

# DNA REPLICATION.

DEOXYRIBOSE<sub>D</sub>

PHOSPHATE<sub>P</sub>

ADENINE<sub>A</sub>

THYMINE<sub>T</sub>

CYTOSINE<sub>C</sub>

GUANINE<sub>G</sub>

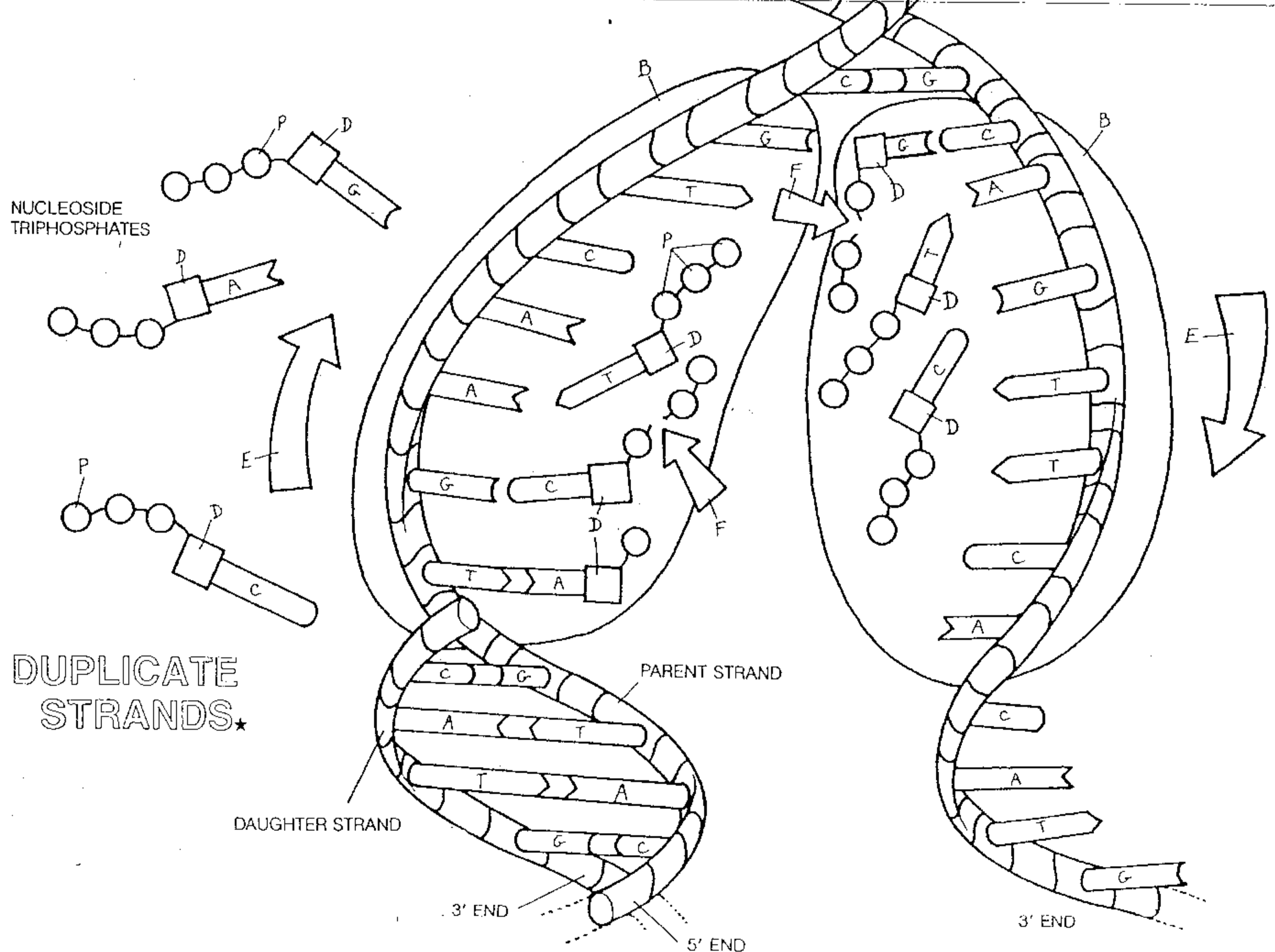
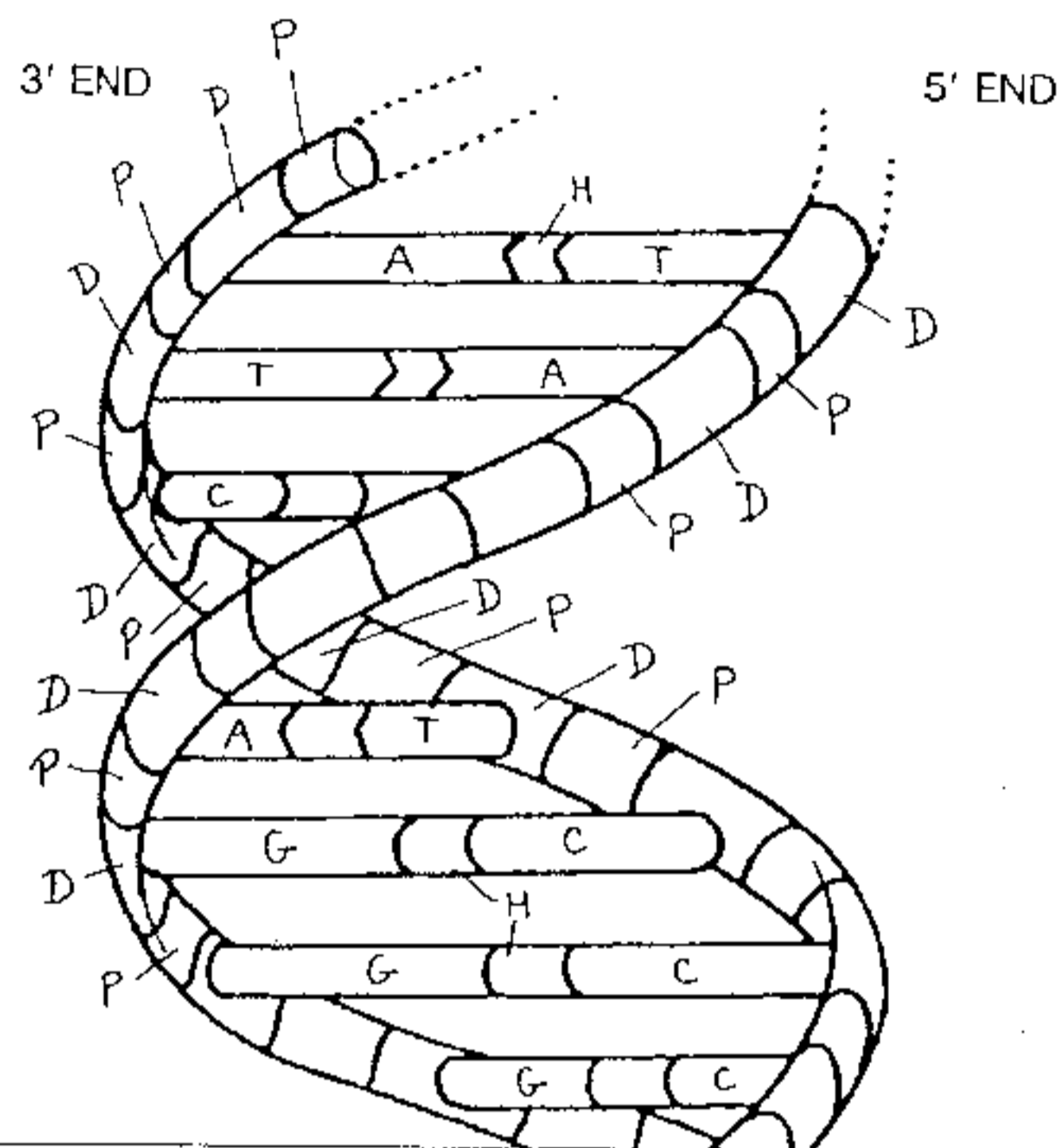
HYDROGEN BOND<sub>H</sub>

UNZIPPING AND REPLICATION★

DNA POLYMERASE<sub>B</sub>

DIRECTION OF SYNTHESIS<sub>E</sub>

HYDROLYSIS<sub>F</sub>



NUCLEOSIDE TRIPHOSPHATES

DUPLICATE STRANDS★

DAUGHTER STRAND

PARENT STRAND

3' END

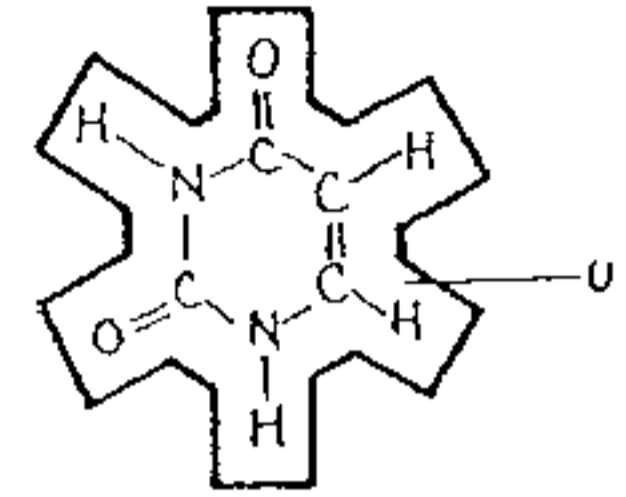
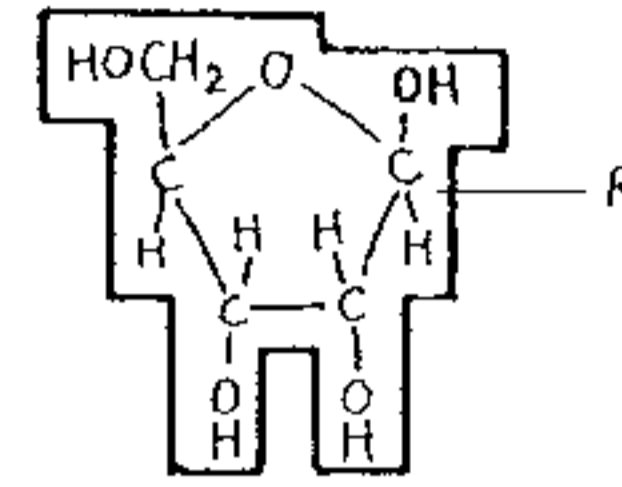
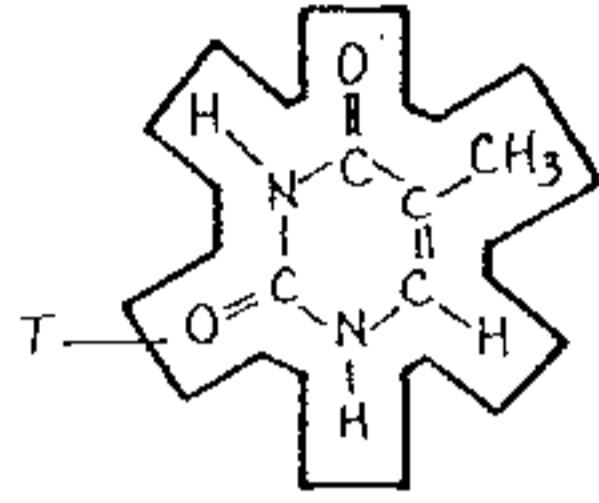
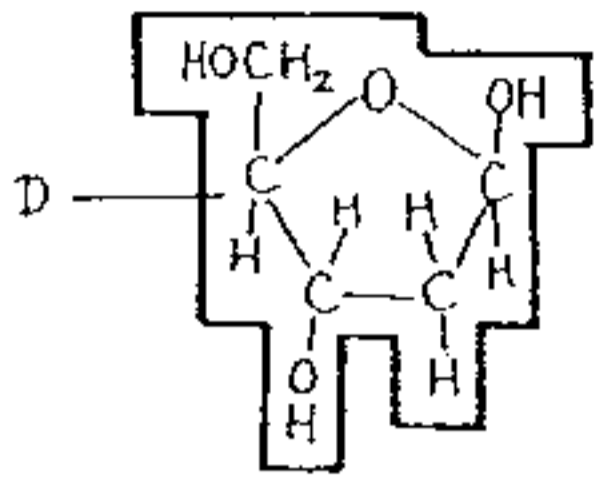
5' END

3' END

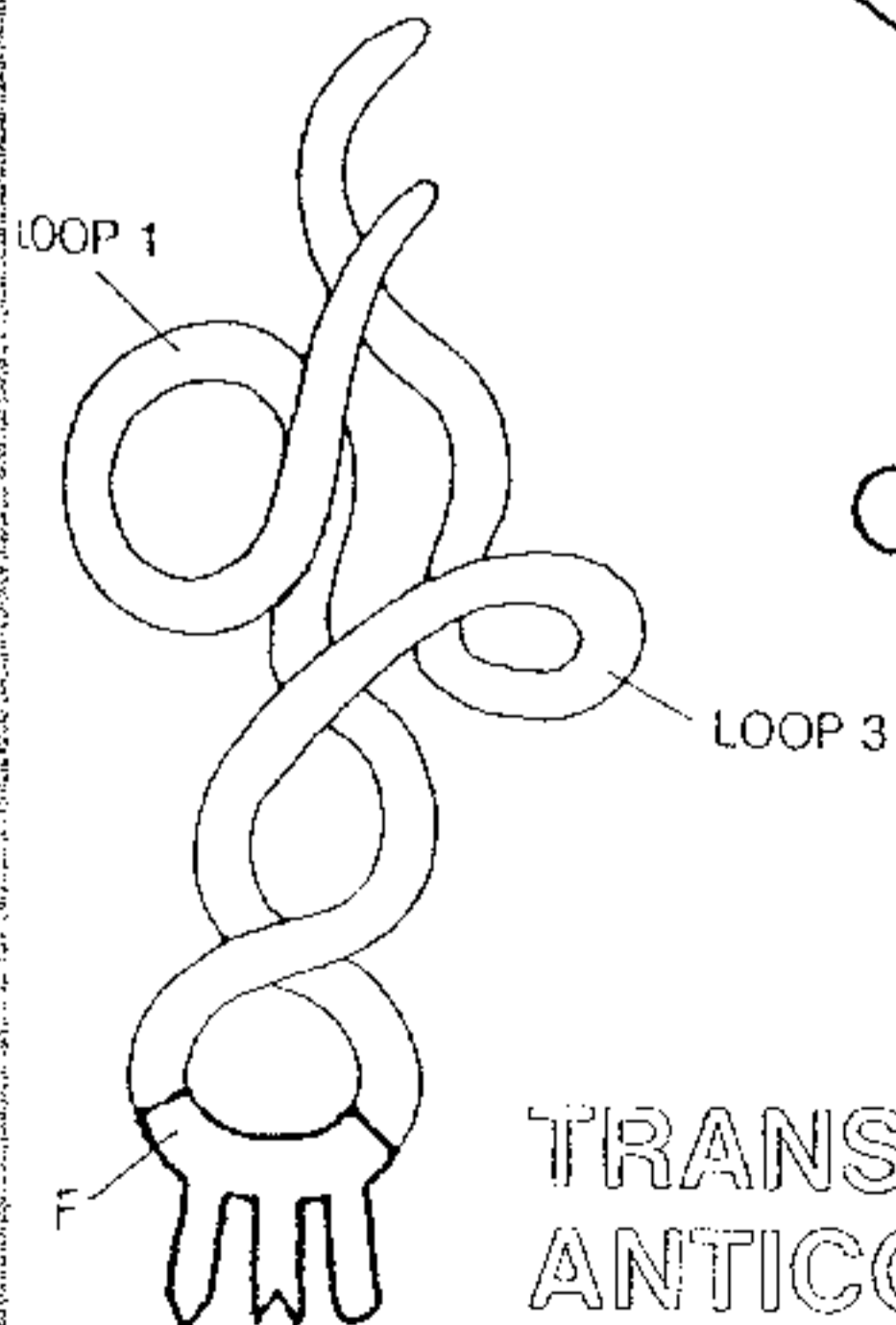
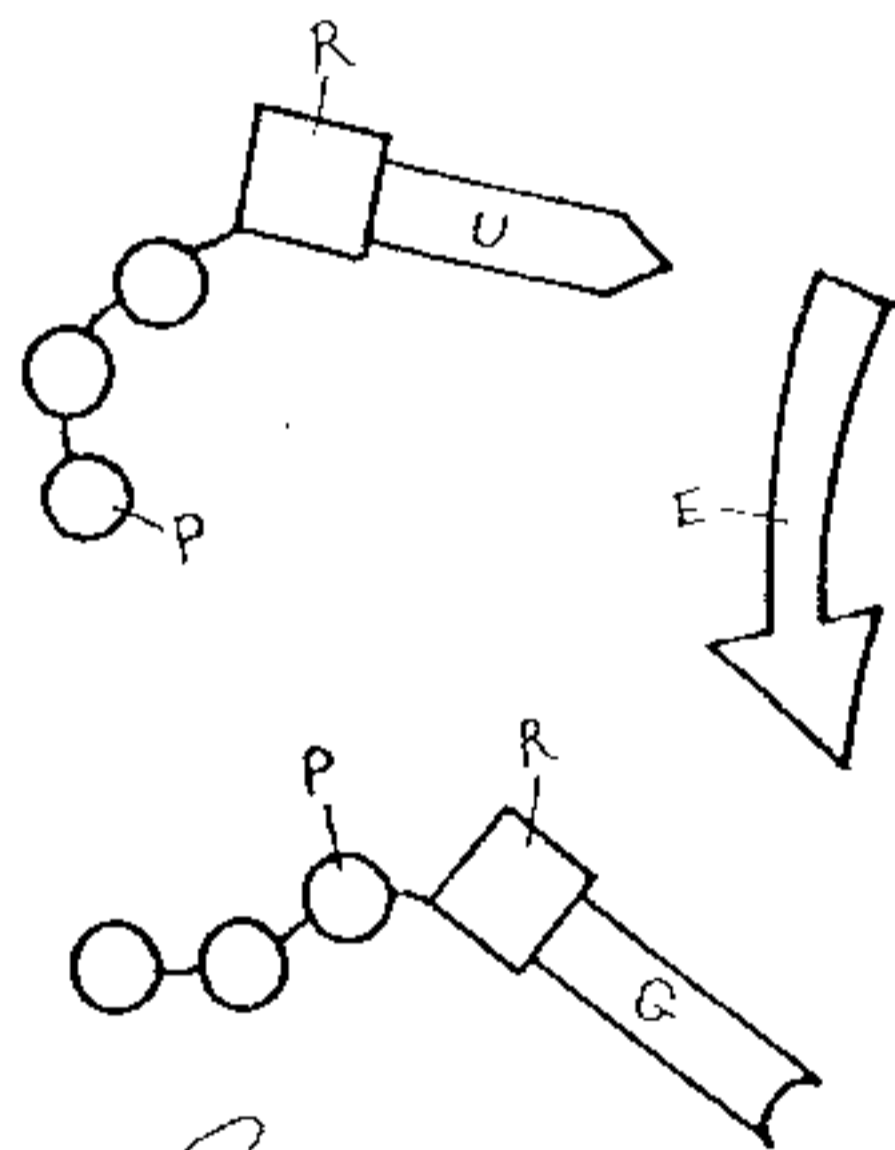
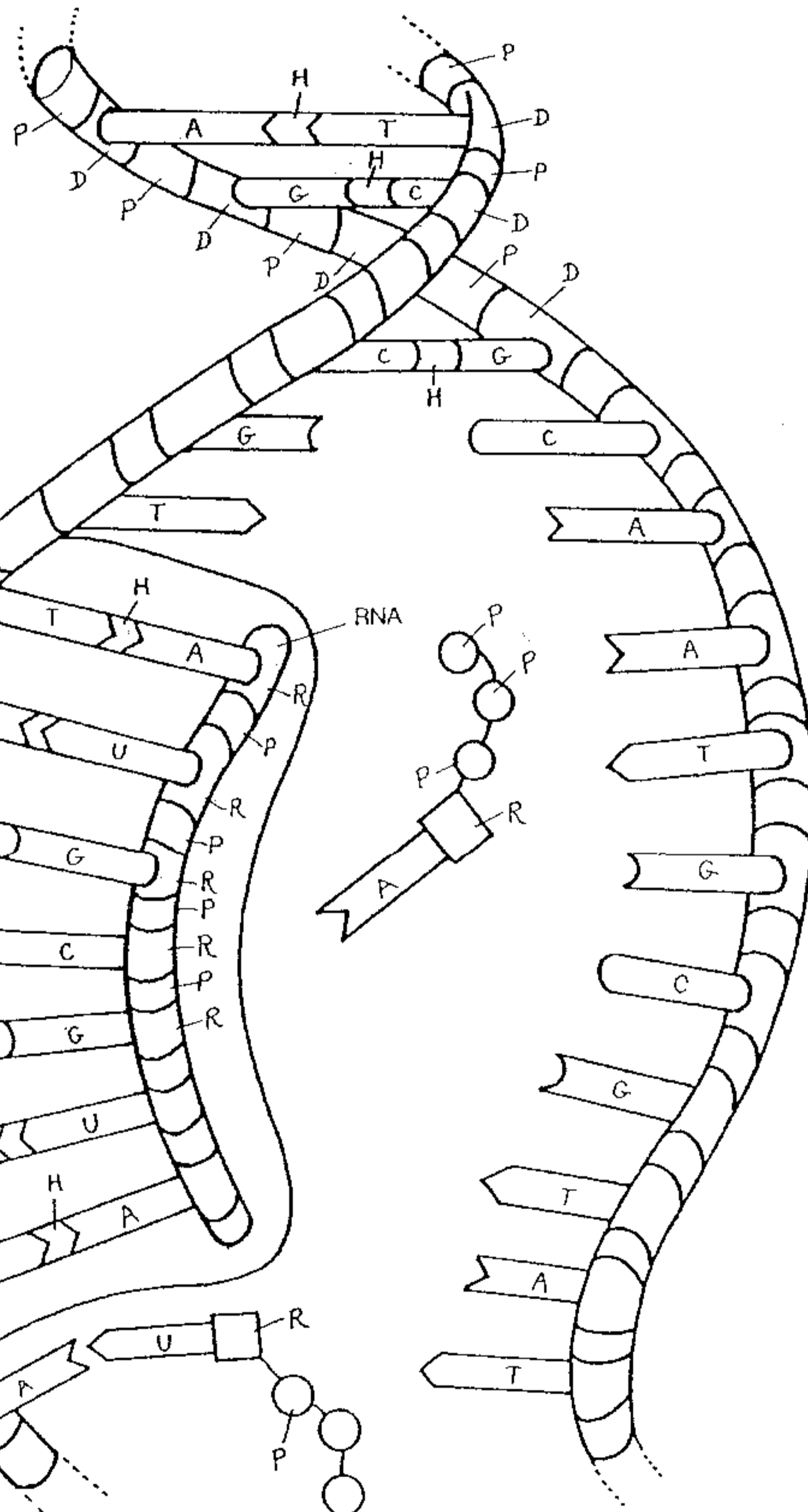
# DNA TRANSCRIPTION.

DNA★  
DEOXYRIBOSE,  
THYMINE<sub>T</sub>

RNA★  
RIBOSE,  
URACIL<sub>U</sub>



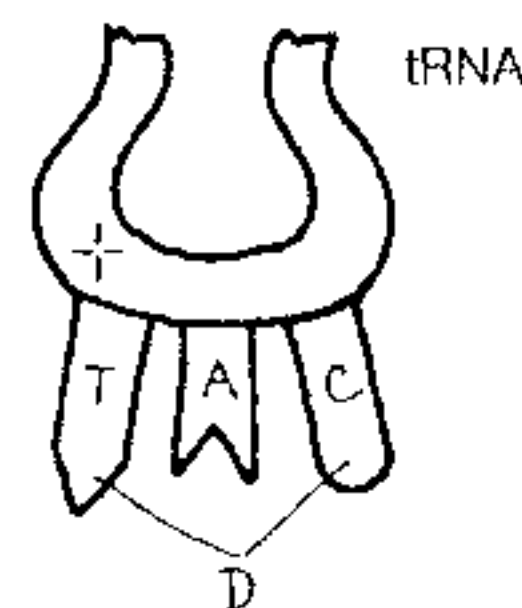
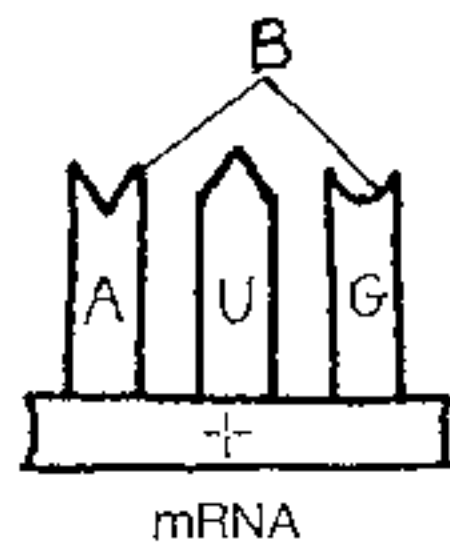
TRANSCRIPTION★  
PHOSPHATE<sub>P</sub>  
ADENINE<sub>A</sub>  
CYTOSINE<sub>C</sub>  
GUANINE<sub>G</sub>  
HYDROGEN BOND<sub>H</sub>  
RNA POLYMERASE<sub>R</sub>  
DIRECTION OF  
TRANSCRIPTION<sub>E</sub>



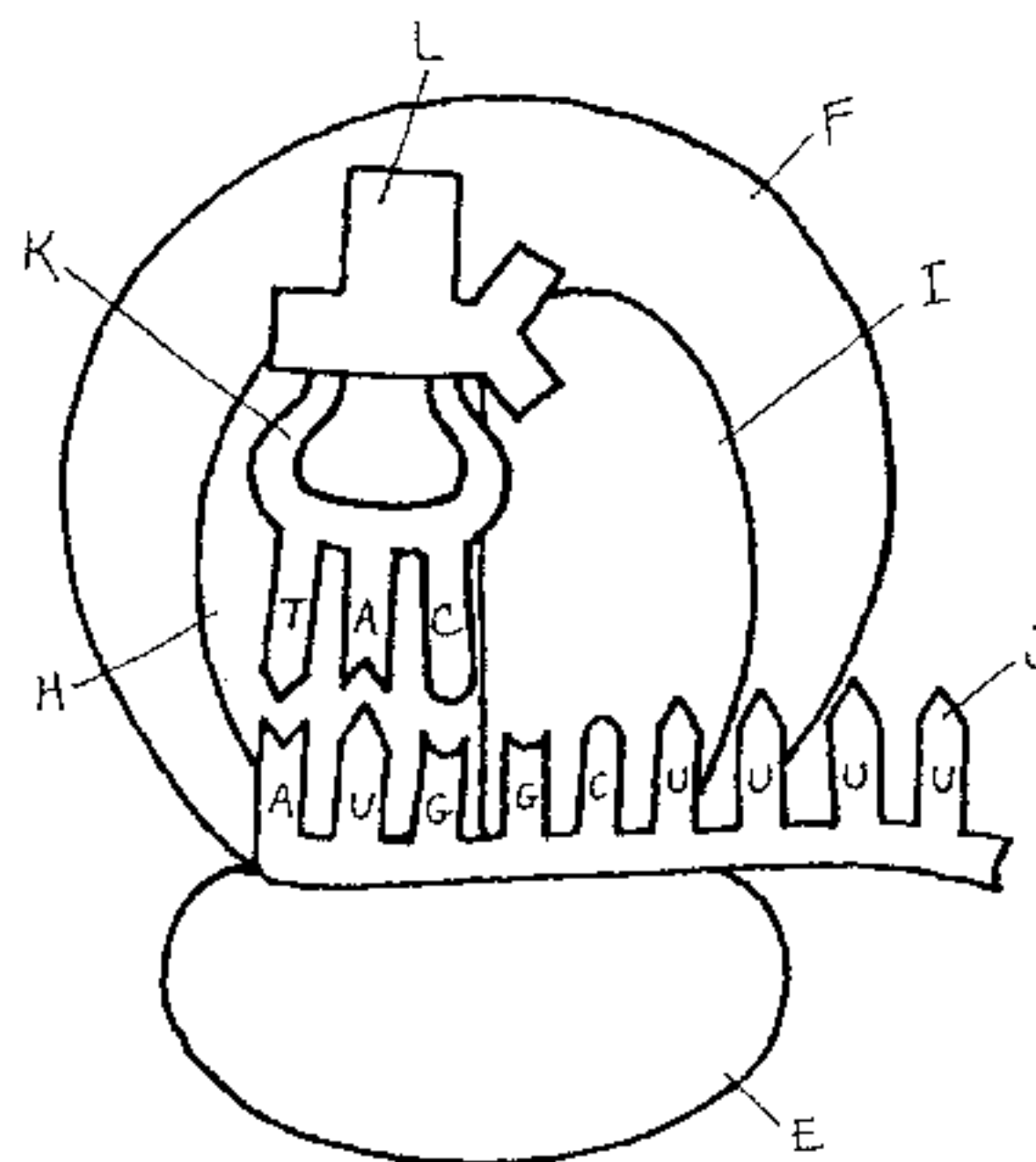
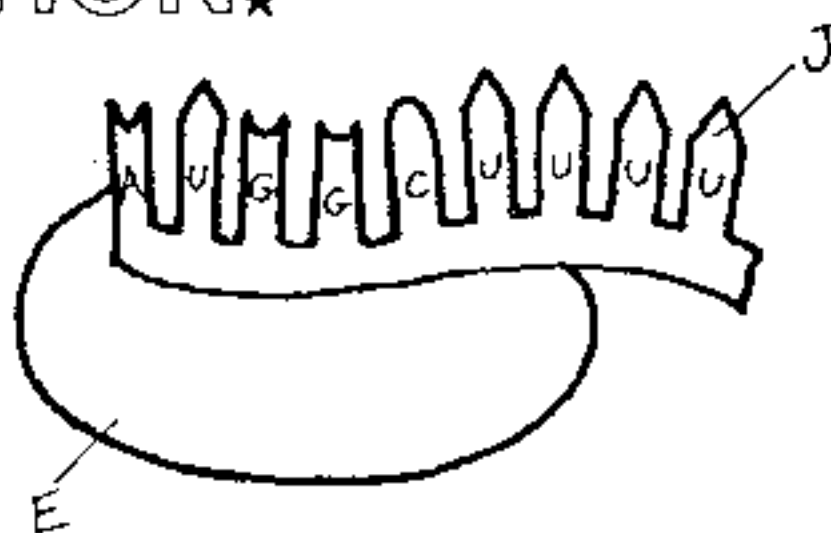
TRANSFER RNA★  
ANTICODON<sub>F</sub>

# PROTEIN SYNTHESIS: TRANSLATION.

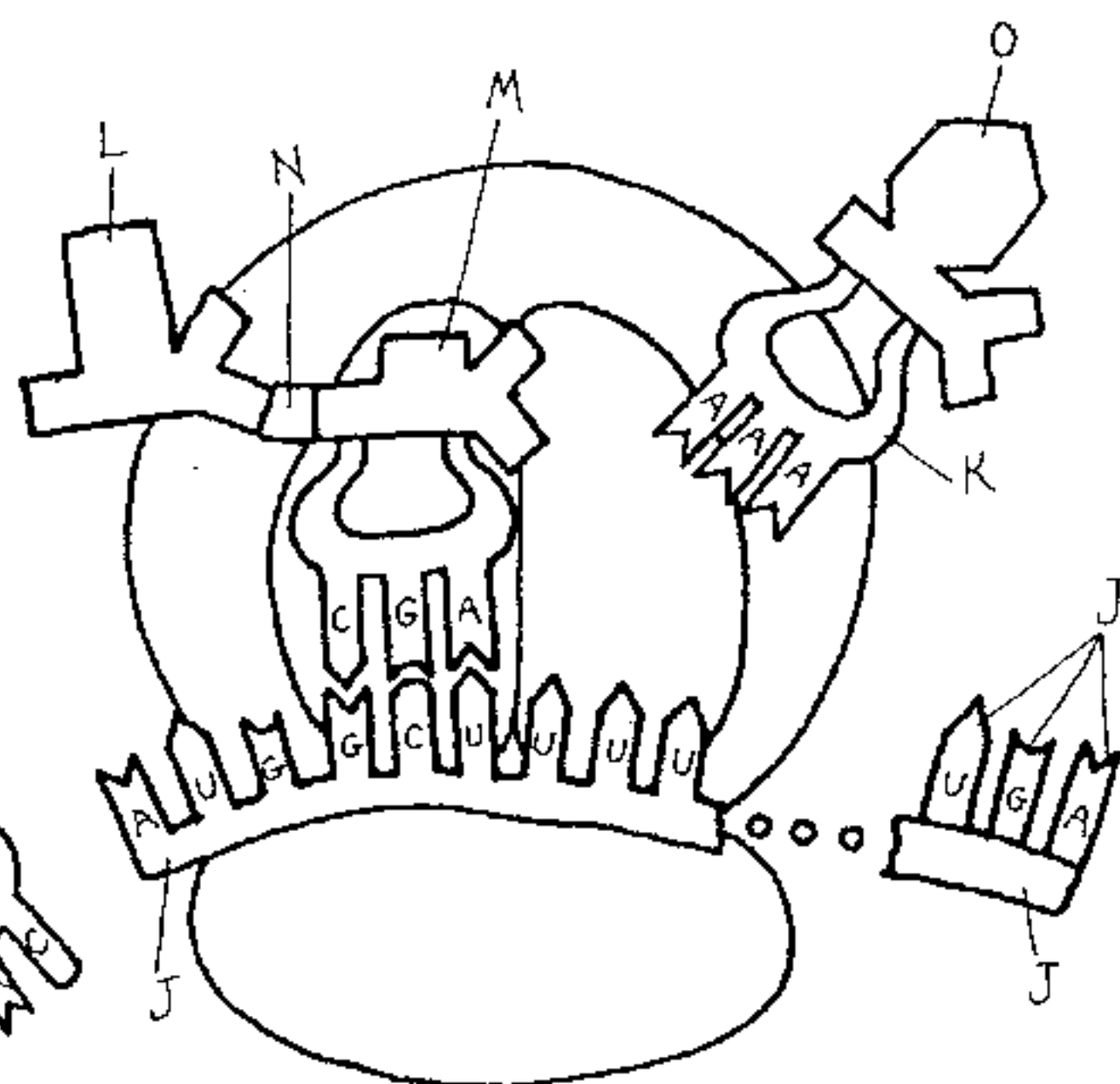
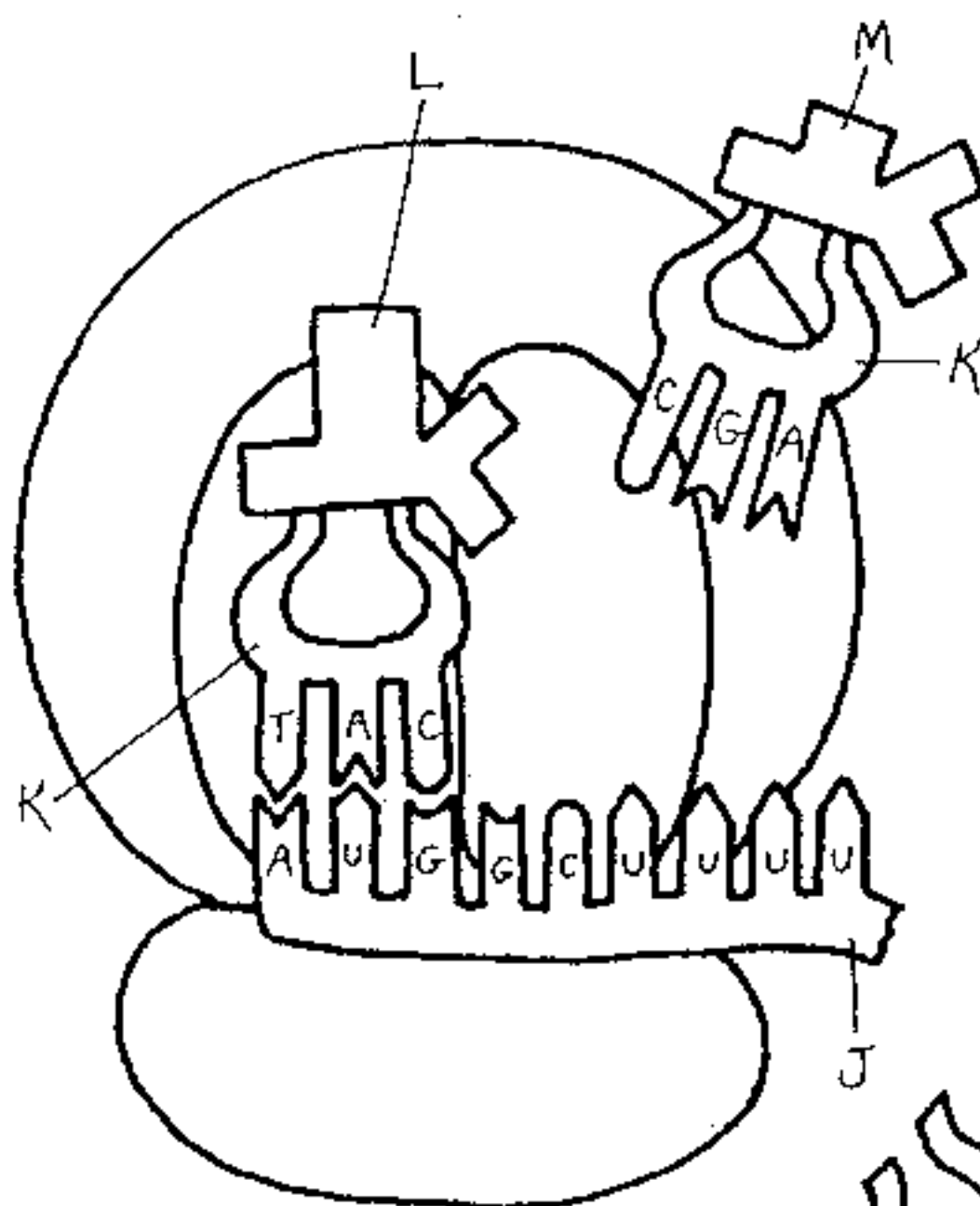
CODON,  
ANTICODON,  
RIBOSOME,  
SMALL SUBUNIT,  
LARGE SUBUNIT,  
P SITE,  
A SITE,



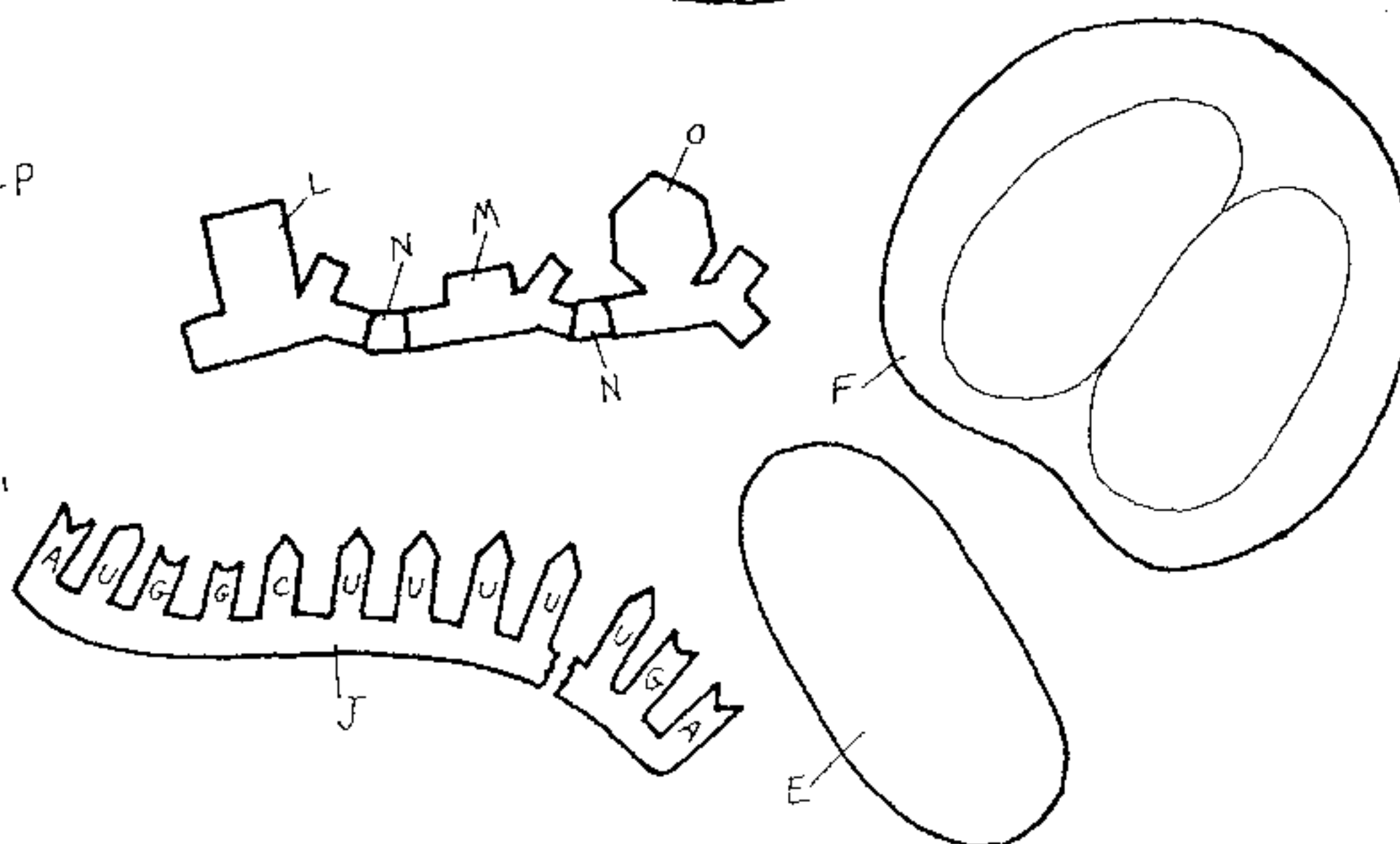
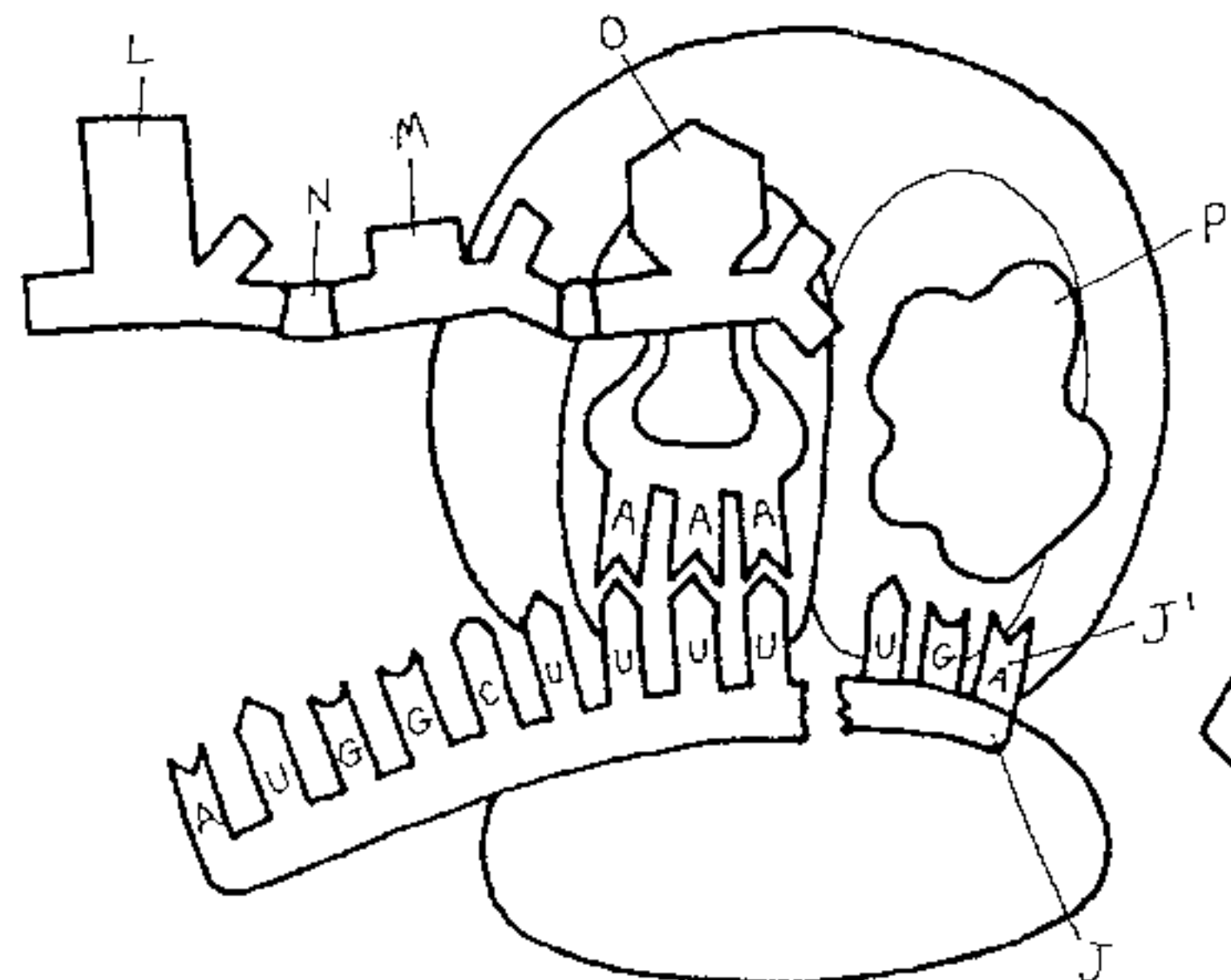
PHASES OF TRANSLATION,  
INITIATION,  
mRNA,  
tRNA,  
METHIONINE.



ELONGATION,  
ALANINE,  
PEPTIDE BOND,  
PHENYLALANINE,  
STOP CODON.



TERMINATION,  
RELEASE  
FACTOR.





# THE GENETIC CODE.

mRNA BASES\*

ADENINE<sub>A</sub>

CYTOSINE<sub>C</sub>

GUANINE<sub>G</sub>

URACIL<sub>U</sub>

AMINO ACIDS\*

ALANINE<sub>A</sub>

ARGININE<sub>R</sub>

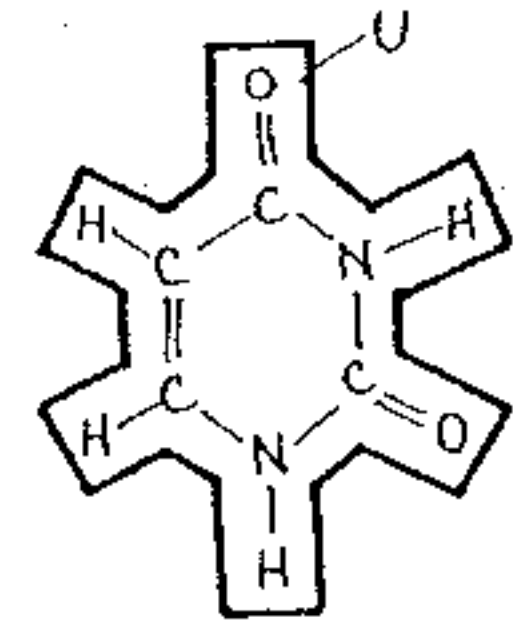
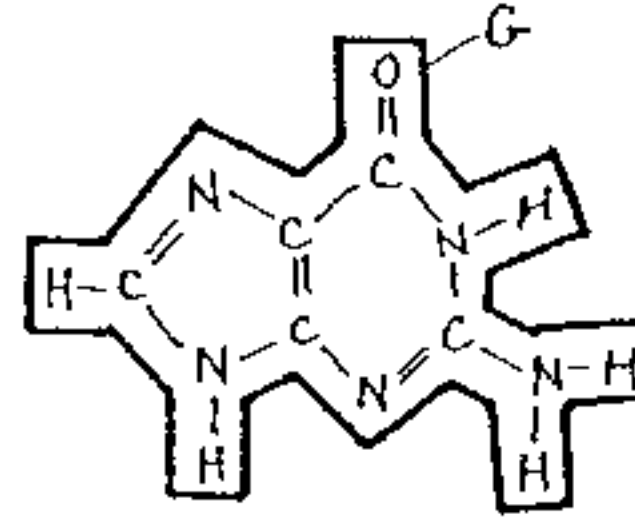
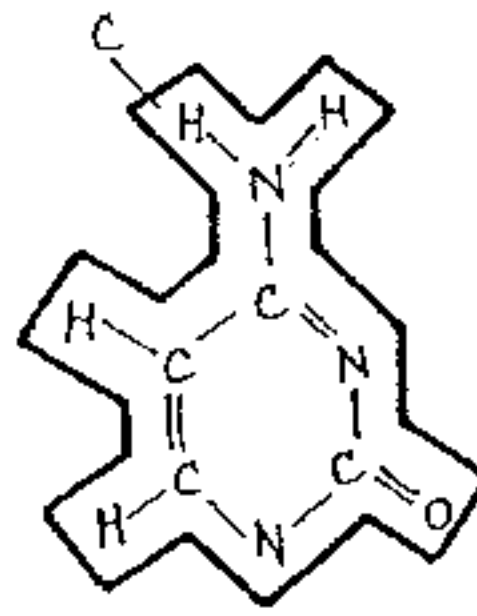
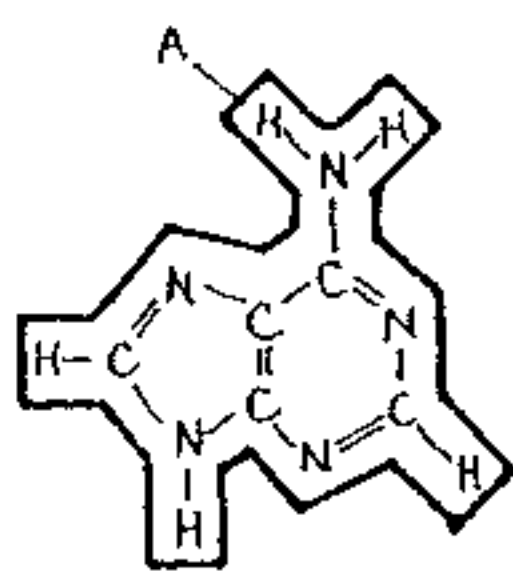
ASPARAGINE<sub>E</sub>

ASPARTIC ACID<sub>F</sub>

CYSTEINE<sub>H</sub>

GLUTAMINE<sub>Q</sub>

GLUTAMIC ACID<sub>D</sub>



GLYCINE<sub>K</sub>

HISTIDINE<sub>L</sub>

ISOLEUCINE<sub>M</sub>

LEUCINE<sub>N</sub>

LYSINE<sub>K</sub>

METHIONINE<sub>P</sub>

PHENYLALANINE<sub>F</sub>

PROLINE<sub>R</sub>

SERINE<sub>S</sub>

THREONINE<sub>V</sub>

TRYPTOPHAN<sub>W</sub>

TYROSINE<sub>X</sub>

VALINE<sub>Y</sub>

SECOND mRNA BASE\*

STOP CODON<sub>Z</sub>

FIRST mRNA BASE\*

	U <sup>-U'</sup>	C <sup>-C'</sup>	A <sup>-A'</sup>	G <sup>-G'</sup>	
U <sup>-U'</sup>	UUU Q	UCU S	UAU X	UGU H	U <sup>-U'</sup>
	UUC Q	UCC S	UAC X	UGC H	C <sup>-C'</sup>
	UUA N	UCA S	UAA Z	UGA Z	A <sup>-A'</sup>
	UUG N	UCG S	UAG Z	UGG W	G <sup>-G'</sup>
C <sup>-C'</sup>	CUU N	CCU R	CAU L	CGU D	U <sup>-U'</sup>
	CUC N	CCC R	CAC L	CGC D	C <sup>-C'</sup>
	CUA N	CCA R	CAA I	CGA D	A <sup>-A'</sup>
	CUG N	CCG R	CAG I	CGG D	G <sup>-G'</sup>
A <sup>-A'</sup>	AUU M	ACU V	AAU E	AGU S	U <sup>-U'</sup>
	AUC M	ACC V	AAC E	AGC S	C <sup>-C'</sup>
	AUA M	ACA V	AAA O	AGA D	A <sup>-A'</sup>
	AUG P	ACG V	AAG O	AGG D	G <sup>-G'</sup>
G <sup>-G'</sup>	GUU Y	GCU B	GAU F	GGU K	U <sup>-U'</sup>
	GUC Y	GCC B	GAC F	GGC K	C <sup>-C'</sup>
	GUA Y	GCA B	GAA J	GGA K	A <sup>-A'</sup>
	GUG Y	GCG B	GAG J	GGG K	G <sup>-G'</sup>

THIRD mRNA BASE\*

ORIGINAL MESSAGE<sub>AA</sub>

THE BIG DOG BIT TED AND RAN OFF

DELETION AND FRAME SHIFT<sub>BB</sub>

THE BID OGB ITT EDA NDR ANO FF

↑  
DELETION

AA

BB