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Changes of address

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Communications from the Hubrecht Laboratory

I The scientific staff

In the beginning of 1968 a tenth member joined the staff: Mr. B. Z. Salomé, M.Sc. He acts as chief librarian and supervises and coordinates all work connected with the Central Embryological Library, and with scientific information dissemination both inside and outside the Laboratory.

II The international team project

The *sixth international team in embryology* met from February 1st till July 31st, 1968. Its central topic was: "Cell contacts and their role in morphogenesis and cytodifferentiation". The co-leader of the team, Prof. L. Weiss of the Roswell Park Memorial Institute, Buffalo, N.Y., was present during several weeks at the beginning of the team period. A series of introductory lectures were given by him and by the entire staff of the Laboratory; several faculty members of the University of Utrecht also lectured on specific topics during this programme.

Three of the 16 accepted members had to withdraw for various reasons. The team ultimately consisted of the following members:

- Dr. R. Adler (Buenos Aires, Argentine)
- Dr. D. Beig (Rio Claro, Brasil)
- Dr. Beth Burnside (Austin, Tex., U.S.A.)
- Dr. R. Hauser (Bern, Switzerland)
- S. Kochav, M.Sc. (Jerusalem, Israel)
- Dr. Louise Luckenbill (Boston, Mass., U.S.A.)
- Dr. J. Marthy (Basel, Switzerland)
- Dr. Teresa Rogulska (Warsaw, Poland)
- Miss Aysel Şeftalioglu, M.Sc. (Ankara, Turkey)
- Dr. A. Scisławski (Krakow, Poland)
- Dr. R. Singh (Jaipur, India)
- Miss Sri Sudarwati, M.Sc. (Bandung, Indonesia)
- Dr. A. Švajger (Zagreb, Yugoslavia)

The members carried out a variety of research projects planned so as to fit into the research programmes of the Laboratory's various research units.

The seventh team will probably meet in 1971 or 1972. A circular pertaining to this team will be distributed about 18 months in advance.

III Foreign guests

Miss R. Czołowska (Warsaw) finished her cytochemical study of the germinal cytoplasm in oocytes of *Xenopus*, and returned to Poland in March 1968.

Dr. J. G. Hollyfield (Austin, Tex.) continued his study of mitotic activity and cell migration in the layers of the retina of the amphibian eye during metamorphosis.

Dr. K. Ulrich (Kgs.Lyngby, Denmark) visited the Laboratory during February 1968 to learn the technique of cell electrophoresis and to take part in discussions of the international team.

Dr. Rosine Chandebois (Marseille) stayed at the Laboratory in May to learn experimental techniques with amphibian embryos. Also during May, short

visits were paid by Dr. W. P. Luckett (Madison, Wis.) to work in the Central Embryological Collection, and by Miss J. M. Chegwiddden (London) to learn embryological techniques.

Four members of the sixth international team stayed on after July 1968 for varying periods of time. Dr. Adler studies mechanisms of recognition among disaggregated chick embryo neural cells *in vitro*. Miss Sudarwati investigates inductive interactions during the formation of the marginal zone in the anuran blastula. Dr. Burnside is tracing the incorporation of polysaccharide precursors into the cell surface of slime mold myxamoebae by means of electron microscope autoradiography. Finally Dr. Luckenbill studies ultrastructural aspects of the so-called "surface coat" in early amphibian development.

Dr. R. W. Glade (Burlington, Vt.) arrived in September for a stay of one year. He has started a cytochemical study of the events associated with grey-crescent formation in the amphibian egg.

Dr. N. Nikitin (Leningrad), an original applicant to the sixth international team, arrived in October for a stay of six months. He works on aggregation and chemotaxis in the true slime molds (*Myxomycetae*).

Dr. I. Slabý (Plzeň, Czechoslov.) arrived in October and works on a technique for mass separation of amphibian embryonic cells to be used in biochemical studies of early differentiation.

Dr. M. Klíma (Brno, Czechoslov.) worked in the Central Embryological Collection during two weeks in November.

IV Facilities for international use

These facilities comprise the Central Embryological Collection, and the Central Embryological Library, with its extensive reprint collection, and its bibliographical service and copying service. Details pertinent to these facilities may be found in the information booklet distributed on a large scale in 1966. This booklet is available on request. A special leaflet describing the Central Embryological Library and its facilities is also available on request.

Communications of the „Institut International d'Embryologie”

(Embryological Section of the I.U.B.S.)

The I.I.E. announces with deep regret the death of its member J. D. Boyd (Cambridge).

A *General Assembly* of the I.I.E. was held on September 6, 1968, during the VIth *International Congress of Embryology*, held in Paris, September 1—7. A number of important decisions were taken:

1) A proposal was accepted to *change the name* of the organization into “International Society of Developmental Biologists”. This change will be effected soon.

2) The *next International Congress* will be held in 1973. This will put the Congresses out of phase with other international meetings of a similar nature.

3) The I.I.E. (or I.S.D.B.) shall sponsor *small symposia* devoted to important problems in developmental biology. It is hoped to have at least one of these each year.

The composition of the Board for the next term (1968—1973) is as follows:

| | |
|--------------------------|---|
| President | A. Monroy, Italy |
| Past President | Et. Wolff, France |
| Secretary-Treasurer | E. Zwilling, U.S.A. |
| Vice Presidents | L. Gallien, France E. Hadorn, Switzerland T. Yamada, U.S.A. |
| Members | M. Abercrombie, U.K. J. D. Ebert, U.S.A. J. J. Pasteels, Belgium L. Saxén, Finland |
| Adj. Secretary-Treasurer | P. D. Nieuwkoop, Netherlands |

The I.I.E. at present has 373 members; 59 new members were accepted by the Board in 1968. The latest membership list is to be found in the twelfth main issue of this periodical (1967, p. 265). A new list will be published in the thirteenth main issue (1969). The Board should like to see the membership become much more *broadly and widely representative of developmental biology*, and therefore earnestly solicits proposals as well as spontaneous applications for membership. The procedure is as follows:

a) Candidates for membership can be proposed or supported by *two members* at any time. The Board screens the applications once or twice a year, and decides about acceptance by simple majority of votes among its members.

b) The requirement for membership is that the candidate should have made a *substantial contribution to the field of developmental biology*. The Board decides whether a particular applicant meets this standard.

c) Proposals must be accompanied by a *curriculum vitae* and a *list of publications* of the candidate, and should be sent to Prof. P. D. Nieuwkoop, Hubrecht Laboratory, Uppsalalaan 1, Universiteitscentrum "De Uithof", Utrecht, Netherlands.

Utrecht, November 1968

The Adjunct Secretary-Treasurer,
P. D. Nieuwkoop

Book notices

N.B. *These notices are descriptive rather than critical. Their aim is to provide an idea of the scope and potential usefulness of the books.*

General

1. BUTLER, J. A. V., 1968 — Gene control in the living cell
2. COBBEN, R. H., 1968 — Evolutionary trends in Heteroptera
3. HARRIS, H., 1968 — Nucleus and cytoplasm
4. McLAREN, A. (Edit.), 1966 — Advances in reproductive physiology, vol. 1
5. MITTWOCH, U., 1967 — Sex chromosomes
6. OPPENHEIMER, J. M., 1967 — Essays in the history of embryology and biology
7. PLESSE, W., 1967 — Philosophische Probleme der ontogenetischen Entwicklung
8. SIGOT, M., 1968 — La culture d'organes
9. SIMKISS, K., 1967 — Calcium in reproductive physiology

Instruction in developmental biology

10. BLECHSCHMIDT, E., 1968 — Vom Ei zum Embryo
11. BRACHET, J., 1968 — Chemical embryology
12. COHEN, J., 1967 — Living embryos (revised 2nd edit.)
13. CRAIGMYLE, M. B. L., 1966 — Embryology
14. DOWNS, L. E., 1968 — Laboratory embryology of the frog
15. SCHMIDT, G. A., 1966 — Evolutionäre Ontogenie der Tiere
16. SCOTT, J. H., 1967 — Dento-facial development and growth
17. VANABLE, JR., J. W. and J. H. CLARK, 1968 — Developmental biology

Research in developmental biology

18. BARNES, A. C., 1968 — Intra-uterine development
19. BENIRSCHKE, K. and S. G. DRISCOLL, 1967 — The pathology of the human placenta
20. CURTIS, A. S. G., 1967 — The cell surface: its molecular role in morphogenesis
21. DENIS, H., 1966 — Activité des gènes au cours du développement embryonnaire
22. HUGHES, A. F. W., 1968 — Aspects of neural ontogeny
23. KUO, ZING-YANG, 1967 — The dynamics of behavior development
24. LIE, T. A., 1968 — Congenital anomalies of the carotid arteries
25. MONROY, A. and A. A. MOSCONA (Edits.), 1966 and 1967 — Current topics in developmental biology, vols. 1 and 2
26. ROMANOFF, A. L., 1967 — Biochemistry of the avian embryo
27. RUGH, R., 1968 — The mouse, its reproduction and development
28. STEGNER, H.-E., 1967 — Die elektronenmikroskopische Struktur der Eizelle
29. STRONG, S. J. and G. CORNEY, 1967 — The placenta in twin pregnancy
30. TRUETA, J., 1968 — Studies of the development and decay of the human frame
31. WEBER, R. (Edit.), 1967 — The biochemistry of animal development, vol. II
32. WILT, F. H. and N. K. WESSELLS (Edits.), 1967 — Methods in developmental biology

Symposium reports etc.

33. BERNHARD, C. G. and J. P. SCHADÉ (Edits.), 1967 — Developmental neurology
34. CROSS, K. W. and G. S. DAWES (Edits.), 1966 — The foetus and the newborn: recent research
35. DEFENDI, V. and M. STOKER, (Edits.), 1967 — Growth regulating substances for animal cells in culture
36. DE REUCK, A. V. S. and J. KNIGHT (Edits), 1967 — Cell differentiation
37. ESSBACH, H. and I. RÖSE (Edits.), 1966 — Plazenta und Eihäute
38. FLEISCHMAJER, R. and R. E. BILLINGHAM (Edits.), 1968 — Epithelial-mesenchymal interactions
39. LOCKE, M. (Edit.), 1967 — Control mechanisms in developmental processes
40. MINKOWSKY, A. (Edit.), 1967 — Regional development of the brain in early life
41. NEČAS, O. and M. DVOŘÁK (Edits.), 1967 — Cell differentiation
42. SMITH, R. T., R. A. GOOD and P. A. MIESCHER (Edits.), 1967 — Ontogeny of immunity
43. TISSUE CULTURE ASS., Inc. (Edit.), 1966 — Phenotypic expression
44. WESTFALL, B. B. (Edit.), 1967 — Second decennial review conference on cell tissue and organ culture
45. WOLFF, E., (Edit.), 1967 — De l'embryologie expérimentale à la biologie moléculaire
46. WOLSTENHOLME, G. E. W. and M. O'CONNOR (Edits), 1968 — Growth of the nervous system
47. FRIEDR.-SCHILLER-UNIV. Jena (Edit.), 1968 — Pathophysiologie der foetalen und neonatalen Entwicklung

Plant morphogenesis

48. LAETSCH, W. M. and R. E. CLELAND (Edits.), 1967 — Papers on plant growth and development
49. TORREY, J. G., 1967 — Development in flowering plants
50. WARDLAW, C. W., 1968 — Morphogenesis in plants
51. WARDLAW, C. W., 1968 — Essays on form in plants

1 GENE CONTROL IN THE LIVING CELL 1968

By J. A. V. Butler
164 pp., 58 figs., 4 tbs.

George Allen & Unwin Ltd.
London
Price: (U.K.) 36 s.

This book is written in a simple and straightforward style, and is aimed primarily at the educated layman and the beginning student. However, it is an excellent survey of a comparatively very new field of investigation, and therefore can be recommended for rapid orientation in this area. The author has been one of its pioneers as a specialist particularly in the biochemistry of histones.

The book is not exhaustive in its treatment but represents a personal and selective view. Recent progress is discussed after briefly introducing the necessary background material, which is mainly of a biochemical nature.

Part I of the book occupies about 70 pages and is entitled "Genes and gene

control"; it contains chapters on genes and their functions, gene control in bacteria, gene control in animals, hormones and gene control, processes of differentiation, and mechanisms of immunity. Part II deals with genes and cancer.

The illustrations are for the greater part simple but clear diagrams. There is a selected list of references for each chapter, and a combined author and subject index.

2 EVOLUTIONARY TRENDS IN HETEROPTERA

Part I. Eggs, architecture of the shell, gross embryology and eclosion
1968

By R. H. Cobben
475 pp., 316 figs., 2 tbs.

Centre for Agricultural Publishing
and Documentation - Wageningen, Neth.
Price: H.fl. 55.—

This monumental monograph is essentially a biotaxonomic study, but it contains such a wealth of data on the structure and biology of Heteropteran eggs that it is undoubtedly of interest to specialists in insect embryology. Some 400 species representing almost all families of the Heteroptera were studied; eggs were obtained either from living animals or from museum specimens.

In the careful descriptions attention is paid to egg shape and mode of oviposition, architecture of the chorion, gross embryogenesis, dynamics of eclosion, bilateral asymmetries in the fully grown embryo, and the polarity of the egg system. Incubation periods, diapause phenomena, and reproductive cycles are summarized. The embryological data are compared with the literature dealing with other insect Orders.

The book is profusely illustrated with beautiful drawings and photographic plates; it has an extensive bibliography, and author and subject indexes.

3 NUCLEUS AND CYTOPLASM

1968

By H. Harris
157 pp., 8 figs., 16 pls., 1 tb.

Clarendon Press
Oxford
Price: (U.K.) 30 s.

Contents: 1. The expression of genetic information; 2. The genetic operator model; 3. The search for the messenger; 4. Regulation; 5. Hybrid cells; 6. Differentiation.

The object of this book, based on a series of lectures, is to provide an introduction to some of the salient problems in the field of biochemical nucleocytoplasmic relationships. The author has been an active worker in this field, and is noted particularly for his pioneer work on somatic cell hybridization *in vitro*.

The approach followed in this book is analytical rather than didactic. The discussion is based to a large extent on the author's own experiments on *Acetabularia*, bacteria, and animal cells; the style is highly personal, and the ideas expressed are unorthodox and thought-provoking. The book is pervaded by a sceptical attitude towards the widely, and, the author believes, often uncritically applied Jacob-Monod operator model for enzyme synthesis in *E. coli*. The author defends the thesis that in most cells protein synthesis is regulated in the cyto-

plasm, not in the nucleus. He further extensively discusses the possible mechanisms for such control.

The book is very well produced and has excellent photographic plates. It is concluded by author and subject indexes.

4 ADVANCES IN REPRODUCTIVE PHYSIOLOGY
 Vol. 1, 1966

Editor: A. McLaren
295 pp., 26 figs., 18 pls., 19 tbs.

Logos Press
Academic Press
London - New York
Price: \$ 12.50; 100 s.

Contributors: Biggers (Philadelphia, Pa.), Blackler (Ithaca, N.Y.), Bland (London), Dawkins (London), Donovan (London), Hancock (Edinburgh), Jacobs (Edinburgh), Lake (Edinburgh), McFeely (Philadelphia, Pa.), Venning (High Wycombe, Bucks.), Whitten (Canberra)

This book is the first in a new series of review volumes to be published annually. As with other "Advances" series the choice of topics is such as to provide something of interest for everyone working in the field as a whole, with no attempt to concentrate on specific sub-fields. In the present volume this results in an extreme variety of subjects.

The only truly embryological contribution is that by Blackler on embryonic sex cels of amphibia. Further reviews that may be of interest to developmental biologists are those on intersexuality in domestic mammals (Biggers and McFeely), on the ultrastructure of mammalian spermatozoa (Hancock), on the uterus and the control of ovarian function (Bland and Donovan), and on the hazards of birth (Dawkins).

All reviews are well-organized and -illustrated, and have extensive bibliographies. The book has no indexes.

5 SEX CHROMOSOMES
 1967

By U. Mittwoch
315 pp., 69 figs., 4 tbs.

Academic Press
New York - London
Price: \$ 14.—; 112 s.

This is one of the three important books recently written on the chromosomal basis of sex. The other two, by G. Bacci (1966) and by S. Ohno (1967), were reviewed in the twelfth main issue of "General Embryological Information Service" (1967, p. 270 and 271 respectively). Among the three, the present one is undoubtedly suited best as an introduction into the field for students and non-specialists, partly because it follows the historical approach. The treatment is selective rather than exhaustive, and the scope is intermediate between that of an exhaustive book like Bacci's, and the type of research monograph provided by Ohno.

The book is opened by two elementary chapters on the chromosomal basis of sex determination, and on mitosis, meiosis, and the formation of gametes. Then follow seven chapters discussing sex chromosomes in plants and in a variety of animal forms, ranging from insects through lower and higher vertebrates to man.

The various aberrant sex chromosome constitutions in man are extensively reviewed.

Chapter 10 then deals with sex chromatin in man and other mammals (with a discussion of the Lyon hypothesis concerning the differential inactivation of one X-chromosome in female cells), and Chapter 11 discusses the concept and characteristics of heterochromatin. The final chapter, which deals with the function of the sex chromosomes in development, is significantly brief, showing the paucity of knowledge in an area that is of immediate concern to embryologists. The author makes clear that this area is still largely one of speculation.

The book is well-illustrated. It has a bibliography of 41 pages, which is up-to-date until 1966, and author and subject indexes.

6 ESSAYS IN THE HISTORY OF EMBRYOLOGY AND BIOLOGY

1967

By J. M. Oppenheimer
374 pp.

M.I.T. Press
Cambridge, Mass. - London
Price: 117 s.

Contents: Embryological concepts in the twentieth century; Questions posed by classical descriptive and experimental embryology; Ross Harrison's contributions to experimental embryology; Analysis of development: problems, concepts and their history; Analysis of development: methods and techniques; Embryology and evolution: nineteenth century hopes and twentieth century realities; An embryological enigma in the origin of species; The non-specificity of the germ-layers; K. E. von Baer's beginning insights into causal-analytical relationships during development; John and William Hunter and some eighteenth century scientific moods; John Hunter, Sir Thomas Browne and the experimental method; William Harvey and historical change; William Gilbert: plant grafting and the grand analogy; Postscript: additional references.

The author of this book, who has been an active embryologist as well as a noted writer on the history of this subject for many years, has brought together in this book thirteen of her most important essays, originally published elsewhere in the course of more than two decades (the oldest essay dates from 1940, the most recent one from 1966). The author writes in her preface that "... a number of us who are working embryologists feel that our life in our laboratories is made more meaningful to us when we know something about our intellectual forebears ... [The essays] are presented more or less in reverse chronological order with respect to their content ... The design of the volume is thus intended to conduct us from what we know best toward what we see only more dimly."

None of the essays except the last is illustrated. There is a short postscript giving references to books and articles on the history of science not yet in print when the essays were first published. The book is beautifully printed; it is concluded by an author index.

7 PHILOSOPHISCHE PROBLEME DER ONTOGENETISCHEN ENTWICKLUNG

1967

By W. Plesse
128 pp., 7 figs., 1 table
(paper-bound)

VEB Gustav Fischer Verlag
Jena
Price: MDN 15.—

This monograph contains a philosophical analysis of the phenomena of onto-

genesis by means of the dialectic-materialistic method of marxist philosophy. Unlike the writings of many marxist biologists of the recent past, however, this is a strictly philosophical work, and the author is critical of those who in the past have allowed political dogmas to influence their biological reasoning, and even their experimental results (Lyssenko, among others). For this reason the book is interesting for those who want to know about recent developments in this area of philosophy in Eastern Europe.

The central theme of the book is the problem of discontinuous qualitative transformation ("qualitativer Umschlag") *versus* continuous quantitative change in ontogenesis. The philosophical analysis of this problem makes use of numerous biological data, mainly from the field of plant development, and taken from recent work of both Eastern-European and Western biologists. Among the latter E. Bünning is the author most frequently quoted. Frequent reference is made to recent works by Russian and East-German philosophers. The book contains a certain amount of controversy against neothomistic philosophy.

8

LA CULTURE D'ORGANES

1968

By M. Sigot

„Que sais-je" no. 1288

127 pp., 37 figs.

Presses Universitaires

de France - Paris

This little book, though written primarily for the interested layman, can be recommended as introductory reading for students and biologists of other specializations who want a quick survey of the field of organ culture. The author is chief assistant at the Collège de France, Paris, and the book has a preface by Prof. Et. Wolff.

Although the approach is of course highly selective, the history, the methods, and the many-sided applications of organ culture are admirably surveyed, including the major advances of the last decade.

The clear illustrations have been well chosen. Numerous authors are mentioned in the text; the bibliography is restricted to a few books.

9

CALCIUM IN REPRODUCTIVE PHYSIOLOGY

A comparative study of vertebrates

1967

By K. Simkiss

278 pp., 63 figs., 9 pls., 123 tbs.

Chapman & Hall Ltd., London
Reinhold Publ. Corp., New York
Price: 60 s.

Although this monograph is concerned with a very specialized area of animal physiology, calcium is of such vital importance in the developing animal that the book will be valuable to many vertebrate embryologists.

The book follows a broadly comparative approach, and brings together such a wealth of data that it will serve as a work of reference for years to come. Moreover, the subject matter is very clearly organized. The 16 chapters are arranged in two parts, the first of which consists of 7 chapters dealing with those vertebrate organ systems that store or metabolize calcium (including the ovary and

the yolk), and with regulatory mechanisms involved in calcium metabolism. Part two discusses reproductive adaptations. It starts with three chapters on calcium in mammalian reproduction, respectively dealing with pregnancy, lactation, and calcium metabolism of the foetus and newborn. Then follow two pairs of chapters dealing with calcium metabolism in the mother animal and the embryo in birds and reptiles respectively. The penultimate chapter is devoted to calcium metabolism in adult and larval amphibians (mainly anurans). The book is concluded by a brief chapter presenting conclusions and speculations.

The book contains many illustrations, most of them graphs, and numerous tables in the text, summarizing the factual evidence for generalized statements in the text. In addition, there are nine excellent photographic plates. Each chapter has its own bibliography, citing both the most recent and the important older literature of all language areas. The book is concluded by a subject index, but an author index is lacking.

10

VOM EI ZUM EMBRYO

1968

By E. Blechschmidt
136 pp., 54 illustr.

Deutsche Verlags-Anstalt
Stuttgart

This book is difficult to evaluate. It is not even clear for which category of readers it is written, although it seems to be meant primarily for the cultivated layman. It is based solely on the author's own ideas, which were already partially incorporated into many of his earlier, more specialized publications. The present outline claims to present a completely new theory of human development. The author's viewpoint is certainly novel; in how far it really adds much to our understanding of human development must be left to the individual reader to decide.

What this new viewpoint is, is difficult to assess briefly, partly on account of the style, which is often nebulous and more typical of German philosophy than of natural science. The author characterizes the method he uses as "kinetic anatomy" or "developmental dynamics". His explanation of both morphogenesis and differentiation invokes, among other things, "formative movements" (Gestaltungsbewegungen) asserted to take place in so-called "metabolic fields" (Stoffwechselfelder), which are morphologically definable (*sic!*). The formative movements are described in terms of "growth tension" (Wachstumszug), "growth pressure" (Wachstumsdruck), "material fluxes" (Materialbewegungen, Fluxionen) and other analogues of mechanical terminology. Amazingly, all these forces and movements are inferred exclusively from the gross and microscopic morphology of the embryo. There is no attempt to relate them to experimental evidence, and the author apparently does not even consider them as needing experimental verification. In fact, his interpretations are frequently in conflict with current concepts of both experimental and comparative embryology.

These are only a few salient points in the author's train of thought. He presents other ideas, e.g. on the role of the genes and of exogeneous so-called "developmental stimuli" (Entwicklungsreize), which are even vaguer than the ones mentioned above.

The book is beautifully produced and superbly illustrated with black-and-white and coloured drawings and photographs. The photographs of human embryos are based on specimens partly from the Carnegie collection, and partly from the author's own extensive collection at Göttingen University.

1968

By J. Brachet
533 pp., 124 figs.

Hafner Publishing Cy.
New York - London
Price: \$ 15.—

This classic, originally published in French in 1945, was translated by L. G. Barth in 1950. The present book is a facsimile reprinting of the English edition, and will be welcome to many. It is well-printed on heavy-quality paper, and sturdily bound.

LIVING EMBRYOS

An introduction to the study of animal development
revised 2nd edition, 1967

By J. Cohen
166 pp., 49 figs., 15 pls., 1 table

Pergamon Press - Oxford etc.
Price: Hard cover \$ 4.50; 25 s.
Flexi-cover \$ 3.—; 15 s.

The first edition of this elementary textbook of embryology, written for the use of undergraduates in zoology and medicine, appeared in 1963 and was reviewed in the Supplement to the tenth issue of General Embryological Information Service (1964, p. 21-22). The present edition was revised and extended, and changes suggested by users of the first edition were incorporated. Nevertheless, the basic plan of the book has remained the same. The section on the organogenesis of the eye was completely rewritten. Sections on the organogenesis of the skin and the nasal organ were added.

New is also the inclusion of a limited number of references, mostly to books; together they constitute a suitable list of further reading. The appendix on sources of material was extended by a section on the zebra fish, and there is a new appendix listing films recommended for the teaching of embryology.

The number of text figures was increased from 40 to 49, and the number of photographic plates from 8 to 15.

EMBRYOLOGY

1966

By M. B. L. Craigmyle
"Concise Medical Textbook" Series
208 pp., 86 figs., 5 tbs.

Baillière, Tindall &
Cassell Ltd. - London
Price: \$ 6.50

This short book was written for the use of medical students. It provides the essential minimum of facts of human embryology, without literature references and discussions of controversial points; the organization of the subject matter is unconventional but convenient.

Each of the later chapters contains a brief listing of the major developmental abnormalities in the organ system concerned. A special feature worth mentioning is the attention given to immunological competence in relation to the lymphatic system.

The illustrations are for the most part clear but highly schematical line

drawings. The labeling is clear, but the alphabetical lettering system used is definitely inferior to a self-explanatory system. The representation of the position of the mammary ridges in fig. 31 is wrong. There is a small error in fig. 60, where the special visceral efferent column is denoted as afferent. In fig. 67 it is not clear why the mature eye is shown in pear-shape (fixation shrinkage?).

For some reason the subject of twins is not mentioned. Double monsters and teratomas are likewise not discussed. The book is concluded by a subject index.

14 LABORATORY EMBRYOLOGY OF THE FROG

1968

By L. E. Downs
51 pp., 13 figs.
(paper-bound)

Wm. C. Brown Comp.
Dubuque, Iowa
Price: \$ 2.25

This laboratory manual is of the conventional type. It contains 15 exercises based on serial sections and cleared whole mounts of the frog embryo. The first deals with cleavage, blastula, and gastrula, the second with neural plate, neural groove, and neural tube stages. Then follow three exercises on the four millimeter, four on the six millimeter, two on the eight millimeter, and two on the ten millimeter stage. Each exercise is concluded by a list of questions.

The manual is illustrated with very good drawings of serial sections and whole mounts. The serial section drawings are often accompanied by "exploded" perspective drawings of the whole embryo, showing three-dimensional relationships.

There are a number of annoying printing errors in the titles of the first three exercises.

15 EVOLUTIONÄRE ONTOGENIE DER TIERE

1966

By G. A. Schmidt
364 pp., 108 figs., 14 tbs.
(Edited by H. G. Herbst)

Akademie-Verlag
Berlin
Price: MDN 36.—

This textbook is a translation based on a revised version (1964) of the author's "Animal embryology", first published in Russian in 1951. The proper English equivalent of the title would be "Comparative and evolutionary animal embryology". The author has been active in the field of comparative and experimental embryology for more than forty years.

The book was written primarily for biology students. It is based on data from three major disciplines, viz. comparative embryology and ontogeny, experimental embryology (Entwicklungsmechanik), and the more recent discipline of oecological embryology, to which the author himself and a number of his Russian colleagues have contributed greatly. The whole field of evolutionary embryology is strongly linked up with two nineteenth-century Russian investigators: A. Kowalewski and I. Metschnikow, and their numerous followers. Naturally, in this book much stress is placed on the contributions of Russian workers, and it is this feature that makes it particularly interesting for those who are unable to read the original Russian literature.

After a brief introduction and an historical survey, three chapters deal with pre-embryonic development, cleavage, and gastrulation. Then follows a brief chapter on organogenesis, highlighting the determination problem, and two chapters discussing the origin of mesenchyme and mesoderm and the origin and significance of metamerism. The next chapter deals with types of ontogenetic cycles, and discusses free-living larval stages, non-larval cycles, and "enclosed" larval stages. Then follows a chapter on ontogenesis viewed as a whole, its subdivision into phases, and evolutionary phase-shifts. The penultimate chapter discusses „Umwelt" and ontogenesis (ontogenetic adaptations, changes of ontogenesis by external factors), while the last chapter considers the relationships between ontogenesis and phylogenesis.

The book is profusely illustrated (numerous figures from Russian sources). It has a bibliography of 17 pages (about 40 % Russian titles), and is concluded by a taxonomic listing of taxa cited in the text, and an extensive subject index.

16 DENTO-FACIAL DEVELOPMENT AND GROWTH

1967

By J. H. Scott

Pergamon Series in Dentistry, Vol. 6
217 pp., 74 figs., 6 tbs.

Pergamon Press
Oxford etc.

Price: 63 s.; \$ 10.—

This book will mainly be of interest to dental students and practitioners. However, it is also useful to all those who need basic knowledge of the development, growth, and function of the dento-facial region in man, and, to some extent, in other mammals. To quote from the preface, the book has as one of its aims "to provide the kind of knowledge on which a functional appreciation of the total dental apparatus can be established". Thus it should also be of interest to those working in the field of functional developmental anatomy.

Three of the five chapters deal with the pre- and postnatal development and growth of the dentition, the cranio-facial skeleton, and the oro-facial musculature respectively. The other two chapters discuss the development and maintenance of bone as a tissue, and the anatomy of cephalometrics.

The book is illustrated with line drawings and photographs. The latter are usually unlabeled. On the whole the explanatory information contained in the figure legends is very scanty, which leads to unnecessary difficulties for readers not intimately acquainted with the complicated subject. There is a ten-page bibliography and an alphabetical index.

17 DEVELOPMENTAL BIOLOGY

A laboratory manual

1968

By J. W. Vanable, Jr. and J. H. Clark
189 pp., 64 figs., 6 tbs.
(paper-bound)

Burgess Publishing Comp.
Minneapolis, Minn.
Price: \$ 5.—

Contents: Gametogenesis; Fertilization; Early amphibian development; Early development of the fern gametophyte; Shoot apex study; Development of excised fern leaf rudiments in sterile culture; Hormones and the growth of plant tissue in culture: normal and tumor tissue; Study of prepared whole mounts and serial sections of the developing chicken embryo; Culture of cells on an oriented substratum: contact guidance; Morphogenesis in the cellular slime mold; Cell movements and development in explanted chicken embryos; Hormones and animal development; amphibian metamorphosis; Hormones and plant growth; Allometric growth; Regeneration, animal and plant; Mammalian development; Special projects.

This book is the laboratory manual for the undergraduate Developmental Biology course taught in the Biological Science Department at Purdue University, Lafayette, Indiana. As will be apparent from the table of contents above, in this course the areas of investigation are not restricted to one kingdom or even one class, but cover a wide range of organisms. Much of the time available in the course is devoted to carefully chosen experiments on living material, some of which are usually reserved for advanced courses.

Each chapter has a brief introduction providing some background and orientation. Apart from many specific questions interspersed throughout the text, most chapters have a series of general questions to be answered by the student on the basis of the outcome of his experiments and of his own thinking; all chapters are concluded by reference lists.

Blank "data summaries" are provided for many of the exercises. Simple line drawings and good photographs help the student to see what he should see, and to do what he is asked to do. An appendix assists in the advance preparation of the exercises by giving procedures for procuring and preparing materials, and by stating sources for the more unusual materials.

Although the effectiveness of the manual can only be judged after actual use during a course, it is certainly most useful also for those who are planning integrated developmental biology courses of this type.

18

INTRA-UTERINE DEVELOPMENT

1968

By A. C. Barnes
543 pp., 126 figs., 41 tbs.

Lea & Febiger
Philadelphia, Pa.
Price: \$ 18.50

Contributors: Asper (Baltimore, Md.), Baramki (Baltimore, Md.), Barnes (Baltimore, Md.), Bueding (Baltimore, Md.), Burnett (Baltimore, Md.), Colucci (Madison, Wis.), Cushner (Baltimore, Md.), Deren (Brooklyn, N.Y.), Goldblatt (Rochester, N.Y.), Hellegers (Baltimore, Md.), Holzman (Baltimore, Md.), Jarabak (Baltimore, Md.), Johnson (Baltimore, Md.), G. S. Jones (Baltimore, Md.), H. W. Jones (Baltimore, Md.), Kumar (Baltimore, Md.), Liss (Boston, Mass.), Long (Atlanta, Ga.), Martin (Augusta, Ga.), Montague (Baltimore, Md.), Rafferty (Baltimore, Md.), Rasmussen (Salt Lake City, Utah), Schrufer (Baltimore, Md.), Seeds (Baltimore, Md.), Sever (Bethesda, Md.), Walker (Baltimore, Md.).

This collaborative treatise, written by 26 contributors, all of them American, and most of them obstetricians, is intended mainly for the use of practising doctors. It brings together a host of data from widely scattered sources. The treatment of the many separate subjects is synoptic rather than exhaustive. In several of the contributions there is little direct reference to the literature, and many of the chapter bibliographies are selective. Nevertheless, the book may, in a limited way, be useful to research workers as a quick reference source.

The 27 chapters are arranged in three sections. The section on conception and placentation contains 6 chapters. The section on growth and development (11 chapters) deals with chromosomal considerations, with a variety of organ systems, and with the development of immune processes. The title of the last section, "Chromosomal aberrations", is a misnomer, since its 10 chapters, besides chromosomal aberrations as such, cover a variety of subjects such as the effects of drugs, irradiation and various infections and diseases, as well as intra-uterine diagnosis and the initiation of respiration.

The book is well-illustrated and has a detailed subject index.

1967

By K. Benirschke and S. G. Driscoll
512 pp., 321 figs., 16 tbs.

Springer-Verlag
Berlin - Heidelberg - New York
Price: DM 132,—; \$ 33.—

Contents: I. Examination of the placenta. II. Unusual shapes of the placenta; placenta accreta. III. Amnion and chorion. IV. Pathology of the umbilical cord and major fetal vessels; vestiges of embryonic structures. V. The placenta of multiple pregnancy. VI. Cellular exchange between mother and fetus; intervillous thrombosis; tumor metastasis. VII. Cysts and placental septa. VIII. Circulatory disturbances. IX. Infections. X. Hemolytic disease of the newborn. XI. Abortion. XII. Hydatidiform mole. XIII. Tumors of the placenta. XIV. The hormones of the placenta. XV. Miscellaneous conditions.

This large volume forms part of the "Handbuch der speziellen pathologischen Anatomie und Histologie" (vol. VII/5). It is mainly of interest to practising pathologists and obstetricians, and consequently will not be reviewed extensively. The reader is referred to the table of contents above. The manuscript of the book was finished in January 1966.

It may be mentioned that chapter V (The placenta of multiple pregnancy, 89 pp.) covers more or less the same ground as the monograph by Strong and Corney reviewed below (no. 29). The bibliography of this chapter contains about half the number of references that the monograph has, but it is interesting to note that a considerable proportion of these, both older and recent, do not occur in the bibliography of the monograph. The two bibliographies thus supplement each other.

The production of the book is up to the high standards usual with this publisher. The book has author and subject indexes.

THE CELL SURFACE: ITS MOLECULAR ROLE IN MORPHOGENESIS

1967

By A. S. G. Curtis
415 pp., 23 figs., 6 pls., 2 tbs.

Logos Press - Academic Press
London - New York

Contents: 1. The composition and structure of the cell surface, 2. Basic physical and chemical properties, 3. Cell adhesion: (I) basic structure and biophysics, 4. Cell adhesion: (II) the biological evidence, 5. The behaviour of single cells, 6. The behaviour of cell populations: model systems, 7. Morphogenetic movements: the cell surface in the embryo.

This book is presented by the author as a review and analysis of cell surface functions connected with multicellularity and morphogenesis, based on present-day knowledge about the molecular structure of surfaces. Compared with the book by L. Weiss reviewed in the twelfth main issue of *General Embryological Information Service* (1967, p. 274), the present work has the advantage of being essentially conceived from the point of view of the embryologist.

As is apparent from the table of contents, the treatment starts at the molecular level and advances via cell adhesion and the behaviour of single cells to more complex levels of cell surface interaction. The book may be characterized further by a quotation from the Introduction:

"I hope that the book will show that each level of interpretation rests on all preceding ones and that the molecular approach to the subject is the most

meaningful and the most hopeful experimentally. However, it will also appear that at present many of the links between each level of the subject are exceedingly tenuous and it is one of the objects of this book to reveal these deficiencies. But by using this approach it will be shown that a great deal of the conjecture which the subject has collected is redundant."

The last chapter of the book, which is also the longest (84 pp.), is perhaps of most immediate interest to embryologists. It contains, among other things, sections on fertilization, blastulation, gastrulation, neurulation, the neural crest, mesoderm cell movements, and patterning of cell contacts in the nervous system (including regeneration of neural connections).

We must be thankful to the author for presenting such a wealth of data in a coherent and very readable account, and also for the way in which he constantly points up the many areas in which solid experimental data are still lacking.

The text-figures are restricted to clear diagrams; all the plates are electron micrographs. The bibliography numbers 45 pages and is made entirely up to date in a brief addendum. The book is concluded by an extensive subject index.

21 **ACTIVITÉ DES GÈNES**
AU COURS DU DÉVELOPPEMENT EMBRYONNAIRE
1966

By H. Denis
144 pp., 61 figs., 13 tbs.
(paper-bound)

Desoer-Editions
Liège
Price: B.F. 180

This monograph reports on original research carried out by the author over a number of years, which has not been published in full in the form of journal articles. The work was carried out in the Laboratory of Animal Morphology, Brussels (Prof. Brachet) and at the Department of Embryology, Carnegie Institution, Baltimore (Prof. Ebert).

The monograph is in two parts. Part one ("Influence of actinomycin on embryonic development", work carried out in Brussels) deals with the influence of actinomycin on the synthesis of nucleic acids and proteins, and on the competence of the ectoderm and the inductive capacity of the blastoporal lip. All this work was done on embryos of *Pleurodeles waltlii*. Part two ("Liberation of genetic information during embryonic development") describes work carried out in Baltimore, using molecular hybridization techniques on *Xenopus laevis* material. An extensive discussion of the techniques used is followed by an exposé of the results obtained on the properties and types of messenger RNA synthesized by the embryo at successive stages.

As J. Brachet points out in his laudative preface to the monograph, the results presented here are very original and will form the basis for the forthcoming molecular attack of many important problems of embryology, e.g. preformation vs. epigenesis, role of cytoplasmic localizations, type of information transfer involved in cleavage, morphogenetic movements, induction etc.

The book is illustrated with numerous photographs and graphs. It has no subject index, but a very detailed table of contents partly compensating for this lack.

1968

By A. F. W. Hughes
249 pp., 90 figs., 1 tb.

Logos Press
Academic Press
New York - London
Price: \$ 12.50

This is the first book on neuro-embryology after more than 40 years. As stated by the author in his introduction, its central theme is the interaction between the nervous system and peripheral organs during development, the attention being concentrated on the tetrapod limb. The author, who has worked in this field for many years, has taken the opportunity of presenting a more continuous account of his own researches than has so far been published.

The book is in four chapters, followed by a brief Outlook. Chapter I describes the development of the neuron, and reflects the history of this field of investigation. Chapter II is concerned with the innervation of the tetrapod limb. Chapter III first discusses the influence of the periphery on central nervous development, and then proceeds to analyse the converse influences. Attention is focused successively on sense organs, the regeneration of appendages, and finally the relationships between nerves and muscles. Chapter IV is devoted to the ontogeny of behaviour. In the last section of this chapter special consideration is given to such subjects as the effects of drugs (mainly strychnine), the theories of resonance and myotypic specification, selective synaptic contact, central co-ordination patterns, and sensory relationships.

The book is illustrated with line drawings of high quality. It is concluded by author and subject indexes. The point of including in the author index the names of authors who only figure in their quality of editors of books cited is obscure.

23 THE DYNAMICS OF BEHAVIOR DEVELOPMENT

An epigenetic view

1967

By Zing-yang Kuo
252 pp.
(paper-bound)

Random House, Inc.
New York
Price: \$ 2.45

The author of this book has been active in the field of the study of animal behaviour and its developmental aspects since 1918, first in the U.S.A., later in China and Hong Kong. The major purpose of the book is "a revision of the most radical Watsonian behaviorism (of the early 1920's) by bringing it up to date and eliminating its early shortcomings". The author defines behavioral epigenesis as "a continuous developmental process from fertilization through birth to death, involving proliferation, diversification, and modification of behavior patterns both in space and in time, as a result of the continuous dynamic exchange of energy between the developing organism and its environment, endogeneous and exogeneous".

The book clearly shows the mark of the author's personal views and experience, as is evident in the stress placed on the extreme variability and complexity of behavioral patterns and on the presence of hitherto unexpected behavioral potentials, even in well-studied species, as well as in his very sceptical attitude

towards the genetic and evolutionary approach to the study of behavior. Although the environment is not considered all-important, it is allotted a much greater role than in the writings of most present-day specialists in this field. The author's views are illustrated with numerous previously unpublished observations on the postnatal ontogeny of behavior in birds, dogs, and cats.

After an introductory chapter there follow two chapters on the ontogeny of behaviour (prenatal and postnatal respectively; the former in fish, amphibians, birds, and mammals). In the next two chapters the author introduces two new concepts, viz. "behavioral gradients" and "behavioral potential". The former concept applies mainly to embryonic behavior and is intended to replace both the concept of local reflexes and that of "total pattern" (Coghill); its discussion is almost entirely theoretical. The latter concept is illustrated with numerous examples taken from postnatal behavior. Chapters 6 and 7 are entitled "Stimulus and environmental context" and "Morphological, biophysical, and biochemical factors" respectively.

The book is concluded by a summary and epilogue. It has no illustrations, but contains a 25-page bibliography and a combined author and subject index.

24 CONGENITAL ANOMALIES OF THE CAROTID ARTERIES

An angiographic study and a review of the literature

1968

By T. A. Lie

Excerpta Medica Monograph

143 pp., 31 figs., 27 pls., 6 tbs.

Excerpta Medica Foundation

Amsterdam

Price: H.fl. 36.—

The author of this monograph is a neurosurgeon at the St. Elisabeth Hospital in Tilburg, Netherlands. The book is based on a series of over 3.000 arteriograms made in this hospital and in some other neuroradiological departments in the Netherlands. The work is of particular value because the normal embryology of the aortic arches and their associated arteries is extensively discussed, and because the literature dealing with abnormalities of the carotid arteries at their origin in the cervical region and at the base of the skull is reviewed.

The book is well-produced and is illustrated with numerous excellent angiograms and schematic line-drawings. There is a ten-page reference list, up-to-date until early in 1967, and a subject index.

25 CURRENT TOPICS IN DEVELOPMENTAL BIOLOGY

Vol. 1, 1966

Vol. 2, 1967

Editors: A. Monroy and A. A. Moscona

Vol. 1: 317 pp., 100 figs., 20 tbs.

Vol. 2: 311 pp., 71 figs., 20 tbs.

Academic Press

New York - London

Price: Vol. 1: \$ 12.50

Vol. 2: \$ 14.—

Contents vol. 1: On "masked" forms of messenger RNA in early embryogenesis and in other differentiating systems (A. S. Spirin); The transcription of genetic information in the spiralian embryo (J. R. Collier); Some genetic and biochemical aspects of the regulatory program for slime mold development (M. Sussman); The molecular basis of differentiation in early development of amphibian embryos (H. Tiedemann); The culture of free plant cells and its significance

for embryology and morphogenesis (F. C. Steward *et al.*); Genetic and variegation mosaics in the eye of *Drosophila* (H. J. Becker); Biochemical control of erythroid cell development (E. Goldwasser); Development of mammalian erythroid cells (P. A. Marks *et al.*); Genetic aspects of skin and limb development (P. F. Goetinck).

Contents vol. 2: The control of protein synthesis in embryonic development and differentiation (P. R. Gross); The genes for ribosomal RNA and their transcription during amphibian development (D. D. Brown); Ribosome and enzyme changes during maturation and germination of castor bean seed (E. Marrè); Contact and short-range interactions affecting growth of animal cells in culture (M. Stoker); An analysis of the mechanism of neoplastic cell transformation by polyoma virus, hydrocarbons, and x-irradiation (L. Sachs); Differentiation of connective tissues (F. K. Thorp *et al.*); The IgA antibody system (M. A. South *et al.*); Teratocarcinoma: model for a developmental concept of cancer (G. B. Pierce); Cellular and subcellular events in Wolffian lens regeneration (T. Yamada)

In the preface to the first volume of this new serial publication the editors explain its aim and editorial policy. The primary aim is to bridge the "interdisciplinary communication gap" which exists between embryologists and non-embryologists such as biochemists, virologists, molecular biologists, and geneticists. These yearly volumes will therefore be devoted exclusively to brief topical reviews on sharply delimited subjects with emphasis on regulatory mechanisms at the molecular, biochemical, cellular, and histological levels. All contributions are solicited by the editors. There is an advisory board consisting partly of embryologists, and partly of other specialists in the fields mentioned above.

On comparison with "Advances in Morphogenesis", a similar serial publication from the same publishing house, which is now in its seventh year, the difference is at once apparent. It lies both in the stress on regulatory mechanisms, as defined above, and in the length of the contributions, which is less in the new publication, averaging about 30 pages.

It is not necessary to enumerate the 18 contributions in these two volumes. The wide scope and coverage will be apparent from the tables of contents above.

The books are well-printed and well-illustrated and are concluded by author and subject indexes.

26 BIOCHEMISTRY OF THE AVIAN EMBRYO

A quantitative analysis of prenatal development

1967

By A. L. Romanoff
416 pp., 103 figs., 49 tbs.

Interscience Publishers
John Wiley & Sons
New York - London - Sydney
Price: 185 s.

Contents: 1. Chemistry of the whole embryo; 2. Chemistry of the embryonic organ tissues; 3. Chemistry of the embryonic blood; 4. Chemistry of the extraembryonic membranes; 5. Chemistry of the nonembryonic portions of the egg; 6. Gross metabolic changes within the egg; 7. Pattern of prenatal chemical growth; 8. Bio-energetics of the developing egg; 9. Physicochemical phenomena of the egg contents.

This compilatory monograph may be regarded as a companion volume to two earlier books by the same author, "The avian egg" (1949) and "The avian embryo" (1960). It is a condensed reference book, the preparation of which has entailed close examination of more than 5,000 publications. About 600 of these are included in the bibliography, while many more are given in various tables.

Nearly all of the chemical data compiled in this book of course pertain to the

chick embryo. The book is essentially an inventory of chemical constituents and processes, presented without much discussion or interpretation. It is invaluable as a source book, but should not be regarded as an introduction to developmental biochemistry.

The organization of the subject matter will be apparent from the table of contents above. The text is supplemented by 159 pages of tabulated basic data, comprising 49 tables, 37 in the text, and 12 in an appendix at the end of the book. For these tables the quantitative data were recalculated into comparable units of measurement; they are given at daily intervals of development, both as absolute values and as concentrations. Wherever possible, the data were corrected for the most pronounced variables, such as egg weight and incubation temperature. Ranges of variability of measurements are often indicated.

The text is interspersed with many smaller tables and numerous very clear original graphs. Most of these are composite and illustrate important interrelationships of various sets of data. The book is concluded by an extensive subject index. The price of the book is excessive.

27 THE MOUSE, ITS REPRODUCTION AND DEVELOPMENT

1968

By Roberts Rugh
430 pp., 374 figs., 15 tbs.

Burgess Publishing Co.
Minneapolis, Minn.

This embryological treatise was written by an author who, as a teacher of embryology, has been dissatisfied with the use of the pig embryo, and who believes that it will be widely replaced by the mouse embryo within a few years. The book is based on data, gathered during many years, on the normal development of the CFI-S mouse, maintained under rigidly controlled conditions, using a mating technique which secures well-timed pregnancies.

The introductory chapter deals with general aspects of reproduction in the mouse, while the second chapter describes the reproductive systems of male and female adult mice. Chapter three deals with mating, fertilization, and early development up to $7\frac{1}{2}$ days. Chapter four consists of descriptions of embryos of from 8 till 11 days (at half-day intervals), and from 11 till 16 days (at daily intervals). The last chapter treats organogenesis in separate organ systems. Then follow 19 pages of addenda, consisting of tables and charts compiling miscellaneous data of practical significance, among them comparative tables of mouse and rat, and of mouse and human development, and a time table of various organ primordia in the mouse.

The main text is interspersed with very many illustrations, and with numerous tables compiling a wealth of information on mouse development. This is no doubt the most extensive and varied source of data on mouse embryology ever published, and as such is an impressive achievement.

The book is produced in offset print on good quality paper. The drawings are executed with the utmost care and are clearly labelled, resulting in an artistically and didactically most satisfactory result. The reproduction of the photographs, on the other hand, is often unsatisfactory, and particularly those of sections of early stages often lack too much detail.

The reviewer considers it a definite drawback that the figures and tables are not numbered, and that no reference is ever made to them in the text. Much

time is lost in looking for figures illustrating a particular structure or process. A separate page index for tabular material would also have been very useful. Another point of criticism concerns the way of indicating developmental age in figure captions. For early stages it is often not clear whether the age given is with respect to mating, ovulation, or fertilization. For later stages "days", "days gestation", or "g.d." are used indiscriminately, and the latter abbreviation, which apparently means "gestation days", is not explained.

The book is concluded by a 51-page glossary, a 45-page bibliography, and an extensive subject index. The point of including a general embryological glossary in a book of this kind is difficult to see. The bibliography is almost exclusively concerned with the mouse, and is claimed to be nearly complete; however, English titles predominate strongly. The bibliography is disfigured by numerous printing errors; some of the German and French titles are altogether unintelligible.

Since in the text no reference is made to literature cited, the bibliography would have gained greatly in usefulness by a subdivision following the table of contents.

28 DIE ELEKTRONENMIKROSKOPISCHE STRUKTUR DER EIZELLE

1967

By H.-E. Stegner
Ergebn. Anat. Entwickl.gesch.
Band 39, Heft 6
113 pp., 53 figs., 1 tb.
(paper-bound)

Springer-Verlag
Berlin - Heidelberg - New York

The main topic of this monograph is the ultrastructure of the mammalian and human oocyte, both in the mature state and during oogenesis. Other topics also treated are ultrastructural aspects of the follicular apparatus, the egg membranes, fertilization, cleavage, and the blastocyst prior to implantation. The monograph is largely based on the author's own findings, but also covers the work of numerous other authors, and thus serves as a guide to the literature. Wherever this is clarifying, work on lower vertebrates and invertebrates is also discussed.

There is a useful introductory section on techniques for preparing mammalian eggs for electron microscopy. Most of the illustrations are well-reproduced electron micrographs. The majority of these are original and refer to human, rabbit, and mouse material. The work is concluded by an 18-page bibliography and a subject index.

29 THE PLACENTA IN TWIN PREGNANCY

1967

By S. J. Strong and G. Corney
134 pp., 52 figs., 9 pls., 16 tbs.

Pergamon Press
Oxford etc.
Price: £ 6.2.0

This book arose largely out of original research by the two authors. During their studies they became impressed by the fact that so much in the seemingly settled subjects of twin conception, placentation, vascular relationships and zy-

gosity determination is still based on "a mixture of conjecture, false assumption and contrasting evidence".

While delving into the earlier literature, they in a sense rediscovered the important contributions made by the German physician F. Schatz (1841—1920), and consequently much attention is given to his work, many passages are quoted in English translation, and many of his illustrations are reproduced.

The book starts with an historical review of the problem, and then proceeds to discuss developmental aspects, the frequency and nature of the possible vascular communications between the placentae, and the influence that these abnormalities may have on the course of the intrauterine and extrauterine life of the twins. The book is closed by a brief chapter entitled "The future of twin studies".

The book is remarkably well-produced and the numerous illustrations, including many coloured plates, are of high quality (unfortunately the numbering of fig. 6.4 has dropped out altogether). It is a pity that the name Stalpart van der Wiel, correctly spelled in the bibliography, is misspelled in the text and the captions of figs. 1.2 and 1.3.

The bibliography comprises 674 titles. There is a subject index, as well as a separate index to references not cited in the text, but which may be of interest to the readers.

(See also review no. 19 above)

30

STUDIES OF THE DEVELOPMENT AND DECAY OF THE HUMAN FRAME

1968

By J. Trueta
399 pp., 503 figs.

William Heinemann Medical Books Ltd.
London
Price: 126 s.

The author of this book is Nuffield Professor Emeritus of Orthopaedic Surgery, University of Oxford. The book is of particular interest to members of the medical profession, but will be read with profit by those interested in the development of cartilage and bone as tissues in higher vertebrates.

The book is based for the greater part on the results of clinical and laboratory research carried out over a long period by the author and several investigators associated with him at the Nuffield Orthopaedic Centre. The viewpoints presented often have a strong personal flavour; perhaps the most prominent original contribution, and one which pervades the whole book, is the idea that bone is a tissue of vascular origin, and that consequently the vascular system is the major factor in bone development.

Of the four parts of which the book consists, the second, entitled "From conception to manhood", is undoubtedly the one that is of most immediate interest to embryologists interested in skeletal development. It covers 122 pages and describes various aspects of skeleton and joint development in the foetus and the child, and their correlation with vascular development. Part one contains chapters on osteogenesis and the role of blood vessels, on calcification, on mechanical forces and bone shape, on bone resorption, and on the role of endocrine glands and vitamins. Parts three and four deal with skeletal pathology and regeneration, and with bone changes in old age.

The book is printed in two columns on a format that is somewhat too large

to be convenient. It is illustrated mainly with a large number of good original photographs, including numerous radiographs and angiographs. The bibliography is extensive and the subject index adequate. The book is well-produced, but contains rather many printing errors, not all of them covered by the short list of errata added later.

31 THE BIOCHEMISTRY OF ANIMAL DEVELOPMENT

Vol. II: Biochemical control mechanisms and adaptations in development

1967

Editor: R. Weber

495 pp., 116 figs., 28 tbs.

Academic Press

New York - London

Price: \$ 21.—

Contributors: Chen (Zürich), Fisher (Tallahassee, Fla.), Flickinger (Buffalo, N.Y.), Papaconstantinou (Storrs, Conn.), Tiedemann (Wilhelmshaven), Vilee (Boston, Mass.), Weber (Bern), Williams (Cambridge), Witschi (Basel)

This is the second volume of a collaborative treatise, the first volume of which was reviewed in *General Embryological Information Service*, Suppl. 11, 1966, p. 19. Whereas the first volume was concerned with descriptive biochemistry, the present volume deals with biochemical control mechanisms in development, and with biochemical adaptations in embryos. These two fields are covered in the two parts of the book. As in the first volume, much emphasis is placed on the relations between structure and chemistry, an emphasis which provides a link with classical experimental embryology.

Part one contains chapters on primary induction and determination (Tiedemann), on metabolic control of growth and differentiation (Papaconstantinou), on nucleo-cytoplasmic interactions (Chen), on sex differentiation (Witschi), on amphibian metamorphosis (Weber), and on regeneration (Flickinger). Part two consists of chapters on yolk utilization (Williams), on the placenta (Vilee), and on nitrogen metabolism and excretion (Fisher).

The book is well-produced and well-illustrated. It is concluded by extensive taxonomic, author, and subject indexes.

32 METHODS IN DEVELOPMENTAL BIOLOGY

1967

Editors: F. H. Wilt and N. K. Wessells

General Editor: J. P. Trinkaus

813 pp., 135 figs., 53 tbs.

Thomas Y. Crowell Cy.

New York

Student price: \$ 18.—

Contents: I. *Systems: procurement, maintenance, and use:* The mouse, Avian developmental genetics, Frogs, African clawed frogs, Urodeles, Medaka, *Fundulus*, Annual fishes, Echinoderms, Marine annelids: *Sabellaria*, Echiuroid worms: *Urechis*, Cecropia, The honeybee embryo, *Drosophila*, Rotifers, Coelenterates, Sponges, Early-flowering plants, Aquatic vascular plants, Ferns, Mosses and liverworts, Aquatic fungi, Cellular slime molds; II. *Culture methods:* Mammalian embryo culture, Avian embryo culture, Plant embryo culture, Excised root culture, Shoot and leaf organ culture, Avian and mammalian organ culture, Grafting of embryonic rudiments, *In vivo* chamber culture technique, *In vivo* culture of *Drosophila* imaginal discs, Cell culture and cloning techniques, Amphibian cell culture, organ culture, and tissue dissociation, Insect tissue culture, Plant cell and tissue culture, Avian and mammalian cell dissociation; III. *Special techniques:* Auxins, Gibberellins, Cytokinins, Surgical techniques in plants, Control of

illumination for plant growth, Isolation of plastids from higher plants, The isolation of some organelles from embryonic cells, Protein determination in embryos, Nucleic acid determination in embryos, Fixation procedures of embryonal tissues for electron microscopy, Cell marking, Amphibian nuclear transplantation, Insect surgery, Some experimental techniques for eggs and embryos of marine invertebrates

This collaborative work is due to the efforts of no less than 58 contributors, for the far greater part United States scientists, who have provided the 51 chapters listed above. Author's names have been omitted for brevity in this listing, but it may be said that the authors are all outstanding specialists in their fields. It is a major achievement on the part of the editors not only to have secured the collaboration of such a representative group of authors, but also to have induced them to maintain a considerable uniformity of style and coverage.

The book is a mine of information for almost all developmental biologists, but particularly for those institutions where modern research in developmental biology is planned or is just being started.

The chapters are all clearly organized and have extensive bibliographies; the reader is referred to literature pertaining to methods not fully treated in the text, or to alternative methods; the pro's and con's of different methods and species are discussed; frequently addresses are given where specific material may be obtained; numerous formulae are provided of media, saline solutions etc. Some chapters describe techniques never published before, and the ones describing published methods provide more details and "tricks of the trade" than is usual in journal articles. In order to avoid duplication, techniques that have recently been treated extensively in books were omitted.

In a book of this kind the illustrations are of the utmost importance, and the ones in this book are very good indeed. The book's lay-out and printing are excellent. It is concluded by a detailed subject index. A few authors' names are included in this index in what seems a haphazard manner, and the purpose of this is not clear.

33

DEVELOPMENTAL NEUROLOGY

1967

Editors: C. G. Bernhard and J. P. Schädé
Progress in Brain Research, vol. 26
258 pp., 135 figs., 2 tbs.

Elsevier Publishing Cy.
Amsterdam - London - New York
Price: £ 5.0.0; H.fl. 45.—

Contributors: Åström (Stockholm), Bernhard (Stockholm), Bot (Amsterdam), Corner (Amsterdam), Kolmodin (Stockholm), Meller (Köln), Meyerson (Stockholm), Molliver (Baltimore, Md.), Schädé (Amsterdam), Sedláček (Amsterdam), Stoeckart (Amsterdam), Van der Helm (Amsterdam), Vos (Amsterdam), Wechsler (Köln)

Whereas previous volumes of this excellent series reviewed in this periodical were based on symposia, this appears not to be the case for the present volume. It seems to be a more or less fortuitous collection of research papers which only have in common that they all deal with ontogenetic aspects.

The first three papers deal with the isocortex and the somesthetic cortex of the sheep fetus (one is by Åström, one by a group of workers from the Karolinska Institute, and one by Molliver). Then follows a paper on the electron microscopy of the developing chick brain (by Wechsler and Meller). The remainder of the book is taken up by a series of four papers dealing with correlations between structural organization, functional activity, and biochemical properties of the

normal developing avian brain, and with the relations of these factors with behavioral development. These papers are by a group of people working permanently or temporarily at the Central Institute for Brain Research in Amsterdam.

The book is well-illustrated and is concluded by author and subject indexes.

34 THE FOETUS AND THE NEW-BORN:
RECENT RESEARCH

1966

Editors: K. W. Cross and G. S. Dawes
British Medical Bulletin, vol. 22, nr. 1
102 pp., 44 figs., 3 pls., 10 tbs.
(paper-bound)

The British Council
London
Price: £ 1.10.0; \$ 5.—

Contributors: Aherne (Oxford), Alexander (London), Biscoe (Canberra), Britton (London), Buller (Bristol), Comline (Cambridge), Cross (London), Davison (London), Dawes (Oxford), Dawkins (London), Dobbing (London), Dunnill (Oxford), Hull (Oxford), McCance (Cambridge), Miller (London), Mott (Oxford), Mount (Cambridge), Neligan (Newcastle), Nixon (London), Purves (Cambridge), Reynolds (London), Robinson (London), Scopes (New York, N.Y.), Shelley (Oxford), Silver (Cambridge), Strang (London), Tizard (London), Wigglesworth (London), Young (London)

This issue of the British Medical Bulletin will be mainly of interest to members of the medical profession. It contains 19 papers on various aspects of foetal and neonatal physiology in mammals, all written by British investigators. It may suffice here to list the principal organ systems and organs to which attention is devoted: placenta (morphometry), adrenal medulla, liver, brain and central nervous system, neuromuscular system, chemoreceptors, circulation and cardiovascular function, lung, and brown adipose tissue. Other papers deal with maintenance of the isolated foetus, foetal growth retardation, development of immunity, hypoglycaemia, and heat regulation.

The issue is adequately illustrated. It has no indexes.

35 GROWTH REGULATING SUBSTANCES
FOR ANIMAL CELLS IN CULTURE

1967

Editors: V. Defendi and M. Stoker
The Wistar Institute Symposium
Monograph No. 7
125 pp., 57 figs., 8 tbs.
(paper-bound)

The Wistar Institute Press
Philadelphia
Price: \$ 5.—

Contributors: Bürk (Glasgow), Eagle (New York, N.Y.), Freed (Philadelphia, Pa.), Otsuka (Woods Hole, Mass.), Rubin (Berkeley, Calif.), Sorof (Philadelphia, Pa.), Temin (Madison, Wis.), Todaro (New York, N.Y.), Virolainen (Philadelphia, Pa.)

This is the report of a one-day Symposium held at the Wistar Institute, Philadelphia, in March 1967. The far greater majority of the 54 participants came from the U.S.A. The report contains the eight papers presented and the discussions following them.

The theme of the Symposium is sufficiently clear from the title. Owing to the

specialized nature of the Symposium, the various contributions will not be enumerated. They all report on recent original research. A few pages of comments by H. Eagle at the end serve as a summary.

The book is adequately illustrated and has a list of participants, an index to participants, and a brief subject index.

36 CELL DIFFERENTIATION
1967

Editors: A. V. S. De Reuck and J. Knight
A Ciba Foundation Symposium
257 pp., 43 figs., 15 tbs.

J. & A. Churchill Ltd.
London
Price: 60 s.

Participants: Abercrombie (London), Ambrose (London), Bell (Cambridge, Mass.), Birnstiel (Edinburgh), Brachet (Brussels), Curtis (London), Engelhardt (Moscow), Feldman (Rehovoith), Georgiev (Moscow), Grobstein (La Jolla, Calif.), Gurdon (Oxford), Haddow (London), Kirby (Chalfont St. Giles), Lash (Philadelphia, Pa.), Monroy (Palermo), Paul (Glasgow), Rosenberg (St. Paul, Minn.), Sherbet (Chalfont St. Giles), Vendrely (Villejuif), Waddington (Edinburgh), Weiss (New York, N.Y.), Whisson (London), Et. Wolff (Nogent-sur-Marne), Em. Wolff (Nogent-sur-Marne), Yamada (Oak Ridge, Tenn.)

This book embodies the proceedings of a three-day Symposium held in London in January/February 1967. It was attended by a small, selected international group of scientists, whose names are listed above. As in other Ciba Symposium reports, all the discussions held at the meeting, one following each paper, and three general discussions in addition, are recorded. Together, they make up about 40 % of the material in the book, and contain much additional information with appropriate literature references.

It is impossible to review the 14 papers extensively. Abercrombie opened the Symposium with a thoughtful theoretical consideration of the nature of differentiation, in which he proposed to use the word "epigenotype" for that which is passed on from one cell generation to the next, regardless of changes in cell phenotype. The other papers either review recent developments, or report on recent, often unpublished results in a variety of fields and systems. To mention but a few: cell membrane development; cell contacts and information transfer; nuclear transplantation; chemical nature of inducers; regulation of gene expression; control of synthetic activity; ribosomal RNA genes; behaviour of tumours and their interaction with normal or embryonic tissues, both *in vitro* and *in vivo*. The general conclusion is that this book is a "must" for all those wishing to acquire a first-hand knowledge of the picture of the various steps of cellular differentiation as it begins to emerge from studies using the most modern techniques.

The book is adequately illustrated and has a subject index as well as an index to contributors.

37 PLAZENTA UND EIHÄUTE
1966

Editors: H. Essbach and I. Röse
Symposium Med. Akad. Magdeburg
173 pp., 29 figs., 4 tbs.
(paper-bound)

VEB Gustav Fischer Verlag
Jena
Price: MDN 24.30

Contributors: Bertolini (Leipzig), Brandstädter (Magdeburg), Essbach (Magdeburg), Flamm (Wien), Hofmann (Magdeburg), Kennitz (Magdeburg), Matthies (Magdeburg), Pliess (Hamburg), Snoeck (Bruxelles), Wolff (Magdeburg)

This report will be mainly of interest to members of the medical profession. The Symposium was held in Magdeburg, East Germany, in October 1964, and was attended by 23 specialists in the field, most of them from East Germany.

The nine papers discuss a variety of topics concerning the human placenta and fetal membranes, such as morphology, ultrastructure, biochemistry, immunology, infection, permeability, and pathology. Of particular interest is the paper by Pliess on the correlation of placental anomalies and fetal malformations. Several papers have considerable bibliographies, while others give no literature at all.

The discussions held at the Symposium are also recorded. The book is well-printed and well-illustrated; it has no indexes.

38

EPITHELIAL-MESENCHYMAL INTERACTIONS

1968

Editors: R. Fleischmajer and R. E. Billingham The Williams & Wilkins Cy.
18th Hahnemann Symposium Baltimore, Md.
339 pp., 176 figs., 12 tbs. Price: \$ 15.75

Contributors: Abercrombie (London), Auerbach (Madison, Wis.), Billingham (Philadelphia, Pa.), Dawe (Bethesda, Md.), Grobstein (La Jolla, Calif.), Hay (Boston, Mass.), Hilfer (Philadelphia, Pa.), Holtfreter (Rochester, N.Y.), Holtzer (Philadelphia, Pa.), Kirby (Oxford), Lash (Philadelphia, Pa.), Lippman (Rochester, N.Y.), McLoughlin (London), Moscona (Chicago, Ill.), Oliver (Birmingham), Rutter (Seattle, Wash.), Saunders (Philadelphia, Pa.), Van Scott (Bethesda, Md.), Wessells (Stanford, Calif.), Wilde (Philadelphia, Pa.)

This book contains the 20 papers read at a Symposium (probably) held in 1967 in Philadelphia, Pa. It was attended by American and English specialists working on a variety of aspects of the problem outlined in the title. The discussions held at the Symposium are not recorded in the book.

The first lecture of the Symposium, which sets the scene for the ensuing papers, is by J. Holtfreter, to whom the volume is dedicated, and is entitled "Mesenchyme and epithelia in inductive and morphogenetic processes" (30 pp.).

Most of the other papers both review the present state of knowledge in a certain area, and report on recent original work. A few are just brief reviews stating little that is new. The book is extremely rich in content. The coverage is very broad and often transcends the strict limits of the Symposium theme. Thus the following systems, organs and tissues are dealt with in one or more papers: early amphibian embryo, early chick embryo, chick limb bud, embryonic and adult chick and mammalian skin, chick somites (chondrogenesis), chick embryo thyroid, mammalian embryonic pancreas and salivary glands, mammalian trophoblast, mammalian hematopoiesis and lymphoid regeneration, chick and mammalian cells in culture, and vibrissa regeneration. One area is conspicuously absent: epithelial-mesenchymal interactions in limb regeneration. This is a pity, since some significant work has been done in this area.

Naturally almost all papers contain discussions, both theoretical and operational, of mechanisms of induction and inhibition acting in the embryo as well as in later life. Much emphasis is also placed on the role of interface materials.

The book is very well printed and bound and has excellent illustrations, many of them photomicrographs and electron micrographs. It has an extensive subject index and an index to authors cited.

39
CONTROL MECHANISMS
IN DEVELOPMENTAL PROCESSES

1967

Editor: M. Locke
26th Symposium of the Society
for Developmental Biology
"Developmental Biology", Suppl. 1
316 pp., 98 figs., 34 tbs.

Academic Press
New York - London

Contributors: Auerbach (Madison, Wis.), Bogorad (Chicago, Ill.), Ephrussi (Cleveland, Ohio), London (New York, N.Y.), McClintock (Cold Spring Harbor, N.Y.), Randall (London), Segal (New York, N.Y.), Stebbins (Davis, Calif.), Tatum (New York, N.Y.), Tyler (Pasadena, Calif.)

This is the report of the 26th Developmental Biology Symposium held in La Jolla, Calif., in June 1967. These Symposia are now published as annual supplements to the journal "Developmental Biology", of which the present volume is the first.

The ten papers presented are grouped in three sections, entitled respectively: "The role of cytoplasmic units" (3), "The role of the nucleus" (4), and "Regulatory mechanisms" (3). In the first section one paper deals with higher plants (plastids), one with *Neurospora*, and one with *Chlamydomonas* (flagella). The second section contains two papers on gene action in higher plants (McClintock, Stebbins), one on somatic cell hybridization (Ephrussi), and one on masked messenger RNA and cytoplasmic DNA in animal embryogenesis (Tyler). The papers of the last section deal with erythroid cell differentiation, development of immunocompetent cells (Auerbach), and regulatory action of estrogens, respectively.

The discussions held at the Symposium are not recorded. The book is adequately illustrated and concluded by author and subject indexes.

40
REGIONAL DEVELOPMENT OF THE BRAIN
IN EARLY LIFE

1967

Editor: A. Minkowski
551 pp., 195 fig., 24 tbs.

Blackwell Scient. Publications
Oxford - Edinburgh
Price: £ 6.0.0

Contributors: Dreyfus-Brisac (Paris), Ellingson (Omaha, Nebr.), Farkas-Bargeton (Paris), Greenberg (Palo Alto, Calif.), Gruner (Strasbourg), H. E. Himwich (Galesburg, Ill.), W. Himwich (Galesburg, Ill.), Hydén (Göteborg), Jost (Paris), Larroche (Paris), Legrand (Paris), McKhann (Palo Alto, Calif.), Marty (Montpellier), Mysliveček (Plzen), Parmelee (Los Angeles, Calif.), Purpura (New York, N.Y.), Rabinowicz (Lausanne), Richter (Carshalton), Schadé (Amsterdam), Scherrer (Paris), Verley (Paris), Windle (New York, N.Y.), Yakovlev (Boston, Mass.)

This volume embodies the proceedings of a three-day Symposium held in December 1964 in Paris. It was attended by 39 scientists, 15 from France, 10 from the U.S.A., and 14 from various European countries.

The book contains 24 research papers and their attendant discussions. On account of their specialized nature they will not be enumerated here. Suffice it to mention that most papers deal with the mammalian brain, and that they are

grouped in four sections, dealing respectively with anatomy and histology (4); cyto-, histo-, and neurochemistry (5); neurophysiology (9); and electrophysiology (6). Concluding remarks are contributed by Th. Rabinowicz, D. Richter, and J. Scherrer. The papers in French have English summaries, while all discussion contributions by French-speaking participants are followed by a condensed English translation.

The book is well-printed and adequately illustrated. It has a very brief subject index, but no author index.

41 CELL DIFFERENTIATION

1967

Editors: O. Nečas and M. Dvořák
Acta Facultatis Medicae Universitatis
Brunensis, Opuscula Biologica 29
149 pp., 37 figs., 2 tbs.
(paper-bound)

University J. E. Purkyně
Medical Faculty, Brno

Contributors: Adamcová, Adámek, Bedrníková, Bláha, Blažiček, Boháček, Böhm, Bubeník, Černý, Chaloupka, Chutná, Dvořák, Erdelská, Fakan, Feit, Hadačová, Hála, Hašek, Havelková, Hill, Hoffmann, Hort, Hrazdira, Hule, Janisch, Jurmanová, Karakoz, Karpfel, Keprtová, Klement, Koukalová, Krekule, Kropáčová, Kutil, Lukl, Luxová, Magrot, Malinský, Masner, Mazanec, Muchnová, Nečas, Nouza, Rakušanová, Reich, Romanovský, Rychlíková, Šalanský, Seidlová, Šikula, Skalka, Sládeček, Sladký, Šlais, Šlotová, Sochorová, Soška, Soudek, Sovová, Spurná, Spurný, Švejda, Svoboda, Teltscherová, Tichý, Uher, Veselý, Viklický, Vinter, Viták, Zák

This is the report of an all-Czech Symposium held in May 1966 in Brno, under the auspices of the Czechoslovak Biological Society. The participants were bacteriologists, plant physiologists, embryologists, and pathologists.

The more than 50 brief papers, many of them occupying one page or less, are grouped into three sessions, entitled respectively: "Gene control of cell differentiation" (17 papers), "Differentiation of cell structures" (17 papers), and "Control of differentiation in multicellular organisms" (18 papers). The Session chairmen were J. Sôska, O. Nečas, and F. Sládeček. All papers are in English and have brief bibliographies.

42 ONTOGENY OF IMMUNITY

1967

Editors: R. T. Smith, R. A. Good
and P. A. Miescher
208 pp., 83 figs., 39 tbs.

University of Florida Press
Gainesville, Fla.
Price: \$ 15.—

Participants: Adler (Gainesville, Fla.), Altemeier (Gainesville, Fla.), Auerbach (Madison, Wis.), Block (Denver, Colo.), Braun (New Brunswick, N.J.), Cebra (Gainesville, Fla.), Cooper (Los Angeles, Calif.), Cooper (Minneapolis, Minn.), Ebert (Baltimore, Md.), Feldman (Rehovoith), Finstad (Minneapolis, Minn.), Fishman (New York, N.Y.), Good (Minneapolis, Minn.), Hildemann (Los Angeles, Calif.), Hirschhorn (New York, N.Y.), Johnson (Ann Arbor, Mich.), Kimmel (Baltimore, Md.), Koningsberg (Baltimore, Md.), Mage (Bethesda, Md.), Miescher (New York, N.Y.), Mitchison (London), Papaconstantinou (Oak Ridge, Tenn.), Peterson (Uppsala), Schimke (Bethesda, Md.), Schneiderman (Cleveland, Ohio), Schulkind (Gainesville, Fla.), Silverstein (Baltimore, Md.), Smith (Gainesville, Fla.), Strauss (Bethesda, Md.), Thorbecke (New York, N.Y.), van Furth (New York, N.Y.)

This book embodies the proceedings of the second Developmental Immunology

Workshop, held at Sanibel Island, Fla., in February 1966. It was attended by 31 scientists, all of them cell biologists specialized either in immunology or in developmental biology. Only three of the participants came from outside the U.S.A.

The book contains 23 papers, the majority of which are research reports. They are grouped in four parts, the first of which is devoted to general problems of differentiation and its genetic control (an introduction by Ebert, and papers by Schneiderman on insects, by Papaconstantinou on the vertebrate lens, by Schimke on the control of protein synthesis generally, and by Konigsberg on clonal techniques as applied to problems of cytodifferentiation). Part two is entitled "Differentiation of cells of lymphoreticular system" (6 papers, all dealing with mammalian cells). Part three deals with "Embryonic development of form and function of the lymphoreticular system" (5 papers, one dealing with frogs, two with the chick, and two with mammals). Finally, part four discusses the "Pre- and postnatal function of the lymphoreticular system" (7 papers, one dealing with turtles, one with the opossum, and the remainder with other mammals). A synthesis of the workshop is provided by the editors. All papers are followed by group discussions. In them, participants often refer to work of other investigators, but references to such work are unfortunately not provided.

The book is well-produced and illustrated with numerous photographs and graphs. There is a rather brief subject index, and no author index.

43

PHENOTYPIC EXPRESSION

Immunological, biochemical, and morphological

1966

Edited by the Tissue Culture Ass., Inc.

(C. J. Dawe, Editor-in-Chief)

"In Vitro" vol. 2

181 pp., 46 figs., 35 tbs.

The Williams & Wilkins Cy.

Baltimore, Md.

Price: \$ 9.50

Contributors: Bach (Madison, Wis.), Black (Bethesda, Md.), DeMars (Madison, Wis.), Ephrussi (Cleveland, Ohio), Franks (Cambridge), Green (New York, N.Y.), Hiramoto (Memphis, Tenn.), Hirschhorn (New York, N.Y.), Krooth (Ann Arbor, Mich.), Merchant (Ann Arbor, Mich.), Nossal (Melbourne), Ohno (Duarte, Calif.)

This volume contains the papers read at a four-day Symposium held in San Francisco in May/June 1966. The Symposium was concerned mainly with the phenotype of cultured cells at the cellular and molecular level. All contributors except one were American scientists. The volume furthermore contains the abstracts of the papers presented at the 17th Annual Meeting of the Tissue Culture Association, as well as a committee report on the proposed usage of animal tissue culture terms.

Of the twelve main papers four deal with the growth and function of plasma cells and lymphocytes after antigenic stimulation. Ephrussi then describes new interspecific mammalian somatic cell hybrids obtained *in vitro*, while Ohno presents cytological and genetical evidence of somatic segregation in mammals, birds, and fishes. Two papers review the biological events occurring after infection of cells with DNA viruses, while two other papers deal with antigenic heterogeneity in cell cultures, and with stability of cell antigens and their value as genetic markers. Finally, two papers are concerned with the genetics of cells

from patients manifesting biochemical defects. The preface by the Symposium organizer, M. N. Goldstein, is an annotated summary of the whole Symposium.

The book is beautifully produced and profusely illustrated. The reproduction of the numerous photographs is superb. The book is concluded by a subject index.

44 SECOND DECENNIAL REVIEW CONFERENCE
 ON CELL TISSUE AND ORGAN CULTURE
 1967

Editor: B. B. Westfall
Natl. Cancer Institute
Monograph 26

Natl. Cancer Institute
Bethesda, Md.
Price: \$ 4.—

442 pp., 56 figs., 61 pls., 17 tbs.

Contributors: Abercrombie (London), Amos (Boston, Mass.), Bell (Cambridge, Mass.), DeMars (Madison, Wis.), Farnes (Providence, R.I.), Gartler (Seattle, Wash.), Grobstein (La Jolla, Calif.), Hayflick (Philadelphia, Pa.), Herrmann (Storrs, Conn.), Pitot (Madison, Wis.), Sanford (Bethesda, Md.), Sutton (Baltimore, Md.), Waymouth (Bar Harbor, Maine), Westfall (Bethesda, Md.)

The central theme of this 5-day Conference, held in Bedford, Pa. in September 1966, was the relationship between the cultured cell or tissue and its *in vivo* progenitor. The Conference was in seven sessions of two papers each. Each session had a panel of usually three distinguished specialists. The lengthy discussions between the lecturers, the panel members, and members of the large audience are recorded in full.

Problems of differentiation, dedifferentiation, and phenotypic stability of cells in culture crop up in almost every session. However, of the 14 papers only five will be singled out here for their direct interest to developmental biologists. They are the papers by Bell on control of synthetic activity in differentiating cells, by Sutton on ultrastructural aspects of monocyte development, by Abercrombie on contact inhibition, by Grobstein on mechanisms of organogenetic tissue interaction, and by Herrmann *et al.* on growth rate and differentiated function of cells. Apart from the second, all these papers are synthetic in nature, and all have extensive bibliographies.

The book is adequately illustrated and remarkably cheap. It has no indexes.

45 DE L'EMBRYOLOGIE EXPERIMENTALE
 A LA BIOLOGIE MOLECULAIRE
 1967

Editor: E. Wolff
174 pp., 53 figs., 13 tbs.
(paper-bound)

Dunod
Paris
Price: F 32

Contributors: Beermann (Tübingen), Brachet (Bruxelles), Jérôme (Paris), Monroy (Palermo), Turchini (Montpellier), Turpin (Paris).

This rather heterogeneous and expensive collection of papers is based on a series of seminars given at the Collège de France during 1965 and 1966.

A brief introduction by Wolff is followed by two papers by Brachet, one dealing with the role of the nucleus and nucleic acids in morphogenesis, the other

with morphogenesis and protein synthesis in the absence of the nucleus. Two contributions by Beermann discuss "puffing" in Dipteran giant chromosomes, and lampbrush Y chromosomes in *Drosophila* spermatocytes. A brief paper by Monroy deals with genetic control of gastrulation in echinoderms. Turpin then deals with heterocaryotic monozygotic twins in man, while Jérôme extensively discusses recent evidence correlating quantitative and qualitative modifications of protein metabolism with certain human chromosome aberrations, evidence obtained in part on *in vitro* cultures. Finally, Turchini deals with recent research on enzyme histochemistry in the chick embryo, and particularly on enzyme transfer during inductive processes.

The book is adequately illustrated and is concluded by an index to authors.

46

GROWTH OF THE NERVOUS SYSTEM

1968

Editors: G. E. W. Wolstenholme and
M. O'Connor

J. & A. Churchill Ltd.
London

A Ciba Foundation Symposium
306 pp., 101 figs., 5 tbs.

Participants: Buller (Bristol), Crain (New York), Drachman (Boston, Mass.), Eayrs (London), Eccles (Chicago, Ill.), Gaze (Edinburgh), Gutmann (Prague), Hamburger (St. Louis, Mo.), Hník (Prague), Hughes (Bristol), Kerkut (Southampton), Kollros (Iowa City, Iowa), Levi-Montalcini (St. Louis, Mo.), Mugnaini (Oslo), Muntz (Bristol), Murray (New York), Piatt (Philadelphia, Pa.), Prestige (Bristol), Singer (Cleveland, Ohio), Sperry (Pasadena, Calif.), Stefanelli (Roma), Székely (Pécs), Szentágothai (Budapest), Walton (Newcastle), Whittaker (Cambridge), Young (London)

This book contains the proceedings of a three-day Symposium held in London in June 1967. It was attended by 26 participants, the majority of whom came from England and the U.S.A., while two each came from Czechoslovakia and Hungary respectively.

There is an introductory survey of the field by J. Szentágothai, followed by 13 research papers divided among four sessions: I. Development of specific neuronal connexions (4); II. Development of movement (2); III. Role of chemically specific signals in the development of the nervous system (3); IV. Trophic interaction, peripheral and central (4). Almost all papers in the first three sessions are of interest to developmental biologists generally. The fourth session is of specific interest to neurobiologists only.

Session I contains papers on interneuronal connexions *in vitro* (mammals; Crain *et al.*), on retino-tectal connexions (Sperry and Hibbard), on the effects on brain and retina of optic nerve lesions (Gaze and Watson), and on the development of limb movements (Székely) (the latter three in amphibians). Session II contains a paper on early co-ordinated movements in the chick embryo (Hamburger) and one on the development of limb innervation (Hughes). The papers in session III report on work carried out with the "nerve growth factor" from mouse salivary glands (Levi-Montalcini and Angeletti), with the deuterium isotope (Murray and Benitez), and with various hormones (Kollros).

The discussions held at the Symposium are recorded in full and contain a wealth of additional information, complete with literature references.

The book is well illustrated and has a subject index and an index to lecturers and contributors to the discussions.

Wiss. Z. der Fr. Schiller Univ.
Jena, Math.-Naturw. Reihe,
Jahrg. 17, Heft 1
171 pp., 158 figs., 80 tbs.

Friedr.-Schiller-Univ.
Jena, D.D.R.

This is the report of a Symposium held in 1967 in Jena, D.D.R., under the direction of Prof. E. Goetze, Director of the Institute for Pathophysiology, Jena. It was attended by a large number of scientists (medical and veterinary doctors, morphologists, immunologists, physiologists, and pathophysiologicalists) coming for the far greater part from Eastern Germany and six other Eastern-European countries.

The report contains 57 research papers, the majority of which are not longer than two or three pages. Most papers are in German, but several are in English, and one in French. Most are followed by brief discussions. The majority of course deal with development in man and in laboratory and domestic mammals, but some are on lower vertebrates. Modern techniques were used in most of the investigations.

The papers are arranged in three groups, entitled "Metabolism of the foetus and neonate" (28), "Placenta, placental transport, placenta as immunological barrier" (7), and "Development of immunological reactions" (22). One of the main interests to readers in the West is no doubt the fact that much of the literature cited was published in Eastern-European journals and is not otherwise easily located.

The report is adequately illustrated; the reproduction of the photographs and electron micrographs is reasonably good. There are no indexes.

48 PAPERS ON PLANT GROWTH AND DEVELOPMENT

Editors: W. M. Laetsch and R. E. Cleland
489 pp., 192 figs., 70 tbs., 4 pls.
(paper-bound)

Little, Brown and Co.
Boston, Mass.
Price: \$ 6.—

Contents: I. The natural plant growth regulators; II. The control of growth in intact systems by growth regulators; III. The correlative control of growth; IV. The role of light in plant growth; V. The control of growth in isolated organs; VI. The control of differentiation; VII. The experimental control of form; VIII. The mechanism of growth regulator action.

This „book of readings” contains 50 reprints of original articles on plant growth and development, carefully selected for their importance in illustrating the development and present state of major concepts and techniques in this field. Perhaps the most important aspect of the book are the introductions to the eight sections provided by the editors. These enable the reader to quickly grasp the significance of older and recent contributions as well as the present state of knowledge in each sub-field. They constitute a very useful means of quick orientation, particularly for general biologists and zoologists. Each introduction has its own selected bibliography.

The eight sections listed above consist of from four to ten articles each. Some of these are slightly abridged, but most are reprinted without change and even in the original typography, and include running titles, acknowledgements, and

other irrelevant matter. Although this is sometimes irritating, it has no doubt helped to reduce the price of the book.

The sequence of the papers in each section is logical rather than strictly chronological. There are a number of papers dating back to the 1920's, 1930's and 1940's, but most date from the 1950's and early 1960's. All papers are in English; journals from a wide variety of countries are represented, several of them not easily accessible to most readers.

It is not easy to judge the reproduction of the original illustrations, particularly the photographs, but most seem to be well-reproduced. The book has no indexes.

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DEVELOPMENT IN FLOWERING PLANTS

1967

By J. G. Torrey

Current Concepts in Biology Series

192 pp., 66 figs., 6 tbs.

(paper-bound)

The Macmillan Comp., New York

Collier-Macmillan Ltd., London

Price: 22 s. 6 d.

Although this book was written for students, it is very well suited for non-botanists who want to acquaint themselves with the main contemporary problems of plant development. The treatment of the subject is very modern throughout, with much emphasis on physiological mechanisms and only the necessary minimum of morphology. Basic to much of the discussion are the concepts of genetic regulation and selective gene activation.

The two opening chapters discuss basic ideas and techniques, the different levels of control in plant development (including a discussion of the main classes of plant hormones), and the basic features of cell structure and cell division. Chapter 3 deals with gametes, fertilization and embryogenesis, and chapter 4 with seed germination and dormancy. The ensuing chapters successively treat root development, cell differentiation (with sections on unicellular plants), shoot development, leaf development, the physiology of flowering, and the analysis of flower and fruit development. The final chapter deals with callus studies and tumor formation in plants.

No literature references are given in the text, but there is a rather long selected bibliography at the end of the book. The illustrations are excellent; all line drawings were made by the same artist and most are redrawn from original research papers; the sources are acknowledged in the captions. The book is concluded by an alphabetical index.

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MORPHOGENESIS IN PLANTS

A contemporary study

1968

By C. W. Wardlaw

451 pp., 173 figs., 12 pls.

Methuen & Co. Ltd.

London

Price: 90 s.; \$ 14.50

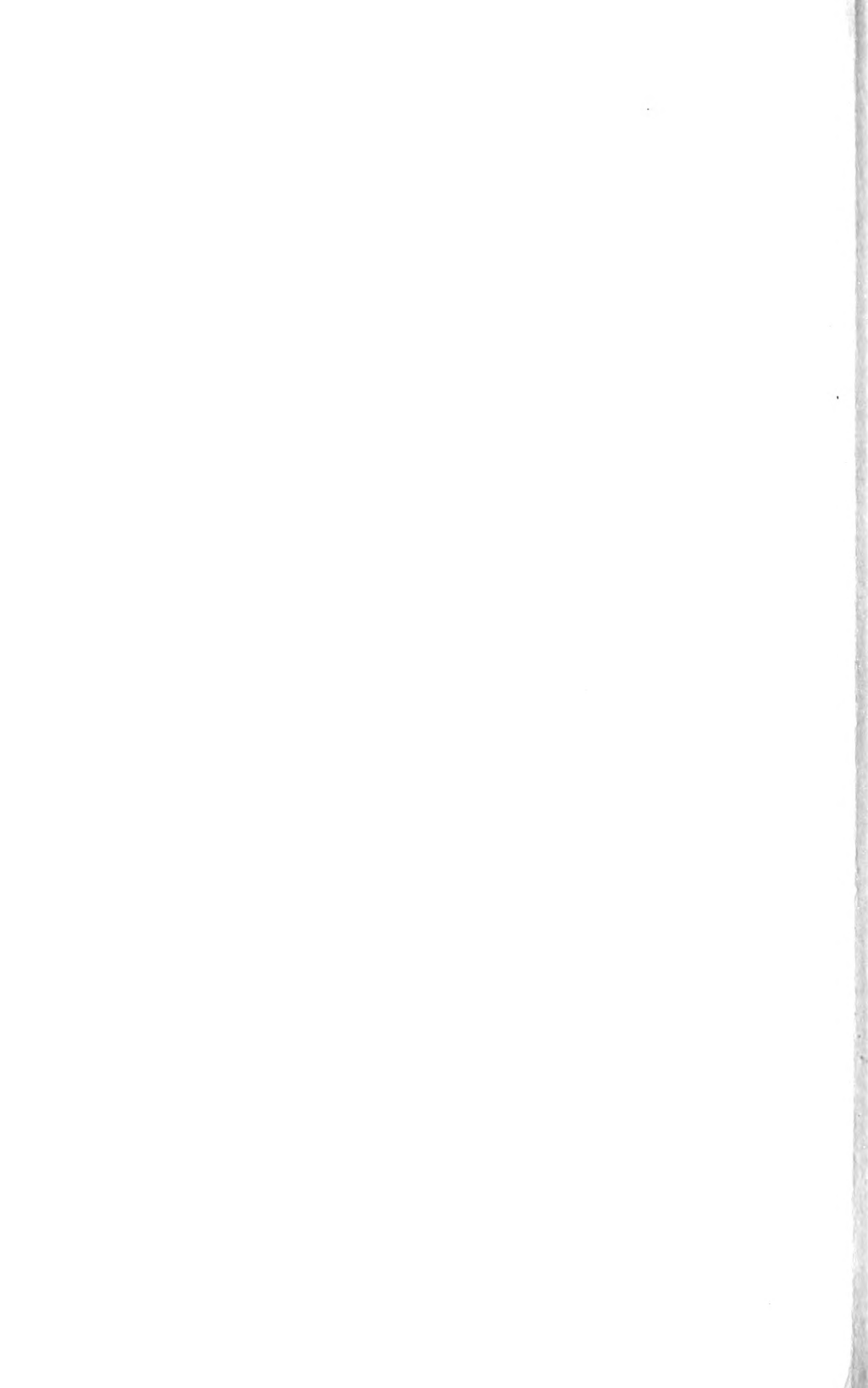
This is a new, enlarged and completely revised edition (hence the new subtitle) of a book first published in 1952. The major feature of the book is the

development of plant morphogenesis (with elements of a personal record)". Part three, entitled "Perspectives in plant morphogenesis", is characterized by the author as a "free commentary . . . on what I think may be some of the future developments in my subject". In it, he not only enumerates many of the possibilities, but also some of the requirements for further development as he sees them.

The care devoted by the publishers to the production of the book has resulted in an esthetically highly satisfying volume.







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