



MILADY'S

HAIR STRUCTURE AND CHEMISTRY SIMPLIFIED



REVISED EDITION

DOUGLAS D. SCHOON

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For information, address Delmar Publishers Inc.
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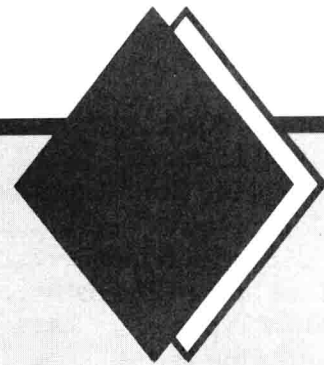
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MILADY'S HAIR STRUCTURE AND CHEMISTRY SIMPLIFIED

DEDICATION

*For
Judy and Tinker*



Preface

The routine performance of hair work in the salon or shop may quickly take on the aspects of the mechanic performing his work.

The professional artisan, on the other hand, acquires a complete knowledge and understanding of not only why certain techniques are performed but also what chemical actions and reactions may be expected from the cosmetic products employed. This knowledge and understanding is what differentiates the true "professional" and the "basic mechanic."

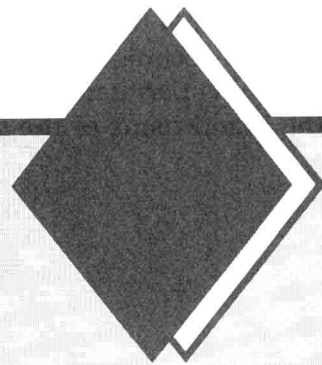
In recent years there have been a number of significant changes in "hair care" methods and techniques. Many new cosmetic products have been developed for professional use that require careful handling and controlled application.

It has, therefore, become important that the "professional artisan" acquire a good basic understanding of the chemistry of the skin, the hair, and the products employed in their care. It is vital that persons engaged in performing professional grooming services develop an understanding of the proper "use" of cosmetic products instead of their "misuse."

This text is designed to make professional hair and skin services readily understandable through a clear presentation of the relative facts pertaining to the chemistry and structure of hair and skin. It is offered in an attempt to ensure the safe and effective use of all professional products.

While the techniques of performance may differ greatly in terms of cosmetic brand, the chemical principles which apply are exactly

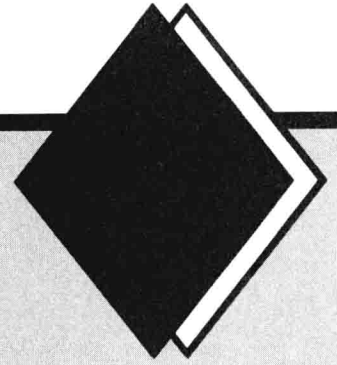
the same. This text was not designed to, nor does it intend to, discuss the techniques of application. Therefore, all scientific data presented is pertinent for all students and all schools regardless of the brand name of the supplies used in training.



About the Author

Douglas Schoon obtained his Master's Degree in chemistry from the University of California-Irvine. He has more than twenty years of experience as a chemical researcher, lecturer, and educator. He is the president and founder of the Chemical Awareness Training Service, based in Newport Beach, California. Mr. Schoon has authored dozens of articles and lectured nationwide on the important topic of salon chemical safety.

As research consultant for leading manufacturers, Mr. Schoon has developed many successful professional products for the beauty industry. He also serves as an expert witness in legal cases helping attorneys, judges, and juries to understand the chemical complexities of professional and retail beauty industry products.



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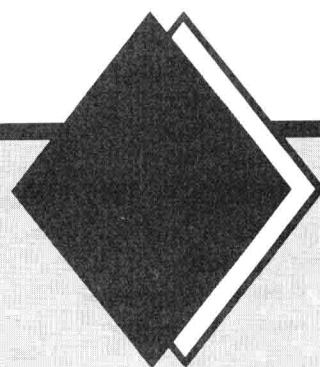
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Ohio State, OH

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1

Science and Cosmetology

Learning Objectives

After completing this chapter, you should be able to:

- 1. Understand what science is and is not.*
- 2. Use the three basic steps of the scientific system to improve learning.*
- 3. Explain the "cause" and "effect" relationship and its importance.*
- 4. Understand the difference between safe and dangerous experimentation.*
- 5. Distinguish between scientific breakthroughs and marketing sales tools.*
- 6. Find other sources of information and continuing education.*



WHAT IS SCIENCE?

What images come to mind when you think about science? Perhaps you see a bug-eyed, old man with thick glasses, twisting mysterious-looking knobs. All around him are test tubes, filled with glowing liquids that bubble and smoke.

This is a common misconception of scientists and their work. These horror movie scientists have little to do with real-life science. Obviously, the motion picture industry does not paint a very positive picture of scientists or their work.

Unfortunately, the media have made science and technology seem hopelessly confusing. Most people believe that science is much too complex to ever understand, but is it really all that complicated? What is science, anyway? Simply stated, **science** is the systematic study of our universe.

Our ancestors were curious about their surroundings. They sought explanations for everything. They wondered about the rain and wind, even the origin of life. The answers to these questions were beyond their limited understanding. In their minds, the stars were camp fires of dead hunters. Lightning was fiery spears, hurled from above by unseen hands. Their primitive way of explaining these mysteries was to invent mythology. Still, that was not enough.

These early people were helpless against nature and the angry gods they invented. They also felt an urge to control their surroundings. Hoping to gain power and authority over their lives, they invented magic. For thousands of years people lived in this imaginary world of myth and magic.

The study of science brought this age of ignorance to an end. People became dissatisfied with the many bizarre myths and wanted to learn the truth. Scientists gave them those truths.

It was Albert Einstein who said, "The most beautiful thing we can experience is the mysterious. It is the true source of art and science." Science is the study of the unknown. It is a logical system which helps us to learn more about what we don't understand. This scientific system for learning is based on three basic steps:

1. Observation
2. Reasoning
3. Experimenting

These are familiar concepts to all of us. We use them every day. You use **observation** as you drive safely to school. **Reasoning** is very helpful in figuring out a monthly budget or which outfit to wear with your new shoes. **Experimenting** is a great way to find