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*VOYAGER*

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*GOLDEN*

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*RECORD*

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# *VOYAGER*

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*Volume 1*  
*MISSION HISTORY*

*Volume 2*  
*GOLDEN RECORD*

*Volume 3*  
*THE GRAND TOUR*

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*VOYAGER*

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*GOLDEN*

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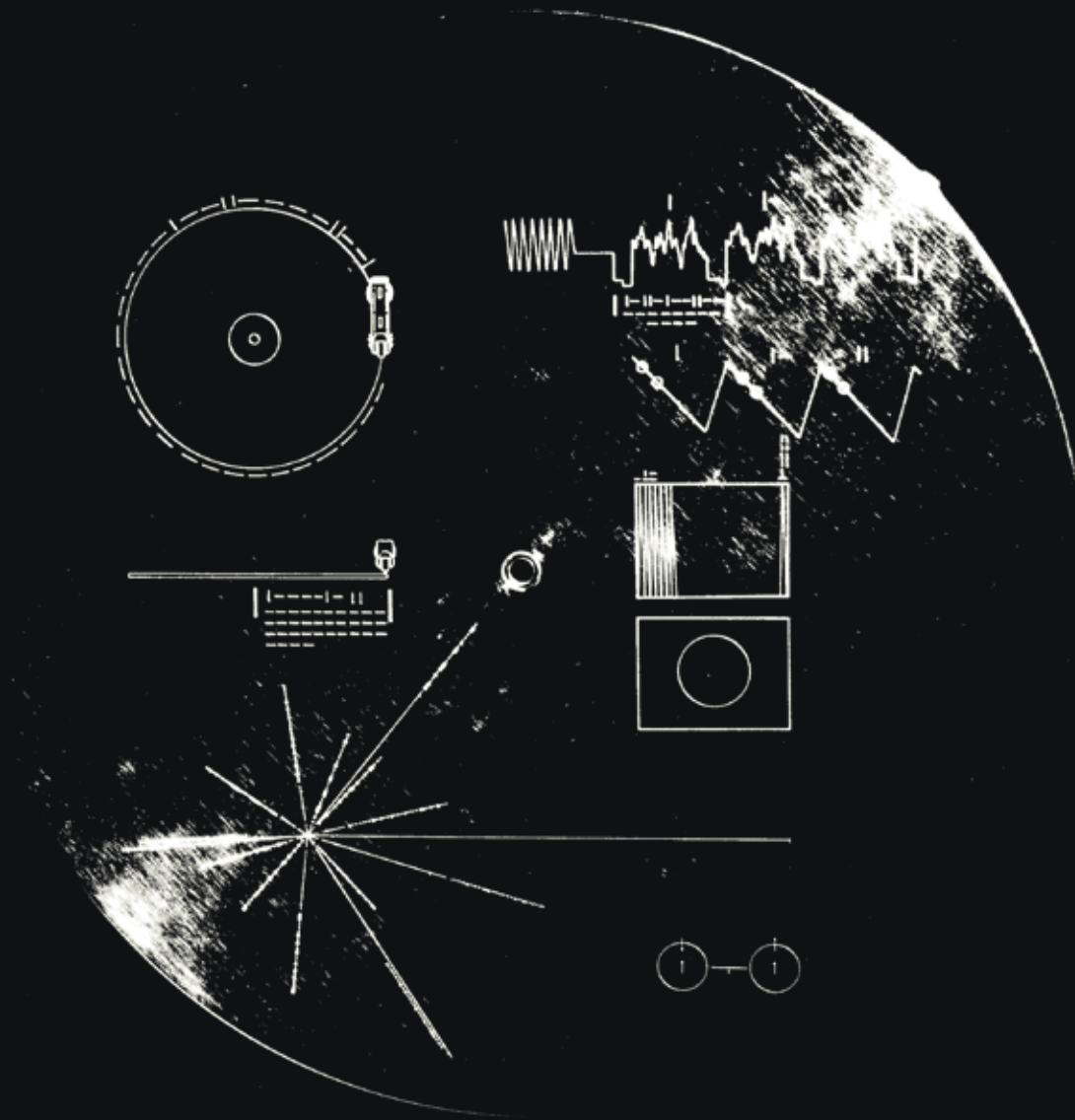
*RECORD*

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An Bord der beiden 1977 gestarteten Raumschiffe *Voyager 1* und *2* befindet sich jeweils eine identische Schallplatte mit dem Titel *The Sounds of Earth*. Sie enthält neben Bildern und Texten auch Töne der Erde in Form von gesprochenen Grüßen, Geräuschen und Musik.

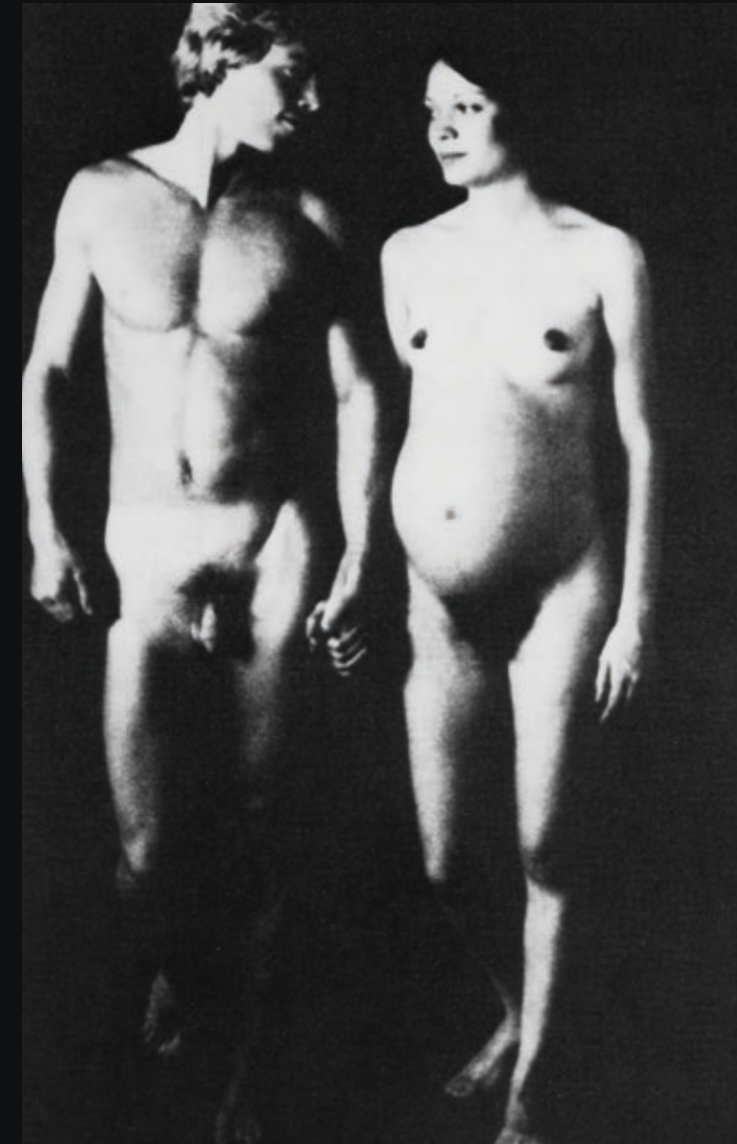
Die aus Kupfer bestehende Langspielplatte wird wegen ihrer Vergoldung auch *Golden Record* genannt.

Launched in 1977, the *Voyager 1* and *2* probes each carried identical copies of a record entitled *The Sounds of Earth*. Besides images and written material, it contained audio recordings in the form of spoken greetings, sounds and music. Due to its gold plating, the copper LP is also referred to as the *Golden Record*.

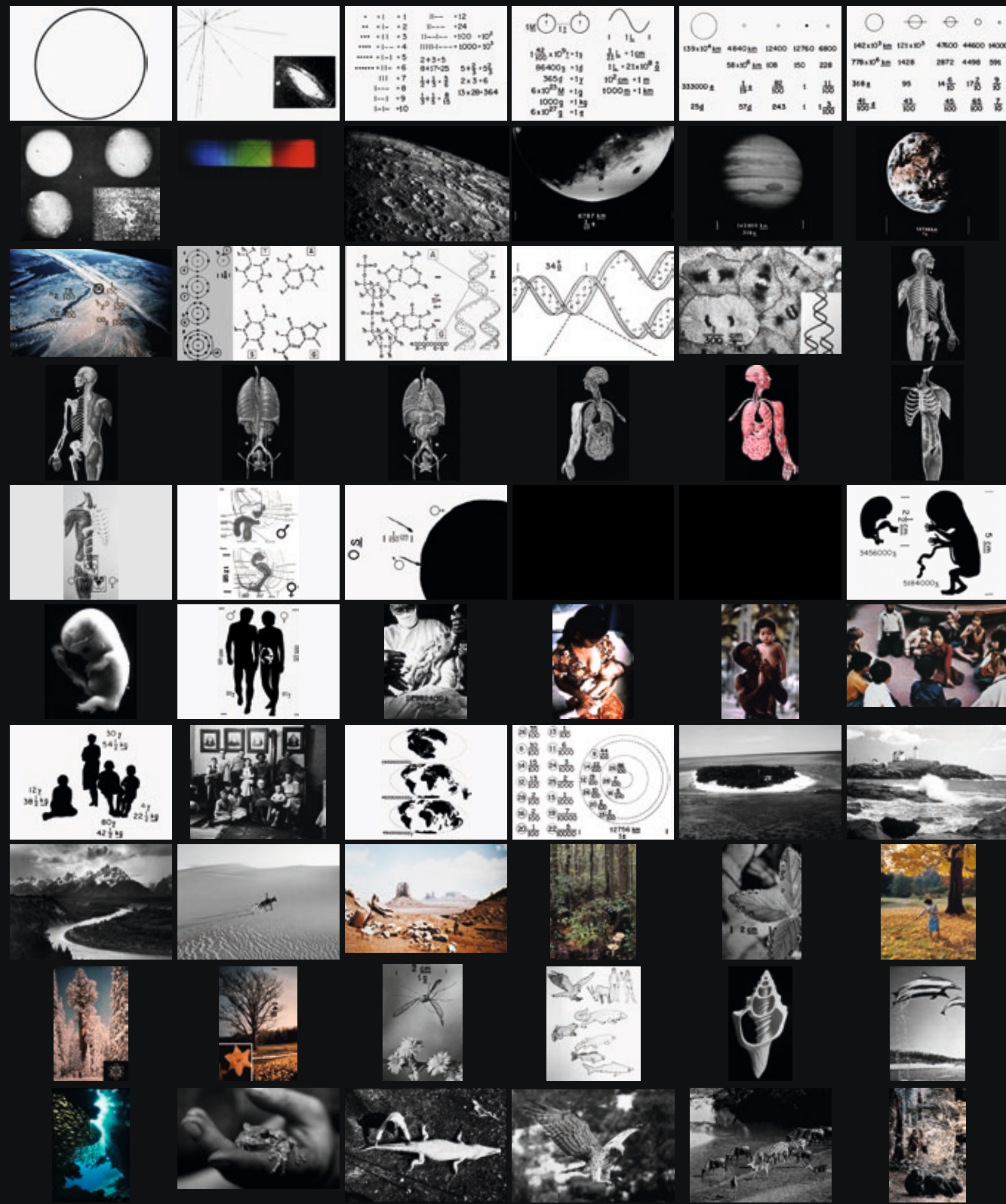


Gravur auf der Schutzhülle der *Golden Record* (Negativ). Sie soll eine Bedienungsanleitung zum Abspielen der Platte und zum Decodieren der Bilddaten liefern.

Engraving on the protective cover of the *Golden Record* (negative). Its aim is to provide operating instructions for play-back of the disc and decoding the image data.

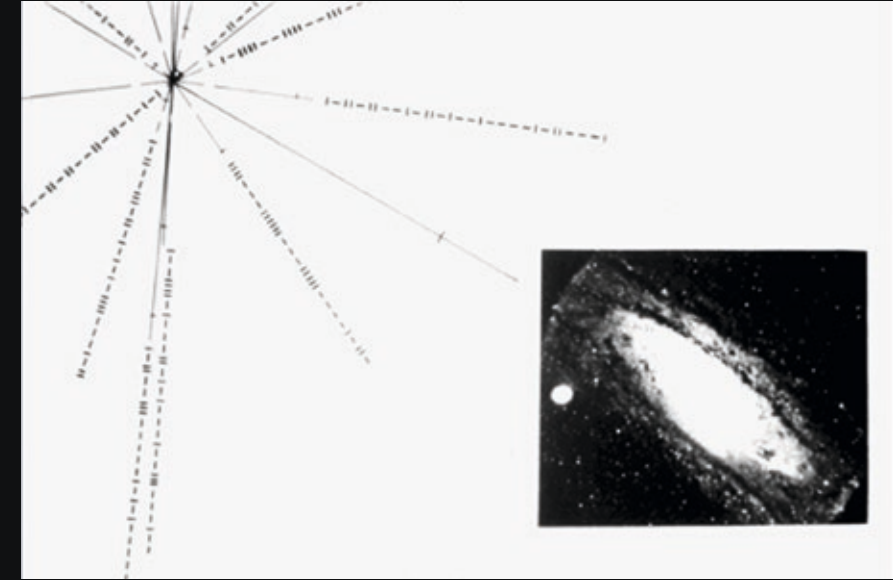
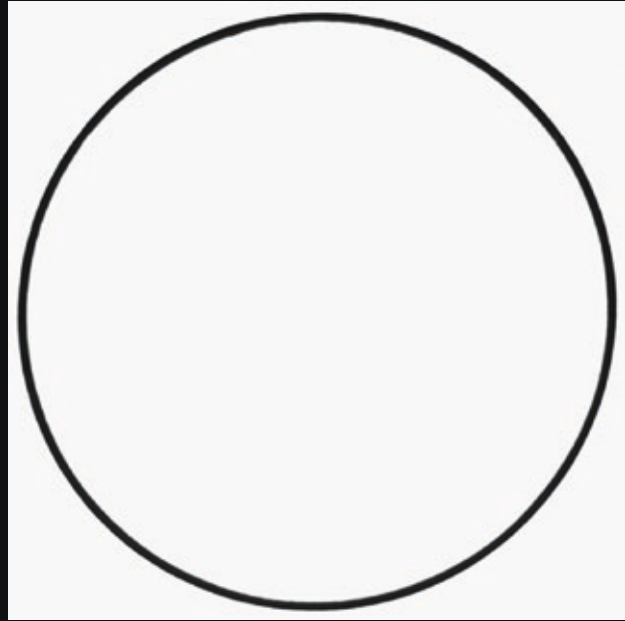


Von der NASA nicht zugelassenes Bild. Ist nicht auf der *Golden Record* enthalten. Stattdessen wurde ein Scherenschnitt des Motivs verwendet.  
The image NASA rejected for inclusion on the *Golden Record*. Instead, a silhouetted depiction of the image was used.

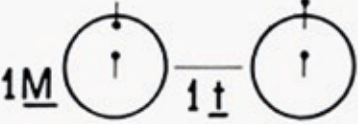


Alle Bilder der *Golden Record* im Überblick. Nur 20 der 116 Bilder sind in Farbe enthalten, um die Datenmenge zu begrenzen. Die Grußbotschaft von US-Präsident Jimmy Carter besteht aus zwei abfotografierten Schreibmaschinenseiten, ebenso als Foto sind Listen der mit NASA-Belangen befassten Mitglieder des US-Repräsentantenhauses und -Senats enthalten. Nach Abtasten der Rille auf der Schallplatte durch den mitgelieferten Tonabnehmer müssen die so gewonnenen Impulse alle 8 Millisekunden zu einer Bildzeile zusammengefasst werden, um alle 512 Zeilen ein komplettes Bild auszulesen. Es ergibt sich eine Bildqualität etwas unter der eines analogen Fernsehbildes (PAL = 625 Zeilen).


An overview of all the images on the *Golden Record*. To limit the amount of data used, only 20 of the 116 images are in colour. US President Jimmy Carter's greeting is composed of two photographed sides of typewritten pages, as is the list of members of the US House of Representatives and Senate involved with issues concerning NASA. Using the pick-up head included, the vibrations obtained by scanning the grooves then have to be compiled into a complete image. A horizontal line of an image is delivered every eight milliseconds, with each image consisting of 512 lines. The image quality is slightly below that of an analogue television (PAL = 625 lines).



• =   = 1	-- = 12	
•• =   - = 2	--- = 24	
••• =    = 3	-- -- = 100 = 10 <sup>2</sup>	
•••• =  -- = 4	-  --- = 1000 = 10 <sup>3</sup>	
••••• =   -   = 5	2 + 3 = 5	
•••••• =    - = 6	8 + 17 = 25	$5 + \frac{2}{3} = 5\frac{2}{3}$
= 7	$\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$	2 x 3 = 6
--- = 8	$\frac{1}{3} + \frac{1}{5} = \frac{8}{15}$	13 x 28 = 364
--  = 9		
- - = 10		













1M      1t



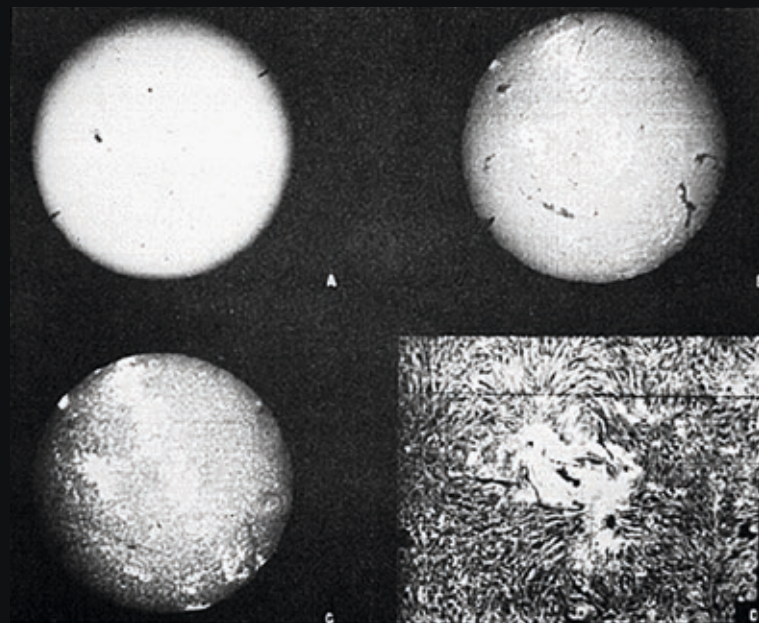
1L

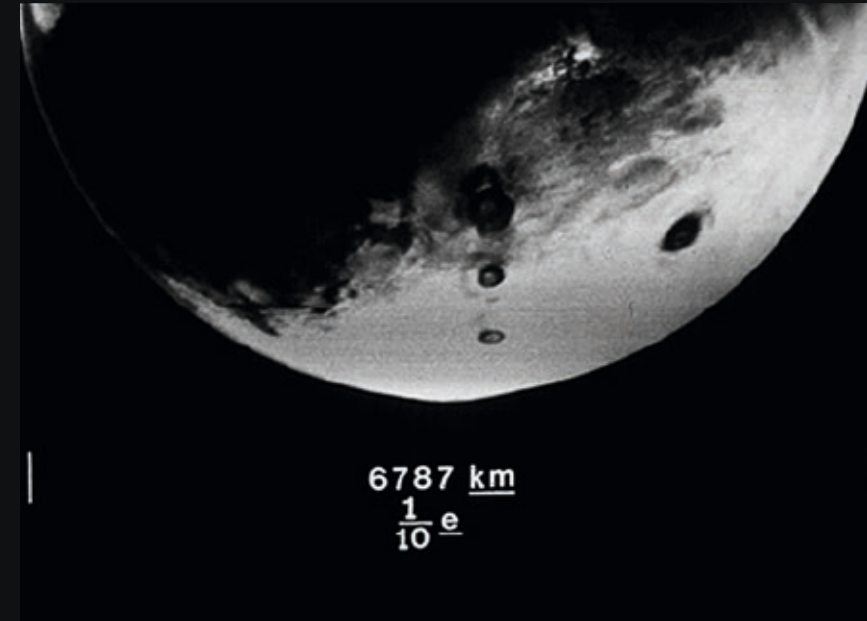
$1 \frac{42}{100} \times 10^9 \underline{t} = 1 \underline{s}$ $86400 \underline{s} = 1 \underline{d}$ $365 \underline{d} = 1 \underline{y}$ $6 \times 10^{23} \underline{M} = 1 \underline{g}$ $1000 \underline{g} = 1 \underline{kg}$ $6 \times 10^{27} \underline{g} = 1 \underline{e}$	$\frac{1}{21} \underline{L} = 1 \underline{cm}$ $1 \underline{L} = 21 \times 10^8 \underline{a}$ $10^2 \underline{cm} = 1 \underline{m}$ $1000 \underline{m} = 1 \underline{km}$
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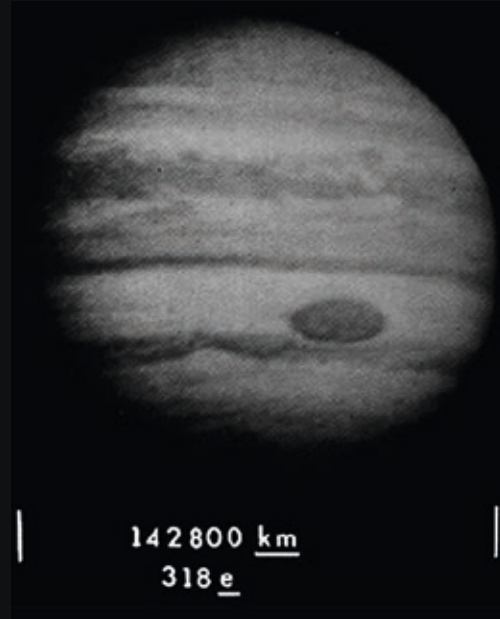
				
$139 \times 10^4 \underline{\text{km}}$	$4840 \underline{\text{km}}$	12400	12760	6800
	$58 \times 10^6 \underline{\text{km}}$	108	150	228
$333000 \underline{\text{e}}$	$\frac{1}{19} \underline{\text{e}}$	$\frac{82}{100}$	1	$\frac{11}{100}$
$25 \underline{\text{d}}$	$57 \underline{\text{d}}$	243	1	$1 \frac{3}{100}$

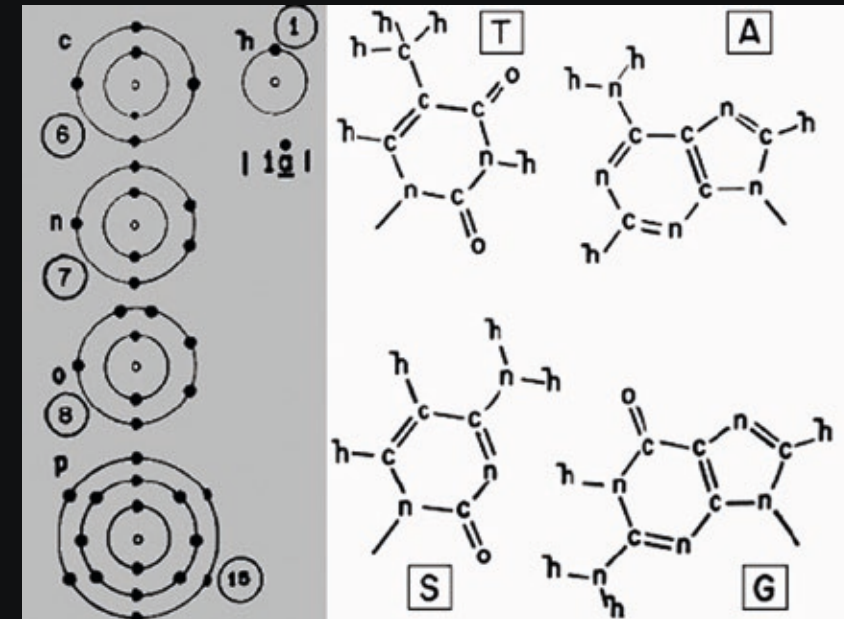
				
$142 \times 10^3 \underline{\text{km}}$	$121 \times 10^3$	47600	44600	14000
$778 \times 10^6 \underline{\text{km}}$	1428	2872	4498	591
$318 \underline{\text{e}}$	95	$14 \frac{6}{10}$	$17 \frac{2}{10}$	$\frac{9}{10}$
$\frac{41}{100} \underline{\text{d}}$	$\frac{43}{100}$	$\frac{45}{100}$	$\frac{65}{100}$	$\frac{7}{10}$

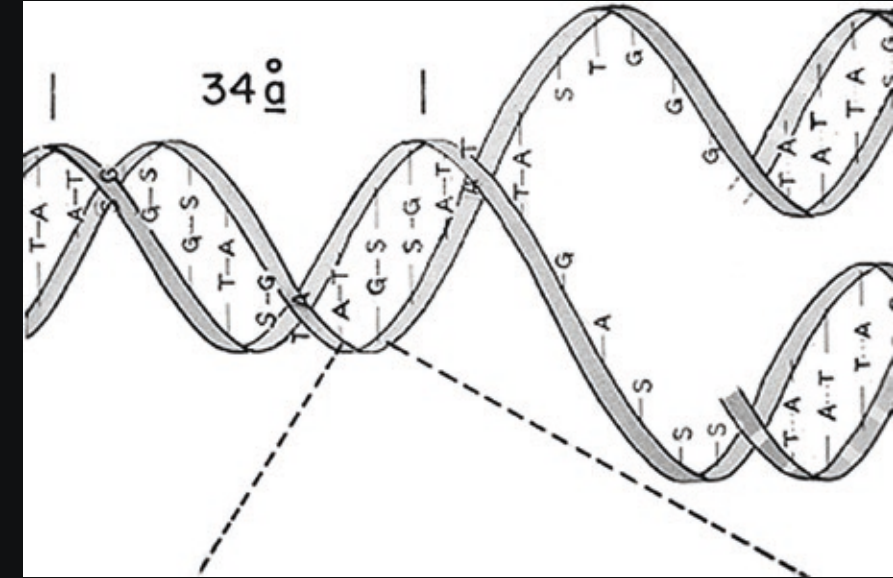
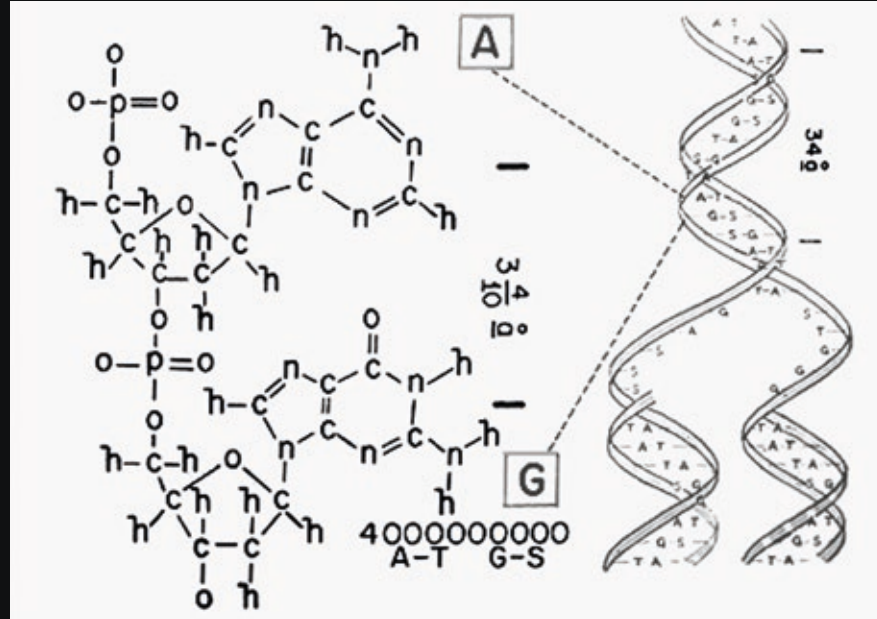






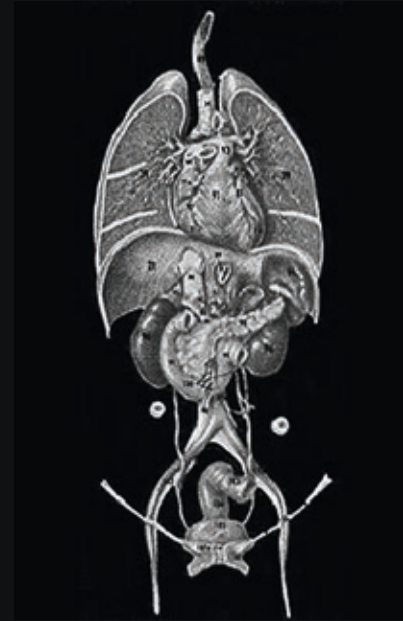






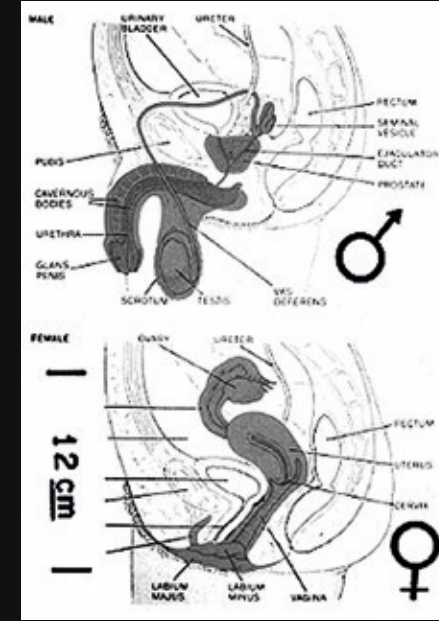


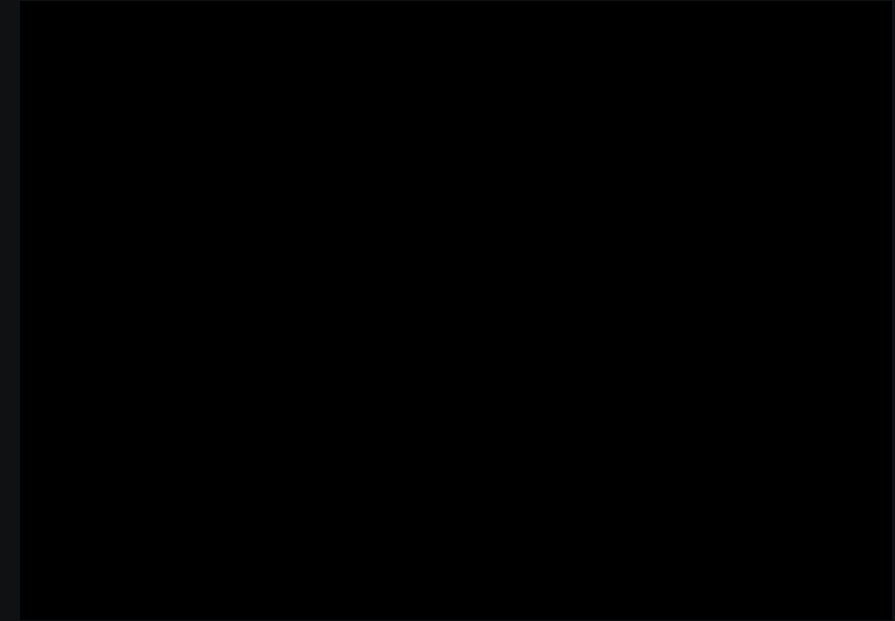
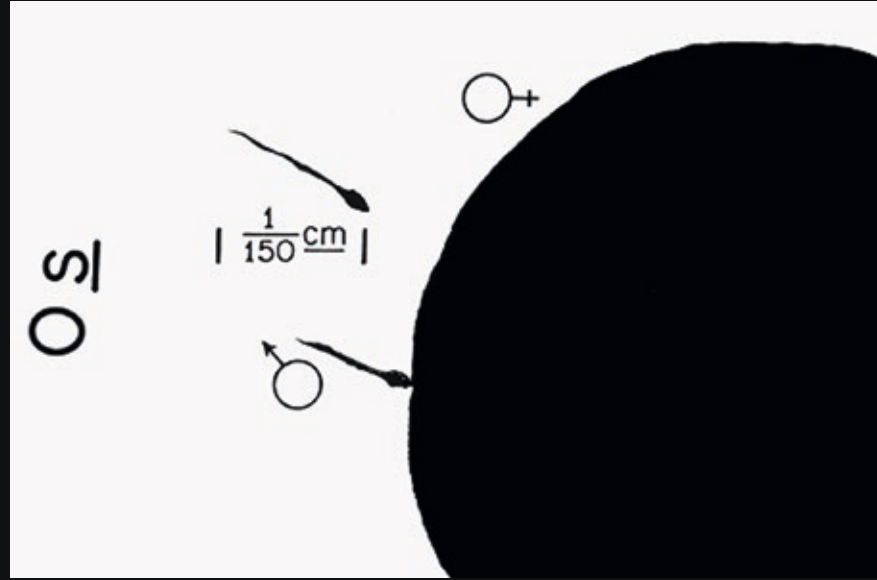


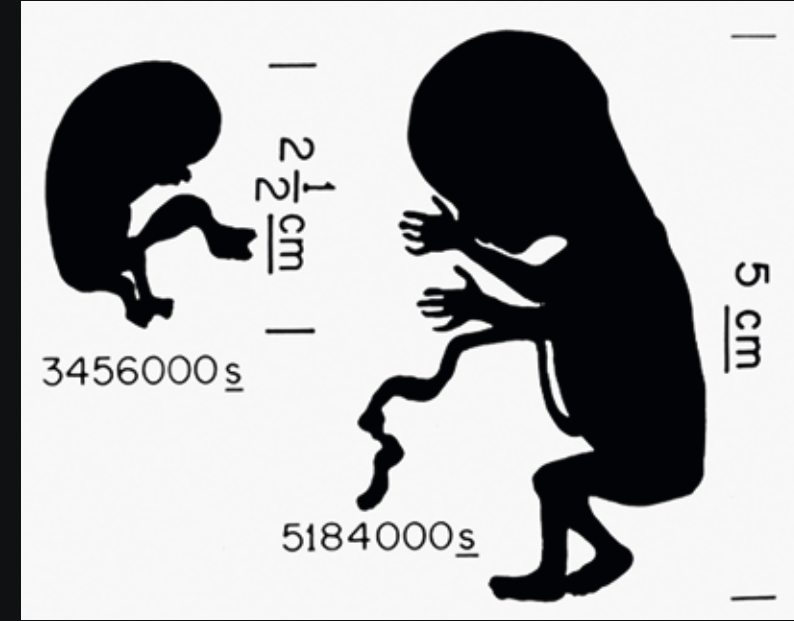
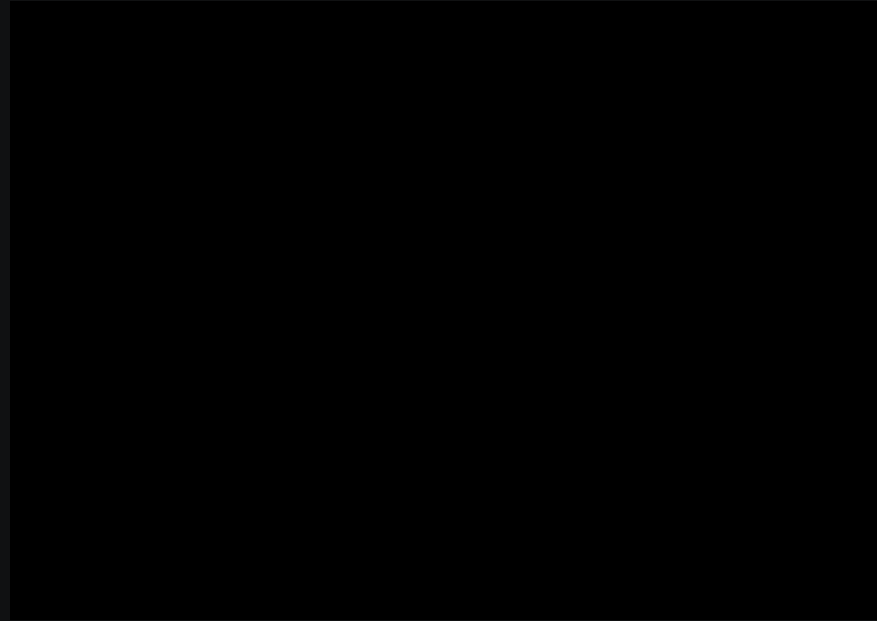


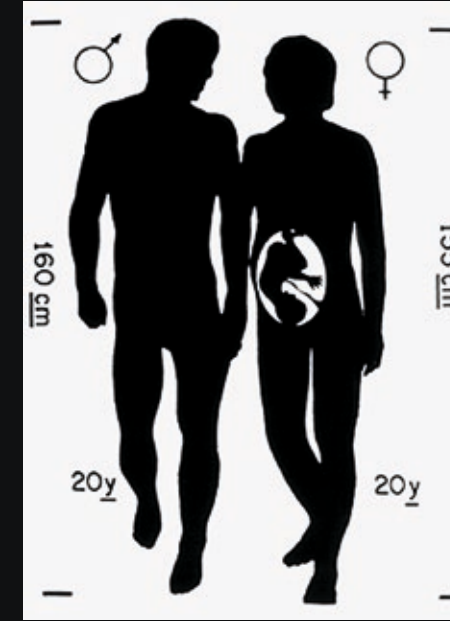






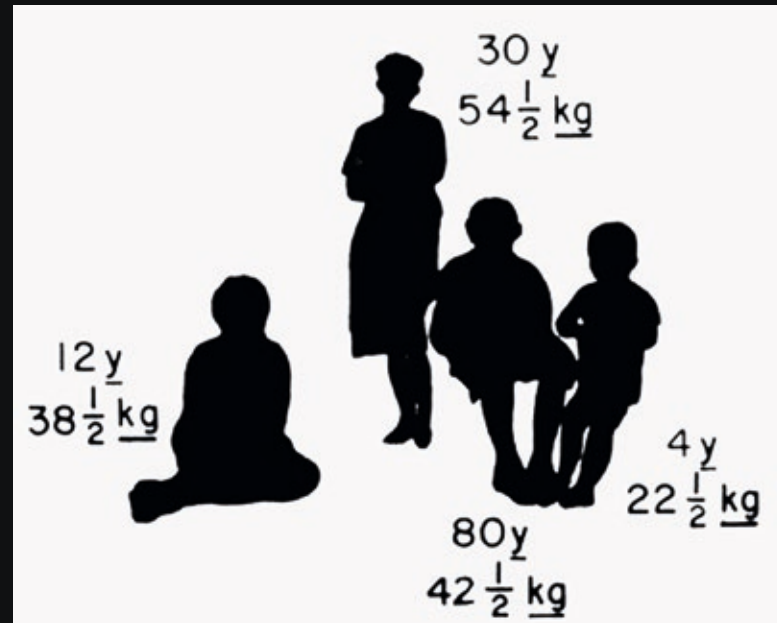








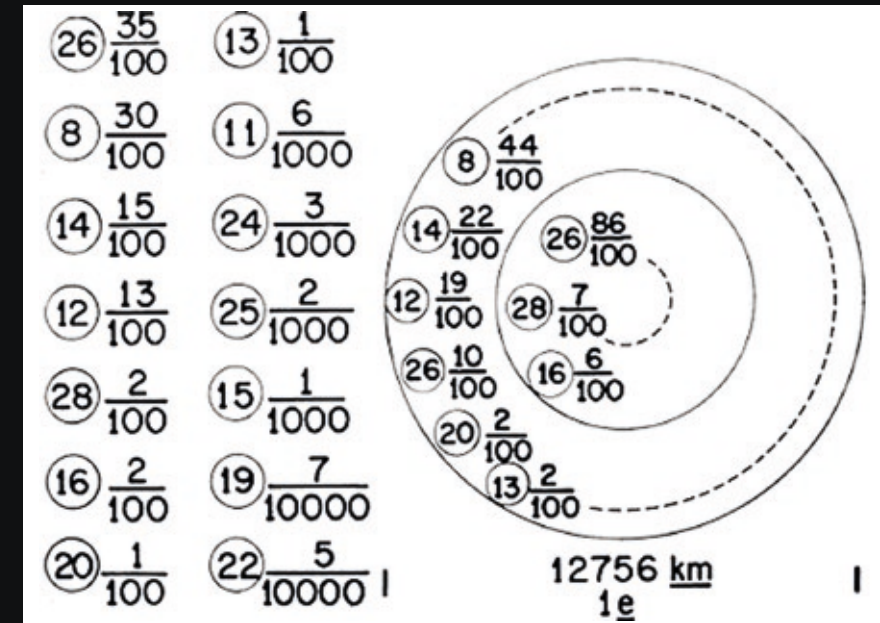
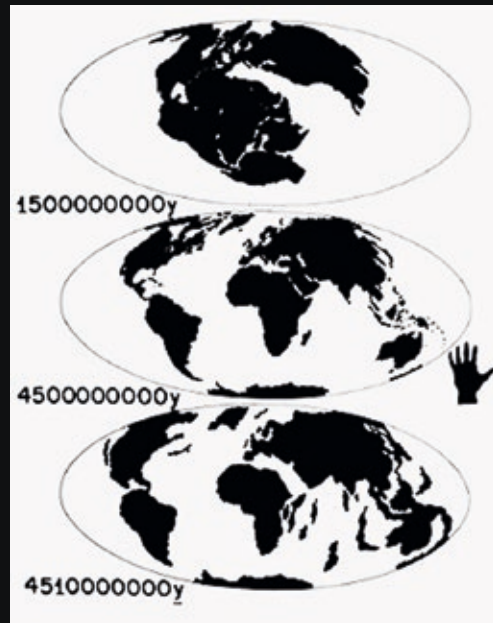




color









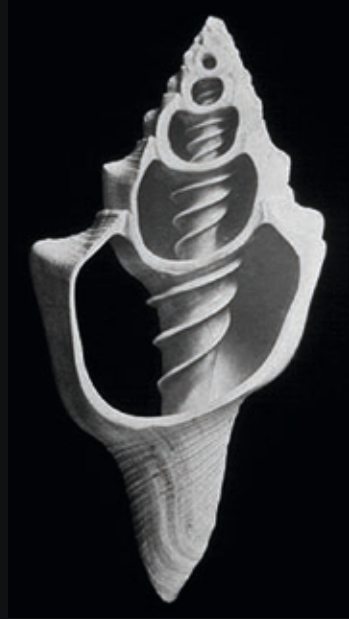










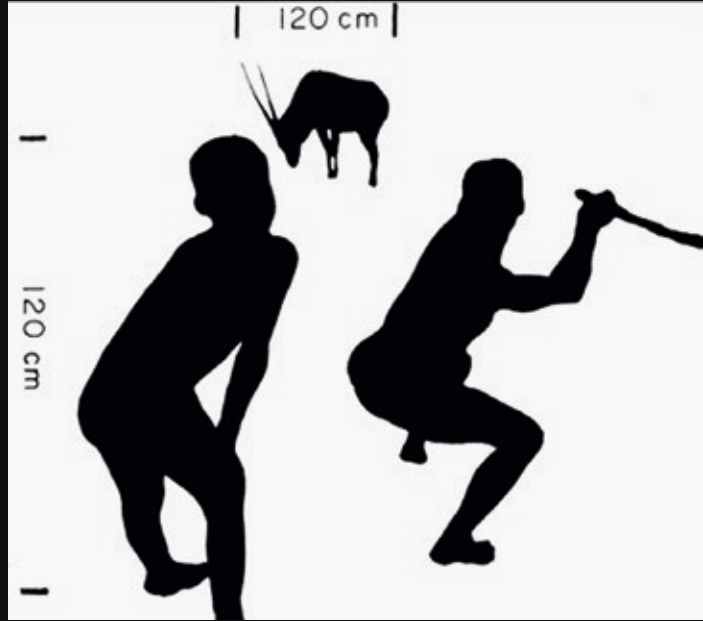


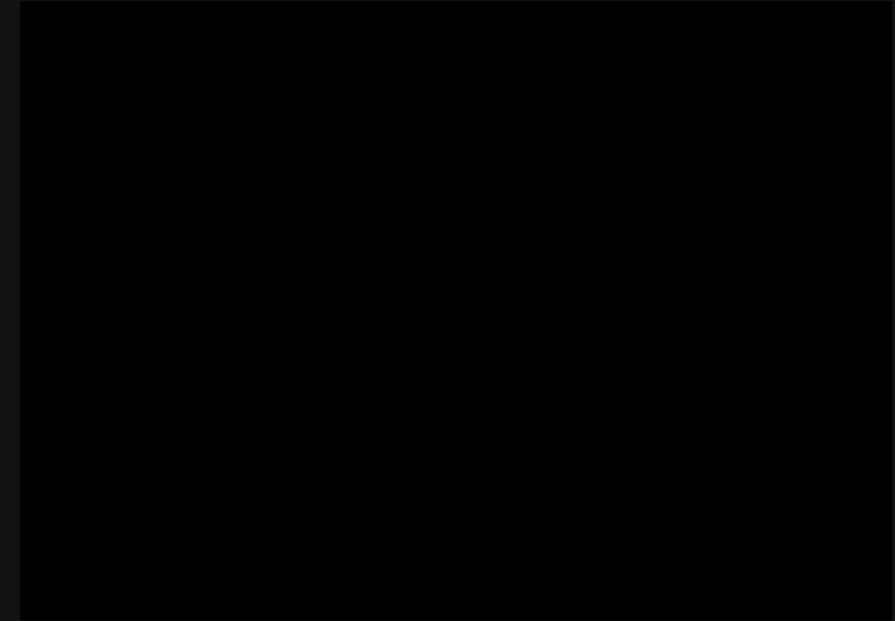
















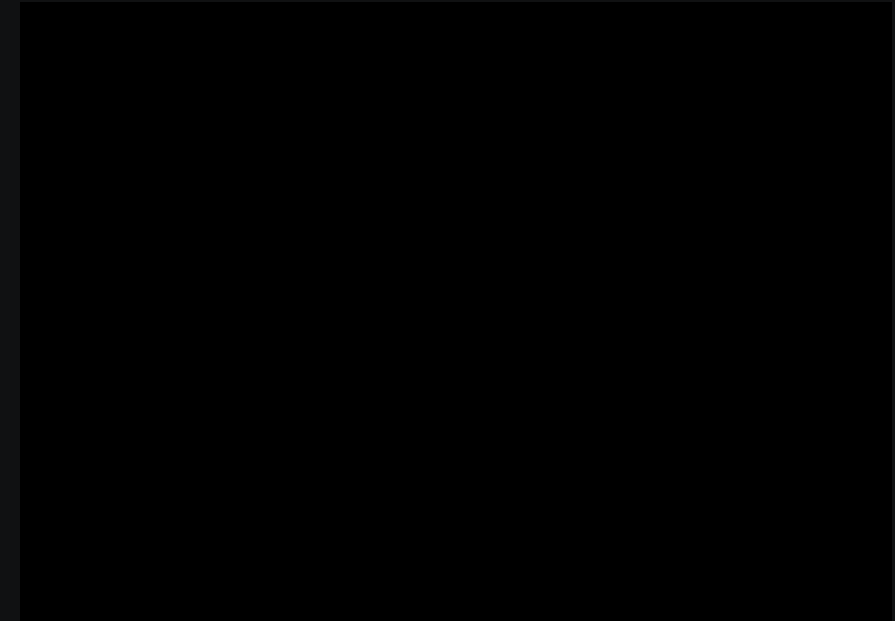














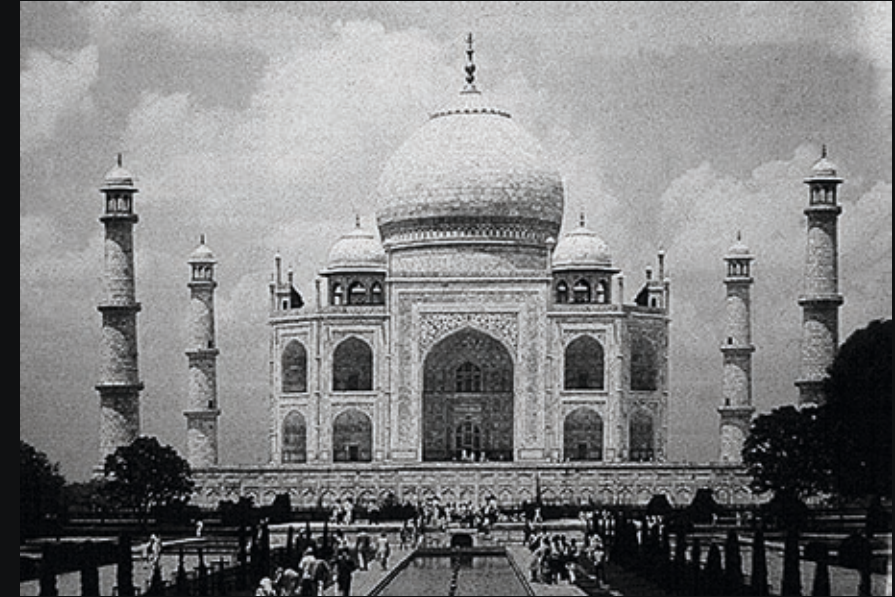








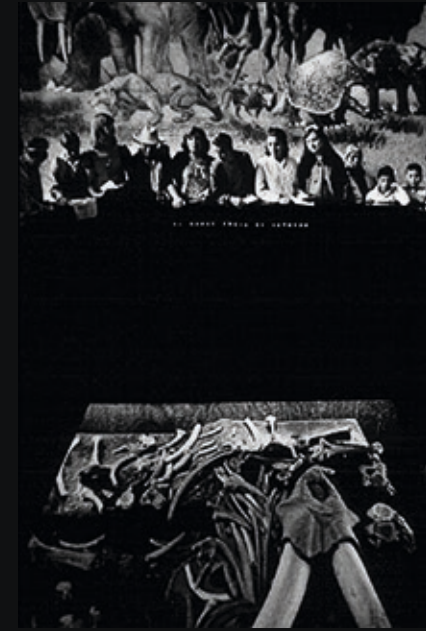
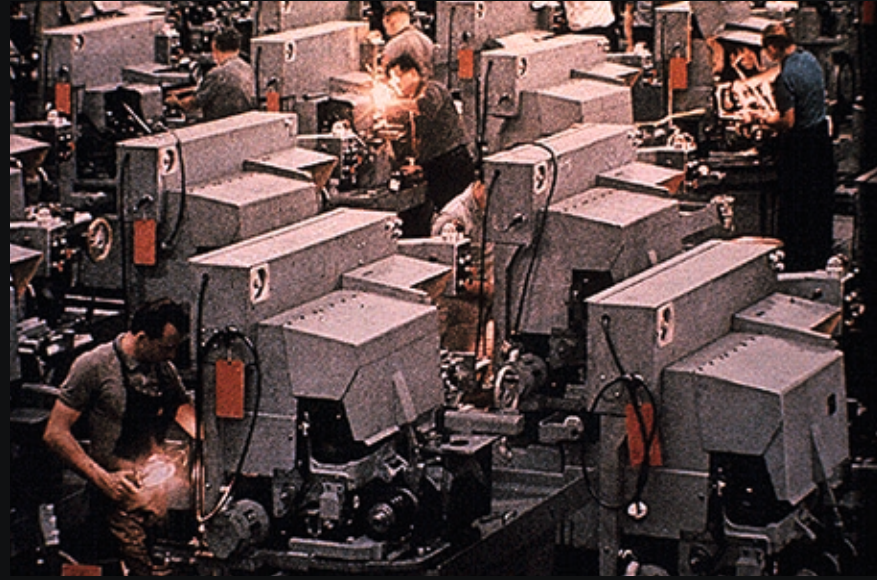














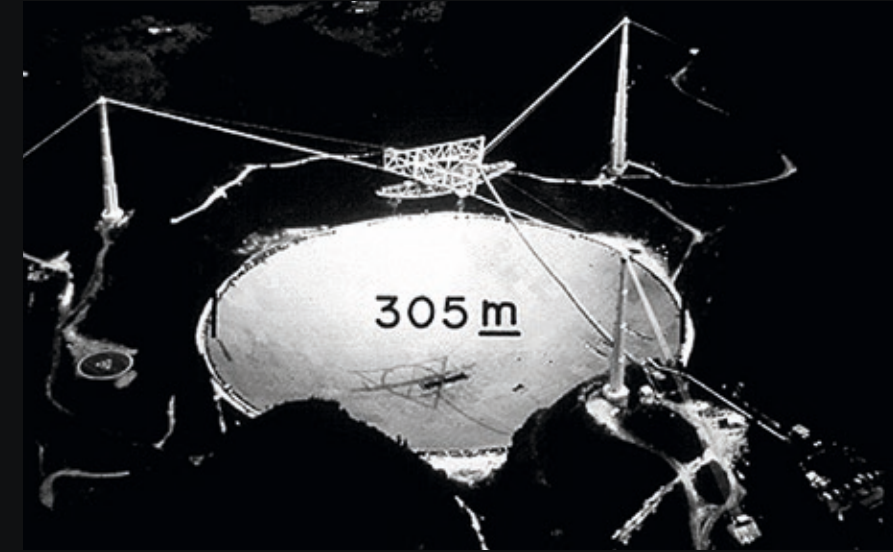


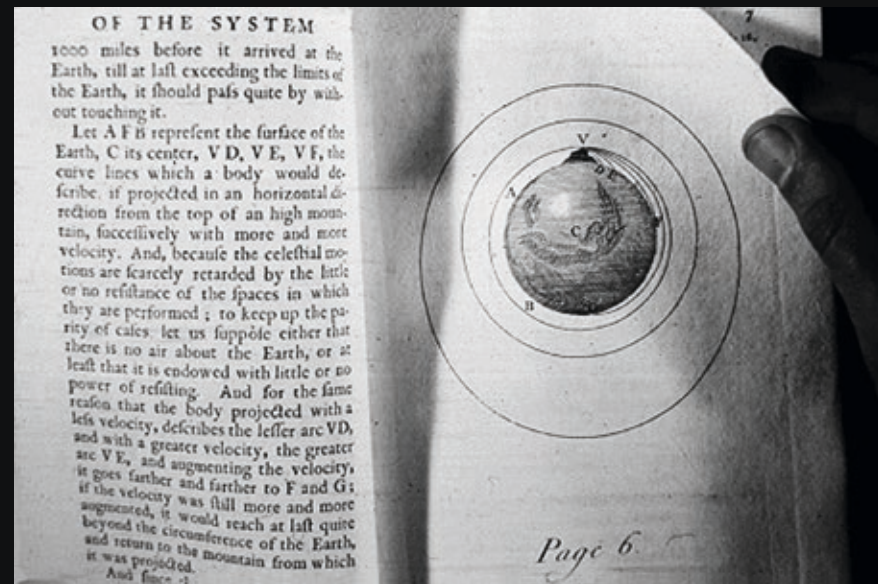














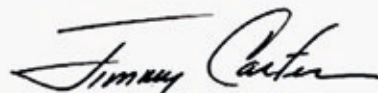


STATEMENT

This Voyager spacecraft was constructed by the United States of America. We are a community of 240 million human beings among the more than 4 billion who inhabit the planet Earth. We human beings are still divided into nation states, but these states are rapidly becoming a single global civilization.

We cast this message into the cosmos. It is likely to survive a billion years into our future, when our civilization is profoundly altered and the surface of the Earth may be vastly changed. Of the 200 billion stars in the Milky Way galaxy, some -- perhaps many -- may have inhabited planets and spacefaring civilizations. If one such civilization intercepts Voyager and can understand these recorded contents, here is our message:

This is a present from a small distant world, a token of our sounds, our science, our images, our music, our thoughts and our feelings. We are attempting to survive our time so we may live into yours. We hope someday, having solved the problems we face, to join a community of galactic civilizations. This record represents our hope and our determination, and our good will in a vast and awesome universe.

  
President of the United States  
of America

THE WHITE HOUSE,  
June 16, 1977

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