

CMPU 187 · Introduction to Digital Humanities

# Visualization

5 May 2021



A visual story

“Described by E. J. Marey as seeming to defy the pen of the historian by its brutal eloquence, this combination of data map and time-series, drawn in 1869, portrays a sequence of devastating losses suffered in Napoleon’s Russian campaign of 1812.”

Edward Tufte, *The Visual Display of Quantitative Information*



# Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.

Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite. Paris, le 20 Novembre 1869.

Les nombres d'hommes présents sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes; ils sont de plus écrits en travers des zones. Le rouge désigne les hommes qui entrent en Russie, le noir ceux qui en sortent. — Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M.M. Chiers, de Ségur, de Fezensac, de Chambray et le journal inédit de Jacob, pharmacien de l'Armée depuis le 28 Octobre.

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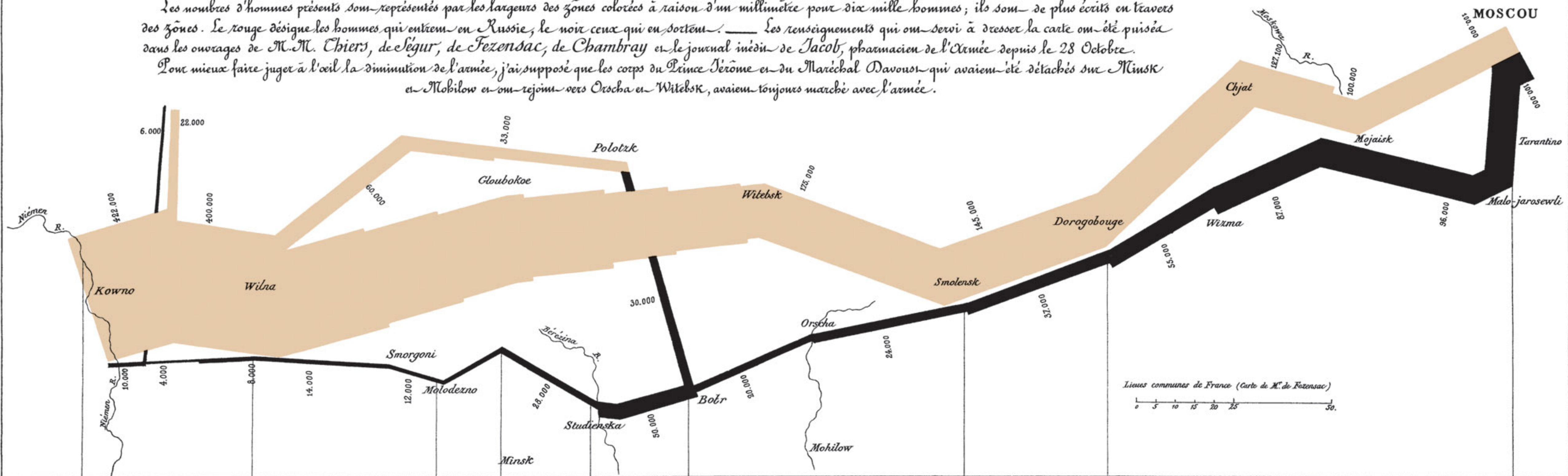
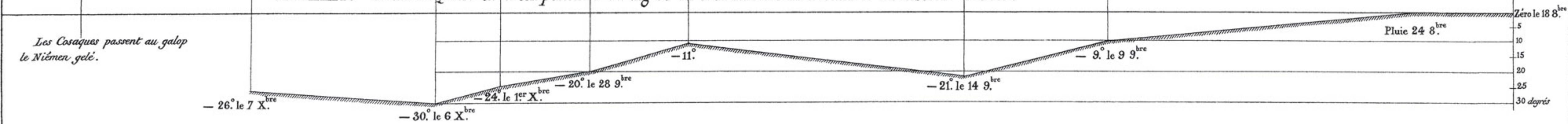
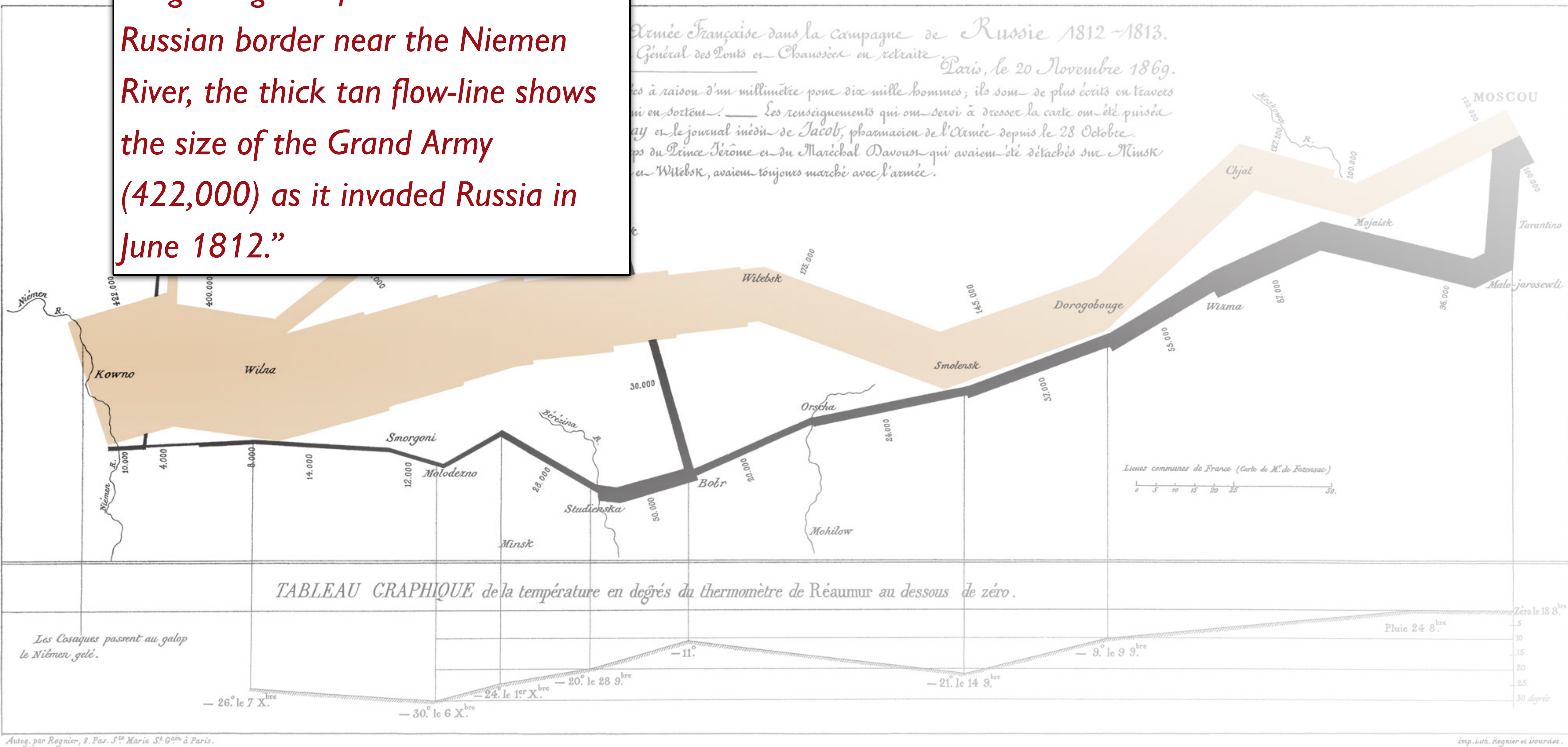


TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessous de zéro.





“Beginning at left on the Polish–Russian border near the Niemen River, the thick tan flow-line shows the size of the Grand Army (422,000) as it invaded Russia in June 1812.”





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“The width of this band indicates the size of the army at each place on the map.”

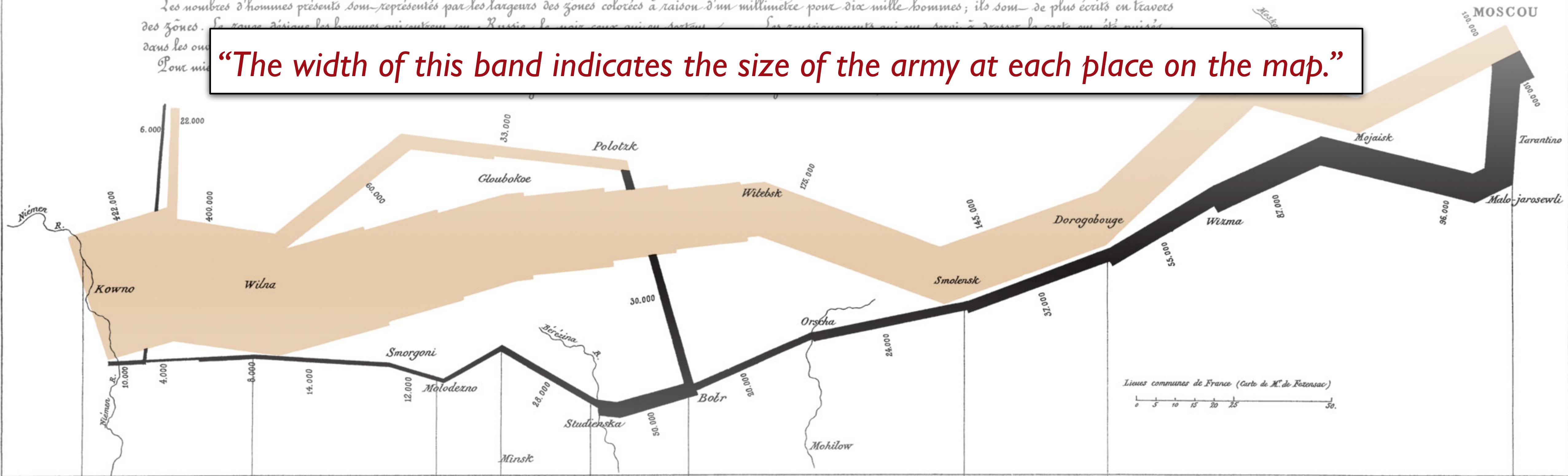
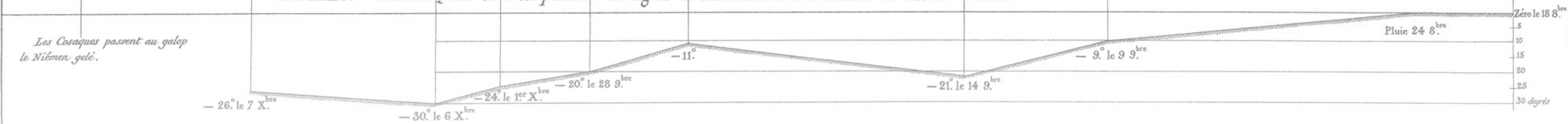


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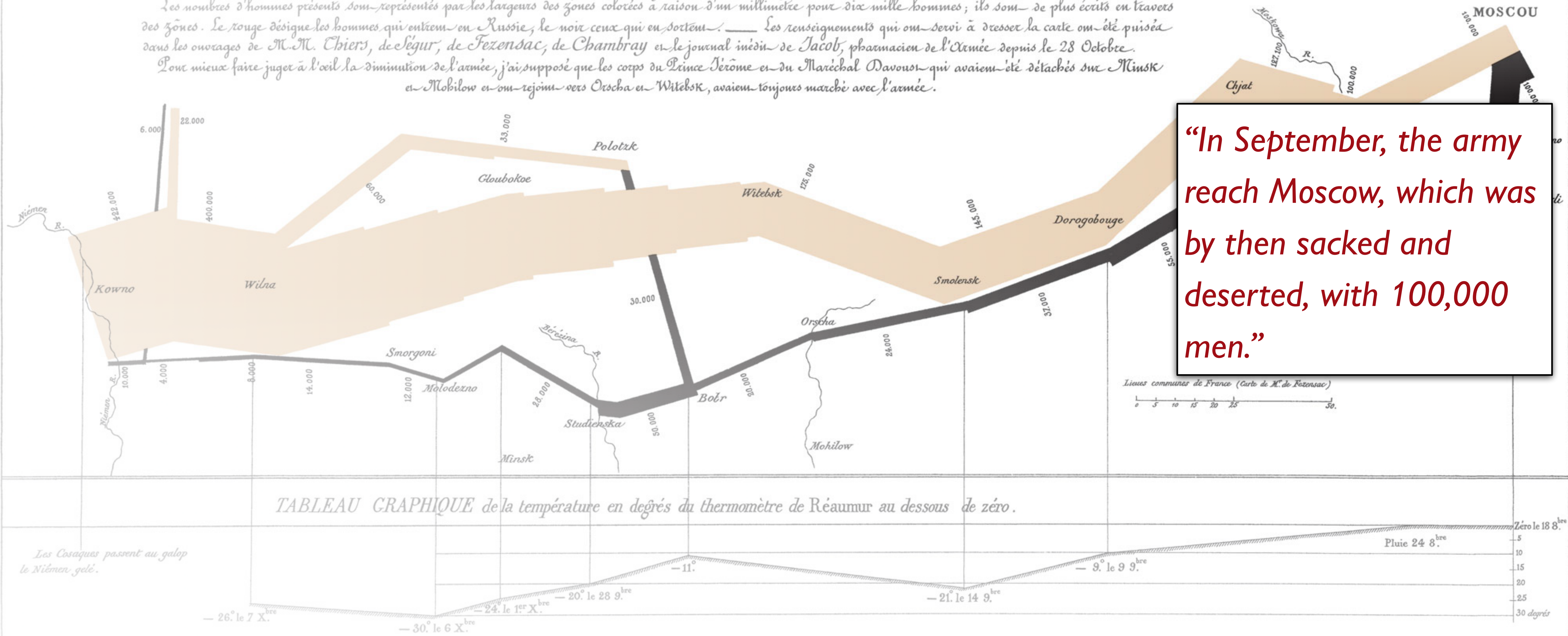




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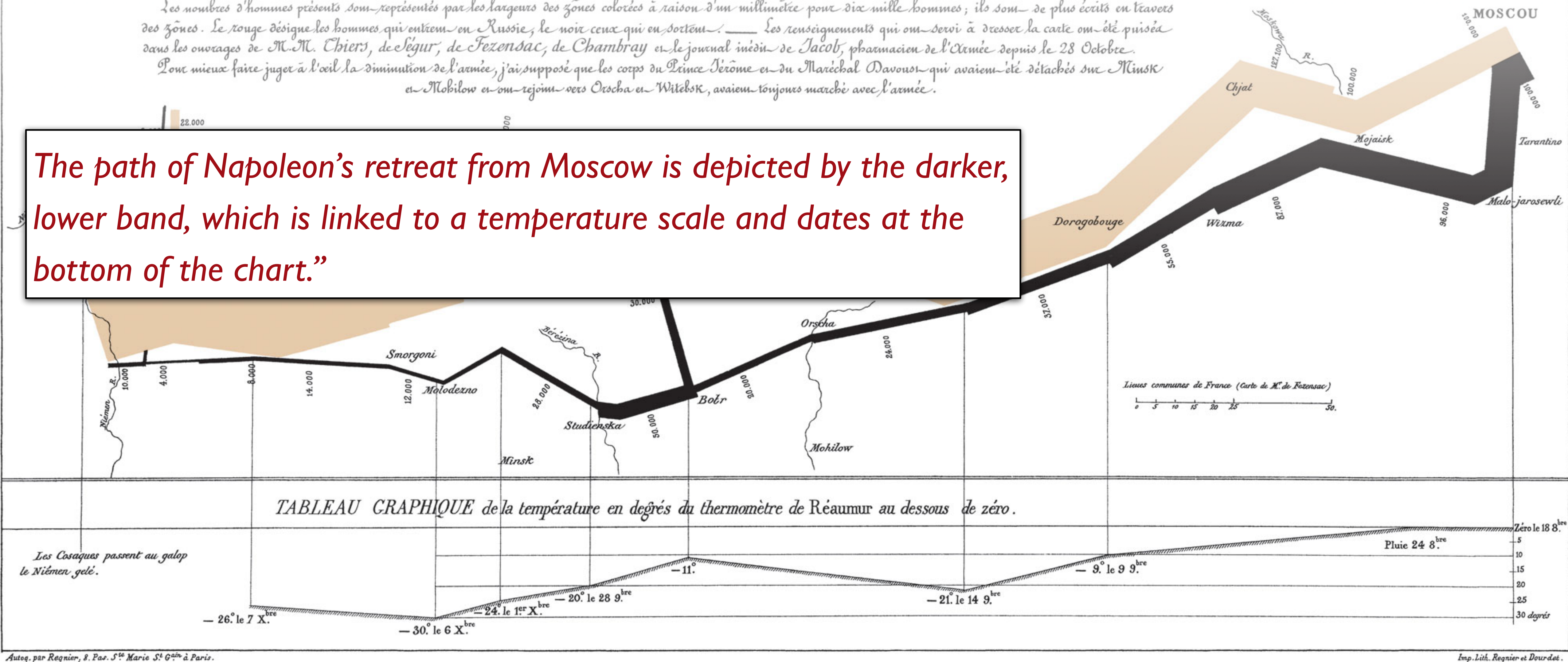
“In September, the army reach Moscow, which was by then sacked and deserted, with 100,000 men.”



*Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.*  
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The path of Napoleon's retreat from Moscow is depicted by the darker, lower band, which is linked to a temperature scale and dates at the bottom of the chart."



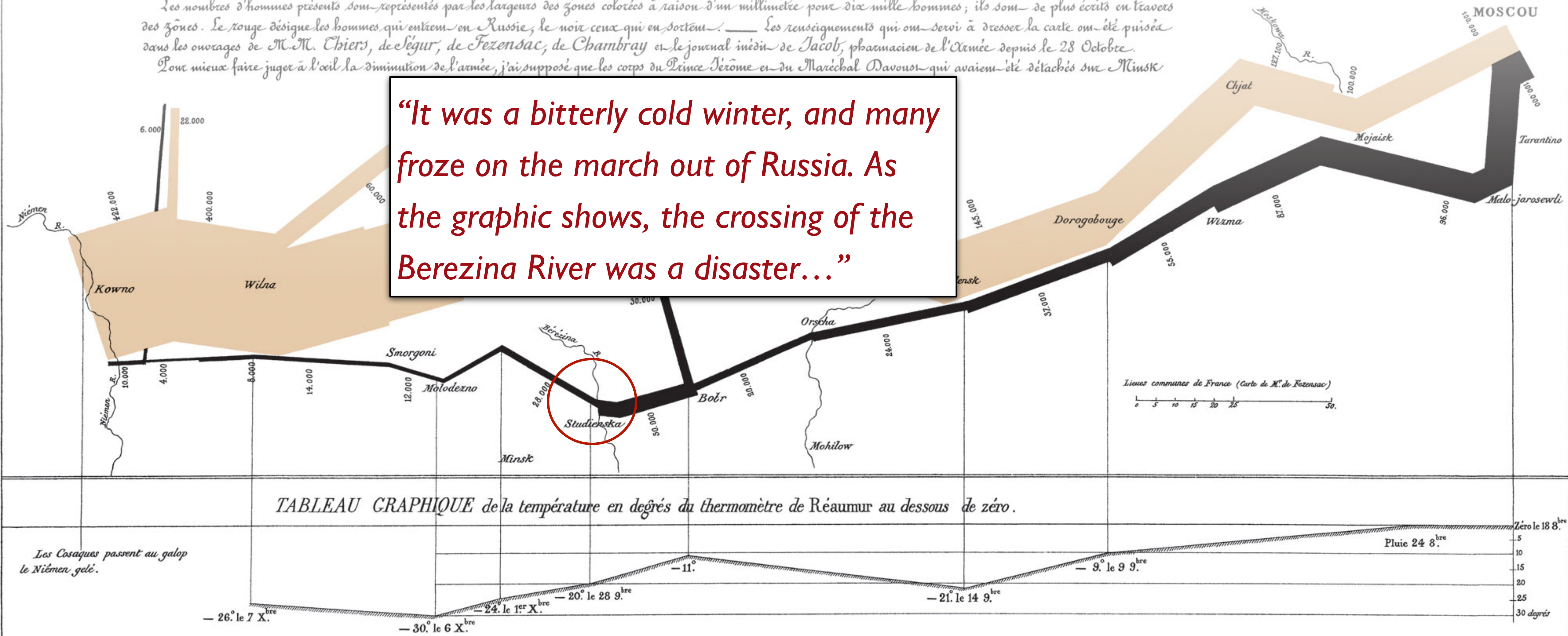


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“It was a bitterly cold winter, and many froze on the march out of Russia. As the graphic shows, the crossing of the Berezina River was a disaster...”



“Minard’s graphic tells a rich, coherent story with its multivariate data, far more enlightening than just a single number bouncing along over time. *Six* variables are plotted: the size of the army, its location on a two-dimensional surface, direction of the army’s movement, and temperature on various dates during the retreat from Moscow...

“It may well be the best statistical graphic ever drawn.”

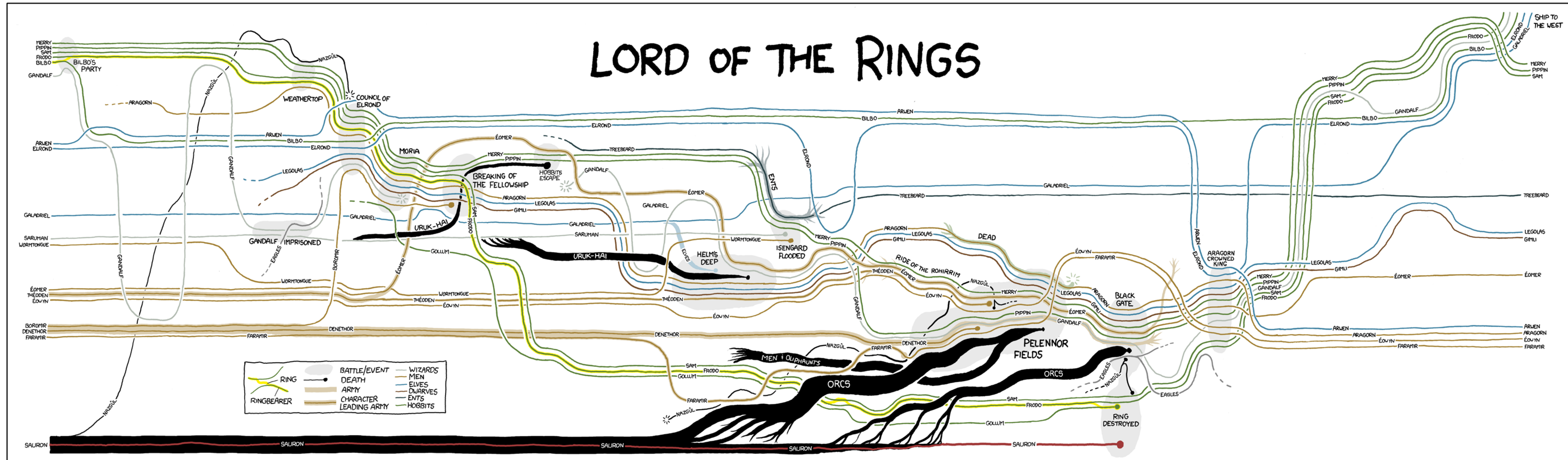
Edward Tufte, *The Visual Display of Quantitative Information*



A similar idea, with less Napoleon

THESE CHARTS SHOW MOVIE CHARACTER INTERACTIONS.  
THE HORIZONTAL AXIS IS TIME. THE VERTICAL GROUPING OF THE  
LINES INDICATES WHICH CHARACTERS ARE TOGETHER AT A GIVEN TIME.

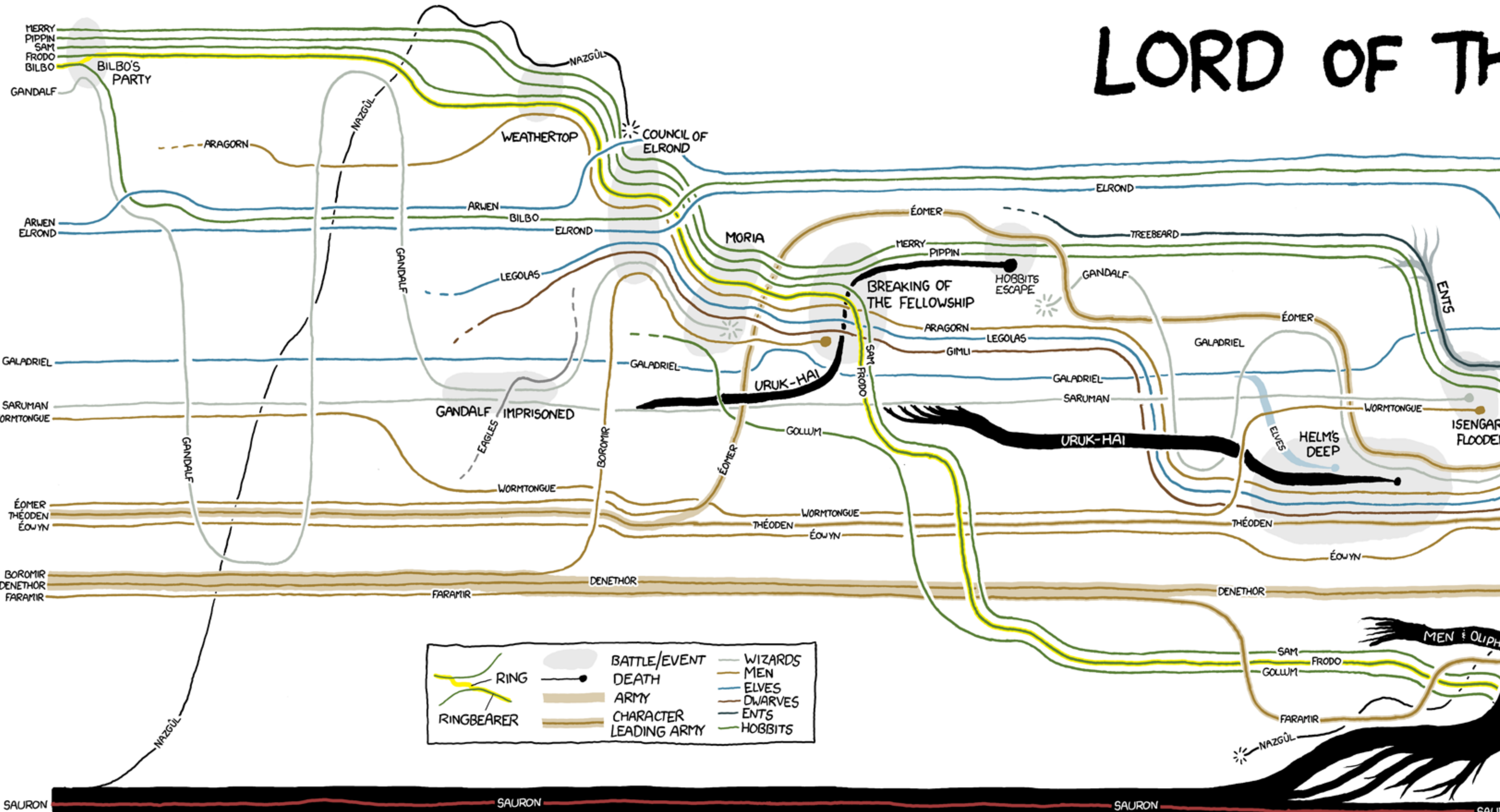
# LORD OF THE RINGS



Randall Munroe, [xkcd.com/657/large](http://xkcd.com/657/large)

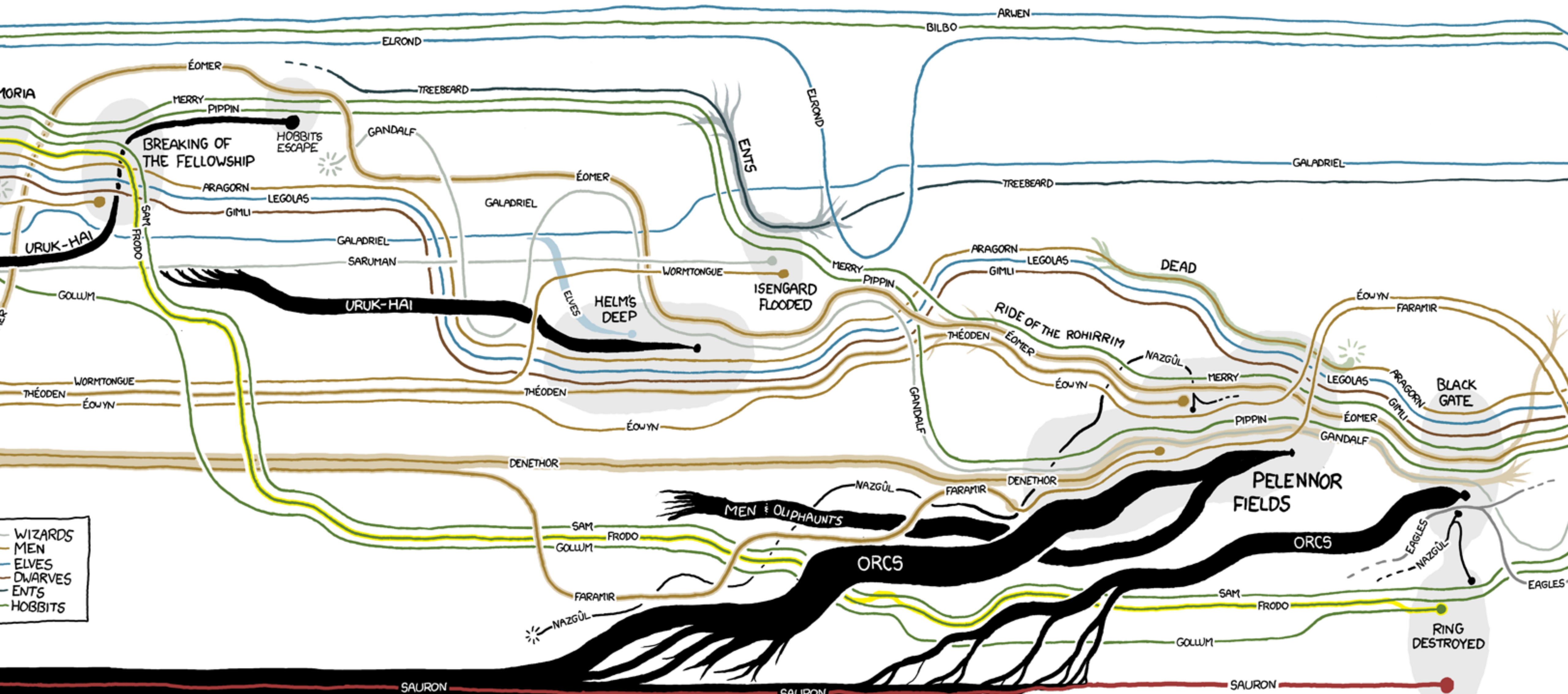


# LORD OF THE



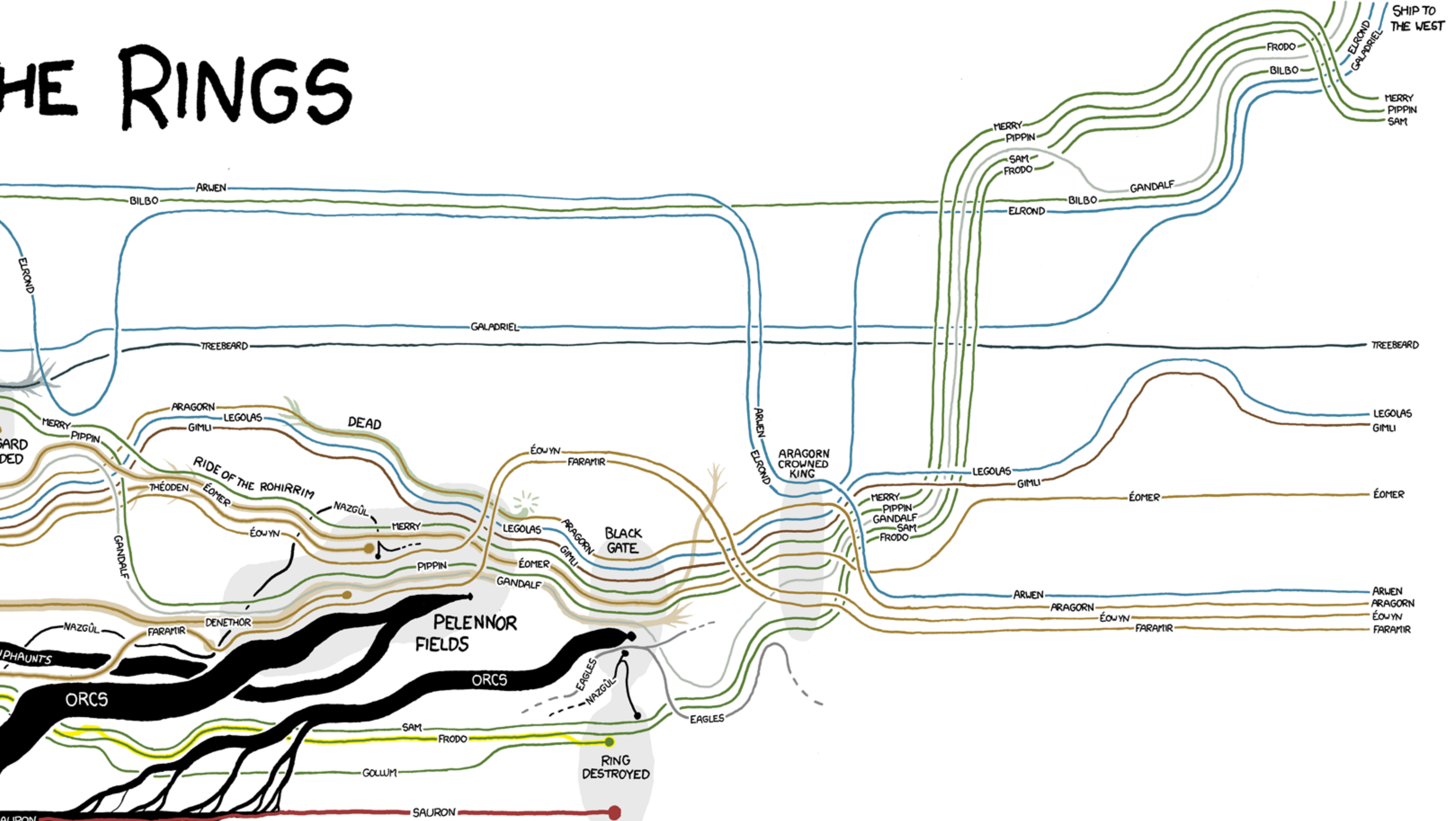


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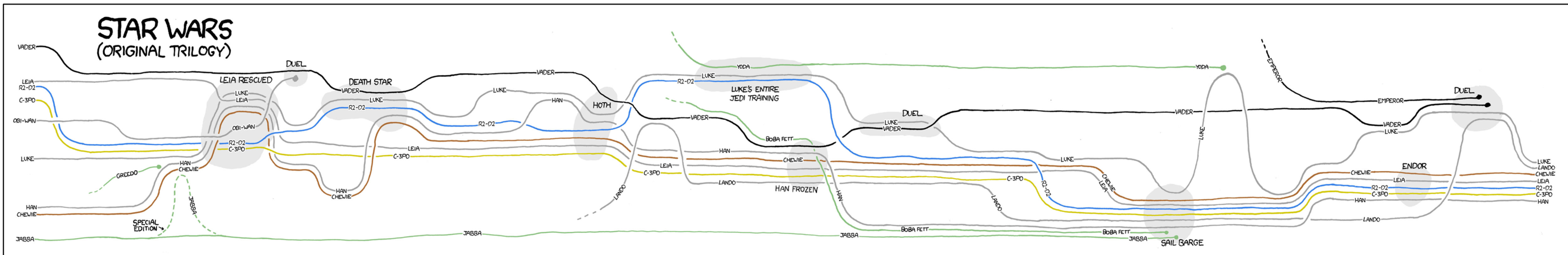


# THE RINGS





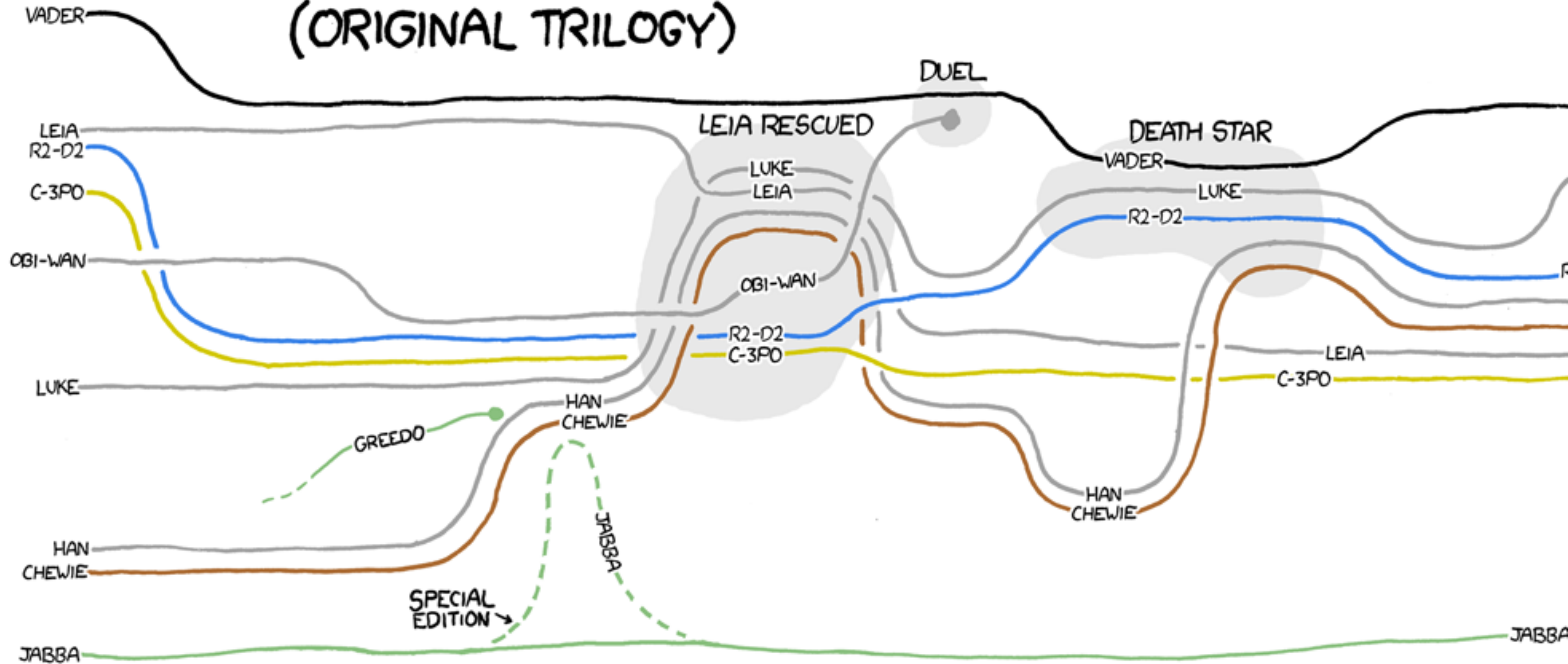
# STAR WARS (ORIGINAL TRILOGY)

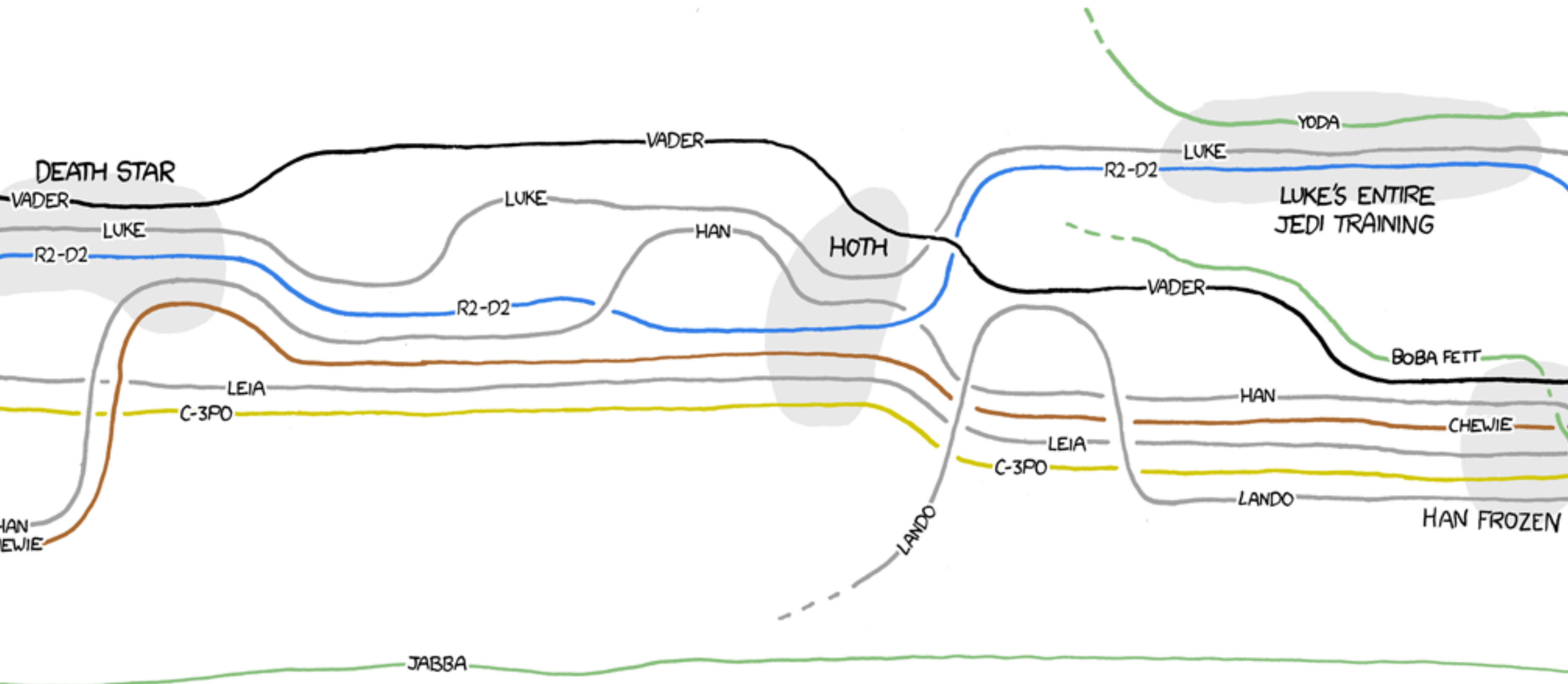




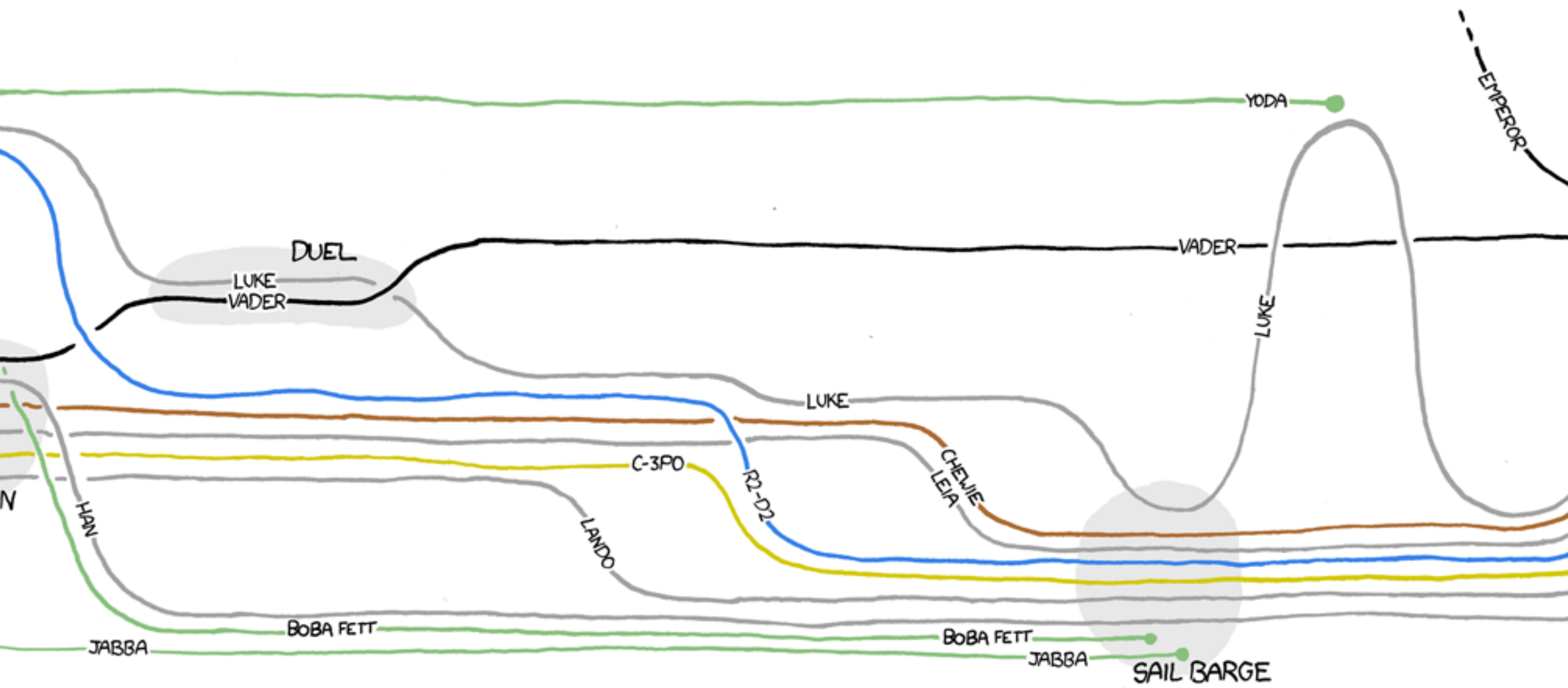
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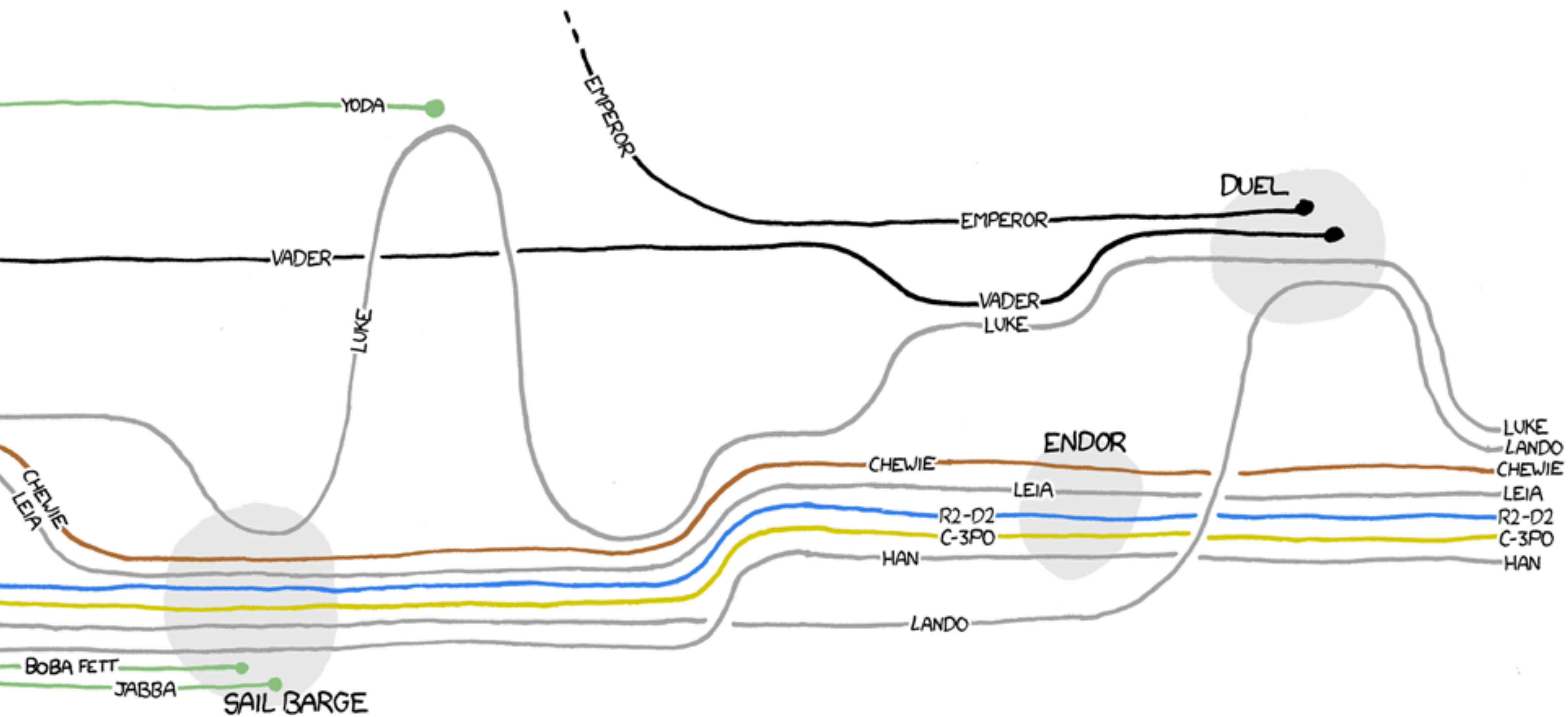
## (ORIGINAL TRILOGY)





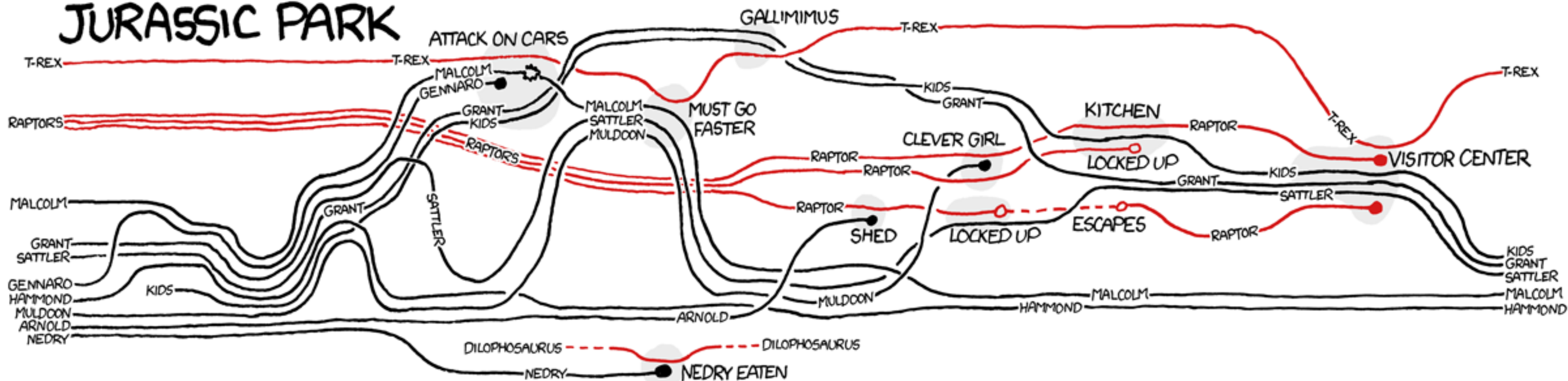






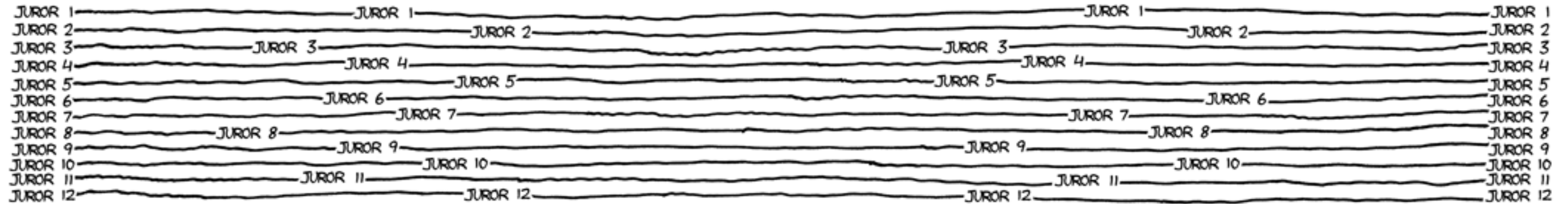


# JURASSIC PARK



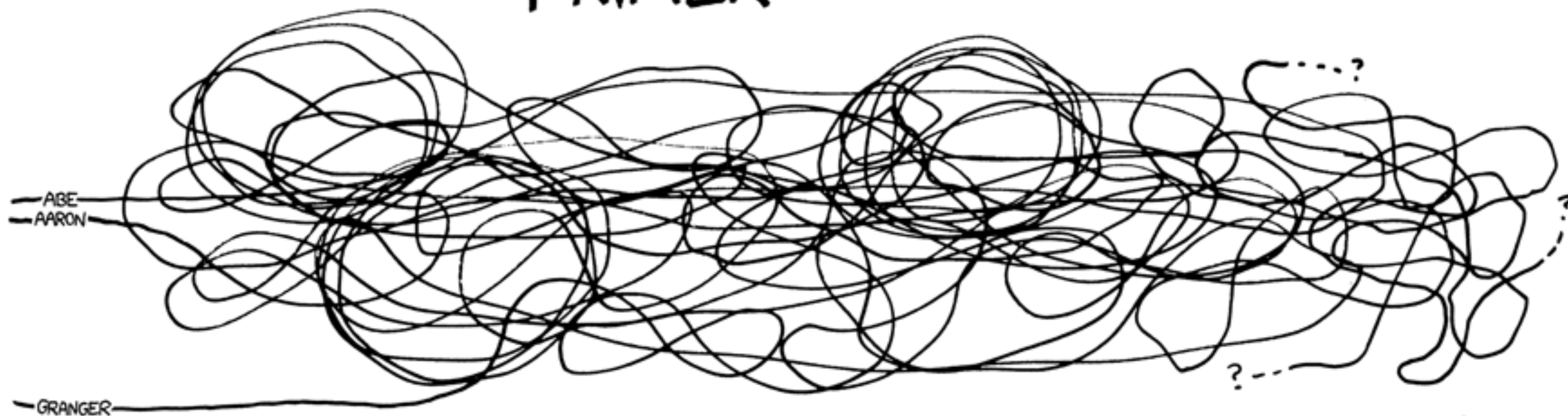


# 12 ANGRY MEN





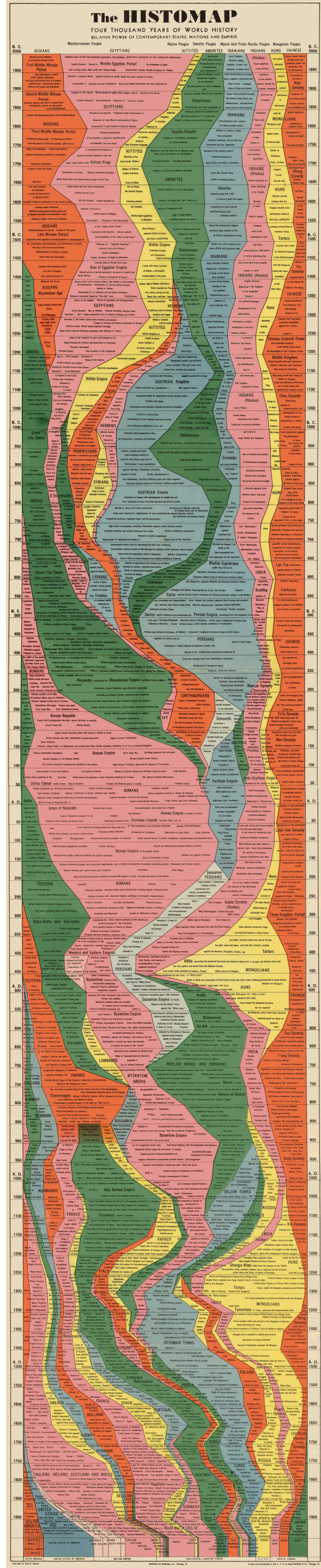
# PRIMER





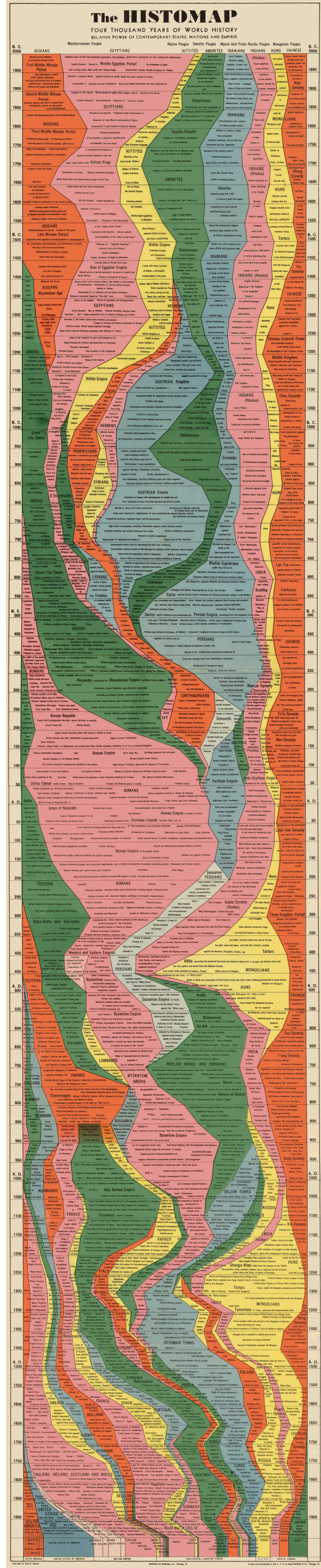
# The Histogram





John Sparks, 1931



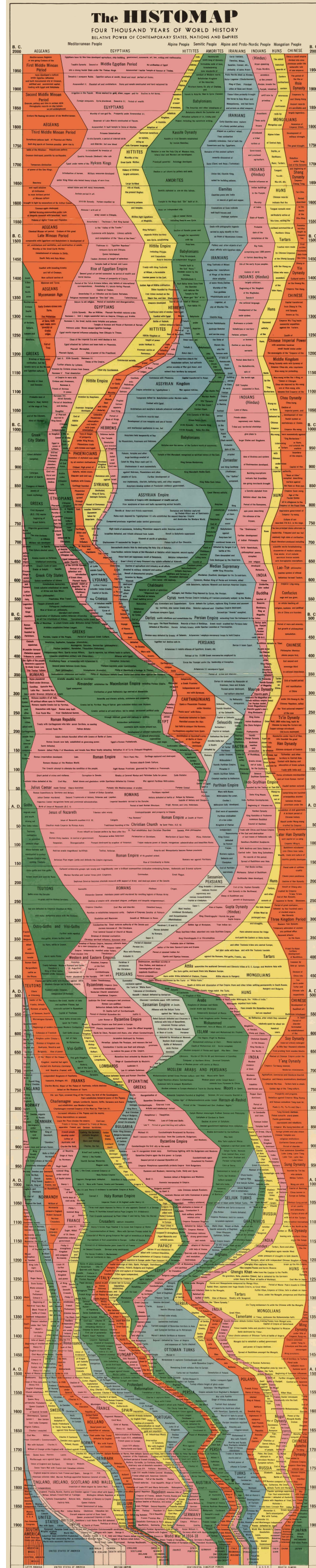


# The HISTOMAP

FOUR THOUSAND YEARS OF WORLD HISTORY  
RELATIVE POWER OF CONTEMPORARY STATES, NATIONS AND EMPIRES

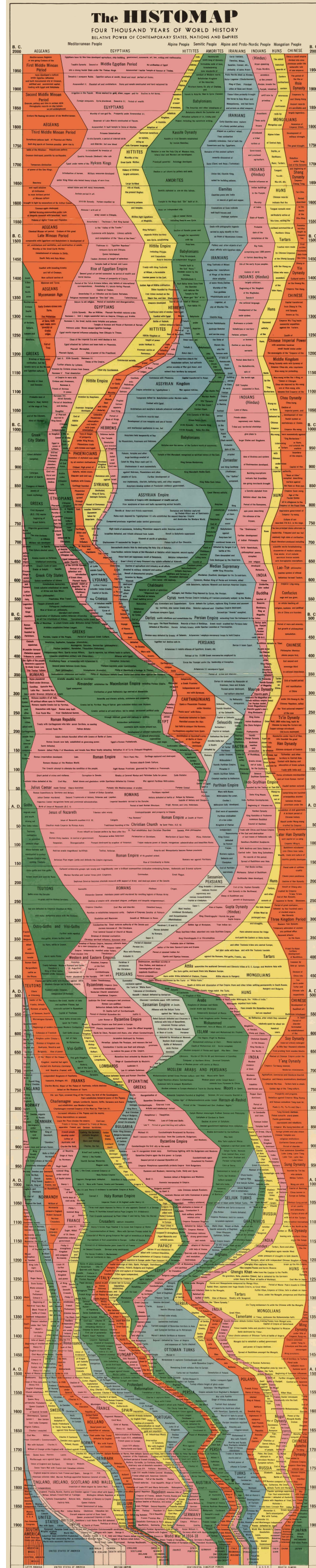
B. C. 2000	Mediterranean People	Alpine People	Semitic People	Alpine and Proto-Nordic People	Mongolian People	B. C. 2000			
	AEGEANS	EGYPTIANS	HITTITES	AMORITES	IRANIANS	INDIANS	HUNS	CHINESE	
1950	Mediterranean Aegeans or sea-going Cretans of the First Middle Minoan Period	Egyptians have by this time developed agriculture, ship-building, government, commerce, art, law, writing and mathematics.  Twelfth Dynasty. Second or Middle Egyptian Period  into a strong feudal State under the Theban Kings. Amenemhet I builds Temple of Ammon at Thebes.	Indo-European Hittites (Hatti)	Hammurabi (sixth king of dynasty) formulates code of laws, foreshadowing later standards of	Early Iranians, Elamites, Mitani, Kassites, Cossaci, etc., probably of same Aryan	(Hindus)  Aryan-speaking Proto-Nordics.	The oldest historical records of	China a small empire divided into nine provinces under the autocratic rule of one emperor.	1950
1900	have developed a culture under Egyptian influence and built monumental city at Cnossus, political and commercial capital, trading with Egypt and Babylonia	Sesostris I conquers Nubia. Egyptian culture at zenith; finest and most perfect art forms.  Amenemhet II. Classical art and architecture. Dams and canals constructed and land reclaimed by	probably of the Alpine race	conduct of Western world. Babylonian Kingdom of the Amorites.  Abraham leaves Ur, city of Chaldaea, and	Proto-Nordic stock as Hindus. Kutur-Lagamar (Chedorlaomer), King of Elam. Principal cities at Susa and Anzan.	ancestors of the present Hindus, invade the Punjab, inhabited	Eastern civilisations contain	The period of the Hia or Hsia Dynasty	1900
1850	Second Middle Minoan Period  Bronzes, pottery and tiles in archaic style Hieroglyphic records on clay tablets as yet undeciphered.	irrigation in the Fayum. Mines worked for gold, silver, copper and tin  Decline in Art forms.  Foreign conquests. Syria plundered. Sesostris III. Period of wealth.	ancestors of the present Armenians,	Babylonians  The Amorites and other inhabitants of	These tribes probably brought the horse to Asia Minor and Mesopotamia, and had bows and arrows as chief weapons.	until now by primitive	references to continuous	Emperors Yu and Shung-Kang. Ancient records are unreliable and	1850
1800	Cretans the leading sea-power of the Mediterranean.  AEGEANS	Worship of sun-god Ra. Prosperity under Amenemhet III.  Reservoir of Lake Moeris constructed at Fayum.  Amenemhet IV built temple to Osiris at Abydos.	establish Kingdom. in Anatolia.	Babylonia absorb the Sumerian and Akkadian cultures of Ur, Eridhu and Nippur, including the cuneiform writing.	IRANIANS  Early Elamites were makers of a finely painted pottery	Dravidians. These early Aryans	raids by Mongolian and	largely legendary. Accession of Emperor Chieh.	1800
1750	Third Middle Minoan Period  Sumptuous palaces built at Phaestos and Mallia.  Bull-ring sports at Cnossus possibly gave rise to	Princess Sebeknefrue.  XIIIth Dynasty, a period of internal strife and disorder, but new blood	Sumerian cuneiform on tablets, using an Indo-European language.	Kassite Dynasty  Kassite or IIIrd Dynasty established by Iranian Kassites.	shaped on a potters' wheel.  Their civilisation probably antedates that of both the Sumerians and the Egyptians.	introduced a tribal system of	Alpine tribes of Central Asia.	Development of military strength. The great drought.	1750
1700	fable of the Minotaur. Polychrome pottery.  Cnossus destroyed, possibly by earthquake.  Temporary diminution	is introduced by invasion of Semitic Nomads (Bedouin) who rule  Egypt under name of the Hyksos Kings	HITTITES  Worship of the Great Earth Mother.	Babylon is now the Holy City of Western Asia, where Istar and Marduk are worshipped.  Priests all-powerful. Astrology developed.	Remains of this ancient culture recently discovered at Susa (Elam) and Anau (Turkestan)	Government, and practiced agriculture.	Scyths, or Scythians; Huns; Tartars;	Rebellion under Tang. End of Hia Dynasty	1700
1650	of power of the Sea-Kings.  Recovery	Introduction of horses. Military resources developed  under King Khian who levied heavy tribute of corn from	History of Hittites largely unknown.  Large fortified	Decline in art shown by pottery and seals.  AMORITES	Untas-Gal, Elamite King, noted for building palaces.	INDIANS (Hindus)  Elamite influence on	Tungusi; Yu-chi; Niu-chi, etc.	and beginning of Shang Dynasty Emperor Chang-Tang.	1650
1600	and rapid advance of civilisation to most brilliant period of Minoan culture  brought to light by excavations of Sir Arthur Evans.	vassal states and left many monuments.  Archaic period in art.  XVIIIth Dynasty. Hyksos expelled by	city at Khatti, the present Boghaz.  Imposing palaces	Semitic alphabet in use on clay tablets.  Temple to the Moon-God "Sin" built at Ur.	Elamites  Elamites press into India in search of gold and copper.	Indian buildings in the Punjab.  Worship	HUNS  Chinese records indicate that the	Tai-Chia.  Period described	1600





1600	of Minoan culture brought to light by excavations of Sir Arthur Evans.	XVIIIth Dynasty. Hyksos expelled by	Imposing palaces	Temple to the Moon-God "Sin" built at Ur.	In search of gold and copper.	Worship	Chinese records indicate that the	Period described	1600
1550	Cnossus again destroyed. Settled farming communities under rule of despotic monarch with luxurious court. Palaces of Aghia Triada and Phaestos.	Ahmose I with aid of army raised in Ethiopia.	and temples. Hittites fight Egyptians at Megiddo.	Assur an independent city. Loss of vassal States including Assyria and Syria.	Excavations at Susa indicate well-built houses and drainage systems.	of Indra. State of Kosala.	Tungusi nomads were particularly active at this time, raiding the	In the books of the Shu-King.	1550
B. C. 1500	<b>AEGEANS</b> Classical Minoan art period. Cretans of this great Late Minoan Period comparable with Egyptians and Babylonians in development of art, architecture and sanitation, and construction of canals. Worship of the Great Earth Mother. Establishment of colonies in Sicily, South Italy and Asia Minor.	in the "Valley of the Tombs." Commerce with Babylon. Literary activity and compilation of the "Book of the Dead."	King Hattusil I expands Hittite territory into Syria, establishing	Decline of Kassite power and struggle for supremacy with the	Seals with pictographic legends carved in style equally as fine as those of Mycenaean Greece.	Probable date of the compilation of the	civilised communities of Northern China	Ancestor worship taught by Emperor Yao.	B. C. 1500
1450		Thutmose III "Egyptian Napoleon" conquers Syria and Ethiopia. Queen Hatshepsut. Thebes (Ammon) at height of splendour.	<b>Hittite Empire</b> including Phrygia and Cappadocia. Assyria becomes an independent Kingdom.	Assyrians.	<b>IRANIANS</b> Pottery and other objects of art show affinity with Egyptian style.	Rig-Veda, comprising over 1000 poems or hymns describing the	Treaties were made by Chinese Emperors of the Shang Dynasty	First written documents date from this time.	1450
1400	Conflict with invading Greeks and fall of Cnossus. New cultural centres at	Temples built at Karnak and Luxor. Rise of Egyptian Empire	Treaty with King Tushratta of Mitani, a formidable	Temple built to the God "Nana." Nineveh raided by the Hittites. Burnaburiash II.	King Tushratta of Mitani Boghaz-Koi inscriptions of Kings of the Mitani show adoption	life of the early Aryan peoples. History of early	with the Hsiung-nu tribes who were	Shang or Yin Dynasty	1400
1350	Greek tribes from North drive	Period of the Tel-el-Amarna letters, clay tablets of international correspondence. Amenhetep III, luxury-loving Pharaoh. Capital at Thebes. Amenhetep IV, or Ikhnaton and his Queen Nefretete. Religious movement based on "One God" idea. Tutenkhamon	Golden Age of Hittite civilisation. Sidon founded by Phoenicians. Iron mines worked on the Black Sea, and iron weapons developed	Kuri-Galzu takes Susa from the Elamites and restores the Temple to the Moon-god "Sin" at Ur.	of some Hindu Deities. Worship of the Sun-goddess Nakhkhunte and of	largely unknown. Beginning of the Kingdom of the Maghadas. Sanskrit	of the later Huns.	on the Hwang-Ho. Emperor Pan-Keng.	1350
1300	Mediterranean Cretans South. Arrival	Return to old religion. Period of revolution and disorganization. XIXth Dynasty. War on Hittites. Pharaoh Harmhab restores order. Rameses I. Seti I, wages successful wars on Assyria, Ethiopia and Arabia.	weapons developed	found city of Calah or Nimrud. Kuri-Galzu III.	Lagamar, at city of Khurba-Tila. Elamite King.	the national language. Development of the caste system	Huns	Capital transferred from Shang to Yin, and Dynasty known as Yin.	1300
1250	of Dorians, Ionians, Eolians and	Rameses II, the Great, builds many temples and palaces: Temple of Ammon and House of Rameses at Karnak. Hebrews under Moses escape Egyptian bondage. Egypt exerts imperial influence extending from Ethiopia to Thrace.	Battle of Kadesh. Joshua conquers Canaan. Period of	Tukulti I. under	Sutruk-Nakhkhunte destroys Babylon and carries away	Brahmans or priests. Kshattriyas or warriors. Vaisyas, artisans	Renewed activity of the	Emperor Wu-Ting leads successful expedition against the Tartars.	1250
1200	Aetolians. Fall of Troy.	Close of the Imperial Era and rapid decline in Art. Egypt attacked by Lybians and loses hold on Phoenicia. Pharaoh Merneptah. Pharaoh Siptah. Rise of power of the Priesthood.	Hittite Kingdom at height of power under Hattusil II. Aramean centre at Damascus.	Assur-nazir-pal. Tukulti II. Assur-dan I.	the Stela of Naram-Sin, also the famous code	or farmers. Sudras or non-Aryan servants	Huns.	Chinese Imperial Power with seventeen hundred small feudal states under the sovereignty of the "Emperor of the	1200
1150	Breakup of Mycenaean civilisation, but the Greeks carry on the Minoan and Egyptian cultures.	Seti II. XXth Dynasty. Rameses III. Decay of the Empire. Further attacks by Lybians. Invasion by Cretans driven from Greece. Rameses V Final dissolution	Commercial activity. Chief city Carchemish.	Assyrians absorb the Babylonian culture, but cultivate active worship of War-god Assur, and extend their territory by conquest.	Dynasty. Adad Shum-User restores	Period described in the Mahabharata, epic of	Raids	Middle Kingdom Shang Dynasty ends with tyranny of Emperor Chou-sin, who imprisons Won-wang for protesting.	1150
1100	Worship of Zeus and Demeter.	of Empire in wars with Cretans and Arameans. Rameses X. Priests of Ammon in power.	<b>Hittite Empire</b> Gades or Cadiz founded. Worship of Moloch.	Conflicts with Philistines (Cretans). Samson.	Commerce with Phoenicia. Capital transferred to Assur. Empire extended by Tiglathpileser I. War against Hittites. Temporary defeat by Babylonians under Marduk-nadin.	the heroic age. Cliff Temples excavated in Rock.	by the "Dog Barbarians.	Won-wang writes the I-King, or "Canon of Changes. Chou-sin deposed by Wu-wang son of Won-wang, who became first Emperor of the	1100
	Probable date of	Rameses XII. XXist Dynasty.	Invasion by Assyrians.		Bel-Nadin-Pal. Marduk-Nadin. Empire centered	<b>INDIANS</b>		<b>Chou Dynasty</b>	





1100		Priests of Ammon in power.		Worship of Moloch, Baal and Ishtar (Astarte).	Samson.	Empire extended by Tiglathpileser I.	War against Hittites.	Bel-Nadin-Pal.	An early Iranian	excavated in Rock.	Barbarians.	became first Emperor of the	1100
1050	Probable date of Homer's Iliad, history of the siege of Troy.	Rameses XII. XXist Dynasty. Period of decadence and decline. Daughter	Invasion by Assyrians. Aramean language developed.	Prophet Samuel appoints Saul King.		Temporary defeat by Babylonians under Marduk-nadin.	Contact with Egypt.	Marduk-Nadin. Vth "Dynasty of the Sea-Coast," Simbar-Sipak.	Empire centered in Bactria.	INDIANS (Hindus)	Hiung-nu or Huns	Chou Dynasty Chou-kung. Decline of Imperial power, and	1050
B. C. 1000	and of the Odyssey, story of Ulysses.	of Pharaoh married to King David. Ethiopia gains independence	End of Hittite Empire.	Extensive Phoenician colonization and rivalry with Greek colonization.	Period of Book of Kings. David.	Cuneiform records kept.	Development of iron weapons and use of horses and mechanical appliances in war, but	Vith Dynasty of Bit-Bazi. Ulmas-Sakin-Sumi. VIith Dynasty. An Elamite King. VIIith Dynasty. Nebo-Kin-Albi.	period described in the Epic	Priests obtain supremacy over Nobles. Tribal and territorial chiefships	defeated by Chinese Emperor	development of new feudal system or confederacy of States. Emperor Mu-wang	B. C. 1000
950	Greek City States	as Kingdom of Meroe. Queen of Sheba Hebrew Cush or modern Lybians.	Tyre at height of prosperity under King Hiram. Phoenicians trade with Greece and Egypt.	Solomon builds the Temple. Revolution and Division of Kingdom		Assyrians held temporarily at bay by Phoenicians, Arameans and Hebrews.		Babylonians	Poem the Shah-nameh. Probable date of the	give place to larger States and Kingdoms.	Mu-wang.	Wars successfully against "Dog Barbarians" or Huns, and extends the western	950
900	Greek alphabet compiled.	XXIInd Dynasty. Sheshonk I (Shishak) plunders Jerusalem.	PHOENICIANS	Invention of alphabet now used by all western civilisations. Ethbaal, High priest of	into Judah and Israel. Civil war.	Palaces, temples and other large buildings erected at Calah by King Assur-nazir-pal III. Shalmaneser II wars successfully		Temple of Bel-Merodach recognised as spiritual centre of the East. King Samas-Mudammik.	prophet	Idea of Brahma and system of Brahmanism developed.	with Chinese	boundary of the empire. Capital at Hao.	900
850	Lycurgus, Law-giver of Sparta.	Civil war. Moral and economic decline.	Arable under Ethiopian rule.	Astarte, seizes crown. Disorder and civil war. Conflicts with Greeks. Carthage founded.	Damascus aids Judah against Israel. Ahab.	against Hebrews, Phoenicians and other peoples of Syria. Further development of war implements, chariots, battering rams, and other weapons. Assyrians develop system of Provincial (military) government.		King Merodach-Nadin-Sumi. King Nebo-Sum-lakun.	(Vishtaspa). The "Gathas" composed.	Building inscriptions indicate that Dravidian sea-going merchants brought	Imperial authority.	"Book of Odes" compiled describing warfare against the Huns or Hien-yun.	850
800	poems of Greek mythology.	Pharaoh Takelot II.	ETHIOPIANS	Phoenician alphabet spread through the near	Benhadad, King of Syria, besieges Samaria. Jezebel. Hazael of Damascus	ASSYRIAN Empire	Extension of Empire with development of wealth and art. Fine sculptures of lions and bulls representing animal ferocity.	Great literary activity.	Assyrian King	a Semitic alphabet from Babylon about this time.	HUNS	Emperor Suan-wang. Age of the Feudal States all in allegiance to the Emperor of the Royal State.	800
750	First Olympiad (B.C. 776) marks beginning of Greek history.	Sheshonk III. Worship of Cat-goddess and the Apis Bull.	of Napata or Meroe. Ethiopian culture derived	East. invades Palestine. Damascus taken by Assyrians. Elisha.	Jehu.	Revolts at Assur and Arbela suppressed. Damascus and Babylon captured by Hadad-Mirari son of Semiramis. Nabu-nazir deposed by Tiglathpileser III who establishes the second Assyrian Empire and dominates the Western World. Conquered provinces organised under central government.		protectorate over Babylonia. End of Old Babylonian Empire.	Umbadara, of Elam. Elamites assist	epic poem describing the advance of the Aryans.		Oppressive government of Emperor Yu-wang. Eclipse of sun recorded 776 B.C. in his reign.	750
700	Oligarchic government. Rome founded (legend). The nine Archons in Athens. Military rule developed	Pharaoh Sheshonk IV. Egypt conquered by Ethiopians.	Carthage, Sidon and Tyre now tributary	Civil war. Amos. Hosea.	Isaiah. Ten Tribes dispersed.	High-roads of commerce, including Phoenician seaports under Assyrian control. Israelites defeated, and tribute obtained from Judah. Revolt in Babylonia suppressed. Nineveh at zenith of splendour. Palace built at Dur Sharakin. Shalmaneser IV succeeded by Sargon II.		Babylonians against Assyrians but Nabonassar. combined forces are	The "Brahmanas." Further development of Indian Philosophy.	Huns	The five principal states alternate in leadership. Frequent civil war but relatively high state of civilisation. Much literature produced including		700
650	Etruscan in Sparta. Five Ephors elected rulers. pottery shows high degree	Essarhaddon of Assyria overthrows Ethiopian rule. Egypt independent under Psamtik I	King Tandamane.	to Assyrians and Chaldeans.	Isaiah. Ten Tribes dispersed.	Sennacherib shocks Asia by destroying the Holy City of Babylon. Essarhaddon restores temple of Bel-Merodach at Babylon which becomes second capital	Assur-bani-pal suppresses revolt of Babylonia. Babylon independent.	Kaldi or Chaldeans become ruling caste. Growth of	defeated by Sargon II at battle of Kis. Elam devastated and Susa destroyed by the Assyrians.	Early Upanishads, philosophical poems, compiled. Jain religion	scientific works foreshadowing discoveries of modern science. Fine works of art include sacrificial bronze vessels with hieroglyphic inscriptions.		650
600	of culture. Draco's Code of Laws. Oracle at Delphi. Sappho.	of the XXVth Dynasty. Revival of old splendour and introduction of Greek ideas. Pharaoh Necho	of Lydia assists Egypt against Assyria.	Chronicles. Josiah. Jeremiah. Captivity		Decline of agriculture and industry as all efforts directed to military conquest and control. Revolt of discontented peoples. Invasion by Medes. Nineveh	Chaldean power. Nebuchadnezzar defeats Assyrians. Egyptians and Syrians at Carchemish. Jerusalem destroyed. Jews taken into captivity.	Median Supremacy under King Phraortes. Mazdaism (Dualism) developed by the Zoroastrians. Cyaxares, Median King of Persia and Armenia, allied	developed Mahavira. INDIA	Lao-Tse philosopher, teaches system of ethical behaviour termed Taoism.	Emperor Ling-wang.		600







“From a modern perspective, Sparks’ Histomap will raise a few eyebrows. For one, it subscribes to an outdated (but, at the time, quite in vogue) idea about how different cultures throughout history could be grouped into various ‘peoples.’ The chart also underestimates or omits certain cultures that historians at the time didn’t truly appreciate the importance of. The chart is also more Eurocentric than it would be if it were created today, with little space devoted to African civilizations or even American civilizations before Europeans settled the New World in the 15th century.”

John Brownlee, “[Infographic: 4,000 Years of Human History Captured in One Retro Chart](#)”, 2013



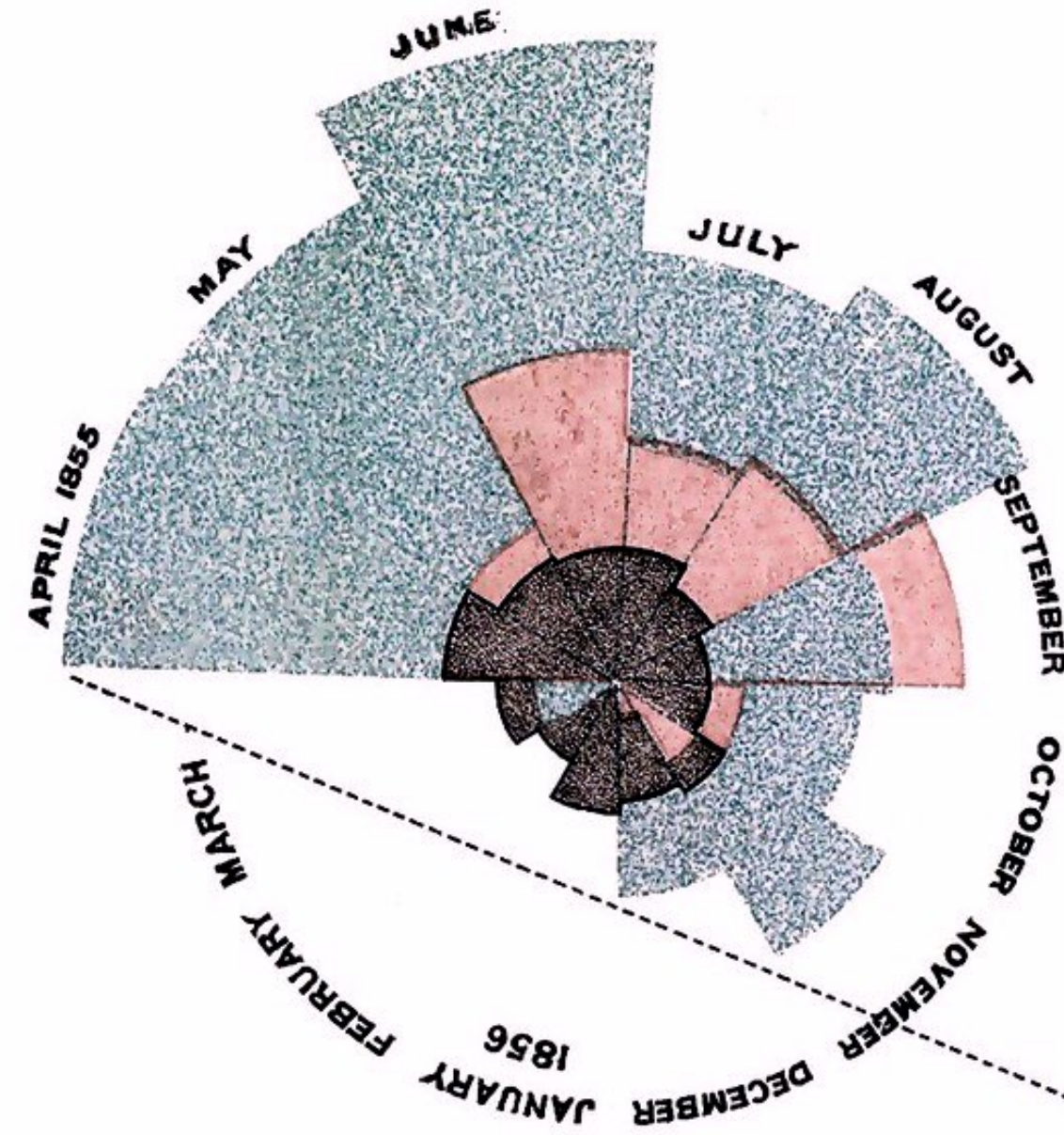
A visual appeal

Florence Nightingale created a visualization of mortality data from the Crimean War, which was published in *Notes on Matters Affecting the Health Efficiency, and Hospital Administration of the British Army* and was sent to Queen Victoria in 1858.

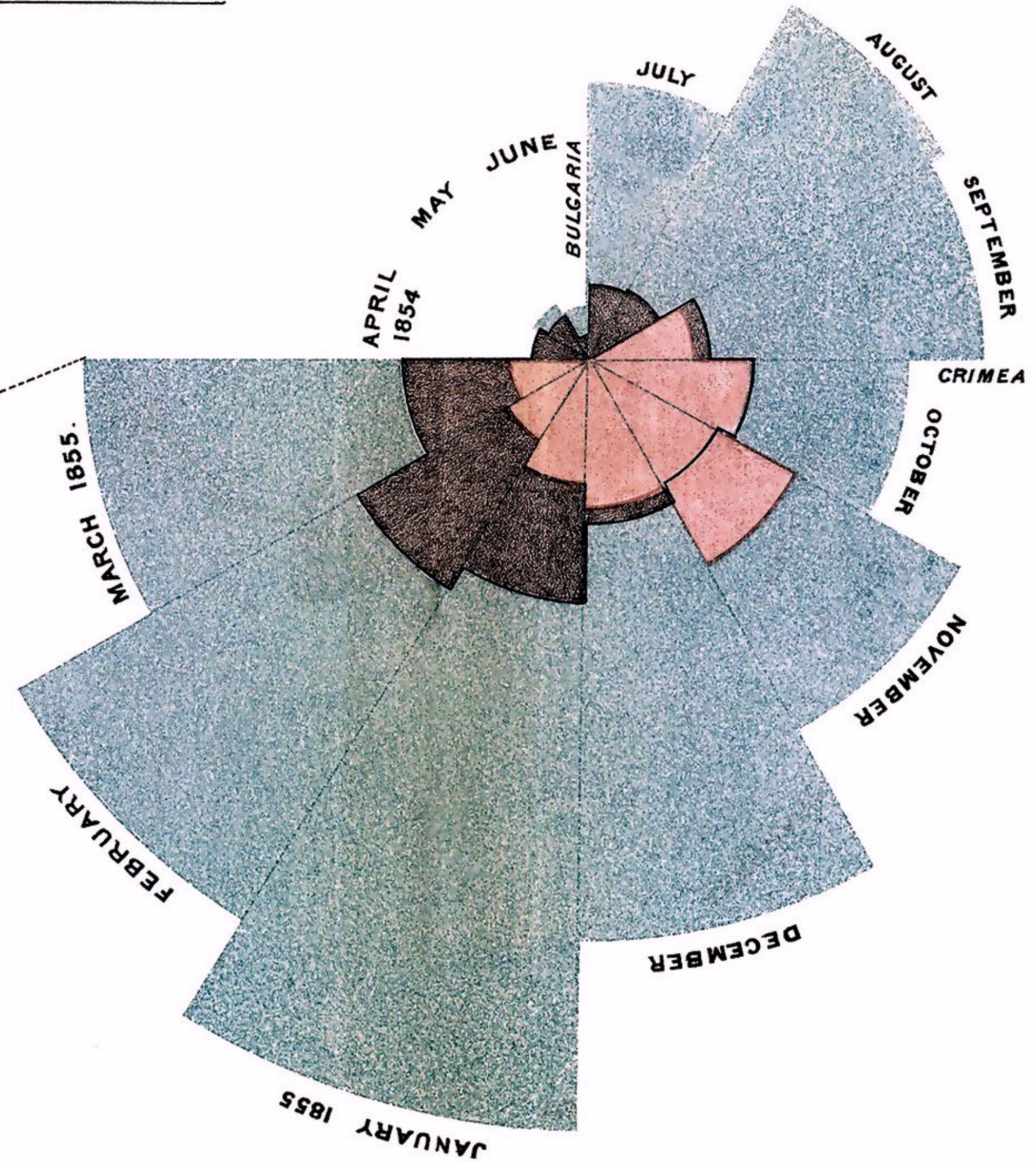


# DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.

2.  
APRIL 1855 TO MARCH 1856.



1.  
APRIL 1854 TO MARCH 1855.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.  
The blue wedges measured from the centre of the circle represent area for area the deaths from Preventable or Mitigable Zymotic diseases; the red wedges measured from the centre the deaths from wounds; & the black wedges measured from the centre the deaths from all other causes.  
The black line across the red triangle in Nov<sup>r</sup> 1854 marks the boundary of the deaths from all other causes during the month.  
In October 1854, & April 1855, the black area coincides with the red; in January & February 1856, the blue coincides with the black.  
The entire areas may be compared by following the blue, the red & the black lines enclosing them.



*The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.*

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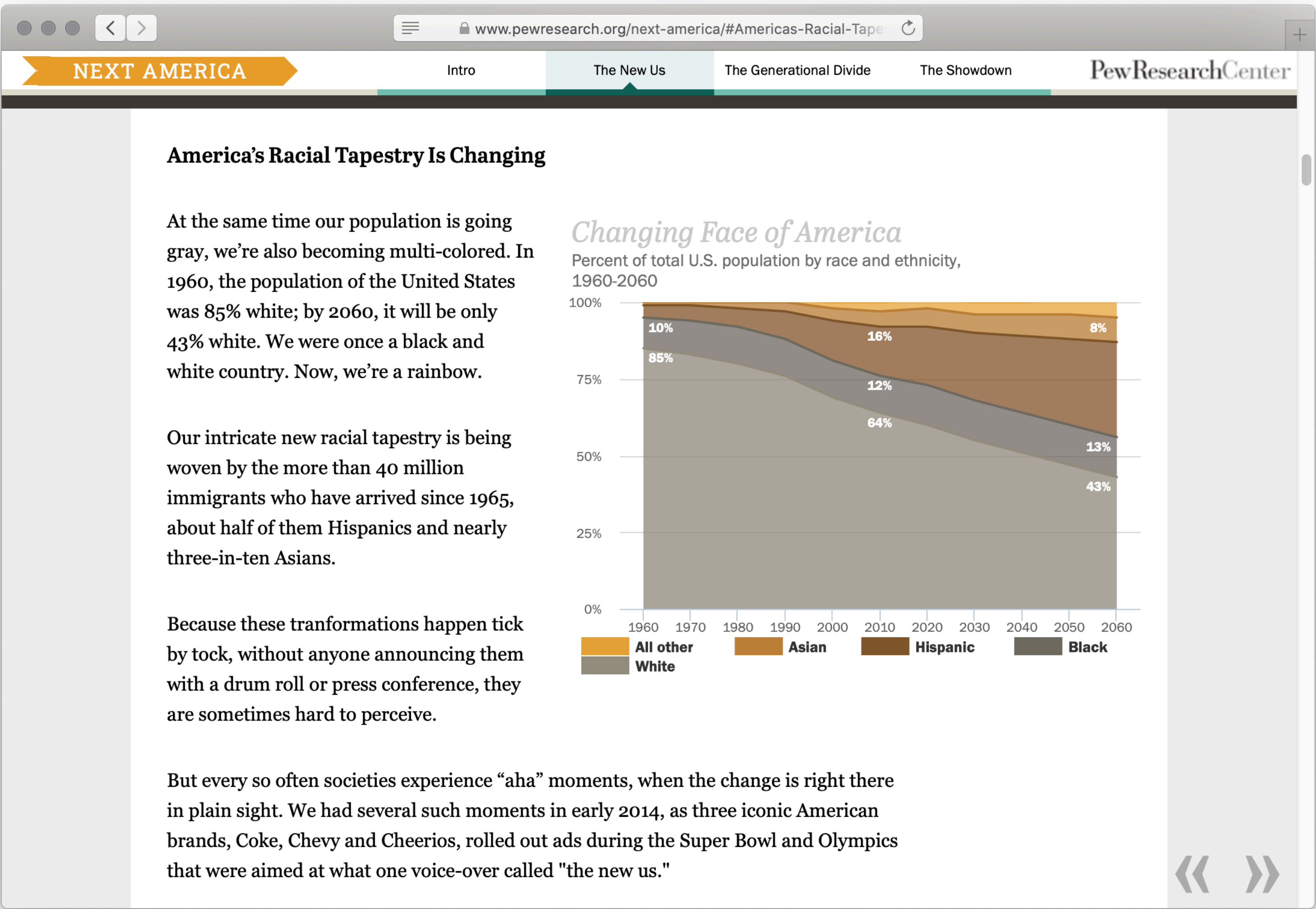
*In October 1854, & April 1855; the black area coincides with the red; in January & February 1856, the blue coincides with the black.*

*The entire areas may be compared by following the blue, the red & the black lines enclosing them.*

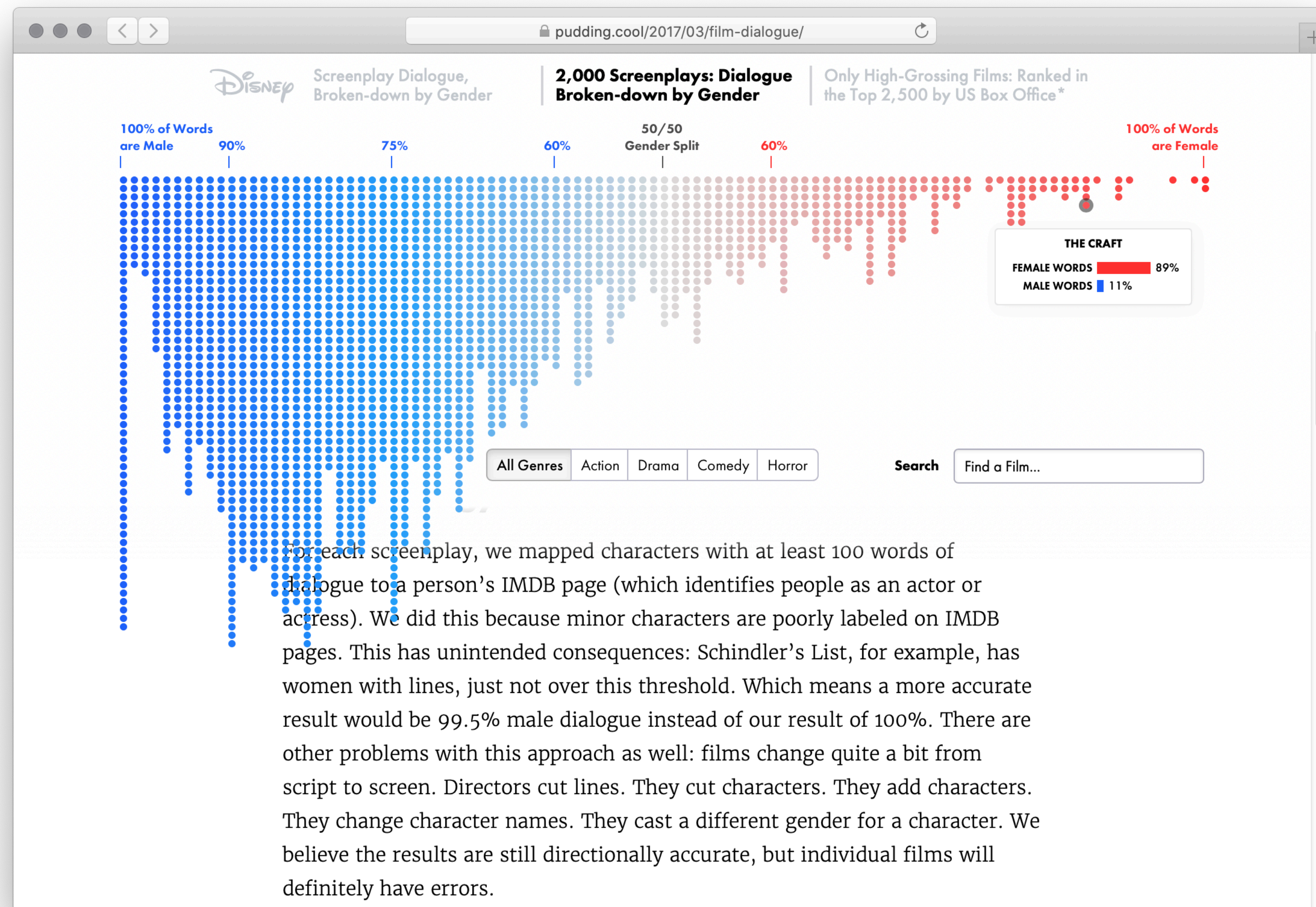


# Digital visual explanations











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respect ARETHA FRANKLIN • 9 to 5 DOLLY PARTON • Stand by Me BEN E. KING • Work That MARY J. BLIGE • High Hopes PANIC! AT THE DISCO  
ance to the Music SLY & THE FAMILY STONE • Love Train THE O'JAYS • I'm Coming Out DIANA ROSS • One Nation Under a Groove FUNKADELIC  
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BE CALLED QUEST • Girl on Fire AL • Revolution TOOTS AND THE MAYTALS • Power to the People JOHN LENNON • Made in the USA D  
OVATO • Believer IMAGINE DRAG • América CALLE 13 • God Bless the USA LEE GREENWOOD • I Love Rock 'n Roll JOAN JETT & TH  
KHEARTS • Confident DEMI LOVATO • Anna Dance with Somebody (Who Loves Me) WHITNEY HOUSTON • Empire State of Mind JAY-Z (FEATU

# What Do Rally Playlists Say About the Candidates?

Presidential campaigns have a sound. We analyzed the playlists of 10 contenders to see how the songs aligned with the messages.

A KEYS) • Dog Days Are Over FLORENCE + THE MACHINE • Born This Way LADY GAGA • Baila Esta Cumbia SELENA • Macho Man VILLAGE PEO  
veryday People JOAN JETT & THE BLACKHEARTS • Clampdown THE CLASH • Love Train THE O'JAYS • The Edge of Glory LADY GAGA • Learn to  
IUS RUCKER • Under Pressure QUEEN • Country Nation BRAD PAISLEY • Yes We Can Can THE POINTER SISTERS • Baba O'Riley THE WHO •  
Top BEYONCÉ • Soar CHRISTINA AGUILERA • Feeling Good JENNIFER HUDSON • Stand up for Something (FEATURING COMMON) • F  
EFLIES • Clampdown THE CLASH • Mi Tierra GLORIA ESTEFAN • Let Love Rule LENNY KRAVITZ • Third Eye • FLORENCE + THE MACHINE • The T  
hey Are a-Changin' TRACY CHAPMAN • High Hopes PANIC! AT THE DISCO • Da Da Ding GENER8ION (FEATURING ) • Never Going Back Agai  
TWOOD MAC • Move on Up CURTIS MAYFIELD • Ain't No Man THE AVETT BROTHERS • Come Alive YEARS & YEARS WITH JESS GLYNNE • Brookly

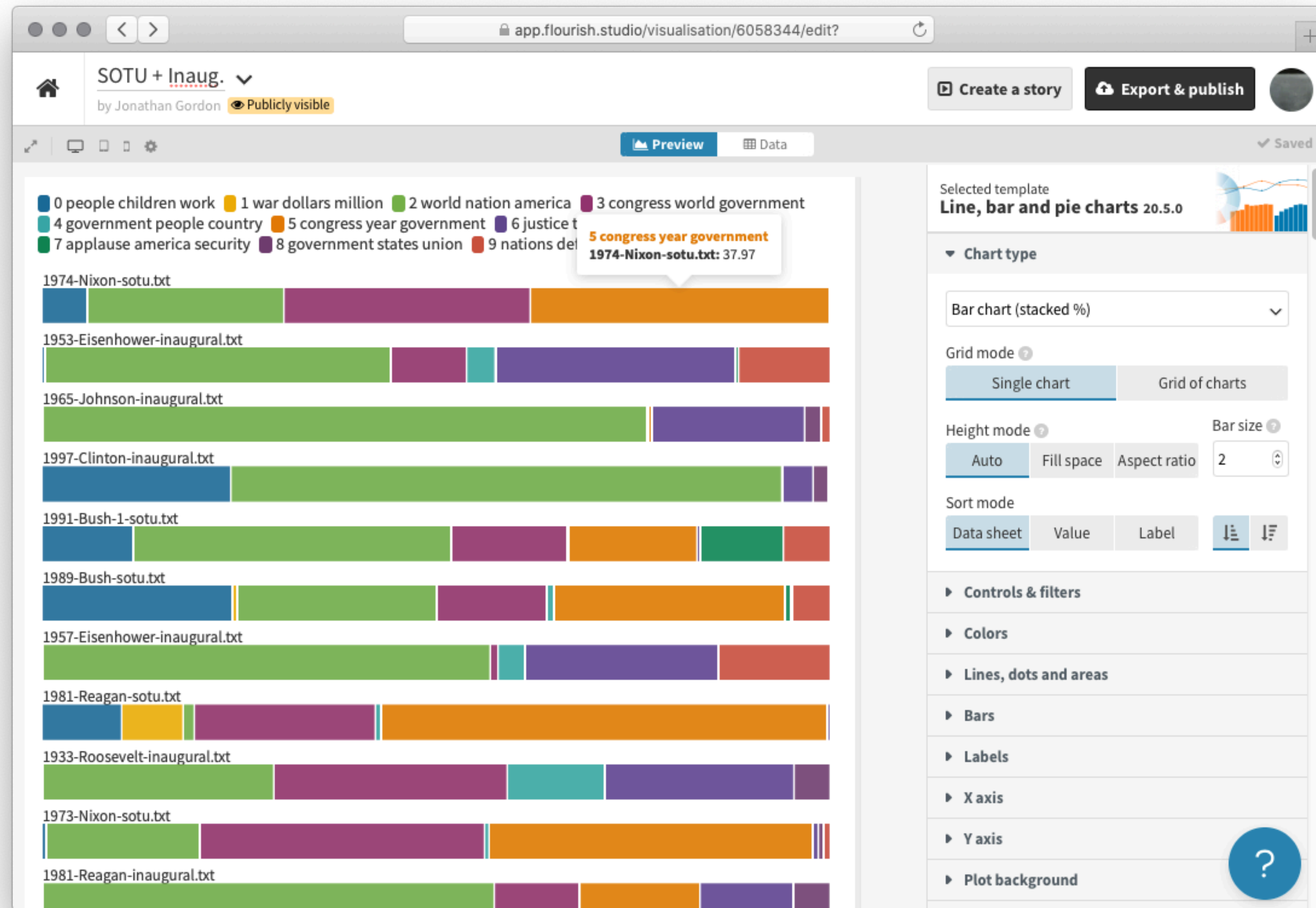
OUR  
CRITICS  
WEIGH  
IN!

TURN  
YOUR  
SOUND  
ON!



Let's play







# Acknowledgments

This lecture incorporates material from:

Edward Tufte

“Data is beautiful: 10 of the best data visualization examples”, Tableau