GT ALPINA

About
GT Alpina proudly calls itself a workhorse serif, but delights in playing with the very meaning of that concept. It reaches into the grab bag of typographic history to resurrect shapes some may falsely see as too expressive, resulting in a meticulous family melding these distinct shapes with a pragmatic execution.

Designed by
Reto Moser

Details
Released in 2020
Available in 70 Styles
For Desktop, Web, App Licensing

GT Alpina	Condensed	Condensed Italic	Standard	Italic	Extended	Extended Italic
Thin	Aa	*Aa*	Aa	*Aa*	Aa	*Aa*
Light	Bb	*Bb*	Bb	*Bb*	Bb	*Bb*
Regular	Cc	*Cc*	Cc	*Cc*	Cc	*Cc*
Medium	Dd	*Dd*	Dd	*Dd*	Dd	*Dd*
Bold	Ee	*Ee*	Ee	*Ee*	Ee	*Ee*

GT Alpina Fine	Condensed	Condensed Italic	Standard	Italic	Extended	Extended Italic
Thin	Aa	*Aa*	Aa	*Aa*	Aa	*Aa*
Light	Bb	*Bb*	Bb	*Bb*	Bb	*Bb*
Regular	Cc	*Cc*	Cc	*Cc*	Cc	*Cc*
Medium	Dd	*Dd*	Dd	*Dd*	Dd	*Dd*
Bold	Ee	*Ee*	Ee	*Ee*	Ee	*Ee*

GT Alpina Typewriter	Standard	Italic
Thin	Aa	*Aa*
Light	Bb	*Bb*
Regular	Cc	*Cc*
Medium	Dd	*Dd*
Bold	Ee	*Ee*

OpenType features	OFF	ON
Case-sensitive forms	¿¡QUE?! {[(HEIGHT)]}	¿¡QUE?! {[(HEIGHT)]}
Tabular figures	29.11.1789	29.11.1789
Oldstyle figures	29.11.1789	29.11.1789
Slashed zero	1,000,000	1,000,000
Automatic fractions	5/32 kg	5⁄32 kg
Superscript Subscript Superior	Note1 H2O 13(2+8) Habc	Note[1] H_2O $13^{(2+8)}$ H^{abc}
Ordinal indicator	1o primo 1a prima	1º primo 1ª prima
Small Caps	Pearl 123	Pearl 123
Small Caps from Capitals	PEARL 123	PEARL 123

	OFF	ON
Capital spacing	CAPITAL	CAPITAL
SS01 Alternative J (Proportional)	Junior J	Junior J
SS02 Alternative ?	Right? ʔ	Right? ʔ
SS03 Alternate &	Grilli & Type &	Grilli & Type &
SS04 Alternate @ (Proportional)	abc@test.com @	abc@test.com @
SS05 Alternate y (Italic)	*Daisy Chain* *y*	*Daisy Chain* *y*
SS06 Alternate R (Typewriter)	Reality R	Reality R

OpenType features	OFF	ON
SS07 Alternate h (Typewriter)	*Machine* *h*	*Machine* *h*
SS08 Alternate l (Typewriter)	Palermo l	Palermo l

Uppercase Latin

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	Á	Ă	Â	Ä
P	Q	R	S	T	U	V	W	X	Y	Z	Aacute	Abreve	Acircumflex	Adieresis
Æ	Ǽ	À	Ā	Ą	Å	Ã	Ć	Č	Ç	Ĉ	Ċ	Ď	Đ	É
AE	AEacute	Agrave	Amacron	Aogonek	Aring	Atilde	Cacute	Ccaron	Ccedilla	Ccircumflex	Cdotaccent	Dcaron	Dcroat	Eacute
Ĕ	Ě	Ê	Ë	Ė	È	Ē	Ę	Ğ	Ĝ	Ģ	Ġ	Ħ	Ĥ	Í
Ebreve	Ecaron	Ecircumflex	Edieresis	Edotaccent	Egrave	Emacron	Eogonek	Gbreve	Gcircumflex	Gcommaac	Gdotaccent	Hbar	Hcircumflex	Iacute
Ĭ	Î	Ï	İ	Ì	IJ	Ī	Į	Ĩ	Ĵ	Ķ	Ĺ	Ľ	Ļ	Ŀ
Ibreve	Icircumflex	Idieresis	Idotaccent	Igrave	IJ	Imacron	Iogonek	Itilde	Jcircumflex	Kcommaa	Lacute	Lcaron	Lcommaac	Ldot
Ł	Ń	Ň	Ņ	Ñ	Ŋ	Ó	Ŏ	Ô	Ö	Œ	Ò	Ő	Ō	Ø
Lslash	Nacute	Ncaron	Ncommaa	Ntilde	Eng	Oacute	Obreve	Ocircumflex	Odieresis	OE	Ograve	Ohungarum	Omacron	Oslash
Ǿ	Õ	Ŕ	Ř	Ŗ	Ś	Š	Ş	Ŝ	Ș	Ŧ	Ť	Ţ	Ț	Þ
Oslashacute	Otilde	Racute	Rcaron	Rcommaac	Sacute	Scaron	Scedilla	Scircumflex	Scommaac	Tbar	Tcaron	Tcedilla	Tcommaac	Thorn
Ú	Ŭ	Û	Ü	Ù	Ű	Ū	Ų	Ů	Ũ	Ẃ	Ŵ	Ẅ	Ẁ	Ý
Uacute	Ubreve	Ucircumflex	Udieresis	Ugrave	Uhungarum	Umacron	Uogonek	Uring	Utilde	Wacute	Wcircumfle	Wdieresis	Wgrave	Yacute
Ŷ	Ÿ	Ỳ	Ź	Ž	Ż	ẞ	Ð							
Ycircumflex	Ydieresis	Ygrave	Zacute	Zcaron	Zdotaccent	Germandbls	Eth							

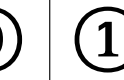
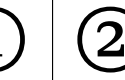
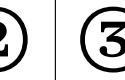
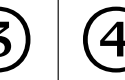
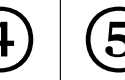
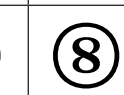
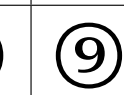
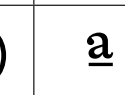
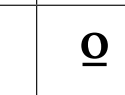
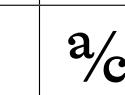
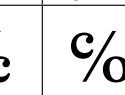
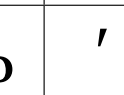
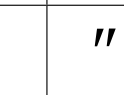
Lowercase Latin

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	á	ă	â	ä
p	q	r	s	t	u	v	w	x	y	z	aacute	abreve	acircumflex	adieresis
æ	ǽ	à	ā	ą	å	ã	ć	č	ç	ĉ	ċ	ď	đ	é
ae	aeacute	agrave	amacron	aogonek	aring	atilde	cacute	ccaron	ccedilla	ccircumflex	cdotaccent	dcaron	dcroat	eacute
ĕ	ě	ê	ë	ė	è	ē	ę	ğ	ĝ	ģ	ġ	ħ	ĥ	í
ebreve	ecaron	ecircumflex	edieresis	edotaccent	egrave	emacron	eogonek	gbreve	gcircumflex	gcommaac	gdotaccent	hbar	hcircumflex	iacute
ĭ	î	ï	i	ı	ì	ij	ī	į	ĩ	ĵ	ȷ	ķ	ĸ	ĺ
ibreve	icircumflex	idieresis	idotaccent	idotless	igrave	ij	imacron	iogonek	itilde	jcircumflex	jdotless	kcommaac	kgreenland	lacute
ľ	ļ	ŀ	ł	ń	ŉ	ň	ņ	ñ	ŋ	ó	ŏ	ô	ö	œ
lcaron	lcommaac	ldot	lslash	nacute	napostrophe	ncaron	ncommaac	ntilde	eng	oacute	obreve	ocircumflex	odieresis	oe
ò	ő	ō	ø	ǿ	õ	ŕ	ř	ŗ	ś	š	ş	ŝ	ș	ŧ
ograve	ohungarum	omacron	oslash	oslashacute	otilde	racute	rcaron	rcommaac	sacute	scaron	scedilla	scircumflex	scommaac	tbar
ť	ţ	ț	þ	ú	ŭ	û	ü	ù	ű	ū	ų	ů	ũ	ẃ
tcaron	tcedilla	tcommaac	thorn	uacute	ubreve	ucircumflex	udieresis	ugrave	uhungarum	umacron	uogonek	uring	utilde	wacute
ŵ	ẅ	ẁ	ý	ŷ	ÿ	ỳ	ź	ž	ż	ß	ð			
wcircumflex	wdieresis	wgrave	yacute	ycircumflex	ydieresis	ygrave	zacute	zcaron	zdotaccent	germandbls	eth			

Other

&	`	´	^	~	ˇ	¨	¯	˘	°	˝	˙	¸	˛	’
ampersand	grave	acute	circumflex	tilde	caron	dieresis	macron	breve	ring	hungarumlaut	dotaccent	cedilla	ogonek	comma
;	:	.	…	-	!	¡	?	¿	‘	’	“	”	‚	„
semicolon	colon	period	ellipsis	hyphen	exclam	exclamdown	question	questiondown	quoteleft	quoteright	quotedblleft	quotedblright	quotesingl	quotedblbase
‹	›	«	»	/	|	–	—	•	(	)	[	]	{	}
guilsinglleft	guilsinglright	guillemetlef	guillemetri	slash	bar	endash	emdash	bullet	parenleft	parenright	bracketleft	bracketright	braceleft	braceright
†	‡	¦	\	_	'	"	@	©	®	℗	™	$	¢	£
dagger	daggerdbl	brokenbar	backslash	underscore	quotesingle	quotedbl	at	copyright	registered	published	trademark	dollar	cent	sterling
ƒ	¥	€	¤	⁄	¼	½	¾	⅓	⅔	⅛	⅜	⅝	⅞	%
florin	yen	euro	currency	fraction	onequarter	onehalf	threequarte	onethird	twothird	oneeighth	threeeighth	fiveeighth	seveneighth	percent
‰	0	0	1	2	3	4	5	6	7	8	9	μ	’	Δ
perthousan	zero.zero	zero	one	two	three	four	five	six	seven	eight	nine	mu	apostrophe	Delta
Ω	π	·	*	+	−	±	×	÷	=	<	>	°	≈	≥
Omega	pi	periodcent	asterisk	plus	minus	plusminus	multiply	divide	equal	less	greater	degree	approxequ	greaterequ
∞	≤	¬	≠	∫	∂	∏	√	∑	◊	¶	§	^	~	₿
infinity	lessequal	logicalnot	notequal	integral	partialdiff	product	radical	summation	lozenge	paragraph	section	asciicircum	asciitilde	bitcoin
∅	Ω	Δ	μ	↑	↗	→	↘	↓	↙	←	↖	↔	#	№
emtyset	Ohm	increment	micro	upArrow	northEastA	rightArrow	southEastA	downArrow	southWestA	leftArrow	northWestA	leftRightA	numbersign	numero

Other

														
apple	literSign	estimated	zero.osf.zero	zero.osf	one.osf	two.osf	three.osf	four.osf	five.osf	six.osf	seven.osf	eight.osf	nine.osf	zero.blackC
														
one.blackC	two.blackC	three.black	four.blackC	five.blackC	six.blackC	seven.black	eight.black	nine.blackC	zero.circled	one.circled	two.circled	three.circled	four.circled	five.circled
														
six.circled	seven.circl	eight.circled	nine.circled	ordfeminine	ordmasculi	accountof	careof	minute	second					

downAndUp	leftFrombar	upFrombar	rightFrombar	downFrombar	leftHook	rightHook	leftLoop	rightLoop	downZigzag	upTipLeft	upTipRight	downTipLeft	downTipRight	rightCorner
topCircleLeft	topCircleR	anticlockw	clockwise	rightOverLe	upAndDown	leftAndRight	upDoubleP	rightDoubl	downDouble	leftDouble	uprightRevers	upDouble	northEastD	rightDouble
southEasetD	downDouble	southWestD	leftDouble	northWestDou	leftRightDoub	upDownDoub	threeDTop	threeDBottom	rightFeathered	rightTeardrop	rightHeavyTea	rightHeavyWe	upArrow.c	northEastArr
rightArrow.c	southEastArr	downArrow.c	southWestArr	leftArrow.c	northWestAr	leftRightArr	lowerOneEig	lowerOneQua	lowerThreeE	lowerHalf	lowerFiveEig	lowerThreeQu	lowerSevenEi	fullBlock
leftOneEig	leftOneQuart	leftThreeEig	leftBlock	leftFiveEig	leftThreeQua	leftSevenEigh	lowerLeft	lowerRight	upperLeft	upperLeftAn	upperLeftA	upperLeftA	upperLeftAn	upperRight

Other

														
upperRightA	upperRightAn	shadeligh	shademed	shadedark	blackCircle	whiteCircle	largeCircle	leftHalfBlac	rightHalfBl	lowerHalfB	upperHalfB	leftHalfBlac	rightHalfBla	upperRight
														
upperLeftW	upperLeftQ	lowerLeftQ	lowerRight	upperRight	verticalFillC	dottedCircl	fisheye	bullseye	whiteBullet	inverseBullet	inverseWhite	upperHalfInv	lowerHalfInv	upperHalfA
														
lowerHalfA	upperLeftA	upperRightA	lowerRightA	lowerLeftArc	blackDiamo	whiteDiamo	leftHalfBlac	rightHalfBlac	topHalfBlack	bottomHalfBl	blackInWhite	whiteXBlack	blackSquare	whiteSquare
whiteRounde	whiteInBlack	dottedSquar	horizontalFil	verticalFillS	crosshatchF	upperleftto	upperrightto	diagonalcro	blackSmallS	whiteSmallS	leftHalfBlac	rightHalfBla	upperLeftDi	lowerRightD
verticalBisec	whiteUpper	whiteLowerL	whiteLowerR	whiteUpperRi	upBlackTrian	rightBlackTr	downBlackTr	leftBlackTri	upWhiteTrian	rightWhiteTr	downWhiteTr	leftWhiteTria	upWhiteTria	upLeftHalfBl
upRightHalfB	rightBlackPoi	leftBlackPoin	rightWhitePo	leftWhitePoi	upBlackSmal	rightBlackSm	downBlackS	leftBlackSma	upWhiteSmal	rightWhiteS	downWhiteS	leftWhiteSm	upperRightBl	lowerRightBl
lowerLeftBla	upperLeftBla	upperRightT	lowerRightTr	lowerLeftTri	upperLeftTri	ballotBox	ballotBoxWith	cross	outlinedGr	heavyGree	openCent	heavyOpenCe	shadowedWh	outlinedCross
malteseCross	checkmark	heavyCheck	multiplicatio	heavyMultipl	ballotX	heavyBallot	fourTeardrop	fourBalloonS	heavyFourB	fourClubSpo	blackFourPo	whiteFourPo	sparkles	stressOutlin
whiteStar.cir	openCentre	blackCentre	outlinedBlac	heavyOutline	pinwheelStar	shadowedWh	heavyAsteris	openCentreA	eightSpoked	eightPointed	eightPointed	sixPointedBl	eightPointed	heavyEightP

Other

														
twelvePointe	sixteenPoint	teardropSpo	openCentreT	heavyTeardro	sixPetalledBl	blackFlorette	whiteFlorette	eightPetalled	openCentreE	heavyTeardro	snowflake	tightTrifoliat	heavyChevro	sparkle
														
heavySparkl	balloonSpok	eightTeardro	heavyEightTe	crossMark	shadowedW	blackCrossS	whiteHeavyC	lowerRightD	upperRightD	lowerRightS	upperRightS	whiteQuesti	whiteExclam	heavyExclam
														
heavyHeartE	heavyBlackH	rotatedHeav	blackHexago	blackHorizo	blackLargeC	blackMediu	blackMediu	blackPentag	blackRightP	blackSmallD	blackSmallL	blackSmallS	blackVertica	blackVerysm
whiteVerys	bottomHalfB	topHalfBlack	horizontalBla	lowerHalfWh	lowerLeftHal	topHalfWhite	topRightHalf	whiteHexag	whiteHorizon	whiteMedium	whiteMedium	whiteMedium	whitePentag	whiteRightPe
whiteSmallL	whiteSmallS	whiteVertical	clockFaceEi	clockFaceEi	clockFaceEl	clockFaceEl	clockFaceFiv	clockFaceFiv	clockFaceFo	clockFaceFo	clockFaceNi	clockFaceNi	clockFaceOn	clockFaceO
clockFaceSe	clockFaceSe	clockFaceSix	clockFaceSix	clockFaceTe	clockFaceTe	clockFaceTh	clockFaceTh	clockFaceTw	clockFaceTw	clockFaceTw	clockFaceTw	bomb	calendar	tearOffCal
handWithInd	callMeHand	victoryHand	fistedHandSi	raisedHand	raisedHandW	reversedHand	leftWhiteInd	upWhiteInd	rightWhiteIn	downWhiteIn	raisedFist	raisedHand	handWithInd	whiteLeftBa
whiteDownB	whiteUpBac	whiteRightB	thumbsUpSi	wavingHandS	raisedBackO	chequeredFl	chequeredFl	crescentMoo	eyes	lastQuarter	firstQuarter	cyclone	fullMoonFac	newMoonFac
globeMeridian	newMoonSy	waningCresc	lastQuarterM	waningGibbo	fullMoonSym	waxingGibbo	firstQuarterM	waxingCresc	leftMagnifyi	rightMagnify	pileOfPoo	roundPushpi	sunFace	upperBladeS

Other

														
blackScissor	lowerBladeS	whiteScissor	airplane	envelope	lowerRightP	pencil	upperRightP	starOfDavid	peace	yinyang	telephoneLo	tapeDrive	whiteFlag	blackFlag
														
whiteNib	blackNib	doubleCurly	curlyLoop	dieFace1	dieFace2	dieFace3	dieFace4	dieFace5	dieFace6	spadeBlackSu	clubBlackSuit	heartBlackSui	diamondBlack	topWithUpArr
														
aceOfSpades	aceOfHeart	aceOfDiamond	aceOfClub	infinity.ss09	periodcenter	paperclip	notebook	closedBook	openBook	outboxTray	inboxTray	banknoteDoll	shoppingTr	pageFacingUp
pageFacing	clockFace	hotBeverage	moneyBag	microphone	scales	fuelPump	balloon	partyPopper	weightLifter	bowAndArrow	triangularRuler	bicycle	keyboard	APLIbeam
cloud	floppyDisk	fileFolder	openFileFolder	joystick	libra									

Alternates

J.ss01	question.ss02	at.ss03	ampersand.s	y.ss05	R.ss06	h.ss07	l.ss08

Technical Specifications

Supported languages	Afrikaans, Albanian, Basque, Bosnian, Breton, Catalan, Croatian, Czech, Danish, Dutch, English, Esperanto, Estonian, Faroese, Fijian, Finnish, Flemish, French, Frisian, German, Greenlandic, Hawaiian, Hungarian, Icelandic, Indonesian, Irish, Italian, Latin, Latvian, Lithuanian, Malay, Maltese, Maori, Moldavian, Norwegian, Polish, Portuguese, Provençal, Romanian, Romany, Sámi (Inari), Sámi (Luli), Sámi (Northern), Sámi (Southern), Samoan, Scottish Gaelic, Slovak, Slovenian, Sorbian, Spanish, Swahili, Swedish, Tagalog, Turkish, Welsh
File formats	Desktop: OTF Web: WOFF2, WOFF, TTF, EOT App: OTF
Licensing	Free Trial Fonts License Trial fonts allow you to play with our fonts at no cost. You can use them to create mockups before getting client approval. Students can use them for non-commercial university projects, too. Desktop License This license is used for creating printed documents, logos, website graphics, and so on. Desktop fonts are licensed for a certain number of computers in your organization. Webfont License This license is what you purchase to use our typefaces on websites with the @font-face technology. You may use them for website mockups. Webfonts are licensed for a certain number of website visitors per month. Mobile App License This is the license to embed our fonts in your mobile application. Mobile app fonts are licensed for a certain number of developers and valid for Android and iOS. Further licenses on request
About Grilli Type	Grilli Type is an independent Swiss type foundry. We offer original retail and custom typefaces, high quality products with a contemporary aesthetic in the Swiss tradition. This tradition is reflected in the visual but also the technical standard of our fonts and our service. Together with our designers we create useful, high quality typefaces that stand the test of time.
Contact	mail@grillitype.com www.grillitype.com

GT Alpina Fine Condensed Thin 80pt

AIGUILLE DE TRÉ LA

GT Alpina Fine Condensed Thin 147pt

Pic Sans Nom

GT Alpina Fine Condensed Thin 260pt

DENALI

GT Alpina Condensed Thin 9pt

The *Alps* are the highest and most extensive mountain range system that lies entirely in Europe,and stretching approximately 1200 kilometres across eight Alpine countries (from west to east): *France*, *Switzerland*, *Monaco*, *Italy*, *Liechtenstein*, *Austria*, *Germany*, *and Sloveni*a. The mountains were formed over tens of millions of years as the African and Eurasian tectonic plates collided.

Extreme shortening caused by the event resulted in marine sedimentary rocks rising by thrusting and folding into high mountain peaks such as Mont Blanc and the Matterhorn. Mont Blanc spans the French–Italian border, and at 4810 m is the highest mountain in the Alps. The Alpine region area contains about a hundred peaks higher than 4000 metres (13000 ft).

The altitude and size of the range affects the climate in Europe; in the mountains precipitation levels vary greatly and climatic conditions consist of distinct zones. *Wildlife* such as ibex live in the higher peaks to elevations of 3400 m (11155 ft), and plants such as Edelweiss grow in rocky areas in lower elevations as well as in higher elevations. Evidence of human habitation in the Alps goes back to the Palaeolithic era. A mummified man, determined to be 5000 years old, was discovered on a glacier at the Austrian–Italian border in 1991. By the 6th century BC, the Celtic La Tène culture was well established. Hannibal

GT Alpina Condensed Thin 14pt

The English word Alps derives from the Latin Alpes. Maurus Servius Honoratus, an ancient commentator of Virgil, *says in his commentary that all high mountains are called Alpes by Celts*. The term may be common to Italo-Celtic, because the Celtic languages have terms for high mountains derived from alp.

This may be consistent with the theory that in Greek Alpes is a name of non-Indo-European origin which is common for prominent mountains and mountain ranges in the Mediterranean region. According to the *Oxford English Dictionary*, the Latin Alpes might possibly derive from a pre-Indo-European word *alb *"hill"; "Albania"* is a related derivation. Albania, a

GT Alpina Condensed Thin 19pt

The Alps are a crescent shaped geographic feature of central Europe that ranges in a 800 km arc *(straight line)* from east to west and is 200 km in width. The mean height of the mountain peaks is 2.5 km.

The range stretches from the Mediterranean Sea north above the Po basin, extending through France from Grenoble, and stretching eastward through mid and southern *Switzerland*. The range continues onward toward Vienna, Austria, and east to the Adriatic Sea and Slovenia. To the south it dips into northern Italy and to the north extends to the southern border of *Bavaria* in Germany. In areas like Chiasso, Switzerland, and Allgäu, Bavaria, the demarcation between the mountain range and the flatlands are clear; in other places such as Geneva, the demarcation is less clear. The countries with the greatest alpine

GT Alpina Fine Condensed Light 80pt

DENT DU GÉANT

GT Alpina Fine Condensed Light 147pt

Bernese Alps

GT Alpina Fine Condensed Light 260pt

TITLIS

GT Alpina Condensed Light 9pt

The formation of the Alps (*the Alpine orogeny*) was an episodic process that began about 300 million years ago. In the Paleozoic Era the Pangaean supercontinent consisted of a single tectonic plate; it broke into separate plates during the Mesozoic Era and the Tethys sea developed between Laurasia and Gondwana during the Jurassic Period. The Tethys was later squeezed between colliding plates causing the formation of mountain ranges called the Alpide belt, from Gibraltar through the *Himalayas to Indonesia* — a process that began at the end of the Mesozoic and continues into the present. The formation of the Alps was a segment of this orogenic process, caused by the collision between the African and the Eurasian plates that began in the late *Cretaceous Period*.

Under extreme compressive stresses and pressure, marine sedimentary rocks were uplifted, creating characteristic recumbent folds, or nappes, and thrust faults. As the rising peaks underwent erosion, a layer of marine flysch sediments was deposited in the foreland basin, and the sediments became involved in younger nappes (folds) as the orogeny progressed. Coarse sediments from the continual uplift and erosion were later deposited in foreland areas as molasse. The molasse regions in *Switzerland* and *Bavaria* were well-developed and saw further upthrusting of flysch.

GT Alpina Condensed Light 14pt

The Alpine orogeny occurred in ongoing cycles through to the *Paleogene* causing differences in nappe structures, with a late-stage orogeny causing the development of the Jura Mountains. A series of tectonic events in the Triassic, Jurassic and Cretaceous periods caused different paleogeographic regions. The Alps are subdivided by different *lithology* (rock composition) and nappe structure according to the orogenic events that affected them.

The geological subdivision differentiates the Western, Eastern Alps and Southern Alps: the Helveticum in the north, the *Penninicum and Austroalpine system* in the centre and,

GT Alpina Condensed Light 19pt

Peaks in France, Italy and Switzerland lie in the *"Houillière zone"*, which consists of basement with sediments from the Mesozoic Era. High *"massifs"* with external sedimentary cover are more common in the Western Alps and were affected by Neogene Period thin-skinned thrusting whereas the Eastern Alps have comparatively few high peaked massifs. Similarly the peaks in eastern Switzerland extending to western Austria *(Helvetic nappes)* consist of thin-skinned sedimentary folding that detached from former basement rock.

In simple terms the structure of the Alps consists of layers of rock of *European*, *African and oceanic* (Tethyan) origin. The bottom nappe structure is of continental European origin, above which are stacked marine sediment nappes, topped off by nappes derived from the African plate. The Matterhorn is an

GT Alpina Fine Condensed Regular 80pt

GRANDES JORASSES

GT Alpina Fine Condensed Regular 147pt

Monte Rosa

GT Alpina Fine Condensed Regular 260pt

CERVIN

GT Alpina Condensed Regular 9pt

The Alps are a source of minerals that have been mined for *thousands of years*. In the 8th to 6th centuries BC during the Hallstatt culture, Celtic tribes mined copper; later the Romans mined gold for $s in the Bad Gastein area. Erzberg in Styria furnishes high-quality iron ore for the steel industry. *Crystals are found throughout much of the Alpine region such as cinnabar, amethyst, and quartz.* The cinnabar deposits in Slovenia are a notable source of cinnabar pigments.

Alpine crystals have been studied and collected for hundreds of years, and began to be classified in the 18th century. Leonhard Euler studied the shapes of crystals, and by the 19th century crystal hunting was common in Alpine regions. David Friedrich Wiser amassed a collection of *8000 crystals* that he studied and documented. In the 20th century Robert Parker wrote a well-known work about the rock crystals of the Swiss Alps; at the same period a commission was established to control and standardize the naming of Alpine minerals In the Miocene Epoch the mountains underwent severe erosion because of glaciation, which was noted in the *mid-19th century* by naturalist Louis Agassiz who presented a paper proclaiming the Alps were covered in ice at various intervals—a theory he formed when studying rocks near his Neuchâtel home which he

GT Alpina Condensed Regular 14pt

Alpine glaciers can be straight rivers of ice, long sweeping rivers, spread in a fan-like shape (Piedmont glaciers), and curtains of ice that hang from vertical slopes of the mountain peaks. The stress of the movement causes the ice to break and crack loudly, *perhaps explaining why the mountains were believed to be home to dragons in the medieval period.* The cracking creates unpredictable and dangerous crevasses, often invisible under new snowfall, which cause the greatest danger to mountaineers.

Glaciers end in ice caves (the Rhône Glacier), by trailing into a lake or river, or by shedding snowmelt on a meadow.

GT Alpina Condensed Regular 19pt

The Alps provide lowland Europe with *drinking water, irrigation, and hydroelectric power.* Although the area is only about 11 percent of the surface area of Europe, the Alps provide 👆 to 90 % of water to lowland Europe, particularly to arid areas and during the summer months. Cities such as *Milan* depend on 80 percent of water from Alpine runoff. Water from the rivers is used in over 500 hydroelectricity power plants, generating as much as *2 900 GWh of electricity*.

Major European rivers flow from the Alps, such as *the Rhine, the Rhône, the Inn, and the Po*, all of which have headwaters in the Alps and flow into neighbouring countries, finally emptying into the North Sea, the Mediterranean Sea, the Adriatic Sea and the Black Sea. Other rivers such as the Danube have major tributaries flowing into them that originate

GT Alpina Fine Condensed Medium 80pt

BARRE DES ÉCRINS

GT Alpina Fine Condensed Medium 147pt

Mont Blanc

GT Alpina Fine Condensed Medium 260pt

PIZOL

GT Alpina Condensed Medium 9pt

The Alps are a classic example of what happens when a temperate area at lower altitude gives way to higher-elevation terrain. Elevations around the 🌐 that have cold climates similar to those of t*he polar regions* have been called Alpine. A rise from sea level into the upper regions of the atmosphere causes the temperature to decrease.

The effect of *mountain chains* on prevailing winds is to carry warm air belonging to the lower region into an upper zone, where it expands in volume at the cost of a proportionate loss of temperature, often accompanied by precipitation in the form of snow or rain. The height of the Alps is sufficient to divide the weather patterns in Europe into a *wet north and a dry south* because moisture is sucked from the air as it flows over the high peaks.

The severe weather in the Alps has been studied since the 18th century; particularly the weather patterns such as the seasonal foehn wind. Numerous weather stations were placed in the mountains early in the *early 20th century*, providing continuous data for climatologists. Some of the valleys are quite arid such as the *Aosta valley* in Italy, the Maurienne in France, the Valais in Switzerland, and northern Tyrol. The areas that are not arid and receive high precipitation experience periodic flooding from rapid snowmelt and runoff. The mean precipitation in

GT Alpina Condensed Medium 14pt

The Alps are split into *five climatic zones*, each with different vegetation. The climate, plant life and animal life vary among the different sections or zones of the mountains.

The lowest zone is *the colline zone*, which exists between 500 and 1000 m (1600 and 3300 ft), depending on the location. *The montane zone* extends from 800 to 1700 m (2600 to 5600 ft), followed by *the sub-Alpine zone* from 1600 to 2400 m (5200 to 7900 ft). *The Alpine zone*, extending from tree line to snow line, is followed by *the glacial zone*, which covers the glaciated areas of the mountain. Climatic conditions show variances within the same zones; for example,

GT Alpina Condensed Medium 19pt

Thirteen thousand species of plants have been identified in the Alpine regions. *Alpine plants* are grouped by habitat and soil type which can be limestone or non-calcareous.

The habitats range from meadows, bogs, woodland *(deciduous and coniferous)* areas to soil-less scree and moraines, and rock faces and ridges. A natural vegetation limit with altitude is given by the presence of the chief deciduous trees — *oak*, *beech*, *ash and sycamore maple*. These do not reach exactly to the same elevation, nor are they often found growing together; but their upper limit corresponds accurately enough to the change from a temperate to a colder climate that is further proved by a change in the presence of wild *herbaceous vegetation*. This limit usually lies about 1200 m (3900 ft) above the sea on the north side of the Alps, but on the southern

GT Alpina Fine Condensed Bold 80pt

FINSTERAARHORN

GT Alpina Fine Condensed Bold 147pt

Mount Yari

GT Alpina Fine Condensed Bold 260pt

EIGER

GT Alpina Condensed Bold 9pt

The Alps are a habitat for 30 000 species of wildlife, ranging from the *tiniest snow fleas to brown bears*, many of which have made adaptations to the harsh cold conditions and high altitudes to the point that some only survive in specific micro-climates either directly above or below the snow line.

The *largest mammal* to live in the highest altitudes are the *alpine ibex*, which have been sighted as high as 3 000 m (9 800 ft). The ibex live in caves and descend to eat the succulent alpine grasses. Classified as antelopes, chamois are smaller than ibex and found throughout the Alps, living above the tree line and are common in the entire alpine range. Areas of the eastern Alps are still home to *brown bears*. In Switzerland the canton of Bern was named for the bears but the last bear is recorded as having been killed in 1792 above Kleine Scheidegg by three hunters from Grindelwald.

Many rodents such as voles live underground. *Marmots* live almost exclusively above the tree line as high as 2 700 m (8 900 ft). They hibernate in large groups to provide warmth, and can be found in all areas of the Alps, in large colonies they build beneath the alpine pastures. Golden eagles and bearded vultures are the largest birds to be found in the Alps; they nest

GT Alpina Condensed Medium 14pt

Reptiles such as adders and vipers live to the snow line; because they cannot bear the cold temperatures they hibernate underground and soak the warmth on rocky ledges. The high-altitude Alpine *salamanders* have adapted to living above the snow line by giving *birth to fully developed young rather than laying eggs*. Brown trout can be found in the streams to the snow line. *Molluscs* such as the wood snail live the snow line. Popularly gathered as food, the snails are now protected.

A number of species of *moths* live in the Alps, some of which are believed to have evolved in the same habitat to

GT Alpina Condensed Bold 19pt

Human interference has nearly exterminated the trees in many areas, and, except for the beech forests of the Austrian Alps, forests of deciduous trees are rarely found after the extreme deforestation between the 17th and 19th centuries.

The vegetation has changed since the second half of the 20th century, as the high alpine meadows cease to be harvested for hay or used for *grazing* which eventually might result in a regrowth of forest. In some areas the modern practice of building ski runs by mechanical means has destroyed the *underlying tundra* from which the plant life cannot recover during the non-skiing months, whereas areas that still practice a natural piste type of ski slope building preserve the fragile underlayers. The butterflies tend to be large, such as

GT Alpina Fine Thin 80pt

ZINALROTHORN

GT Alpina Fine Thin 147pt

Strahlhorn

GT Alpina Fine Thin 260pt

ETNA

GT Alpina Thin 9pt

About 10 000 years ago, when the ice melted after *the Würm glaciation*, late Palaeolithic communities were established along the lake shores and in cave systems. Evidence of human habitation has been found in caves near Vercors, close to Grenoble; in Austria the Mondsee culture shows evidence of houses built on piles to keep them dry. Standing stones have been found in Alpine areas of France and Italy. *The Rock Drawings* in Valcamonica are more than 5000 years old; more than 200 000 drawings and etchings have been identified at the site. In 1991 a mummy of a neolithic body, known as *Ötzi the Iceman*, was discovered by hikers on the Similaun glacier. His clothing and gear indicate that he lived in an alpine farming community, while the location and manner of his death – an arrowhead was discovered in his shoulder – suggests he was travelling from one place to another. Analysis of the *mitochondrial* DNA of Ötzi, has shown that he belongs to the K1 subclade which cannot be categorized into any of the three modern branches of that subclade. The new subclade has provisionally been named K1ö for *Ötzi*. The Emperor Tsin Shi, who reigned from 259–210 B.C., is said to

GT Alpina Thin 14pt

Celtic tribes settled in *Switzerland between 1500 and 1000 BC*. The Raetians lived in the eastern regions, while the west was occupied by *the Helvetii* and *the Allobrogi* settled in the *Rhône valley* and in *Savoy*.

Among the many substances *Celtic tribes* mined was salt in areas such as *Salzburg in Austria* where evidence of the Hallstatt culture was found by a mine manager in the 19th century. By the 6th century BC the *La Tène culture* was well established in the region, and became known for high quality decorated weapons and jewellery. The Celts were the

GT Alpina Thin 19pt

The Roman expansion brought the defeat of *the Allobrogi in 121 BC* and during the *Gallic Wars in 58 BC* Julius Caesar overcame the Helvetia.

The Rhaetians continued to resist but were eventually conquered when the Romans turned northward to the Danube valley in Austria and defeated the Brigantes. The *Romans* built settlements in the Alps; towns such as Aosta *(named for Augustus)* in *Italy*, *Martigny* and *Lausanne* in *Switzerland*, and *Partenkirchen* in *Bavaria* show remains of Roman baths, villas, arenas and temples. Much of the Alpine region was gradually settled by *Germanic tribes, (Lombards, Alemanni, Bavarii, and Franks)* from the 6th to the 13th centuries mixing with the local Celtic

GT Alpina Fine Light 80pt

RIMPFISCHHORN

GT Alpina Fine Light 147pt

Le Râteau

GT Alpina Fine Light 260pt

ROAN

GT Alpina Light 9pt

The population of the region is 14 million spread across eight countries. On the rim of the mountains, on the plateaus and the plains the economy consists of manufacturing and service jobs whereas in the higher altitudes and in *the mountains farming* is still essential to the economy.

Farming and forestry continue to be mainstays of *Alpine culture*, industries that provide for export to the cities and maintain the mountain ecology. Much of the Alpine culture is unchanged since the medieval period when skills that guaranteed survival in the mountain valleys and in the highest villages became mainstays, leading to strong traditions of *carpentry*, *woodcarving*, *baking and pastry-making*, *and cheesemaking*.

Farming had been a traditional occupation for centuries, although it became less dominant in the 20th century with the advent of tourism. Grazing and pasture land are limited because of the steep and rocky topography of the Alps. In mid-June cows are moved to the highest pastures close to the snowline, where they are watched by herdsmen who stay in the high altitudes often living in stone huts or wooden barns during the sum-

GT Alpina Light 14pt

Researchers say that *diamond fragments* from the dawn of 🕐 may contain evidence that life began on Earth as early as *4.25 billion years ago*, just a few hundred million years after the planet came into existence–although they also say that their findings aren't conclusive and that they may well be wrong.

Studying anything about the *ancient earth* is extremely difficult. Rocks that formed four billion years ago will long since have been beat up, metamorphosed, or melted. Researchers got around that problem by studying microscopic diamond pieces

GT Alpina Light 19pt

The Alps are one of the more popular tourist destinations in the 🌐 with many resorts such *Oberstdorf*, in *Bavaria*, *Saalbach* in *Austria*, *Davos* in *Switzerland*, *Chamonix* in *France*, and *Cortina d'Ampezzo* in *Italy* recording more than a million annual visitors. With over 120 million visitors a year, tourism is integral to the *Alpine economy* with much it coming from winter sports, although summer visitors are also an important component.

The tourism industry began in the early 19th century when foreigners visited the Alps, travelled to the bases of the mountains to enjoy the scenery, and stayed at the spa-resorts. Large hotels were built during the *Belle Époque;* cog-railways, built early in the

GT Alpina Fine Regular 80pt

SCHRECKHORN

GT Alpina Fine Regular 147pt

Kirkjufell

GT Alpina Fine Regular 260pt

OSSA

GT Alpina Regular 9pt

In the first half of the 20th century the Olympic Winter Games were held three times in Alpine venues: the 1924 *Winter Olympics in Chamonix*, France; the 1928 Winter Olympics in St. Moritz, Switzerland; and the 1936 Winter Olympics in Garmisch-Partenkirchen, Germany. During *World War II* the winter games were cancelled but after that the Winter Games have been held in St. Moritz *(1948)*, Cortina d'Ampezzo *(1956)*, Innsbruck, Austria *(1964 and 1976)*, Grenoble, France, *(1968)*, Albertville, France, *(1992)*, and Torino *(2006)*. In 1930 the Lauberhorn Rennen (Lauberhorn Race), was run for the first on the Lauberhorn above Wengen; the equally demanding Hahnenkamm was first run in the same year in Kitzbühl, Austria.

Both races continue to be held each January on successive weekends. The Lauberhorn is the more strenuous downhill race at 4.5 km and poses danger to racers who reach 130 km/h within seconds of leaving the start gate. During the *post-World War I* period ski-lifts were built in Swiss and Austrian towns to accommodate winter visitors, but summer tourism continued to be important; by the mid-20th century the popularity of

GT Alpina Regular 14pt

A mountain is a large landform that rises above the surrounding land in a limited area, usually in the form of a peak. *A mountain is generally steeper than a hill.* Mountains are formed through tectonic forces or volcanism. These forces can locally raise the surface of the earth. Mountains erode slowly through the action of rivers, weather conditions, and glaciers. A few mountains are isolated summits, but most occur in *huge mountain ranges*.

High elevations on mountains produce colder climates than at sea level. These colder climates strong-

GT Alpina Regular 19pt

There is no universally accepted definition of a mountain. Elevation, volume, relief, steepness, spacing and continuity have been used as criteria for defining a mountain. In the Oxford English Dictionary a mountain is defined as *"a natural elevation of the earth surface rising more or less abruptly from the surrounding level and attaining an altitude which, relatively to the adjacent elevation, is impressive or notable."*

Whether a landform is called a mountain may depend on local usage. *Mount Scott* outside Lawton, Oklahoma, USA, is only 251 m from its base to its highest point. *Whittow's Dictionary* of Physical Geography states "Some authorities regard eminences above 600 metres (2000 ft) as mountains, those

GT Alpina Fine Medium 80pt

AIGUILLE VERTE

GT Alpina Fine Medium 147pt

Schinhorn

GT Alpina Fine Medium 260pt

LAKI

GT Alpina Medium 9pt

In the United Kingdom and the Republic of Ireland, a *mountain is usually defined as any summit at least 610 m high*, which accords with the official UK government's definition that a mountain, for the purposes of access, is a summit of 610 m or higher. In addition, some definitions also include a topographical prominence requirement, typically 30 or 152 m.

At one 🕐 the U.S. Board on Geographic Names defined a mountain as being 300 m or taller, but has abandoned the definition since the 1970s. Any similar landform lower than this height was considered a hill. However, today, the *United States Geological Survey* (USGS) concludes that these terms do not have technical definitions in the US.

There are three main types of mountains: *volcanic*, *fold*, *and block*. All three types are formed from plate tectonics: when portions of the Earth's crust move, crumple, and dive. Compressional forces, isostatic uplift and intrusion of igneous matter forces surface rock upward, creating a landform higher than the surrounding features. The height of the feature makes it either a *hill* or, if higher and steeper, a *mountain*. Major mountains tend to

GT Alpina Medium 14pt

Volcanoes are formed when a plate is pushed below another plate, or at a mid-ocean ridge or hotspot. At a depth of around 100 km, melting occurs in rock above the slab (due to the addition of water), and forms magma that reaches the surface. When the *magma* reaches the surface, it often builds a *volcanic mountain*, such as a shield volcano or a stratovolcano. Examples of volcanoes include *Mount Fuji* in Japan and *Mount Pinatubo* in the Philippines. The magma does not have to reach the surface in order to create a mountain: magma that so-

GT Alpina Medium 19pt

Fold mountains occur when two plates collide: shortening occurs along thrust faults and the crust is overthickened. Since the less dense continental crust "floats" on the denser mantle rocks beneath, the ⚖ of any crustal *material forced upward to form hills*, plateaus or mountains must be balanced by the buoyancy force of a much greater volume forced downward into the mantle. Thus the continental crust is normally much thicker under mountains, compared to lower lying areas. Rock can fold either symmetrically or asymmetrically. The upfolds are anticlines and the downfolds are synclines: in asymmetric folding there may also be recumbent and overturned folds. The Balkan Mountains and the Jura Moun-

GT Alpina Fine Bold 80pt

DENT D'HÉRENS

GT Alpina Fine Bold 147pt

Breithorn

GT Alpina Fine Bold 260pt

FUJI

GT Alpina Bold 9pt

During and following uplift, mountains are subjected to the agents of erosion *(water, wind, ice, and gravity)* which gradually wear the uplifted area down. Erosion causes the surface of mountains to be younger than the rocks that form the mountains themselves. *Glacial processes* produce characteristic landforms, such as pyramidal peaks, knife-edge arêtes, and bowl-shaped cirques that can contain lakes. *Plateau mountains*, such as the Catskills, are formed from the erosion of an uplifted plateau.

In Earth science, erosion is the action of surface processes (such as water flow or wind) that removes soil, rock, or dissolved material from one location on the Earth's crust, and then transport it away to another location (not to be confused with weathering which involves no movement). The particulate breakdown of rock or soil into clastic sediment is referred to as physical or mechanical erosion; this contrasts with *chemical erosion*, where soil or rock material is removed from an area by its dissolving into a solvent (typically water), followed by the flow away of that solution. Eroded sediment or solutes may be transported just a few millimetres, or for thou-

GT Alpina Bold 14pt

Block mountains are caused by faults in the crust: a plane where rocks have moved past each other. When rocks on one side of a fault rise relative to the other, it can form a mountain. The uplifted blocks are block mountains or horsts.

The intervening dropped blocks are termed graben: these can be small or form extensive rift valley systems. This form of landscape can be seen in East Africa, *the Vosges*, *the Basin* and *Range Province* of Western North America and *the Rhine valley*. These areas often occur when the regional stress is exten-

GT Alpina Bold 19pt

The highest known permanently tolerable *altitude is at 5950 metres*. At very high altitudes, the decreasing atmospheric pressure means that *less oxygen is available for breathing*, and there is less protection against solar radiation (UV). *Above 8000 metres elevation*, there is not enough oxygen to support human life. This is known as the *"death zone"*. The summits of *Mount Everest* and *K2* are in the death zone. Mountains are generally less preferable for human habitation than lowlands, because of harsh weather and little level ground suitable for agriculture. While 7% of the land area of Earth is above 2500 metres, only 140 million people live above that altitude and only 20–30 million people

GT Alpina Fine Extended Thin 80pt

ALETSCHHORN

GT Alpina Fine Extended Thin 147pt

Jungfrau

GT Alpina Fine Extended Thin 250pt

ALPS

GT Alpina Extended Thin 9pt

Heights of mountains are typically measured above sea level. Using this metric, *Mount Everest* is the highest mountain on Earth, at 8848 metres. There are at least 100 mountains with heights of over 7200 metres above sea level, all of which are located in central and *southern Asia*. The highest mountains above sea level are generally not the highest above the surrounding terrain. There is no precise definition of surrounding base, but *Denali*, *Mount Kilimanjaro* and *Nanga Parbat* are possible candidates for the tallest mountain on land by this measure. The bases of mountain islands are below sea level, and given this consideration *Mauna Kea* (4207 m above sea level) is the world's tallest mountain and volcano, rising about 10203 m from the Pacific Ocean floor.

The highest mountains are not generally the most voluminous. *Mauna Loa* (4169 m) is the largest mountain on Earth in terms of base area (about 5200 km^2) and volume (75000 km^3). Mount Kilimanjaro is the largest

GT Alpina Extended Thin 14pt

Mountaineering, mountain climbing, or alpinism is the sport, hobby or profession of hiking, skiing, and climbing mountains.

While mountaineering began as attempts to reach the highest point of unclimbed big mountains it has branched into specializations that address different aspects of the mountain and consists of three areas: *rock-craft, snow-craft and skiing,* depending on whether the route chosen is over rock, snow or ice. All require experience, athletic abil-

GT Alpina Extended Thin 19pt

Mountains are generally less preferable for human habitation than lowlands, because of harsh weather and little level ground suitable for agriculture. *While 7% of the land area of Earth is above 2500 metres (8200 ft), only 140 million people live above that altitude* and only 20–30 million people above 3000 metres (9800 ft) elevation. About half of mountain dwellers live in the Andes, Central Asia, and Africa. With limited access to infrastructure, only a handful of human communities exist above 4000 metres (13000 ft) of elevation. Many are small and have

GT Alpina Fine Extended Light 80pt

MONT POURRI

GT Alpina Fine Extended Light 147pt

Nesthorn

GT Alpina Fine Extended Light 260pt

VISO

GT Alpina Extended Light 9pt

Humans have been present in mountains since prehistory. The remains of *Ötzi*, who lived in the 4th millennium BC, were found in a glacier in the Ötztal Alps. However, the highest mountains were rarely visited early on, and were often associated with supernatural or religious concepts. Nonetheless, there are many documented examples of people climbing mountains prior to the formal development of the sport in the *19th century*, although many of these stories are sometimes considered fictional or legendary. The famous poet Petrarch describes his 26 April 1336 ascent of *Mount Ventoux* (1912 m) in one of his epistolae familiares, claiming to be inspired by Philip V of Macedon's ascent of *Mount Haemo*.

For most of antiquity, climbing mountains was a *practical or symbolic activity*, usually undertaken for economic, political, or religious purposes. A commonly cited example is the 1492 ascent of *Mont Aiguille* (2085 m) by Antoine de Ville, a French military officer and lord of Domjulien

GT Alpina Extended Light 14pt

The Age of Enlightenment and the Romantic era marked a change of attitudes towards high mountains. In 1757 Swiss scientist Horace-Bénédict de Saussure made the first of several unsuccessful attempts on *Mont Blanc* in France.

He then offered a reward to anyone who could climb the mountain, which was claimed in 1786 by Jacques Balmat and Michel-Gabriel Paccard. The climb is usually considered an epochal event in the history

GT Alpina Extended Light 19pt

By the early 19th century, many of the alpine peaks were reached, including the *Grossglockner in 1800, the Ortler in 1804, the Jungfrau in 1811, the Finsteraarhorn in 1812, and the Breithorn in 1813*. In 1808, Marie Paradis became the first woman to climb Mont Blanc, followed in 1838 by Henriette d'Angeville. The beginning of mountaineering as a sport in the UK is generally dated to the ascent of the Wetterhorn in 1854 by English mountaineer Sir Alfred Wills, who made mountaineering fashionable in Britain. This inaugurated what became known as the Golden Age of Al-

GT Alpina Fine Extended Regular 80pt

MOUNT COOK

GT Alpina Fine Extended Regular 147pt

Cho Oyu

GT Alpina Fine Extended Regular 260pt

KEA

GT Alpina Extended Regular 9pt

The last and greatest mountain range was the Himalayas in Central Asia. They had initially been surveyed by the British Empire for military and strategic reasons. In 1892 Sir William Martin Conway explored the *Karakoram Himalayas*, and climbed a peak of 7000 m. In 1895 Albert F. Mummery died while attempting Nanga Parbat, while in 1899 Douglas Freshfield took an expedition to the snowy regions of Sikkim.
In 1899, 1903, 1906, and 1908 American mountaineer Mrs. Fanny Bullock Workman *(one of the first professional female mountaineers)* made ascents in the Himalayas, including one of the *Nun Kun* peaks (7100 m). A number of Gurkha sepoys were trained as expert mountaineers by Charles Granville Bruce, and a good deal of exploration was accomplished by them.
In 1902 the Eckenstein-Crowley Expedition, led by English mountaineer Oscar Eckenstein and English occultist Aleister Crowley was the first to attempt to scale *K2*. They reached

GT Alpina Extended Regular 14pt

Eckenstein was also a pioneer in developing new equipment and climbing methods. He started using shorter *ice axes* which could be used single-handed, designed the modern crampons and improved on the nail patterns used for the *climbing boots*.

By the 1950s, all the eight-thousanders but two had been climbed starting with *Annapurna* in 1950 by Maurice Herzog and Louis Lachenal on the 1950 French Annapurna expedition. The last great peak was

GT Alpina Extended Regular 19pt

The 1924 expedition saw another height record achieved but still failed to reach the summit with confirmation when George Mallory and Andrew Irvine disappeared on the final attempt. The summit was finally reached on May 29, 1953 by Sir Edmund Hillary and Tenzing Norgay from the south side in *Nepal*. Just a few months later, Hermann Buhl made the first ascent of *Nanga Parbat* (8125 m), a siege-style expedition culminating in a last 1300 meters walking alone, being under the influence of drugs: pervitin (based on the stimulant methamphetamine used by sol-

GT Alpina Fine Extended Medium 80pt

KILIMANJARO

GT Alpina Fine Extended Medium 147pt

Trugberg

GT Alpina Fine Extended Medium 260pt

RIGI

GT Alpina Extended Medium 9pt

Alpine rock climbing involves technical skills including the ability to place anchors into the rock to safely ascend a mountain. In some cases, climbers may have to climb multiple pitches of rock in order to reach the top.

Typically, for any one pitch, there is a belayer who is stationary and creates tension on the rope to catch a climber should he or she fall, and a climber who ascends the rock. The first climber, called the leader, will reach a point on the rock and then build an anchor, which will secure subsequent climbers. Anchors could be created by using slings around a tree or boulder, or by using protection devices like cams and nuts.

Once anchored, the leader will then belay the climber coming 👆 from below. Once the follower reaches the leader, the leader will often transfer all necessary protection devices *(known as a rack)* to the follower. The follower then becomes the leader and will ascend the next pitch. This process will

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Compacted snow conditions allow mountaineers to progress on foot. Frequently crampons are required to travel efficiently and safely over *snow and ice*. Crampons attach to the bottom of a mountaineer's boots and provide additional traction on hard snow and ice. For loose snow, crampons are less suitable, and snowshoes or skis may preferred. Using various techniques from alpine skiing to ascend/descend a mountain is a form of the sport by

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It is not always wise for climbers to form a rope team, since one falling climber may pull the entire team off the mountain. However, the risks of individual, unprotected travel are often so great that groups have no choice but to form a rope team. For example, when travelling over glaciers, crevasses pose a grave danger to a climber who is not roped in. These giant cracks in the ice are not always visible as snow can be blown and freeze over the TOP to make a snowbridge. At times snowbridges can be as thin as a few inches, and may collapse from people walking

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MONT DOLENT

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Ruinette

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DOM

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There are two main styles of mountaineering: expedition style and alpine style. *Alpine style*, or informal variations of it, is the most common form of mountaineering today.

It involves a *single, straightforward climb* of the mountain, with *no backtracking*. This style is most suited for *medium-sized mountain areas* close to civilization with *elevations of 2 000–5 000 m*, such as the Alps or the Rocky Mountains. Alpine style ascents have been done throughout history on extreme altitude (above 5 000 m) peaks also, albeit in lower volume to expedition style ascents. *Climbers generally carry their loads between camps without backtracking*, in a single push for the summit. If the summit is reachable from the base camp or trailhead within one day, then alpine-style mountaineers will not change camps at all, and only carry the slightest of loads (necessary nourishment and equipment) 👆 to the summit. *"Light and fast"* is the mantra of the alpine mountaineer.

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The alpine style contrasts with *"expedition style"*. With this style, *climbers will carry large amounts of equipment* and provisions 👆 and 👇 the mountain, slowing making upward progress. Climbing in an expedition style is preferred if the summit is *very high or distant from civilization*.

Mountaineers who utilize this style are usually, but not always, part of a large team of climbers and support staff (such as porters and guides). To cover large distances

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In *rock climbing* and *ice climbing*, a pitch is a steep section of a *route that requires a rope between two belays*, as part of a climbing system. *Standard climbing ropes are between 50 and 80 metres long, so a pitch is always shorter*, between two convenient ledges if possible; longer routes are multi-pitch, requiring the re-use of the rope each time. In *free climbing*, pitch refers to classification by climbers of the difficulty of ascent on certain climbing routes. The term "pitch" is also used by cavers to refer to a very steep or vertical section (called a drop,

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GROSS GRÜNHORN

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Vesuvius

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KATLA

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In advanced climbing or mountaineering, another *definition of pitch is not restricted by the length of the rope*. On easier terrain or when moving quickly, the length of a pitch can be extended by means of simul climbing, effectively combining several pitches together by means of a running belay.

Speed climbers will often state that they completed a *long route* with a reduced number of pitches, effectively calling a pitch any ⏲ a fixed belay was used or a changeover in the lead occurred. This definition is used loosely, since the length of a pitch is only limited by the nature of the terrain and the confidence of the individual climbing party. The term *"pitch"* is also used by cavers to refer to a very steep or vertical section *(called a drop, pit, or shaft)* in a cave that needs ladders or single rope technique to descend and ascend

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The Nose was climbed in 1958 by Warren Harding, Wayne Merry and George Whitmore in 47 days using "siege" tactics: climbing in an expedition style using fixed ropes along the length of the route, linking established camps along the way. *The fixed manila ropes allowed the climbers to ascend and descend from the ground ☝ throughout the 18-month project*, although they presented unique levels of danger as well, sometimes

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After his *successful solo ascent of the Leaning Tower*, Royal Robbins turned his attention to the Yvon Chouinard-T.M. Herbert Muir Wall route, *completing the first solo ascent of El Capitan during a 10-day push in 1968.*

The first solo ascents of El Capitan's four classic "siege" routes were accomplished by Thomas Bauman on The Nose in 1969; Peter Hann on the Salathé Wall in 1972; Robert Kayen on the Layton Kor-Steve Roper West Buttress route in 1982; and Beverly Johnson on the Cooper-Baldwin-Denny Dihedral Wall route

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Ortler

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AINO

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As it became clear that any non-crumbling face could be conquered with sufficient perseverance and bolt-hole drilling, some climbers began searching for *El Cap routes that could be climbed either free or with minimal aid*. *The West Face* route was free climbed in 1979 by *Ray Jardine* and *Bill Price;* but despite numerous efforts by Jardine and others, The Nose resisted free attempts for another fourteen years. The first free ascent of a main *El Cap route*, though, was not The Nose, but Salathé Wall.

Todd Skinner and *Paul Piana* made the first free ascent over 9 days in 1988, after 30 days of working the route (graded 5.13b on the *Yosemite Decimal System*). *The Nose* was the second major route to be freeclimbed. Two pitches on The Nose blocked efforts to free the route: the *"Great Roof"* graded 5.13c and *"Changing Corners"* graded 5.14a/b. In 1993, *Lynn Hill* came close to freeing The

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After 4 days of climbing, *Hill* reached the summit, making her the first person to free climb *The Nose*. A year later, Hill returned to free climb The Nose in a day, this 🕐 reaching the summit in just 23 hours and setting a new standard for free climbing on *"El Cap"*. *The Nose* saw a second free ascent in 1998, when *Scott Burke* summitted after 261 days of effort. On October 14, 2005, *Tommy Caldwell* and *Beth Rodden*,

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On January 14, 2015, *Tommy Caldwell* and *Kevin Jorgeson* completed the first free climb of the *Dawn Wall* after 19 days, one of the hardest climbs in the world.

On June 3, 2017, *Alex Honnold* completed the first free solo climb of El Capitan, without protective equipment. He ascended the *Freerider* line in 3 hours and 56 minutes, beginning at 5:32 am PDT and reaching the peak at 9:28 am PDT. The climb was filmed for the 2018 documentary *Free Solo*. couple) to free climb The Nose. They took four days on the ascent,

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MOUNT EVEREST

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Säntis❤!

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ESJAN

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Rock climbing is a sport in which participants climb up, or across natural rock formations or artificial rock walls. The goal is to reach the summit of a formation or the endpoint of a usually pre-defined route without falling.

Professional rock climbing competitions have the objectives of either completing the route in the quickest possible or attaining the farthest point on an increasingly difficult route.

Due to the length of and extended endurance required, and because accidents are most likely to happen on the descent, *rock climbers* do not usually climb back the route, or "downclimb", especially on the larger multiple pitch class III–IV, or multi-day grade IV–VI climbs.

Rock climbing is a *physically and mentally demanding sport*, one that often tests a climber's strength, endurance, agility and balance along with mental control. It

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Paintings dating from 200 BC show Chinese men rock climbing. In early America, the cliff-dwelling Anasazi in the 12th century are thought to have been excellent climbers. *Early European climbers used rock climbing techniques as a skill required to reach the summit in their mountaineering exploits.*

In the 1880s, European rock climbing became an independent pursuit outside of mountain climbing.

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Although rock climbing was an important component of Victorian mountaineering in the Alps, it is generally thought that the sport of rock climbing began in the last quarter of the nineteenth century in various parts of Europe. *Rock climbing evolved gradually from an alpine necessity to a distinct athletic activity.*

Aid climbing, climbing using equipment that acts as artificial handhold or footholds, became popular during the period 1920–1960, leading to ascents in the Alps and in Yosemite Valley that were considered impossible without

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EL CAPITAN 

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Manaslu

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MEIJE

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The Alpine region of Switzerland, conventionally referred to as the Swiss Alps (German: *Schweizer Alpen*, French: *Alpes suisses*, Italian: *Alpi svizzere*, Romansh: *Alps svizras*), represents a major natural feature of the country and is, along with the Swiss Plateau and the Swiss portion of the Jura Mountains, one of its three main physiographic regions.

The Swiss Alps extend over both the Western Alps and the Eastern Alps, encompassing an area sometimes called Central Alps. While the northern ranges from the Bernese Alps to the Appenzell Alps are entirely in Switzerland, the southern ranges from the Mont Blanc massif to the Bernina massif are shared with other countries such as France, Italy, Austria and Liechtenstein. *The Swiss Alps comprise almost all the highest mountains of the Alps*, such as Dufourspitze (4634 m), the Dom (4545 m), the Liskamm (4527 m), the Weisshorn (4506

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The Alps cover 65% of Switzerland's total 41285 square kilometres (15940 sq mi) surface area, making it one of the most alpine countries. Despite the fact that Switzerland covers only 14% of the Alps total 192753 square kilometres (74422 mi²) area, 48 out of 82 alpine four-thousanders are located in the Swiss Alps and practically all of the remaining 34 are within 20 kilometres (12 mi) of the country's bor-

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The Swiss Alps are situated south of the Swiss Plateau and north of the national border. The limit between the Alps and the plateau runs from Vevey on the shores of Lake Geneva to Rorschach on the shores of Lake Constance, passing close to the cities of Thun and Lucerne.

The not well defined regions in Switzerland that lie on the margin of the Alps, especially those on the north side, *are called the Swiss Prealps* (Préalpes in French, Voralpen in German, Prealpi in Italian). The Swiss Prealps are mainly made of lime-

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KANGCHENJUNGA

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Piz Boè

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YAKE

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The north side of the Swiss Alps is drained by the Rhône, Rhine and Inn *(which is part of the Danube basin)* while the south side is mainly drained by the Ticino (Po basin). The rivers on the north empty into the Mediterranean, North and Black Sea, on the south the Po empty in the Adriatic Sea.

The major triple watersheds in the Alps are located within the country, they are: *Piz Lunghin, Witenwasserenstock and Monte Forcola*. Between the Witenwasserenstock and Piz Lunghin runs the European Watershed separating the basin of the Atlantic (North Sea) and the Mediterranean Sea (Adriatic and Black Sea).

The European watershed lies in fact only partially on the main chain. *Switzerland possesses 6% of Europe's fresh water,* and is sometimes referred to as the "water tower of Europe. Since the highest dams are located in Alpine regions, many large

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The Alps are usually divided into two main parts, the *Western Alps and Eastern Alps,* whose division is along the Rhine from Lake Constance to the Splügen Pass. *The western ranges occupy the greatest part of Switzerland* while the more numerous eastern ranges are much smaller and are all situated in the canton of Graubünden. The latter are part of the Central Eastern Alps, except the Ortler Alps which belong to

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The composition of the great tectonic units reflects the history of the formation of the Alps. The rocks from the *Helvetic zone* on the north and the Austroalpine nappes – Southern Alps on the south come originally from the European and *African continent respectively*.

The rocks of the Penninic nappes belong to the former area of the Briançonnais microcontinent and the Tethys Ocean. The closure of the latter by subduction under the African plate (Piemont Ocean first and Valais Ocean later) preceded the collision