

JAMIE A. DAVIES



life unfolding

how the human body creates itself

CONTENTS

Acknowledgements

Ethical Statement

A Note on References and Footnotes

Introduction

1 Confronting an Alien Technology

Part I First Sketch

2 From One Cell to Many

3 Making a Difference

4 Laying Down a Body Plan

5 Beginning a Brain

6 Long Division

Part II Adding Details

7 Fateful Conversations

8 Inner Journeys

9 Plumbing

10 Organizing Organs

11 Taking Up Arms (and Legs)

12 The Y and How

13 Wired

Part III Refinement

14 Dying to be Human

15 Making your Mind Up

16 A Sense of Proportion

17 Making Friends and Facing Enemies

18 Maintenance Mode

Part IV Perspectives

19 Perspectives

Glossary

Technical References

Further Reading

Sources of Quotations at Heads of Chapters

Index

A SENSE OF PROPORTION

You've got to do your own growing, no matter how tall your grandfather was.
Irish Proverb

Just beyond the end of a bridge over Venice's Grand Canal, in the exhibition galleries of that city's Academy of Art, lies one of the most iconic images of the Renaissance. Drawn in ink by Leonardo da Vinci, it depicts a male figure with his legs drawn both together and apart, and his arms drawn both outstretched horizontally and reaching slightly up to the level of the top of the head. Around the body are a circle centred on the navel and extending to the soles of the feet, and a square the height of the man (Figure 74).

The text that accompanies the drawing, written in the mirror script characteristic of Leonardo's secret notes, lists a number of facts about the relative sizes of the body parts. These include rules such as the span of the outstretched arms being equal to a man's height (a point made by the square in the drawing), the distance from hairline to chin being a tenth of a man's height, the distance from elbow to the tip of the hand being a quarter of a man's height, the length of a foot being a sixth of the man's height, the length of an ear being a third of the length of a face, and so on. There are thirteen rules in all. They are not original to Leonardo, but come rather from the Roman architect Vitruvius, who set out these rules in the first century BC. In his honour, Leonardo's illustration of these rules is usually called 'Vitruvian Man'. As the modern anatomical artist [Susan Dorothea White](#) has pointed out by her pastiche drawing *Sex change for Vitruvian Man*, essentially the same rules also apply to the bodies of women.