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ISLAND PEAK – A POPULAR DESTINATION FOR MOUNTAINEERING IN THE HIMALAYAS. METHODOLOGICAL AND PRACTICAL ASPECTS

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ABSTRACT. Island Peak is located in the Solu-Khumbu region of the Himalayas (Nepal), and is a destination for beginner climbers, for acclimatization (at the altitude of 5000-6000 m), and training (practicing techniques for moving on exposed rock and ice, traversing crevasses on metal ladders, climbing on fixed ropes, moving on ice ledges, abseiling). The popularity of the massif is because it was noticed and climbed for the first time by members of the British expedition in 1953, but also from other causes, such as: easy access on the Dinboche-Chukkung-PareshayaGyab route; the short and relatively easy standard ascent route, but with enough technical challenges (slope, exposed rock, ice plateau with crevasses, ice wall, and exposed rock, narrow ridge with ice ledges), the passage of which is good training for climbing peaks above 7000 m and testing climbing skills; the proximity of the southern face of the Lhotse Peak; scenic perspectives towards Lhotse summit (8516 m), to the Imja, Lhotse Shar, and Lhotse glaciers, to the Baruntse ridge (7000 m), and the iconic Ama Dablam Peak (6856 m).The basic work is the result of direct research carried out by the author on the Island Peak massif and highlights, on the one hand, its geomorphological features, and on the other hand, the methodological stages of organizing and carrying out an expedition on this peak, relevant from sport and medical point of view.

Keywords*: climbing, trekking, mountaineering, Everest Base Camp Trek, summit day.*

REZUMAT. ***Island Peak – o destinaţie populară pentru alpinism în Himalaya. Aspecte metodologice şi practice.*** Vârful Island Peak este situate în regiunea Solu-Khumbu, din Munţii Himalaya (Nepal) şi reprezintă o destinaţie pentru

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alpiniștii începători, pentru aclimatizare (pe nivelul altimetric de 5000-6000 m) și antrenament (exersarea tehnicilor de deplasare pe rocă expusă și pe gheață, traversarea crevaselor pe scări metalice, cățărare pe corzi fixe, deplasare pe cornișe de gheață, coborâre în rapel). Popularitatea masivului este data de faptul că a fost remarcat și urcat pentru prima dată de către membrii expediției britanice din 1953, dar și din alte cauze, cum ar fi: accesul ușor pe ruta Dinboche-Chukkung-PareshayaGyab; traseul standard de ascensiune scurt și relativ ușor, dar cu suficiente provocări tehnice (pantă, rocă expusă, platou de gheață cu crevase, perete cu gheață și rocă expusă, creastă îngustă cu cornișe de gheață), a căror parcurgere reprezintă un bun antrenament pentru ascensiunea pe vârfurile de peste 7000 m și testarea abilităților de cățărare; proximitatea feței sudice a vârfului Lhotse; perspectivele scenice spre vf. Lhotse (8516 m), spre ghețarii Imja, Lhotse Shar și Lhotse, spre creasta Baruntse (7000 m) și spre vârful iconic Ama Dablam (6856 m). Lucrarea de bază este rezultatul cercetărilor directe efectuate de autor în asupra masivului Island Peak și evidențiază, pe de-o parte, trăsăturile geomorfologice ale acestuia, iar pe de altă parte etapele metodologice de organizare și desfășurare a unei expediții pe acest vârf, relevante din punct de vedere sportive și medical.

Cuvinte cheie: *alpinism, trekking, mountaineering, Everest Base Camp Trek, summit day.*

INTRODUCTION

The Himalaya-Karakorum mountains represent the highest mountain system in the world, which aroused the curiosity of climbers at the beginning of the 20th century when the first attempts to climb Everest (8848 m) took place. After 1953, when Tenzing Norgay and Edmund Hillary reached the summit of Everest through the Khumbu Valley, and the South Col, and after 1960, when a Chinese expedition reached the summit of Everest through Tibet, and the North Saddle, a socio-economic phenomenon was opened and sport that has grown over time, reaching today to be considered mass tourism. One by one, between 1950 and 1964, all 14 peaks of 8000 m were conquered, then moving on to the peaks of 7000 m and 6000 m.

As the ascents of Everest and 8000 m peaks multiplied, so did the criteria of sports performance, such as:

- the first climber on the summit;
- the first to reach all the peaks of 8000 m;
- the first to reach all 8000 m peaks in a certain period;
- the first to reach a peak of 8000 m in winter;
- the first to reach the top without additional oxygen;

- the first climber from a country to reach a peak of 8000 m;
- the first expedition from a country to reach a peak of 8000 m;
- the first mountaineer to reach the peaks of 8000 m several times;
- the mountaineer who reaches a peak of 8000 m without the help of a guide;
- the youngest climber on a peak of 8000 m;
- the oldest climber on a peak of 8000 m;
- the first woman on an 8000 m peak;
- the first woman to climb all 8000 m peaks;
- the ascent without additional oxygen;
-discovering a new route to a peak.

The commercial dimension of mountaineering in the Himalayas, in recent years, includes, in addition to the ascent of the 8000 m peaks, trekking, on certain routes, to the Base Camps of the 8000 m peaks (Everest Base Camp Trek, Annapurna Base Camp Trek, Cho Oyu Base Camp Trek, Ama Dablam Base Camp Trek, etc.), as well as the ascent of 5000-6000 m peaks (Gokyo Ri-5360 m, Labouche-6135 m, Island Peak-6189 m, Mera-6476 m, etc.). Thus, numerous mountain tourism agencies have appeared in the countries that own the high mountains (Nepal, China, India, Pakistan), but also in other countries (UK, USA, etc.), which organize guided tours and guarantee the success of these recreational activities and sports.

In the present paper, based on personal experiences, the Island Peak massif (6189) is presented as a destination for novice climbers and training before ascents of 8000 m peaks. The peak was noted by members of the British Reconnaissance Expedition in 1951 (Eric Shipton, Edmund Hillary) and used as an acclimatization ground by the members of the 1953 expedition (Charles Evans, Alfred Gregory, Charles Wylie, Norgay Tensing), who named it "Island Peak", and the main peak was reached in 1956 by German mountaineer Hans-Rudolf Von Gunten.

LITERATURE REVIEW

On the Khumbu region of Nepal, and the summit of Everest, numerous researches have taken place, over time, concerns, among others, the sustainability of activities (Beza, 2010; Elvin et al., 2020), the assessment of the degree of pollution (Imogen et al ., 2020), glaciers and climate change (Owen et al., 2009; King et al., 2020; Mayewski et al., 2020), geographic risks (Miner et al., 2020), weather-climatic aspects (Perry et al., 2020), ecological aspects (Spoon, 2011), cultural and ethnographic aspects (Norgay, 2004; Sinanan, 2022), the evolution

of Everest ascents (Wylie, 1954; Salisbury et al. al., 2020), medical and sports aspects (Cerretelli, 1976; West et al., 1983; West, 1984; Westerterp et al. 1992; Grocott et al., 2009; Karinen, Tuomisto, 2017; Huey et al., 2020, Woodward, 2020), and tourism aspects (Stevens, 1993; Egan, Stelmack, 2003; Sanjay, 2015; Jacqueme, 2017; Sun, 2021).

In recent years, similar research efforts have intensified due to several s equipment, and information technology (internet, telephony, applications), the intensification of tourist activities and, implicitly, the increase of pressure on mountain environment, support of research projects by certain organizations (e.g. National Geographic and Rolex Perpetual Planet Everest Expedition, 2019), etc.

There are only tangential references to Island Peak, in works on Everest ascents (Wylie, 1954; O'Connor, 1989). Therefore, there is a considerable bibliographic base, about Mount Everest and the surrounding geographical area, which we used to interpret various geographical and sports aspects to develop the present study.

METHODOLOGY

To carry out this study, the following methodological steps were completed:

-consultation of specialized literature and some cartographic materials, related to the Himalayas Mountains, the Everest Base Camp Trek route, and the area around Everest Peak, including the Imja Valley and the Island Peak;

-preparation of the research expedition in the Khumbu region (routes, equipment, training);

-carrying out some field research, in the Solu-Khumbu region of the Himalayan Mountains (Dudh Kosi Valley, ImjaKhola Valley, Island Peak massif), and an ascent to the top of Island Peak in April 2023.

STUDY AREA

Island Peak/ImjaTse is located in the Himalayas, in the eastern part of Nepal, in the Eastern Development Region, Koshi Province, Solukhumbu District (fig. 1). From a geomorphological perspective, the peak is located on a secondary ridge, which detaches from the Lhotse ridge, bounded by the Imja glacier to the south, Lhotse glacier to the west, and Lhotse Shar to the east (fig. 2).

The geographical coordinates of the peak are: 27° 55′ 14.84″ N, 86° 56′ 6.58″ E, and its name was given by some members of the British Expedition of 1953 because it resembled an island surrounded by a sea of ice. In 1983, the peak was renamed ImjaTse, but the term Island Peak is more commercial and remains more popular among climbers.

Access to Island Peak is via the Lukla-Namche Bazar-Tenboche-Dinboche-Chhukung-PareshayaGyab route, with a paved road and hiking trail.

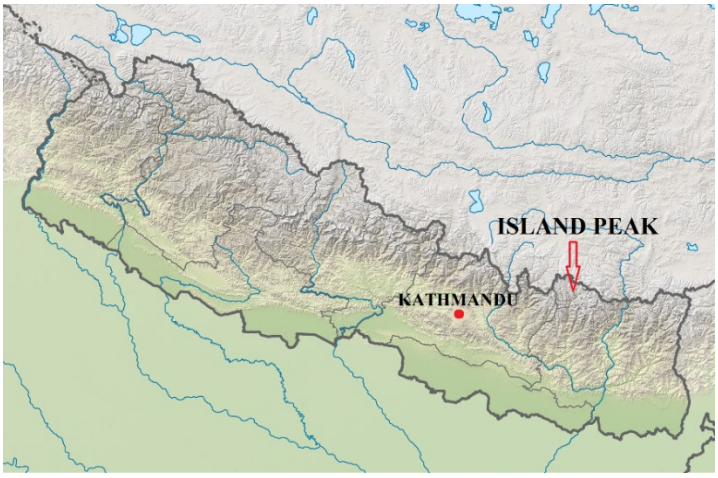

Fig. 1. Geographical position of Island Peak in Nepal (source: with changes)

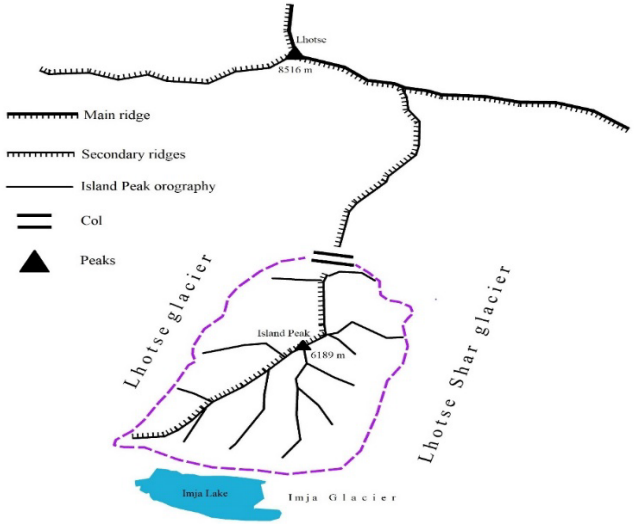

Fig. 2. The geomorphological location of Island Peak in mountain area (source: Island Peak Climbing Map, 1:40000, with personal contribution)

RESULTS AND DISCUSSION

The research carried out in the Solu-Khumbu region considered several areas, such as the geography of the region and the Island Peak massif, the tourist organization of the massif, and the sports and medical aspects related to the ascent of the Island Peak peak.

1. Geomorphology of the Island Peak massif

The Island Peak massif represents the terminal part of a secondary ridge detached from the main Lhotse Shar peak in the SSW-NNE direction and is bounded by the Imja Pass (5700 m) to the SSW, and the Lhotse glaciers to the SE, Lhotse Shar to the NW, and Imja to the N.This secondary ridge is slightly sinuous and very narrow, covered with an ice ledge that spills over the SE slope and descends to an altitude of 5440 m. From here, the ridge breaks free of the ice, takes on a rounded appearance, and plunges into the Imja Valley (fig. 3).

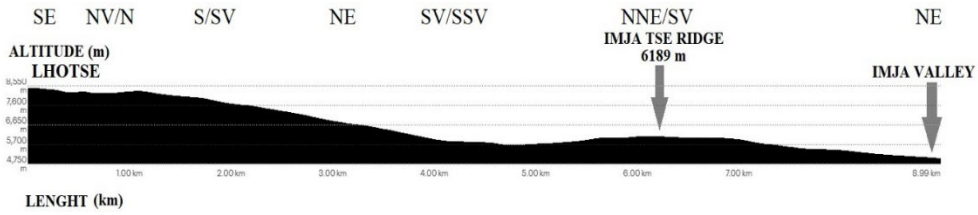

Fig. 3. The longitudinal profile of Lhotse-Island Peak Ridge
(source: Island Peak Climbing Map, 1:40000, with personal contribution)

Island Peak (6189 m) represents the highest part of the massif, has a narrow and elongated configuration, and is a sub-peak of the parent peak Lhotse, from which it has a prominence of 469 m (fig. 4).

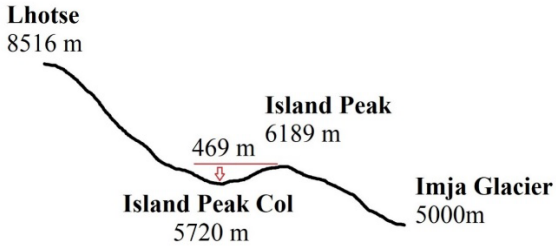

Fig. 4. The topographical prominence of Island Peak
(source: Island Peak Climbing Map, 1:40000, with personal contribution)

From the top, a series of secondary peaks emerge, oriented divergently, towards the surrounding valleys, delimited by several cryo-glacial ridges. The SE flank of the peak and the summit are covered with ice, and the NE flank has ice-marked sectors of steps, and crevasses, and sectors of exposed rock. Also here, below the peak, there is a crevasse ice plateau, spread between 5800 m and 6000 m (fig. 5).

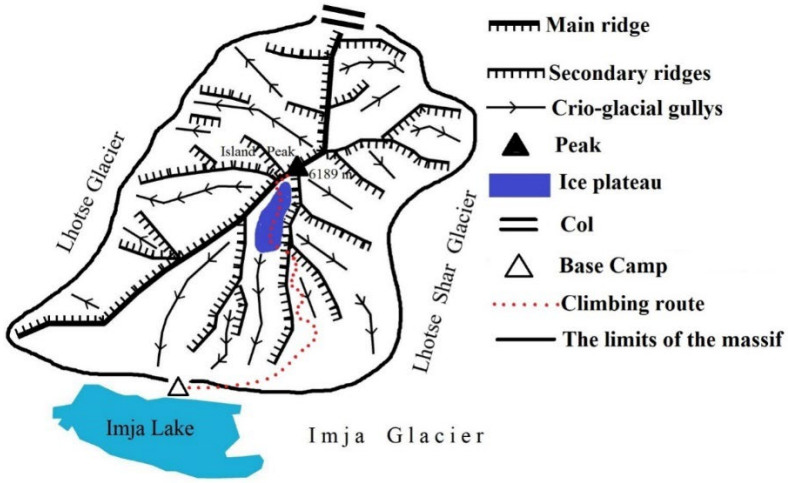

Fig. 5. The geomorphologic map of Island Peak
(source: Island Peak Climbing Map, 1:40000, with personal contribution)

2. Tourist organization of the Island Peak massif

Located in the vicinity of Mount Everest and Mount Lhotse, the Island Peak massif is a destination frequented by climbers for acclimatization, training, and scenic views of the south face of Lhotse Peak, Baruntse Ridge, Imja Valley, and Ama Dablam (fig. 6). The tourist infrastructure present here consists of:

-tourist trail on the route Dingboche-Chukkung-Imja Valley-PareshayaGyab Base Camp;

-PareshayaGyab base camp (5080 m), equipped with tents (fig. 7);

-tourist trail on the route PareshayaGyab-Imja Valley-Upper Camp (5600 m)-Island Peak;

-tourist trail on the route PareshayaGyab-Inja Valley-Imja Col-Upper Camp (5600 m)-Imja Ridge-Island Peak;

-metal ladders placed over the crevasses on the Imja ice plateau (5800-600 m);

-fixed ropes placed on the NW wall below the summit, with exposed rock and ice, and on the ice ridge;

-marking of Island Peak with multi-colored flags.

Fig. 6. Island Peak seen from Chukkung
(source: author)

Fig. 7. Pareshaya Gyab Base Camp
(source: author)

3. Sports aspects

a) The preparation of the expedition involved the following stages:

1) Physical and mental preparation:

-training for physical condition (endurance trekking with a backpack, scrambling, running, cycling);

-swimming underwater to adapt the body to the lack of air, and increase lung capacity;

-performing some exercises to increase the pulmonary capacity of the lungs;

-practicing different motor skills (walking uphill, walking downhill, jumping, climbing, maintaining balance on uneven ground, and narrow surfaces);

-mental preparation for survival at high altitude: prior information about the living conditions in the Himalayas, about altitude sickness (symptoms, prevention, treatment), about the various conditions that can appear on the route, at high altitude, about the way of eating, about traveling on rocky terrain, and on ice, about the culture, and customs of the locals;

2) Choosing the optimal equipment, which is useful (comfortable and necessary for protection against low temperatures, wind, moisture, and precipitation), functional (eliminates stress, keeps you safe), and light (reduces fatigue while traveling on the trail).

b) During the expedition, it was as follows:

-the use of travel equipment on rocky, soil, and icy terrain;
-systematic acclimatization;
-dosage of effort;
-proper nutrition;
-hydration;
-rest;

c) The ascent to the peak had the following stages:

1) The acclimatization and training stage, during which a fixed rope climbing workshop with a blocker, and abseiling was organized in the base camp;

2) The stage of travel to the summit, after midnight, from the PareshayaGyab Base Camp, where travel techniques were used on the exposed rock, and the ice (moving with corners, traversing crevasses equipped with fixed rope railings, climbing on ropes fixed, abseiling);

To reach the summit, there are two routes. For the present study, the normal route was followed, starting from PareshayaGyab Base Camp (5080 m), located on the lateral moraine of the Imja Glacier, ascending through a stony

valley on the NW flank, and reaching the base of the ice plateau below the peak. After traversing the ice plateau, crossing several crevasses, equipped with metal ladders, the route approaches the rock, and ice wall on fixed ropes to the summit, then follows the ridge marked by fixed ropes to the summit.

3) Summit day and photo session, in the morning;

4) The withdrawal stage towards the PareshayaGyab base camp;

d)Recovery after climbing consisted of:

-light walks, light food, hydration, rest;

4. Medical aspects

During the expedition, acclimatization was done gradually, on the route Lukla (2860 m)-Namche Bazar (3340 m)-Tenboche (3867 m)-Dinboche (4400 m)-Chukkung (4700 m)-PareshayaGyab (5082 m). As such, the altitude sickness was greatly alleviated, the present symptoms being: slight headache and dizziness, feeling tired, the need to hyperventilate, reduced appetite, insomnia, and during the ascent to Island Peak, on the 5600- 6189 m, the feeling of fatigue and dizziness increased, and some abdominal discomfort was felt.

During the ascent to the top of Island Peak, the cardiac activity was monitored, based on the Huawei Health application, on the Android phone Samsung Galaxy A 53 5G, a fact that emerges from tables 1-4.

Table 1. Resting heart rate
(5082 m, PareshayaGyab-Island Peak Base Camp)

Member of expedition	Age	RHR b/m
Author	59	85

Table 2. Maximum heart rate

Member of expedition	Formula 220-age	Value of MHR b/m
Author	220-59	161

During the ascent from the Pareshaya Gyab Base Camp (5082 m) to the altitude of 6189 m, the value of the heart rate was 140-150 bpm, so below the limit of the maximum heart rate, which, however, denotes an intense effort at an altimetric level unacclimatized (5000-6000 m).

Table 3. Backup heart rate

Member of expedition	Formula MHR-RHR	Value of BHR b/m
Author	161-85	76

In this case, the optimal heart rate during the ascent on the altimetric level 5082 -6189 m was (table 4):

Table 4. Optimal Heart Rate

Member expedition	BHR 75% b/m	RHR b/m	Value of OHR b/m
Author	80x75%=60	85	145

As seen in Table 4, an age-optimal heart rate was recorded below the maximum heart rate value and based on a sufficient heart rate reserve. However, the effort was intense, representing 90-93% of the maximum heart rate (fig. 8).

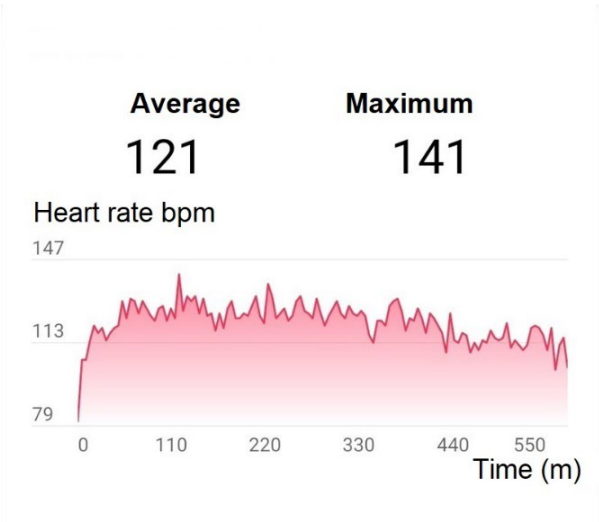

Fig. 8. Graph of heart rate during climbing Island Peak
(source: Huawei Health App.)

CONCLUSIONS

The Island Peak massif, located in the Solu-Khumbu region (Nepal), is a destination for beginner climbers, used for acclimatization (altitude level 5000-6000 m), and training (practicing moving on exposed rock, on ice, climbing on fixed ropes, descending in abseiling, traversing crevasses on metal ladders, equipped with rope railings).

The commercial character of the massif is given by:

-easy access on the Dinboche-Chukkung-PareshayaGyab route;

-the short and relatively easy standard ascent route, but with enough technical challenges (slope, exposed rock, ice plateau with crevasses, ice wall, and exposed rock, narrow ridge with ice ledges), the passage of which is good training for climbing peaks above 7000 m, and testing climbing skills;

-the proximity of the southern face of the Lhotse Peak;

-scenic perspectives towards Lhotse (8516 m), to the Imja, Lhotse Shar, and Lhotse glaciers, to the Baruntse ridge (7000 m), and the iconic Ama Dablam Peak (6856 m).

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