

GENERAL EMBRYOLOGICAL INFORMATION SERVICE

1954

(supplement
to the
fifth issue)

ISSUE OF THE HUBRECHT LABORATORY



Issue of the Hubrecht Laboratory
seat of the
„Institut International d'Embryologie”
(Embryological section of the I.U.B.S.)

INTRODUCTION

Biennial appearance

In the 1953-issue we announced that suggestions have been made from several sides to publish the General Embryological Information Service biennially. The inquiry which we held in the beginning of this year in order to obtain an objective judgment of the desirability of either an annual or a biennial publication of the G.E.I.S., served its purpose very well. We feel very much obliged towards all subscribers and collaborators of the G.E.I.S., who sent us their answers and often very valuable suggestions. We received a total number of about two hundred answers, which clearly demonstrates the general interest in our enterprise. The far greater majority, 143 out of 198, supports a biennial appearance of the G.E.I.S. and only 55 want to see the G.E.I.S. published annually. Particularly a great number of American collaborators are in favour of a biennial appearance, viz. 56 out of 68, which represents about 82 %. In Europe this percentage is about 71 % (70 out of 98) and in the remaining countries including many more isolated countries the percentage is about 53 % (17 out of 32). Thus, even there the majority supports a biennial appearance.

We will try as much as we can to meet the objections necessarily attended with a biennial appearance by publishing a supplement in the interjacent years, and by making the full issue as complete and up to date as possible.

Contents of the supplement

This supplement will contain the following chapters:

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We decided that these chapters should be published annually in order to guarantee actuality of the published data.

„Supply and Demand” Service

The chapter “Supply and Demand” Service for laboratory animals has been changed, since the original form missed the required clearness and was typographically unsatisfactory. In order to avoid the necessity of using two different systems the data of the 1953-issue are included in the supplement.

Changes of address

For our plan to make the following full issues, starting with the 1955-issue, as complete as possible, we need your personal cooperation. The possibility that addresses get out of date and the news of the foundation of new institutions will not reach us, increases with biennial collecting of data. We therefore urgently request all our collaborators to send us additional information about changes of address and new institutions, so that we can include them in our administration and collect the accurate data for the 1955-issue in the first half of 1955. We will also try to extend our information concerning the medical and veterinary institutes in which embryological work is regularly or occasionally being done. We hope to add also more information from the Latin-American countries, the Arab countries, Southern Asia etc.

May we thank you in advance for your cooperation. Please return the attached card at your earliest convenience.

Subscription fee

We have amply considered the possibility to offer this supplement without further charges to our regular subscribers. Although we are able to include the supplement 1954 in the subscription for 1953, we are not sure that we can do this in future for further supplements without a slight increase of the subscription fee for the full issues. Costs of printing, paper, shipment etc. are still increasing. Since the G.E.I.S. is self-supporting we shall consider this point every second year in order to guarantee a sound financial base.

P. D. NIEUWKOOP

Changes of address and new addresses of collaborators

- ASSENMACHER, I. Dr en Méd., Lic. ès. Sci. — Lab. d'Histophysiol. du Collège de France, 4 Avenue Gordon Bennett, PARIS 16e, France.
- BELLAIRS-MORGAN, Mrs M. R. B.Sc., Ph.D. — Dept. of Zool. and comp. Anat., St Bartholomew's Medical College, Charterhouse Square, LONDON, E.C. 1, England.
- BERG, G. G. Dr — Dept of Zool., Columbia Univ., NEW YORK 27, N.Y., U.S.A.
- BERGQUIST, H. Ph.D. — Zool. Inst., Univ. of Gothenburg, Gustaf Adolfs torg 4, GÖTEBORG, Sweden.
- BORGHESE, E. Dr — Ist. di Anat. Um. norm., Univ. di Pavia, Via Forlanini 4, PAVIA, Italia.
- BRADEN, A. W. H. B.Sc. (Adelaide), M.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.) (from Oct. 1954 till Oct. 1956).
- CHANG, T. K. Dr — Chinese Peking Union Med. College, PEKING, China.
- CHEN, P. S. D.phil. — Zool.-vergl. Anat. Inst., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz.
- CLEMENT, A. C. Ph.D., Prof. — Dept. of Biol., Emory Univ., ATLANTA, Ga, U.S.A. (temporary address: c/o Lab. de Morphol. anim., 1850 Chaussée de Wavre, BRUXELLES-Auderghem, Belgique).
- COULOMBRE, A. J. B.S., M.S. — Yale Univ. School of Med. Sterling Hall of Med., Dept of Anat., 333 Cedar Street, NEW HAVEN 11, Conn., U.S.A.
- DEVILLERS, Ch. Dr ès Sci. — Lab. d'Anat. et Histol. comp., Fac. des Sci., 1 Rue Victor Cousin, PARIS Ve, France.
- DOESBURG, P. H. van B.Sc. — Hubrecht Laboratory, International Embryological Institute, Janskerkhof 2, UTRECHT, Netherlands.
- ERKEL, G. A. van B.Sc. — Hubrecht Laboratory, International Embryological Institute, Janskerkhof 2, UTRECHT, Netherlands.
- FUJII, H. Dr, Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan.
- GAILLARD, P. J. Med. Dr., Prof. — Lab. voor Cytol. en Exp. Histologie, Rijnsburgerweg 10, LEIDEN, Netherlands.
- GLOOR, H. Ph.D., P.D., Prof. — Prof. of Genetics in the Univ. of Leiden. temporary address: c/o Bot. Lab. of the Univ. of Leiden, Nonnensteeg 2, LEIDEN, Netherlands.
- GRANT, Ph. Dr — Inst. for Cancer Research, 7701 Burholm Ave, PHILADELPHIA 11, Pa., U.S.A.
- HARA, K. M.Sc. — Hubrecht Laboratory, Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Netherlands (till beginning of 1955).
— Biol. Inst., Fac. of Sci., Nagoya Univ., Chihusa-ku, NAGOYA, Japan.
- HARARI, Miss D. M.Sc. — Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Netherlands (first half of 1954)
— Dept of Zool., Hebrew Univ., JERUSALEM, Israel.
- HASSA, O. Dr Vet. Sci. — Hubrecht Lab., Intern. Embryol. Inst., Janskerk-

- hof 2, UTRECHT, Netherlands (first half of 1954)
— Dept of Histol., Veterinary Fac., ANKARA, Turkey.
- HORI, R. M.Sc. — Hubrecht Laboratory, Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Netherlands (till end of 1954)
— Biol. Inst., Fac. of Liberal Arts, Toyama Univ., TOYAMA, Japan.
- HUBER, W. Dr ès Sci. — Zool. Museum, BERN, Switzerland.
- HYDÉN, H. Dr — Inst. of Histol., Med. School, Univ. of Gothenburg, GÖTEBORG C, Sweden.
- ISHIDA, J. Dr, Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan.
- ISHIKAWA, T. Dr, Prof. — Pathol. Lab., Med. Fac., Kanazawa Univ., KANAZAWA, Japan.
- ISLAM, A. Dr — Dept of Zoology, Government College, LAHORE, Pakistan.
- IWASAWA, ... — Biol. Inst., Fac. of Sci., Niigata Univ., NIIGATA, Japan.
- JAFFE, L. Dr — Hopkins Marine Station, PACIFIC GROVE, Cal., U.S.A.
- KAWAMURA, T. Dr, Prof. — Biol. Inst., Fac. of Sci., Hiroshima Univ., HIROSHIMA, Japan.
- KINOSHITA, H. Dr, Ass. Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan.
- KUSA, M. Asst Prof. — Zool. Inst., Fac. of Sci., Hokkaido Univ., SAPPORO, Japan.
- KUWABARA, M. Dr, Prof. — Biol. Inst., Fac. of Sci., Kyūshū Univ., KYŪSHŪ, Japan.
- LISON, L. Prof. — Fac. de Méd. de Ribeirão Preto, Univ. de São Paulo, SAO PAULO, Brésil.
- LÜSCHER, M. Dr Phil. (Basel), Prof. — Zool. Inst. der Univ., Sahlistr. 8, BERN, Schweiz.
- LUTHER, W. Dr Phil., Prof. — Zool. Inst. der Univ., DARMSTADT, Deutschland.
- MAYER, G. Prof. Dr — Lab. d'Histol. et d'Embryol., Fac. de Méd., Univ. de Bordeaux, BORDEAUX, France.
- McMURRAY, Miss V. M. A.B., M.S., Ph.D. — Hubrecht Lab., Internat. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland (first half of 1954)
— Dept of developm. Biol., Rockefeller Inst. for Med. Research, 66th St and York Ave, NEW YORK, N.Y., U.S.A.
- MIKAMI, Y. Dr, Asst Prof. — Anat. Inst., Med. Fac., Niigata Univ., NIIGATA, Japan.
- MORTON, ... Dr — Dept of Anat., Queens Univ., BELFAST, N. Ireland.
- OIKAWA, Miss I. Dr — Biol. Inst., Fac. of Liberal Arts, Kōchi Univ., KOCHI, Japan.
- OKADA, K. Dr, Prof. — Biol. Inst., Fac. of Liberal Arts, Tokushima Univ., Japan.
- OKADA, Y. K. Prof. — National Museum of Nat. Sci., Ueno-park, Taitoku, TOKYO, Japan.
- ORTS LLORCA, F. Prof. — Cated. de Anat., Fac. de Med., Cindrad Universitaria, MADRID, Spain.
- RAYNAUD, A. Dr ès Sc. — Lab. de Sannois de l'Inst. Pasteur, Quartier des vieux moulins, SANNOIS (Seine et Oise), France.

- ROSSI-DE RUBEIS, F. Prof. — Ist. di Anat. Um. norm., Univ. di Genova, Viale Benedetto 15, Genova, Italia.
- SEIDEL, F. Dr Phil., Prof. — Zoologisches Institut der Universität, MARIENBURG/Lahn, Deutschland.
- SLABÝ, Otto Dr — Inst. d'Histol. et d'Embryol., Univ. de Charles, Fac. de Méd., PLZEN, Tchécoslovaquie.
- SOSA, J. M. Dr — Depto de Anat.-micr. y Citol., Fac. de Human. y Cienc., Cerrito 73, MONTEVIDEO, Uruguay.
- TAKEWAKI, K. Dr, Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan.
- TARDENT, P. Dr — Stazione Zoologica, Villa Comunale, NAPLES 101, Italy.
- TAVARES DE SOUSA, A. Dr — Inst. de Histol. e Embriol., Fac. de Med., COIMBRA, Portugal.
- THURMOND, W. A.B., M.A. — Calif. State Polytechnic College, SAN LUIS OBISPO, Cal., U.S.A.
- TUCKER, R. D.V.M., B.V.Sc. — Dept of Histol. and Embryol., Fac. of Vet. Sci., Univ. of Queensland, Yeerongpilly, BRISBANE, Queensland, Australia.
- WEISS, P. A. F.I.I.E., Ph. D., M.D. (hon.c.), Prof. — Dept of developm. Biol., Rockefeller Inst. for Med. Research, 66th St and York Ave, NEW YORK, N.Y., U.S.A.
- WILDE Jr, Ch. E. Dr — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
- WOLSKY, A. Dr, Prof. — Biological Laboratory, Fordham University, NEW YORK 58, N.Y., U.S.A.
- ZOTIN, A. I. — A. N. Severtsov Institute for Animal Morphology of the Academy of Sciences of the USSR, c/o B. Kaluzskaja Ulica 14, MOSKWA, USSR.

„SUPPLY AND DEMAND” SERVICE for Laboratory Animals

Transactions should be carried out directly between the interested parties. We do not take any responsibilities either for the transactions themselves, or in matters relating to prices, in- and export regulations, animal protection regulations etc.

A. LIST OF SPECIES AVAILABLE

with numbers referring to List C.

Unless otherwise stated, most items available throughout the year.

GENERAL		Carausius morosus Br.	35
Tumours		Ephestia kühniella Zeller	
(different transplantable-)	**36	(various races)	35
Preserved embryological material	14	Formica rufa (workers)	**38
Marine animals	2	Formica rufa	
Marine organisms		(♂♂ and ♀♀, May—July)	**38
(from Gulf of Mexico)	6	Galleria mellonella L.	35
Evertebrata	9	Habrobracon juglandis	35
PROTISTA		Lasius sp. (workers)	**38
Protozoan cultures	9, 14	Lasius sp.	
Chaos chaos		(♂♂ and ♀♀, May—July)	**38
(= Pelomyxa carolinesis)	33	Leptinotarsa decemlineata	
Tetrahymena piriformis		(larvae and adults)	42
(= T. geleii, Lwoff's strain)	31	Locusta migratoria migr.	42
COELENTERATA		Tenebrio molitor	35
Coelenterata (many spp.)	14	MOLLUSCA	
Coelenterata (marine spp.)	25	Mollusca (marine spp.)	25
VERMES AND ONYCHOPHORA		Gastropoda (giant land snails)	2
Vermes (many spp.)	14	Physa syriaca Germain	
Annelida (marine spp.)	25	(April—October)	**29
Peripatus	3	ECHINODERMATA	
Planaria vitta		Echinodermata (marine spp.)	25
(a clone-forming species)	32	Arbacia punctulata	6
Urechis caupo (ripe animals,		Lytechinus variegatus	6
October—June)	4	PISCES	
ARTHROPODA		Elasmobranchii	25
Scorpiones	2	AMPHIBIA	
Myriopoda	2	Amphibia (various spp.)	2
Crustacea		Amphibia (various spp.)	**39
Crustacea (marine spp.)	25	Urodela	
Artemia salina (eggs)	14	Urodela (adults and eggs)	20
Insecta		Ambystoma spp.	11
Insecta	2	Ambystoma (7 spp.)	20
Calliphora erythrocephala	35	Ambystoma maculatum	
		(eggs and adults)	14

** = Transactions on exchange basis, see same numbers in list B.

Ambystoma mexicanum **37, **40	Bufo (3 spp.)	20
Ambystoma mexicanum (1—2 years old) 43	Bufo bufo (March—June) **40	
Ambystoma tigrinum	Bufo marinus	11
(preserved eggs and larvae) 11	Discoglossus pictus (March—May) **41	
Amphiuma means	Hyla sp.	11
Aneides sp.	Hyla (4 spp.)	20
Aneides aeneus	Pseudacris (2 spp.)	20
Batrocheus sp.	Rana (5 spp.)	20
Cryptobranchus alleganiensis	Rana catesbiana	14
Desmognathus sp.	Rana dalmatina (March—June) **40	
Desmognathus (8 spp.)	Rana esculenta (March—June) **40	
Eurycea sp.	Scaphiopus holbrookii	20
Eurycea (6 spp.)	Xenopus laevis	17, 30
Gyrinophilus (5 spp.)	Xenopus laevis **37	
Hemidactylum scutatum	REPTILIA	
Leurognathus (2 spp.)	Reptilia	2
Manculus quadridigitatus	Reptilia (many spp.)	11
Necturus sp.	Lacertilia (eggs, young animals and adults)	30
Necturus (5 spp.)	MAMMALIA	
Plethodon sp.	Mammalia (many spp.)	11
Plethodon (15 spp.)	Chiroptera	
Pleurodeles Waltlii	Corynorhinus macrotis	20
Pseudobranchus (2 spp.)	Eptesicus fuscus	20
Pseudotriton (6 spp.)	Lasiurus borealis	20
Salamandra sp.	Myotis (6 spp.)	20
Siren (2 spp.)	Pipistrellus subflavus	20
Triturus spp.	Primates	
Triturus (4 spp.)	Macaca mulata	12
Triturus alpestris	Rhesus monkeys (♂ and ♀, 3—6 Lb.)	28
Triturus alpestris (March—July) **34	Rhesus monkeys (old ♂♂) **47	
Triturus cristatus	Lagomorpha	
Triturus cristatus (March—July) **34	Oryctolagus cuniculus (4 strains, one inbred since 1937)	45
Triturus cristatus (March—June) **40	Oryctolagus cuniculus	48
Triturus cristatus (April—June) **49	Rodentia	
Triturus cristatus carnifex	Rodentia (all kinds of laboratory-) **36	
Triturus helveticus (March—July) **34	Cavia cobaya Marcor	44
Triturus palmatus (April—June) **49	Cavia cobaya (3 strains)	45
Triturus viridescens	Cricetus sp.	48
Triturus vulgaris (April—June) **49	Cricetus auratus	45
	Mus musculus	44
Anura	Mus musculus (some strains, inbred during many genera- tions)	45
Anura (various spp.)		
Acris sp.		

Mus musculus (several mutants, e.g. A ^v = homozygous-lethal yellow; W = macrocytic anaemia; hair-colour and eye-colour mutants)	45	Peromyscus eremicus e.	**24
Mus musculus	48	Peromyscus leucopus arizonae	**24
Mus rattus (2 inbred strains)	45	Peromyscus leucopus noveborac.	**24
Mus rattus (hair-colour and eye-colour mutants)	45	Peromyscus maniculatus gambelli	**24
Mus rattus	48	Peromyscus nasutus n.	**24
Peromyscus calif. c.	**24	Carnivora	
		Mustela putorius	
		Mustela putorius x Mustela putorius furo (hybrid)	45

B. LIST OF SPECIES WANTED

with numbers referring to List C.

GENERAL		Hynobius spp.	**41
Evertebrata (preserved developmental stages)	9	Pleurodeles Waltlii	**37
Vertebrata (preserved developmental stages)	9	Triturus alpestris	**41
		Triturus alpestris	**49
		Xenopus laevis (\pm 1 year old)	43
ARTHROPODA		REPTILIA	
Arthropoda	11	Reptilia (preserved developmental stages)	9
Astacus fluviatilis	42	Reptilia	11
Attini (living ♀♀ with brood, fungus gardens and workers)	**38	MAMMALIA	
Hirudo medicinalis	42	Cricetus spp.	**24
CEPHALOCHORDATA		Marsupialia (preserved developmental stages)	9
Amphioxus (preserved developmental stages)	9	Mus spp.	**24
Amphioxus (fertilized eggs, morula and gastrula stages)	**29	Primates (pregnant ♀♀, world wide, except macaques in the widest sense)	21
PISCES		Rattus spp. (e.g. cotton rats)	**24
Holocephali (preserved embryos)	3	Rhesus monkeys (healthy, tuberculin tested, young, immature or mature, ♂ or ♀)	**47
AMPHIBIA		Rodentia	**24
Amphibia (world wide)	10		
Amphibia	11		
Ambystoma spp.	**34		
Ambystoma mexicanum (sexually mature)	46		

C. LIST OF NAMES AND ADDRESSES

(geographical order)

A F R I C A

Br. Ea. Africa

1* MAHOMED HESEIN & Co. — P.O. Box 506, ZANZIBAR

South Africa

2* EDUCA PRODUCTS (Pty.) Ltd. — P.O. Box 3538, CAPE TOWN

3 ZOOLOGICAL INSTITUTE, Univ. of Stellenbosch — STELLENBOSCH

N. AMERICA

United States

- 4 DEPT OF EMBRYOLOGY, Div. of Biol., Calif. Inst. of Technol. — PASADENA 4, Cal.
- 5* TROPICAL HOBBYLAND — 1525 N.W. 27th Ave, MIAMI 35, Florida
- 6 DEPT OF ZOOLOGY, Florida State Univ. — TALLAHASSEE, Florida
- 7* UNITED SCIENTIFIC Co. — 300 North Jefferson St., CHICAGO 6, Illinois
- 8* W. M. WELCH SCIENTIFIC Co. — 1515 Sedgwick St., CHICAGO 10, Illinois
- 9* GENERAL BIOLOGICAL SUPPLY HOUSE — 761-763 E., 69th Place, CHICAGO 37, Ill.
- 10 DEPT OF ZOOLOGY, State Univ. of Iowa — IOWA CITY, Iowa
- 11* QUIVIRA SPECIALTIES Co. — 4204 West 21st St, TOPEKA, Kan.
- 12 DEPT OF EMBRYOLOGY, Carnegie Institution of Washington — Wolfe and Madison Sts. BALTIMORE 5, Md.
- 13* CHASE WILD ANIMAL FARM — Lawson Rd, EGYPT, Mass.
- 14* MARINE BIOLOGICAL LABORATORY Supply Department — WOODS HOLE, Mass.
- 15* TRANS-MISSISSIPPI BIOLOGICAL SUPPLY — 892 West County Rd B., ST PAUL, Minn.
- 16* STANDARD SCIENTIFIC SUPPLY Corp. — 34-38 West 4th St, NEW YORK City, N.Y.
- 17 DEPT OF BIOLOGY, Coll. of Arts and Sci., Univ. of Rochester — ROCHESTER 3, N.Y.
- 18* WARDS NATURAL SCIENCE ESTABL. — 3000 Ridge Rd East, ROCHESTER, N.Y.
- 19* CAROLINA BIOLOGICAL SUPPLY HOUSE — ELON COLLEGE, N.C.
- 20* J. C. NICHOLLS Jr., Zoological Collector — MURPHY, N.C.
- 21 SCHOOL OF SCIENCE, Oregon State College — CORVALLIS, Ore.
- 22* PORTLAND BIOLOGICAL SUPPLY Co. — P.O. Box 6671 Lents Station, PORTLAND 66, Ore.
- 23* SOUTHWESTERN BIOLOGICAL SUPPLY Co. — P.O. Box 4084, DALLAS, Tex.
- 24 MEDICAL SCHOOL, Univ. of Texas — GALVESTON, Tex.
- 25* NORTHWESTERN BIOLOGICAL SUPPLY Co. — Route 3, ANACORTES, Wash.
- 26* COLLEGE BIOLOGICAL SUPPLY Co. — 9230 Woodlawn Ave, SEATTLE, Wash.
- 27* LEMBERGERS — P.O. Box 482, OSHKOSH, Wis.

ASIA

India

- 28 VITA Limited — 31 Ropewalk St, Fort, BOMBAY

* = Biological Supply Houses, Zoological Collectors etc.

Turkey

- 29 INST. OF HISTOL. AND EMBRYOL., Vet. College, Univ. of Ankara
— ANKARA

EUROPE**Belgium**

- 30 REPTILAMPHIBIA (Felix Vandevelde) — Remerstraat, BAAL
(Brabant)

Denmark

- 31 LAB. OF ZOOPHYSIOLOGY, Univ. of Copenhagen — Juliane Mariesvej 32, COPENHAGEN O
32 INST. FOR ALM. ZOOL., Univ. of Copenhagen — Universitetsparken 3, COPENHAGEN O
33 CYTOCHEMISTRY DEPT, Carlsberg Lab. — 8 Gl. Carlsbergvej, COPENHAGEN Valby

France

- 34 DEP. D'EMBRYOLOGIE, Lab. de Histol., Fac. de Méd. de Nancy — 31 Rue Lionnois, NANCY (Meurthe & Moselle)

Germany

- 35 ZOOLOGISCHES INSTITUT der Univ. Göttingen — Nikolausbergerweg 75, GÖTTINGEN
36 INST. FÜR EXP. KREBSFORSCHUNG, Univ. Heidelberg — Voszstrasse 3, HEIDELBERG
37 ZOOLOGISCHES INSTITUT der Univ. Köln — Kerpenerstrasse 13, KÖLN-LINDENTHAL
38 INST. FÜR ANGEW. ZOOLOGIE der Univ. Würzburg — Röntgenring 10, WÜRZBURG

Italy

- 39 ISTITUTO DI ZOOLOGIA, Univ. di Milano — Via Celoria 10, MILANO
40 ISTITUTO DI ZOOL. E ANAT. COMP. — Via Loredan 6, PADOVA
41 ISTITUTO DI ZOOLOGIA — Via Archirafi 18, PALERMO

Netherlands

- 42 PHYSIOLOGICAL LABORATORY, Municipal Univ. of Amsterdam — Rapenburgerstraat, AMSTERDAM-C.
43 ANAT.-EMBRYOL. INSTITUUT, Municipal Univ. of Amsterdam — Mauritskade 61, AMSTERDAM-O.
44 VEZEL INSTITUUT T.N.O. — Mijnbouwstraat 16a, DELFT
45 CENTRAAL PROEFDIERENBEDRIJF T.N.O. — Biltstraat 172, UTRECHT

Sweden

- 46 ZOOLOGICAL INSTITUTE, Uppsala Univ. — UPPSALA

United Kingdom

- 47 DEPT OF ANATOMY, Med. School, Hospitals Centre — BIRMINGHAM 15, England

- 48 ANATOMY SCHOOL, Univ. of Cambridge — CAMBRIDGE,
England
- 49 INSTITUTE OF ANIMAL GENETICS — West Mains Road, EDIN-
BURGH 9, Scotland

General questions and announcements

I The Hubrecht Laboratory

The year 1954 has been an important year in the development of the Hubrecht Laboratory. The first international team-work in the field of embryology was held from February 1st till July 31st and has been very successful. The following scientists (in alphabetical order), participated in the team:

- 1) Miss R. de Fremery (M.Sc.), (now Mrs Verhoef-de Fremery),
Utrecht, Holland
- 2) Mr T. W. Glenister (M.B., B.S.), London, England
- 3) Mr K. Hara (M.Sc.), Nagoya, Japan
- 4) Miss D. Harari (M. Sc.), Jerusalem, Israël
- 5) Mr O. Hassa (Vet.D.), Ankara, Turkey
- 6) Mr R. Hori (M.Sc.), Toyama, Japan
- 7) Miss A. G. Johnen (Ph.D.), Cologne, Germany
- 8) Mr D. J. McCallion (Ph.D.), Wolfville, Canada
- 9) Miss V. M. McMurray (Ph.D.), Iowa, U.S.A.
- 10) Mr M. Sala S.J. (Phil.D.), Padova, Italy

This team represented 9 different countries of three continents. The general topic of the team-work was: „Origin and establishment of organisation patterns in embryonic fields during early development in Amphibians and Birds, in particular in the nervous system and its substrate.”

After a technical and theoretical introduction into the general topic, separate investigations have been carried out by the various participants under the personal direction of Dr P. D. Nieuwkoop. A joint preliminary publication has been written on the results already obtained, which will be published in due course.

As a direct effect of this team-work experimental embryological work is being newly established at the Veterinary School in Ankara (Turkey), the University of Jerusalem (Israël) and the Charing Cross Hospital in London (England), while new stimuli have been given to the work of several other participants already engaged in experimental biology.

The next team-work will be held at the Hubrecht Laboratory in the year 1956. We have the intention to prolong the duration of the team-work with one month in order to secure a better acquaintance of the participants with the language chosen as medium. The team-work will therefore be held from January 15th till August 15th. The general topic, leadership and further details will be announced by circular, to be distributed in the beginning of next year, so that applications can be sent in before September 1st of 1955.

II The Central Embryological Library (C.E.L.)

A *Bibliographical information; Normal Tables*

For bibliographical information supplied to embryologists on request (cf. II B) we make use in the first place of the reprint-collection, with its card-index composed according to the classification-system used in the G.E.I.S., and in the second place of the periodicals present in the C.E.L. Among these the abstracting-journals form an important source for informations. Those present in the C.E.L. are: „Berichte über die Wissenschaftliche Biologie”, „Biological Abstracts” Sections A and B, and „Excerpta Medica” Section I.

It may be of interest to mention that the C.E.L. possesses the greater portion of the Normal Tables included in the list added to the „Concise Catalogue of the Central Embryological Collection of the Hubrecht Laboratory” (1953). The Tables are usually available for borrowing.

B Services rendered by the C.E.L.; conditions for borrowing

See the fifth full issue, 1953, p. 162.

III The Central Embryological Collection of slides and material

A The Collection

The collection has been extended with the important experimental material of the late Prof. E. Rotmann (Cologne, Germany).

A Concise Catalogue of the Central Embryological Collection of the Hubrecht Laboratory has been published and distributed. Copies are still available on request.

B Conditions for borrowing

See the fifth full issue, 1953, p. 162—163.

IV The Normal Table of *Xenopus laevis*

The descriptive work will be ready by the end of 1954. Taking into account the considerable amount of editorial work involved in making the joint manuscript ready for the press, we expect that the Normal Table will appear in the second half of 1955.

**Communications of the „Institut International d'Embryologie”
(Embryological Section of the I.U.B.S.)**

The I.I.E. has to announce with regret the loss of two of its founders and honorary members: Prof. Dr. J. P. Hill, who died in London in the beginning of 1954, and Prof. Dr. F. Hochstetter, who died in Vienna on the 10th of November, 1954, at the age of 93.

Attention is drawn to the fact that, according to the new statutes of the I.I.E., all persons active in research in the field of morphogenesis may apply for membership. Election to membership is by simple majority of the General Assembly upon recommendation of two fellows and approval by the Board.

As the next General Assembly will be held in the summer of 1955 in the U.S.A. (date and place will be announced later), applications for membership are awaited by the Secretary, Prof. Chr. P. Raven, Zoological Laboratory, Janskerkhof 3, Utrecht. Candidate-members may tender their applications personally to the above address; they are advised to secure the recommendations of two fellows of the I.I.E. A list of fellows is to be found in the 1952 issue of the G.E.I.S.

The Secretary, Chr. P. RAVEN

Reviews of recently published textbooks on Embryology

GENERAL

The "Methuen's monographs on biological subjects" are a somewhat more luxurious form of pocketbook edition than the German "Sammlung Göschen" booklets. They have been printed in a more convenient letter type and on better paper and have been bound in a nice band. This is of course reflected in the price, varying between 6 and 10 shillings, which is about $1\frac{1}{2}$ to 2 times the price of the German edition. There are, however, other interesting differences between the two forms of publication. Whereas the German edition gives more the general survey of the well established knowledge in the field concerned, the English edition actually offers us the up to date progress in the various problems with a very extensive bibliography. It is more particularly written for scientists and students and less for teachers and laymen interested in the field, for which latter group the German edition will be more welcome. The German edition is therefore also much more richly illustrated than the English monographs.

P. D. NIEUWKOOP

"VERTEBRATE SEXUAL CYCLES"

1951

by W. S. Bullough
117 pp. with 12 illustrations

Methuen & Co. Ltd., London
John Wiley & Sons, Inc.,
New York
Price: 6 s.

The very extensive literature on the sexual physiology of the Vertebrates is briefly summarised in this booklet, indicating the main facts and theories with many references in order to enable the reader to extend his reading to the original literature. In this booklet the factors determining, controlling or affecting the seasonal and the oestrous reproductive cycles of the vertebrates are discussed. They can be divided into ultimate and proximate factors. In the ultimate factors the food supply is probably the most important. For their genetical fixation natural selection has been responsible. The proximate causes would be the internal reproductive rhythm, the environmental changes in light and climate and finally that group of factors in the immediate environment of the individual animal as breeding area, social grouping etc. The very extensive field of hormonal regulations has been only very briefly surveyed, after which the last chapter has been devoted to sexual behaviour, which subject has also been treated in outlines.

This booklet which has been written in a clear and stimulating style and in which the essential aspects have been stressed and details have been omitted as much as possible, offers a very good summary of this interesting problem. We therefore highly recommend it to zoologists, medical and veterinary scientists and students.

P. D. NIEUWKOOP

"ÉLÉMENTS D'EMBRYOLOGIE"

Second Edition, 1948

by A. Celestino Da Costa
583 pp. with 492 illustrations

Masson et Cie., Paris
Price: Frs. 2690

Although this textbook has been offered to the "Institut International d'Embryologie" and has not been sent for review in the General Embryological Information Service, we find this textbook, written in the French language, so important that we take the liberty of announcing and reviewing it in the 1954 supplement of the G.E.I.S.

This textbook is particularly designed for medical students, so that besides two general parts dealing respectively with the formation of the gametes and the development of the egg, the third part dealing with the development of the various organ systems grouped according to their embryological affinities, is particularly devoted to the mammalian development. There are few textbooks on human embryology in which so much attention has been paid to general embryological problems and in which so many pages deal with the development of other vertebrates. The general chapters do not only concern with descriptive and comparative embryology, as in the majority of textbooks on human development, but also include experimental embryology, developmental genetics and pathological development. These chapters are so comprehensive that we are inclined to call this book rather a handbook than only a textbook as the author very modestly states in the preface. We are very thankful that a second french edition appeared in 1948 and hope that soon a third edition might be prepared including the most recent interesting advances in the field of embryology. The well organized text, the many bibliographical data and the well chosen figures increase markedly the general value of this book. Unfortunately the paper on which it is printed does not allow a satisfactory reproduction of autotypes. We hope that for a next edition a good solution can be found for this technical problem without leading to a considerable increase in the costs of publication. The additional chapter on the history of embryology forms a very worthy end of this work.

We warmly recommend this very valuable book to all embryologists and hope that not only medical students but also students in biology will use it as a comprehensive guide into the many interesting problems of this field of science.

P. D. NIEUWKOOP

"SEX-DETERMINATION"

Third Edition, 1954

by F. A. E. Crew
68 pp.

Methuen & Co. Ltd., London
John Wiley & Sons, Inc., New York
Price: 6 s. 6 d.

The author emphatically states that this booklet presents only the main facts and will particularly serve as a guide to further reading for students. It is restricted to the cytological and the genetical aspects of sex-determination. In nearly all the chapters the main approach of the problems is from the genetical side so that especially a fair knowledge of general genetics is presupposed, while also cytology must be familiar to the reader. The author did not try to

treat the subject systematically, but restricted himself to examples out of various groups of animals and plants. In this respect this booklet differs rather much from the corresponding edition of the "Sammlung Göschen", which starts from a more elementary base and treats the subject more systematically. The extensive bibliography gives an excellent survey of the literature of the first half of the century, while a glossary explains and defines the terms used in this booklet. We like to recommend this booklet warmly to all those students and scientists interested in the problem of sex-determination as a problem so closely related to genetics in general.

P. D. NIEUWKOOP

"THE EMBRYONIC DEVELOPMENT OF STURGEONS (5 spp.) IN
RELATION TO PROBLEMS OF THEIR CULTURE"

1954

by T. A. Detlaf and A. S. Hinsburg
216 pp. with 51 figs, 14 pls,
18 tabs and 1 folding leaf

Edited by S. G. Kryzhanovskii
Published by the Acad. of Sciences
of the USSR, Moscow, on behalf of
the A.N. Severtsov Inst. of Animal
Morphol.

This book, written in Russian, was sent to us by the publishers. We hope to be able to review it in extenso in the 1955-issue.

"DIE ENTWICKLUNG UND MORPHOLOGIE DES
CHONDROKRANIUMS VON MYOTIS KAUP"

1954

by H. Frick
102 pp. with 46 illustrations

Georg Thieme Verlag,
Stuttgart
Price: DM 14.40

It is in general not the aim of the review rubric of the G.E.I.S. to discuss the scientific value of a publication, so that in case of a purely scientific monograph like this book I shall mainly restrict myself to a consideration of general interest and form of this publication. It is rather unusual that a so specialized study forming the third part of a more general investigation on the development of the cranium in Chiroptera is published as a monograph, the more so as previous studies (part I and II) have appeared as articles in related periodicals. The very large number of illustrations in this "Habilitationsschrift" probably forms the reason for the appearance of this work in the form of a book. Very great care has been given to text and illustrations, which latter have been drawn from models by an excellent artist. All has been printed upon very good art-paper which explains a rather high price of this publication.

This very careful and systematical, purely scientific study forms a valuable contribution to our knowledge of descriptive and comparative embryology and will certainly be received with great enthusiasm among specialists in that field, for which it of course does not need any further recommendation. On the other hand, it is very questionable whether it will actually receive much attention in wider circles of biologists, medical and veterinary scientists, since its character is so very specialized.

P. D. NIEUWKOOP

"MICROSCOPIC HISTOCHEMISTRY"

Principles and Practice

Second Edition, 1953

by G. Gomori

273 pp. of which 220 pp. of text

The University of

Chicago Press

Price: \$ 6.—

The author makes a distinction between histochemistry and cytochemistry, the first as the identification and localisation of chemical substances in the tissues on a cytological scale and the second as the study of the chemical organisation of the cell in general. These definitions are very desirable at the beginning of this book, although they have a rather subjective character since various authors give different definitions and even often use the terms as synonyms. The author restricts the field of histochemistry to the identification and localisation in the more or less intact cell or tissue directly through the microscope. The very rapid developments of histochemistry in the last decennia makes a critical survey of the methods used and their applicability highly desirable and indispensable since many methods have been used too uncritically and often without a sufficient knowledge of the chemical reactions on which they are based. The author therefore first discusses the principles upon which the various methods are based and the standards for validity of techniques. In the second part the various techniques have been treated systematically. For every technique the detailed preparation of the reagents and their application is given. After the inorganic substances, the organic substances and in particular the enzymes have been discussed in extenso with a very large number of references. This work therefore gives a very good survey of the literature on these subjects. For many scientists in biology, medicine, veterinary science and biochemistry this book will be very welcome. We therefore like to recommend this text book with great pleasure to all embryologists and other readers of the G.E.I.S., without disguising the fact that it will be impossible for any author, particularly in such a young branch of science, to avoid a certain subjectivity. We must, moreover, realize that in a field in which critical exploration has begun so recently, hand books get out of date very rapidly, even cannot be entirely up to date.

P. D. NIEUWKOOP

"FORTPFLANZUNG IM TIER- UND PFLANZENREICH"

Second Edition, 1951

by J. Hämmerling

135 pp. with 101 illustrations

Sammlung Göschen Band 1138

Walter de Gruyter & Co.

Berlin

pocket book size

Price: DM 2.40

This German pocketbook edition of the „Sammlung Göschen“ deals with the varied aspects of reproduction in plant and animal kingdom. It describes our present knowledge of the process of reproduction s.s. and does not include the numerous adaptations in plants and animals nor sex determination and its genetical background. Particularly the morphology of the reproduction process is extensively discussed and brought to the reader in a very comprehensive, but

concise form. The text has been clearly written and is nicely illustrated with a hundred of illustrations. The physiological aspects of the reproduction process, which are much more fragmentarily known than its morphological aspects, are less comprehensively treated and cover only 1/7 of this work. We can highly recommend this second edition to all people who like to get a general but accurate survey of this interesting field of science, which enables them to find their way to the extensive literature published on these problems. It moreover gives a very practical glossary with clear definitions of the terms used in this booklet.

P. D. NIEUWKOOP

**"GESCHLECHT UND GESCHLECHTSBESTIMMUNG IM TIER-
UND PFLANZENREICH"**

Second Edition, 1951

by M. Hartmann
116 pp. with 61 illustrations
and 7 tabs

Sammlung Göschen Band 1127
Walter de Gruyter & Co.
Berlin
pocket book size
Price: DM 2.40

This German pocketbook of the „Göschen Sammlung” deals with the problem of sex and sex-determination in plant and animal kingdom, in particular with the many-sided aspects of bisexuality in the so called primary sexual glands. The polymorphism of the secondary sexual glands will not be treated in this booklet. The author discusses extensively the various types of sex- and sex ratio determinations and the influence of the sex hormones upon them. A general theory on sexuality is built up on the principle of bisexuality and the genetically and a-genetically determined influences leading to the distinction of six steps in sex determination.

The clearly written and well organized text is illustrated with a large number of good illustrations and diagrams. This booklet only contains a few references, the majority of which is not very recent. Unfortunately the reader is not very easily brought to the recent original literature on this subject on which so much work is still going on. Also in this booklet one finds a very practical glossary of the terms used.

Just like the edition on reproduction it gives the reader a very accurate and detailed but concise survey over a wide field of science. We will therefore heartily recommend these cheap pocketbook editions which are within the means of every scientist.

P. D. NIEUWKOOP

"TEXTBOOK OF HISTOLOGY"

Sixth Edition, 1953

by A. A. Maximov and W. Bloom
616 pp. with 986 illustrations,
257 in color, on 580 figs

W. B. Saunders Company
Philadelphia and London
Price: \$ 10.00

This textbook on human histology has gradually received a very many sided and comprehensive character in the successive editions by the various contributions and suggestions of many well-known scientists. Nevertheless the author

has succeeded in keeping it homogeneous and consistent. After a very valuable introduction in which the general texture of a cell has been discussed and the great importance of methods of fixation and staining has been emphasized, the various organ systems have been treated systematically by discussing their development, cellular structure and function. Each organ has been described in many details with the help of excellent diagrams, sketches and photographs of sections and tridimensional reconstructions either in black and white or in colour. The very rich information has been given in a concise and very well organized form, so that students can easily find their way in the text. At the end of each chapter an extensive list of the most important literature has been given. Unfortunately no direct references have been made in the text itself, which would certainly stimulate the reading of the original literature. It might also be suggested that the chapter on nervous tissue will be extended in the next edition, showing more clearly the great variety in neuronal and fiber development without entering into the field of the general texture of the nervous system. These few suggestions have only been made in order to improve this already excellent textbook, which as one of the best and most up to date guides into this field can warmly be recommended to all medical students in the Anglo-Saxon countries as well in the other countries of Europe and other continents where English is sufficiently taught in the secondary school education.

P. D. NIEUWKOOP

"COMPARATIVE EMBRYOLOGY OF THE VERTEBRATES"

1953

by Olin E. Nelsen
982 pp. with 2057 Drawings
and Photographs grouped as
380 Illustrations

The Blakiston Company, Inc.
New York — Toronto
Price: \$ 8.—

In the preface the author emphasizes the necessity of the study of comparative anatomy for a successful understanding of comparative embryology. In this handbook the author has tried to treat vertebrate embryology over the entire course of development, and hence into the realm of comparative anatomy. The text has been so arranged and illustrated that this book can be used as a book for short and for more extensive courses. Moreover the discussion of the basic embryological principles has been separated from the section dealing with the relationships between comparative embryology and comparative anatomy.

Before the description of the successive periods of development some general terms and concepts are discussed and a classification of the Phylum Chordata is given.

The entire reproduction system of male and female, their function and hormonal regulation are described in extenso in order to show the environment in which the origin and development of the sex cells till maturation takes place. The extensive treatment of this first part of the book called "The Period of Preparation" is very valuable and will be appreciated by many teachers and students. Also the following two parts, "The Period of Fertilization" and "The Development of Primitive Embryonic Body Form" have been treated very comprehensively. The author gives here an excellent synthesis of descriptive, comparative and experimental literature which makes these chapters extremely interesting.

The later development given in part IV, "Histogenesis and Morphogenesis of the Organ Systems", is discussed according to organ systems and forms the part in which comparative embryological and comparative anatomical aspects have been combined. The diversity is, however, so enormous in the development and adaptations of each organ system among the various classes, orders and families of the Vertebrates that a survey can only be an outline of the more principal aspects. This part of the book therefore unavoidably gets a somewhat superficial character since the general comprehensive scope of the book has also been maintained here. The same holds for the last part, "Care and Nourishment of the Developing Young". We therefore feel that the second half of this handbook will be more used for teaching purposes, whereas the first half will also be highly appreciated by scientists as one of the more comprehensive and excellent reviews of our knowledge of the various processes and events in development.

The references at the end of each chapter form an excellent key to the older and recent original literature. The entire book has been very well organized and has been written in an easy style. The numerous illustrations have partially been chosen with much care from other handbooks and publications and have partially been newly made. Particularly the last category is very outstanding and might serve as an example for many textbooks. The only suggestion we should like to make concerns the use of different characters in the text and particularly in the headings. A better choice can markedly increase the surveyability of the text, now e.g. the italics used for heading of the larger units do not strike the eye sufficiently, whereas the text in bold type gets too much emphasis.

All in all it has been a great pleasure to review this handbook which we not only highly recommend to all embryologists, but of which we like to say that it should be within direct reach of all embryologists, teachers and students directing respectively attending courses in embryology.

P. D. NIEUWKOOP

"TISSUE CULTURE"

Second Edition, 1954

by E. N. Willmer
with 175 pp., 2 plates
and 8 text diagrams

Methuen & Co. Ltd., London
John Wiley & Sons, Inc., New York
Price: 9 s. 6 d.

As the author states in the preface this book will merely give a fair account of the part played by the method of tissue culture in the elucidation of the problems of normal growth and differentiation and in the study of the normal development of the animal. He has very successfully tried to give a survey of the main advances made in our knowledge of growth and differentiation as far as the technique of tissue culture has been employed. Since the first edition in 1935 very great advances have been made by the development of the phase-contrast, the electron and the reflecting microscopes as well as by the use of tracer elements and by the developments in bio- and histochemistry, so that a second edition was highly desirable. This book actually gives a very clear and comprehensive survey on the many aspects of unorganized cell growth and differentiation as well as on those of organized growth of tissues and organ systems. It contains a glossary, a list of reference books on tissue culture

during the last 25 years has been included. This very valuable survey will eagerly be read by a great number of workers in biology, medicine and veterinary science to whom we highly recommend this second edition.

P. D. NIEUWKOOP

"ANATOMY OF THE CHORDATES"

1951

by Ch. K. Weichert
921 pp. with 506 illustrations

McGraw-Hill Book Company, Inc.
New York-Toronto-London
Price: 60 s.

The textbook will form a general guide into chordate anatomy for more advanced students. After an introduction and a concise treatment of the classification of the chordates with many illustrations of characteristic representatives of each order, the third chapter deals with the development of the individual. Although the author emphatically states in his preface that he considers this chapter as very essential since much of the subsequent material on individual organ systems is presented from an embryological point of view, this chapter is very short and elementary. Particularly the process of germ layer formation, so fundamental for a good understanding of the chordate anatomy, is much too schematized and in several aspects incorrect. The general discussion on the further steps of organ and tissue formation is also given in a too brief form for a textbook of this stature.

The discussion of the various organ systems is comprehensive and well organized. Each chapter is richly illustrated with clear diagrams and drawings. It would only be desirable to extend the chapter on skeletal system and nervous system, particularly the discussion of skull and brain structure, which are so essential for comparative and functional studies, while some further illustrations might help to bring the anatomy and formation of the cephalic nerves closer to the reader.

In the third part of this book some representative animals are described in detail. It is quite understandable that the choice has been made out of American species easily available. We feel it however as a serious lack that the groups of reptiles and birds are not represented. In our opinion it is highly desirable that students come into direct contact with at least one representative of each of the main vertebrate classes. The very extensive treatment of e.g. the muscular system of the cat makes a somewhat exaggerated impression.

The total absence of references to other textbooks, review articles or original publications forms a serious objection to a textbook of this size and stature.

We must confess that we feel rather much criticism towards the content of this book, but give our criticism as suggestions which might lead to a marked improvement of its second edition.

P. D. NIEUWKOOP



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