

THE ORIGIN AND NATURE OF MAN

THE ORIGIN AND NATURE OF MAN

AN ENQUIRY INTO FUNDAMENTALS

*RECONCILING
MAN'S PROUD ACHIEVEMENTS
WITH MAN'S HUMBLE DESCENT*

BY

G. SPILLER

Author of

"The Mind of Man," "A New System of Scientific Procedure," etc.

SECOND EDITION

WILLIAMS & NORGATE LTD.
10, SOUTH BURY PLACE, LONDON, E.C. 4.

LONDON

WILLIAMS & NORGATE LTD.

1935

"Man, oh, not men ! a chain of linkèd thought."
Percy Bysshe Shelley.

**"Toute la suite des hommes . . . doit être considérée
comme un même homme."** *Blaise Pascal.*

"Die ganze Menschheit ist wie ein Polypenstock."
Ernst Mach.

**DEDICATED TO THE
MEMORY OF
CHARLES DARWIN
PRINCE OF NATURALISTS**

LEICESTER CO-OPERATIVE PRINTING SOCIETY LIMITED
99 CHURCH GATE, LEICESTER

P R E F A C E .

THIS work has a twofold object—by means of an exhaustive enquiry to ascertain *man's place among living beings* and *men's place among their fellows*. The result may be epitomised in the following three statements, statements which purport to offer a convincing and intrinsically reasonable answer to the three most searching questions that can be asked on this subject of supremest concern to man.

First, the author seeks to establish, what is forcibly suggested by a comprehensive survey of the facts, that the members of all animal species are virtually unable to learn anything from their kind and that, on the contrary, human beings are able to do that to an almost unlimited extent. This will account for the well-nigh infinite potential superiority of human beings over animals, since in favourable circumstances individual men can multiply their powers almost endlessly through assimilating the substance of the consolidated thoughts and experiences of practically their whole race past and present, whilst individual animals, for the reason adduced, cannot virtually multiply their powers at all.

Secondly, in explanation of the above crucial difference between man and animals, the author seeks to establish that the higher apes are not only the most intelligent animals, but that they are so advanced mentally that a further moderate mental advance, about equal to that of apedom beyond monkeydom, inevitably gives rise to an intelligence—that of man—just sufficiently developed to be able to learn freely from all intelligent beings. It seems thus possible to explain man's unique and dominating place in nature without assuming any yawning mental gulf between him and his nearest animal relations.

Lastly, in seeking to establish the precise magnitude of the innate mental capacity reached by man as a consequence of this advance in inborn intelligence, the author finds, on examination, that if we discount the mass of information as to facts and as to modes of procedure which any given individual may have acquired from his myriad knowledge-producing and knowledge-pooling fellows, he would only be more or less able to improve modestly the equivalent of a paleolithic tool or idea during a life-time.

Hence man's close affiliation to the higher apes, together with his almost infinite potential superiority to them, are demonstrated. Hence, also, any stateable or immense differences in the mental status of human beings and human groups are to be explained by the relative assimilation or non-assimilation on their part of the ever-growing and ever-developing cultural heritage. If the contrary point of view, that of

vast innate differences between animals and man and between men and men, is almost universally prevalent to-day although fundamentally opposed to all biological experience, it is because in the absence of a coherent scientific theory, thinkers have mistaken acquired for native ability. The substitution of meticulous for passing observation and study will correct this erroneous inference. It will demonstrate that the current biological teaching as to man's place among living beings and men's place among their fellows is not a whit less in monstrous conflict with fact than was the pre-Copernican teaching regarding the earth's place in nature. It will, moreover, produce as revolutionary a change in men's conceptions of Man as the Copernican theory produced in men's conceptions of the Universe, providing incidentally a firm basis for a lofty moral and social idealism.

Our three statements, which we hope to justify in the following pages, furnish broadly a sound and simple foundation for a science of man. This foundation ought to appeal profoundly to the biologist, the sociologist, and the thinking public generally, since for the first time an explanation is offered which reconciles (*a*) man's almost infinite mental remoteness from the animal world with his close proximity to it biologically and (*b*) the presence among men of measurelessly great differences in *observable* mental status with the absence among them of any noteworthy differences in *innate* mental status, as imperatively demanded by biologic science.

Further prefatory remarks will be found in the brief Introduction which follows the Table of Contents. It may be also stated that Chapters I. to III. prepare the ground, Chapters IV. to VII. contain the essential matter, Chapters VIII. to XI. develop certain leading conclusions, Chapter XII. gives a reasoned summary of the work, and that Section 4 of Chapter V. and Section 3 of Chapter VI. discuss respectively and at length the compatibility of our view and the incompatibility of the current biological view with the general facts of human experience.

G. SPILLER.

London, March 1931.

This Second Edition is virtually a reprint of the First Edition. The only change made of any consequence has been the introduction here and there of the term "inter-learning," to replace the clumsy expression "learning from others."

London, August 1935.

G. S.

TABLE OF CONTENTS.

PREFACE	Page vii
TABLE OF CONTENTS	ix
INTRODUCTION	xii

BOOK I.—*THE DISTINCTIVE NATURE OF MAN.*

CHAPTER I.—CHARACTERS COMMON TO PLANTS AND ANIMALS	1
1. The Nature of Life	1
2. The Nucleated Cell	2
3. Nutrition	5
4. Sensibility and Impressibility	5
5. Adaptability and Regeneration	6
6. Growth and Development	7
7. Decline and Death	8
8. Reproduction and Over-reproduction	9
9. Heredity	10
10. Germinal Variation	11
11. Evolution	13
12. Conclusion	15
CHAPTER II.—THE DISTINCTIVE NATURE OF ANIMALS	16
1. Locomotion	16
2. The Animal Organism	17
3. The Senses	18
4. Self-regarding Instincts	22
5. Gregarious Instincts	26
6. Individual Intelligence	27
7. Habit	28
8. The Adaptive Outfit	28
9. Conclusion	36
CHAPTER III.—CHARACTERS COMMON TO ANIMALS AND MAN	37
(A) BODILY FILIATIONS	37
1. Man a Multi-cellular Being.....	37
2. Man and the Chief Dynamic Characters Common to Plants and Animals	37
3. Man as Animal	39
(B) MENTAL FILIATIONS	51
1. The Senses.....	52
2. Inborn Needs and Instincts	52
3. Feelings	54
4. Intelligence	56
(C) CONCLUSION	60

	Page
CHAPTER IV.—HUMAN AND ANIMAL BEHAVIOUR COMPARED	63
1. Recapitulation	63
2. Man's Mental Status.....	63
3. Enquiry Should be Extended	64
4. A Concrete Presentation of the Life of a Human Being	64
5. Analysis of Human Life	73
6. The Four Dynamic Laws of Human Development	79
7. Human and Animal Behaviour Compared	80
8. Animals are Individuo-Psychics	84
9. Human Beings are Specio-Psychics	87
10. Is Specio-Psychism in Man an Accidental Character ?	99
11. Conclusion	102
CHAPTER V.—THE DISTINCTIVE NATURE OF MAN	103
1. Recapitulation of Last Chapter	103
2. Analysis of Darwin's View of Human and Animal Mentality	105
3. The Specio-Psychic Theory Widely Canvassed	110
4. The Fundamentally Distinctive Nature of Man	116
5. Specio-Psychism the Final Outcome of Individuo-Psychic Evolution	135
6. Other Explanations of Man's Distinctive Nature	142
CHAPTER VI.—MAN'S PLACE AMONG LIVING BEINGS .	148
1. The Cultural Aspect	148
2. The Biological Aspect	162
3. The Current Biological View of Human Nature Examined	173
4. Man's Place in Nature Defined	184
CHAPTER VII.—DEFINITIONS AND IMPLICATIONS	185
(A) DEFINITIONS	185
(B) IMPLICATIONS	191
1. Theoretical Implications	194
2. Historical Implications.....	196
3. Constructive Implications	204
4. Religious Implications	210
BOOK II.—THE LAWS OF HUMAN DEVELOPMENT.	
INTRODUCTORY	215
CHAPTER VIII.—THE LAW OF LIMITLESS INCREASE IN CULTURAL DIVERSITY	219
1. Basis	219
2. Secondary Causes of Cultural Diversity	219
3. The Cultural Store of To-day	225
4. The Calculable Future	233
5. The Goal	234
6. The Cause of Cultural Diversity	235
7. The Promotion of Cultural Diversity.....	235

INTRODUCTION.

IN his *Origin of Species*, first published in 1859, Charles Darwin all but ignored the problem of the origin of man. In a brief sentence, at the end of his classic work, he merely stated in passing that "light will be thrown by the doctrine of organic evolution on the origin of man and his history."

His disciple, Thomas Henry Huxley, accepted this significant hint and shortly afterwards, in 1863, published his challenging *Man's Place in Nature*. In this masterly and memorable study he demonstrated, beyond any reasonable doubt, that man's physical constitution departed no more from that of the higher apes than the general physical constitution of the higher apes departed from that of the monkeys. Man had, accordingly, assigned to him an unostentatious place in the animal series.

In 1871 Darwin published his *Descent of Man*. Taking tacitly for granted Huxley's demonstration, he concentrated his attention more particularly on the complementary problem of man's mental outfit and reached the conclusion that there was only a question of degree between the human and the ape mind. Man was thus definitely assimilated to the Primates.

The great mass of thinkers were singularly unimpressed by the coordinate demonstrations. They had, of course, to accept as decisive the conclusion that man was descended from some lower form; but they could not reconcile themselves to the suggestion that the human world—which seemed to them farther removed from the animal world than the animal world is from the plant world—occupied no outstanding place in the hierarchy of living beings. And yet, profoundly struck by humanity's achievements, Darwin had spoken of man as "the wonder and glory of the Universe" and Huxley had dilated on "the immeasurable and practically infinite divergence of the Human from the Simian Stirps."

The present work represents consequently an attempt to ascertain whether, in complete accord with the general theory of evolution and without invoking occult or obscure causes, the insistent demand for a conception of man's evolution sharply separating him from his animal ancestors in the matter of mentality, cannot be satisfied. Conceivably, Darwin and Huxley had been so absorbed in the search for similarities that they overlooked some crucial and far-reaching divergence.

The author does not believe that there is a rift in nature. He considers that man's animal origin may well comport with his presenting a radical departure and even forming a separate kingdom. Man's immediate ancestor, he holds, represented the culminating point in the enormously long mental development of sub-human kinds, a point

beyond which a new world with almost infinitely higher potentialities naturally opened. That is, developing intelligence had at last reached the stage where individuals could freely profit by the experiences of their fellows near and far in space and time and in this way could multiply their powers almost infinitely. Thus, up to man, we meet invariably with the method of instinctive, individual action varied by that of instinctive cooperation between the members of individual living groups of a given species, *a method which leads in the course of the ages and apart from biological change to IN NO DEGREE DIVERSIFIED and IN NO DEGREE PROGRESSING modes of life*, whilst in man this method is superseded by that of intimate cultural interrelations between the thousands of millions of individuals in all the human groups of all the ages, *a method which leads in the course of the ages and apart from biological change to for all intents ENDLESSLY DIVERSIFIED and ENDLESSLY PROGRESSING modes of life*.

Hence men's cousins, the apes, use now, *exactly* as hundreds of centuries ago, unfashioned sticks and stones, whilst with man the crude eolithic flint tool has very gradually developed into various almost inconceivably more complex and more finished instruments, such as the observatory telescope, the railway locomotive, and the rotary press. Likewise, monkeys chatter now *precisely* as they presumably did half-a-million years ago, whilst in man virtually meaningless chatter has very gradually developed into imposing languages capable of clearly conveying our inmost thoughts and sentiments and of being fixed in writing and printing. In a word, the historically altogether non-progressive method of individuals guided by instinct and individual intelligence, a method absolutely universal in the animal kingdom, is replaced in man by the historically infinitely progressive method of individuals able to profit by the thoughts of their myriad fellows near and far in space and time and capable of infinitesimally improving on those thoughts. These two methods may be respectively distinguished as the individuo-psychic and the specio-psychic, the non-cumulative and the cumulative, the non-progressive and the progressive, the auto-learning and the inter-learning methods.

The view propounded here should commend itself particularly to men of science. As against Huxley, it involves only a "measurable" innate divergence biologically of the human from the simian stirps, and as against Darwin, we are not bound to assume an "immense" difference in native capacity between man and ape. Nor need we subscribe to the monstrously unscientific assumption that individuals, peoples, and ages differ enormously in congenital intelligence, in defiance of all we know of the trivial differences obtaining between the members and generations of individual animal species. On the contrary, we only suppose that man is about as superior to the higher apes as these

are to the higher monkeys ; that, but for inter-learning, he is infinitely nearer to the ape than to a great scholar ; that the innate mental differences between men, peoples, and ages are no greater than we find among animal species ; and that, for all intents, cultural causes account both for cultural differences and for cultural progress through the ages. For the first time thus the science of man is invested with a scientific character, is stripped of all extravagance and caprice, and has for its basis a unit which is calculable because individuals are recognised as differing only infinitesimally in native capacity and as contributing, of themselves, only ultra-microscopically to the cultural heritage. Such a rigorously scientific conception is bound to clash at a score of points with the babel of haphazard present-day explanations. No reader will therefore expect to find in this volume a mere reflection of his own opinions. Rather should he hope for a new, but consistent and helpful, theory of man's place among living beings and men's relations to their fellows near and far in space and time.

Nor should the practical aspect be lightly dismissed. The aberrations of "fundamentalism" and the strange conservatism of modern religious communities are to no small extent due to the dubious position assigned to man by biologists. It is also worthy of note that the cultured generally find it impossible, despite desperate efforts, to harmonise human experience, human history, and human hopes with current biological appreciations of man's place in animate nature. All these classes would be inexpressibly relieved if the dignity and uniqueness of man could be shown to be compatible with his evolutionary origin. Moreover, the longer the deadlock continues, the more manifest it becomes that the prevalent view of man's descent has to be discounted because it leaves human progress and human achievements unexplained and affords no guidance either to the student of human nature or to the perplexed reformer. The only way out of the *impasse* is for biologists to aim at explaining man as he is and not, for the sake of a plausible but wholly inadequate hypothesis, to insist that man is what he palpably is not.

Some seventy years ago the establishment of the general evolution theory created an epochal revolution in the biological sciences and in man's outlook on living nature. It remains for this age to offer a scientific account of the origin and nature of man that shall have a no less profound and far-reaching influence in the sphere of the social and moral sciences and on the leading practical issues of our time. To bring sensibly nearer this eminently desirable consummation is the object of this work.

INDEXES

INDEX OF AUTHORS AND OTHERS.

- Abraham** 327
Adler, F. 353
Æsop 300
Aiston, G. 89
Alger, W. R. 330
Allen, E. J. 155
Alsberg, M. 284
Alsberg, P. 74, 146, 162
Alverdes, F. 169
Amundsen 280
Andrea del Sarto 361
Angell, J. R. 269
Angell, N. 298
Anonymous 330
Aquinas, T. 301
Aristotle 17, 18, 143, 189, 301, 302
Arnold, M. 221, 335
Aurelius, M. 189, 190, 289, 335, 365, 369
Avebury, Lord 27, 82, 83, 89, 244
- Babcock, D. C.** 50
Bach 261, 362
Bacon, F. 153, 355
Baer, von 366
Bagehot, W. 212, 305
Bailey, F. R. 4
Bain, A. 185
Baitell, G. A. 269
Baldwin, J. M. 35, 367
Balfour, H. 273, 274, 275
Basedow, H. 89, 119
Bastian, H. C. 2
Bateson, W. 91, 99
Baumann, G. 246
Bautz, J. 330
Beal, S. 299
Beccaria, C. 322
Beethoven 261
Bellamy, E. 114
Bensusan, S. L. 361
Bergson, H. 186
Bernard, L. L. 29, 35, 54, 236
Berr, H. 50
Bidder, G. P. 2
Birkner, F. 198
Blackmar, F. W. 236, 240
Boas, F. 94
Bohn, G. 2, 27, 35
Boissonnade, P. 202
Bose, J. C. 16, 18
Botticelli 361
Bouglé, C. 223
Boule, M. 199
Bouvier, E. L. 28, 82, 152
Bower, M. F. 259
Bragg, W. H. 2
Bramante 121
Branford, V. 114
Brett, G. S. 364
Brewster, D. 364
Bridges, H. J. 184
Britfaut, R. 271
Bristol, L. M. 145-146
- Brooks, C. E. P.** 221
Browning, E. B. 295
Büchner, L. 27, 29, 145
Buckle, H. T. 112, 141
Buddha 125, 141, 311, 312, 318
Budge, E. A. T. W. 312
Bühler, K. 141
Bunyan, J. 329-330
Burbank, L. 13
Burgess, E. W. 236
Burke, E. 128
Burkitt, M. C. 199, 283
Burns, D. 2
Burns, R. 364
Burt, C. 2, 115
Bury, J. B. 236, 245, 282, 330
Butler, Bishop 167
Buxton, L. H. D. 202
- Cagni** 280, 281
Capitan, L. 202
Carlyle, T. 92, 333, 353, 364
Carpenter, E. 242
Carpenter, G. H. 28, 152
Carr, H. W. 30
Carr-Saunders, A. M. 39, 115, 174, 175, 181
Carter, F. T. 247
Carter, J. C. 321
Cattell, J. M. 113
Caullery, M. 152
Cavalcaselle, G. B. 359, 360, 361
Cavling, V. 115
Chambers, R. 278
Chapin, F. S. 188, 221
Cicero 86, 289, 302
Colvin, S. 359
Comte, A. 88, 110, 199, 216, 364, 366
Condorcet 270, 310
Confucius 121, 190
Conklin, E. G. 114
Constable 261, 361
Cooley, C. H. 172
Copernicus 121, 175
Cordier, P. 246
Cowdry, E. V. 278
Crawford, O. G. S. 74
Crew, F. A. E. 12
Cromwell 364
Crowe, J. A. 359, 360, 361
Cruttwell, M. 359, 360, 361
Cutten, G. B. 145, 166
Cuvier, F. 16, 60
Czapek, F. 277
- Dahl, F.** 28
Dante 301, 364
Darwin, C. 12, 13, 14, 15, 29, 31, 44, 55, 57, 60, 61, 63, 64, 81, 83, 85, 93, 94, 104, 105-108, 109, 142, 145, 148-155, 158, 163-165, 186, 236, 245, 288, 311, 340, 343, 364, 366, 369
D'Avenel, G. 251

- Davids, T. W. R. 312
 Davies, G. S. 360
 Davis, J. 281
 Davis, J. R. A. 4
 Dawson, C. 50
 Dawson, J. 89
 De Beer, G. R. 7, 10
 Deegener, P. 188
 Delepierre, J. O. 330
 Delvaille, J. 236
 Demosthenes 128
 De Roberty, E. 115
 Descartes, R. 2, 143, 365
 Dixon, R. B. 200, 274
 Dollond 238
 Donatello 360
 Doncaster, L. 4
 Donkin, H. B. 190
 Douglas, L. 360
 Drever, J. 35, 326
 Drummond, H. 145
 Drzewina, A. 2
 Duckworth, W. L. H. 47
 Duřac, A. 202
 Dunraven, Lord 244
 Dürer, A. 361
 Durkheim, E. 85, 137, 282, 285

 Eberstadt, R. 295
 Eddington, A. S. 271
 Edman, I. 146
 Edwards, C. 314, 326
 Ellwood, C. A. 115, 199, 240, 283, 317
 Epictetus 189, 289, 335
 Erasmus 121
 Espinas, A. 27, 188
 Estabrooke, G. H. 90
 Evans, A. 261-262
 Evans, A. D. 251
 Eymericus, N. 328

 Fabre, N. 83
 Fairbanks, A. 13, 77, 220
 Fairchild, H. P. 10
 Fallaize, E. N. 199
 Faris, E. 90
 Feldhaus, F. M. 198
 Ferguson, A. 77, 87, 244
 Field, G. C. 35
 Finnemore, J. 179-180
 Fiske, J. 212
 Fletcher, B. F. 362
 Fleure, H. J. J. 47, 90, 139
 Florio 363
 Folsom, J. K. 240
 Forbes, H. O. 44
 Forel, A. 28, 83, 152
 Foster, M. 18
 Fowler, A. 304
 Fra Angelico 360
 Fra Bartolommeo 355, 361
 Fra Filippo Lippi 360
 Frazer, J. G. 99
 Frédéric, J. 93-94
 Freeman, R. A. 245, 274
 Freud, S. 367
 Frisch, H. R. v. 319
 Fry, E. 322, 324

 Galileo 74, 237-238, 364
 Galton, F. 62, 178, 182, 368-370
 Gamble, F. W. 13
 Geddes, P. 6, 17, 114, 187, 225, 242, 287
 Ghirlandajo, D. 360-361
 Giddings, F. H. 201, 204, 244
 Gillen, F. J. 89
 Gillin, J. L. 240
 Ginsberg, M. 35, 182, 201
 Giotto 125, 261, 360
 Glotz, G. 202
 Godwin, W. 270, 353
 Goethe 321, 365
 Goldenweiser, A. A. 199, 222, 354
 Goodrich, E. S. 2
 Gore, Bishop 311
 Greeley, A. W. 281
 Grimm 300
 Gumplowicz, L. 112
 Gutenberg 99

 Hadley, J. 238
 Hadow, W. H. 362
 Hæckel, E. 51, 145
 Haldane, J. B. S. 2, 245
 Hall, G. S. 9
 Halliburton, K. W. D. 8
 Hammurabi 314
 Hankins, F. H. 205
 Harris, D. F. 2
 Hartland, E. S. 321
 Hartmann, R. 27, 46
 Harvey, W. 190
 Haswell, W. L. 150
 Hatschek, E. 2
 Haydn 368
 Hayward, F. H. 114
 Hedlicka, A. 154, 283
 Helbing, F. 325
 Helvetius 272
 Hemmeon, J. C. 251
 Hemplemann, F. 28, 45
 Henderson, C. R. 326
 Henning, H. 20
 Herrick, C. J. 50
 Herschel, J. 285
 Hertwig, O. 188
 Hertzler, J. O. 236
 Hesiod 300, 302
 Hobbes, T. 197, 353
 Hobhouse, L. T. 27, 100, 105, 106, 113,
 142, 146, 180, 236, 264, 285, 345
 Hobson, J. A. 174, 181
 Hocking, W. E. 35
 Hoernes, M. 203
 Hogben, L. T. 13
 Hollingworth, H. L. 141
 Holmes, C. J. 261, 359, 360, 361
 Holmes, E. 96, 310
 Holmes, S. J. 27, 62
 Homer 364
 Hooke, R. 366
 Horne, G. 89
 Horne, H. P. 361
 Housay, F. 27, 81
 Houzeau, J. C. 27, 85
 Howard, J. 322, 324
 Hume, D. 86, 223, 301

- Hunter, J. 365
 Huntington, E. 221
 Hutton 366
 Huxley, J. S. 115, 146, 189, 236
 Huxley, T. H. 2, 15, 16, 43, 46-51, 55,
 60-61, 63, 64, 143-144, 150, 151, 185
 Huygens, C. 366

 Inge, W. R. 272
 Ives, G. 328

 Jackman, W. T. 251
 Jenner 366
 Jensen, H. 247
 Jesus 311, 312, 329
 Johnson 364
 Johnstone, J. 2
 Jones, H. 204, 208, 310
 Jones, R. 283
 Josey, C. C. 35
 Joshua 318

 Kafka, G. 28
 Kammerer, P. 9
 Kant, I. 244, 340, 364
 Kantor, J. R. 90
 Kapp, E. 74
 Keane, A. H. 290
 Keats 15
 Keble, F. W. 156
 Keith, A. 51, 88, 95, 138-139, 149, 282,
 283, 290
 Keller, H. A. 143
 Kellogg, V. 115, 138, 164
 Kepler 364
 "Keridon" 16
 Khang king 315
 Kidd, B. 89, 150, 169
 Kimmins, C. W. 257
 King, L. W. 283
 Kirkaldy, A. W. 251
 Kirkman, M. M. 251
 Kirkpatrick, E. A. 32
 Klaatsch, H. 50, 139, 146, 185, 198
 Knapp, F. 361
 Knox 364
 Koffka, C. 141
 Köhler, W. 28, 60, 83, 100, 136
 Korzybski, A. 114-115, 163, 188
 Kries, J. v. 18
 Kroeber, A. L. 85, 90, 199
 Kropotkin 367

 Laffitte, P. 79
 Laguna, G. A. de 246
 Laing, S. 135
 Lamarck, J. B. 12
 Lambert, J. M. 295
 Lange, F. A. 64
 Lankester, E. R. 3, 6, 9, 17, 162, 164,
 242
 Laurent, O. 9
 Leathe, J. B. 2
 Le Bon, G. 274
 Lecky, W. E. H. 330
 Le Dantec, F. 2, 12
 Leduc, S. 2
 Lehman, H. C. 97

 Leibnitz 127, 367
 Leonardo da Vinci 180, 355, 358-359
 Lessing, T. 358
 Letourneau, C. J. M. 317
 Leuba, J. H. 212
 Lewes, G. H. 110-111
 Linnæus 54, 366
 Locke, J. 101, 197, 330
 Locy, W. A. 275-277, 366
 Loeb, J. 2, 7, 13, 28, 94
 Lorin, H. 202
 Lowie, R. H. 90, 199
 Lucretius 11
 Lull, R. S. 46, 169
 Lumière, A. 2
 Luther 364
 Lydekker, R. 44
 Lyell, C. 366

 Macalister, R. A. S. 199
 Macdonell, J. 95
 Macfie, R. C. 257, 268
 MacGill, C. E. 251
 Maciver, R. M. 271
 Mackenzie, J. S. 240, 364
 Maeterlinck, M. 27, 83, 84-85
 Mahomet 364
 Maitland, J. A. F. 362
 Malpighi 276
 Malthus, T. R. 244
 Marett, R. R. 94, 222, 264
 Marshall, H. R. 30
 Martin, R. 93
 Marvin, F. S. 310
 Masaccio 360
 Mason, O. T. 92
 Mason, W. A. 247
 Massart, J. 9, 152
 McBride, E. W. 12, 41, 150, 156
 McClure 280
 McCurdy, G. G. 147, 186, 199, 203, 293
 McDougall, W. 23-24, 25, 30, 35, 54,
 91-92, 99, 113, 127, 133
 Meckel 366
 Meozzo da Forli 361
 Mendel 13, 91
 Mendelyeff 71
 Mentré, F. 220
 Metchnikoff, E. 8, 9
 Michael Angelo 180, 355, 360, 365
 Middleton, J. H. 358
 Milhaud, E. 287
 Mill, J. S. 118, 185, 330, 364, 365
 Miller, A. M. 4
 Miller, G. S. 138
 Minchin, E. A. 3, 4
 Minot, C. S. 7, 366
 Mitchell, P. C. 41, 57, 169
 Mivart, S. G. 146, 163
 Mollison, T. 48
 Montaigne 220
 Montessori 367
 Moore, B. 2, 4, 277
 Morellet, A. 328
 Morgan, C. L. 27, 30, 31, 32, 35, 111-112
 Morgan, J. de 50, 74
 Morgan, T. H. 7
 Morley, J. 239, 284, 322, 330

- Morse, H. B. 295
 Mozart 261
 Muir, J. R. B. 319
 Müntz, E. 358, 359
 Murphy, G. 35
 Murray, J. 9
 Mursell, J. L. 35
 Myers, C. S. 30, 94, 121
- Nansen** 280
 Newsholme, A. 95-96
 Newton, I. 99, 238, 357, 364, 366, 367, 368
 Nietzsche, F. 205
 Nogaro, B. 202
 Nordenskiöld 280
 Nussbaum 366
- Obermaier, H.** 198
 Odysseus 300
 Ogburn, W. F. 116, 274, 282
 Okkonen, O. 361
 Oltramare, P. 242, 259, 285
 Oppé, A. P. 361
 Oppenheimer, H. 326
 Osborn, H. F. 2, 197, 283
 Oualid, W. 202
 Ovid 363
 Owen, R. 47
- Painter, G. C.** 236
 Park, R. E. 236
 Parker, T. J. 150
 Parmelee, M. 147
 Parry, H. H. 362, 363
 Pascal, B. 78, 85, 86
 Pasteur 278-279, 366
 Paton, D. N. 2
 Paul-Louis 202
 Peake, H. J. E. 47, 222
 Pearl, R. 9, 182
 Pearson, K. 182
 Peary, R. E. 279-281
 Peckham, E. G. 22, 27
 Peckham, G. W. 22, 27
 Peddie, R. A. 247
 Pell, C. E. 39
 Perez, B. 29
 Perry, W. J. 317
 Perthes, B. de 138
 Perugino 260, 355, 356
 Pestalozzi 256
 Petrie, W. M. F. 223, 283
 Phidias 369
 Phillips, G. B. 284
 Philo 301
 Pillsbury, W. B. 35
 Pintoricchio 361
 Pitt-Rivers, A. L. F. 273-274
 Plato 125, 301, 364
 Ploss, H. H. 141
 Pollaiuolo, A. 360
 Pouchet, F. A. 2
 Poynting, J. H. 366
 Protheroe, E. 364
 Pynas, J. 361
- Rabaud, E.** 35, 139
 Rameses III. 326
 Ranke, J. 144
 Raphael 180, 260, 354-358, 361, 362, 363, 365
 Ray, J. 366
 Read, C. 30, 146
 Reid, G. A. O. 111
 Reid, L. M. 35
 Reid, T. 111
 Rein, W. 336
 Rembrandt 261, 361
 Renard, G. 202, 295
 Reuter, E. B. 97
 Reynolds, J. 261, 354-355
 Ricci, C. 361
 Richet, C. 265
 Ridgway, W. 61-62
 Ritchie, D. G. 111
 Robertson, T. B. 9
 Robinson, J. H. 286
 Robinson, L. 41
 Romanes, G. F. 88, 142, 146
 Roth, H. L. 89
 Rousseau, J. J. 86, 87, 147, 197, 256, 364
 Rubens, P. P. 261, 361
 Rule, P. M. 29
 Ruskin 34
 Russell, B. 271
 Rutter, F. 360
- Saint-Hilaire, J. G.** 16, 149
 Saint-Léon, E. M. 295
 Saleeby, C. W. 95
 Santayana, G. 364
 Santi, G. 354
 Sapir, E. 246
 Sarton, G. 77
 Schäfer, E. A. S. 2
 Schallmeyer, W. 62
 Schleiden 2, 275-276
 Schmid, B. 28, 245
 Schneider, K. C. 27
 Schuster, E. 115
 Schwalbe, G. 139
 Schwann, T. 3, 275-277
 Schweitzer, A. 242
 Scott, J. B. 320
 Sedgwick, A. 150
 Seeley, J. R. 193
 Seligman, E. R. A. 74
 Semper, H. 359
 Sergi, G. 139
 Shafer, R. 244
 Shakespeare 301, 363-364
 Shelley, P. B. 367
 Shipley, A. E. 16, 150
 Sidis, B. 236
 Siemens, H. W. 62
 Signorelli, L. 360, 361
 Simmel, G. 188
 Small, A. W. 196
 Smith, A. 366
 Smith, E. M. 28, 35
 Smith, G. E. 139, 146, 198, 274, 290
 Smith, S. G. 97
 Smith, W. R. 25

- Socrates 17, 143, 327
 Sollas, W. J. 50, 199, 283
 Sonntag, C. F. 47
 Spencer, B. 89
 Spencer, H. 5, 12, 96, 204, 265, 311, 335
 Spiller, G. 19, 52, 58-59, 60, 89, 116,
 208, 212, 267, 286, 287, 306, 336, 364
 Spinoza 197
 Spir, A. A. 195
 Staley, J. E. 295
 Stein, L. 83, 146
 Stephen, J. F. 323, 324, 325
 Stephenson, G. 364, 366
 Sterling 363
 Stern, W. 141
 Stopes, M. 151-152
 Stout, G. F. 30, 85
 Stratton, A. 362
 Sumner, J. B. 152-153
 Sutherland, E. H. 326
- Taine, H. 145
 Taylor, R. A. 359
 Taylor, T. G. 221
 Tennyson 77
 Thomas, W. I. 113-114
 Thomas, W. L. 90
 Thompson, D. W. 7
 Thompson, S. P. 281-282
 Thomson, J. A. 6, 17, 28, 35, 42, 43, 50,
 62, 109-110, 146, 150, 187, 225, 240,
 242, 275
 Thomson, M. H. 96
 Thorndike, E. L. 27, 28, 136, 332
 Titian 261
 Todd, A. J. 236, 285
 Tolman, E. C. 35
 Tristram, W. O. 251
 Trotter, W. 26, 137
 Tucker, T. G. 246
 Turner 261
 Tylor, E. B. 60, 145
 Tyson 275
- Unwin, G. 275
 Uzanne, O. 251
- Vandervelde, E. 9, 152
 Vayson, A. 283
 Verne, J. 250
 Verrocchio, A. del 359, 360
 Vico, G. B. 197
 Voltaire 147, 322
- Wallace, A. R. 13, 158
 Wallas, G. 78, 114
 Wallis, D. 90
 Wanschler, V. 354
 Ward, H. M. 279
 Washburn, M. F. 27
 Watts 261
 Waxweiler, E. 188
 Weber, H. 9
 Weber, L. 236
 Webster, J. 363
 Weigall, A. 262
 Weismann, A. 12, 13, 112-113, 366
 Wells, H. G. 271, 286
 Westermarck, E. 199
 Weuleresse, G. 202
 Wheeler, W. M. 28, 85, 152
 Wiedenreich, F. 48
 Wiedersheim, R. 45
 Wieman, H. L. 19, 50, 150, 167
 Wilder, H. H. 45, 51, 61, 150, 154, 199
 Wilson, E. B. 3
 Winton, F. R. 13
 Wissler, C. 217
 Witty, P. A. 97
 Woermann, K. 361
 Wolff 276
 Wood-Jones, F. 139
 Woodward, A. S. 144, 199
 Woodworth, R. S. 19, 35, 94, 114
 Wordsworth, 334
 Worms, R. 92, 265, 285
 Wren, C. 362
 Wundt, W. 246, 291
- Xenophon 17
- Ziegler, H. E. 35
 Zimmer, G. F. 284

INDEX OF SUBJECTS.

- Aborigines, African, 89, 343**
—, Australian, 89, 119, 132, 154, 177, 290-291, 339, 341, 343
—, Tasmanian, 89, 93, 293
- Adaptability, 6-7, 38**
Adaptive outfit, 28-35
— — summarised, 35
- Animal and human behaviour compared, 80-84**
— and human mentality, Darwin's view of, 105-108
— and human tools, 338
— and plant organisms, 17
— psychology is in its infancy, 28-29
- Animals, all — are individuo-psychic, 84-87, 98-99, 142**
— and locomobility, 16-17
— and man, difference between, 116, 170-171
— and man, opinions on, 86-87
— and tools, 80-84, 170, 338-339
—, domesticated, 229, 253-254, 267
—, effect of locomobility on, 17
—, feelings in — and in man, 54-56
—, intelligence in — and in man, 56-60
—, "rational," 101
—, tamed, 249
- Anta, 82-83, 85, 151**
- Apes, intelligence of, 59-60, 83, 125, 136, 142**
—, nature of, 105-107
- Art, 200, 203, 232, 237, 270, 309**
—, genius in, 354-364
—, progress in, 260-262, 332
- Average persons, ability of, 92, 353**
- Bees, 84-85**
Biological aspect, the, 162-173
Bodily filiations, man's, 37-51
Brain, evolution of, 49
—, mass and weight of — in man and animals, 50
- Buildings, 227-228, 251-252**
- Castes, 294**
Caucasian, 90, 93
Cell, nature of, 2-4, 275-278
Central problem of this work, 116
Civic and civil groupings, 233, 262
Climate, 237, 344
Conservation and conservatism, 209, 292
Constructive implications of the specio-psychic theory, 204-210
Cooperation, acceleration of, 308
— among workers, 294-296
—, cause of, 307
—, development of, 289-306
—, future of, 306-307
—, goal of, 307
—, indispensability of — to man, 207-208, 307
— in work, 296-298
—, meaning of, 289
— of generations, 303-305
—, potency of, 167
- Crime, 193**
Crystals, nature of, 2

- Cultivated plants, 229, 254, 267
 Culturability and viability, 88
 Cultural and animal evolution, 160-162, 346-347
 — and natural selection, 164-173
 — diversity, 75
 — facts, classification of, 217
 — growth, 76
 — inequality, 78, 339-340
 — progress, 76-77
 — unity, 77-78, 339
 Culture, meaning of, 344
 Curiosity in animals, 57
 Customs, 78
- Death, 7-8**
 Decline, 7
 Definition of man, 190-191
 Definitions of man, 185-190
 Democracy, 205, 207, 208, 265, 270, 284
 Development, 7, 38
 Differences in men, value of, 206, 264
 Discovery of the North Pole, 279-281
 Domesticated animals, 229, 253-254, 267
- Economics, 193, 243-244, 265, 268-269, 283, 306, 308, 333, 336**
 —, historical humanisation of, 330-331
 Educability of individuals, 118
 — of races, 89, 342-343
 Education, 192, 199, 201, 206, 230-231, 256-257, 268, 280, 333
 —, effects of, 179-180
 Educational experience, 88-89, 93, 343
 Energies, 229, 254, 267
 Equality, 205-206, 259
 Erect posture, 63, 90, 139, 140
 Error, development and influence of, 78
 Eugenic view examined, 95-97, 173-184
 Eugenics, 61-62
 Eugenists and the cultural heritage, 115
 Evolution by natural and by cultural selection, 160-162
 —, man not necessarily subject to, 39, 158
 — of early culture, 282-283
 —, process of, 13-15, 39
- Family, 199, 200, 207, 208, 232, 262, 270, 289, 290**
 Fashions, 224, 237
 Feeble-mindedness, 182
 Feelings in animals and man, 54-56
 "Fundamentalism," 184
- Genius, 91, 342, and Appendices A. and B.**
 —, influence, place, and contribution of man of, 367
 —, no men of — in prehistory, 365-366
 Geographical factor, 220-221
 Germinal variation, 11-13, 39
 Government, 199, 201, 233, 262-263, 270
 Greatness, causes of, Appendix A.
 —, conditions of, 358, 366
 Growth, 7, 38
 Guilds, 294-295
- Habit, 28, 56-57, 308, 337**
 Habits, error-bred and error-maintained, 78
 Health, 193, 224, 257, 287, 308
 Hell, doctrine of, 328-330
 Heredity, 10-11, 39
 Historical implications of the specio-psychic theory, 93, 196-203

- History, 193
 Home education, 207, 280
 Human (*see also Man*)
 — and animal behaviour compared, 80-84
 — and animal mentality, Darwin's view of, 105-108
 — and animal tools, 338
 — beings are specio-psychics, 87-99
 — development, the four dynamic laws of, 79
 — equality defined, 95
 — gregariousness, 133-134
 — interrelations, 230
 — life, a concrete presentation of, 64-73
 — life, analysis of, 127-133
 — life, cultural diversity, progress, unity, and perfectibility in, 75-79
 — originality, 127-133
- Imitation, 57
 Implications, constructive, 204-210; historical, 196-203; religious, 210-212;
 theoretical, 194-196
 —, philosophical, ethical, sociological, educational, historical, political, legal,
 economic, 191-193
- Impressibility, 5-6, 38
 Individuo-psychic, all animals are, 84-87
 —, meaning of term, 345
 Innate changes and changes within a life-time, 176-177, 342
 — mental equipment, 125-126, 153-154, 305, 313, 341-342, 353
- Instincts, 22-35
 — and adaptive outfit, 28-36
 — and organs, 25-26
 — as "prime movers," 53-54
 —, gregarious, 26
 — in infants and children, 167
 — in man, 52-54, 137
 —, meaning of, 31-33
 —, self-regarding, 22-26
 —, symposium on, 30-31
- Institutions, 208-209
 Intelligence, animal and human, 56-60
 —, individual, 27
 —, man's, 53
 —, nature of, 142
 — tests, 94, 192
- Intercommunication, 222, 255, 290, 339
 International Labour Office, 243, 258, 266
- Knowledge, form of, 119-121
 —, kind of, 121-122
- Labour, 199, 202-203, 243, 258
 Language, 199, 201, 208, 266-267, 293
 Law, 233, 258, 263, 332-333, 336
 —, its historical humanisation, 320-326
 — of stability and uniformity of species, 87-88, 164, 187
 Laws of human development, the four, 79; their relation, 215-216
 League of Nations, 78, 90, 93, 183, 208, 262, 266, 267, 299
 Learning by stages, 124-125
 — freely from one's fellows distinctive of man, 53, 92, 104, 116-134, 172,
 180-183, 289, 344-345
 — from others, in art, 355
 —, nature of and obstacles to, 122, 124
- Life, nature of, 1-2
 Lingual communication, 225-226
 Locomobility as the condition of intelligence, 151
 — differentiates animals from plants, 16-17, 155-157
 —, effect on animals, 17, 36

- Man** (*see also Human*), all animals are equally removed from, 151
 — and animal, difference between, 116
 — and anthropomorpha, 44-51, 87, 104, 135-142
 — as animal, 39-51
 — as homo specio-psychensis, 190
 — as "improvable," 152-153
 — as social being, 188-189
 — as the only specio-psychic being, 99-101
 — as unique biological type, 140, 166-167
 — as viewed by Darwin, 183-184
 —, basis of comparison with animals, 219
 —, bodily filiations, 37-51
 —, brain of, compared, 50
 —, classified, 60-61
 —, definitions of, 185-191
 —, forms a kingdom by himself, 162-164, 184, 347
 —, fundamentally distinctive nature of, 116, 134
 —, is limitlessly perfectible, 78, 310
 —, mental affiliations of, 51-60; the senses, 52; inborn needs and instincts, 52-54; feelings, 54-56; intelligence, 56-60
 —, moral goal of, 334
 —, not necessarily evolving or over-reproducing, 39, 158
 —, other explanations of, 142-147
 —, 's distinctive nature summed up, 120
 —, 's early history, 197, 198-199
 —, 's growth in perfection, 311-332
 —, 's innate capacity determined, 88, 95, 131-132, 153, 154, 182
 —, 's innate moral outfit, 313, 341-342
 —, 's intelligence, 53
 —, 's mental interdependence, 97-99
 —, 's nature defined, 190, 191
 —, 's physical descent, 138-139
 —, 's physique and mentality unrelated, 92-93
 —, 's place, 51, 60-61, 148-184
 —, 's place, according to Darwin, Huxley, Keith, and St. Hilaire, 148-149
 —, 's place among living beings, 149, 184
 —, 's specio-psychic instincts, 172-173
 —, 's superiority, 158-160
 —, the highest moral life alone is natural to, 335
Mankind, unity of, 339
Material communications, 226-227, 249-251
Men, all — are specio-psychic, 98-99
Mendeliam, 13
Metals, influence of, 284
Mole, adaptive structure of, 25
Mongols, 90, 93, 343
Monkeys, intelligence of, 27, 170
Morality, 231, 257-259, 269, 308, 310 ff., 347-348
 —, genius in, 365
 —, nature of, 300-302, 306
- Natural and cultural selection**, 164-173
 — -superiority-and-inferiority theory examined, 173-184
Nature, love of, 309
Needs, 33-35
 —, inborn — in man, 52-54
Negroes, 90, 93, 343
Nordic peoples, 90
Nutrition, 5, 37-38
- Originality**, human, 127-133
 —, innate, 131-133
Over-reproduction, 10, 38
 — not necessary in man, 39, 158

- Perfectibility**, meaning of human, 310-311
 —, Christianity and man's, 311
 —, the cause of man's limitless, 334-336
- Perfection**, 78, 209
 —, man's growth in, 311-332
 —, the acceleration of moral, 336-337
- Philosophy**, 192, 200, 203
- Politics**, 193, 265, 283
- Precocity**, 124
- Progress and improvement**, 237-238
 — and morality, 257-259
 — and the end of the world, 271-272
 — and the masses, 241-244, 264, 270
 — as to domesticated animals and cultivated plants, 253-254
 — as to energies, 254-255
 —, bibliography of, 209
 — defined, 239
 —, end of, 240
 —, goal of, 271
 — in art, 260-262
 — — buildings, 251-252
 — — care of health, 257
 — — civic and civil groups, 262
 — — contact between groups, 255
 — — dress, 255-256
 — — education, 256-257
 — — family, 262
 — — food, 257
 — — furniture, 253
 — — government, 262-263
 — — language (speaking, writing, etc.), 245-249
 — — law, 263, 320-326
 — — material communications, 249-251
 — — religion, 259
 — — science, 259-260
 — — the present day, 265-266
 — — tools and methods, 253
 —, meaning of, 236-244
 — of all peoples, 270
 —, partial, 240-241
 —, the acceleration of, 285-288
 —, the cause of, 284-285
 —, the limitlessness of, 285
 —, the method of, 272-282
 —, the rate of, 282-284
 —, the reality of, 244-264
- Protoplasm**, 2-3, 278
- Race-marks**, mental, absent in man, 94
 — superiority and inferiority as prejudices, 89-90
- Races**, Caucasian, Mongol, and Negro, 90, 93, 340
 —, colour distinctions between, 93
 —, equal educability of, 89, 93, 177, 343
 —, mixture of, 223
 —, physical differences and mental uniformity in, 90
 —, unity of, 90, 341
- "Rational animals,"** 101
- Regeneration**, 6-7, 38
- Religion**, 192, 200, 203, 231-232, 259, 269, 283, 299-300, 311, 333, 336, 348
 —, historical humanisation of, 327-330
- Religious implications of the specio-psychic theory**, 210-212
- Reproduction**, 9-10, 38
- Retrogression**, 200
- Rule of conduct**, 209, 336
- Science**, 200, 203, 206-207, 232, 259-260, 270, 284
 —, genius in, 364
 —, historical development of, 331

- Scientific and pre-scientific methods, 130-131, 331
- Senses, the, 18-22
 — in man, 52
- Sensibility, 5-6, 38
- Similarities do not cancel differences in biology, 167-169
- Social conditions, 208
 — factor in discoveries, 131
 — inequality, 78-79
- Society, 205
- Sociology, 192, 217, 347, 366
- Specio-psychic, all men are, 98-99
 — instincts, 137, 172-173
 —, man the only — being, 99-101
 —, meaning of, 54, 148
 — theory, the, widely canvassed, 110-116
- Specio-psychism and tradition, 169
 —, cause of, 135-142
 —, excludes numerous profound prejudices, 287-288
 —, full importance of, 90
 —, not an accidental character in man, 99-101
- Speech as human differentia, 143-145
 —, implications of, 191-193
- Stationariness produces virtual absence of mentality, 16
- Summing up the fundamentals of the subject, 348-349
- Superiority, human, innate or cultural, 94-95
- Supreme Being, modern conception of, 106
-
- Tasmanian aboriginals, 89, 93, 293
- Tests, intelligence, 94, 192
- Theoretical implications of the specio-psychic theory, 194-196
- Time factor, 219-220
- Tools, 73-75, 84, 103-104
 —, animal and human — compared, 338-339
 —, animals and, 80-84
 —, evolution of, 74-75, 170, 293, 338
 —, material and mental, 74
 —, progress in, 253
 —, variety of, 229
- Traditions among animals, 169
 — and customs as trammels, 280
 —, definition of, 201
 —, evolution of, 129-130
 —, influence of national, 94-95
-
- Variation, germinal, 11-13, 39
-
- War, 204, 222, 258, 269, 270, 284, 291, 292, 307, 332, 336
 —, its historical humanisation and its passing, 317-320

ERRATA

- p. 42, line 17 from below, for "exceptions," read "exceptions)"
 93, 8, for "dolicocephalic" read "dolichocephalic"
 140, 18 from below, for "passing by" read "passingly"
 220, 3 from below, for "hesitate" read "hesitate"
 225, 20, for "a" read "A"
 285, 1, new paragraph.
 287, 12, omit comma.
 298, 11 from below, for "because" read "because"
 324, 21 from below, for "millenium" read "millennium"