

“Will Deserts Drink Icebergs?”

A real project proposed by Paul-Emile Victor

Instructions: Complete the text using the vocabulary given in the lists. The first letter is given.

Every a_____ has to b__ m_____ to find f_____ supplies of fresh water. There are two v_____ methods of d_____ this, and two only: the desalination of sea water, and the t_____ of the only existing reserves of fresh water—the i_____ of the polar regions, f_____ by the a_____ and compression of s_____ over many _____ of years. The desalination of s_____ water is expensive, w_____ the production of fresh water by the t_____ of icebergs is b_____ e_____ ¹ c_____ and f_____. Icebergs are c_____ o_____ fresh water so pure that it o_____ a_____ the characteristics of d_____ water. It h_____ b_____ e_____ that the Antarctic ice cap l_____ more t_____ 10 million² cubic meters of ice e_____ y_____ in the f_____ of icebergs, which e_____ m_____ and d_____.

Why g_____ to the South Pole to g_____ icebergs? Why n_____ the North Pole? There are two r_____ f_____ ³ this. F_____, most Arctic icebergs are irregularly s_____ and dangerously u_____. S_____, Arctic bergs _____ from mountain glaciers (from Greenland, for example), which p_____ their e_____ being large e_____. The “tabular” icebergs from Antarctica, o_____ t_____ o_____ h_____, are often big and regular in s_____.

A “s_____” iceberg should be l_____ e_____ (100 m_____ ⁴ tons) to p_____ the r_____ a_____ of water b_____ t_____ t_____ it arrives at its destination. It s_____ be b_____ tabular, as regularly shaped a_____ possible, and, to make t_____ easier, much longer t_____ it is w_____. Icebergs of this type, always s_____ that no internal or invisible c_____ and s_____ are subsequently detected, are formed in the Pacific s_____, in the Atlantic sector, and in the Indian sector.

¹ “Economical” = *bon marché*

² “Million” does not take an “s”

³ “Reasons for...”

⁴ “Million” does not take an “s”

The most important problem will be to protect the icebergs from all types of erosion, such as melting, evaporation, mechanical erosion by waves, and friction caused by movement through the sea. It would, for instance, take eight to nine months to cover 6,000 nautical miles at optimum towing speed (about one knot or roughly two kilometers per hour). Various solutions have been suggested. One of them is the protection of the sides of the icebergs by screens (similar to those of a Venetian blind) made of a reflective material. The upper portion of the sides would be protected by a screen (or screens) made of insulating material, where the insulation itself would be protected by a pipe of cold fresh water between the skirt and the sides of the iceberg. The upper part of the berg would also be protected by a kind of wrap against the bottom by inflatable floats.

The movement and arrangement of such units in Antarctic waters will involve various problems that are not yet solved. The actual towing operation should, in itself, cause no problems at all, as the largest modern tugs have a tractive force of 125 tons. The tractive force needed to move an iceberg of 100 million tons is in the range of 600 to 700 tons, so five or six large tugs could do the job.

Once the iceberg arrived at its destination, it must be kept at a certain distance offshore depending on the season of the continental shelf. Melting water would then have to be pumped by pipeline to the coast.

The production of fresh water by the transportation of icebergs is undoubtedly one of the most original and exciting ventures of our time. It is also one of the most urgent. The most urgent problem soon to face mankind will be how to obtain fresh water.

Paul-Emile VICTOR was a French explorer, who organized and led many French expeditions to the Arctic and Antarctic. He was head of the international glaciological expedition to Greenland from 1967 to 1970. His achievements as an explorer and scientist brought him international recognition including the award of the gold medal of the Royal Geographical Society, London.

⁵ "Between" when there are only two elements; if there are three or more use "among"

Instructions: Use the words on the following pages to complete the text above. The vocabulary is in alphabetical order. Some words are used several times in the text, and translations of the most common words are not given.

about: au sujet de, environ	have
achievement: œuvre, réalisation	head: responsable
accumulation	held: (cf.: to hold = tenir)
actual: véritable	ice: glace
against: contre	involve: concerner
amount: quantité	lead (led, led): mener / conduire (une expédition)
approach	large: grand
as: (“such as...” with lists)	lose / lost: perdre
assembling: montage	make / made
attempt: tentative	manufacture: fabrication
award: distinction, prix	mankind: humanité
be	material: matériau
between: entre (deux éléments)	mechanical: mécanique
blind: store vénitien	medal: médaille
both: les deux à la fois	melt (twice): fondre (la neige, le sucre)
bottom: fond	melting
by the time: when	might
coast: côte	million (<i>Remember no “s” when used as an exact number</i>)
competitive: compétitif	most
come from: trouver leur origine	movement
composed of: composé de	not
cover: parcourir	noted: bien connu
cracks: fissures	of
curtain: rideau	offshore: éloigné de la côte
disappear: disparaître	often: souvent
distilled: distillé	on the other hand: par contre
do	one
economical: cheap, rentable	organized
economically: adverb	pool
enough: assez	preclude: écarter (une hypothèse), prévenir
estimate: estimer	provide: fournir
eventually: à la longue	provided
ever: <i>ici</i> jamais	reasons for (<i>Notice the preposition “for”; never say reasons “of”</i>)
every year: chaque année	recognition: reconnaissance
feasible: possible, réalisable	required: nécessaire (cf. to require = exiger)
first	roughly: approximativement
floats: (cf. to float = flotter)	scientist: scientifique
for	seawater: eau salée
form	secondly: deuxièmement
fresh: frais, non salé	sector: secteur
further: davantage de ...	shallowness: (cf. shallow = peu profond)
get: aller chercher	shift: (here) to move
go	should
has	sides: côtés
shape (shaped): the shape of	
shelf: rayon, étagère ; <i>ici, the continental shelf</i> (geology): plateau continental	

skirt: jupe, pans
 snowfall: the snow that falls
 society: société
 similar: semblable
 solve: résoudre
 speed: vitesse
 stresses: tensions
 strips: bande, bandelettes, rubans
 submerged: submergé
 such as: tel(s) que
 suggest: suggérer
 suitable: convenable
 supposing: supposant que
 take: prendre... ou prendre du temps, durer
 tap (to tap): knock (mais ici: exploiter)
 tap: faire une prise à (cf. tap = robinet)
 than (rather than : plutôt que)
 theory: théorie
 thousand(s): millier(s)

through: à travers
 time
 to
 towing: remorquage (to tow = remorquer)
 transportation: transport
 tugs: tugboats
 underside: dessous
 undoubtedly: sans doute
 unstable: instable
 urgent: urgent
 useful: utile
 venetian blind: store vénitien
 ventures: entreprise risquée, spéculation
 viable: possible, envisageable, réalisable
 waves: vagues
 whereas: alors que, tandis que
 while: tandis que (*exprime plus souvent une idée de temps—“at the same time”*)

Structures in the passive voice

Instructions: Find them in the text and mark them in red.

Every attempt has ***to be made***...
 Various solutions ***have been suggested***...
 Melting water would then ***have to be pumped***...
 It ***has been estimated*** that...

Essential vocabulary suggested by former students

by means of: au moyen de
 computerize: mettre sur ordinateur
 drastic: radical, drastique, draconien
 equipment: matériel
 features: caractéristiques
 graph: graphique, courbe
 heat up: réchauffer
 heat: chauffer
 hint: allusion, insinuation, indication
 hire: engager (les services de qqn)
 imply: impliquer, supposer
 insulate: isoler

involve: engager, entraîner
 layer: couche
 level: niveau
 retrain: recycler
 sample: échantillons
 sample: prendre des échantillons
 scientist: un scientifique
 specifications: fiche technique
 storage: stockage
 venture capital: capital risque
 worry: se tracasser