MULTI-GENRE PROJECT

EDR 321 – Grand Valley State University
By: Hannah Robinson

Introduction

The following pages compose my multi-genre project. A multi-genre project is not the traditional report or research paper about a particular topic. Instead, it is a series of documents that are linked by one common topic. This multi-genre is on DNA and contains six genres.

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About the Author:

Hi, my name is Hannah Robinson and I created this multi-genre project for EDR 321 at Grand Valley State University (GVSU). I grew up in a small town in Northern Michigan, where, after graduating from high school, I went to community college for two years. During those two years I was the freshman girls' volleyball coach and the assistant coach of the varsity girls' soccer team at Boyne City High School. After earning my associate of science from North Central Michigan College, I transferred to GVSU to finish my degree. I am pursuing a bachelor's degree in Secondary Education with a major in Biology and a minor in Chemistry and School Health Education. In addition, I am pursing the Integrated Science Endorsement, which will allow me to teach any science class 6 -12th grade. Upon graduating, I hope to find a teaching job in Northern Michigan and return to coaching. As a future educator, I want to motivate and inspire my students to learn and embrace their creativity. I want to be a positive role model to my students and support them in pursuing their dreams.

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Reflection Essay:

For EDR 321 at Grand Valley State University, I was assigned the task of creating a multi-genre project. This project was to include 6 different genres on a specific topic. I selected DNA to be the topic of my multi-genre project. The following paragraphs will discuss each of the items I choose to create for my genre project, as well as the reason for their selection and my overall experience in completing this assignment. In addition, I will also discuss how I would use a Multi-Genre Project in my future classroom.

The first genre I selected was a MODEL. With this genre, I created a DNA model. By creating a DNA model, I was able to review/relearn the different components that make up DNA. For my future students this activity would allow them to learn about the components that make up the structure of DNA through a hands-on activity of creating a model. I selected this as one of my genres because I believe that constructing a model can help students visualize information, but also allows them go through the process of putting things together and seeing how everything connects

The second genre I choose, I would call an ACCESSORY. In this genre, I created a DNA Base Pair Bracelet. This bracelet can be worn as an accessory to wear and to learn about DNA base pairing. This bracelet had four different colored beads and each color represented one of the bases (C, T, G, A) that exist in DNA. Creating the bracelet helped me to relearn which bases pair together. For example, the yellow bead was Thymine and the blue one was Adenine. These two beads always pair together. Through this activity, students would learn about the different bases of DNA and then practice writing down the DNA sequence from the bracelet they created. This could then be extended by having the students figure out the replicated DNA sequence form the original DNA sequence of each strand of the bracelet. This genre was selected because it gives students another way to view DNA bases. Usually students learn about bases only by their abbreviated letters.

However, creating a bracelet forces students to decide which bases pair together by physically matching each color bead with their correct matching color. For example, students would match green and pink beads together because green represents guanine and pink represents cytosine and these two bases always pair together.

The third, I selected for this project was a NEWSPAPER ARTICLE. I choose to create a newspaper article about the discovery of the DNA structure. Through this activity, I had to research about how the structure was discovered and thus my students would have to do the same. I was able to gather information from the online resources to generate a newspaper article to show what I learned. This would be a great activity for my future class because it would get them involved in conducting research and then using that research in a creative way by writing a newspaper article. The discovery of the DNA structure is a very important historical event that helped shape future research associated with DNA.

Another genre for this project was CORESSPONING LETTERS. In this genre, I wrote corresponding letters between Rosalind Franklin and John Randall. Rosalind Franklin is known for her work with x-ray diffraction associated with the DNA structure. She is one scientist whose work was not credited for. She was the one who actually discovered the structure of DNA but Crick and Watson published first and did not credit her for her work. To create these letters I had to research information about her. These letters allowed me to write creatively, but learn content at the same time. In my future class, I could see my students creating letters for a particular activity by doing research and then formulating their own ideas and insights into the letter, just like I did in this activity.

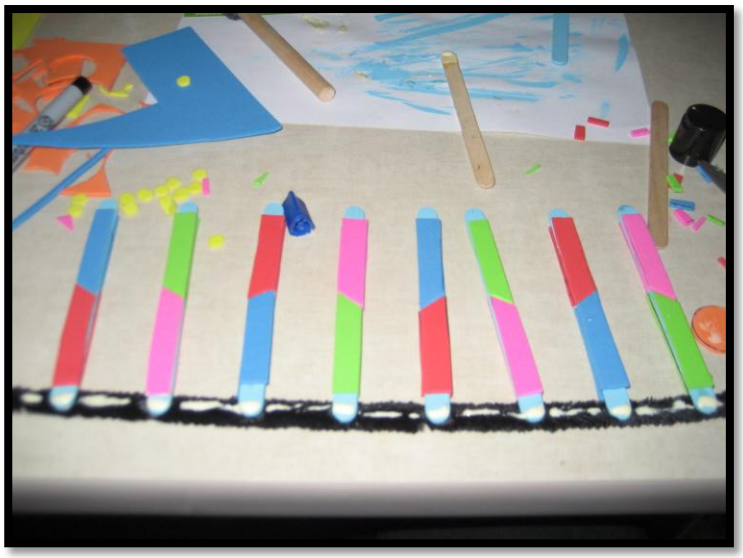
The fifth genre was a CALENDAR. I created a calendar illustrating the steps of DNA replication. I had to think about each step in replication and apply it to a different context yet still relay the

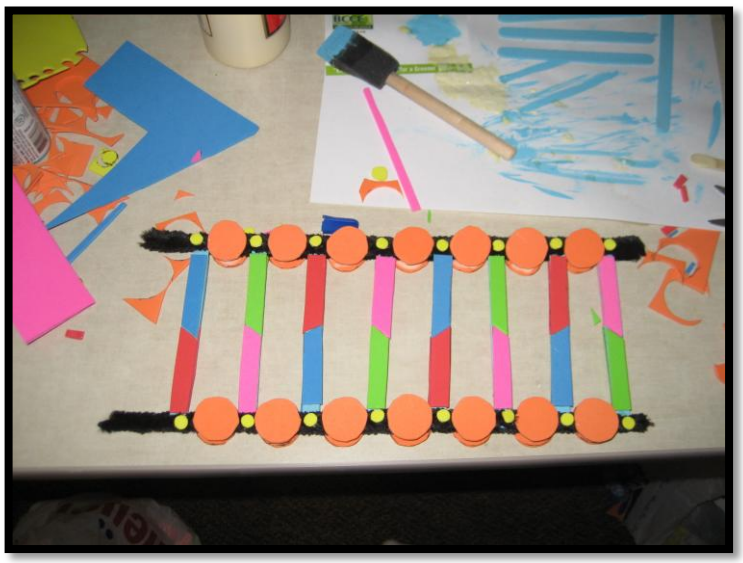
information. This was a really hard part of the project, but I feel that applying my knowledge about DNA replication through this calendar helped me to develop more connections related to DNA replication and thereby reinforcing the concept. I definitely think that my future students could do something like this for multi-genre project. If they were to take a topic and create a calendar around a particular idea related to the content, I believe it would help them develop their knowledge and understanding about the concept in greater detail.

The last genre I choose was a SIGN. I decided to develop a warning sign to illustrate a concept related to DNA. In DNA translation, there are stop codons that terminate translation. Thus, for this genre, I created a warning sign about the stop codons. This warning sign helped me to relearn the stop codons associated with the termination of translation. I think this genre of SIGNS could be applied to any concept and would be beneficial in the students showing what they know about a particular topic.

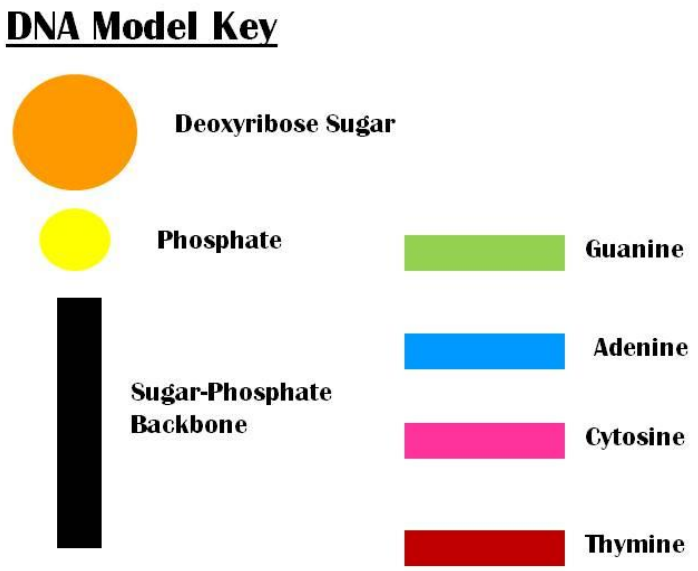
In creating these documents for my multi-genre project, I had to conduct research. This research was conducted by using the online resources and my biology textbooks. I relearned a lot through the development of my Multi-Genre Project. I learned about the structure of DNA, the history of DNA, and components of DNA replication and translation. When assigning a multi-genre project in my future classroom, I would advice my students to jump right in – choose a topic, brainstorm how you want to show you learned that topic, conduct any research you need, and then start creating the documents to support your learning.

Genre #1: DNA Model





Genre #1: DNA Model



Genre #2: DNA Base Pairs Bracelet

DNA Base Pair Bracelet Key

Guanine

Adenine

Cytosine

Thymine

Top Strand: 5’ TCAGTGATCGAGCATGTCACGTATGCAG 3’

Bottom Strand: 3’ AGTCACTAGCTCGTACAGTGCATACGTC 5’

Genre #3: DNA Discovery Newspaper Article

London Times Press

February 29, 1953

DNA Structure is a Double Helix!

Reporter and Author: Hailee Green

At 9:37am on February 28, 1953 in the Cavendish Laboratory at Cambridge University, Francis Crick and James Watson made an amazing discovery the world will never forget. These two great minds have spent hours, days, weeks, months and years trying to develop the structure of DNA. And now their hard work has finally paid off – for they have found the structure of DNA.

Crick and Watson propose that the structure of DNA is a double helix composed of nitrogenous bases, phosphates, and a sugar (deoxyribose). The nitrogenous bases are on the inside of the helix and the phosphates are on the outside of the helix. The sugar is perpendicular to the bases attached. Moreover these nitrogenous bases are purines (adenine and guanine) and pyrimidines (thymine and cytosine). A purine and a pyrimidine must pair together. Guanine always pairs with cytosine and adenine always pairs with thymine. These bases are a crucial component of the DNA structure. Watson and Crick's discovery disproves Pauling and Corey's theory of the structure of DNA, which was theorized as being composed of three intertwined chains. X-ray diffraction (Figure 1) yielded the evidence to Watson and Crick's discovery. By seeing that the DNA structure was helical Crick and Watson built a DNA model composing all the components of DNA (Figure 2). Their devotion to this project and new discovery of the DNA structure has caused the scientific community to explode. I, Hailee Green, author of the London Times Press propose that we will be seeing many more discoveries in the months to come as a result of this astonishing find.

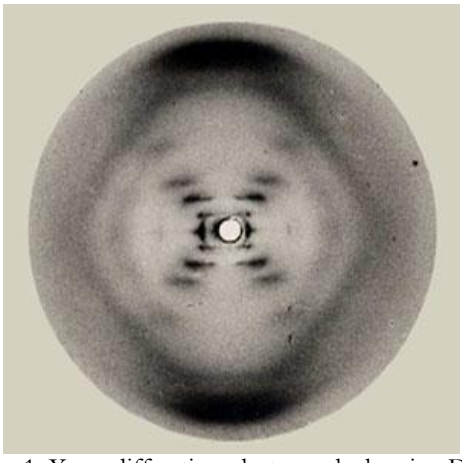


Figure 1. X-ray diffraction photograph showing DNA structure is double helix.

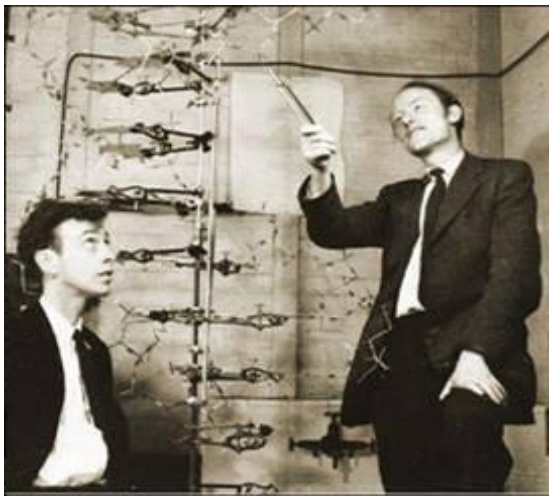


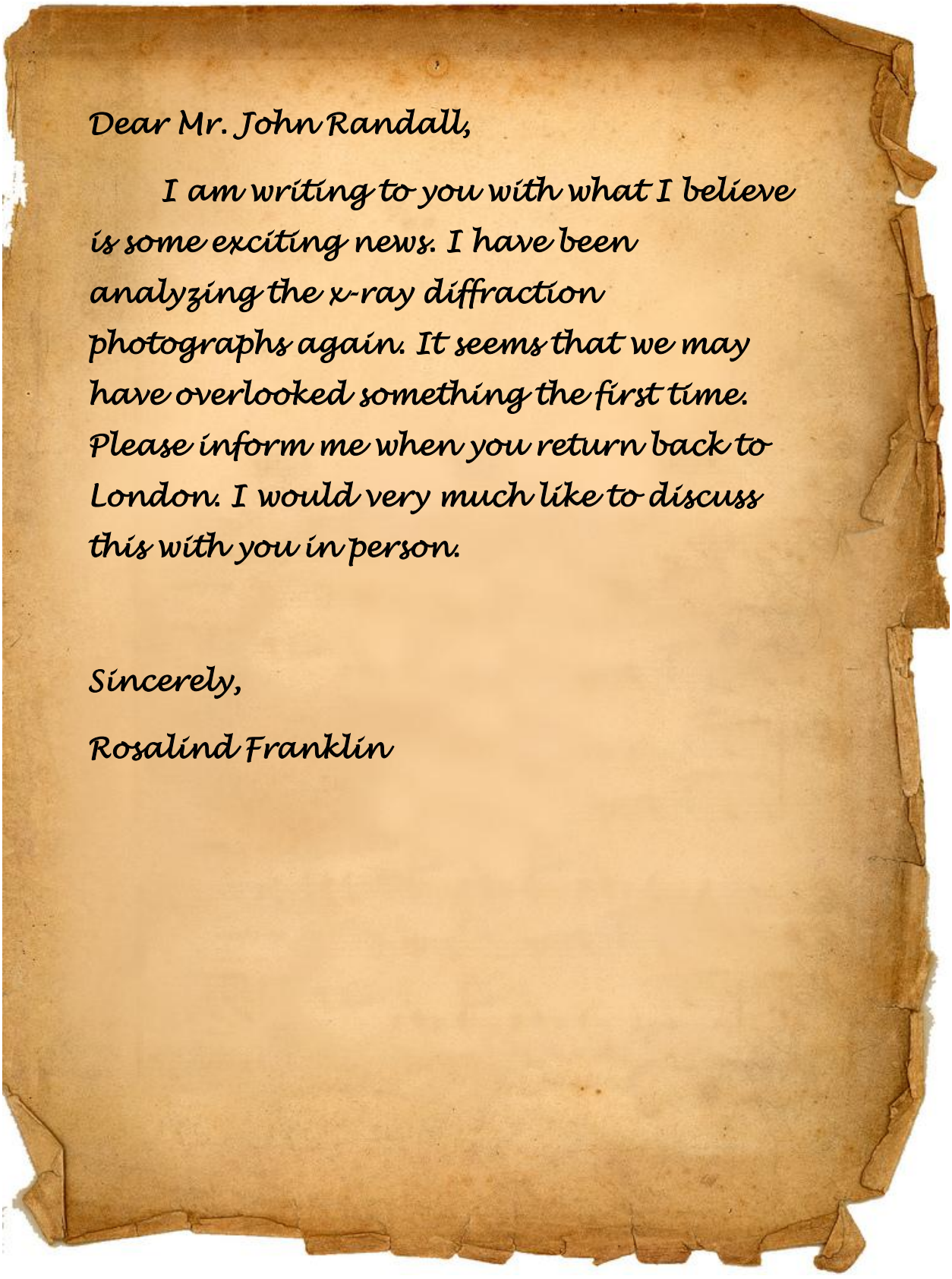
Figure 2. James Watson (left) and Francis Crick (right) with their DNA model at the Cavendish Laboratories in 1953.

But beware; there is rumor that Rosalind Franklin at King's College was the first person who truly discovered the DNA structure. Word on the street says one of her colleges stole her work and gave it to Francis Crick and James Watson. I tried to set up an interview with Ms. Franklin but she was unavailable.

Keep your ears and eyes open! Until next time,

- Hailee Green, Reporter: London Times Press

Genre #4: Rosalind Franklin Corresponding Letters



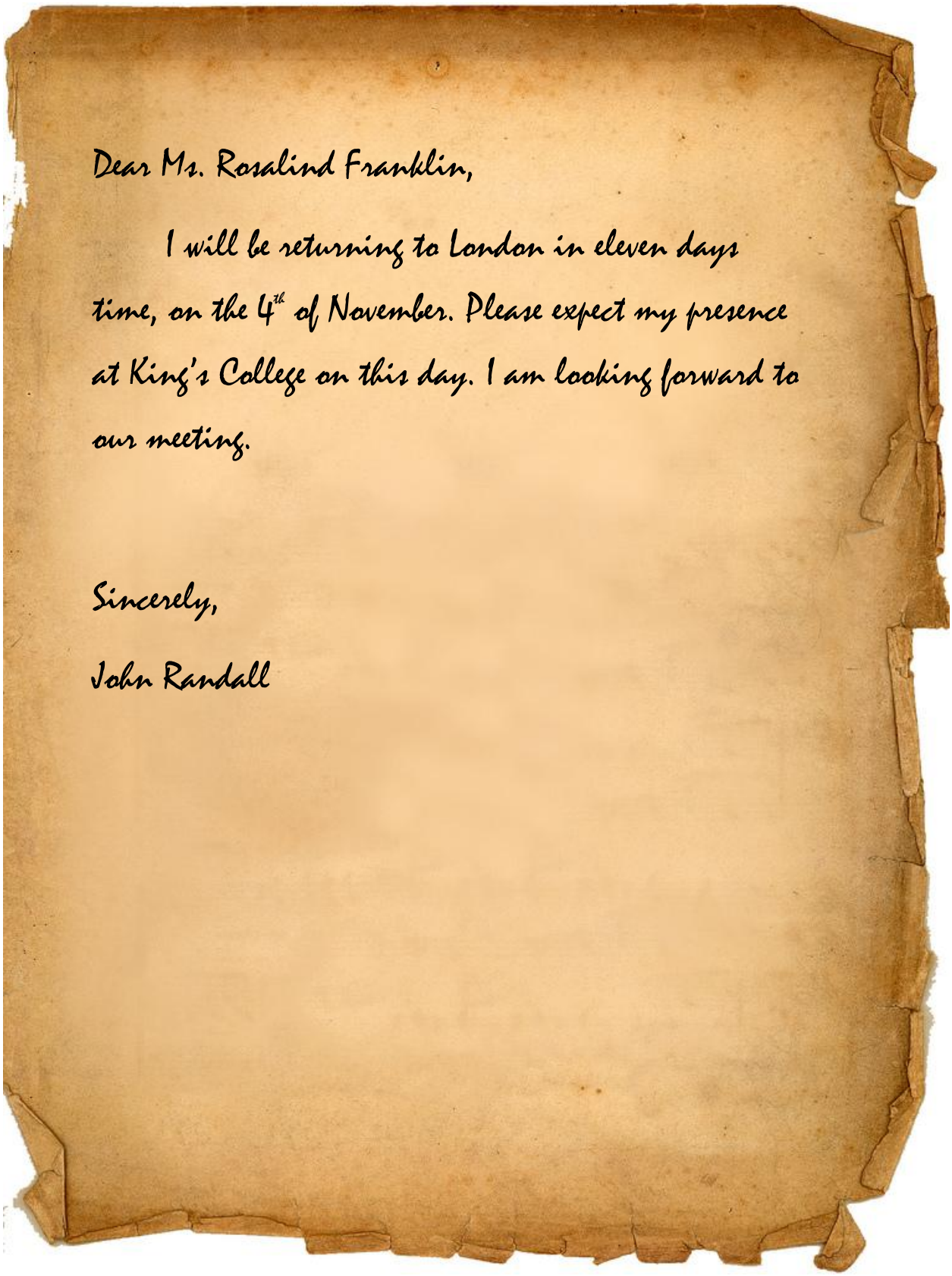
Dear Mr. John Randall,

I am writing to you with what I believe is some exciting news. I have been analyzing the x-ray diffraction photographs again. It seems that we may have overlooked something the first time. Please inform me when you return back to London. I would very much like to discuss this with you in person.

Sincerely,

Rosalind Franklin

Genre #4: Rosalind Franklin Corresponding Letters



Dear Ms. Rosalind Franklin,

I will be returning to London in eleven days time, on the 4th of November. Please expect my presence at King's College on this day. I am looking forward to our meeting.

Sincerely,

John Randall

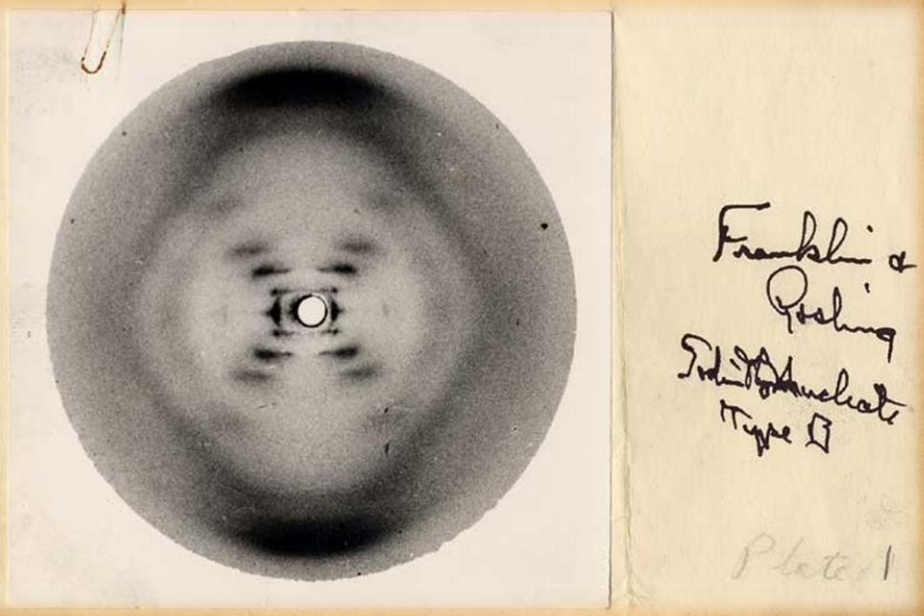
Genre #4: Rosalind Franklin Corresponding Letters

Dear Mr. John Randall,

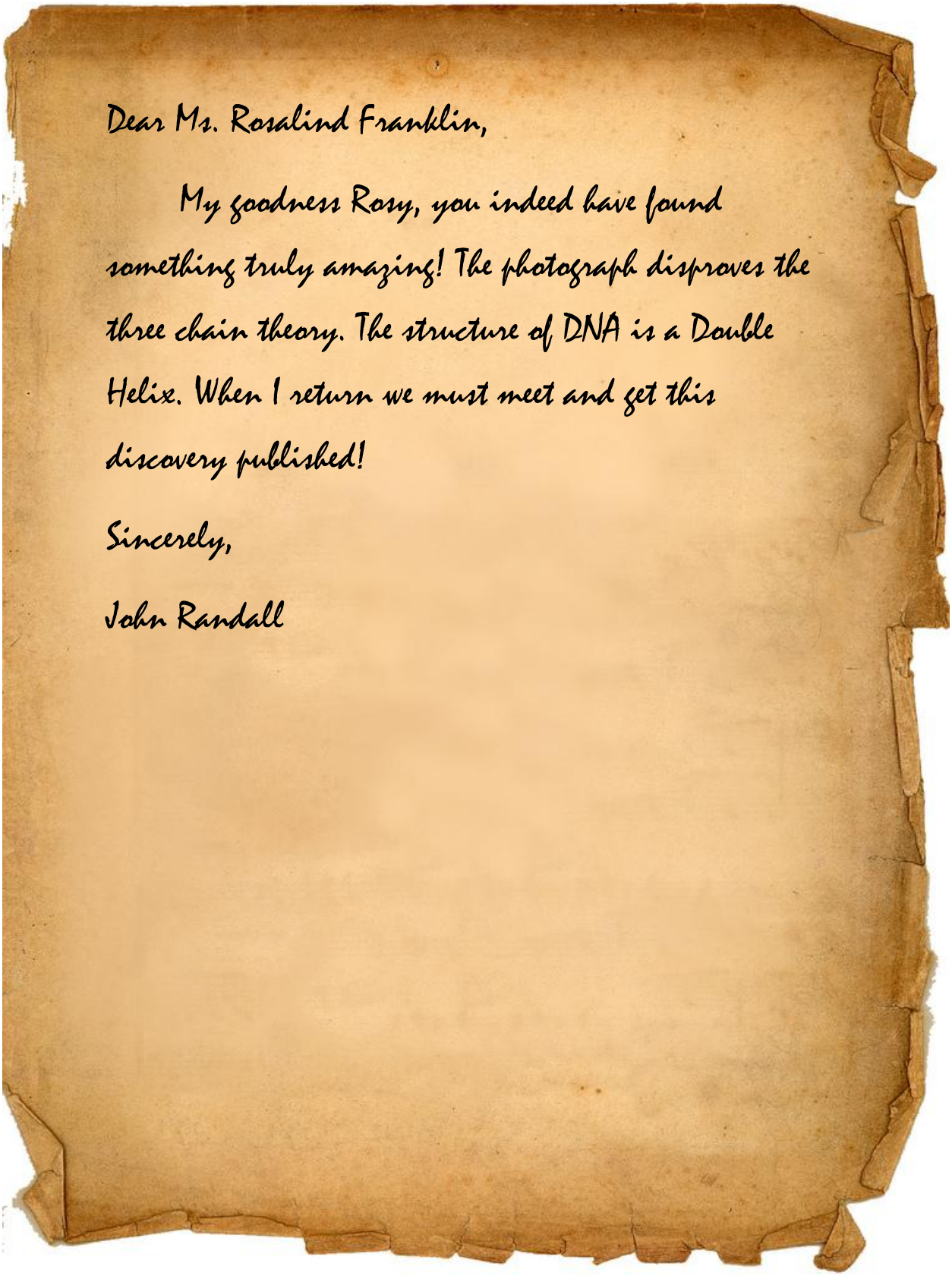
Thank you for responding to my letter. I have continued to analyze the X-ray diffraction photographs in your absence. It appears that there is indeed a double helix structure. I have enclosed an x-ray diffraction photograph, which I hope to discuss upon your return to London.

Sincerely,

Rosalind Franklin



Genre #4: Rosalind Franklin Corresponding Letters



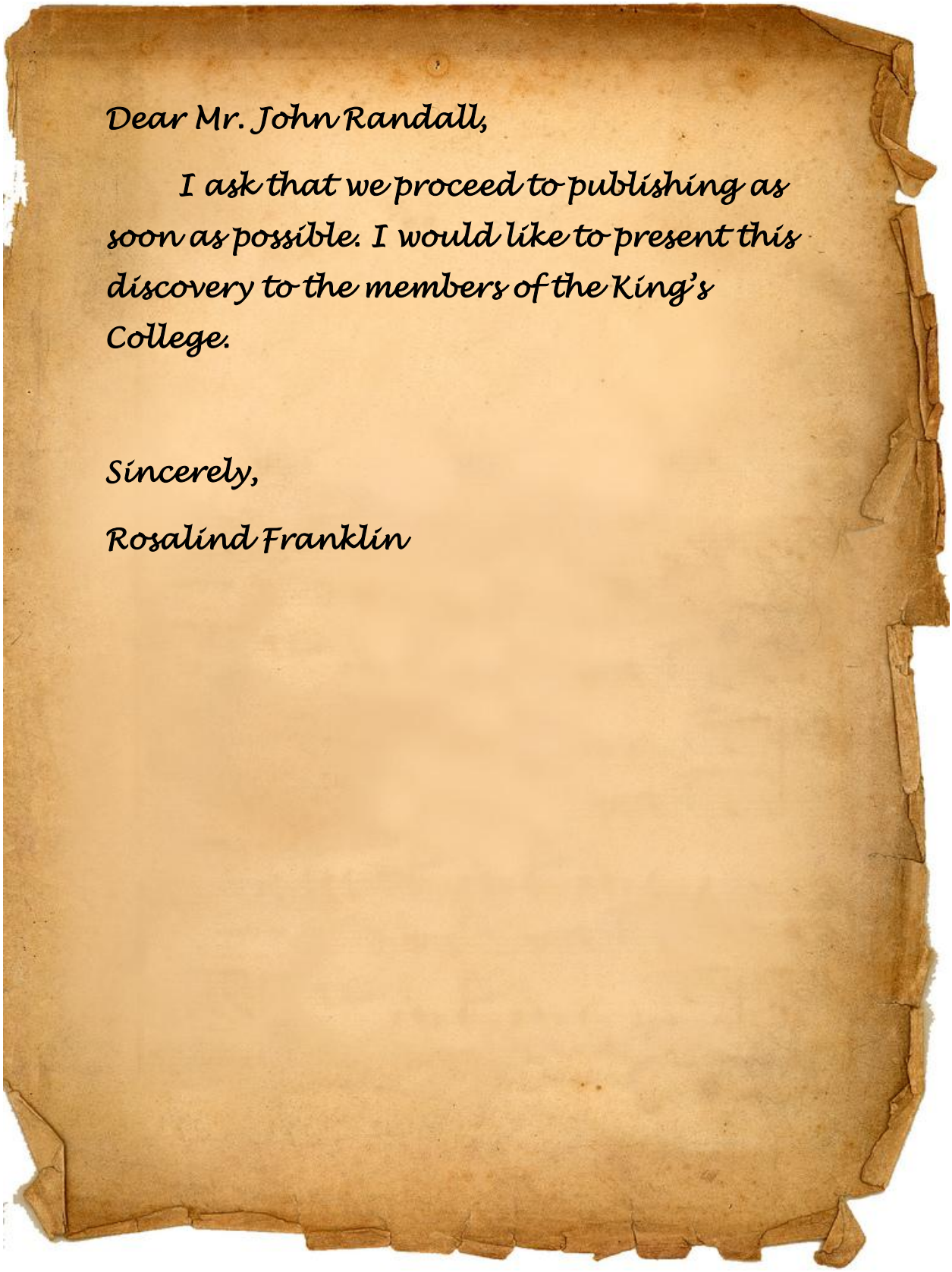
Dear Ms. Rosalind Franklin,

My goodness Rosy, you indeed have found something truly amazing! The photograph disproves the three chain theory. The structure of DNA is a Double Helix. When I return we must meet and get this discovery published!

Sincerely,

John Randall

Genre #4: Rosalind Franklin Corresponding Letters



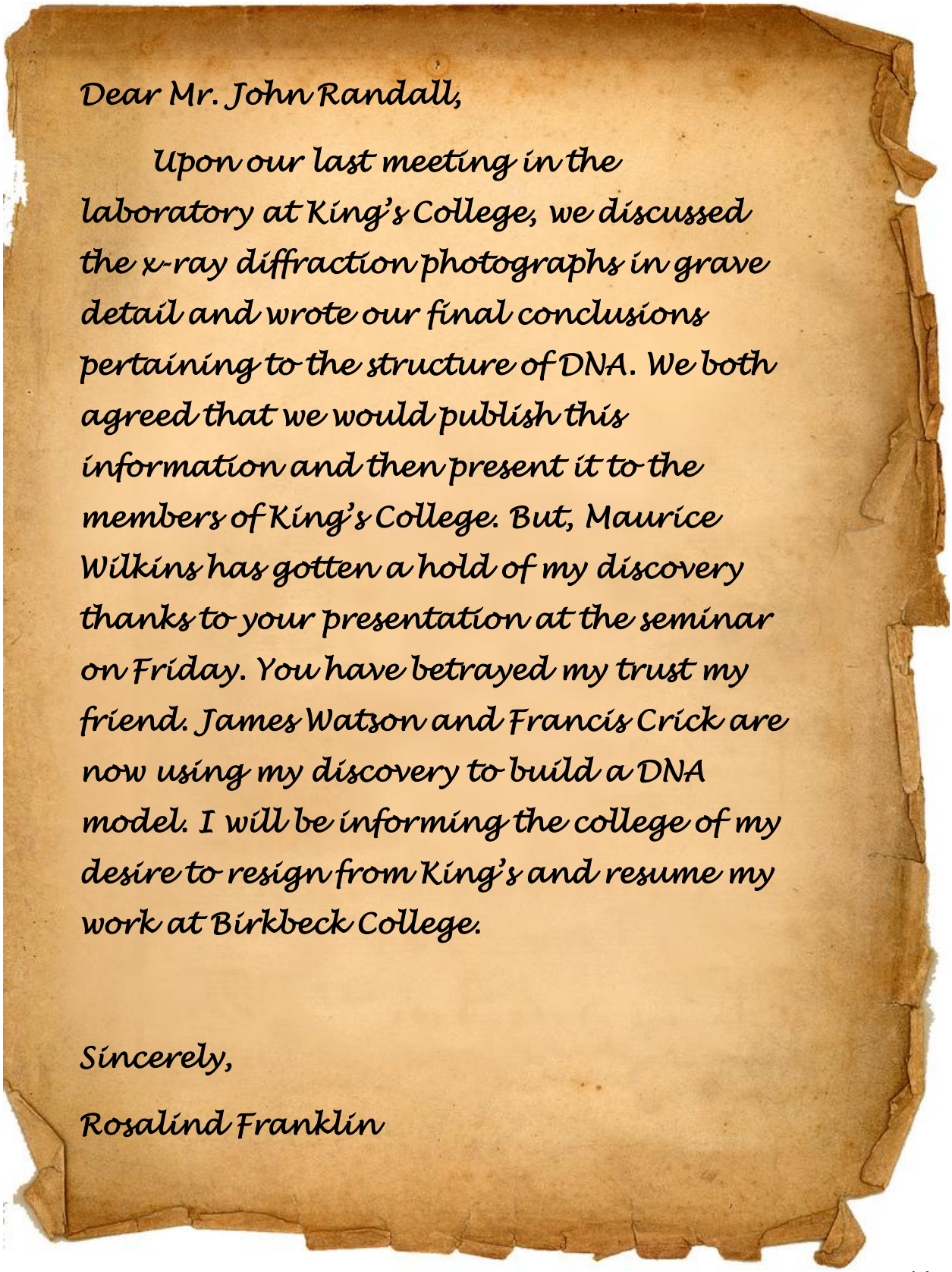
Dear Mr. John Randall,

I ask that we proceed to publishing as soon as possible. I would like to present this discovery to the members of the King's College.

Sincerely,

Rosalind Franklin

Genre #4: Rosalind Franklin Corresponding Letters



Dear Mr. John Randall,

Upon our last meeting in the laboratory at King's College, we discussed the x-ray diffraction photographs in grave detail and wrote our final conclusions pertaining to the structure of DNA. We both agreed that we would publish this information and then present it to the members of King's College. But, Maurice Wilkins has gotten a hold of my discovery thanks to your presentation at the seminar on Friday. You have betrayed my trust my friend. James Watson and Francis Crick are now using my discovery to build a DNA model. I will be informing the college of my desire to resign from King's and resume my work at Birkbeck College.

Sincerely,

Rosalind Franklin

Genre #5: DNA Replication Calendar

DNA Replication Calendar						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Separate DNA Strands Today! Call Helicase @ 1-800-DNA-5555  SEND EMAILL to Single Strand Binding Proteins (SSB) to confirm their appointment at site of DNA strands.	Pay Helicase for unwinding the DNA to create two replication forks.  Pay SSB for preventing DNA strands from reannealing.	 **Text Primase ASAP!!!!** **Ask Primase to make RNA Primer**	Call to confirm that RNA Primer was synthesized from original DNA template. 	 DATE NIGHT! Meet RNA Primer & DNA polymerase @ Leading & Lagging Strand Restaurant.	Fly with DNA Polymerase nonstop on Leading Strand Airlines.  Confirm connection flights with DNA Polymerase on Lagging Airlines.	*Go to store and pick up DNA Ligase* 

Genre #5: DNA Replication Calendar

DNA Replication Calendar						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
Repair House! ***Use Ligase to connect newly synthesized DNA fragments.*** 	 Write Thank you letter to DNA polymerase for synthesizing new strands of DNA.	PARTY!!!  DNA Replication Complete! YAY!		**VACATION!**		

Genre #6: Translation Stop Codon Warning Sign