

CELLS & SYSTEMS

Living Machines

The Foundations of Science

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Living Machines

WORKBOOK

TAN Books
Gastonia, North Carolina

Cells & Systems: Living Machines Workbook © 2022 TAN Books

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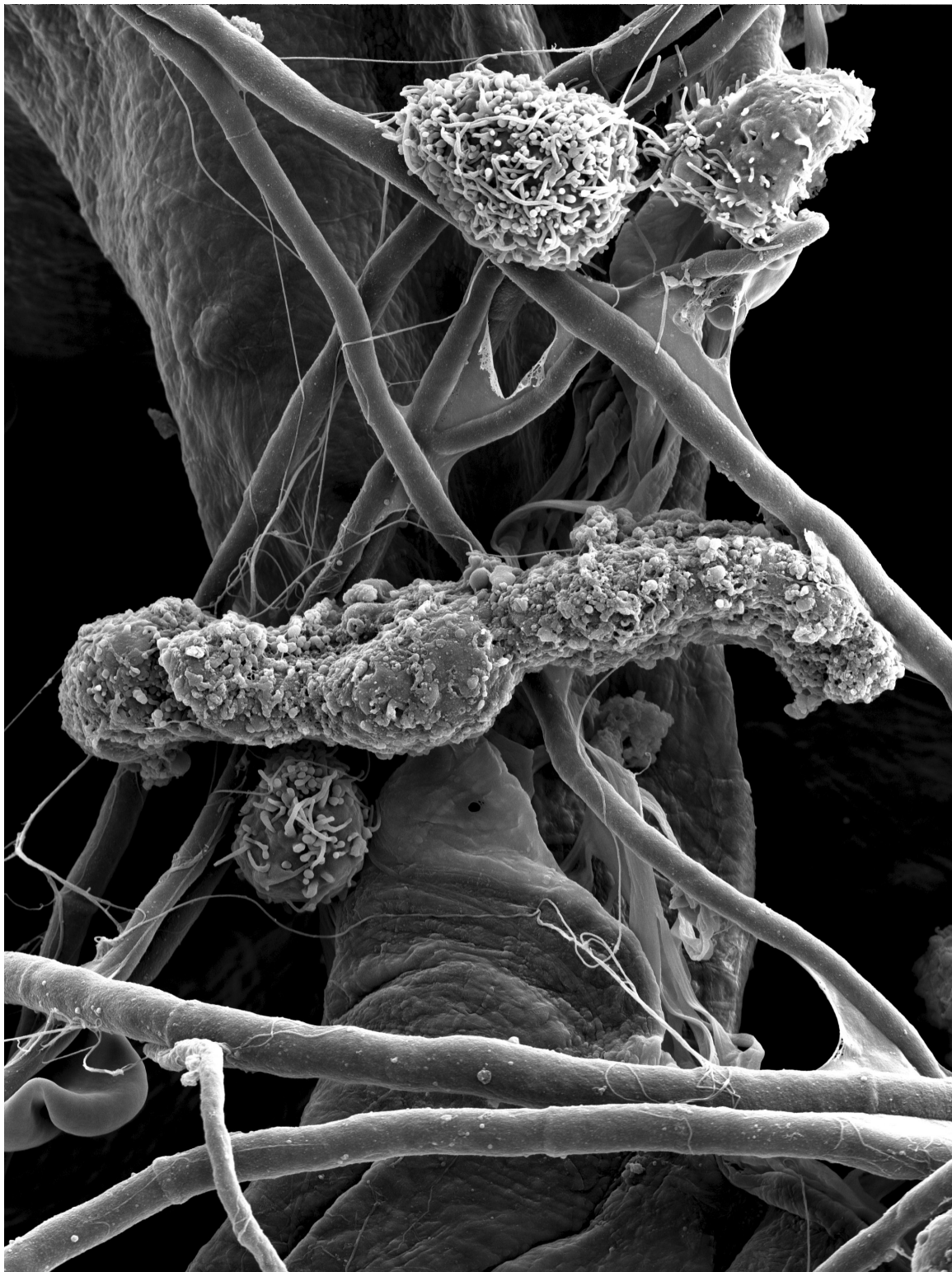
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***“Where were you when
I laid the foundation
of the earth?”***

–Job 38:4



Scanning electron microscopy of human connective tissue with erythrocytes, blood vessel, collagen fibres and single cells.

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A NOTE TO PARENTS

Thank you for using *The Foundations of Science* series to educate your child about God's wonder-filled world of science! Before diving in, make sure to read these brief notes.

WORKBOOKS' PURPOSE

The workbooks in *The Foundations of Science* series are meant to be companions to the texts, a simple tool you can use to ensure your child comprehends the material. But it's also supposed to be fun! The exercises should not feel like a test. Consider letting them use the text as they answer questions since we just want them to understand the main concepts and remember some of the things they have learned. (We are not trying to stump them!) Younger students especially may need a little "hand-holding" to get some of the answers, but that's okay and is even encouraged.

TARGET AGE

The workbook is perfect for middle elementary-aged students, but children as young as first grade or as old as fifth can engage with it. There are enough activities that not every one should be done, and the age of the child can be used to determine which are completed. For example, coloring pages can be used for younger students, while older children may skip those; conversely, younger students may skip some of the personal reflection short answers, while the older ones may be expected to not only answer them but write good and complete sentences. Please cater the workbook to your family's needs.

TYPES OF ACTIVITIES

Most chapters will utilize both a substantive activity (Matching, True/False, Short Answer, etc.), along with something fun, such as a puzzle, word search, coloring page, or arts and crafts. There are also some personal reflection exercises, and most chapters include a question or activity that ties what they studied in that chapter back to the Catholic faith.

MY SCIENCE JOURNAL

Every chapter begins with a “My Science Journal” spread. Here the students are encouraged to take notes as they read the text, write down questions they have, and list the most interesting thing they learned in that chapter, or what they enjoyed the most. They can also log things they saw in nature that week (and it does *not* have to be things that relate to that week’s content). This is highly recommended to complete, as it not only helps them comprehend the content better but allows parents to assign a writing exercise as well.

ANSWER KEY

While many of the exercises are subjective and answers will vary, there are also plenty of objective answer exercises that will require grading. An answer key is provided in the back of the book for your use and convenience. If you like, have a conversation about honesty and integrity with your child as you teach them to not peek in the back.

KEY TERMS AND AMAZING FACTS ABOUT CELLS & SYSTEMS

The Key Terms and Amazing Facts About Cells & Systems included in the text are included here as well. Consider making flash cards for the terms to test your student’s knowledge and retention, and let your child sit and relax as they read the facts; seeing them all at once, rather than buried in the text, may help them remember all the fun things they have learned.

WE ARE HERE TO HELP!

We hope we have provided you with everything you need, but if not, don’t hesitate to reach out to your friends at TAN Books with any questions you might have.

Fig: I.

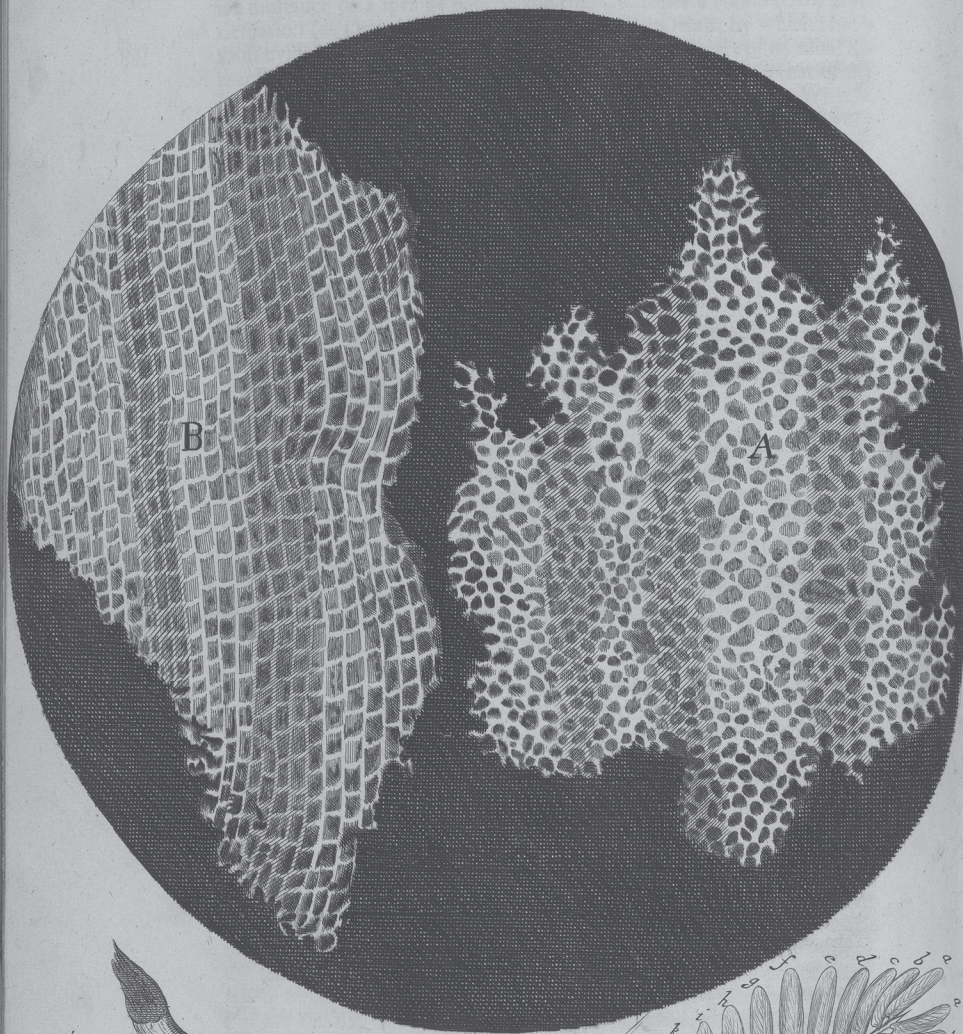
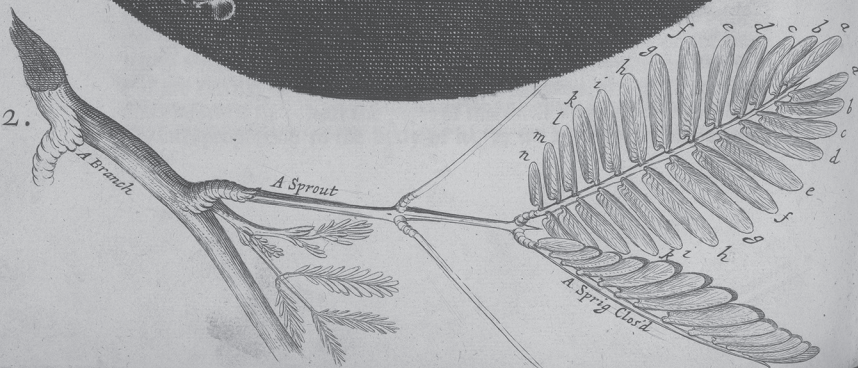


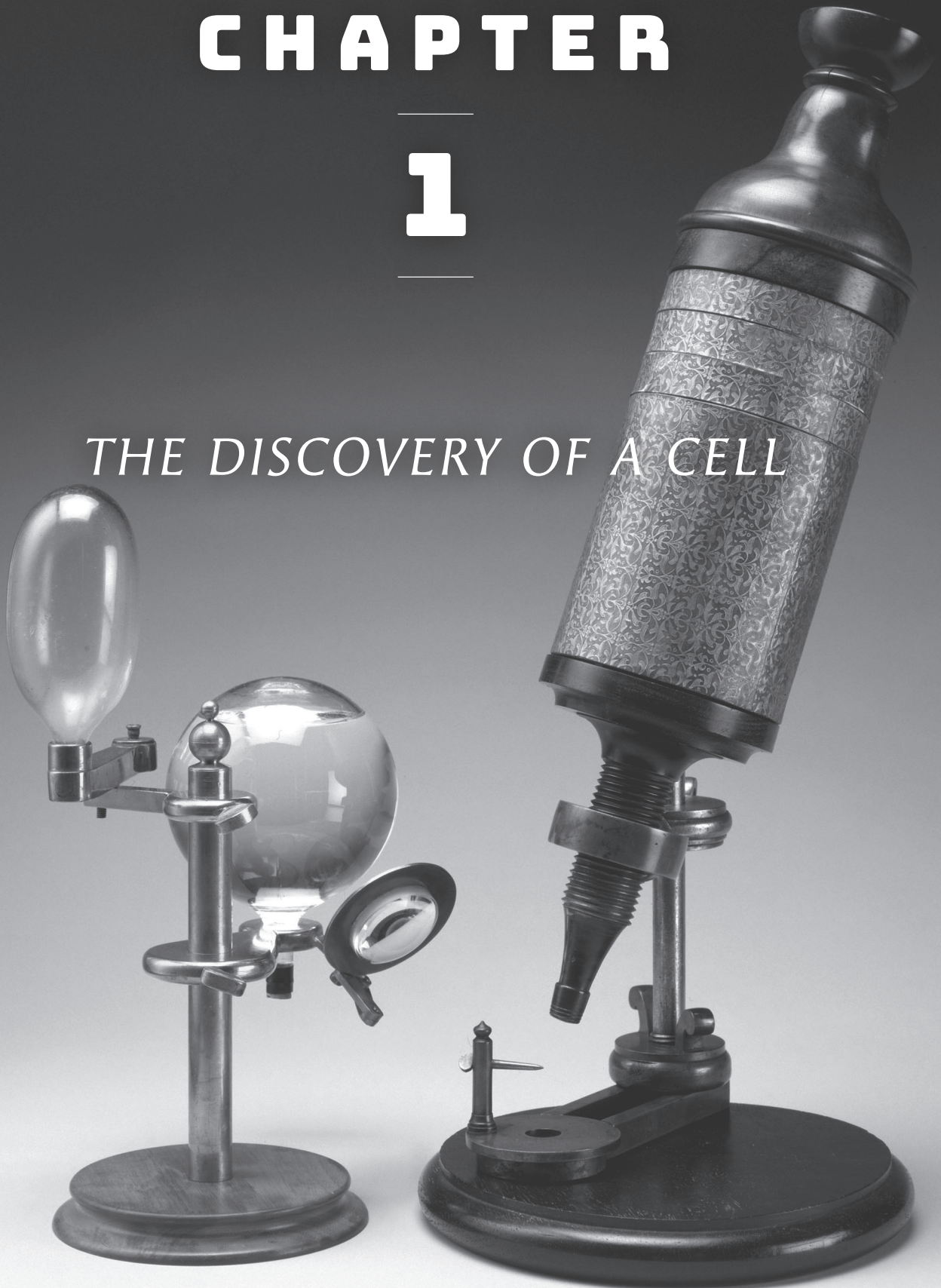
Fig: 2.



CHAPTER

1

THE DISCOVERY OF A CELL



MY SCIENCE JOURNAL

NOTES:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MY FAVORITE PART OF THIS CHAPTER WAS:

ONE NEW THING I LEARNED WAS:

SOME QUESTIONS I WANT TO ASK ABOUT THIS CHAPTER ARE:

ONE INTERESTING THING I SAW IN NATURE THIS WEEK WAS:

SHORT ANSWER

Answer the questions about microscopes.

1. What is the purpose of a microscope?
2. In your own words, explain how a microscope works.
3. Why is it called a *compound* microscope?
4. What type of lens does a compound light microscope use?

CELL STRUCTURE

Draw a line from each term to its definition.

Cell Membrane

A gel-like liquid inside the cell that contains organelles

DNA
(Deoxyribonucleic acid)

Genetic material that contains the “instructions” that tell the cell what organelles to build and how to carry out its job

Cytoplasm

The outer “skin” of a cell; controls what moves in and out of it

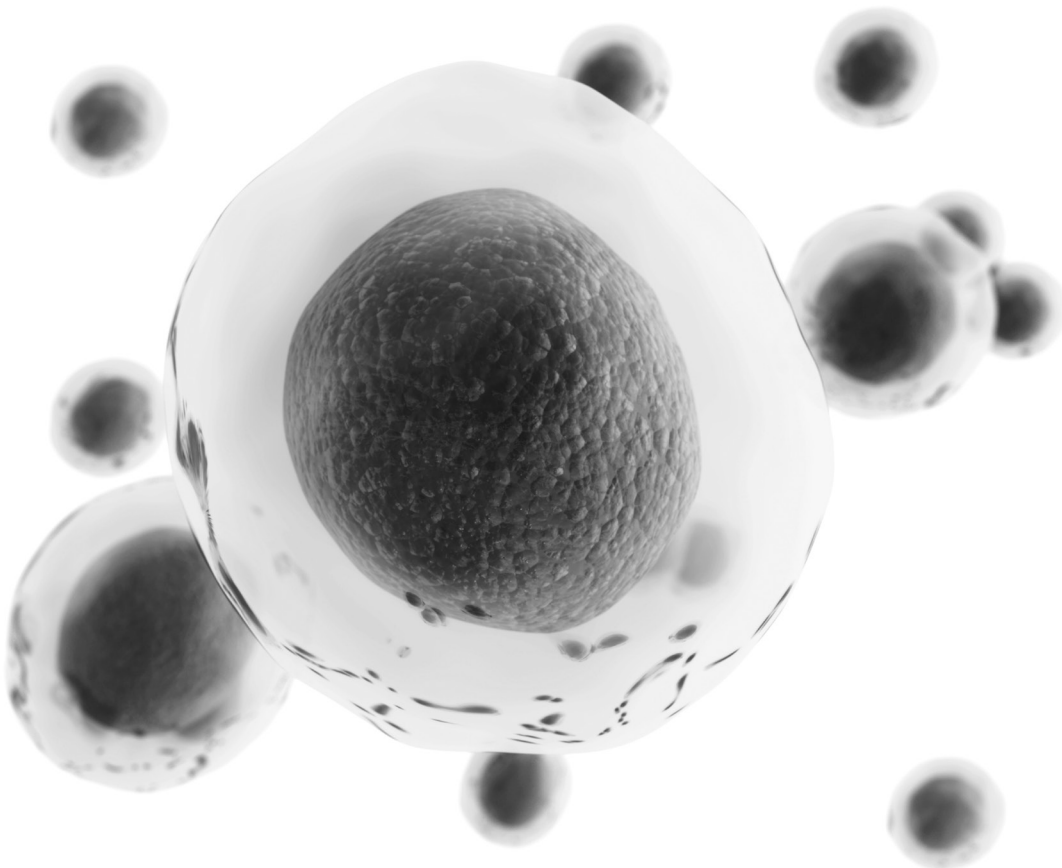
CELL THEORY

What are the three principles of the Cell Theory?

1.

2.

3.



FAITH AND SCIENCE

In the space provided, or in a conversation with your parents, explain what we mean when we say the Church is the Body of Christ? How are we a part of this Body? How are we like little cells?

