanly possible. There is now an industry of suppliers and a market that drives improvement in mountaineering equipment. First of all, these improvements make our ascents easier and safer; secondly, they can compensate for a lower standard of fitness.

When reading accounts of the early ascents in the Himalayas, one has an immediate appreciation for the physical preparedness and psychological readiness for hardship that characterized the athletes and explorers. They did not use oxygen to compensate for lack of training or poor acclimatization. The advantage of a heavy unreliable oxygen canister and a regulator was questionable—and yet a few of the mountaineers succeeded. Our approach to acclimatization and training has changed over the years, but we build on their experiences and examples.

Experienced mountaineers who are committed to the sport as a continuing opportunity to explore the limits of human endurance and performance in the border land of high altitude attend carefully to the outcomes of past endeavors. We attempt to incorporate the wisdom of experience with new information regarding medicine, food, hydration, rest, and stress response to improve human performance and adaptation on the mountain. Commercial mountaineering, while using the tenets of the sport, has promoted the idea that safe high altitude mountaineering is a reasonable ambition for the amateur.

In the Himalayas, the evolution of the role of the Sherpas has played a significant role in the evolution of commercial high-altitude mountaineering. Because of their adaptation to elevations up to 18,000 feet, Sherpas were essential in moving enormous amounts of equipment to the base camps of early expeditions. Over the years, their experience and expertise has expanded their role to logistical and technical support to the summits. This change in role has dramatically decreased the physical stress that expedition members need experience on their road to the sum-



Edmund Hillary and Tenzing Norgay Sherpa at 27,850 feet just prior to their successful first ascent of Mt. Everest in 1953. Alfred Gregory

mit. Sherpas have become the real workers at high altitude, not only carrying heavy burdens to establish high camps, but also fixing line and breaking trail on technical and non-technical parts of the established routes. They have become the underpaid skilled work force that is the foundation of commercial mountaineering.

Only five years ago it was the job of expedition participants to fix line on the route. We did it only to safeguard the more exposed sections; fixing the route was part of our achievement as mountaineers, and contributed to our sense of accomplishment on the summit. Now, to compensate for the inadequate training and inexperience of clients on commercial expeditions, line is fixed on both the technical and non-technical sections of a route, usually by the Sherpa support. This secured route, along with supplemental oxygen, has become the basis for advertising high-altitude moun-

taineering as a reasonable ambition for the inexperienced. The summit of the highest mountain has become a peak experience one can purchase, a dramatic stint in an exotic sanitarium. Money will guarantee you the right of passage to a summit of personal glory.

One need not acknowledge the difference between this Everest and the Everest of Hillary and Tenzing. Yes, it is true that there is only one Everest, and that the summit is a fixed spot and fixed altitude and not the relative effort of achievement; but I feel the current style of commercial expeditions is as different from that of the early achievers as the oxygen equipment of those distant years is to the refined cylinders available today. What is the satisfaction in repeating this achievement under today's circumstances? Advances in technology have compensated for shallow athletic commitment and lack of experience, but it will never reduce the risk and danger that hover in the uncontrollable elements at high altitude.

There is a great focus of experts, climbers and medical professionals on the subject of altitude sickness and the dangers of ascending to great heights with its sparse oxygen supply. Altitude sickness is frequently presented as idiosyncratic, disassociated from any logical behavioral preparation or prevention. Use of supplemental oxygen is the margin of safety that protects the individual from this mysterious affliction. I am the first to admit oxygen is the best, and maybe the only medicine for altitude illness. Supplemental oxygen is touted as the margin of safety on an ascent, the advantage you can count on in the diaphanous ethers of summit day. That is one side of the coin. . . the other side is the danger of using supplemental oxygen at altitude. The use of oxygen by the individual who has inadequate physical training and no insight into his body's adaptive response patterns must be considered. The individual who embraces the myth of opportunity guaranteed by the use of supplemental oxygen is a danger to himself and others.

The best mountaineers of the 1970s and 1980s, men on the cutting edge of our sports profession, shattered the old myth of oxygen as a vital and indispensable component of ascent to high altitude. This was a logical and deliberate debunking of a fixed idea that came about as equipment improved and individuals explored the limits of their acclimatization routines and physical endurance. The idea that supplemental oxygen at altitude promotes what power an individual has is indisputable. But we must consider this benefit in context.

Consider that oxygen at altitude is a kind of drug that enhances performance; as we know, other drugs can affect strength or endurance or speed—temporarily. These drugs make it possible for the athlete to surpass his natural physical and mental capability into the *superhuman* realm in the literal sense. At altitude, supplemental oxygen makes it possible for an individual who is not prepared physically or mentally to step over the border of his own limits and to wander unaware in the Death Zone.

Conventional medical wisdom has validated the short-sighted belief that an individual performs better with a normal oxygen saturation and adequate oxygen availability. I do not argue this theory; it is obvious. But at 8000-plus meters we are not in a controlled environment. We do not have the rapid ability to alter circumstances of support or to augment indefinitely the true limits of physical power.

How do the majority of experienced Sherpas work without supplemental oxygen at altitudes exceeding 6500 meters? The benefit of their experience is gained because for most expeditions the financial constraints of oxygen supply prevent its routine availability for support personnel. It is held aside as an emergency intervention. Sherpas bear the brunt of hard physical labor; their acclimatization routines are edifying.

Sherpas stress their bodies with hard work, rest completely for intervals, hydrate copiously,

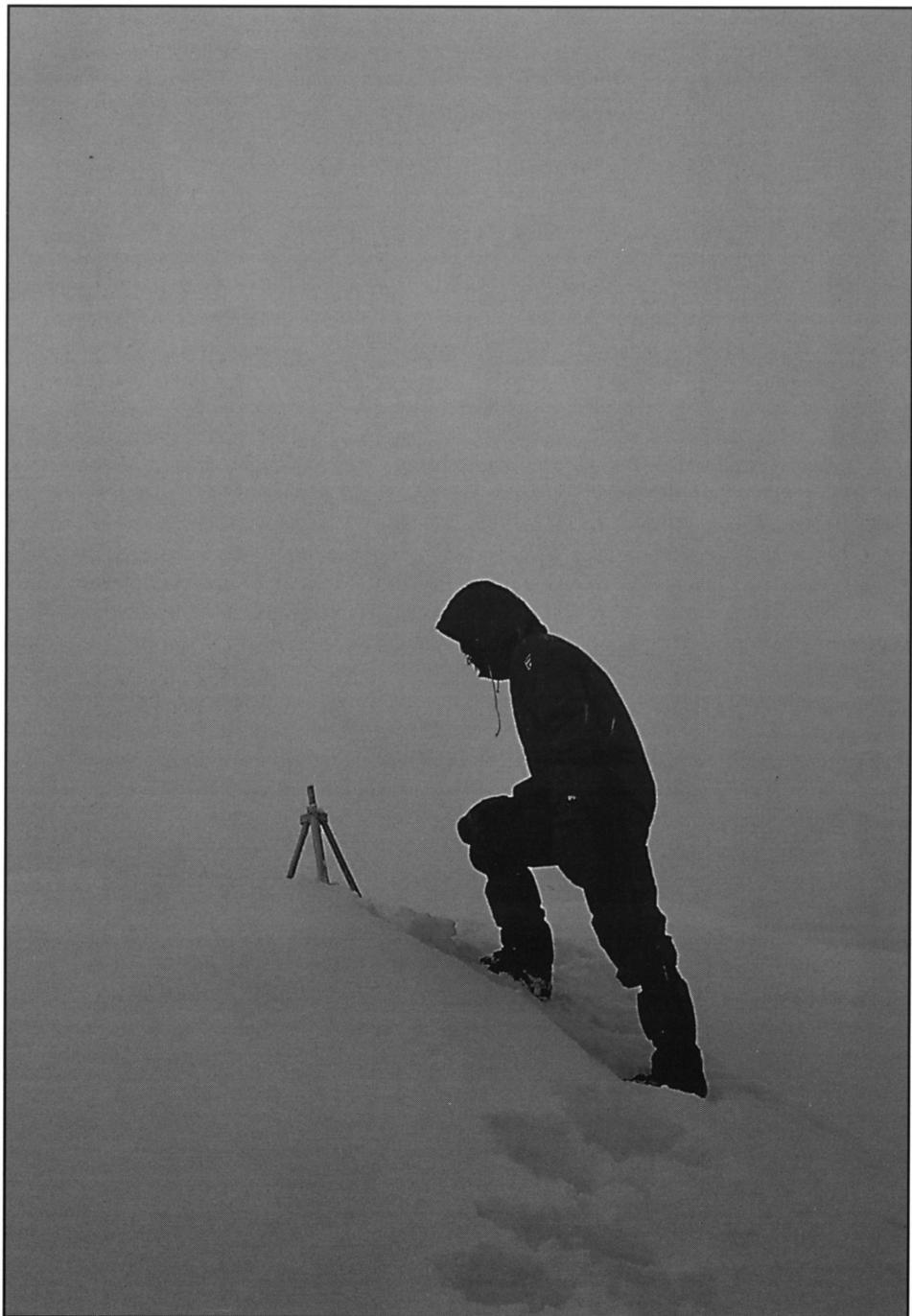
eat very simple high carbohydrate meals at regular intervals, and ascend and descend in a rhythm that is in tune with their bodies' responses to altitude. They do not encumber themselves with the additional weight of oxygen cylinders (which makes movement along dangerous terrain more precarious), nor do they limit their sensory response with a mask that will obscure visibility. They are relieved of the psychological burden of uncertainty regarding the dependability of complicated equipment, they are not physically limited by the time frame imposed by quantities in a bottle, they will not experience the enormous and sudden increase in stress on the body's adaptive systems if the supply of supplemental oxygen runs out.

Sherpas are consciously aware of body response patterns so judgments regarding adaptation are realistic. They have the protective and restorative properties of oxygen to use as a medical intervention if rapid decompensation occurs. The availability of this back-up intervention provides a measure of security to the individual extending himself in these extreme conditions. With years of experience the Sherpas work at a slow steady confident pace that promotes adaptation.

The false security of using oxygen above 8000 meters has in a way increased risk. In the years before the big mountains became commercial vacation objectives, individuals going to high altitude were technically and physically well-trained people, strong in their spirits, ready to confront the many unforeseen circumstances—bad weather, dangerous and difficult conditions on the route, poor visibility, extended periods of effort without food or water, exposure to extreme cold—that arise at extreme altitude. Now the idea is promoted that guides and Sherpas and oxygen will somehow eliminate the awesome variability of conditions that are the basic environment of our sport. Earlier alpinists were able to function without oxygen; granted, they worked more slowly, and performance was not as reliable, but they were prepared to work without oxygen. Now it is possible to see client climbers who have used a constant supply of oxygen on their ascents debilitated totally if the supply is interrupted, gasping and incapacitated like fish out of water. Professionals, too, have come to rely on the prophylactic protection against debilitation that is the oxygen illusion. It is an ace now played in the first round, not reserved for the last call. If you are ill, have a poor acclimatization schedule, or are not in peak physical form, it is oxygen that will compensate for these weak links.

Oxygen will mask the symptoms of illness—for a time. It will promote power—as gas will when poured on a flame; it will alleviate the headaches and vague queasiness that are the heralds of decompensation—until and unless you run out. When the bright flame dies for lack of fuel, it dies dramatically. This slump in performance was tragically witnessed on Everest this last May. I wonder if this is what happened to Doug Hansen at the summit, when, his power spent, no reserve available, propelled past any possible compensation, he ceased to function. When oxygen concentration suddenly decreases at altitude, the body channels energy to the last, most important vital function: the heart. Thinking becomes slurred; internal direction and gross motor coordination cease. The body is shaken with the immediate need to compensate. Energy generation in the muscles and skin is dramatically slowed. In the stress of functioning, conditions are not present for reorganization, repair or recovery; if you stop, super-cooling begins. The extremities are sacrificed to maintain heat at the core, and frostbite sets in.

It is impossible to deny the importance of the use of oxygen when the signs of altitude sickness first show, for it is crucial to reverse the deterioration of cognitive functions. At this moment, oxygen is medicine, the irreplaceable cure. Using the medicine to spare your body its natural slow accommodation is a double-edged sword, though—running out of oxygen when you have propelled yourself to the edge of your capacity with its support increases the risk of death. Good health, adequate acclimatization and a rigorous physical conditioning program that



Alone on the summit, 1980. Reinhold Messner

includes anaerobic and aerobic training are the crucial components of the alpinist's readiness.

In the best of circumstances, you can be lucky and succeed on a big mountain, but good luck is a thin branch to count on in the chameleon environments above 7000 meters. Is it not better to physically train yourself for the oxygen fasting you will experience at high altitude than to set your hopes for survival on the enormous but not always supple benefit of supplemental oxygen?

In the half century since the summit of Everest became an achievable goal, these have been the milestones: the first summit success, in 1953, with the use of supplemental oxygen, by Tenzing and Hillary; the quantum leap of performance that was achieved by Messner and Habeler in 1979 without the use of supplemental oxygen; and then, the final standard against which any professional measures himself, Messner's solo ascent without oxygen of the long northwest ridge. All three of these summit achievements are deserving of our respect and admiration. Each redefined the finish line for the alpinist who ventures into the thin air. The destination is not greater than the journey.

How could the amateur adventure-seeker of today find satisfaction with a level of performance that was a standard set more than 40 years ago? He or she travels to Everest with the enormous benefit of improved equipment, with the advice and support of experienced professionals and with the extensive technical and logistical support of Sherpas. The test is on a mountain far more approachable than the Everest of Hillary and Tenzing, and one incomparable to the Everest of Messner. These climbers achieve a meter height, but do not explore the limits of human potential. Everest is more approachable, but has become no less dangerous. What are they testing in achieving the summit in this way? Is it a worthy endeavor? A man or woman setting themselves against a mountain unprepared is honestly only hubris tempting fate.

It is important for those who wish to climb high and for the experienced professionals who will assist them with their ambition to consider this point: what does commerce mean at high-altitude, and how will it influence the integrity of our sport? Guaranteed summits, with emphasis on compensating for poor conditioning as the exchange for ever-higher prices, is of questionable morality. We have a very limited rescue potential above 7500 meters. It is simply impossible to rescue any but the minimally debilitated in this environment. Yet poorly conditioned dilettantes are lured to the death zone with the illusory guarantees of safety and summit success. The most experienced guides can only die with you in these elevations. That is the sad lesson of commercial mountaineering in 1996. We would do better to shatter this myth of success for a price.

The commercial expedition is the most reasonable alternative now for individual or group ascents on any big mountain. But can any commercial expedition to Everest truly qualify as "guided" in the sense that Americans wish to define this term? There was a lot of talk about rules after the Everest tragedy. The truth is that we write the rules as we go. Any new business does this. It is difficult to extrapolate the rules we use below 6000 meters and apply them to high-altitude mountaineering. We should also consider the subject of merchandising and personal responsibility. I understand why one comes to these giants, compelled by their majesty to reach for the stars, but truly the destination can be no more meaningful than the journey.

Anyone going to Everest, or to any 8000-meter peak, should understand there is no guarantee that their life is safe. They should know they undertake a deadly game. The idea that oxygen will



Summit day, May 10, 1996. Neal Beidleman

improve chances for success is true in theory, but it is a profitable deception if you look at the bigger picture. “Oxygen” has made Everest a commercially profitable experience—but “oxygen” and merchandised accessibility have become an environmental tragedy for the magnificent mountain that is the pyramidal apex of our planet. While the lower camps are cleaned of the unsightly canisters by our environmentally correct expeditions, the last camp at the South Col has become a depressing garbage dump of oxygen canisters that will likely never be reclaimed. The human tribute paid to the unique, awesomely beautiful geographical feature of Everest is a garbage pile of ambition. The myth of accessibility grows with this pile of garbage.

Accessibility is an illusion. Money will not save you here, a guide cannot save you here, supplemental oxygen will not guarantee your life in this extreme. Professional and amateur alike are humbled here. The last word will always belong to the mountain.