

# Himalayan Heaven

## Diving high altitude lakes of Nepal

text by Andrey Bizyukin  
photos by Maxim Gresko

No One Else Will Ever Dive  
Higher or Report on this Unknown  
Expedition.

Underwater Himalayas – these words, while absurd at first glance, began to make sense in 1999 when Andrei Andryushin (NAUI dive instructor) together with his friend and adventure companion, Denis Bakin, have been traveling in the area of Anapurna, one of Nepal's eight-thousand-meter mountain peaks. At one of the passes, a sherpa guide told Andrei that not far from their route lay Tilicho, the the highest mountain lake in the world.

*That's one small step for  
man, one giant leap for  
mankind.*

*-- Neil Armstrong*

Tents are dwarfed by the Himalayan mountain peaks surrounding Tilicho, the highest mountain lake in the world.





Andrei Andryushin takes a break on the trail up the mountain side.

## Himalaya



Steep mountain passes make the trek up to Lake Tilicho difficult and treacherous.

Different sources positioned the lake at an altitude varying from 4,960 to 5,200m above sea level and described its size as 4 by 1.5 km across. Asking the locals and guides about the lake as well as subsequent internet search confirmed that no person had ever dared to dive in the lake.

### The Big Idea

As it usually is with decisive people, the path from an idea to its practical realization was not long. Upon his return to Moscow, Andrei met with Vadim Belenikin, president of Sprout Dive Club,

and made a presentation of his idea – to set an unbeatable world record by making a dive in the highest mountain lake in the world. Vadim strongly supported the idea.

Soon the following group of enthusiasts started working on the project: Andrei Andryushin, Denis Bakin, Vadim Belenikin, Maxim Gresko, Pavel Ruslanov, Guennadi Slobodanyuk, Dmitri Friedman and Svetlana Chistyakova.

To everyone's disappointment, the representative office of the *Guinness Book of Records* turned down the request to register the record since their

representative could not participate in the expedition personally. But neither this nor the lack of sponsors and high cost of the expedition could stop the enthusiasts in their determination to set a new world diving record.

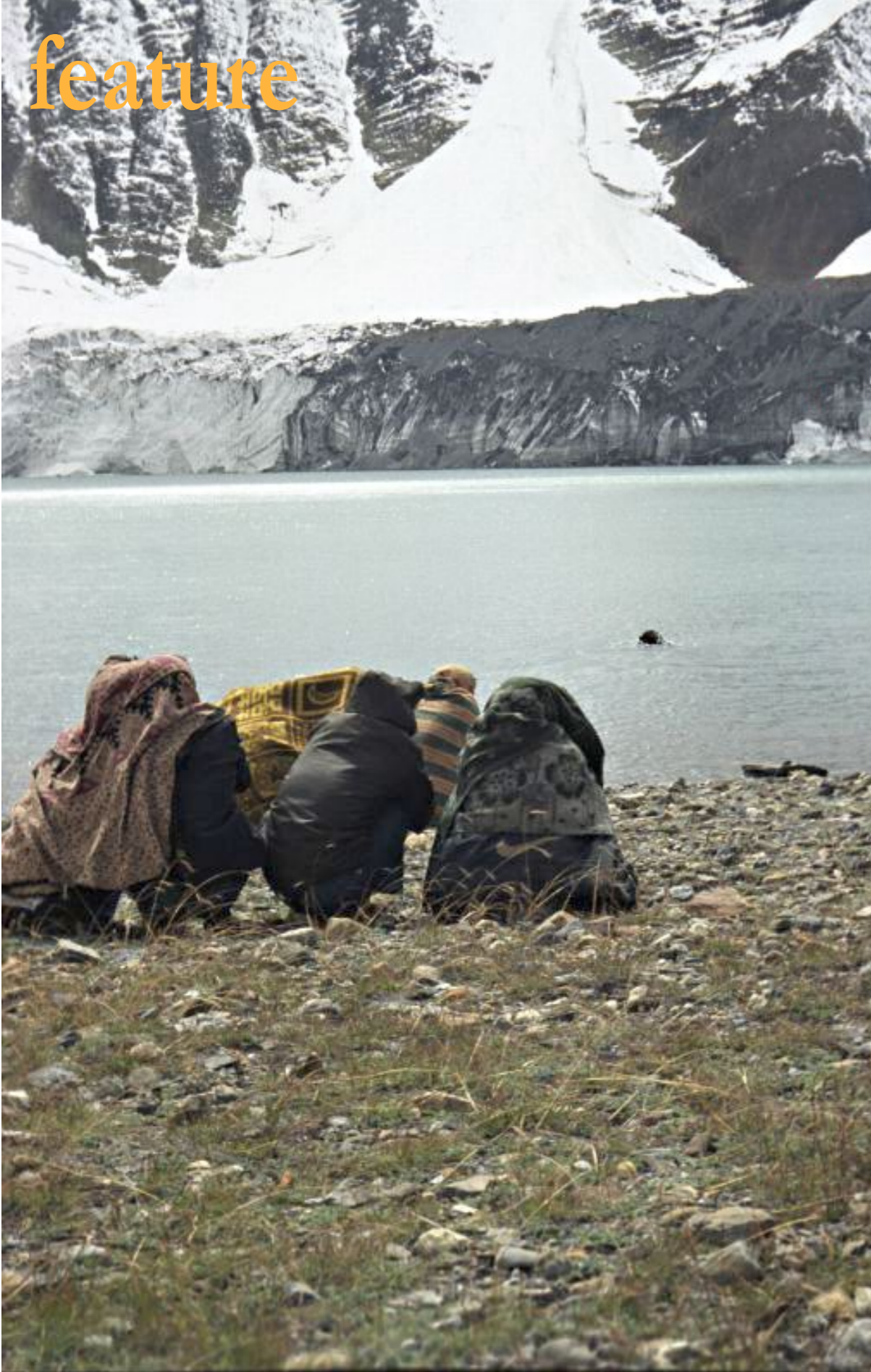
In pursuit of their dream, the adventurers decided to finance the expedition with their own personal funds. All logistics issues were handed over to the Himalayan Club, whose president, Sergei Vertelov, decided to join the expedition personally.





A breathtaking view of the Himalayan mountains from the trail.





Members of the team huddle together on the shore as a diver submerges.

## Himalaya



View from inside a tent overlooking the sparkling surface of Lake Tilicho.

### Challenges

The task to bring over half a ton of equipment, including a compressor, and a group of divers to a remote region of Nepal located at the same altitude of that of the peak of Elbrus, looked complicated by any standard. Another problem was the absence of proven tables that would allow divers to calculate maximum duration and depth of a dive at such an altitude.

On top of that, urgent evacuation in

case of trouble was impossible, and the group could not get information on the availability of a single pressure chamber in Nepal. It's a well-known rule that air travel should be avoided for some period after diving. But the atmospheric pressure at the altitude of the lake of Tilicho is 0.5 bar, which is much less than in a cabin of any commercial airplane. After some approximate calculations, it was decided that the dive depth should be limited to 25m with a maxi-

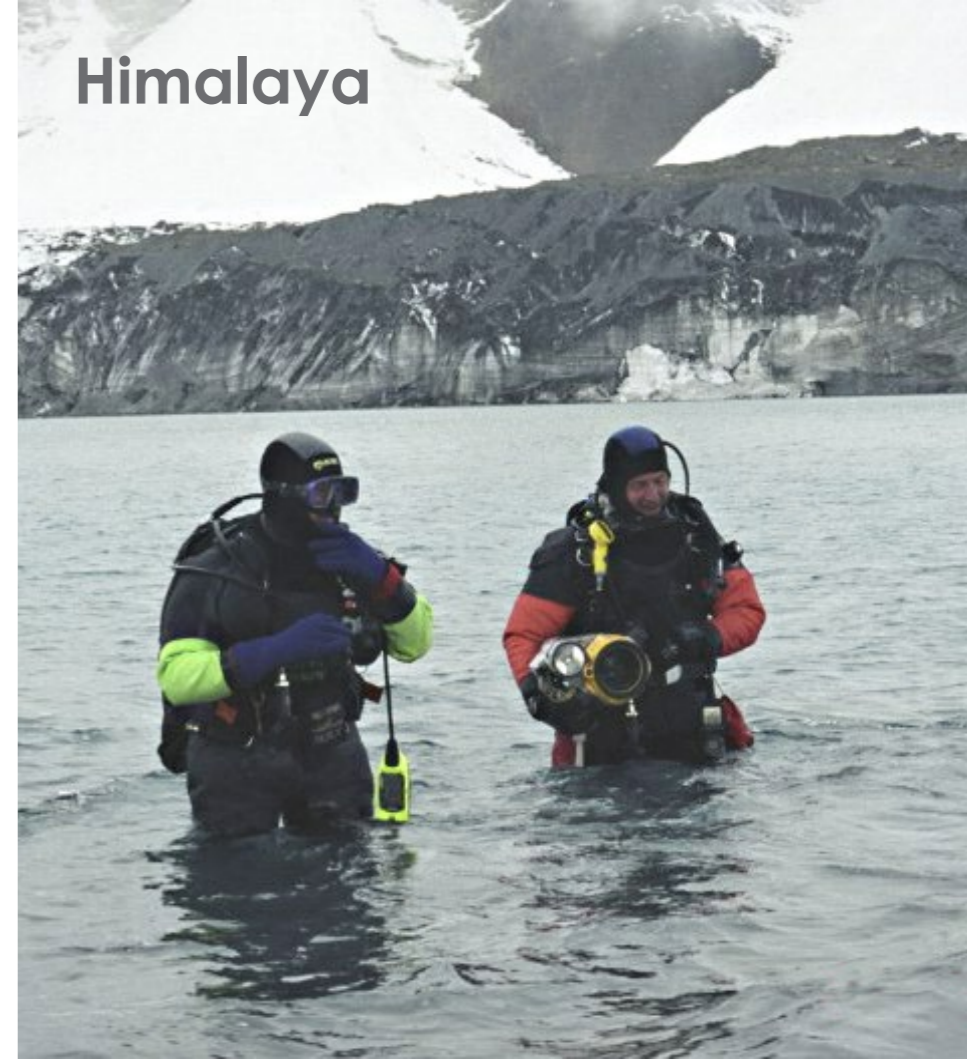
mum exposure of one minute.

Then, there was the flight to Katmandu, a transfer to a run-down local carrier, a flight to Manang — a village claiming to have the highest dirt airstrip in the world (3550m above the sea level), a two-day stopover for acclimatization, a check dive in a local lake and getting a blessing from a local lama, followed by an exhausting two-day climb to Tilicho.





feature



Himalaya

Andrei and the team members prepare for the record setting dive and help each other suit up. High altitudes make any task much harder to accomplish.

**Tilicho**

On September 23th, 2000, the expedition reached the lake. Tilicho astounded everyone with its pristine beauty. The lake was absolute cyan in color. On the lake surface, huge pieces of ice were floating, sparkling in the cold rays of the sun. Later, it became clear that the ice was brought to the lake by avalanches, which rushed several times a day down the glacier covering the western slope of the mountain.

The camp was set up on the shore opposite to the glacier. At the water's edge, our GPS (global positioning system) was showing an altitude of 5,000m. Due to insufficient acclimatization period, most of the group members were suffering from different symptoms of altitude sickness

(headache, nausea, etc). It was then decided to follow the initial plan and begin diving the next day.

Sunny weather that everybody enjoyed during the day was replaced by snow, strong winds and temperatures at minus 10°C during the night.

In the morning, with the help of an inflatable boat and an echo sounder, the first depth measurements were taken. The measurements showed that a narrow shallow band by the water's edge near the camp sloped abruptly into a sharp rocky incline that was much deeper than what the echo sounder could measure (max. 75m). In addition, strange formations resembling seaweeds were found at the depth of 50m.



Divers use echo sound equipment to measure the depths of the lake.



# Himalaya



Strong winds , whipping snow and extreme temperatures make for a very tough night on the shores of Lake Tilicho.



Remote and pristine, Lake Tilicho is the highest mountain lake in the world.

## Preparations

With a lot of effort, a Colty Sub compressor managed to fill the air tanks up to 100 bars. But the weather started getting bad again, so the first dive was made from the shore near the camp. This dive, even though a shallow one at 10m, plus exposure to extreme temperatures during the following night, exhausted the team. The night was very cold and gusts of wind and snow tore out two tents.

On the morning of September 25th, Andrei was still willing to accomplish the goals of the initial plan. Together with Denis Bakin, Maxim Gresko and the sherpas loaded with diving equipment, he went over to the northern shore of the lake where the profile of the slope and shoreline would allow them to make the record dive.

Any movement at such altitude can make a person short of breath. It causes suffocation and requires time to regain normal breathing.

Two kilometers north of the camp, they chose a place with convenient access to the water. Friends helped Andrei to put on his gear, and then he went underwater. "I was moving down along a rocky slope. It was quite dark under the water. Visibility was no more that 1m. The water temperature at the surface was 6°C. My wrist computer switched over to dive mode as I reached the depth of 5m. That's when it indicated zero depth," said Andrei.

"I went down to 21m according to computer. The water temperature there was 3°C. The rocky slope kept going down, but I turned around and started going up to the



Team members rest on the shore of Lake Tilicho which sits at an altitude of 5000m.

A diver checks his gear in the shore dive.



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ABOVE: The Russian flag keeps vigil at a campsite dusted with snow in the early morning hours.

surface following the slope profile. It was important to go back to where I started from under the water, because swimming on the surface in full diving gear at the altitude of Elbrus peak requires inhuman effort. My dive lasted for 10 to 15 minutes and brought no surprises. Afterwards, I felt great satisfaction that I reached my goal, and I experienced a rush of energy, probably thanks to breathing oxygen-rich air from the tank. I did not discover any forms of underwater life, but this came neither as a disappointment nor as something unexpected. But the most important thing was what we did accomplish – no one will ever dive higher than we did," said Andrei.

On the same day, the group decided to take the road back. The world record had been set.

### Breaking Records

The Russian team set the absolute record in high mountain diving. They are the first to accomplish a dive in the highest lake in the world. Of course, in setting out on this expedition, they staked a lot on pure luck. But luck favors only those who dare.

### PHYSICAL RISKS IN HIGH ALTITUDE DIVING

Training in high altitude diving procedures is essential for safety in diving at altitude.

There are normal physiologic changes that occur in all individuals who adventure to high altitudes:

- Hyperventilation (breathing fast)
- Shortness of breath during exertion
- Increased urination
- Night time changes in breathing pattern
- Awakening frequently at night
- Weird dreams

#### HOW TO RECOGNIZE ACUTE MOUNTAIN ILLNESS (AMS):

Within the time period of a recent ascent to high altitudes above 2500 m (8000 feet), a headache, with one or more of the symptoms listed below qualifies an individual for the diagnosis of AMS:

- Loss of appetite, nausea, or vomiting
- Fatigue or weakness
- Dizziness or light-headedness
- Difficulty sleeping
- Confusion
- Staggering gait

Many people wrongly believe that a headache at altitude is "normal" when it is really a symptom of AMS. One must be willing to admit that one has altitude illness.

According to the High Altitude Medicine Guide by Thomas E. Dietz, MD Emergency & Wilderness Medicine, there are two rules to follow:

#### GOLDEN RULE #1

It is OK to get altitude illness. It is not OK to die from it.

#### GOLDEN RULE #2

Any illness at altitude is altitude illness until proven otherwise.

SOURCE:

[www.high-altitude-medicine.com](http://www.high-altitude-medicine.com)

As conventional sea level tables and calculators are inadequate for the needs of high altitude diving, special conversion tables are available through NAUI for diving at altitude.

[www.naui.org](http://www.naui.org)

The majesty of the Himalayas is revealed as clouds lift from the lake. INSET: Divers make calculations for max depth and prepare for their dive.



## Himalaya



Members of the Russian team pose for a documentary shot to mark the record setting occasion.



ABOVE: Andrei emerges from his record setting dive. RIGHT INSET: Team leader Andrei Andryushin salutes the team.

### Afterthoughts

I recently asked Andrei, "Would you like to repeat that record dive after all these years?"

He replied, "Now, I think I would, but up there in the Himalayas, it was really tough. I think it's human nature to forget the hardships and remember only the good things such as a good team and the breathtaking beauty of the mountain lake." □

*Andrey Bizyukin, PhD., makes his home in Moscow, Russia, and reports on adventures high and low throughout the world.*

*To see his other stories published in X-Ray Magazine visit this link:*

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# fact file



## Nepal



### History:

Monarchy in Nepal ended in 1951. A cabinet system of government was formed. Within the framework of a constitutional monarchy a multiparty democracy was established in 1990. In 1996, a Maoist insurgency was launched. It has gained power and threatens to bring down the regime. In 2001, the Crown Prince massacred the king and queen and eight other members of the royal family, then committed suicide. The new king dismissed the prime minister and his cabinet for "incompetence" In October 2002, after the group dissolved the parliament and obstructed the election process. Today, the country is governed by the king and his appointed cabinet. He has negotiated a cease-fire with the Maoist insurgents until elections can be held.

### Geography:

Southern Asia, between China and India, Terrain: flat river plain (Terai) of the Ganges in south, central hill region, Himalayan mountains in the north, landlocked; strategic region between China and India; has eight of world's 10 highest peaks, including Mount Everest, Elevation extremes: lowest point: Kanchan Kalan 70 m, highest point: Mount Everest 8,850 m, Natural resources: quartz, water, timber, hydropower, scenic beauty, small deposits of lignite, copper, cobalt, iron ore, Agriculture: rice, corn,

wheat, sugarcane, root crops; milk, water buffalo meat, Industries: tourism, carpet, textile; small rice, jute, sugar, oilseed mills; cigarette; cement, brick production

**Capital:** Kathmandu

**Currency:** Nepalese rupees per US dollar - 72, per Euro - 89

**Government:** parliamentary democracy and constitutional monarchy

**Economy:** Nepal is one of the poorest and least developed countries in the world with 42% of its population living below the poverty line. Agriculture: 80%. Security concerns after 11 September 2001 U.S. attack led to a decrease in tourism.

**Environmental issues:** deforestation; contaminated water; wildlife conservation; vehicular emissions.

**Climate:** North - cool summers and severe winters, South - subtropical summers and mild winters, Natural hazards: severe thunderstorms, flooding, landslides, drought, and famine due to timing, intensity, and duration of summer monsoons.

### Population:

27,070,666, Below poverty line: 42%, Ethnic groups: Brahman, Chetri, Newar, Gurung, Magar, Tamang, Rai, Limbu, Sherpa, Tharu, Religions: only official Hindu state in the world - Hinduism 86.2%, Buddhism 7.8%, Islam 3.8%, other 2.2%

**Languages:** Nepali, English, 12 other languages, 30 dialects. 45% literacy rate.

### Medical

Nepal International Clinic, Travel & Mountain Medicine Centre  
GPO BOX 3596, Lal durbar, Kathmandu, Nepal.  
tel. 977-1-4434642, 977-1-4435357.  
[www.nepalinternationalclinic.com](http://www.nepalinternationalclinic.com)

Himalayan Rescue Association has medical clinics at Pheriche and Manang, Dhobichaur, Lazimpat, P.O. Box No. 4944, Kathmandu, Nepal  
[www.himalayanrescue.com](http://www.himalayanrescue.com)

### Dive Travel

Nepal Tourism  
[www.nepal.com](http://www.nepal.com)



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