

CONTENTS

FOREWORD BY LEON R. KASS, M.D., CHAIRMAN	XIII
LETTER OF TRANSMITTAL TO THE PRESIDENT	XXV
MEMBERS OF THE PRESIDENT'S COUNCIL ON BIOETHICS	XXIX
COUNCIL STAFF AND CONSULTANTS	XXXIII
PREFACE	XXXV
EXECUTIVE SUMMARY	XXXIX
Human Cloning: What Is at Stake?	XL
The Inquiry: Our Point of Departure	XLI
Fair and Accurate Terminology	XLII
Scientific Background	XLIV
The Ethics of Cloning-to-Produce-Children	XLVII
The Ethics of Cloning-for-Biomedical-Research	L
A. The Moral Case for Cloning-for-Biomedical- Research	LI
B. The Moral Case against Cloning-for-Biomedical- Research	LIII
Public Policy Options	LVI
The Council's Policy Recommendations	LVII
<i>Majority Recommendation</i>	LVIII
<i>Minority Recommendation</i>	LX

CONTENTS

1 THE MEANING OF HUMAN CLONING: AN OVERVIEW	I
Human Cloning in Context	4
Cloning and Human Procreation	7
Cloning and Biomedical Science	12
Cloning and Public Policy	17
The Report	20
2 HISTORICAL ASPECTS OF CLONING	23
Scientific Milestones	24
Human Cloning from Popular Literature to Public Policy: From <i>Brave New World</i> to the Birth of Dolly	27
The Human Cloning Debate: From Dolly to the Present	34
3 ON TERMINOLOGY	41
Introduction: The Importance of Careful Use of Names	41
Tools of Analysis	44
Cloning: Toward an Appropriate Terminology	47
Cloning-to-Produce-Children; Cloning-for-Biomedical-Research	49
Cloned Human Embryo: The Product of SCNT	52
Conclusion	62
4 SCIENTIFIC BACKGROUND	65
Introduction	65
Some Basic Facts about Human Cell Biology and Sexual Reproduction	66
Cloning (Asexual Reproduction) of Mammals	68
Epigenetic Modification and Reprogramming	71
Cloning-to-Produce-Children	73

CONTENTS

Stem Cells and Regenerative Medicine	74
Human Cloning-for-Biomedical-Research	78
Parthenogenesis (Another Form of Asexual Reproduction)	80
5 THE ETHICS OF CLONING-TO-PRODUCE-CHILDREN	83
I. The Case for Cloning-to-Produce-Children	85
A. Purposes	86
1. To Produce Biologically Related Children	86
2. To Avoid Genetic Disease	87
3. To Obtain "Rejection-Proof" Transplants	87
4. To "Replicate" a Loved One	87
5. To Reproduce Individuals of Great Genius, Talent, or Beauty	88
B. Arguments	88
1. The Goodness of Human Freedom	88
2. The Goodness of Existence	90
3. The Goodness of Well-Being	90
C. Critique and Conclusion	91
II. The Case against Cloning-To-Produce-Children	96
A. The Ethics of Human Experimentation	96
1. Problems of Safety	99
a. Risks to the child	99
b. Risks to the egg donor and the birth mother	100
c. An abiding moral concern	101
2. A Special Problem of Consent	105
3. Problems of Exploitation of Women and Just Distribution of Risk	106
4. Conclusion	106
B. The Human Context: Procreation and Child-Rearing	110
C. Identity, Manufacture, Eugenics, Family, and Society	113
1. Problems of Identity and Individuality	114
2. Concerns regarding Manufacture	116
3. Prospect of a New Eugenics	120

CONTENTS

- 4. Troubled Family Relations 123
- 5. Effects on Society 126
- D. Conclusion 128

6 THE ETHICS OF CLONING-FOR-BIOMEDICAL-RESEARCH 131

- I. The Manner and Spirit of This Inquiry 131
- II. The Human Meaning of Healing 138
- III. The Moral Case for Cloning-for-Biomedical-Research 143
 - A. The Medical Promise of Cloning-for-Biomedical-Research 145
 - 1. Cloning to Improve Understanding of Human Disease 146
 - 2. Cloning to Devise New Treatments for Human Diseases 148
 - 3. Cloning to Produce Immune-Compatible Tissues for Transplantation 148
 - 4. Cloning to Assist in Gene Therapy 150
 - B. Possible Moral Dilemmas of Proceeding 150
 - 1. Position Number One 150
 - a. What is owed to the cloned embryo? 151
 - (1) The possibility of twinning 153
 - (2) The moral significance of pregnancy and implantation 154
 - (3) The significance of the developed human form 155
 - (4) The meaning of "special respect" 156
 - b. The problem of deliberate creation for use in research 158
 - c. Development and use of cloned embryos beyond the earliest stages 161
 - d. Exploitation of women who are egg donors 162
 - e. The connection to cloning-to-produce-children 163
 - f. Conclusion 166
 - 2. Position Number Two 167

CONTENTS

- IV. The Moral Case against Cloning-for-Biomedical-
Research 170
- A. What We Owe to the Embryo 173
- B. What We Owe to Society 182
1. Asexual Reproduction and the Genetic Manipulation
of Embryos 183
2. The Complete Instrumentalization of Nascent
Human Life 184
3. Opening the Door to Other Moral Hazards 186
4. Conclusion: What Prudence Requires 189
- C. What We Owe to the Suffering 190
- V. Conclusion 194

7 PUBLIC POLICY OPTIONS

195

- I. Science and Society 197
- II. Public Policy Options: General Considerations 200
- A. The Scope of Policy 200
- B. A Legislative Complication 203
- III. Public Policy Options: Specific Alternatives 206
- A. Federal or State Jurisdiction? 207
- B. Seven Basic Policy Options 210
- Policy Option 1: Professional self-regulation with
no legislative action ("self-regulation") 211*
- Policy Option 2: A ban on cloning-to-produce-children,
with neither endorsement nor restriction of cloning-for-
biomedical-research ("ban plus silence") 213*
- Policy Option 3: A ban on cloning-to-produce-children,
with regulation of the use of cloned embryos for
biomedical research ("ban plus regulation") 214*
- Policy Option 4: Governmental regulation, perhaps by
a new federal agency, with no legislative prohibitions
("regulation of both") 218*
- Policy Option 5: A ban on all human cloning, whether to produce
children or for biomedical research ("ban on both") 219*

Policy Option 6: A ban on cloning-to-produce-children, with a moratorium, or temporary ban, on cloning-for-biomedical-research (“ban plus moratorium”) 220

Policy Option 7: A moratorium, or temporary ban, on all human cloning, whether to produce children or for biomedical research (“moratorium on both”) 222

8 POLICY RECOMMENDATIONS

225

I. The Council’s Points of Departure in Formulating Policy Recommendations 226

II. First Proposal: Ban on Cloning-to-Produce-Children, Moratorium on Cloning-for-Biomedical-Research (Policy Option 6 of Chapter Seven) 231

A. Strengths of the Proposal 232

1. Bans Cloning-to-Produce-Children 232

2. Provides a Highly Effective Means of Preventing Cloning-to-Produce-Children 233

3. Calls for and Provides Time for Further Democratic Deliberation 233

a. Seeking consensus on crossing a major moral boundary 234

b. Gaining needed scientific evidence 235

c. Promoting fuller and focused public debate, leading to a better-informed decision 235

d. Preserving a decent respect for the deep moral concerns of our fellow citizens 236

4. Provides Time and Incentive to Develop Adequate Regulation Regarding Human Cloning 236

a. Comprehensive scope 237

b. Protections for egg donors 237

c. Transparency and accountability 238

d. Equal access to benefits 238

5. Calls for and Provides Time for a Comprehensive Review of the Entire Domain of Related Biotechnologies 238

CONTENTS

6. Provides Time to Garner Long-Term Respect and Support for Biomedical Research and to Reaffirm the Social Contract between Science and Society 240
 - B. Some Specifics for the Legislation 241
 1. Broad Coverage 241
 2. Narrowly Drafted 241
 3. Temporary 241
 - C. Conclusion 242
- III. Second Proposal: Ban on Cloning-to-Produce-Children, with Regulation of the Use of Cloned Embryos for Biomedical Research (Policy Option 3 of Chapter Seven) 246
- A. Strengths of the Proposal 247
 1. Bans Cloning-to-Produce-Children 247
 2. Provides an Effective Means of Preventing Cloning-to-Produce-Children 247
 3. Approves Cloning-for-Biomedical-Research and Permits It to Proceed without Substantial Delay 248
 4. Establishes Necessary Protections against Possible Misuses and Abuses, Thus Paying the Respect Owed to Embryos Sacrificed in the Research 249
 - a. Prevent cloned embryos from being used to initiate pregnancies 250
 - b. Provide enforceable ethical guidelines for the use of cloned embryos for research 250
 - c. Protect the adult participants in this research 251
 - d. Promote equal access to the medical benefits that flow from this research 251
 5. Who Should Regulate This? 251
 6. Calls for a Comprehensive Review of the Entire Domain of Embryo Research 251
 - B. Some Specifics for the Legislation 252
 1. Broad Coverage 252
 2. Narrowly Drafted 252
 - C. Conclusion 252
- IV. Recommendation 255

CONTENTS

NOTES	257
GLOSSARY OF TERMS	267
BIBLIOGRAPHY	271
APPENDIX: PERSONAL STATEMENTS	279
<i>Elizabeth H. Blackburn</i>	280
<i>Rebecca S. Dresser</i>	283
<i>Daniel W. Foster</i>	288
<i>Michael S. Gazzaniga</i>	290
<i>Robert P. George (joined by Alfonso Gómez-Lobo)</i>	294
<i>William B. Hurlbut</i>	307
<i>Charles Krauthammer</i>	321
<i>Paul McHugh</i>	332
<i>William F. May</i>	334
<i>Gilbert C. Meilaender</i>	335
<i>Janet D. Rowley</i>	340
<i>Michael J. Sandel</i>	343
<i>James Q. Wilson</i>	347