Now, finally classical effects animation gets its day in the sun with Joseph Gilland’s fascinating new book. It’s a revelation of the amazing blend of the art and craft behind the magic of this wonderful artform.

—Don Hahn, Academy Award-nominated Producer of Beauty and the Beast and The Lion King

Veteran Disney animator Joe Gilland’s informative book delivers, for the first time, the real nitty-gritty on the art of hand-drawn special effects. The mysteries of how to believably animate abstract forms representing rain, fire, smoke, etc. are revealed in articulate prose, revelatory graphs and elegantly beautiful sequential imagery. A must-have guide for animation pros, teachers and students!

—John Canemaker, Academy Award-winning animator, internationally-renowned animation historian and teacher.

Joseph Gilland will excite any artist with the prospect of animating a water splash. And that is just for starters. Elemental Magic is an essential reference not only for special effects artists, but for character animators. An excellent performance sparkles all the more when the special effects are right. Animated applause for Joseph Gilland and his wonderful book, Elemental Magic.

—Ed Hooks, author, Acting for Animators
Elemental Magic
Elemental Magic
The Art of Special Effects Animation

Joseph Gilland

With a Foreword by Michel Gagne
Dedicated to my parents, Frank and Tommy
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Foreword

I was the luckiest man alive when I landed the job of my dreams and started working for Don Bluth as a character animator in 1986. Somehow though, right from the start, I felt miscast. I watched my finished work move on to the effects department, where all the cool stuff was being added: fire, water, mud, lava … you name it! So, after three difficult years in character animation, I asked to be transferred to the effects department. By far, one of the best decisions I have ever made!

Effects animation was like my newfound freedom. While staying within the stylistic boundaries of the movie, I could design my drawings without having to stick to the strict character model sheets. I could stylize the timing and motion without having to adhere to the confines of a dialogue track. I felt like a scientific magician, moving water molecules, creating lightning, and conjuring fiery whirlpools, all from the tip of my pencil.

I remember the first time I saw a scene animated by Joe Gilland. I was watching a pencil test of a duck splashing around in a pond. I was mesmerized by the intricacy of the water animation and the attention to every detail.
My first exposure to Joe’s work left an indelible impression on me. Through the years, while I’ve drifted onto other mediums, Joe has remained dedicated to the craft of effects animation, creating wonderful work for many feature films and teaching new generations of creative professionals.

Many animators and students have asked me to write a volume such as the one you now hold. Although I saw the necessity for such a project, I never felt the calling to create it. I love doing effects animation, but I have never really tried to understand it beyond what comes to me instinctively. Joe, on the other hand, is a true scholar on the subject. When he told me of his intention to write this book, I breathed a sigh of relief and felt great enthusiasm for Joe. I knew the subject matter was in the most capable hands.

As I’ve said, I truly love the art of effects animation. To me, it is poetry in motion, inspired by the most primal forces in creation. I hope that the wealth of knowledge and gorgeous artwork contained within these pages will ignite the same passion in the hearts of young animators, and will encourage a whole new generation to carry on the swirling, smoking and sparkling torch of classical effects animation.

Michel Gagne  July 2008
Preface

In the spring of 2004, at the Annecy International Animation Festival in France, a dear friend and I had a conversation about animation books. Interesting, we noted, that there is not a single book dedicated to classical hand-drawn special effects animation, even though it is an enormously important aspect of the animation business, and a very specialized and specific art form in its own right. While there is a proliferation of books dealing with various kinds of visual effects work, most of these are focused purely on the kinds of polished photorealistic visual effects that we are used to seeing in Hollywood action and science fiction films, using optical live-action film techniques, and more recently, computer-generated techniques.

Yet the fine art of animating special effects—like water, fire, smoke, pixie dust, and every imaginable kind of magic—by hand with a pencil and paper, has never really been documented thoroughly (much less broken down and analyzed, explained and discussed in depth). On that fateful day, in the picturesque alpine village of Annecy, my dear friend uttered the words, “YOU should write that book Joseph!” After that, I realized that I really didn’t have any choice: This book simply had to happen.
So here I sit, late at night, staring into my laptop and pondering the infinite world of hand-drawn animated special effects, and the almost thirty years of my life that I have devoted to animating them. What kind of book should this be? A handbook? A textbook? A “how to” book? A pretty coffee table book? A historical document? Maybe it will be a bit of each of those things. I’ll leave that for you to decide.

First and foremost, I hope this will be a book which pays homage to the men and women who have created special effects for animated films spanning the last 70 years. Most of them have worked thanklessly in the trenches, often in complete artistic obscurity, fueled only by their intense dedication to their craft. Considering the insane pencil mileage and the technical difficulties required by such work, one must have true passion to draw effects.
Keep in mind, too, that this has never been a path to great recognition or filthy lucre. For all of the countless animated films that we have all watched over the past seven decades, there is a universe of gorgeous artwork that is largely unknown to the average viewer. It is my goal to honor both the artisans and the craft with this book, to bring to the fore what has often been treated as a secondary, less vital part of the animation process.

Regardless of your interest, whether you are a student of 2D or 3D animation or a casual moviegoer, I hope you will find this volume informative, entertaining, and somehow imbued with the magic that initially drew me into this mysterious world. Since September of 2003, I have been involved in teaching animation to both classical animation students and CGI animation students for the first time in my long animation career. Students often bring their special effects questions to me,
and I frequently will make a series of thumbnail sketches to best explain a particular technique or idea. I have accumulated an interesting collection of research material and lecture notes through the years, and I often make copies of these for the students, but again and again it becomes apparent that a special effects handbook would be an extremely valuable companion to other animation books such as “The Illusion of Life” and the “The Animation Survival Kit.” For my students, and anyone out there starting a career in animation, I hope that this book will delight you and inspire you to keep on drawing, and pushing the effects envelope. For those of you moving into the wonderful world of 3D visual effects, I hope this book will pique your interest and get you to try drawing these effects, and help you understand them more deeply, before using the fantastic digital tools that you have at your disposal.
An enormous aspect of learning to be an effects animator has to do with learning how to see, how to observe and soak in the phenomenon of pure energy and life all around us. As with “art” in general, and every form of it—be it acting, or writing, or dance, or painting or sculpting—we need to learn to be observers of life, to be the antennae of society, the first ones out there, inquisitive, probing, observing, questioning, examining and interpreting life.

It is that inquisitive spirit that the best teachers are able to imbue in their students. When we are successful as art teachers, our students are infected for life, and incapable of ever seeing this world as anything but magical, mysterious and infinite. The dedicated effects artist will never know boredom. One never needs to stop learning on this journey.
If I can somehow express that spirit of discovery and life itself here in this book, I will have succeeded far beyond my wildest dreams. It certainly has been a continuing magical journey for me, even after 30 years of animating special effects, there remains an infinity of new things to see, to draw, and to bring to life. Not to say that life is without its hardships and low points, of course. Life is certainly always a handful. But the spirit of creative discovery keeps me feeling vibrant and alive, excited, and ultimately very pleased to be writing this preface to this long overdue effects animation book.
I will bring a lot of this accumulated information to bear on this book, and I want to thank everyone I have ever worked with for adding to this wealth of information so that I may share it in this book. I cannot thank you all here, there are too many of you, and I can never thank you enough. But if you’ve worked with me in the past, you know who you are, and I thank you all. It has been an honor working with you.

And to those students who have asked me the hardest questions, thank you for helping to keep the spirit of discovery alive for me, and for generations of students to come. You are infected with the effects animation bug now. There is no turning back!
It is important as well, for me to note here, what this book is not. It will touch on some of the history of special effects animation, but it is not a history book. I will touch on some of the technical aspects of special effects, but this is not a book about the “camera trick” aspects of special effects animation, or the deep technical side of special effects animation, the putting together of all the artwork, the compositing, the art direction, the picking and choosing of exposures, densities, or colors. Volumes could and should be written about all of these fascinating topics, but I want to keep this one straightforward and to the point. How to draw and understand special effects animation.
Acknowledgments

It has been a long journey to finally get this book out of my system and out into the world, and there are countless people to whom I would like to express my gratitude for helping me along the way. Not only those who actually helped me complete the book, but the many who helped me earlier on in my animation career, and my life, long before this book was even an idea in the back of my head. Surely I will leave someone out who deserves mention here, but it means a lot to me, so I will do my best! For inspiration in the earlier stages of my animation journey, I would like to thank Keith Ingham, Paul Curassi, Ishu Patel, David Tidgwell, Anne Denman, Marv Newland, Barry Ward, Delna Besania, Roseann Tisserand, Dianne Landau, Darlene Hadrika, Jason Wolbert, Jennifer Claire Little, Victoria Goldner, Milt Grey, Tom Hush, Mauro Maressa, Pascal Blaise, Chris Sanders, Dean Deblois, Aaron Blaise, Chad Van de Keere, Thomas Haegle, Onni Pohl, Angela Steffen, all the Classical Animation students at VFS from classes 46 to 64, and many more. Extra special thanks to the late Ryan Larkin. And to my dear friend and kindred spirit, Mary Anne Shelton, who left this life far too soon, but left me with the greatest gift of all, you will live on always in everything that I do.
And then there are those who have contributed very much directly to this book, each in their own special way. First of all, to Rita Street, for imploring me to write this book in the first place. Thank you Rita, for seeing it inside me before I could! To Jazno Francoeur, for helping me so much with the writing along the way, you know you should probably have coauthor credits, Jazno, and I really may not have ever done it without you! To Ed Hooks, for his words of encouragement and his indomitable spirit. John Canemaker for his generous guidance. Phil Roberts, and Rick Doyle, for their inspiring artwork, photos, and encouraging words along the way. To Myriam Casper, for opening my eyes to so much, and sharing her life, her vision and her incredible photography with me. To Jim and Claire for helping me to initially get a handle on Adobe InDesign, and Peter Bromley for helping me get started with the bizarre anomaly of Quark. Special huge thanks to Michel Gagne and his wonderful wife Nancy, for believing in me and getting me started, and continuing to help all the way through to the end. To Carole McClendon at Waterfront for her invaluable patience, guidance and experience. To Chris Simpson, Mónica Mendoza and everyone at Focal Press who believed in my book. And to Marilyn, I could not have made it here without you ...