















# GENERAL EMBRYOLOGICAL INFORMATION SERVICE

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VOLUME 15, part 2  
COUNTRIES OUTSIDE EUROPE  
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## SUBJECT COVERAGE

Invertebrates, Vertebrates, and Man  
developmental biology, including:

descriptive embryology  
experimental embryology  
physiological embryology

developmental genetics  
developmental pathology and teratogenesis

metamorphosis  
regeneration  
asexual reproduction and development

Plants and Unicellular Organisms  
experimental morphology  
developmental physiology

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Deputy Director of the Hubrecht Laboratory

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# CHANGES OF ADDRESS IN EUROPE

received since the appearance of volume 15, part 1

- ABERCROMBIE, M.; Prof. – Strangeways Res. Lab., Wort's Causeway, CAMBRIDGE CB1 4RN, England ISDB
- ASHWORTH, J. M.; Dr. – Dept. of Biol., Univ. of Essex, Wivenhoe House, COLCHESTER CO4 3SQ, England
- ASTAUROV, B. L.; Prof. – Inst. of Devl. Biol., Acad. of Sci. of USSR, MOSCOW, U.S.S.R. deceased
- BALLS, M.; D.Phil. – Dept. of Hum. Morphol., Med. Sch., Univ. of Nottingham, NOTTINGHAM NG7 2RD, England
- BIELAŃSKA (OSUCHOWSKA), Mrs.Z.; Dr.,Prof. – Dept. of Histol. and Embryol., Warsaw Agric. Univ., ul. Nowoursynowska 166, 02-766 WARSZAWA, Poland
- BIGGELAAR, J. A. M. v.d.; Ph.D. – until August 1975: Stat. Biologique, 29211 ROSCOFF, France
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- DREWS, U.; Dr. – Abt. Klin. Morphol., Univ., 79 ULM, Neubau oberer Eselsberg, B.R.D. (Germany) ISDB
- DRYDEN, R. J.; Ph.D. – 25 The Drive, SHOREHAM-by-Sea, Sussex BN4 5GB, England
- ENGLAND, Mrs. M. A.; Ph.D. – Dept. of Anat., Univ. of Leicester, 6 Univ. Rd., LEICESTER LE1 7RH, England
- FRIANT, Mrs. M.; Prof. – Ecole d'Anthropol., PARIS. deceased
- GATEFF (ZOLLIKOFER), Mrs. E. A.; Ph.D. – Biol. Inst. I der Univ., Schänzle Str. 9, 78 FREIBURG/Br., B.R.D. (Germany)
- GUERRIER, P. – Stat. Biologique, Place Georges-Teissier, 29211 ROSCOFF, France
- HÄMMERLING, J.; Dr.phil., Prof. (Emer.) – Schopenhauer Str. 27, 2940 WILHELMSHAVEN, B.R.D. (Germany)
- JAMES, D. A.; D.Phil. – Dept. of Pathol., Wellcome Res. Lab., Langley Court, BECKENHAM BR3 3BS, Kent, England
- JENKINSON, E. J.; B.Sc. – Dept. of Pathol., Med. Sch., Univ. Bristol, University Walk, BRISTOL BS8 1TD, England
- LINTERN-MOORE, Mrs. S. M.; Ph.D. – Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, ACT 2600, Australia
- MONROY, A.; M.D., Prof. – Lab. of Molec. Embryol., Consiglio Naz. delle Ricerche, C.P. 3042, 80100 NAPOLI, Italy ISDB
- MOORE, G. P. M.; Ph.D. – Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, ACT 2600, Australia
- PRITCHARD, D. J.; Dr. – Inst. of Anim. Genet., Univ. of Edinburgh, West Mains Rd., EDINBURGH EH9 3JN, Scotland, U.K.
- RENFREE, Miss M. B.; B.Sc. – Inst. of Anim. Genet., Univ. of Edinburgh, West Mains Rd., EDINBURGH EH9 3JN, Scotland, U.K.
- SCHERRER, K.; Dr. – Serv. de Biochim. de la Différenciation, Inst. de Biol. Moléc. du CNRS, Univ. de Paris VII, Tour 43, 2 place Jussieu, 75100 PARIS, France
- SZÖLLÖSI, D.; Ph.D., Assoc.Prof. – Lab. de Physiol. Anim., CNRZ, 78350 JOUY-en-JOSAS, France
- TARIN, D.; M.D. – Dept. of Neuropathol., Gen. Infirmary, LEEDS LS1 3EX, England
- TESTA-BAPPENHEIM, I.; Dr.med.A.O., Prof. – Lab. Antropol., Univ. di Camerino, Via Filippo Camerini 3, 62032 CAMERINO, Italia
- WENT, D. F.; Dr. – Zool. Inst. der Eidgen. Techn. Hochschule, Universität Str. 2, 8006 ZÜRICH, Switzerland
- YAMADA, T.; D.Sc., Prof. – Inst. Suisse de Rech. Exp. sur le Cancer, 1011 LAUSANNE, Switzerland

# DIRECTORY OF NAMES AND ADDRESSES

## with Subjects of Research

(alphabetical order)

Unless stated otherwise, information in this directory is based upon data sheets which were sent to the institutes listed in the Directory of Institutes, and returned to the editors before September 1974. Scientists were asked to state their name, degree(s), address, and research subjects in so far as recent, unpublished work in developmental biology was concerned.

Complete entries (with research subjects) are entirely based on the data sheets. Subjects identical to those in vol. 14 were confirmed by the scientists still to be correct.

Entries without research subjects

- a. Persons listed on the sheets as being engaged in research in developmental biology, without further specification of subjects.
- b. Persons with a complete entry in vol. 14 who have not returned their sheets. Names, degrees, and addresses were reprinted unchanged from vol. 14 and may be partially out of date.
- c. Emeritus professors no longer active in research.
- d. Some persons who have not returned data sheets for two or more volumes have been listed nevertheless; cases in point are several I.S.D.B. members.
- e. Persons listed in vol. 14 whose death has come to our attention (marked †).

Persons listed in vol. 14 but not in vol. 15

- a. Persons who had research subjects in vol. 14 but are no longer engaged in research in developmental biology.
- b. Persons who had no research subjects in vol. 14 and have not returned the sheets for both vol. 14 and 15.

The abbreviation Ms. in names stands for Miss or Mrs.

Names of members of the International Society of Developmental Biologists are marked ISDB.

- ABBOTT, Miss U. K.; Ph.D., Prof. – Developm. Biol. Program, Natl. Sci. Found., WASHINGTON, D. C. 20550, U.S.A. ISDB
- ABRAMOVICI, A.; Dr. ès Sci. – Lab. of Developm. Pathol., J. Casper Dept. of Pathol., Beilinson Hosp., PETAH-TIQA, Israel
- ACKERMAN, G. A.; M.D., Ph.D., Prof. – Dept. of Anat., Ohio State Univ., 333 W.10th Ave., COLUMBUS, Ohio 43210, U.S.A.
- a Morphology and histochemistry of the hemopoietic system in embryonic and adult condition. *Homo sapiens* and other spp. (Mammalia)
- ACKERSON, A. O.; B. S. – Biol. Dept., Central Mich. Univ., Mt. PLEASANT, Mich. 48858, U.S.A.
- a Spermatogenesis with emphasis on plasma membrane degradation and formation of microtubules. Physa spec. (Gastropoda)
  - b Fertilization in vivo and in vitro. *Palaemonetes peludosus* (Decapoda, Crustacea)
- ADAMS, T. S.; Ph.D. – USDA Metab. & Radiat. Research Lab., State Univ. Station, FARGO, N.D. 58103, U.S.A.
- a Endocrine regulation of ovary maturation. *Musca domestica* (Diptera)
  - b Use of endocrines to disrupt morphogenesis. Same species as a
- ADAMS SMITH, W. N.; D. Phil., M.D., Prof. – Div. of Health Sci., Univ. of S. Carolina, COLUMBIA, S.C. 29208, U.S.A.



- a Teratogenic influences of a variety of known teratogens upon heart development. *Rattus norvegicus* (Rodentia)
- ADELMANN, H. B.; Dr., Prof. (Emer.) – Div. of Biol. Sci., Cornell Univ., Stimson Hall, ITHACA, NY 14850, U.S.A. ISDB
- ADLER, R.; M.D. – Inst. de Biol. Celular, Fac. de Med., Paraguay 2155, BUENOS AIRES, Argentina
- a Experimental neuroembryology. *Gallus domesticus* (Aves)
- b Electron microscopy of developing nervous system. Same species as a
- c Dis- and reaggregation studies of neural tube development. Same species as a
- d Neural differentiation in vitro. Same species as a
- AGGARWAL, S. K.; Ph.D., Assoc. Prof. – Dept. of Zool., Coll. of Nat. Sci., Mich. State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Histochemistry and electron microscopy of vitellogenesis. *Tenebrio molitor* (Coleoptera)
- b Endocrine control of development. (Insecta)
- AGNEW, W. F.; Ph.D. – Huntington Inst. of Appl. Med. Res., 734 Fairmount Ave., PASADENA, Calif. 91105, U.S.A.
- a Teratology induced by heavy metals; fetal and subcellular localization; enzymatic effects. *Rattus spec.* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- b Relationships between abnormal levels (maternal and fetal) of trace elements and congenital CNS anomalies. *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- AKETA, K.; D.Sc. – Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan ISDB
- AKRUK, S. R.; M.Sc. – Dept. of Zool., Univ. of Georgia, Box 7, ATHENS, Ga. 30602, U.S.A.
- a Inhibition and induction of the acrosome reaction in spermatozoa in vivo and in vitro (possible role of decapacitation factor). *Oryctolagus cuniculus* (Lagomorpha)
- ALBRIGHT, J. F.; Ph.D. – Dept. of Life Sci., Indiana State Univ., TERRE HAUTE, Ind. 47809, U.S.A. ISDB
- ALEXANDER, G.; D.Agr.Sci. – Div. of Anim. Physiol., CSIRO, P. O. Box 239, BLACKTOWN, N.S.W. 2148, Australia
- a Investigations of the physical and physiological relations between maternal and embryonic tissues. *Ovis spec.* (Artiodactyla)
- ALLEN, E. R.; Assoc. Prof. – Dept. of Anat., Med. Center, Louisiana State Univ., 1542 Tulana Ave., NEW ORLEANS, La. 70112, U.S.A.
- a Immunohistochemical studies of actin and myosin synthesis in somites. *Gallus domesticus* (Aves)
- b Morphological (ultrastructural) organization of contractile protein in myogenic tissue into functional sarcomeres. *Gallus domesticus* (Aves), *Sus scrofa* (Artiodactyla)
- c Control of ribosomal synthesis in oocytes. *Acheta domestica* (Orthoptera)
- d Striated muscle differentiation in the hibernating animal. *Citellus tridecemlineatus* (Rodentia)
- ALLEN, J. N.; Dr. – Dept. of Neurol., Ohio State Univ. Hosp. Med. Sch., 410 W.10th Ave., COLUMBUS, Ohio 43210, U.S.A.
- a The postnatal development of activity of several acid hydrolases in the brain. *Rattus norvegicus* (Rodentia)
- b Acid hydrolases in neonatal trigeminal nerve and the postnatal decline in their activities (compared with activities in nitrosourea-induced schwannomas in these nerves). Same species as a
- ALLEN, R. D.; Ph.D., Prof. – Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, N.Y. 12222, U.S.A. ISDB
- a Cell division and motility of unicellular organisms and of tissue cells in vivo and in vitro. (Sarcodina; Metazoa)
- ALLEN, W. R.; Ph.D. – Dept. of Biol., Univ. of California, RIVERSIDE, Calif. 92502, U.S.A.
- a The role of nuclear RNA in protein synthesis. (Echinoidea)
- ALLISON, J. E.; Ph.D., Prof. – Dept. of Anat. Sci., Univ. of Oklahoma Med. Center, 801 NE 13th St., OKLAHOMA-City, Okla. 73190, U.S.A.
- a Genital and urinary anomalies with emphasis on hermaphroditic alterations. *Rattus rattus* (Rodentia)
- ALPERIN, R. J.; Ph.D. – Biol. Dept., Community Coll. of Philadelphia, 34 S. 11th St., PHILADELPHIA, Pa. 19107, U.S.A.
- a Changes in the submicroscopic distribution of nuclear nucleic acids during differentiation and metaplasia. (Vertebrata)
- b The role of the hypoblast in morphogenesis and organogenesis. *Gallus domesticus* (Aves)
- ALTMAN, J.; Prof. – Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a Development of the brain. *Rattus norvegicus* (Rodentia), *Felis domestica* (Carnivora)
- b Effect of x-irradiation, undernutrition and hormonal treatments on brain development. *Rattus spec.* (Rodentia)
- c Effect of retardation of cerebellar maturation on development of motor skills. Same species as b
- AMANO, H.; D.Sc., Prof. – Biol. Lab., Doshisha Univ., Karasuma Imadegawa, Kamikyo-ku, KYOTO, Japan
- a Developmental mechanism of the heart. *Cynops pyrrhogaster* (Urodela)
- AMANUMA, A.; D.Sc. – Lab. of Biol., Gifu Coll. of Dent., 1851 Takano, Hozumi-cho, Motosu-gun, GIFU-ken, Japan
- a Electron microscopy and experiments on differentiation of embryonic gonads. *Gallus domesticus* (Aves)
- AMES, I. H.; Ph.D. – Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A.
- a Genetic tumor induction and development. *Nicotiana spec.* (Solanaceae)
- b Fine structure of genetic tumor cells. Same species as a

- AMY, R. L.; Ph.D., Prof. – Dept. of Biol., Southwestern at Memphis, 2000 North Parkway, MEMPHIS, Tenn. 38112, U.S.A.
- a Ultraviolet microbeam irradiation and ruby laser microirradiation of the developing embryo. *Haemaphysalis leucorhoa* (= *Bracon hebetor*) (Hymenoptera)
  - b Analysis of radiation-induced embryonic death. Same species as a
- ANDERSEN, A. C.; V.M.D., Ph.D. – Radiobiol. Lab., Sch. of Vet. Med., Univ. of California, DAVIS, Calif. 95616, U.S.A.
- a Effects of low-level irradiation on the ovary. *Canis familiaris* (Carnivora), *Macaca radiata* (Primates)
  - b Endocrine aspects of the atretic (x-irradiated) ovary. *Canis familiaris* (Carnivora)
- ANDERSEN, O. F.; B.A. – Dept. of Reprod. Biol., Merck Inst. for Therap. Research, RAHWAY, N.J. 07065, U.S.A.
- a Studies on fertilization. *Mesocricetus auratus* (Rodentia)
- ANDERSON, D. T.; D.Sc., Prof. – Sch. of Biol. Sci., Univ. of Sydney, Zool. Bldg., SYDNEY, N.S.W. 2006, Australia
- a Comparative embryology. (Protochordata), *Pyura praeputialis* (Pleurogona, Tunicata)
- ANDERSON, E.; Prof. – Dept. of Anat. and Lab. of Human Reprod. and Reprod. Biol., Harvard Med. Sch., 45 Shattuck St., BOSTON, Mass. 02115, U.S.A. ISDB
- a Comparative oogenesis and fertilization. (Mammalia)
  - b Development of gap junctions in the Graafian follicle. (Mammalia)
- ANDERSON, J. E.; M.D., Prof. – Dept. of Anat., Fac. of Med., McMaster Univ., HAMILTON, Ont., Canada
- ANDERSON, J. J.; Ph.D. – Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.
- a Genetic analysis of development. *Dictyostelium discoideum* (Acrasiales)
- ANDERSON, J. W.; Ph.D., Prof. – Dept. of Anat., Med. Sch., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A.
- a Perinatal transfer of antibodies via placenta, fetal membranes, mammary gland, gut. *Rattus norvegicus* (Rodentia)
  - b Histophysiology of ovulation
  - c Ultrastructure of intestinal epithelium, as reflective of developmental processes. Same species as a
- ANDERSON, W. R.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Ultrastructure and cytochemistry of spermiogenesis, mitochondrial DNA, microtubules and muscle fibers; regeneration of the kidney
- ANDREW, Miss A.; Ph.D. – Dept. of Anat., Med. Sch., Hillbrow, JOHANNESBURG, S. Africa
- a Are APUD cells of the pancreas derived from the neural crest? *Gallus domesticus* (Aves)
  - b Developmental relationship between enterochromaffin cells and the neural crest. Same species as a
- ANDREW, F. D.; Ph.D. – Natl. Inst. for Environm. Health Sci., N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK., N.C. 27709, U.S.A.
- a Evaluation of embryotoxicity of various agents. *Mus musculus*, *Rattus norvegicus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
  - b Effects of various agents on macromolecular synthesis during fetal development. (Mammalia)
- ANGRA, S. K. – Dr. Rajendra Prasad Ctr. for Ophthalm. Sci., All India Inst. of Med. Sci., NEW DELHI-110016, India
- a Lens regeneration after extracapsular removal and implantation of cytolysed foetal lid epithelium or cytolysed amnion and inert acrylic or glass beads (estimation of total protein, RNA and DNA). *Oryctolagus cuniculus* (Lagomorpha), *Macaca mulatta* (Primates)
- ANSEVIN (DABROWSKA), Mrs. K.; Ph.D., Assoc. Prof. – Dept. of Biol., Rice Univ., HOUSTON, TX 77001, U.S.A.
- AOTO, T.; D.Sc., Prof. – Zool. Inst., Fac. of Sci., Hokkaido Univ., 10, W8, SAPPORO, 060 Japan
- a Morphology and physiology of neurosecretion. (Crustacea; Pisces; Amphibia)
  - b Morphogenesis of the nauplius eye. *Palaemon paucidens* (Decapoda, Crustacea)
  - c Morphogenesis of the pineal organ. *Xenopus laevis* (Anura)
- ARGYRIS (FRANKENHUIS), Mrs. B.; Ph.D., Assoc. Prof. – Dept. of Microbiol., Upstate Med. Center, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A.
- a Maturation of immunological capacity; comparative study: 1. immunological tolerance; 2. role of macrophages in antibody synthesis and immunological maturation. *Mus musculus* (Rodentia)
  - b Cellular interaction during immune response. Same species as a
  - c Cellular interaction during rejection of tumor transplants. Same species as a
- ARGYRIS, Th. S.; Ph.D., Prof. – Dept. of Pathol., Upstate Med. Center, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A. ISDB
- a Regeneration and the control of growth of adult organs: 1. mechanism of hair growth stimulation in wound healing; 2. mechanism of cellular proliferation produced by damage in adult liver and kidney. (Mammalia)
  - b Functional hypertrophy and the control of growth of adult organs. (Mammalia)
  - c Stimulation of adult organs and tissues by tumors; growth-promoting effects of Ehrlich ascites tumor, S-180, on skin, mammary gland, liver, and kidney. (Mammalia)
  - d Induction of drug-metabolizing enzymes and liver growth by phenobarbital and 3-methylcholanthrene. *Mus musculus*, *Rattus norvegicus* (Rodentia)
  - e Role of ribosome accumulation in wound healing in skin and in epidermal carcinogenesis. *Mus musculus* (Rodentia)
  - f Role of ribosome accumulation in drug-induced liver growth. (Mammalia)

- ARIMA, Sh.; D.Agr., Prof. — Lab. of Anim. Morphol., Biol. Inst., Nara Women's Univ., Kitaouya-Nishi-Machi, NARA, Japan
- a Studies on the end-products of metabolism in the embryo and tadpole. *Rhacophorus schlegelii* var. *arborea* (Anura)
- b Effects of mammalian prolactin on the growth and nitrogen excretion of tadpoles. Same species as a
- ARKING, R.; Ph.D. — Developm. Biol. Lab. and Center for Pathobiol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Use of temperature-sensitive autonomous cell-lethal mutations to analyze: 1. parameters of pattern formation in imaginal discs; 2. acquisition of competence by abdominal histoblasts; 3. cell lineage relationships of larval and internal adult structures. *Drosophila melanogaster* (Diptera)
- ARMAYOR, Miss M. R.; Biochem. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Chemical factors involved in fertilization: jelly coats and diffusible factors. *Bufo arenarum* (Anura)
- ARMS, Mrs. K.; D.Phil. — Dept. of Neurobiol. and Behavior, Langmuir Lab., Cornell Univ., ITHACA, N.Y. 14850, U.S.A.
- a Distribution of acetylcholine receptor sites and acetylcholinesterase in embryonic heart before and after parasympathetic innervation. *Gallus domesticus* (Aves)
- b Sodium channels in action potentials recorded from early embryos (by use of cobra venom cardiotoxin). *Gallus domesticus* (Aves)
- ARMSTRONG, Ph.B.; M.D., Prof. — Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A.
- a Behavioral responses in developing embryos. *Ameiurus nebulosus* (Teleostei), *Ambystoma punctatum* (Urodela)
- b Embryonic physiological encephalization and its neuroanatomical correlates. *Ameiurus nebulosus*, *Opsanus tau* (Teleostei)
- ARNOLD, J. M.; Ph.D., Assoc. Prof. — Kewalo Lab., Pacif. Biomed. Res. Ctr., Univ. of Hawaii, 41 Ahui St., HONOLULU, Hawaii 96813, U.S.A.
- a Studies on the egg cortex (histochemistry, electron microscopy, centrifugation). *Loligo pealii* (Decapoda), *Octopus spec.* (Octopoda, Cephalopoda)
- b Studies on the developmental fine structure of the eye lens. Same species as a
- c Studies on the formation of the blastoderm and cleavage. (Cephalopoda)
- ARTZT, Miss K.; Ph.D. — Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK, NY 10021, U.S.A.
- a Cell surface antigens of embryonal tumors. *Mus musculus* (Rodentia)
- b Development of embryonal tumors from mutant embryonic material. Same species as a
- ASAI, E.; M.Sc. — Biol Inst., Kanazawa Med. Univ., UCHINADA-machi, Ishikawa-ken, Japan
- a Regeneration. *Dugesia japonica*, *Bdellocephala brunnea* (Turbellaria)
- ASAKURA, K. — Biol. Inst., Kanazawa Med. Univ., UCHINADA-machi, Ishikawa-ken, Japan
- a Development and regeneration of scales. *Oryzias latipes*, *Carassius auratus* and other spp. (Teleostei)
- b Regeneration. (Turbellaria)
- ASAMI, K.; Ph.D. — Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan.
- a Changes in egg energy metabolism at fertilization. *Anthodiaris crassispina*, *Hemicentrotus pulcherrimus* (Echinoidea)
- b Cytochromes in the liver during development. *Rattus norvegicus* (Rodentia)
- ASAYAMA, S.; Prof. (Emer.) — Lab. of Embryol., Fac. of Sci., Osaka City Univ., 459 Sugimoto-cho, Sumiyoshi-ku, OSAKA, 558 Japan
- a Sex development. (Vertebrata)
- ASLING, C. W.; M.D., Ph.D., Prof. — Dept. of Anat., Sch. of Med., Univ. of Calif., SAN FRANCISCO, Calif. 94143, U.S.A.
- a Effects of maternal calcitonin injection on the developing fetal skeleton. *Rattus spec.* (Rodentia)
- ASNANI, Miss M.; M.Sc. — Dept. of Zool., Fac. of Sci., Univ. of Baroda, BARODA-2, India
- a Liver, spleen and lymph gland regeneration. (Reptilia; Aves)
- ATHERTON, R. W.; Ph.D. — Dept. of Zool.-Physiol., Univ. of Wyoming, Univ. Stat. Box 3166, LARAMIE, Wyo. 82070, U.S.A.
- ATKIN, I.; B.Sc. — Dept of Zool., Hebrew Univ., JERUSALEM, Israel
- a The origin of gonocytes. *Gallus spec.* (Aves)
- AUCLAIR, W.; Ph.D., Assoc. Prof. — Dept. of Biol., Sch. of Sci., Rensselaer Polytechn. Inst., TROY, N.Y. 12181, U.S.A.
- a Gene activation at fertilization or parthenogenetic activation. *Mus musculus* (Rodentia)
- AUERBACH, R.; Ph.D., Prof. — Dept. of Zool., Univ. of Wisconsin, 1117 W. Johnson St., MADISON, WI 53706, U.S.A. ISDB
- AUERSPERG, N.; M.D., Ph.D., Assoc. Prof. — Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B.C. V6T 1W5, Canada
- a Interaction of cellular and environmental factors in tumor histogenesis in vitro. *Homo sapiens* (Primates)
- AYAKI, T.; M.S. — Dept. of Genet., Nagasaki Univ., 12-4, Sakamoto-machi, NAGASAKI, 852 Japan
- a Radiation genetics (imaginal discs). *Drosophila melanogaster* (Diptera)
- AYDELOTTE, Mrs. M.B.; Ph.D. — Dept. of Anat., Coll. of Med., Univ. of Iowa, IOWA-City, Ia. 52242, U.S.A.

- a Influence of chemical teratogens on limbs developing in organ culture (chondrogenesis and early osteogenesis). *Mus musculus* (Rodentia)  
 AYZAZ-ZADEH, Miss B. - Dept. of Vet. Anat., Western Coll. of Vet. Med., Univ. of Saskatchewan, SASKATOON, Sask. S7N 0W0, Canada
- a Development of male genital tract (pre- and postnatal). *Canis domesticus* (Carnivora)  
 AZAR (GEALJA), Mrs. I.; M.Sc. - Dept. of Zool., Hebrew Univ. of Jerusalem, JERUSALEM, Israel
- a Autoradiography of cell migrations between epiblast and hypoblast, and their possible role in embryonic differentiation. (Aves)  
 AZENCOT, M. - Bee Res. Lab., Dept. of Entomol., Fac. of Agric., Hebrew Univ., P.O. Box 12, REHOVOT 76 100, Israel
- a Control of female dimorphism. *Apis mellifera* (Hymenoptera) (with Y. LENSKY)  
 AZIZ, F. K.; M.Sc. - Dept. of Zool., Fac. of Sci., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt
- a Restoration of hind limb regeneration by the use of various chemical and mechanical means. *Bufo regularis* (Anura) (with M.I. MICHAEL)
- AZOUBEL, R.; M.D., Ph.D., Prof. - Dept. de Morfol. Hum. Funct. e Aplic., Univ. de São Paulo, C.P. 301, RIBEIRÃO PRETO, S.P., Brazil
- a Malformations produced by cold after formation of the primitive streak. *Gallus gallus* (Aves)  
 b Hypervitaminoses during pregnancy. *Rattus rattus* (Rodentia)
- BABA, S.; D.Sc., Prof. - Dept. of Biol., Konan Women's Univ., Morikita-cho, Higashinada, KOBE, 658 Japan
- a Pre-pattern phenomenon of localization of enzymatic activity prior to the formation of wound vessel member. *Colus blumei* (Labiatae) (with L. W. ROBERTS)  
 b Effect of environment on morphogenesis of vascular elements. Same species as a (with L. W. ROBERTS)
- BACHOP, W. E.; Ph.D. - Dept. of Zool., Clemson Univ., CLEMSON, SC 29631, U.S.A.
- BACHVAROVA, Mrs. R.; Ph.D. - Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK, NY 10021, U.S.A.
- a Gene expression in oogenesis. *Mus musculus* (Rodentia)  
 b Maternal and embryonic control of early development. Same species as a
- BADRAN, A. F.; M.D. - Inst. de Embriol., Biol. e Histol., Fac. de Cienc. Med., Univ. Nac. de La Plata, 60 y 120, LA PLATA, Argentina
- BAGLIONI, C.; M.D., Prof. - Dept. of Biol., Massachusetts Inst. of Technol., CAMBRIDGE, MA 02139, U.S.A.
- BAGNARA, J. T.; Ph.D., Prof. - Dept. of Biol. Sci., Univ. of Arizona, TUCSON, Ariz. 85721, U.S.A.
- a Various aspects of the development and endocrinology of pigmentation. Many spp. (Amphibia)  
 b Ultrastructure of chromatophores. Same species as a  
 c Developmental physiology of xanthophores, erythrophores, and iridophores. Same species as a  
 d Neural crest: pattern formation on dorsal surface. (Anura)
- BAGWELL, J.N.; Ph.D. - Dept. of Anat., Louisiana State Univ., 1542 Tulane Ave., NEW ORLEANS, La. 70112, U.S.A.
- a Size-age relationships and external morphology during development. *Meriones unguiculatus* (Rodentia)  
 b The nature and timing of events during palatal closure. Same species as a
- BAKER, J. R.; Ph.D., Assoc. Prof. - Dept. of Zool. and Entomol., Iowa State Univ., AMES, IA 50010, U.S.A.
- BAKER, Mrs. P. C.; Ph.D. - Dept. of Zool., Univ. of Calif., BERKELEY, CA 94720, U.S.A.
- BAKER, R.F.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., Univ. of South. Calif., University Park, LOS ANGELES, Ca 90007, U.S.A.
- a Developmental genetics and regulation of macromolecular synthesis. (Echinoidea)  
 BAKER, W. K.; Ph.D., Prof. - Dept. of Biol., Div. of Biol. Sci., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Analysis of head development through use of clonal restrictions; somatic genetic analysis of homeotic mutants affecting the head. *Drosophila* spec. (Diptera)
- BAKSI, S.N.; Ph.D. - Natl. Inst. for Environm. Health Sci., N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- a Effect of dichlorvos (DDVP) on fetal and placental development in hypothyroid, hyperthyroid and euthyroid animals. *Rattus* spec. (Rodentia)
- BAL, A. K.; D.Phil., Assoc. Prof. - Dept. of Biol., Memorial Univ. of Newfoundland, ST. JOHN'S, Nfld., Canada
- a Ultrastructure of embryo cells and enzyme patterns during germination. *Allium cepa* (Liliaceae)  
 b Oogenesis. *Strongylocentrotus drobachiensis* (Echinoidea)  
 c Developmental studies on the retina of the rd mutant (ultrastructural localization of enzymes). *Mus musculus* (Rodentia)
- BALAKRISHNAN, S.; F.R.C.P., Prof. - Dept. of Pediat., Jawaharlal Inst. of Postgrad. Med. Educ. and Res., PONDICHERRY 605006, India
- a Assessment of gestational age of the new-born. *Homo sapiens* (Primates)  
 b Recessive heritability of maternal non-disjunction in Down's syndrome. Same species as a  
 c Consanguinity and congenital anomalies. Same species as a
- BALINSKY, B.I.; Dr. Biol., Prof. - Dept. of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, S. Africa
- BALLARD, W. W.; Ph.D., Prof. - Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.

- a Morphogenetic movements in embryos. (Teleostei; Holostei; Chondrostei; Elasmobranchii)  
 b Monograph on developmental anatomy. *Ambystoma* spec. (Urodela)  
 BAND, R. N.; Ph.D., Prof. — Dept. of Zool., Coll. of Nat. Sci., Michigan State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Mechanism of cell-to-cell adhesion. *Acanthamoeba castellanii* (Rhizopoda)  
 b Divalent ion function in encystation. Same species as a  
 BANERJEE, B.; Ph.D. — Dept. of Entomol., Tea Res. Assoc., Tocklai Exp. Stat., JORHAT-8, Assam, India
- BARBER, Mrs. M. L.; Ph.D., Assoc. Prof. — Dept. of Biol., Calif. State Univ., 18111 Nordhoff St., NORTHRIDGE, Calif. 91324, U.S.A.
- a Changes in lipids and enzymes in cell surface at fertilization (using cell ghosts). *Strongylocentrotus purpuratus*, *Lytechinus pictus* (Echinoidea)  
 b Effect of teratogenic agents on lipids and enzymes of cell surface in early development. Same species as a
- BARBIERI, F. D.; Dr. Biochem., Prof. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Chemical factors involved in fertilization: jelly coats and diffusible factors. *Bufo arenarum* (Anura)
- BARNARD, Mrs. S. B.; M. B., Ch.B. — Dept. of Anat., Univ. of the Orange Free State, P. O. Box 339, BLOEMFONTEIN 9300, S. Africa
- a Experimental cranial morphology. *Gallus domesticus* (Aves)
- BARR, H. J.; Ph.D. — Center for Genet., Med Center, Univ. of Illinois, 1853 W. Polk St., CHICAGO, Ill. 60612, U.S.A. ISDB
- a Developmental and cytogenetics including nucleolar cytology, chromosome replication patterns, quinacrine staining and position effect variegation. *Drosophila* spec. (Diptera), *Xenopus* spec. (Anura)
- BARTELS, P. G.; Prof. — Dept. of Biol. Sci., Univ. of Arizona, TUCSON, Ariz. 85721, U.S.A. ISDB
- a Developmental physiology, particularly chloroplast development. (Plantae)  
 b Cell division in roots. (Plantae)
- BARTH, L. G.; Ph.D., Prof. — Marine Biol. Lab., Box 27, WOODS HOLE, MA 02543, U.S.A. ISDB
- BARTH, Mrs. L. J.; Ph. D. — Marine Biol. Lab., Box 27 WOODS HOLE, MA 02543, U.S.A. ISDB
- BATTLE, Miss H. I.; Ph.D., Prof. (Emer.) — Dept. of Zool., Univ. of W. Ontario, LONDON, Ont. N6A 3K7, Canada
- BAVEJA, Miss R.; M.S., Prof. — Dept. of Obstet. and Gynecol., M. L. N. Med. Coll., Allahabad Univ., ALLAHABAD 1, India
- a Histological, histochemical, and biochemical study of the oviduct. *Homo sapiens* (Primates)
- BEALL, J.R.; Ph.D. — Schering Corp., P. O. Box 32, LAFAYETTE, N. J. 07848, U.S.A.
- a Dominant lethal study of an antiandrogen drug. *Rattus rattus* (Rodentia)  
 b Changes in lipid metabolism during early development. *Oryctolagus cuniculus* (Lagomorpha)
- BEAMS, H. W.; Ph.D., Prof. (Emer.) — Dept. of Zool., Univ. of Iowa, IOWA CITY, Ia. 52242, U.S.A.
- a The effects of ultracentrifugation in dividing cells  
 b Scanning electron microscopy of early stages. *Rana pipiens* (Anura)
- BEATTIE, W. G. — Biol. Div., Oak Ridge Natl. Lab., P. O. Box Y, OAK RIDGE, Tenn. 37830, U.S.A.
- a Characterization of satellite DNAs. *Pagurus pollicaris*, *Cardisoma guanhumi*, *Gecarcinus lateralis* (Decapoda, Crustacea) (With D. M. SKINNER)
- BECERRA de GUZMAN, Mrs. M.; M. D. — Cat. de Embríol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela.
- a Developmental failure (anomalies) of the hand. *Homo sapiens* (Primates)
- BECKER, R. O.; M.D., Prof. — Dept. of Orthop. Surg., Upstate Med. Ctr., SYRACUSE, NY 13210, U.S.A.
- a Role of electrical phenomena (as part of the biological control system) in control of growth processes  
 b Perineural cells (Schwann, glia): their electrical activity and function
- BEEBE, D. C.; Ph.D. — Lab. of Molec. Genet., Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, BETHESDA, Md. 20014, U.S.A.
- a  $\alpha$ -Crystallin and  $\alpha$ -crystallin mRNA biosynthesis and regulation during embryonic development. *Gallus domesticus* (Aves)  
 b Control of lens regeneration from the cornea in larva and adult (in vitro and in vivo). *Xenopus laevis* (Anura)
- BEHRMAN, S. J.; M.D., Prof. — Dept. of Obstet. and Gynecol., Center for Res. in Reprod. Biol., 1212 Women's Hosp., ANN ARBOR, Mich. 48104, U.S.A.
- a Trophoblast: isolation and identification of placenta-specific protein (Primates)  
 b Leuco-alkaline-phosphatase and basophil estruations for the detection of ovulation. (Primates)
- BEIG, D.; Ph.D. — Dept. de Morfol. Anim., Fac. de Filo., Ciênc. e Letras, C. P. 178. 13500 RIO CLARO, S. P., Brazil
- a Comparative study of sperm ultrastructure and spermiogenesis. (Echinodermata)  
 b Ultrastructure of the seminiferous tubules including spermiogenesis during post-embryonic development. *Trigona postica* (Hymenoptera)  
 c Organogenesis and differentiation of the genital system (comparative study in 3 castes during post-embryonic development). Same species as b  
 d Morphogenesis and functional development of corpora allata (including neurohormone production). Same species as b  
 e Control of polymorphic development with special reference to environmental factors. *Meliponini* spp. (Hymenoptera)

- BFLI, E.; Ph.D., Prof. - Dept. of Biol., Massachusetts Inst. of Technol., 77 Massachusetts Ave., CAMBRIDGE, MA 02139, U.S.A. ISDB
- OR, Miss S.; Dr. - Dept. of Physiol., Hebrew Univ., Hadassah Med. Sch., P. O. Box 1172, JERUSALEM, Israel ISDB
- BFENDER, H. A.; Ph.D., Prof. - Dept. of Biol., Univ. of Notre Dame, NOTRE DAME, Ind. 46556, U.S.A.
- a Phenogenetic studies of the ovarian tissue of female-sterile mutants. *Drosophila melanogaster* (Diptera)
- b Physiological genetics. Same species as a
- c Genetics. *Coelopa frigida* (Diptera)
- BENIRSCHKE, K.; M.D., Prof. - Dept. of Obstet. and Gynecol., Univ. of Calif. San Diego, LA JOLLA, Calif. 92037, U.S.A.
- a Cytomegalovirus-infection of placenta. *Homo sapiens* (Primates)
- b Placental pathology. Same species as a
- c Cytogenetics. Same species as a
- d Ovum transport and transplantation; chimerism. *Mesocricetus auratus* (Rodentia)
- BENNETT, D.; Dr., Prof. - Dept. of Anat., Med Coll., Cornell Univ., 1300 York Ave., NEW YORK, N.Y. 10021, U.S.A.
- a Effects of mutant genes on embryonic development. *Mus musculus* (Rodentia)
- b Cell surface antigens in spermatogenesis and embryonic development. Same species as a
- BENZO, C. A.; Ph.D. - Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210 U.S.A.
- a Development and control of glycogen metabolism in embryonic and neonatal liver. *Gallus domesticus* (Aves)
- b The role of hormones in the ultrastructural and biochemical development of embryonic liver in organ culture. Same species as a
- BER, A.; M.D., M.V.D., Prof. - Endocrinol. Unit of the Rogoff-Wellcome Med. Res. Inst., Beilinson Hosp., PETAH-TIKVA, Israel
- a Histone content of developing ovaries. *Bos taurus* (Artiodactyla)
- BERESFORD, W. A.; D.Phil., Assoc. Prof. - Dept. of Anat., Med. Center, West Virginia Univ., MORGANTOWN, W. Va. 26506, U.S.A.
- a The influence of hypervitaminosis A on the developing temporo-mandibular joint. *Rattus norvegicus* (Rodentia)
- b Fracture healing in the os priapi and mandible, and its response to castration or the administration of anabolic androgenic hormone. Same species as a
- BERG, W. E.; Ph.D., Prof. - Dept. of Zool., Univ. of Calif., BERKELEY, Ca 94720, U.S.A. ISDB
- BERGER, J. D.; Ph.D. - Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B. C. V6T 1W5, Canada
- a Nuclear differentiation, DNA synthesis and developmental genetics. *Paramecium aurelia* (Ciliata)
- b Developmental genetics of cell shape and the division process. Same species as a
- BERGTROM, G.; Ph.D. - Biol. Sci. Group, Univ. of Connecticut, Box U-42, STORRS, Conn. 06268, U.S.A.
- a RNA synthesis in imaginal discs in response to ecdysones. *Galleria mellonella* (Lepidoptera)
- b Hemoglobin synthesis (cytological hybridization). *Chironomus spec.* (Diptera)
- BERLYN, G. P.; Ph.D., Assoc. Prof. - Greeley Mem. Lab., Sch. of Forest and Environm. Studies, Yale Univ., 370 Prospect St., NEW HAVEN, Conn. 06511, U.S.A.
- no embryological work in progress
- BERMAN (KRAMER), Mrs. B.; B.Sc. (Hons.) - Dept. of Anat., Med. Sch., Univ. of the Witwatersrand, Hospital St., Hillbrow, JOHANNESBURG, S. Africa
- a Effects of actinomycin D on developing pigment cells. *Xenopus laevis* (Anura)
- BERNFELD, M. R.; M.D., Prof. - Dept. of Pediat., Stanford Univ., 300 Pasteur Drive, STANFORD, Calif. 94305, U.S.A.
- a Embryonic epithelia: synthesis of macromolecules (collagen, mucopolysaccharide, RNA, enzymes) during inductive interactions in vitro. *Mus musculus* (Rodentia)
- b Morphogenetic role of extracellular materials (collagen, mucopolysaccharide) during in vitro development of salivary submandibular epithelia. Same species as a
- c Cellular adhesion and recognition. *Gallus domesticus* (Aves)
- BERNS, M. W.; Ph.D., Assoc. Prof. - Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Laser microbeam irradiation of chromosomes and other subcellular structures in adult and embryonic tissues. (Amphibia; Marsupialia; other Mammalia)
- BERRILL, N. J.; Ph.D. - 410 Swarthmore Ave., SWARTHMORE, PA 19081, U.S.A. ISDB
- BERRY, S. J.; Ph.D. - Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457 U.S.A.
- a Nucleic acid metabolism during differentiation (ultracentrifugation, gradient centrifugation, autoradiography, chromatography). *Hyalophora cecropia* (Lepidoptera)
- b Endocrine control of differentiation (light and electron microscopy, autoradiography, organ culture). (Saturniidae, Lepidoptera)
- c RNA synthesis during oogenesis (autoradiography, electron microscopy, gradient centrifugation). Various spp. (Lepidoptera)
- d Protein synthesis in specialized organs (autoradiography, electron microscopy, gradient centrifugation). Same species as a
- e Morphogenesis in the CNS (light and electron microscopy, autoradiography, histochemistry, enzyme assays). Same species as c

- BERTALANFFY, F. D.; Ph.D., Prof. — Dept. of Anat., Univ. of Manitoba, 750 Bannatyne Ave., WINNIPEG, Man. R3E 0W3, Canada
- a Rates of cell division of neoplastic populations. *Rattus rattus*, *Mus musculus* (Rodentia)
  - b Mitotic rates of regenerating liver parenchyma. *Rattus rattus* (Rodentia)
  - c Cell renewal and cytodynamics of normal cell populations. Same species as b
  - d Effects of cytosine arabinoside on cell development and proliferation. Same species as b
  - e Combined treatment of normal and malignant cell populations with cytosine arabinoside and x-irradiation. *Mus musculus* (Rodentia)
- BETCHAKU, T.; D.Sc. — Dept. of Biol., Osborn Mem. Labs., Yale Univ., NEW HAVEN, CT 06520, U.S.A.
- BETZ, T. W.; Ph.D., Assoc. Prof. — Dept. of Biol., Fac. of Sci., Carleton Univ., OTTAWA, Ont. K1Z 5B6, Canada
- a Endocrine ontogenesis. *Callus domesticus* (Aves)
  - b Hormonal and other factors controlling differentiation of the duodenum, spleen, neural retina, pars distalis, yolk sac, hatching and growth of the embryo. Same species as a
- BEWLEY, J. D.; Ph.D. — Dept. of Biol., Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- BHARGAVA, I.; D.Sc., Prof. — Dept. of Anat., Jundi Shapur Univ., Post Box 1059, AHWAZ, Iran
- a Anatomy of fetal blood vessels on the chorial surface of the placenta in abnormal states of pregnancy. *Homo sapiens* (Primates)
  - b Morphometry and stereology of fetal blood vessels of the placenta. Same species as a
  - c Recessive inheritance of nondisjunction. Same species as a
  - d Cytogenetic studies in developmental defects. Same species as a
  - e Quantitative study of the effect of sudden and gradual ischaemia on the seminiferous and endocrine component of the testis. *Mus musculus* (Rodentia)
- BIDDLE, F. G.; Ph.D. — Dept. of Biol., McGill Univ., P. O. Box 6070, MONTREAL, Que. H3C 3G1, Canada
- a Genetic control of the response variation to cleft palate-inducing teratogens in inbred strains. *Mus musculus* (Rodentia)
  - b Biochemical mechanisms responsible for maternal protection against glucocorticoid induction of cleft palate. Same species as a
- BIEBER, S.; Ph.D. — Off. of the Provost, Fairleigh Dickinson Univ., 1000 River Rd., TEANECK, NJ 07666, U.S.A. ISDB
- BIGGERS, J. D.; D.Sc., Ph.D., Prof. — Lab. of Human Reprod. and Reprod. Biol., Harvard Med. Sch., 45 Shattuck St., BOSTON, Mass. 02115, U.S.A.
- a Culture and metabolism of eggs. (Mammalia)
  - b Oocyte maturation. (Asteroidea), *Homo sapiens* and other spp. (Mammalia)
  - c Blastocyst formation. *Mus musculus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
  - d Ionic environment of the early embryo. Same species as c
- BILQUEES, Mrs. F. M.; Ph.D. — Dept. of Zool., School of Parasitol., Univ. of Karachi, KARACHI 32, Pakistan
- a Segmentation (= fragmentation), asexual multiplication, and regeneration in adults. *Cameronia* gen. nov., *Segmentatum* gen. nov. (Stomachicolinae, Hemiuridae, Trematoda)
  - b Experiments on the life cycle and pathology. *Clinostomum* spp., *Euclinostomum* spp. (Trematoda)
  - c Larvae in fish hosts: development, morphology and pathogenesis. *Porrocaecum* spec., *Contra-caecum* spec. and other spp. (Nematoda), *Bothriocephalus* spec., *Acanthobathrium* spec. and other spp. (Cestoda)
- BINNS, W.; Dr. — Anim. Dis. and Parasite Res. Div., Agric. Res. Serv., 1150 E. 14th N., LOGAN, Utah 84321, U.S.A.
- a Experimental teratology. (with M. M. BRYDEN, Sydney and H. EVANS, Ithaca, N.Y.)
- BIRGE, W. J.; Ph.D., Prof. — Sect. on Regulat. and Developm. Biol., Sch. of Biol. Sci., Univ. of Kentucky, Funkhouser Bldg., Rm 104, LEXINGTON, KY 40506, USA ISDB
- a Structural and functional differentiation of the blood-brain barrier in the embryo. *Gallus domesticus* (Aves)
  - b Effects of environmental contaminants, particularly heavy metals, upon embryogenesis and reproductive potential. *Salmo gairdneri*, *Ictalurus punctatus*, *Carassius auratus* (Teleostei), *Rana pipiens* (Anura), *Gallus domesticus* (Aves)
- BIRKY, C. W., Jr.; Ph.D. — Dept. of Genet., Ohio State Univ., 1735 Neil Ave., COLUMBUS, Ohio 43210, U.S.A. ISDB
- a Developmental polymorphism induced by environmental factors: comparative studies of stocks from different countries. *Asplanchna* spec. (Rotifera)
- BISHOP, D. W.; Ph.D., Prof. — Dept. of Physiol., Med. Coll. of Ohio, P. O. Box 6190, TOLEDO, OH 43614, U.S.A. ISDB
- BISHOP (CALAME), Mrs. S. M.; Lic.ès Sci. — address unknown ISDB
- BLACK, R. E.; Ph.D., Prof. — Dept. of Biol., Coll. of William and Mary, WILLIAMSBURG, Va. 23185, U.S.A. ISDB
- a Tracer studies of metabolic pathways in embryos. *Chrysaora quinquecirrha* (Scyphozoa), *Arbacia punctulata* (Echinoidea)
  - b Development of enzymes in embryos. Same species as a
- BLACKLER, A. W.; Ph.D., Prof. — Sect. of Ge. et., Developm., and Physiol., Div. of Biol. Sci., Emerson Hall, ITHACA, NY 14850, U.S.A. ISDB
- BLAKE, J. A.; Ph.D. — Pacif. Mar. Stat., Univ. of the Pacific, DILLON BEACH, CA 94929, U.S.A.
- BLOCH, D. P.; Ph.D., Prof. — Bot. Dept. and Cell Res. Inst., Univ. of Texas, AUSTIN, TX 78712, U.S.A. ISDB

- BLONDHEIM, Mrs. S. A.; M.Sc. - Dept. of Entomol., Hebrew Univ., JERUSALEM, Israel  
 a Embryonic development of hybrids. *Dociostaurus genci* x *D. curvicerus* (Acrididae, Orthoptera)
- BLOOM, S. E.; Ph.D. - Dept. of Poultry Sci., N.Y. State Coll. of Agric. at Cornell Univ., 214 Rice Hall, ITHACA, N.Y. 14850, U.S.A.  
 a The morphology, cytology and etiology of haploid, triploid, trisomic, and tetraploid embryos, especially determination if production of chromosomal abnormalities is under genetic control. *Gallus domesticus* (Aves)  
 b Cytology, development, and reproductive performance of mitotic mutants, especially the effects of age and sex on the development of binucleated erythrocytes. *Meleagris gallopavo* (Aves)
- BLOUNT, R. F.; Ph.D., Prof. - Dept. of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex. 77550, U.S.A. ISDB  
 a Morphological changes in kidney during development and aging. *Mus musculus* (Rodentia)
- BODE, H. R.; Ph.D. - Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.  
 a Regulation of interstitial cell differentiation into the four types of nematocytes. *Hydra* spec. (Hydrozoa)
- BODEMER, C. W.; Ph.D. - Dept. of Biomed. Hist., School of Med., Univ. of Washington, SEATTLE, Wash. 98105, U.S.A. ISDB  
 a History of embryology, 1600 - 1900.
- BODENSTEIN, D.; Ph.D., Prof. - Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.  
 a Intergeneric grafts of organ discs. (Diptera)  
 b The role of the prothoracic gland in postembryonic development. *Periplaneta americana* (Blattariae)
- BOELL, E. J.; Ph.D., D.Sc., Prof. - Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB  
 a Changes in enzymatic activity of embryonic tissues during growth and differentiation. (Amphibia; Aves)  
 b Mitochondrial differentiation during pre- and post-partum development. *Mus musculus* (Rodentia)  
 c Enzyme activity in uterine tissues during implantation and decidua formation. Same species as b
- BOLLUM, F. J.; Dr., Prof. - Dept. of Biochem., Med. Ctr., Univ. of Kentucky, LEXINGTON, KY 40506, U.S.A.
- BONNER, J. T.; Ph.D., Prof. - Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A. ISDB
- BONNY PILO; Dr. - Dept. of Zool., Fac. of Sci., M. S. Univ. of Baroda, BARODA-2, India  
 a Liver, spleen and lymph gland regeneration. (Reptilia; Aves)
- BOONE, M. A.; Ph.D., Prof. - Poultry Sci. Dept., Coll. of Agric., Clemson Univ., CLEMSON, S. C. 29631, U.S.A.  
 a Ultrastructure of spermatozoa. *Gallus domesticus*, *Meleagris gallopavo* (Aves)  
 b Effect of high ambient temperature on semen and egg production. *Gallus domesticus* (Aves)  
 c Development of drug bio-assay system by growing embryos in beakers. Same species as b.
- BORACK, L. I.; Ph.D., Assoc. Prof. - Dept. of Zool. and Physiol., Rutgers Univ., 195 University Ave., NEWARK, N. J. 07102, U.S.A.  
 a Developmental genetics of the enzymes of glucuronate metabolism. *Drosophila melanogaster* (Diptera)
- BOROJEVIC, R.; Sc.D. - Fundation Gonçalo Muniz, SALVADOR, Brasil  
 a Developmental physiology. *Schistosoma mansoni* (Trematoda)
- BORSTEL, R. C. von; Ph.D. - Biol. Div., Oak Ridge Natl. Lab., P. O. Box Y, OAK RIDGE, TN 37830, U.S.A.
- BOVARNICK, J. G.; Ph.D. - Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK NY 10021, U.S.A.  
 a Cell surface antigens in spermatogenesis and embryonic development. *Mus musculus* (Rodentia)
- BOVING, B. G.; M.D. - Dept. of Anat., Wayne State Univ., 540 E. Canfield, DETROIT, MI 48201, U.S.A. ISDB  
 a Blastocyst spacing, orientation and implantation mechanisms. *Oryctolagus cuniculus* (Lagomorpha)  
 b Relation of trophoblast invasion to blood vessels underlying uterine epithelium, and the anatomical, mechanical, and chemical basis for it. Same species as a  
 c Identification and function of non-cellular blastocyst coverings. Same species as a  
 d Structure and function of trophoblast knobs. Same species as a
- BOWEN, Mrs. S. T.; Ph.D., Prof. - Dept. of Cell and Molec. Biol., Sch. of Nat. Sci., San Francisco State Coll., SAN FRANCISCO, CA 94132, U.S.A.
- BOWNES, Ms. M.; D.Phil. - Center for Pathobiol., Univ. of California, IRVINE, Calif. 92664, U.S.A.  
 a Cytoplasmic and nuclear transplantation to identify the factors responsible for maintenance and propagation of the determined and differentiated states in somatic cells. *Drosophila melanogaster* (Diptera)  
 b Analysis of the determined state of blastoderm cells by thermocautery of specific regions of the blastoderm. Same species as a
- BRANDT, W. H.; Ph.D., Assoc. Prof. - Dept. of Bot. and Plant Pathol., Oregon State Univ., CORVALLIS, OR 97331, U.S.A.
- BRAT, Miss C.; M.Sc. - Dept. of Zool., Univ. of Gorakhpur, GORAKHPUR 273001, India  
 a Embryonic development. *Sarcophaga ruficornis* (Diptera) (with H. S. CHAUDHRY)



- BRAUN, A. C.; Ph.D., Prof. — Lab. of Plant Biol., Rockefeller Univ., 66th St. and York Ave., NEW YORK, N.Y. 10021, U.S.A.
- BRAVERMAN, M. H.; Ph.D. — Cell and Radiat. Biol. Labs., Allegheny Gen. Hosp., 320 E. North Ave., PITTSBURGH, PA 15212, U.S.A.
- BRESSLER, R. S.; Ph.D. — Dept. of Anat., Mount Sinai Sch. of Med., City Univ. of New York, Fifth Ave. and 100th St., NEW YORK, N.Y. 10029, U.S.A.
- a Postnatal development of testis cell types and function; role of hormones; initiation of spermatogenesis. *Mus musculus*, *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- b Postnatal development of adult-type secretion in submandibular gland: effects of isoproterenol on precocious appearance of adult proteins (gel electrophoresis). *Rattus spec.* (Rodentia)
- BRICK, I.; Ph.D., Prof. — Biol. Dept., New York Univ., Washington Square, NEW YORK, N.Y. 10003, U.S.A.
- a Genetic control of cell surfaces in the development of pigment pattern. *Ambystoma mexicanum* (Urodela)
- b Analysis of melanophore determination at the molecular level. Same species as a
- c Quantitative cell adhesion studies in the gastrula. *Rana pipiens* (Anura)
- d Electrokinesis and time-lapse cinephotography of somatopleure and neural crest cells. Same species as a
- e Cell surface specializations of presumptive germ layer cells of blastula and gastrula stages (scanning and transmission E. M.). *Rana pipiens*, *Xenopus laevis* (Anura)
- f Hypoblast formation. *Gallus gallus* (Aves)
- BRINCK-JOHNSEN, T.; Ph.D., Assoc. Prof. — Dept. of Pathol., Dartmouth Med. Sch., HANOVER, NH 03755, U.S.A.
- BRINSTER, R. L.; V.M.D., Ph.D., Prof. — Lab. of Reprod. Physiol., Dept. of Anim. Biol., Sch. of Vet. Med., Univ. of Pennsylvania, 530 Lippincott Bldg., 25th & Locust Sts., PHILADELPHIA, Pa. 19103, U.S.A.
- a Differentiation in early embryos. *Mus musculus* and other spp. (Mammalia)
- BRODY, S.; Ph.D. — Dept. of Biol., Univ. of California, San Diego, P. O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Developmental genetics. *Neurospora crassa* (Ascomycetes)
- b Biochemical mechanisms in morphogenesis. Same species as a
- BROMLEY, S. C.; Ph.D., Assoc. Prof. — Dept. of Zool., Coll. of Nat. Sci., Mich. State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Hormonal and neural influences in limb regeneration. *Notophthalmus viridescens* and other spp. (Urodela)
- BROOKBANK, J. W.; Ph.D., Prof. — Dept. of Zool., Univ. of Florida, GAINESVILLE, Fla. 32611, U.S.A.
- a DNA synthesis in hybrid embryos with emphasis on low and high temperature effects on parent type and hybrid embryos. *Lytechinus variegatus*, *Strongylocentrotus purpuratus* (reciprocal crosses) (Echinoidea)
- b Effect of D histidine (and D lysine) on primary mesenchyme. (Echinoidea)
- BROOKS, Miss M. A.; Ph.D., Assoc. Prof. — Dept. of Entomol., Fish. and Wildlife, Univ. of Minnesota, ST. PAUL, MN 55101, U.S.A.
- BROWDER, L. W.; Ph.D., Assoc. Prof. — Dept. of Biol., Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Transcription and translation during oogenesis and early development: temporal and spatial patterns of information processing. *Drosophila melanogaster* (Diptera), *Rana pipiens*, *Xenopus laevis* (Anura), *Oryctolagus cuniculus* (Lagomorpha)
- BROWN, D. D.; M.D. — Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A. ISDB  
also: Dept. of Biol., Johns Hopkins Univ., Charles and 34th Sts., BALTIMORE, Md. 21218, U.S.A.
- a Structure, evolution and fidelity of transcription of isolated ribosomal RNA genes. *Xenopus laevis*, *X. mülleri* (Anura) (with R. D. BROWN)
- b Isolation of silk genes. *Bombyx mori* (Lepidoptera) (with J. F. MORROW)
- BROWN, E. H.; Ph.D., Assoc. Prof. — Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, USA
- a Genetic and cytological aspects of oogenesis. *Drosophila melanogaster* (Diptera)
- BROWN, I. R.; Ph.D. — Dept. of Zool., Univ. of Toronto, TORONTO, M5S 1A1 Ont., Canada
- a Transcription of non-repeated DNA in development (intracellular location of non-repeated transcripts and mRNA polyadenylation in neural tissue). *Oryctolagus cuniculus* (Lagomorpha)
- BROWN, K. S.; M.D. — Developm. Genet. Sect., Natl. Inst. of Dent. Res., Natl. Inst. of Health, Bldg. 30, Rm 106, BETHESDA, Md. 20014, U.S.A.
- a Developmental genetics of craniofacial malformations: cleft lip and palate, cleft palate, open eye, and cranioschisis (mendelian traits and some threshold characters). *Mus musculus* (Rodentia)
- b Modification of spontaneous malformation rates in inbred strains by environmental manipulation, diet, hormones or teratogens. Same species as a
- BROWN, R. D.; Ph.D. — Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Sequence studies of the spacer regions adjoining the 5S gene in 5S DNA. *Xenopus laevis* (Anura)
- b Structure, evolution and fidelity of transcription of isolated ribosomal RNA genes. *Xenopus laevis*, *X. mülleri* (Anura) (with D. D. BROWN)
- BROWN, T. T., Jr.; D.V.M., Ph.D. — Dept. of Pathol., Sch. of Med., Johns Hopkins Univ., 601 N. Broadway, BALTIMORE, Md. 21205, U.S.A.

- a Teratogenic effect of the bovine viral diarrhea virus, especially on cerebellum and eye (immunology). *Bos taurus* (Artiodactyla), *Mus musculus*, *Cricetulus migratorius* (Rodentia)  
BRUMMFTT, Miss A. R.; Ph.D., Prof. - Dept. of Biol., Coll. of Arts and Sci., Oberlin Coll., OBERLIN, Ohio 44074, U.S.A.
- a Biochemical changes concomitant with differentiation in the developing embryo. *Fundulus heteroclitus* (Teleostei)  
b Ultrastructural changes in the surface membrane of developing oocytes (localization of anionic and cationic sites on the membrane by electron microscopy). *Xenopus laevis* (Anura) *Fundulus heteroclitus* (Teleostei)
- BRUST, R. A.; Ph.D., Prof. - Dept. of Entomol., Fac. of Agric., Univ. of Manitoba, WINNIPEG, Man. R3T 2N2, Canada  
a Effect of photoperiod and temperature on the induction and termination of diapause in larvae and embryos. *Wycomyia smithii*, *Aedes atropalpus* (Culicidae, Diptera)
- BRYAN, J. H. D.; Ph.D., Prof. - Dept. of Zool., Univ. of Georgia, ATHENS, Ga. 30602, U.S.A.  
a Cytochemistry of gamete formation. *Mus musculus* (Rodentia)  
b Differentiation of spermatozoa in mutants (light- and electron microscopy). Same species as a  
c Histological and cytochemical studies of the brain during development of hydrocephaly in neonatal mutants. Same species as a  
d Histological and ultrastructural studies of developing defective incisor teeth in neonatal mutants. Same species as a  
e Development of mutant tissue transplanted to tolerant wild-type hosts (emphasis on spermatogenesis in tissue from male-sterile mutants). Same species as a
- BRYAN, J. K.; Ph.D., Assoc. Prof. - Dept. of Biol., Syracuse Univ., 130 College Place, SYRACUSE, N.Y. 13210, U.S.A.  
a The mechanism of action of natural amino acids in the control of growth and development; inhibition of growth by lysine and threonine and its prevention by methionine. *Marchantia polymorpha* (Hepaticae)  
b Changing patterns of enzyme regulation during growth of seedlings. *Zea mays* (Gramineae)
- BRYANT, P. J.; Ph.D. - Center for Pathobiol., Univ. of California, IRVINE, Calif. 92664, U.S.A.  
a Regeneration and duplication in imaginal discs. *Drosophila melanogaster* (Diptera) ISDB  
b Ultrastructure of imaginal discs. Same species as a  
c Cell death in imaginal discs. Same species as a
- BRYANT (POYNTZ), Mrs. S.V.; Ph.D. - Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.  
a Regulation, determination, and redifferentiation within young blastemas. *Triturus viridescens* (Urodela)  
b Polarity in tail regeneration. *Anolis carolinensis* (Lacertilia)
- BRYDEN, M. M.; Ph.D., D.V.M. - Sch. of Anat., Univ. of Queensland, St. Lucia, BRISBANE, Qld. 4067, Australia  
a Prenatal and postnatal development. Antarctic spp. (Pinnipedia)  
b General embryology. *Ovis aries* (Artiodactyla)  
c Experimental teratology. (with H. EVANS, Ithaca, N. Y. and W. BINNS, Logan, Utah)
- BÜHLER, Miss M. I.; Biochem. - Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina  
a Metabolism and oocyte maturation. *Bufo arenarum* (Anura)
- BURCHILL, B. R.; Ph.D. - Dept. of Physiol. and Cell Biol., Univ. of Kansas, LAWRENCE, KS 66044, U.S.A.
- BURDA (WILSON), Mrs. D. J.; Ph.D. - Dept. of Human Anat., Univ. of Calif. Med. Sch., DAVIS, CA 95616, U.S.A.
- BURDI, A. R.; Ph.D., Assoc. Prof. - Dept. of Anat., Med. School, Univ. of Michigan, Med. Sci. Bldg. II, ANN ARBOR, Mich. 48104, U.S.A.  
a Variabilities and polymorphisms in prenatal dental development. *Homo sapiens* (Primates)  
b Sexual dimorphisms in facial embryogenesis. Same species as a  
c Prenatal growth patterns of head and face. Same species as a  
d Effects of hypoxia on facial development. (Mammalia)  
e Tissue interactions during early development of the skull. *Gallus domesticus* (Aves)  
f Confirming the teratologic model: developmental parallelisms between man and monkey. *Macaca nemestrina*, *Homo sapiens* (Primates)
- BURDICK, M. L.; Ph.D. - Dept. of Biol. Sci., Florida State Univ., TALLAHASSEE, FL 32306, U.S.A.
- BURDON-JONES, C.; Ph.D., Prof. - Depts. of Marine Sci., Botany and Zool., James Cook Univ. of North Queensland, P. O. Box 999, TOWNSVILLE, Qld. 4811, Australia ISDB  
a Development and regeneration. *Rhabdopleura normani*, *Cephalodiscus spec.* and other spp. (Pterobranchiata, Hemichordata)
- BURNS, R. K.; Ph.D. - 303 N. Second St., BRIDGEWATER, VA 22812, U.S.A. ISDB
- BURNSIDE, Miss M. B.; Ph.D. - Dept. of Anat., Med. Sch., Univ. of Pennsylvania, PHILADELPHIA, PA 19174, U.S.A.
- BURTON, A. L.; M.D., Prof. - Dept. of Anat., Health Sci. Center, Univ. of Texas, 7703 Floyd Curl Drive, SAN ANTONIO, Tex. 78284, U.S.A.  
a Development of mast cells in embryonic skin. *Rattus norvegicus* (Rodentia)
- BUSS, E. G.; Ph.D., Prof. - Dept. of Poultry Sci., Pennsylvania State Univ., 203 Anim. Industr. Bldg., UNIVERSITY PARK, PA 16802, U.S.A.
- BUTLER, E. G. † Prof. (Emer.) - Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A.

- BUTLER, H.: M.D., B.Chir. — Dept. of Anat., Univ. of Saskatchewan, SASKATOON, Sask. S7N 0W0, Canada
- a Reproductive cycle, implantation, placentation and early embryology. *Galago s. senegalensis* (Primates)
  - b The effect of thalidomide. *Galago crassicaudatus* (Primates)
- BUTLER, W.L.: Ph.D., Prof. — Dept. of Biol., Univ. of California, San Diego, P. O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Mechanism of phytochrome action in development. (Spermatophyta)
  - b Photosynthesis and the development of the photosynthetic apparatus. (Spermatophyta)
  - c Photocontrol mechanisms of cellular metabolism and development. (Bacteria; Plantae; Animalia)
- BUTROS, J. M.: Ph.D., Prof. — Biol. Dept., American Univ. of Beirut, BEIRUT, Lebanon ISDB
- a Action of spermine on blood cells and cell division. *Gallus domesticus* (Aves)
- BUTTERWORTH, F. M.; Ph. D., Assoc. Prof. — Dept. of Biol. Sci., Oakland Univ., ROCHESTER, Mich. 48063, U.S.A.
- a The hormonal and genetic control of development and reproduction of the adipose tissue on the cellular and biochemical level (microsurgery, transplantation, cytology, biochemistry). *Drosophila melanogaster* (Diptera)
  - b The role of the internal environment and of development of lysosomes on rate of programmed cell death of the larval fat body. *Drosophila spec.* (Diptera)
  - c Ecdysone-protein complexes in blood and specific tissues. *Drosophila hydei* (Diptera)
  - d Biochemistry of male lipid and ultrastructure of male-sterile mutants. Same species as c
- BUTZEL, H. M., Jr.; Ph.D., Prof. — Dept. of Biol. Sci., Union Coll., SCHENECTADY, NY 12308, U.S.A.
- BYRD, E. W., Jr. — Marine Biol. Res. Div., Scripps Inst. of Oceanogr., Univ. of Calif., San Diego, P. O. Box 1529, LA JOLLA, Calif. 92037, U.S.A.
- a Biochemistry of fertilization, particularly activation of enzymes at fertilization. *Strongylocentrotus purpuratus* and other marine spp. (Invertebrata)
  - b Histone phosphorylation and modification during the cell cycle and spermatogenesis. *Xenopus spec.*, *Bufo spec.*, *Rana spec.* (Anura), *Strongylocentrotus purpuratus* (Echinoidea)
- CABADA, M. O.; Biochem. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Chemical factors involved in fertilization: testicular factors, jelly coats. *Bufo arenarum* (Anura)
  - b Acrosome proteinases: release and attack of vitelline membrane. *Leptodactylus chaquensis*, *Bufo arenarum* (Anura)
  - c Fertilization membrane formation: chemical and immunological approaches. Same species as a
- CAHN, R. D.; Dr. — Dept. of Zool., Univ. of Washington, SEATTLE, WA 98105, U.S.A. ISDB
- CAIRNS, J. M.; Ph.D. — Springville Labs., Roswell Park Mem. Inst., SPRINGVILLE, N.Y. 14141, U.S.A. ISDB
- a Mechanisms controlling growth in wing buds. *Gallus domesticus*, *Coturnix c. japonica*, *Cairina moschata* (Aves)
  - b Changes in cell cycle, size, motility, and adhesivity in wing mesoderm responding to the ectodermal ridge factor. Same species as a
- CALABRESE, A.; Ph.D. — Biol. Lab., Natl. Marine Fish. Serv., Middle Atlantic Coastal Fish. Ctr., 212 Rogers Ave., MILFORD, Conn. 06460, U.S.A.
- a Effects of heavy metal on developing embryos. *Spisula solidissima*, *Mulinia lateralis*, *Mercenaria mercenaria*, *Crassostrea virginica* (Lamellibranchia)
- CALARCO (GILLAM), Mrs. P. D.; Ph.D. — Dept. of Anat. and Pediat., Univ. of Calif., SAN FRANCISCO, CA 94122, U.S.A.
- CALVET, J.; M.A. — Biol. Sci. Group, Univ. of Connecticut, Box U-42, STORRS, Conn. 06268, U.S.A.
- a DNA sequence organization and replication in polytene chromosomes (DNA reassociation kinetics, in situ hybridization). *Chironomus spec.*, *Drosophila spec.* (Diptera)
- CAMARGO, Miss C. A.; M.Sc. — Dept. de Genet., Fac. de Med., Univ. de São Paulo, C. P. 301, 14100 RIBEIRÃO PRÉTO, Brazil
- a Sex and caste determination. *Scaptotrigona postica* (Apidae, Hymenoptera)
  - b Production of diploid males. *Melipona quadrifasciata* (Apidae, Hymenoptera)
- CAMERON, I. L.; Ph.D., Assoc. Prof. — Dept. of Anat., Health Sci. Center, Univ. of Texas, 7703 Floyd Curl Drive, SAN ANTONIO, Tex. 78284, U.S.A.
- a Synchronous cell differentiation. *Tetrahymena vorax* (Ciliata)
  - b Cell proliferation and differentiation. *Gallus gallus* (Aves)
  - c Cell homing. Same species as b
  - d Patterns in development. Same species as b
- CAMPBELL, R. D.; Ph.D., Assoc. Prof. — Dept. of Developm. and Cell Biol., Univ. of Calif., IRVINE, Calif. 92664, U.S.A.
- a Morphogenesis: relations between movements, adhesions, and shapes of epithelial cells, and the animal shapes they produce. *Hydra littoralis* (Hydrozoa)
  - b Cell cycle kinetics: determination of the durations of cell cycles, DNA synthesis, G1- and G2-phases, and relating these to cell turnover rates during normal growth. *Hydra attenuata* (Hydrozoa)
- CANNON, M. S.; Ph.D. — Dept. of Anat., Med. Sch., Univ. of Texas, GALVESTON, TX 77550, U.S.A.
- CANTINO, E. C.; Ph.D. — Dept. of Bot. and Plant Pathol., Michigan State Univ., Rm 242 Plant Biol. Bldg., EAST LANSING, Mich. 48823, U.S.A. ISDB

- a Relation between biochemical and morphological differentiation. *Blastocladiella emersonii*, *B. britannica* (Phycomycetes)
- b Relation between changes in fine structure and germination in motile cells and associated biochemical differentiation. Same species as a.
- c Cell-organelle interactions in motile cells, especially the role of the DNA-containing gamma particles in encystment. Same species as a
- d Isolation and characterization of the 'side-body' components in motile cells and their roles in cell activity and encystment. *Blastocladiella emersonii* (Phycomycetes)
- CAPLAN, A. I.; Dr. — Biol. Dept., Developm. Biol. Ctr., Case Western Reserve Univ., CLEVELAND, OH 44106, USA  
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- CARELL, E. F.; Ph.D., Assoc. Prof. — Dept. of Biol., Univ. of Pittsburgh, PITTSBURGH, PA 15213, U.S.A.
- CARLSON, B. M.; M.D., Ph.D. — Dept. of Anat., Univ. of Michigan, 4622 Med. Sci. Bldg. II, ANN ARBOR, Mich. 48104, U.S.A.
- a Supernumerary limb formation. *Triturus viridescens*, *Ambystoma mexicanum* (Urodela)
- b Minced muscle regeneration. *Ambystoma mexicanum* (Urodela), *Rana spec.* (Anura), *Rattus norvegicus* (Rodentia)
- c Muscle and limb morphogenesis in regenerates. Same species as a
- d Regeneration and transplantation of denervated muscles. *Rattus norvegicus* (Rodentia) (with E. GÜTMANN, Praha)
- e Morphogenesis of embryonic limb muscles. *Ambystoma mexicanum* (Urodela) (with M. GRIM, Praha)
- CARMONA de UZCATEGUI, Mrs. M. L.; Dr. Biol. — Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela
- a Development of the vascular system, especially of the skin and its orifices (injection-preparations). *Sus domesticus* (Artiodactyla), *Canis familiaris* (Carnivora), *Homo sapiens* (Primates)
- b Developmental pathology of the skeletal system. *Homo sapiens* (Primates)
- c Teratogenesis of craniofacial defects. Same species as b
- CARPENTER, S. J.; Ph.D., Assoc. Prof. — Dept. of Anat., Dartmouth Med. School, HANOVER, N.H. 03755, U.S.A.
- a Early histogenesis of placental ultrastructure. *Mesocricetus auratus* (Rodentia)
- b Teratogenic effects of heavy metals and viruses, electron microscopy. Same species as a
- CARR, D. H.; Ph.D., Prof. — Dept. of Anat., Fac. of Med., McMaster Univ., HAMILTON, Ont. L8S 4J9, Canada
- CARROLL, E. J., Jr.; Ph.D. — Marine Biol. Res. Div., Scripps Inst. of Oceanogr., Univ. of Calif., San Diego, P. O. Box 1529, LA JOLLA, Calif. 92037, U.S.A.
- a Biochemistry of fertilization: block to polyspermy, protease enzymology. *Strongylocentrotus purpuratus* (Echinoidea)
- b Control of enzyme systems in developmental processes. *Strongylocentrotus purpuratus*, *Dendaster exentricus* (Echinoidea)
- CASPARI, E. W.; Ph.D., Prof. — Dept. of Biol., Coll. of Arts and Sci., Univ. of Rochester, ROCHESTER, NY 14627, U.S.A.  
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- CASSENS, R. G.; Ph.D., Prof. — 272 Muscle Biol. Lab., Univ. of Wisconsin, 1805 Linden Drive, MADISON, Wis. 53706, U.S.A.
- a Myogenesis and influence of nerve on development of fiber types. (Mammalia)
- CASSIDY, J. D., O. P.; Ph.D. — Dept. of Biol. Sci., Northwestern Univ., EVANSTON, IL 60201, U.S.A.
- CASTON, J. D.; Ph.D., Assoc. Prof. — Dept. of Anat., Developm. Biol. Center, Case Western Reserve Univ., 2119 Abington Rd., CLEVELAND, Ohio 44106, U.S.A.
- a Nucleic acids and protein synthesis during development (ribosomes). *Rana pipiens*, *Xenopus laevis* (Anura)
- CATHER, J. N.; Ph.D., Assoc. Prof. — Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a The differentiation of the shell gland. *Ilyanassa obsoleta* and other spp. (Gastropoda; Lamellibranchia)
- b Cellular interactions. (Annelida, Mollusca and other Spiralia)
- c The role of the vegetal body in the development of fresh-water species. *Bithynia tentaculata* and other spp. (Gastropoda)
- CAUNA, N.; M.D., D.Sc., Prof. — Dept. of Anat. and Cell Biol., Univ. of Pittsburgh, 3550 Terrace St., PITTSBURGH, PA 15213, U.S.A.
- CAUNTER (DEVIS), Mrs. R. J.; M.Sc. — Dept. of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, S. Africa
- CAVE, M. D.; Ph.D. — Dept. of Anat. and Cell Biol., Univ. of Pittsburgh, 3550 Terrace St., PITTSBURGH, PA 15213, U.S.A.  
also: Dept. of Anat., Med. Sch., Univ. of Arkansas, LITTLE ROCK, AR 72201, U.S.A.
- CAVENAGHI, Mrs. T. M. C. MELUCCI; Prof. — Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 — 4° andar, C. P. 253, BELO HORIZONTE, M.G., Brazil
- a Cytogenetics, cytophotometry, DNA content. *Peripatus acacioi* (Onychophora)
- b Quantitative cytology. *Salpa democratica* (Thaliacea)
- CAVENEY, S.; Dr. Phil. — Dept. of Zool., Univ. of W. Ontario, LONDON, Ont. N6A 3K7, Canada
- a Pattern formation during postembryonic growth: establishment, stability and regulation of polarity in the epidermis. *Tenebrio molitor* (Coleoptera)
- b Developmental physiology of the epidermis, with emphasis on the electrophysiology of intercellular communication during metamorphosis. Same species as a

- CEBRA, J. J.; Ph.D., Prof. — Dept. of Biol., Johns Hopkins Univ., Charles and 34th Sts., BALTIMORE, MD 21218, U.S.A.
- CERON, G.; Ph.D. — Dept. of Anat., Jefferson Med. Coll., 1020 Locust St., PHILADELPHIA, Pa. 19107, U.S.A.
- a Control of cell interactions during morphogenesis. *Hydra littoralis* (Hydrozoa)
- b Cell reaggregation as a model system for studying teratogenic action of drugs. Same species as a
- CHALLICE, C. E.; Ph.D., Prof. — Dept. of Physics, Fac. of Arts & Sci., Univ. of Calgary, CALGARY, T2N 1N4, Canada
- a Electron microscopy of the heart in development. *Mus musculus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- CHAMBERLAIN, J. G.; Ph.D. — Dept. of Anat., Sch. of Dent., Univ. of the Pacific, SAN FRANCISCO, Calif. 94115, U.S.A.
- a Pathogenesis of experimentally induced congenital hydrocephalus: 6-aminonicotinamide injected during pregnancy. *Rattus rattus* (Rodentia)
- b Intra-amniotic injections of metabolites and antimetabolites as replacement therapy during teratogenesis. Same species as a
- c Scanning electron microscopy of developing brain (including macrophages). Same species as a
- CHAMBERLAIN, J. P.; Ph.D., Prof. — Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a The regulation of gene transcription in embryos. *Lytechinus variegatus* (Echinoidea)
- CHANG, C. Y.; Ph.D. — Inst. of Zool., Acad. Sinica, Haitien, PEKING (53), People's Rep. of China  
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- CHASE, H. B.; Ph.D., Prof. — Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R. I. 02912, U.S.A.  
ISDB
- a Developmental genetics of hair growth phases, using mutants hairless (hr), Rex (Re), and satin (sa). *Mus musculus* (Rodentia)
- b Hereditary anophthalmia as influenced by teratogens. Same species as a
- c Regeneration in vibrissal follicles. *Perameles nasuta*, *Trichosurus vulpecula* (Marsupialia)
- CHAUDHRY, H. S.; D.Phil., Prof. — Dept. of Zool., Fac. of Sci., Univ. of Gorakhpur, GORAKHPUR 273001, India
- a The neurosecretory system of developmental stages. (Insecta)
- b Embryonic development. *Sarcophaga ruficornis* (Diptera)
- c The effects of chemosterilants on developmental stages. Same species as b
- CHEN, D. — Dept. of Biophys., Weizmann Inst. of Sci., REHOVOT, Israel  
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- CHENEY, R. H.; Sc.D., Prof. (Emer.) — 11 Park St., WOODS HOLE, Mass. 02543, U.S.A.
- a Retardation effect of dimethylated xanthenes on development. *Arbacia punctulata* (Echinoidea)
- b Theophylline, theobromine, and caffeine effects on fecundity and development. *Rattus norvegicus* (Rodentia)
- c Effect of di- and trimethylated xanthenes on root tip growth. *Allium spec.* (Liliaceae)
- d Effect of methylated xanthenes on the oxygen consumption of the fertilized egg and early embryology. Same species as a
- e Effect of X-ray and ultra-violet irradiation on development of methylated xanthine-treated eggs. Same species as a
- f Effect of caffeine on development. *Rana pipiens* (Anura)
- g Developmental effects of chemical inhibitors of protein synthesis. Same species as a
- CHENG, Th. C.; Ph.D., Prof. — Dept. of Biol., Lehigh Univ., BETHLEHEM, Pa. 18015, U.S.A.
- a Embryology and differentiation. *Fasciola hepatica*, *Schistosoma mansoni*, *S. haematobium* (Trematoda), *Hymenolepis diminuta*, *H. nana* (Cestoda)
- b Developmental pathology: genetic basis of abnormal growth, cellular differentiation and reaction to foreign bodies. *Crassostrea virginica* (Lamellibranchia), *Helisoma trivolvis*, *H. duryi normale*, *Biomphalaria glabrata*, *Bulinus* spp. (Gastropoda)
- c Transplantation biology. Same species as b.
- CHEPENIK, K. P.; Ph.D., Assoc. Prof. — Dept. of Anat., Jefferson Med. Coll., 1020 Locust St., PHILADELPHIA, Pa. 19107, U.S.A.
- a Phospholipid metabolism and composition (and protein composition) associated with membrane biogenesis during normal and abnormal differentiation. *Rattus norvegicus* (Rodentia)
- b Placental phospholipid metabolism and transport during normal and abnormal differentiation. Same species as a
- CHIPLONKAR, J. M.; M.Sc. — Dept. of Zool., Univ. of Poona, Ganeshkind, POONA 411007, India
- a Histological, cytochemical, teratogenic and in vitro studies on sexual glands. *Calotes versicolor* (Lacertilia)
- CHRISPEELS, M. J.; Ph.D. — Dept. of Biol., Univ. of California, San Diego, P. O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Biochemical processes in development: mechanism of protein secretion and cell wall formation in phloem explants and cell culture. *Nicotiana tabacum* (Solanaceae), *Daucus carota* (Umbelliferae)
- CHUANG HSIAO HUI; Dr. rer. nat. habil. — Lab. of Developm. Physiol., Inst. for Exp. Biol., Acad. Sinica, 320 Yo Yang Rd., SHANGHAI, People's Rep. of China  
ISDB
- CHURCH, N. S.; Ph.D. — Res. Stat., Agric. Canada, Univ. Campus, SASKATOON, Sask. S7N 0X2, Canada
- a Physiological and environmental regulation of development. *Ctenicera destructor* (Coleoptera)
- b Embryology. *Lytta viridana* (Coleoptera)
- CHURCH, R. B.; Ph.D., Prof. — Div. of Med. Biochem., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Study of messenger RNA synthesis by RNA/DNA molecular hybridization in the embryo. *Mus musculus* (Rodentia)

- b Analysis of RNA transcription by repetitive and non-repetitive DNA in developing neural tissue. *Mus musculus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- c Embryo transplantation and manipulation. (Mammalia)
- CLAXTON, J. H.; Ph.D. – Dept. of Agric. Biol., Univ. of New England, ARMIDALE, N.S.W. 2351, Australia
- a Developmental genetics of patterns. *Drosophila melanogaster* (Diptera), (Mammalia)
- CLEGG, J. S.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Miami, CORAL GABLES, FL 33124, U.S.A.
- CLELAND, R. E.; Ph.D., Prof. – Dept. of Bot., Univ. of Washington, SEATTLE, Wash. 98195, U.S.A.
- a Effects of auxin on physical and biochemical properties of cell walls. *Avena sativa* (Gramineae)
- b Control of development and regeneration. *Griffithsia pacifica* (Rhodophyceae).
- CLEMENT, A. C.; Ph.D., Prof. – Dept. of Biol., Emory Univ., ATLANTA, Ga. 30322, U.S.A. ISDB
- a Experimental analysis of early embryonic determination. *Ilyanassa obsoleta* (Gastropoda)
- CLEMETSON, C. A. B.; M.D., Prof. – Dept. of Obstet. and Gynecol., Methodist Hosp., 506 Sixth St., Brooklyn, NEW YORK, N.Y. 11215, U.S.A.
- a Electrochemical aspects of ovo-implantation. *Rattus norvegicus* (Rodentia)
- b Athrocytosis. Same species as a
- CLERMONT, Y.; Ph.D., Prof. – Dept. of Anat., Med. Sch., McGill Univ., P. O. Box 6070, MONTREAL, Que. H3C 3G1, Canada
- a Growth and renewal of the spermatogonial population in prepuberal animals. *Rattus norvegicus* (Rodentia)
- CLEVER, U. † Dr. – Dept. of Biol., Purdue Univ., LAFAYETTE, IN 47907, U.S.A. ISDB
- CLEWE, Th. H.; M.D. – Dept. of Reprod. Physiol., Delta Region. Prim. Res. Ctr., Tulane Univ., COVINGTON, LA 70433, U.S.A.
- CLINE, Th. W.; Ph.D. – Center for Pathobiol., Univ. of California. IRVINE, Calif. 92664, U.S.A.
- a Temperature-sensitive lethal mutants which exhibit a lethal maternal effect regardless of the zygote genotype. *Drosophila melanogaster* (Diptera)
- b Mutations which may disrupt development by impeding intercellular communication (autonomy of 1(2)gl4 homozygous tissue in predominantly heterozygous imaginal discs). Same species as a
- CLUTTER, Ms. M. E.; Ph.D. – Dept. of Biol., Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Experimental embryogenesis including fine structural changes of cell surfaces, structural and functional aspects of polytene chromosomes. *Phaseolus coccineus* (Papilionaceae)
- COALSON, R. E.; Ph.D., Prof. – Dept. of Anat. Sci., Univ. of Oklahoma Med. Center, 801 NE 13th St., OKLAHOMA-City, Okla. 73190, U.S.A.
- a Studies on insulin in the developing pancreas. *Gallus domesticus*, *Columba livia* (Aves), *Rattus norvegicus*, *Cavia porcellus* (Rodentia)
- COELHO, O. P. – Dept. of Morphol., Fac. de Cienc. Med., Univ. Catolica de Curitiba, 80.000 CURITIBA, Parana, Brazil
- a Trophoblastic cells in the lung. *Homo sapiens* (Primates)
- COELINGH BENNINK, H. J. T.; M.D. – Dept. of Obstet. and Gynecol., Center for Res. in Reprod. Biol., Univ. of Michigan Med. Center, ANN ARBOR, Mich. 48104, U.S.A.
- a Cervical mucus and immune reactions. (Primates)
- COHEN, M. H.; Prof. – Dept. of Biophys. and Theoret. Biol., Div. of Biol. Sci., Univ. of Chicago, 920 E. 58th St., CHICAGO, Ill. 60637, U.S.A.
- a The control of embryonic development: theoretical and experimental studies of differentiation and morphogenesis. (Acrasiales)
- COHEN, Ph.P.; Ph.D., M.D., Prof. – Dept. of Physiol. Chem., Univ. of Wisconsin, 1215 Linden Drive, MADISON, Wis. 53706, U.S.A.
- a Biochemical aspects of differentiation in liver during metamorphosis (enzyme changes and induction; RNA, DNA and histone changes; biochemical mechanism of thyroxine action as an inducer). *Rana catesbeiana* (Anura)
- COHEN, S.; Ph.D., Prof. – Dept. of Biochem., Med. Sch., Vanderbilt Univ., NASHVILLE, TN 37203, U.S.A. ISDB
- COHN, S. A.; Ph.D., Prof. – Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A.
- a Histology of the developing periodontium. (Primates)
- COLE, M. B., Jr.; Ph.D. – Dept. of Biol. Sci., Oakland Univ., ROCHESTER, Mich. 48063, U.S.A.
- a Oogenesis, especially nucleocytoplasmic interactions in primary oocytes (cytochemistry, electron microscopy, autoradiography). *Rana pipiens* (Anura)
- b The effects of electromagnetic radiation on mitosis of neuroblasts, (organ culture, autoradiography, metabolic inhibitors). *Chortophaga viridifasciata* (Orthoptera)
- COLEMAN, J. R.; Ph.D., Assoc. Prof. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R. I. 02912, U.S.A. ISDB
- a Differentiation of embryo cells in culture, particularly skeletal muscle, cartilage and retinal pigment cells: synthesis and processing of RNA, and the effects of nucleoside analogs on cellular differentiation. *Gallus domesticus* (Aves)
- b Organization of DNA in the genome. Same species as a
- COLEMAN, R. D.; D.D.S., Prof. – Dept. of Anat., Sch. of Dent., Univ. of Calif., 3rd & Parnassus Aves., SAN FRANCISCO, Calif. 94143, U.S.A.
- a The possible role of sulfated mucopolysaccharides in normal and cleft palate development by employing radioactive sulfur (palatal defects induced by a transitory maternal deficiency of folic acid). *Rattus norvegicus* (Rodentia)
- b Uptake of tritiated thymidine in normal and cleft palate development (palatal defects induced by a transitory maternal deficiency of folic acid). Same species as a

- c Oro-facial abnormalities induced by the folinic acid antagonist pyrimethamine. (Mammalia)
- COLLIER, J. R.; Ph.D., Prof. - Dept. of Biol., Brooklyn Coll., Bedford Ave. & Ave. H, NEW YORK, Brooklyn, N.Y. 11210, U.S.A. ISDB
- a Nucleic acid and protein synthesis, especially transcription and regulation of the genome during embryogenesis: 1. RNA and protein synthesis during early development; 2. the role of DNA-dependent RNA synthesis in embryogenesis. *Ilyanassa obsoleta* (Gastropoda)
- COLLIN, W. K.; Ph.D. - Dept. of Med. Microbiol. and Immunol., Sch. of Med., Univ. of Calif., LOS ANGELES, CA 90024, U.S.A.
- COLLINS, M. F.; Ph.D. - Dept. of Anat., Health Center, Univ. of Connecticut, FARMINGTON, Conn. 06032, U.S.A.
- a Cellular surface properties and morphogenetic movements. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- COLWIN, A. L.; Ph.D., Prof. - 320 Woodcrest Rd., KEY BISCAYNE, FL 33149, U.S.A. ISDB
- COLWIN, Mrs. L. HUNTER; Ph.D., Prof. - 320 Woodcrest Rd., KEY BISCAYNE, FL 33149, U.S.A. ISDB
- CONNELLY, T. G.; Ph.D. - Dept. of Anat., Med. Sch., Univ. of Michigan, Med. Sci. Bldg. II, ANN ARBOR, Mich. 48104, U.S.A.
- a Pituitary gland enhancement of lens regeneration from the dorsal iris in organ culture. *Notophthalmus viridescens* (Urodela)
- b Developmental cytology of functional cell types in the pituitary, using immunohistochemical techniques. *Ambystoma mexicanum* (Urodela)
- CORLISS, C. E.; Ph.D., Assoc. Prof. - Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A. ISDB
- a Radioautography of nuclear migration in neural epithelium of normal and teratogen-treated embryos. *Gallus domesticus* (Aves)
- CORNER, G. W.; M.D., D.Sc., Prof. (Emer.) - American Philosoph. Soc., 104 South 5th St., PHILADELPHIA, Pa. 19106, U.S.A. ISDB
- CORVEN, J. M.; B.A. - Biol. Dept., Central Mich. Univ., Mt. PLEASANT, Mich. 48859, U.S.A.
- a Toxic effects of 2, 4-D and 2, 4, 5-T on metamorphic stages. *Hyla crucifer* (Anura)
- COSTELLO, D. P.; Ph.D., Prof. - Dept. of Zool., Univ. of North Carolina, CHAPEL HILL, NC 27514, U.S.A. ISDB
- COULOMBRE, A. J.; Ph.D. - Lab. of Vision Res., Sect. Exper. Embryol., Natl. Eye Inst., Natl. Inst. of Health, Bldg. 6, Rm 203, BETHESDA, Md. 20014, U.S.A. ISDB
- a Development of the eye: 1. growth and morphogenesis; 2. role of embryonic collagen; 3. establishment of retinotectal connections. *Gallus domesticus* (Aves) (with J. L. COULOMBRE)
- b Development of ocular skeleton. Same species as a (with J. L. COULOMBRE)
- COULOMBRE (LACY), Mrs. J. L.; B.S. - Lab. of Vision Res., Sect. Exper. Embryol., Natl. Eye Inst., Natl. Inst. of Health, Bldg. 6, Rm 203, BETHESDA, Md. 20014, U.S.A.
- a Development of the eye: 1. growth and morphogenesis; 2. role of embryonic collagen; 3. establishment of retinotectal connections. *Gallus domesticus* (Aves) (with A. J. COULOMBRE)
- b Development of ocular skeleton. Same species as a (with A. J. COULOMBRE)
- COULSON, Mrs. P. B.; Ph.D. - Dept. of Zool., Univ. of Tennessee, KNOXVILLE, Tenn. 37916, U.S.A.
- a Influence of hormonal levels in follicular fluids on the development of granulosa cells in individual follicles (radio-immuno-assay and steroid receptor binding). *Bos taurus* (Artiodactyla)
- COUNCE (NICKLAS), Mrs. S. J.; Ph.D. - Dept. of Zool., Duke Univ., DURHAM NC 27706, U.S.A.
- COUSINEAU, G. H.; Ph.D. - Lab. de Biol. Moléc., Dépt. de Biol., Univ. de Montréal, C. P. 6128, MONTREAL 3, Que., Canada
- COWARD, S. J.; Ph.D., Assoc. Prof. - Dept. of Zool., Univ. of Georgia, ATHENS, Ga 30602, U.S.A.
- a Fine structure and physiology of regeneration, with emphasis on the stability of phenotype and stem cell populations. *Dugesia dorotocephala*, *Bdelloura candida*, *Phagocata gracilis* (Turbellaria)
- b Fine structure of gametogenesis and early development, with special attention to chromatoid bodies and early cytodifferentiation. *Limulus polyphemus* (Xiphosura), *Chironomus tentans* (Diptera)
- COX, P. G.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., Mississippi Coll., P. O. Box 4045, CLINTON, Miss. 39058, U.S.A.
- a Established, non-transformed myogenic cell lines from the regenerating tail (effects of serum, embryo extract, antibiotics, nucleotide analogs and cyclic nucleotides). *Anolis carolinensis* (Lacertilia)
- b Regeneration of muscle, and the potency of cultured myogenic cells returned to a regenerating environment. Same species as a
- CRAGG, B. G.; Ph.D. - Dept. of Physiol., Monash Univ., CLAYTON, Vict. 3168, Australia
- a Development of synapses in visual cortex. *Felis domestica* (Carnivora)
- CRAIG, D. A.; Ph.D., Assoc. Prof. - Dept. of Entomol., Univ. of Alberta, EDMONTON, Alta. T6G 2E3, Canada
- a Descriptive embryology. *Anopheles stephensi*, *Gymnopais spec.*, *Neocurupira chiltoni*, *Simulium venustum*, *Prosimulium susanae* (Nematocera, Diptera)
- CRAWFORD, R. B.; Ph.D., Prof. - Dept. of Biol., Trinity Coll., HARTFORD, Conn. 06106, U.S.A.
- a The relationship of the synthetic pathways of adenosine triphosphate to morphogenesis and differentiation. *Fundulus heteroclitus* (Teleostei), *Ambystoma maculatum* (Urodela)
- b The kinetics of RNA synthesis during early embryogenesis, especially in relation to energetics metabolism. Same species as a
- c Activation of hexokinase activity in embryos. *Ambystoma maculatum* (Urodela)
- d Relationship of free amino acid pool to protein synthesis in embryos. Same species as a
- e Effects of pesticides on embryogenesis. *Fundulus heteroclitus* (Teleostei)

- f Ionic requirements and enzymology of amino acid transport in eggs and embryos. *Echinarachnius parma*. *Strongylocentrotus purpuratus* and other spp. (Echinodermata)
- CROWELL, P. S.; Ph.D., Prof. - Dept. of Zool., Indiana Univ., BLOOMINGTON, IN 47401, U.S.A. ISDB
- CUNHA, G. R.; Ph.D. - Dept. of Anat., Sch. of Med., Stanford Univ., STANFORD, Calif. 94305, U.S.A.
- a Role of hormones in the development of structures composed of epithelium and mesenchyme (prostate, seminal vesicles, preputial gland, vagina). *Mus musculus* (Rodentia)
- b Tissue interactions in carcinogenesis. Same species as a
- CUTLER, L. S.; D.D.S., Ph.D. - Dept. of Oral Biol., Sch. of Dent. Med., Univ. of Connecticut Health Center, FARMINGTON, Conn. 06032, U.S.A.
- a Epithelial-mesenchymal interactions in the differentiation of the submandibular gland and in carcinogenesis (electron microscopy). *Rattus spec.* (Rodentia)
- b Electron microscopic cytochemistry of various enzymes (alkaline phosphatase, adenylyl cyclase and phosphodiesterase) during differentiation of the submandibular gland. Same species as a
- DAFENTL, Ms. D. L.; M.D. - Dept. of Anat., Sch. of Med., Univ. of Calif., 630 S., 3rd & Parnassus, SAN FRANCISCO, Calif. 94143, U.S.A.
- a Biochemistry of preimplantation and early postimplantation development: nucleotide precursor pathways and polymerase activities. *Mus musculus* (Rodentia)
- DAIKOKU, Sh.; M.D., Ph.D., Prof. - Dept. of Anat., Tokushima Univ., 3 chome, Kuramoto-cho, TOKUSHIMA, Japan
- a Experimental embryology of the endocrine organs. *Rattus rattus* (Rodentia)
- b Embryology of the motor and sensory nerve terminals. *Homo sapiens* (Primates)
- c Functional development of the hypothalamo-hypophysial system. Same species as a
- d Functional development of the intestinal tubes. Same species as b
- DAIMON, T.; D.Med.Sci. - Dept. of Anat., Tokyo Med. and Dent. Univ., 1-5-45, Yushima, Bunkyo-ku, TOKYO, 113 Japan
- a Effects of hormones on morphogenesis of bone in vivo and in vitro. *Gallus domesticus* (Aves)
- DALTON, H. C.; Ph.D., Prof. - Dept. of Biol., Coll. of Sci., Pennsylvania State Univ., 208 Life Sciences I, UNIVERSITY PARK, Pa. 16802, U.S.A. ISDB
- a Gene control of chromatophore development. *Ambystoma mexicanum* (Urodela)
- DAN, Mrs. J. C.; Ph.D., Prof. - Embryol. Sect., Dept. of Biol., Ochanomizu Univ., 2-1-1 Otsuka, Bunkyo-ku, TOKYO, 112 Japan ISDB
- a Acrosome formation; chemical characterization of acrosomal components; role of Golgi apparatus during spermiogenesis. *Mytilus edulis* (Lamellibranchia), (Echinoidea; Asteroidea; Ophiuroidea), *Oryzias latipes* (Teleostei)
- b Mechanism of initiation of acrosome reaction. *Mytilus edulis* (Lamellibranchia), (Echinoidea)
- DAN, K.; Ph.D., Prof. - Tokyo Metropolitan Univ., 1-1 chome, Yakumo-machi, Meguro-ku, TOKYO, Japan ISDB
- DAN (SOHKAWA), Mrs. M.; D.Sc. - Lab. of Embryol., Fac. of Sci., Osaka City Univ., 459 Sugimoto-cho, Sumiyoshi-ku, OSAKA, 558 Japan
- a Induction of conjugation. *Physarum polycephalum* (Eumycetozoina)
- b Cell sociology studies of early embryogenesis. (Echinodermata), *Xenopus laevis* (Anura)
- DANIEL, J. C., Jr; Ph.D., Prof. - Dept. of Zool., Univ. of Tennessee, KNOXVILLE, Tenn. 37916, U.S.A. ISDB
- a Early development and uterine physiology. (Mammalia)
- DAS, G. D.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a Proliferation, migration, and differentiation of transplanted neuron precursors and undifferentiated neurons of the brain. (Mammalia)
- b Neuroembryogenesis and morphogenesis of the cerebellum. *Rattus spec.* (Rodentia)
- c Electron microscopy of cell-to-cell interactions in the differentiation of neurons and glia cells. Same species as b
- d Cellular aspects of teratology in the cerebellum and cerebral cortex of embryos following low-level x-ray irradiation and/or administration of N-ethyl-N-nitrosourea. Same species as b
- D'ASARO, C. N.; Ph.D., Assoc. Prof. - Fac. of Biol., Univ. of W. Florida, PENSACOLA, Fla. 32504, U.S.A.
- a Embryogenesis and organogenesis through metamorphosis. *Clypeaster rosaceus* (Echinoidea)
- b Spawning and larval development. (Prosobranchia, Gastropoda)
- c Development and culture. *Arenicola cristata* (Polychaeta)
- DASGUPTA, B.; Ph.D., Prof. - Dept. of Zool., Presidency Coll., College St., CALCUTTA-12, India
- a Asexual reproduction and development. *Hepatocystis r. rayi* (Haemosporidia, Sporozoa) in *Petaurista magnificus* (Rodentia)
- DAUWALDER (RICHARDS), Mrs. M.; Ph.D. - Cell Res. Inst., Biol. Labs. 220, Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a Contributions of the Golgi apparatus to cell surfaces. (Plantae)
- DAVE, Y. S.; Ph.D. - Dept. of Bot., Sardar Patel Univ., VALLABH VIDYANAGAR 388120, Gujarat, India
- a Morphogenetic studies on tendrils. *Bauhinia spec.* (Caesalpinaceae), (Vitaceae; Passifloraceae)
- b Shoot apex, stomata and developmental morphology of nectaries. *Pedilanthus tithymaloides* (Euphorbiaceae)
- c Developmental morphology, histochemistry, and ultrastructure of fruits and seeds. Dicotyledonous spp.



- DAVENPORT, R.; Ph.D., Assoc. Prof. – Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, USA
- a Biochemistry of cellular interactions during oogenesis. *Oncopeltus fasciatus* (Hemiptera)
  - b Gene transcription during pre-larval development. *Ascidia nigra* (Asciidiacea)
- DAVIDSON, E. H.; Ph.D., Prof. – Div. of Biol., Calif. Inst. of Technol., PASADENA, Calif. 91109, U.S.A.
- a Molecular biology of oogenesis and early development, particularly gene activation. *Ilyanassa obsoleta* (Gastropoda), *Strongylocentrotus purpuratus* (Echinoidea), *Engystomops pustulosus*, *Xenopus laevis* (Anura)
- DAVIS, Ch. C.; Ph.D., Prof. – Dept. of Biol., Mem. Univ. of Newfoundland, ST. JOHNS'S, Nfld., Canada
- a Hatching mechanisms in aquatic species. (Invertebrata)
- DAVIS, F. C.; Ph.D. – Dept. of Zool., Univ. of Florida, GAINESVILLE, Fla. 32611, U.S.A.
- a Biochemistry of RNA synthesis and gene expression during oogenesis and early development. *Urechis caupo*, *Lytechinus variegatus* (Echinoidea)
- DAVIS, G. R. F.; Ph.D. – Res. Stat., Agric. Canada, Univ. Campus, SASKATOON, Sask. S7N 0X2, Canada
- a Effect on larval growth of novel proteins; correlation with amino acid requirements. *Tenebrio molitor* (Coleoptera)
- DAVID, I. B.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Wash., 115 University Parkway, BALTIMORE, Md. 21210, U.S.A. ISDB
- a Regulation of synthesis of nuclear and mitochondrial nucleic acids during early development. *Rana pipiens*, *Xenopus laevis* (Anura) (with S. OHI, W. B. UPHOLT, and C. J. KAUSHAGEN)
  - b Mitochondrial nucleic acids. *Drosophila melanogaster* (Diptera)
  - c Structure of nucleic acids (electron microscopy). *Mus musculus*, *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- DEAN, D.; Ph.D., Prof. – Dept. of Oceanogr., Ira C. Darling Ctr. for Res., Teaching and Serv., (Marine Lab.), Univ. of Maine, WALPOLE, Me. 04573, U.S.A.
- a Reproductive biology. *Nereis virens* (Polychaeta)
- de ASÚA, M. J. C. – Inst. de Biol. Celular, Fac. de Med., Univ. de Buenos Aires, Paraguay 2155, BUENOS AIRES, Argentina
- a Biochemical differentiation of nervous tissue in vitro and in vivo, especially synthesis of neurotransmitters. *Gallus domesticus* (Aves)
- DE BAVAY, J. M. F. X.; B.Sc. – Dept. of Zool., Sch. of Biol. Sci., Univ. of New England, ARMIDALE, N.S.W. 2351, Australia
- a Descriptive and experimental studies on eggs and embryo development. *Kyarranus sphagnicolus* (Anura)
- DECK, J. D.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTESVILLE, Va. 22901, U.S.A.
- a Cytological changes in muscle after injury. *Diemictylus viridescens* (Urodela)
  - b Wound healing and scar formation in skin. *Sus spec.* (Artiodactyla), *Homo sapiens* (Primates)
  - c The influence of leg innervation on the appearance of continually-growing bony calluses following amputation. *Rattus spec.* (Rodentia)
- DECKER, J. D.; Ph.D., Assoc. Prof. – Dept. of Anat., Coll. of Med., Univ. of Missouri, COLUMBIA, Mo. 65201, U.S.A.
- a Neurogenesis and the development of behavior. (Reptilia; Aves; Mammalia)
  - b An atlas of development. *Homo sapiens* (Primates)
- DECKER, R. S.; Ph.D. – Dept. of Cell Biol., Health Sci. Center, Univ. of Texas, 5323 Harry Hines Blvd., DALLAS, Tex. 75235, U.S.A.
- a Ultrastructural and electrophysiological studies on the assembly of cell junctions in vivo and in vitro. *Rana pipiens*, *R. catesbeiana* (Anura), *Mus musculus*, *Rattus spec.* (Rodentia)
  - b Lysosomal activation during organogenesis: biochemical and cytochemical changes in lysosomal activity during cell differentiation and remodeling. *Gallus gallus* (Aves), *Rana pipiens*, *R. catesbeiana* (Anura)
- deFABRO, Miss S. P.; Ph.D., Prof. – Inst. de Biol. Cel., Univ. Nac. de Córdoba, C.P. 362, CORDOBA, Argentina
- DE FEO, V. J.; Ph.D., Prof. – Dept. of Anat., Univ. of Hawaii, 1960 East-West Rd., HONOLULU, HI 96822, U.S.A.
- DE GENNARO, L. D.; Ph.D., Prof. – Dept. of Biol., Le Moyne Coll., LeMoyne Heights, SYRACUSE, N.Y. 13214, U.S.A.
- a Growth and differentiation of glycogen body (ultrastructure, metabolism). *Gallus domesticus* (Aves)
  - b Effects of lead on development of nervous system. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- DeHAAN, R. L.; Ph.D., Prof. – Dept. of Anat., Emory Univ., ATLANTA, Ga. 30322, U.S.A. ISDB
- a Pacemaker formation and the initiation of the heartbeat; developmental electrophysiology and spontaneous activity of embryonic heart cells in tissue culture; rate regulation in the developing heart. *Gallus gallus* (Aves)
  - b Communication and electrical coupling among cells; differentiation of membrane function. Same species as a
  - c Cellular mechanisms underlying cardiac morphogenesis; regulation of cell adhesiveness, motility and mitotic activity. Same species as a
- DE HOYOS, E. – Dept. of Pathol., Dartmouth Med. Sch., HANOVER, NH 03755, U.S.A.

- De LAHUNTA, A.; D.V.M., Ph.D., Prof. – Dept. of Anat., N.Y. State Vet. Coll., Cornell Univ., ITHACA, N.Y. 14850, U.S.A.
- a Teratogenesis of griseofulvin (malformations of eyeballs, skull, and brain). *Felis domestica* (Carnivora)
- b Incidence of spinal dysraphism; its relationship to vertebral column malformations. domestic Mammalia
- DeLONG, G. R.; M.D. – Dept. of Neurol., Massachusetts Gen. Hosp., BOSTON, MA 02015, U.S.A.
- DEL PINO, E. J.; Biochem. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Chemical factors involved in fertilization: jelly coats and diffusible factors. *Bufo arenarum* (Anura)
- DEL RÍO, A. G. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Sperm metabolism: respiration, glycolysis. *Leptodactylus chaquensis*, *Bufo arenarum* (Anura)
- DeMAGGIO, A. E.; Ph.D., Prof. – Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.
- a Experimental developmental morphology. (Pteridophyta; Spermatophyta)
- DENT, J. N.; Ph.D., Prof. – Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Metamorphic patterns. Various species (Amphibia)
- b Hormonal effects in integumentary structures. (Amphibia)
- DERBY, A. A.; Ph.D. – Biol. Dept., Univ. of Missouri-St. Louis, 8001 Nat. Bridge Rd., ST. LOUIS, MO 63121, U.S.A.
- DESALU, A. B. O.; Dr. – Dept. of Anat., Univ. of Ibadan, IBADAN, Nigeria
- a Autoradiography and ultrastructure of the developing kidney in relation to onset of function. (Mammalia)
- DE TERRA (WHITTAKER), Mrs. N.; Ph.D. – Inst. for Cancer Research, 7701 Burholme Ave., PHILADELPHIA, Pa. 19111, U.S.A.
- a Morphogenesis and nucleocytoplasmic interactions (microsurgery, histochemistry, autoradiography). *Stentor coeruleus* (Ciliata)
- DE TOMA, F. J.; Ph.D. – Dept. of Biol. Sci., Clapp Lab., Mount Holyoke Coll., SOUTH HADLEY, MA 01075, U.S.A.
- DEVREOTES, P.; B.A. – Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Ontogeny of nerve-muscle interactions. *Rattus norvegicus* (Rodentia) (with D. M. FAMBROUGH)
- DIAMOND, M.; Ph.D., Prof. – Dept. of Anat., Univ. of Hawaii, 1960 East-West Rd., HONOLULU, HI 96822, U.S.A.
- DIBERARDINO, Miss M. A.; Ph.D., Prof. – Dept. of Anat., Med. Coll. of Pennsylvania, 3300 Henry Ave., PHILADELPHIA, Pa. 19129, U.S.A. ISDB
- a Nuclear, chromosomal, cytoplasmic and protein changes during development. *Rana pipiens* (Anura)
- DICKEY, J. F.; Ph.D., Assoc. Prof. – Dept. of Dairy Sci., Coll. of Agric., Clemson Univ., CLEMSON, S.C. 29631, U.S.A.
- a Early embryogenesis (embryo culture). *Bos taurus*, *Ovis aries*, *Sus scrofa* (Artiodactyla)
- b Causes of embryonic mortality. Same species as a
- DICKINSON, W. J.; Ph.D. – Biol. Dept., Univ. of Utah, 201 Biol. Bldg., SALT LAKE CITY, Utah 84112, U.S.A.
- a Genetic regulation of enzymes during development, especially genes controlling the differentiated tissue distribution of aldehyde oxidase. *Drosophila melanogaster* (Diptera)
- DICKSON, A. D.; M.D., Prof. – Div. of Morphol. Sci., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Control and significance of trophoblastic giant cell transformation of the blastocyst. *Mus musculus* (Rodentia)
- b Blastocyst activation in early development. (Mammalia)
- DICKSON, D. R.; Ph.D., Prof. – Dept. of Anat., Cleft Palate Center, Univ. of Pittsburgh, 320 Salk Hall, PITTSBURGH, Pa. 15213, U.S.A.
- a Morphology of the cartilages, ligaments, joints and muscles of the larynx from the end of the second fetal month to adulthood. *Homo sapiens* (Primates) (with Mrs. W. M. DICKSON)
- b Developmental anatomy of the Eustachian tube from the end of the second fetal month to adulthood. Same species as a (with Mrs. W. M. DICKSON)
- DICKSON, Mrs. W. M.; Ph.D. – Dept. of Anat. and Histol., Sch. of Dental Med., 601 Salk Hall, Univ. of Pittsburgh, PITTSBURGH, Pa. 15213, U.S.A.
- a Morphology of the cartilages, ligaments, joints and muscles of the larynx from the end of the second fetal month to adulthood. *Homo sapiens* (Primates) (with D. R. DICKSON)
- b Developmental anatomy of the Eustachian tube from the end of the second fetal month to adulthood. Same species as a (with D. R. DICKSON)
- DIEHL, F. A.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Problems of development: cell and tissue migrations; the roles of individual cell types during morphogenesis; the synthesis of extracellular mesoglea and perisarc and their role in development. *Cordylophora caspia* (Hydrozoa)
- DILLARD, W. L.; Ph.D. – Dept. of Zool., Univ. of Oklahoma, 730 Van Vleet Oval, Rm. 222, NORMAN, Okla. 73069, U.S.A.

- a RNA biosynthesis in nucleate and anucleate cells. *Acetabularia mediterranea*, *A. crenulata*, *Acicularia schenki* (Chlorophyta)
- b Macromolecular changes during microstome-macrostome transformation. *Tetrahymena vorax*. *T. pyriformis* (Ciliata)
- DIMOND, Sister M. T.; Ph.D., Prof. – Dept. of Biol., Trinity Coll., WASHINGTON, DC 20017, U.S.A.
- DINSMORE, Ch. E.; A.B. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A.
- a Directive influences of transplanted carpal blastema over subjacent minced limb muscle fragments implanted in the orbit. *Ambystoma mexicanum* (Urodela)
- b Electron microscopy of satellite cell ratios in regenerating and non-regenerating limb musculature. (Amphibia; Mammalia)
- DIXON, K. E.; Ph.D. – Sch. of Biol. Sci., Flinders Univ., BEDFORD PARK, S.A. 5042, Australia
- a Germ plasm and germ cells. *Xenopus laevis* (Anura), *Mus musculus* (Rodentia)
- b Nuclear transplantation and nuclear restrictions. *Xenopus laevis* (Anura)
- DIXON, S. E.; Ph.D., Prof. – Dept. of Environm. Biol., Univ. of Guelph, GUELPH, Ont. N1G 2W1, Canada
- a Growth and development dimorphism. *Apis mellifera* (Hymenoptera)
- b Interrelation of diet and endocrines in development. Same species as a
- DOANE, Mrs. W. W.; Ph.D. – Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Developmental and physiological genetics of amylase isozymes: analysis of genetic regulatory mechanisms in cellular differentiation as revealed through the combined techniques of biochemistry, genetics and cytogenetics. *Drosophila melanogaster*, *D. hydei* and other spp. (Diptera)
- b Developmental and experimental analysis of mutants characterized by abnormalities in lipid and carbohydrate metabolism, as well as in endocrine and reproductive physiology. *Drosophila melanogaster* (Diptera)
- c Purification and characterization of  $\alpha$ -amylase isozymes (Amylase antibodies: inter- and intra-specific relationships; intra-cellular localization; diet-induced 'puffing' of structural gene for amylase, Amy; quantitation of de novo synthesis and degradation of enzyme). *Drosophila hydei*, *D. melanogaster* (Diptera)
- d Selective screening system for mutations of 'regulatory genes' which control the Amy gene or its immediate products. Same species as c
- DOBKIN, Sh.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Florida Atlantic Univ., BOCA RATON, FL 33432, U.S.A.
- DOHERTY, R. A.; M.D. – Dept. of Pediat., Genet., Radiat. Biol. and Biophys., Univ. of Rochester, 260 Crittenden Bd., ROCHESTER, NY 14642, U.S.A.
- a Temporal aspects of genetic expression in early embryos. *Mus musculus* (Rodentia)
- b Prenatal diagnosis of biochemical and cytogenetic abnormalities. *Homo sapiens* (Primates)
- c Methylmercury toxicity and teratogenesis. *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- d Embryonic and fetal hemoglobin development. Same species as b
- DONADY, J. J.; Ph.D. – Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457, U.S.A.
- a Genetic control of cell differentiation: analysis of neuron and myocyte differentiation in mutant embryonic cells (in vitro cell culture, light microscopy, autoradiography). *Drosophila melanogaster* (Diptera)
- b Genetic control of oogenesis and early embryonic development: analysis of maternal lethal genes and chromosomal rearrangements affecting early embryonic development. Same species as a
- DONALDSON, E. M.; Ph.D. – Dept. of Environm., Fish. and Mar. Serv., West Vancouver Lab., 4160 Marine Drive, WEST VANCOUVER, B.C. V7V 1N6, Canada
- a Reproduction (all aspects). *Oncorhynchus gorbuscha*, *O. tshawytscha*, *Ctenopharyngodon idellus* (Teleostei)
- DONALDSON, W. E.; Ph.D. Prof. – Poultry Sci. Dept., School of Agric. and Life Sci., North Carolina State Univ., Box 5307, RALEIGH, N.C. 27607, U.S.A.
- a The effects of maternal diet on embryonic fat metabolism (fatty acid biosynthesis, oxidation, and interconversion). *Gallus domesticus*, *Coturnix japonica* (Aves)
- DONNELLY, Miss G. M.; – Depts. of Microbiol. and Biochem., Med. Ctr., Univ. of Kentucky, LEXINGTON, KY 40506, U.S.A.
- DOOHER, G. B.; Ph.D. – Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK NY 10021, U.S.A.
- a Effects of mutant genes on spermatogenesis. *Mus musculus* (Rodentia)
- DORFMAN, A.; Ph.D., Prof. – Depts. of Pediat. and Biochem., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A. ISDB
- a Heritable defects of connective tissue, including the mucopolysaccharidoses and abnormalities of cartilage. (Mammalia)
- DORGAN, W. J.; Ph.D. – Dept. of Zool.-Entomol., Montana State Univ., BOZEMAN, MT 59715, U.S.A.
- DOSSEL, W. E.; Ph.D., Prof. – Dept. of Anat., Creighton Univ., 657 N. 27th St., OMAHA, Nebr. 68131, U.S.A.
- no embryological work in progress
- DOTSU, Y.; D.Agric., Prof. – Dept. of Maricult., Fac. of Fish., Nagasaki Univ., 1-14 Bunkyo-machi, NAGASAKI 852, Japan
- a Embryonic and larval development of shore species. (Teleostei)
- b Larval development of marine species. (Crustacea)
- DRACHMAN, D. B.; M.D., Assoc. Prof. – Dept. of Neurol., Johns Hopkins Hosp., 601 N. Broadway, BALTIMORE, MD 21205, U.S.A. ISDB

- DREYER, Miss M. V.; M.Sc. — Dept. of Zool., Univ. of the O.F.S., BLOEMFONTEIN, S. Africa
- DUBEY, P. N.; D.Phil., Prof. — Dept. of Anat., Med. Coll., NAGPUR-3, M.S., India
- a Morphology and histochemistry of metanephros development to stage 40. *Gallus domesticus* (Aves) (with A. QUADEER)
- b Effect of removal of the optic vesicle on histogenesis of the optic lobe. Same species as a (with V. M. SALTIE)
- c Effect of temperature differentials on regulatory phenomena and cell differentiation. Same species as a (with T. L. PATIL)
- DUERKSEN, J. D.; Ph.D., Prof. — Dept. of Biol., Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Genetic expression and its regulation in eukaryotic cells. (Mammalia)
- DUKE, J. L.; Ph.D. — Dept. of Obstet. and Gynecol., Center for Res. in Reprod. Biol., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Placenta-specific antigens. (Primates)
- b Abortifacient activity of placenta-specific antisera. (Primates)
- DUKE, K. L.; Ph.D., Assoc. Prof. — Dept. of Anat., Med. Center, Duke Univ., DURHAM, N.C. 27710, U.S.A.
- a Comparative histology of the ovary (including developmental stages and history of germ cells). (Mammalia)
- DUMONT, J. N.; Ph.D. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A.
- DUNCAN, J. T.; Ph.D., Assoc. Prof. — Dept. of Cell and Molec. Biol., Sch. of Nat. Sci., San Francisco State Coll., SAN FRANCISCO, CA 94132, U.S.A.
- DUNG, H. C.; Ph.D. — Dept. of Anat., Health Sci. Center, Univ. of Texas, 7703 Floyd Curl Drive, SAN ANTONIO, Tex. 78284, U.S.A.
- a Etiology of the developmental abnormalities in the 'torpid' mutant. *Mus musculus* (Rodentia)
- DURAN de LOPEZ, Mrs. L.; M.D. — Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela
- a Developmental pathology, especially rachischisis, symphodia, anomalies of the urogenital system, etc. *Homo sapiens* (Primates)
- b Developmental and functional anatomy of the mammary gland in relation with hormonal control, especially of the placenta and the gonads. (Rodentia), *Homo sapiens* (Primates)
- c Histo- and toxoplasmosis as teratogenic factors. Same species as a (with E. KLEISS)
- DUTTON, R. W.; Ph.D., Assoc. Prof. — Dept. of Biol., Univ. of Calif., San Diego, P.O. Box 109, LA JOLLA, CA 92037, U.S.A.
- DWORKIN, M.; Ph.D., Prof. — Dept. of Microbiol., Med. School, Univ. of Minnesota, 1060 Mayo (Mayo Box 196) MINNEAPOLIS, Minn. 55455, U.S.A.
- a Developmental biology of fruiting. *Myxococcus xanthus* (Myxobacteria) 1. Role and nature of a stable m-RNA required for microcyst germination. 2. Regulation of macromolecular synthesis during development. 3. Nature of proteins synthesized during germination. 4. Mechanism of induction of microcyst formation. 5. Nature of intercellular associations.
- b Relationship of developmental cycle and ecology. *Myxococcus xanthus*, *Stigmatella aurantiaca* (Myxobacteria)
- EAKIN, R. M.; Ph.D., Prof. — Dept. of Zool., Univ. of California, BERKELEY, Calif. 94720, U.S.A. ISDB
- a Electron microscopy of induction systems. *Hyla regilla* (Anura)
- b Development of photoreceptors. *Helix aspersa* (Gastropoda) (and other Invertebrata)
- EBERT, J. D.; Ph.D., Prof. — Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A. ISDB
- also: Dept. of Biol., Johns Hopkins Univ., Charles & 34th Sts., BALTIMORE, Md. 21218, U.S.A.
- a Interactions between cell membrane and nucleus in the regulation of DNA synthesis, using ions and ionophores in a variety of cells in culture, including lymphocytes. (Vertebrata) (with K. OZATO)
- ECHAVE LLANOS, J. M.; M.D., Prof. — Inst. de Embriol., Biol. e Histol., Fac. de Cienc. Med., Univ. Nac. de La Plata, 60 y 120, LA PLATA, Argentina ISDB
- EDDS (LUCKENBILL), Mrs. L. M.; Ph.D. — Dept. of Biol. Sci., Smith Coll., NORTHAMPTON, Mass. 01060, U.S.A.
- a Neural development. (lower Vertebrata)
- EDDS, M. V., Jr.; Ph.D., Prof. — Dept. of Zool., Univ. of Massachusetts, AMHERST, Mass. 01002, U.S.A. ISDB
- a Metamorphosis; visual system. *Solea spec.*, *Psettichthys spec.*, *Pseudopleuronectes spec.* (Pleuronectidae, Teleostei)
- EDIDIN, M. A.; Ph.D. — Dept. of Biol., Johns Hopkins Univ., Charles and 34th Sts., BALTIMORE, MD 21218, U.S.A.
- EGAMI, N.; Ph.D., Prof. — Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Change in radiation-sensitivity during embryonic development. *Oryzias latipes* (Teleostei)
- b Embryology of endocrine organs. Same species as a
- EGUCHI, G.; Ph.D., Assoc. Prof. — Lab. of Cell Sci., Inst. of Biophys. and Molec. Biol., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, 606, Japan ISDB
- a Molecular and cellular events in Wolffian lens regeneration. *Triturus pyrrhogaster* (Urodela)
- b Stability in the differentiation of cells from eye tissues in clonal cell culture. *Gallus gallus* (Aves), *Mus bactrianus* (Rodentia) (with T. S. OKADA and M. TAKEICHI)
- EISENBERG ZALIK, Mrs. S.; Ph.D., Assoc. Prof. — Dept. of Zool., Fac. of Sci., Univ. of Alberta, EDMONTON, Alta. T6G 2E1, Canada
- a The cell surface during morphogenetic movements in the embryo: 1. isolation of cell populations

- by density gradient centrifugation; 2. cell electrophoresis; 3. isolation of cell membrane; 4. cell affinities. *Xenopus laevis* (Anura), *Gallus domesticus* (Aves)
- b Lens regeneration: 1. clonal cell culture; 2. transplantation of individual cells; 3. morphogenetic potentials of the cell population in the dorsal iris; 4. cell surface changes during metaplasia. *Triturus viridescens*, *Taricha granulosa* (Urodela), *Xenopus laevis* (Anura)
- ELLGAARD, E. G.; Ph.D. – Dept. of Biol., Tulane Univ., NEW ORLEANS, La. 70118, U.S.A.
- a RNA and protein metabolism in salivary glands during development. *Drosophila melanogaster* (Diptera)
- ELLIOTT, D. S.; Ph.D. – Scientific Transplants, Inc., Route 2, Box 195E, LAS ANIMAS, Colo. 81054, U.S.A.
- a Methods of culture and storage of embryos (freezing). *Bos taurus* (Artiodactyla)
- EL MEKKAWY, D. A.; M.Sc. – Dept. of Zool., Fac. of Sci., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt
- a Hind limb regeneration after transection at various proximo-distal levels. *Bufo regularis* (Anura) (with M. I. MICHAEL)
- ELMER, W. A.; Ph.D. – Dept. of Biol., Emory Univ., ATLANTA, GA 30322, U.S.A.
- a Cell interactions during early limb morphogenesis in the mutant *Brachypodium*: 1. regulatory mechanisms related to stability of the chondrogenic phenotype; 2. synthesis and turnover of membrane components. *Mus musculus* (Rodentia)
- b Isolation and characterization of a growth regulator in chondrodystrophic animals. Same species as a
- EMERSON, C. P., Jr.; Ph.D. – Dept. of Biol., Univ. of Virginia, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Regulation of contractile protein synthesis during differentiation of skeletal muscle in cell culture: control of transcription and translation of myosin mRNA. *Coturnix c. japonica* (Aves), *Rattus rattus* (Rodentia)
- b The control of growth and cell division: relationship between ribosome synthesis, protein synthesis, and DNA synthesis. *Coturnix c. japonica* (Aves)
- ENDO, A.; M.D. – Dept. of Hyg. and Prev. Med., Sch. of Med., Niigata Univ., Asahimachi, NIIGATA, 951 Japan
- ENDO, Y.; D.Sc., Prof. – Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- ENLOW, D. H.; Ph.D., Prof. – Dept. of Anat., Med. Ctr., West Virginia Univ., MORGANTOWN, W.Va. 26506, U.S.A.
- a Normal and abnormal development of the face and cranium. *Homo sapiens* (Primates)
- EPEL, D.; Ph.D., Prof. – Marine Biol. Res. Div., Scripps Inst. of Oceanography, Univ. of Calif., San Diego, P.O. Box 1529, LA JOLLA, Calif. 92037, U.S.A.
- a Biochemistry and physiology of fertilization, especially chemistry of cortical granules and cortical reactions, block to polyspermy, and activation. *Strongylocentrotus purpuratus* and other marine spp. (Invertebrata)
- b Role of cations, especially Ca, in activating development. Same species as a
- ERHART, E. A.; M.D., Ph.D., Prof. – Sect. of Neuroanat., Dept. of Anat., Univ. de São Paulo, Caixa Postal 2921, SÃO PAULO, Brazil
- a Degeneration and regeneration of peripheral nerve fibres. *Gallus domesticus* (Aves), *Canis familiaris* (Carnivora)
- ESCHENBERG, Miss K. M.; Ph.D., Prof. – Dept. of Biol. Sci., Clapp Lab., Mount Holyoke Coll., SOUTH HADLEY, Mass. 01075, U.S.A.
- a Cytology and developmental physiology of the ovary (histochemistry, autoradiography). *Gerris remigis*, *Belostoma flumineum*, *Ranatra fusca*, *Oncopeltus fasciatus* (Hemiptera)
- ETHERIDGE, A. L.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Arkansas, Monticello, COLLEGE HEIGHTS, AR 71655, U.S.A.
- ETKIN, W.; Ph.D., Prof. – Dept. of Anat., Albert Einstein Coll. of Med., Yeshiva Univ., 1300 Eastchester Rd. and Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A. ISDB
- ETOH, H.; Ph.D. – Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan
- a Effect of ionizing radiation on various embryonic stages (particularly long-term effects of low doses). *Oryzias latipes* (Teleostei)
- EVANS, H. E.; Ph.D., Prof. – Dept. of Anat., N.Y. State Vet. Coll., Cornell Univ., ITHACA, N.Y. 14850, U.S.A. ISDB
- a Study of skeletal development in regard to inter-litter variation and position in the uterus, utilizing cesarian removals. *Canis familiaris* (Carnivora)
- b Veratrum induced cyclopia. *Ovis aries* (Artiodactyla)
- c Serial sections of embryos at spaced ages, available for inspection. *Canis familiaris*, *Felis catus* (Carnivora), *Bos taurus*, *Ovis aries* (Artiodactyla), and other Mammalia (with W. O. SACK and R. C. WILLIAMS, Tuskegee, Ala.)
- d Situs inversus accompanied by cyclopia. *Sus scrofa* (Artiodactyla)
- e Cyclopia. *Canis familiaris* (Carnivora)
- EWEN, AL. B.; Ph.D. – Res. Stat., Agric. Canada, Univ. Campus, SASKATOON, Sask. S7N 0X2, Canada
- a Physiology and functional morphology of reproduction with special emphasis on the endocrinology of reproduction in males. *Melanoplus sanguinipes* (Orthoptera)
- b Histology and histochemistry of neurosecretory cells and their cycles of activity. Same species as a
- c Insect hormones and analogues: effects on embryogenesis; possible uses as insecticides. Same species as a

- EYAL (GILADI), Mrs. H.; Ph.D., Prof. – Dept. of Zool., Hebrew Univ., JERUSALEM, Israel ISDB  
 a Differentiation potencies of the uterine embryo and its ultrastructure. *Gallus domesticus* (Aves)  
 b A normal table of uterine developmental stages. Same species as a  
 c The development of symmetry in the uterine embryo. Same species as a
- FABIAN, B. C.; Ph.D. – Zool. Dept., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, S. Africa
- FAINSTAIN (HAMERMAN), Mrs. N.; M.Sc. – Dept. of Zool., Hebrew Univ., JERUSALEM, Israel  
 a Ultrastructural changes in the egg from ovulation through fertilization and cleavage. *Gallus domesticus* (Aves)  
 b Reserve materials of the embryo; correlation between their metabolism and ultrastructural changes during intrauterine stages. Same species as a
- FALLDING, Miss M. H.; Dr. – Dept. of Biomed. Sci., Ont. Vet. Coll., Univ. of Guelph, GUELPH, Ont. N1G 2W2, Canada ISDB
- FALLIERI, L. A.; B.Sc. – Dept. of Gen. Biol. Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 – 4º andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- FALLON, J. F.; Ph.D. – Dept. of Anat., Med. Sch., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A. ISDB  
 a Cell death during limb morphogenesis. *Gallus domesticus* (Aves), *Homo sapiens* (Primates)  
 b Ultrastructure of the gametes before and during interaction. *Nereis limbata* (Polychaeta)
- FAMBROUGH, D. M., Jr.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Washington, 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Ontogeny of nerve-muscle interactions. *Rattus norvegicus* (Rodentia) (with P. DEVREOTES and A. RITCHIE)
- FANKHAUSER, G.; Ph.D., Prof. (Emer.) – Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A. ISDB
- FANTEL, A.; Ph.C. – Central Lab. for Human Embryol., Dept. of Pediat., Univ. of Washington, SEATTLE, Wash. 98195, U.S.A.
- a Morphology and development of the placenta. (Mammalia)  
 b Placental transfer; fetomaternal potassium relations. *Rattus spec.* (Rodentia)
- FARBEROV, A. – Dept. of Zool., Hebrew Univ., JERUSALEM, Israel  
 a Influence of X-rays on the development of the eye. *Rana temporaria* (Anura)  
 b Influence of retina on the histogenesis of the lens. Same species as a
- FASANELLO de BUSTOS, Mrs. L.; M.D. – Sect. of Exp. Neurol., Inst. of Neurol., Hosp. de Clinicas, Piso 2, MONTEVIDEO, Uruguay
- FAULKNER, Ch. S.; M.D. – Dept. of Pathol., Dartmouth Med. Sch., HANOVER, NH 03755, U.S.A.
- FAUSTO-STERLING, Ms. A.; Ph.D. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A.
- a Selection for temperature-sensitive mutants of oogenesis and embryogenesis, and their analysis. *Drosophila melanogaster* (Diptera)  
 b Analysis of the rudimentary locus at the biochemical level. Same species as a
- FEDINEC, A. A.; Ph.D., Prof. – Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A.
- a The effect of bacterial toxins and pathogenic bacteria on the fetus; relation between infection routes and barrier properties of placenta and fetal membranes. *Rattus norvegicus* (Rodentia)
- FEDOROFF, S.; Ph.D., Prof. – Dept. of Anat., Univ. of Saskatchewan, Health Sci. Bldg., SASKATOON, Sask. S7N 0W0, Canada
- a Development of cell surface antigens and the surveillance mechanism. *Mus musculus* (Rodentia)
- FEIN, A.; M.Sc. – Dept. of Embryol. and Teratol., Ch.Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a Morpho-functional characteristics of the early polar trophoblast during implantation. (Rodentia) (with L. A. NEBEL)
- FELDMAN, M.; Ph.D. – Dept. of Cell Biol., Weizmann Inst. of Sci., REHOVOT, Israel ISDB
- FELDMAN, M. L.; Ph.D. – Dept. of Anat., Boston Univ., 80 E. Concord St., BOSTON, Mass. 02118, U.S.A.
- a Postnatal development of cochlear nucleus  
 b Neurogenesis and postnatal development in cerebral cortex (electron microscopy and Golgi impregnation). *Rattus norvegicus* (Rodentia)
- FELTS, W.; Ph.D., Prof. – Dept. of Anat. Sci., Univ. of Oklahoma Med. Center, 801 NE 13th St., OKLAHOMA-City, Okla. 73190, U.S.A.
- a Biomechanics of bone including developmental changes. (Soricidae, Insectivora), *Mus musculus*, *Rattus spec.* (Rodentia), (Cetacea), *Homo sapiens* (Primates)  
 b Gravity effects on bone development. *Mus musculus* (Rodentia)
- FERKOVICH, S. M.; Ph.D. – Insect Attract., Behav. and Basic Biol. Res. Lab., Agric. Res. Serv., U.S.D.A., 1700 S.W. 23rd Drive, P.O. Box 14565, GAINESVILLE, Fla. 32604, U.S.A.
- a Isolation of carrier proteins in the haemolymph which are responsible for transporting juvenile hormone from site of synthesis in corpus allatum to target tissues. *Plodia interpunctella* (Lepidoptera)  
 b Juvenile hormone binding to receptor sites in target tissues. Same species as a
- FERM, V. H.; M.D., Ph.D., Prof. – Dept. of Anat., Dartmouth Med. School, HANOVER, N.H. 03755, U.S.A.
- a Teratogenic effects of heavy metals. *Mesocricetus auratus* (Rodentia)  
 b Experimentally induced twinning. Same species as a
- FERNALD, R. L.; Ph.D., Prof. – Dept. of Zool., Univ. of Wash., SEATTLE, Wash. 98195, U.S.A.

- a Comparative reproductive biology and development of marine species of the San Juan region. (Invertebrata)
- FERNÁNDEZ, Mrs. S. N.; Pharm. M. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Respiratory metabolism. *Bufo arenarum* (Anura)
- FERREIRA da SILVA, C. – Sect. of Neuroanat., Dept. of Anat., Univ. de São Paulo, C.P. 2921, SÃO PAULO, Brazil
- a Degeneration and regeneration of peripheral nerve fibres. *Gallus domesticus* (Aves)
- FERRIS, W. R.; Dr. – Dept. of Biol. Sci., Univ. of Arizona, TUCSON, AZ 85721, U.S.A. ISDB
- FINNEGAN, C. V.; Ph.D., Prof. – Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER V6T 1W5, B.C., Canada ISDB
- a Analysis of postgastrula axial mesoderm differentiation in vitro. *Taricha torosa*, *Ambystoma gracile* (Urodela), *Gallus domesticus* (Aves)
- b Cytochemical and electron microscopic examination of myoblast, endo- and ectomesenchymal differentiation. *Taricha torosa*, *Ambystoma gracile* (Urodela)
- c Molecular and cellular aspects of arm formation in larvae. *Strongylocentrotus droebachiensis*, *Dendaster excentricus*, and hybrids (Echinoidea) (with D. H. LARRIVEE)
- FIORENTINI, Miss M. L. – Dept. of Biol., Fairleigh Dickinson Univ., 285 Madison Ave., MADISON, NJ 07940, U.S.A.
- a Teratogenic effects of vinblastine and cAMP on blastula, gastrula, and early larval stages: gross anomalies of neural and mesodermal structures, and cellular basis. *Oryzias latipes* (Teleostei)
- FISCHMAN, D. A.; M.D., Assoc. Prof. – Depts. of Anat. and Biol., Univ. of Chicago, 1103 East 57th St., CHICAGO, Ill. 60637, U.S.A.
- a Regulation of myogenic cell fusion in monolayer cultures of embryonic skeletal muscle; immunological characterization of myoblast and myotube cell surfaces. *Gallus domesticus* (Aves)
- b The relationship between intercellular contact and the regulation of DNA synthesis and myosin synthesis in embryonic heart cells. Same species as a
- FISHER, D. L.; Ph.D. – Dept. of Anat., Med. Sch., Univ. of Michigan, Med. Sci. Bldg. II, ANN ARBOR, Mich. 48104, U.S.A.
- a Teratogenesis, with emphasis on the preimplantation stages during cultivation. *Mus musculus* (Rodentia)
- b Ovarian transplantation with emphasis on embryogenesis. Same species as a
- FISHER, L. J.; Ph.D. – Dept. of Anat., Med. Sch., Univ. of Michigan, Med. Sci. Bldg. II, ANN ARBOR, Mich. 48104, U.S.A.
- a Development of the synaptic organization of the retina, using quantitative electron microscopic techniques. *Rana pipiens*, *Xenopus laevis* (Anura), *Mus musculus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- FITZGERALD, L. R.; Ph.D., Assoc. Prof. – Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A.
- a Effects of environmental factors and antibiotics on development of teeth, and control mechanisms of tooth formation. *Mus musculus* (Rodentia)
- b Development of incisor teeth and significance of the various types of dentin seen in early stages. Same species as a
- FLICKINGER, C. J.; M.D., Assoc. Prof. – Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTESVILLE, Va. 22901, U.S.A.
- a Fetal and postnatal development of the male sex accessory organs (light and electron microscopy). *Rattus rattus* (Rodentia)
- FLICKINGER, R. A.; Ph.D. Prof. – Dept. of Biol., State Univ. of New York, 102 Health Sci. Bldg., BUFFALO, N.Y. 14214, U.S.A. ISDB
- FLYNN T. THOMSON; D.Sc., Prof. – adress unknown ISDB
- FOOTE, Mrs. F. MARTINDALE; Ph.D. – Dept. of Physiol., Southern Illinois Univ., CARBONDALE, Ill. 62901, U.S.A. ISDB
- a Growth and maintenance of gonads on synthetic media, and on standard media composed of chick embryo extract and agar. *Xenopus laevis* (Anura)
- b Growth of thymus in vitro. *Gallus domesticus* (Aves)
- FORD, P.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER B.C. V6T 1W5, Canada
- a Developmental histochemistry. *Raja binoculata* (Elasmobranchii)
- b Microspectrophotometry of enzyme concentrations in development. Same species as a
- FORET, J. E.; Ph.D. – Dept. of Zool., Univ. of New Hampshire, Spaulding Bldg., DURHAM, N.H. 03824, U.S.A.
- a Biochemical regulation of limb regeneration. *Ambystoma spec.*, *Notophthalmus viridescens* (Urodela)
- b In vitro cultivation of larval and adult tissues and regeneration blastema. Same species as a
- FORMAN, M.; Ph.D. – Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a Synthesis of regulatory macromolecules during embryo development. *Fucus furcatus* (Phaeophyta)
- b Control and synthesis of cell walls. Same species as a
- FORREST, H. S.; Ph.D., D.Sc., Prof. – Dept. of Zool., Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a RNA synthesis in very early development of eggs and at later stages; examination of the products of RNA polymerase activity by competition-hybridization techniques. *Oncopeltus fasciatus* (Hemiptera)
- b The role of dAT (deoxyadenine-thymidine) in embryogenesis. *Drosophila melanogaster* (Diptera)
- c Effects of long wave length UV on development. Same species as b

- FOSKET, D. E.; Ph.D., Assoc. Prof. – Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Cytokinin control of cell division in cultured cells (control of availability of specific cell division proteins through an effect on protein synthesis at the translational level). *Glycine max* (Papilionaceae)
  - b Genetic transformation in cultured mutant haploid cells (frequency of transformation after protoplasts of the mutant cells have taken up exogenous, purified DNA from normal cells). *Nicotiana sylvestris* (Solanaceae)
- FWLER, J. A.; Ph.D. – Dept. of Biol., State Univ. of New York at Stony Brook, STONY BROOK, N.Y. 11790, U.S.A.
- a Development of hybrids. *Rana pipiens* (Anura)
  - b Developmental controls (genetic, environmental). *Oryzias latipes* (Teleostei)
- FOX, D. J.; Ph.D. – Dept. of Zool., Univ. of Tennessee, KNOXVILLE, Tenn. 37916, U.S.A.
- a In vitro characterization of the regulatory enzymes associated with fat synthesis in the ob/ob mutant. *Mus musculus* (Rodentia)
- FRANCIS, D. W.; Ph.D. – Dept. of Biol. Sci., Univ. of Delaware, NEWARK, DE 19711, U.S.A.
- FRANCOEUR, R. T.; Ph.D., Prof. – Dept. of Biol., Fairleigh Dickinson Univ., 285 Madison Ave., MADISON, NJ 07940, U.S.A.
- a Teratogenic effects of vinblastine and dibutyryl cAMP on embryogenesis. *Blatta orientalis*, *Periplaneta spec.* (Blattariae), *Oryzias latipes* (Teleostei)
  - b New techniques in reproduction from theoretical and social viewpoint: artificial insemination; in vitro gestation; prenatal monitoring; in vitro fertilization. *Homo sapiens* (Primates)
- FRANK, G. H.; D.Sc. – Dept. of Zool., Univ. of Durban-Westville, Private Bag 4001, DURBAN, S. Africa
- FRANKEL, J.; Ph.D., Prof. – Dept. of Zool., Coll. of Lib. Arts, Univ. of Iowa, IOWA-City, Ia. 52240, U.S.A.
- a Morphogenesis. *Tetrahymena spec.* (Ciliata)
  - b Developmental genetics: analysis of the cortical pattern. *Tetrahymena pyriformis* (Ciliata)
- FRANKLIN, L. E.; Ph.D. – Dept. of Reprod. Physiol., Delta Region. Primate Res. Ctr., Tulane Univ., COVINGTON, LA 70433, U.S.A. ISDB
- FRASER, F. C.; Ph.D., M.D., Prof. – Dept. of Biol., McGill Univ., MONTREAL H3C 3G1, Que., Canada
- a Maternal and environmental factors (e.g. diet) influencing the frequency of cleft lip. *Mus musculus* (Rodentia)
  - b Pathogenesis of vitamin A-induced exencephaly. Same species as a
- FRASER, I. H.; M.Sc. – Biochem. Dept., Med. Sch., Dalhousie Univ., Sir Charles Tupper Bldg., HALIFAX, N.Sc., Canada
- FRASER, R. C.; Ph.D., Prof. – Dept. of Zool., Univ. of Tennessee, KNOXVILLE, Tenn. 37916, U.S.A.
- a Biosynthesis of hemoglobins in the embryo and characteristics of embryonic erythroid cells. *Gallus domesticus* (Aves)
- FREDERICKSON, R. G.; Ph.D. – Dept. of Anat., Med. Ctr., West Virginia Univ., MORGANTOWN, W.Va. 26506, U.S.A.
- a High voltage electron microscopy of developing connective tissue in the notochordal sheath of early embryos. *Gallus domesticus* (Aves)
  - b The effect of inhibited protein-polysaccharide and collagen synthesis on the formation of unit collagen fibrils and the normal differentiation of epithelial and connective tissue cells. Same species as a
- FREED, J. J.; Ph.D. – Inst. for Cancer Research, 7701 Burholme Ave., PHILADELPHIA, Pa. 19111, U.S.A.
- a Genetics of haploid embryo cell lines including analysis by nuclear transfer. *Rana pipiens* (Anura) (with L. MEZGER-FREED)
  - b Survival studies (single cell plating) of haploid embryonic cells after irradiation or exposure to chemical agents. Same species as a
  - c Q-band, C-band and G-band mapping of wild-type adult and embryo chromosomes; comparison with chromosomes of haploid cell lines and drug-resistant and other clones in culture. Same species as a
- FREEMAN, G.; Ph. D., Assoc. Prof. – Dept. of Zool., Univ. of Texas, AUSTIN, TX 78712, U.S.A.
- a Segregation of developmental potential during early cleavage stages. *Mnemioopsis leidyi* (Ctenophora), *Cerebratulus lacteus* (Nemertina)
  - b Asexual reproduction and regeneration. (Tunicata)
- FRIEDKIN, M. E.; Ph.D., Prof. – Dept. of Biol., Univ. of Calif. San Diego, P.O. Box 109, LA JOLLA, CA 92037, U.S.A.
- FRIEDLÄNDER, M.; Ph.D. – Lab. of Genet., Inst. of Life Sci., Hebrew Univ., JERUSALEM, Israel ISDB
- FRIEDMAN, H. P.; Ph.D. – Univ. of Missouri-St. Louis, 8001 Natural Bridge Rd., ST. LOUIS, MO 63121, U.S.A.
- FRISTROM, Mrs. D.; Ph.D. – Dept. of Genet., Univ. of Calif., BERKELEY, CA 94720, U.S.A.
- FRITZ, H. I.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Coll. of Sci. and Engin., Wright State Univ., Col. Glenn Highway, DAYTON, Ohio 45431, U.S.A.
- a The role of the egg white in the development of the embryo. *Gallus domesticus* (Aves)
  - b Embryonic nutrition. *Gallus domesticus* (Aves), *Didelphis marsupialis*, *Caluromys derbianus*, *Marmosa spec.* (Marsupialia)
  - c Experimental teratogenesis. *Gallus domesticus* (Aves), (Marsupialia; Placentalia)



- d The immune response in implantation. (Mammalia)  
 FROMSON, D. R.; Ph.D. — Dept. of Biol., McGill Univ., MONTREAL H3C 3G1, Que., Canada
- a RNA synthesis during embryonic development. *Lytechinus pictus*, *Arbacia punctulata*, *Strongylocentrotus purpuratus* (Echinoidea)
- b Presence and function of poly(A) tracts in embryo RNA. *Lytechinus pictus*, *Arbacia punctulata* (Echinoidea)
- FRY, Miss A. E.; Ph.D., Assoc. Prof. — Dept. of Zool., Ohio Wesleyan Univ., DELAWARE, Ohio 43015, U.S.A.
- a Histochemical patterns in the tadpole tail during normal and thyroxine-induced metamorphosis. *Rana pipiens* (Anura)
- b The effects of prolactin on tail height and tail skin of the male. *Notophthalmus viridescens* (Urodela)
- FRYE, B. E.; Ph.D., Prof. — Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Prolactin, somatotropin and thyroxine interactions during development, growth, and metamorphosis. *Rana pipiens* (Anura), *Ambystoma mexicanum* (Urodela), *Gallus domesticus* (Aves)
- b Endocrine regulation of carbohydrate metabolism, esp. changing patterns of control during metamorphosis. *Rana pipiens* (Anura), *Ambystoma mexicanum*, *A. tigrinum* (Urodela)
- FUCHS, M. S.; Ph.D., Assoc. Prof. — Dept. of Biol., Univ. of Notre Dame, NOTRE DAME, Ind. 46556, U.S.A.
- a Hormonal and biochemical aspects of ovarian development. *Aedes aegypti*, *Drosophila melanogaster* (Diptera)
- FUJII, T.; Ph.D., Prof. (Emer.) — Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan ISDB
- a The mechanism of chemical carcinogenesis. *Rattus norvegicus* (Rodentia)
- FUJIMOTO, T.; M.D., Prof. — Dept. of Anat., Med. Sch., Kumamoto Univ., 2-1-1 Honjo, KUMAMOTO, 860 Japan
- a Germ cell origin and migration. *Gallus domesticus* (Aves), (Mammalia), *Homo sapiens* (Primates)
- b Experimental teratology of aortic arches. (Aves, Mammalia)
- FUJISAWA, H.; Ph.D. — 2nd Dept. of Anat., Kyoto Pref. Univ. of Med., Kawaramachi-Hirokoji, Kamikyo-ku, KYOTO, 602 Japan
- a Mechanisms of tissue reconstitution from dissociated retinal cells. *Gallus gallus* (Aves)
- b Mechanisms of inter-cellular communication in developing nervous system. *Gallus spec.* (Aves)
- FUKE, M.; D.Sc. — Biol. Inst., Fac. of Sci., Univ. of Kanazawa, Marunouchi-1, KANAZAWA, Japan
- a Reaggregation of dissociated cells. *Callyspongia elongata* (Porifera)
- b Cytological properties of polar lobe. *Ostrea gigas* (Lamellibranchia)
- FUKUMITSU, S. † B.V.M. — Nat. Inst. of Anim. Ind., CHIBA, Japan
- FULLER, M. S.; Ph.D., Prof. — Dept. of Botany, Univ. of Georgia, ATHENS, Ga. 30601, U.S.A.
- a Development of motile cells in aquatic species. (Blastocladales, Phycomycetes)
- b Mitosis. (Fungi)
- FULLILOVE, Miss S. L.; Ph.D. — Dept. of Zool., Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a Developmental aspects of embryonic lethals. *Drosophila spec.* (Diptera)
- b Patterning of morphogenetic information during oogenesis (ovary transplantation, isotopic labeling of developing oocytes). Same species as a
- FULTON, C. M.; Ph.D., Assoc. Prof. — Dept. of Biol., Brandeis Univ., WALTHAM, Ma 02154, U.S.A. ISDB
- FURUSAWA, M.; D.Sc. — Lab. of Embryol., Fac. of Sci., Osaka City Univ., 459 Sugimoto-cho, Sumiyoshi-ku, OSAKA, 558 Japan
- a Immunological analysis of the structural molecules of the erythrocyte membrane. *Mus musculus* (Rodentia)
- b Erythroid differentiation of Friend virus-induced tumor cells. Same species as a
- FURUYA, M.; Prof. — Dept. of Bot., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan ISDB
- a Sexual differentiation. *Lygodium japonicum* (Filicinae)
- GABJE (GUBBAY), Mrs. V.; Ph.D. — Dept. of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, S. Africa
- GABRIEL, M. L.; Ph.D., Prof. — Biol. Dept., Brooklyn Coll., NEW YORK, Brooklyn, N.Y. 11210, U.S.A.
- a Development of vertebrae; meristic variation. (Teleostei)
- GAGE, L. P.; Ph.D. — Dept. of Cell Biol., Roche Inst. of Molec. Biol., NUTLEY, N.J. 07110, U.S.A.
- a Silk gland development and differentiation, especially silk fibroin synthesis in vitro, fibroin message synthesis and isolation of the fibroin gene. *Bombyx mori* (Lepidoptera) (with R. A. GREENE)
- b Synthesis of fibroin polypeptides in an Ehrlich ascites cell-free extract in response to added purified fibroin mRNA. Same species as a
- c Preparation of iodinated (125I) fibroin mRNA, specific tRNA isoaccepting species, etc. for use in studying the organization of the genome by hybridization techniques. Same species as a
- GALE, T. F.; Ph.D. — Dept. of Anat., Dartmouth Med. Sch., HANOVER, N.H. 03755, U.S.A.
- a Teratogenic potential of several heavy metals (mercury and cadmium). *Mesocricetus auratus* (Rodentia)
- GALL, J. G.; Ph.D., Prof. — Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB
- a Replication of satellite DNA. *Drosophila spec.* (Diptera)
- b In situ nucleic acid hybridization in lampbrush chromosomes. *Triturus spec.* (Urodela)
- GALSTON, A. W.; Ph.D., Prof. — Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Analysis of molecular basis for the developmental roles of hormones such as indole-3-acetic

- acid and of light (absorbed by phytochrome). *Pisum sativum* (Papilionaceae)
- b Plant protoplasts: preparation by the use of cell-wall digesting enzymes; culture; cell wall regeneration; attempts to achieve fusion. *Pisum sativum* (Papilionaceae), *Avena sativa* (Gramineae), *Nicotiana tabacum* (Solanaceae)
- GALUN, F.; Ph.D. – Dept. of Plant Genet., Weizmann Inst. of Sci., P.O. Box 26, REHOVOT, Israel
- a Determination of sex expression: genetic and hormonal factors. *Cucumis spec.* (Cucurbitaceae)
- b Photo-induced changes in differentiation: structural, biochemical & genetic aspects. *Trichoderma spec.* (Fungi imperfecti)
- c Dedifferentiation and entry into cell cycle of mesophyll protoplasts. *Nicotiana spec.* and other spp. (Solanaceae)
- d Development of a system for plant-cell genetics. (Angiospermae)
- GARBER, Mrs. B. B.; Ph.D., Assoc. Prof. – Depts. of Anat. and Biol., Univ. of Chicago, 1103 East 57th St., CHICAGO, Ill. 60637, U.S.A.
- a Reconstruction and histogenesis of the brain from dissociated single embryonic cells in vitro: specificity of cell associations (cell surface recognition). *Coturnix coturnix*, *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b Cell surface interactions and role of cell ligands in neoplasia (myelogenic and intracranial tumors). *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- GARCÍA AUSTT, E.; M.D., Assoc. Prof. – Sect. of Exp. Neurol., Inst. of Neurol., Hosp. de Clinicas, Piso 2, MONTEVIDEO, Uruguay
- GARRIDO, O.; M.V. – Inst. de Embriol., Univ. Austral de Chile, Casilla No. 567, VALDIVIA, Chile
- a Ultrastructural relationship between the pharyngeal pouch of the adult male and the integument of the tadpole. *Rhinoderma darwini* (Anura)
- GASSER, R. F.; Ph.D., Prof. – Anat. Dept., Med. Center, Louisiana State Univ., 1542 Tulane Ave., NEW ORLEANS, La. 70112, U.S.A.
- a Neuromuscular development. *Mus musculus*, *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- b Atlas of developmental stages. *Homo sapiens* (Primates)
- c Possible effects of biomechanical fields on cell differentiation during embryogenesis. Same species as b
- GATES, A. H., Jr.; Ph.D. – Div. of Genet., Univ. of Rochester, 260 Crittenden Blvd., ROCHESTER, NY 14620, U.S.A.
- GAY, Miss H.; Ph.D., Prof. – Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Molecular structure of chromosomes during genetic activity, especially nucleic acids and proteins of heterochromatin and euchromatin (electron microscopy, cytochemistry, autoradiography, biochemistry). *Drosophila melanogaster* (Diptera)
- GEORGE, J. C.; Ph.D., Prof. – Dept. of Zool., Univ. of Guelph, GUELPH, Ont. N1G 2W1, Canada
- a Ultrastructural studies on the embryo. *Lychnas tricarinatus* (Scorpionidea, Arachnida)
- b Developmental studies on the suprarenal haematopoietic tissue. *Petromyzon marinus* (Cyclostomata)
- GERBI, Miss S. A.; Ph.D. – Div. of Biol. and Med. Sci., Brown Univ., Box G, PROVIDENCE, R.I. 02912, U.S.A.
- a Amplified DNA (DNA puffs). *Sciara coprophila* (Diptera)
- b Satellite DNAs (in situ hybridization). Same species as a
- GIBBONS, A. F. E.; Ph.D. – Worcester Found. for Exp. Biol., 222 Maple Ave., SHREWSBURY, MA 01545, U.S.A.
- GIBLEY, C. W., Jr.; Ph.D. – Pennsylv. Coll. of Podiat. Med., 804 Pine St., PHILADELPHIA, PA 19107, U.S.A.
- GILANI, S. H.; Ph.D. – Dept. of Anat., New Jersey Med. Sch., 100 Bergen St., NEWARK, N.J. 07103, U.S.A.
- a Mechanism of heart morphogenesis (morphology and cytology), and teratogenic action of nicotine, lead, and other substances. *Gallus domesticus* (Aves)
- GILBERT, P. W.; Ph.D., Prof. – Div. of Biol. Sci., Cornell Univ., ITHACA, NY 14850, U.S.A. ISDB
- GILBERTSON, D.E.; Ph.D. – Dept. of Zool., Coll. of Biol. Sci., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A.
- GILES, E. T.; Ph.D., D.I.C., Assoc. Prof. – Dept. of Zool., Sch. of Biol. Sci., Univ. of New England, ARMIDALE, N.S.W. 2351, Australia
- a Development and distribution of Australian species. (Dermaptera)
- GIRARD, H.; Dr.ès Sci. – Dept. of Anat., McMaster Univ., HAMILTON, Ont., Canada
- GITLIN, G.; Ph.D., Prof. – Dept. of Anat., Hebrew Univ. – Hadassah Med. Sch., P.O.B. 1172, JERUSALEM 91000, Israel
- a Epithelium of the vaginal introitus. *Rattus spec.* (Rodentia)
- GLADE, R. W.; Ph.D., Prof. – Dept. of Zool., Marsh Life Sci. Bldg., Univ. of Vermont, BURLINGTON, VT 05401, U.S.A.
- GLASS, Ms. L. E.; Ph.D., Assoc. Prof. – Dept. of Anat., Sch. of Med., Univ. of Calif., SAN FRANCISCO, Calif. 94143, U.S.A.
- a Maternal macromolecules transferred to developing ovarian oocytes and oviductal or uterine embryos; interrelationships with macromolecules synthesized by the oocyte or embryo itself. *Mus musculus* (Rodentia), *Lepus spec.* (Lagomorpha)
- b Immunological contraception.
- GLOBERSON, A.; Dr. – Dept. of Cell Biol., Weizmann Inst. of Sci., REHOVOT, Israel ISDB
- a In vitro studies on immune reactivity of cells from the yolk sac and embryonic liver at different stages of gestation. *Mus musculus* (Rodentia)
- b Studies on the immunological status of newborn spleen. Same species as a
- GOEL, S. C.; Ph.D. – Dept. of Zool., Univ. of Poona, Ganeshkind, POONA 411007, India

- a Histological, cytochemical, teratological and in vitro studies on the development of limbs and gonads. *Calotes versicolor* (Lacertilia, Reptilia)
- b Mechanism of water uptake by developing eggs. Same species as a
- c Biochemical analysis of development with special reference to excretory processes. Same species as a
- d Biochemistry of the development of the lens and pineal eye. *Calotes versicolor* (Lacertilia, Reptilia), *Gallus spec.* (Aves)
- GOETINCK, P. F.; Ph.D., Assoc. Prof. – Dept. of Anim. Genet., Storrs Agric. Exper. Station, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A. ISDB
- a Mesoderm-ectoderm interaction in differentiation (limb, scales, and feathers). *Gallus domesticus* (Aves)
- b Chondroitin sulfate and collagen metabolism in micromelic mutants. Same species as a
- GOFF, R. A.; Ph.D., Prof. – Dept. of Zool., Univ. of Oklahoma, 730 Van Vleet Oval, Rm. 222, NORMAN, Okla. 73069, U.S.A.
- a Analysis of the development of the appendicular skeleton by means of x-rays. *Gallus domesticus* (Aves)
- b Histochemical analysis of morphogenesis. Same species as a
- GOICOECHEA, O. – Inst. de Embriol., Univ. Austral de Chile, Casilla no. 567, VALDIVIA, Chile
- a Normal development. *Rhinoderma darwini* (Anura)
- b Limb development upon heterotypic recombination in the embryo (microsurgery and culture techniques). *Gallus domesticus* (Aves)
- GOLDBERG, S.; M.D. – Dept. of Ophthalmol., New York Med. Coll., Flower and 5th Ave. Hospitals, NEW YORK, N.Y. 10029, U.S.A.
- a Development of the retina and visual pathways. *Gallus domesticus* (Aves)
- b Neural regeneration in the retina and visual pathways. *Rana catesbeiana* (Anura), *Gallus domesticus* (Aves), *Rattus rattus* (Rodentia)
- c Specification of morphological polarity in the retina. Same species as a
- GOLDHOR, Miss S.; Ph.D. – Sch. of Nat. Sci. and Mathemat., Hampshire Coll., AMHERST, Mass. 01002, U.S.A. ISDB
- a Developmental changes in membranes. *Rana pipiens* (Anura)
- GOLDIE, M.; Ph.D. – Dept. of Biol., Loyola Univ., 6525 N. Sheridan Rd., CHICAGO, Ill. 60626, U.S.A.
- a Morphogenesis of the tail. *Gallus domesticus* (Aves)
- b Site of action of factors inducing the rumpless phenocopy. Same species as a
- c Effects of excess nutrients on early development in ovo and in vitro. Same species as a
- d Effect of cytochalasin on the embryo. Same species as a
- e Teratogenicity of biodegradable detergents. Same species as a
- GOLDSMITH, Mrs. M. H. M.; Ph.D., Assoc. Prof. – Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Growth and development in response to hormones; hormone transport; tropistic responses. *Zea mays*, *Avena sativa* (Gramineae), *Coleus blumei* (Labiatae)
- GOLDSMITH, Ms. M. R.; Ph.D. – Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Characterization of chorion protein composition in mutants with abnormal egg-shells, to identify follicular epithelial cell mutants defective in protein biosynthesis. *Bombyx mori* (Lepidoptera)
- GOLDWASSER, E.; Prof. – Dept. of Biochem. and Commit. on Developm. Biol., Div. of Biol. Sci., Univ. of Chicago, CHICAGO, Ill. 60637, U.S.A. ISDB
- a Biochemistry of development of erythrocytes from hemopoietic stem cells, mode of action of erythropoietin, regulation of hemoglobin synthesis. (Mammalia)
- GOMEZ DUMM, C. L.; M.D., Prof. – Inst. de Embriol., Biol. e Histol., Fac. de Cienc. Med., Univ. Nac. de La Plata, 60 y 120, LA PLATA, Argentina
- GONA, A. G.; Ph.D., Assoc. Prof. – Dept. of Anat., New Jersey Med. Sch., 100 Bergen St., NEWARK, NJ 07103, U.S.A.
- a Prolactin-thyroid interaction during metamorphosis. *Triturus (Diemictylus) viridescens* (Urodela)
- b Normal and thyroid hormone-induced maturation of the cerebellum. *Rana catesbeiana*, *R. pipiens* (Anura)
- GONDOS, B.; M.D., Assoc. Prof. – Dept. of Pathol., Sch. of Med., Univ. of Calif., SAN FRANCISCO, Calif. 94143, U.S.A.
- a Ultrastructure of ovarian and testicular germ cell development. *Oryctolagus cuniculus* (Lagomorpha), *Homo sapiens* (Primates)
- b Ultrastructure of fertilization and cleavage. *Oryctolagus cuniculus* (Lagomorpha)
- c Structural and biochemical maturation of the testis. Same species as b
- GOPINATH, G. M.; M.Sc. – Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Development of integument and plumage. (Aves)
- GORDON, H. P.; Ph.D. – Dept. of Oral Biol., Sch. of Dent., Univ. of Washington, SEATTLE, WA 98105, U.S.A.
- GORDON, R.; Ph.D. – Natl. Inst. of Arthritis, Metab., and Digest. Dis., N.I.H., Bldg. 31, Rm 9A20, BETHESDA, Md. 20014, U.S.A.
- a The change of shape of the neural plate during neurulation is being analyzed experimentally, mathematically, and by computer simulation in terms of physical forces generated by the behavior of its constituent cells; a generally applicable theory of morphodynamics, based on continuum mechanics, is being developed. *Taricha torosa* (Urodela) (with A. G. JACOBSON, Austin, Tex.)
- b Methods are being formulated to analyze the postnatal development of linear receptive fields of

- cells in the visual cortex. *Felis domestica* (Carnivora) (with H. V. B. HIRSCH, Albany, N.Y.)  
 GOSS, R. J.; Ph.D., Prof. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A. ISDB
- a Compensatory renal hypertrophy. *Rattus rattus* (Rodentia)  
 b Atrophy of auxiliary heart grafts. Same species as a  
 c Regeneration and wound healing in ear, *Oryctolagus cuniculus* (Lagomorpha) and wing (Chiroptera)
- GOTTLIEB, F. J.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Pittsburgh, PITTSBURGH, PA 15213, U.S.A.
- GOTTLIEB, G.; Ph.D. – Psychol. Lab., Dorothea Dix Hosp., RALEIGH, N.C. 27611, U.S.A.  
 a Behavioral development of fetuses and embryos. *Anas platyrhynchos*, *Gallus gallus* (Aves)
- GRABOWSKI, C. T.; Ph.D., Prof. – Dept. of Biol., Univ. of Miami, CORAL GABLES, FL 33124, U.S.A. ISDB
- GRAHAM, D. E. – Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A.
- GRANGER (PARSONS), Mrs. N.; Ph.D. – Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Control of the corpora allata by the brain during larval development; identification of allata-controlling center of brain; identification of an allatotropic factor and its relationship to neurosecretion in the brain. *Galleria mellonella* (Lepidoptera)  
 b Internal and external stimuli affecting the allata-controlling center of the larval brain. Same species as a
- GRANT, Ph.; Ph.D. – Dept. of Biol., Univ. of Oregon, EUGENE, Ore. 97403, U.S.A. ISDB
- a Nucleocytoplasmic interactions in development. *Rana pipiens* (Anura)  
 b Specification of visual and motor neuron connections. *Xenopus laevis* (Anura)
- GRASSO, J. A.; Ph.D., Assoc. Prof. – Dept. of Anat., Boston Univ., 80 E. Concord St., BOSTON, Mass. 02118, U.S.A.
- a The relationship between various RNA species and the onset of hemoglobin synthesis. *Triturus cristatus carnifex* (Urodela)  
 b Red blood cell development in anemic animals. *Triturus spec.* (Urodela)  
 c Developmental studies in sickle cell anemia. *Homo sapiens* (Primates)
- GRAVER, H. T.; D.D.S., Ph.D. – Dept. of Histol., Embryol., and Genet., Sch. of Dent. Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.
- a Effects of operations on formation of dental lamina and tooth buds in the regenerating mandible. *Triturus viridescens* (Urodela)  
 b Lung regeneration. Same species as a
- GRAY, D. J.; Ph.D., Prof. – Dept. of Anat., Sch. of Med., Stanford Univ., STANFORD, Calif. 94305, U.S.A.
- a Prenatal development of lower limb bones, vertebral column, and costovertebral joints. *Homo sapiens* (Primates)
- GRAY, Miss F. H.; Ph.D. – Dept. of Zool. and Entomol., Ohio State Univ., 1735 Neil Ave., COLUMBUS, OH 43210, U.S.A.
- GREEN, Mrs. M. C.; Ph.D. – The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A.
- a Developmental genetics. *Mus musculus* (Rodentia)
- GREEN, P. B.; Ph.D., Prof. – Dept. of Biol. Sci., Stanford Univ., STANFORD, CA 94305, U.S.A. ISDB
- a Biophysics of morphogenesis. (Plantae)
- GREENE, R. A.; Ph.D. – Dept. of Cell Biol., Roche Inst. of Molec. Biol., NUTLEY, N.J. 07110, U.S.A.
- a Silk gland development and differentiation, especially properties and in vitro translation of silk fibroin mRNA. *Bombyx mori* (Lepidoptera)
- GREENGARD, O.; Ph.D. – Dept. of Biol. Chem., Canc. Res. Inst., New England Deaconess Hosp., 185 Pilgrim Rd., BOSTON, Mass. 02215, U.S.A.
- a Hormonal regulation of enzyme synthesis in fetal and newborn liver, kidney, brain and spleen. *Rattus spec.* (Rodentia)  
 b Enzyme synthesis in explants of fetal liver cultured in vitro. Same species as a
- GREENHOUSE, G. A.; Ph.D. – Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Control of protein synthesis in embryos, particularly isolation of masked messenger RNA. *Xenopus laevis* (Anura), *Strongylocentrotus purpuratus* (Echinoidea)  
 b Effects of various pollutants supplied by the U.S. Air Force on the growth and development of embryos. *Rana pipiens*, *Xenopus laevis* (Anura)
- GREENWOOD, M. S.; Ph.D. – Res. Lab., Weyerhaeuser Co., P.O. Box 1060, HOT SPRINGS, Ark. 71901, U.S.A.
- a Physiology of root regeneration by hypocotyl slices from dormant, mature embryos. *Pinus lambertiana* (Coniferae)  
 b The role of auxin metabolism in root regeneration. Same species as a  
 c The role of auxin in lateral root formation by roots, 13,238 (1974) both intact and cultured. *Zea mays* (Gramineae)  
 d Juvenile vs. mature state in relation to induction of early flowering and failure of cuttings to root in juvenile material. *Pinus taeda* (Coniferae)
- GREGG, J. H.; Ph.D., Prof. – Dept. of Zool., Univ. of Florida, GAINESVILLE, Fla. 32611, U.S.A. ISDB
- a Developmental physiology. (Acrasiales)  
 b Freeze-etch electron microscope studies of surface membranes. *Dictyostelium discoideum* (Acrasiales)
- GREGG, J. R.; Ph.D., Prof. – Dept. of Zool., Duke Univ., DURHAM, NC 27706, U.S.A. ISDB

- GRILLO, H. C.; M.D., Prof. – Dept. of Surgery, Massachusetts Gen. Hosp., BOSTON, Mass. 02114, U.S.A.
- GRILLO, T. A. I.; Prof. – Div. of Human Biol. and Behavior, Fac. of Health Sci., Univ. of Ife, ILE-IFE, Nigeria ISDB
- GROBSTEIN, C.; Ph.D. – Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, La JOLLA, Calif. 92037, U.S.A. ISDB
- GROBSTEIN, P.; Ph.D. – Dept. of Pharmacol. and Physiol. Sci., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Processes in development of pattern in nerve cell connections, especially in visual pathways: 1. does pattern result from unique neuronal complementarities? 2. role of visual experience in determining patterns and its relation to ontogenetic information. (lower and higher Vertebrata)
- GROSCH, D. S.; Ph.D. – Dept. of Genet., North Carolina State Univ., Gardner Hall, RALEIGH, N.C. 27607, U.S.A.
- a Egg production and survival of embryos after mother has ingested, or been injected with, chemical agents; without and with irradiation. *Habrobracon* spec. (Hymenoptera)
- b The effects of space flight on reproductive performance (weightlessness, dynamic factors of launching and recovery, and radiation effects). (Insecta)
- c Mosaic and gynandromorph formation (techniques for altering proportion obtained). Same species as a
- GROSS, J.; M.D., Prof. – Developm. Biol. Lab., Massachusetts Gen. Hosp., BOSTON, Mass. 02114 U.S.A. ISDB
- GROSS, P. R. – Dept. of Biol., Massachusetts Inst. of Technol., CAMBRIDGE, MA 02139, U.S.A. ISDB
- GRUBB, R. B.; Ph.D. – Dept. of Anat. Sci., Univ. of Oklahoma Health Sci. Ctr., P.O. Box 26901, OKLAHOMA-City, Okla. 73190, U.S.A.
- a Intestinal regeneration: origin and developmental potentiality of blastemal cells. *Notophthalmus viridescens* (Urodela)
- b Jaw regeneration: origin and developmental potentiality of blastemal cells. Same species as a
- GULYAS, B. J.; Ph.D. – Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, Auburn Bldg. Rm. 203, BETHESDA, Md. 20014, U.S.A.
- a Biochemistry and ultrastructure of formation and fate of annulate lamellae, nucleolar function, and blastocyst formation. *Oryctolagus cuniculus* (Lagomorpha), *Rattus* spec. (Rodentia)
- b Cleavage plane formation. *Mus musculus*, *Rattus* spec. (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- c Polyspermy. *Oryctolagus cuniculus* (Lagomorpha)
- d Induced parthenogenesis; ultrastructure and culturing of such eggs. Same species as c
- e Prenatal and postnatal development of testis. *Macaca mulatta* (Primates)
- GUMBRECK, L.; Ph.D., Prof. – Dept. of Anat. Sci., Univ. of Oklahoma Med. Center, 801 NE 13th St., OKLAHOMA-City, Okla. 73190, U.S.A.
- a Development of genital, ophthalmic and urinary anomalies as related to genes, with emphasis on hermaphroditic alterations. *Rattus rattus* (Rodentia)
- GUNBERG, D. L.; Ph.D., Prof. – Anat. Dept., Med. Fac., Univ. of Malaya, KUALA LUMPUR 22-11, Malaysia
- a In vitro investigations of the metabolic requirements of early post-implantation embryos. *Rattus norvegicus* (Rodentia)
- b An investigation of the effects of teratogens on 6-30 somite embryos cultured in serum. Same species as a
- GURAYA, S. S.; Ph.D., D.Sc., Prof. – Dept. of Zool., Punjab Agric. Univ., LUDHIANA, Punjab, India
- a Cytology and histochemistry of oogenesis. *Passer domesticus* (Aves), *Mystus tengara* (Teleostei), *Homo sapiens* (Primates)
- b Cytology and histochemistry of spermatogenesis. *Bubalus bubalis* (Artiodactyla)
- c Histochemistry of spermatozoa while passing through the male ducts. *Bubalus bubalis* (Artiodactyla), *Rattus* spec. (Rodentia)
- d Cytology and histochemistry of prenatal and postnatal development of ovary and testis. *Cavia porcellus*, *Rattus* spec. (Rodentia), *Homo sapiens* (Primates)
- GWATKIN, R. B. L.; Ph.D. – Dept. of Reprod. Biol., Merck Inst. for Therap. Research, RAHWAY, N.J. 07065, U.S.A.
- a Studies on fertilization, implantation and early development. *Mesocricetus auratus*, *Mus musculus* (Rodentia)
- HADFIELD, M. G.; Ph.D. – Kewalo Lab., Pacif. Biomed. Res. Ctr., Univ. of Hawaii, 41 Ahui St., HONOLULU, Hawaii 96813, U.S.A.
- a Sources of yolk and causative factors in the non-development of nurse eggs (cytochemistry, electron, phase-contrast, and interference-contrast microscopy). (Vermetidae, Gastropoda)
- b Externally induced metamorphosis and settling in marine larvae. (Gastropoda)
- HAGEDORN, H. H.; Ph.D. – Dept. of Biol., Yale Univ., 1016 Kline Biol. Tower, NEW HAVEN, CT 06520, U.S.A.
- HAGIWARA, A.; D.Sc. – Lab. of Developm. Biol., Zool. Inst., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, Japan
- HALEY, L. E.; Ph.D., Assoc. Prof. – Dept. of Biol., Dalhousie Univ., HALIFAX, N.S., Canada
- a The time of activation of genes controlling some enzymes in development. *Coturnix coturnix japonica*, *Coturnix c. japonica* x *Gallus domesticus* (Aves)
- HALEY, S. R.; Ph.D. – Dept. of Zool., Univ. of Hawaii, 2538 The Mall, HONOLULU, Hawaii 96822, U.S.A.
- a Origin of germ line, prelarval development, reproductive cycling, and developmental adaptations

- of Hawaiian forms. *Clibinarius zebra*, *Calcinus latens*, *C. laevimanus* (Anomura, Decapoda, Crustacea)
- b Origin of the germinal disc: cell lineage studies to determine the cell line(s) which give rise to the germinal disc in embryos which initially cleave holoblastically. Same species as a
- c Origin of the extraembryonic membranes and egg attachment. Same species as a  
 HALL, B. K.; Ph.D., Assoc. Prof. – Dept. of Biol., Dalhousie Univ., Life Sci. Centre, HALIFAX, N.Sc., Canada
- a The origin of cartilage and bone from common germinal cells. *Gallus domesticus* (Aves)
- b Determination of corticosteroid levels in plasma and adrenal glands. Same species as a
- c Hormonal control of skeletal development. Same species as a  
 HALPERIN, W.; Ph.D., Assoc. Prof. – Dept. of Bot., Univ. of Washington, SEATTLE, Wash. 98195, U.S.A.
- a The chemical basis for embryogenic phenotype (cell culture methods). *Daucus carota* (Umbellifera)
- b Effects of cytokinins on cell wall metabolism, with special reference to tracheid development. *Helianthus tuberosus*, *Pelargonium* spp., *Coleus* spp. (Angiospermae)
- HAMA, T.; D.Sc., Prof. – Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan  
 ISDB
- HAMABATA, A.; M.D., Assoc. Prof. – Dept. de Bioquim., Centro de Invest. y de Estud. Avanzados del Inst. Politécn. Nac., Apartado Postal 14-740, MEXICO 14, D.F., Mexico
- a Serum factors involved in early stages of myogenesis in vitro; molecular mechanisms. *Gallus gallus* (Aves)
- b Cell-produced substances involved in early stages of myogenesis in vitro. Same species as a  
 HAMADA, S. H.; Ph.D. – Biol. Sci. Dept., Calif. Polytechn. State Univ., SAN LUIS OBISPO, Calif. 93407, U.S.A.
- a The role of glycoproteins in forelimb regeneration (labelled glucose, electron microscopic radioautography, blastema culture). *Taricha torosa* (Urodela)
- b The reaggregation of disaggregated embryos in culture. (effects of biochemical inhibitors and of an 'enhancing factor'; time lapse phase microscopy and electron microscopy). *Strongylocentrotus purpuratus* (Echinoidea)
- HAMBURGER, V.; Ph.D., Prof. (Emer.) – Dept. of Biol., Washington Univ., Skinker and Lindell Ave., ST. LOUIS, Mo. 63130, U.S.A.  
 ISDB
- a Neuro-embryology. *Gallus domesticus* (Aves)
- b Embryology of behavior. *Gallus domesticus* (Aves), *Rattus domesticus* (Rodentia)
- HAMBURGH, M.; Prof. – Dept. of Biol., City Coll. of the Univ. of New York, Convent Ave. and 139th St., New York, NY 10031, U.S.A.  
 also: Dept. of Anat., A. Einstein Coll. of Med., Eastchester Rd., & Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A.
- HAMILTON, H. L.; Ph.D., Prof. – Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.  
 ISDB
- a Organogenesis. *Gallus domesticus* (Aves)
- HAMMOND, W. S.; Ph.D. Assoc. Prof. – Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A.  
 ISDB
- a Hypophyseal development in the embryo. *Gallus domesticus* (Aves)
- HAMNER, Ch. E.; D.V.M., Ph.D. – Dept. of Obstet. and Gynecol., Div. of Reprod. Biol., Univ. of Virginia Med. School, Box 179, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a The composition of oviduct secretions of ovariectomized females with and without estrogen and progesterone injections and the effects of these secretions on sperm metabolism, fertilizing ability and blastocyst development. *Oryctolagus cuniculus* (Lagomorpha), *Felis catus* (Carnivora)
- b The role of steroids in capacitation of sperm in the female reproductive tract. (Mammalia)
- c Reproductive physiology; artificial insemination technique, sperm characterization, seminal plasma constituents, in vitro fertilization. *Felis catus* (Carnivora)
- HAMPEL, A. E.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Northern Illinois Univ., Montgomery Hall, DeKALB, Ill. 60115, U.S.A.
- a Protein and nucleic acid synthesis in late tailbud stages (incorporation study) *Xenopus laevis* (Anura)
- HANADA, A.; BVS – Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Fertilization of ova. *Bos taurus*, *Capra hircus* (Artiodactyla)
- HANAOKA, Y.; M.Sc. – Dept. of Comp. Endocrinol., Inst. of Endocrinol., Gunma Univ., Showa-machi, MAEBASHI, 371 Japan
- HANSON, E. D.; Ph.D., Prof. – Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457, U.S.A.
- a Developmental genetics of oral structures (techniques: electron microscopy, UV microbeam, nucleic acid and protein antimetabolites) *Paramecium aurelia*, *P. trichium* (Ciliata)
- b Mutations which affect structural integrity of the cell, esp. conditional mutants (chemical mutagenesis, breeding analyses, light and electron microscopy). *Paramecium aurelia* (Ciliata)
- c Functional analysis of fine structure of cell cortex (techniques: electron and light microscopy, chemical and physical agents which disrupt fine structure). Same species as b
- HANZELY, L.; Ph.D. – Dept. of Biol. Sci., Northern Illinois Univ., DeKALB, Ill. 60115, U.S.A.
- a Development of the digitonin-induced cell wall system in dividing meristematic root tip cells (electron microscopy). *Allium sativum* (Liliaceae)
- b Effects of morphactins on vegetative growth and propagation (electron microscopy). *Bryophyllum daigremontianum* (Crassulaceae)
- HARDY, Ms. M. H.; Ph.D., Assoc. Prof. – Dept. of Biomed. Sci., Ontario Vet. Coll., Univ. of Guelph, GUELPH, Ont. N1G 2W2, Canada

- a Development of asebia (ab/ab) homozygotes: changes in the dermis before birth, changes in sebaceous gland secretion and hair follicle orientation. *Mus musculus* (Rodentia)
- b Mucous metaplasia of skin and hair follicles in vitro under excess vitamin A (electron microscopy, separation and recombination of dermis and epidermis). Same species as a
- HARRIS, M.; Ph.D., — Dept. of Zool., Univ. of California, BERKELEY, Calif. 94720, U.S.A.
- a Somatic cell hybridization: mechanisms of cell fusion and phenotypic expression of characters in hybrids. *Mesocricetus auratus* (Rodentia)
- HARRIS (FELDMAN), Mrs. P. J.; Ph.D., Assoc. Prof. — Biol. Dept., Univ. of Oregon, EUGENE, Ore. 97403, U.S.A.
- a Localization of 'maternal' messenger RNA in eggs; isolation of 'heavy bodies' and characterization of their RNA (biochemistry, electron microscopy). *Strongylocentrotus purpuratus* (Echinoidea)
- b Centriole replication and separation, using mercaptoethanol to induce direct divisions from one to four cells (electron microscopy). *Strongylocentrotus purpuratus*, *Dendraster excentricus* (Echinoidea)
- HARRISON, J. R.; Ph.D., Prof. — Dept. of Zool., State Univ. of New York, OSWEGO, N.Y. 13126, U.S.A.
- a In vitro studies on the growth and differentiation of the retinal pigment in the embryonic eye: analysis of developmental factors contained in the yolk-albumen of the egg. *Gallus domesticus* (Aves)
- b Uptake of glucose by early primitive streak to early somite embryos (isotope techniques). Same species as a
- c Glucose and amino acid metabolism in the early embryo. Same species as a
- HARTH, M. S.; Ph.D. — Div. of Res., N. Carolina Dept. of Ment. Health, Dorothea Dix Hosp., Box 7532, RALEIGH, NC 27611, U.S.A.
- HARTMANN, J. F.; Ph.D. — Dept. of Reprod. Biol., Merck Inst. for Therap. Res., RAHWAY, N.J. 07065, U.S.A.
- a Prepenetration reactions in fertilization. (Mammalia)
- HASEGAWA, M.; D.Sc., Prof. — Lab. of Biol., Women's Coll. of Tokai-Gakuen, Tenpaku-cho, Shyowa-ku, NAGOYA, 468 Japan
- a Restitution of the eye. (Teleostei)
- b Morphogenesis of the retinal pigment cell. Same species as a
- HASELKORN, R.; Ph.D., Prof. — Dept. of Biophys. and Theoret. Biol., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Cell differentiation: control of heterocyst development and synthesis of nitrogen-fixing enzymes. *Nostoc muscorum* (Cyanophyceae)
- HASHIMOTO, K.; M.D., Prof. — Dept. of Med., Div. of Dermatol., Univ. of Tennessee, Vet. Adm. Hosp., 1030 Jefferson Ave., MEMPHIS, Tenn. 38104, U.S.A.
- a Embryogenesis of cutaneous fine structures. *Homo sapiens* (Primates)
- HASHIMOTO, K.; D.Sc. — Biol. Lab., Kozu High School, Tennoji-ku, OSAKA, Japan
- HASSELL, J. R.; Ph.D. — Exp. Pharmacol. Sect., Natl. Inst. of Dent. Res., Natl. Inst. of Health, Bldg. 30, Rm 225, BETHESDA, Md. 20014, U.S.A.
- a The role of DNA synthesis and cell migration in growth regulation of facial structures. (Mammalia)
- b Changes in protein-protein interactions during development. (Mammalia)
- HAY, D. M.; Ch.B., Assoc. Prof. — Div. of Obstet. and Gynecol., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Ante-natal monitoring of the fetus. (Mammalia)
- HAY, Miss E. D.; M.D., Assoc. Prof. — Dept. of Anat., Harvard Med. School, 25 Shattuck St., BOSTON, Mass. 02115, U.S.A. ISDB
- a Regeneration cells, and localization of RNA turnover (electron microscopic autoradiography). *Planaria spec.* (Turbellaria), *Triturus viridescens* (Urodela)
- b Fine structure of the developing cornea, and localization and identification of proteins secreted by the epithelium (autoradiography and chromatography). *Gallus domesticus* (Aves)
- c Migration of corneal endothelium and mesenchymal cells; role of glycosaminoglycans in cell migration and development. Same species as b
- d Secretion of collagen by neural tube and other embryonic epithelia; its role in tissue interaction. Same species as b
- HAY, R. J.; Ph.D., Assoc. Prof. — Dept. of Biol. Sci., Wright State Univ., Col. Glenn Highway, DAYTON, OH 45431, U.S.A.
- HAYASHI, Y.; Ph.D., Prof. — Daizawa 2-18-18, Setagaya-ku, TOKYO, Japan ISDB
- HAYASHI, Y.; M.D. — Dept. of Developm. Pathol., Res. Inst. of Environm. Med., Nagoya Univ., Furo-cho, Chikusa-ku, NAGOYA, 464 Japan
- a Electron microscopy of experimentally induced malformations of the central nervous system. *Mus musculus*, *Rattus norvegicus* (Rodentia)
- b Effects of low-dose x-irradiation upon the developing brain. *Mus musculus* (Rodentia) (with Y. KAMEYAMA and K. HOSHINO)
- HEARSON, L. L.; Ph.D., Assoc. Prof. — Dept. of Biol., Wabash Coll., CRAWFORDSVILLE, Ind. 47933, U.S.A.
- a Proliferation, DNA synthesis and nerve fiber patterns in forelimb blastemata. *Ambystoma mexicanum* (Urodela)
- b Cytochemistry of dedifferentiation and redifferentiation in denervated limbs. *Ambystoma maculatum*, *A. opacum* (Urodela)
- c Proliferation patterns in aneurogenic forelimb blastemata. Same species as b

- HFATH, H. D.; Ph.D., Prof. – Dept. of Biol. Sci., Calif. State Univ., HAYWARD, Calif. 94542, U.S.A.  
 a Growth regulation in larvae. *Taricha torosa* (Urodela)  
 b Tentacle regeneration. *Hydra littoralis*, *Chlorohydra viridissima* (Hydrozoa)
- HEATON, Mrs. M. B.; Ph.D. – Neuroembryol. Lab., North Carolina Dept. of Mental Health, Res. Div., RALEIGH, N.C. 27611, U.S.A.  
 a Behavioral and neurological development of embryos and neonates. *Anas platyrhynchos*, *Gallus gallus* (Aves)
- HEIM, W. G.; Ph.D., Prof. – Dept. of Biol., The Colorado Coll., COLORADO SPRINGS, Colo. 80903, U.S.A. ISDB  
 a Serum proteins during ontogeny. *Gallus domesticus* (Aves), *Rattus rattus* (Rodentia)  
 b Alpha-2 macroglobulin during development, regeneration and various physiological states. *Rattus rattus* (Rodentia)
- HEIN, Miss R. R.; Ph.D., Prof. – Biol. Dept., Upsala College, Prospect St., EAST ORANGE, N.J. 07019, U.S.A.  
 a Effect of chemical agents (usually metals) on development and possible correlation with the effect of selected enzyme systems present in developing and regenerating tissues. *Dugesia dorotocephala* (Turbellaria), (Echinodermata)
- HEMING, B. S.; Ph.D., Assoc. Prof. – Dept. of Entomol., Univ. of Alberta, EDMONTON, Alta. T6G 2E3, Canada  
 a Metamorphosis. *Frankliniella fusca*, *Haplothrips verbasci* and other spp. (Thysanoptera)  
 b Parthenogenesis. Various spp. (Thysanoptera)  
 c Embryogenesis. *Haplothrips verbasci* (Thysanoptera)
- HENDRICKX, A. G.; Ph.D. – Calif. Primate Res. Ctr., Univ. of Calif., DAVIS, CA 95616, U.S.A.
- HENDRIX, R. W.; Ph.D. – Dept. of Ophthalmol., Children's Hosp. Med. Center, and Dept. of Anat., Harvard Med. Sch., 25 Shattuck St., BOSTON, Mass. 02115, U.S.A.  
 a Analysis of tissue and cell shape changes during induction and differentiation of the eye lens. *Gallus domesticus* (Aves)  
 b Analysis of extracellular matrix changes during induction and differentiation of the eye lens. Same species as a
- HENNEN, Miss S.; Ph.D., Assoc. Prof. – Dept. of Biol., Marquette Univ., 530 N. 15th St., MILWAUKEE, Wis. 53233, U.S.A. ISDB  
 a Nucleo-cytoplasmic interactions in development. (Amphibia)
- HERMAN, L.; Ph.D., Prof. – Dept. of Pathol., Downstate Med. Center, State Univ. of New York, 450 Clarkson Ave., NEW YORK, Brooklyn, N.Y. 11203, U.S.A.  
 a Electron microscopy of normal and urethane induced changes in embryonic neural tube cells and lung tissue cells. *Mus musculus* (Rodentia)
- HERNANDEZ de BARRIOS, Mrs. C. E.; M.D. – Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MÉRIDA, Venezuela  
 a Histochemistry of the developing placenta. *Homo sapiens* (Primates)  
 b Anomalies of the nasal cavity. Same species as a
- HEROLD, R. C.; Ph.D., Assoc. Prof. – Dept. of Histol., Embryol., and Genet., Sch. of Dent. Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.  
 a Relation of dentinogenesis and dermal bone formation. *Squalus acanthias* (Selachii; Teleostei), *Ambystoma spec.* (Urodela)  
 b Development of embryonic fine structure, mitochondria, and cell membrane; effect of chemical treatments. *Echinarachnius parma* (Echinoidea)  
 c Comparative development and ultrastructure of dentines (osteodentine and vasodentine). *Esox lucius*, *Gadus callarias* (Teleostei)  
 d Development of embryonic skeletal structure; normal ultrastructure and effect of sodium fluoride. Same species as b  
 e Developmental pathology of odontogenesis. *Homo sapiens* (Primates)  
 f Fine structure of experimental tooth dysplasias. *Rattus spec.*, *Cavia spec.* (Rodentia)
- HERRMANN, H.; M.D., Prof. – Biol. Sci. Group, Genet. and Cell Biol. Sect., U-125, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A.  
 a Protein synthesis in muscle of developing embryo. *Gallus domesticus* (Aves)
- HEYN, A. N. J.; Prof. – Dept. of Biol. Sci., Louisiana State Univ., Lake Front, NEW ORLEANS, LA 70122, U.S.A.
- HIBBARD, E.; Ph.D., Assoc. Prof. – Dept. of Biol., Pennsylvania State Univ., 208 Life Sciences I, UNIVERSITY PARK, Pa. 16802, U.S.A.  
 a Effects of polarity on differentiation of sensory structures and outgrowth of nerve fibres. *Xenopus laevis* and other spp. (Amphibia)  
 b Restoration of vision in eyeless mutant by grafting eyes at early tailbud stage. *Ambystoma mexicanum* (Urodela)
- HICKEY (WEBER), Mrs. E. D.; Ph.D. – Biol. Dept., Russell Sage Coll., TROY, N.Y. 12180, U.S.A.  
 a Thyroxine sensitivity of regenerated tail tips cultured in vitro. *Xenopus laevis* (Anura)  
 b Changes in hemoglobin during metamorphosis. Same species as a
- HICKS, G. S.; Ph.D. – Dept. of Biol., Dalhousie Univ., Life Sci. Centre, HALIFAX, N.Sc., Canada  
 a Nutritional and hormonal requirements of cultured floral organs; organ autonomy, regenerative potential and inter-organ effects. *Nicotiana tabacum* (Solanaceae)
- HIGASHINAKAGAWA, T.; D.Sc. – Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.  
 a Analysis of proteins on the ribosomal genes of oocytes. *Xenopus laevis* (Anura) (with R. H. REEDER)



- HILD, W. J.; M.D., Prof. – Dept. of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex. 77550, U.S.A.
- a In vitro development of retinal explants; differentiation of sensory cells and synaptic complexes. *Rattus norvegicus* (Rodentia), *Felis domestica* (Carnivora)
- HILFER, S. R.; Ph.D., Assoc. Prof. – Dept. of Biol., Temple Univ., Broad & Berks St., PHILADELPHIA, PA 19122, U.S.A. ISDB
- HILL, Mrs. S. DOUGLAS; Ph.D. – Dept. of Zool., Michigan State Univ., 220 Nat. Sci. Bldg., EAST LANSING, Mich. 48823, U.S.A.
- a Muscle regeneration in the limb. *Ambystoma maculatum* (Urodela)
- b Origin of cells during regeneration. (Sabellidae, Spionidae, etc., Polychaeta)
- HINDMAN, J. L.; Ph.D., Prof. – Progr. in Gen. Biol., Washington State Univ., PULLMAN, WA 99163, U.S.A.
- HINDS, J. W.; Ph.D. – Dept. of Anat., Boston Univ., 80 E. Concord St., BOSTON, Mass. 02118, U.S.A.
- a Golgi impregnation and electron microscopic study of neurogenesis and gliogenesis in the olfactory bulb. *Mus musculus* (Rodentia)
- b Early neurogenesis in spinal cord and cerebral cortex (electron microscopy, Golgi impregnation). Same species as a
- c Analysis of developing retina using serial electron microscopic sections. Same species as a
- HINSCH, Miss G. W.; Ph.D., Prof. – Inst. of Molec. Evol., Univ. of Miami, 521 Anastasia Ave., CORAL GABLES, FL 33134, U.S.A. ISDB
- HIRABAYASHI, T.; Ph.D. – Inst. of Zool., Tokyo Kyōiku Univ., Otsuka 3–29–1, Bunkyo-ku, TOKYO, Japan
- HIRADHAR, P.; M.Sc. – Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Tail regeneration in the adult. *Hemidactylus flaviviridis* (Lacertilia)
- HIRAKOW, R.; M.D., Prof. – Dept. of Anat., Saitama Med. Sch., 38 Morohongo, Moroyama, Iruma-gun, SAITAMA, 350–04 Japan
- a Ultrastructural differentiation of the heart. (Vertebrata)
- HIRAMOTO, Y.; D.Sc., Prof. – Biol. Lab., Tokyo Inst. of Technol., Ookayama, Meguro-ku, TOKYO, 152 Japan ISDB
- a Cell division. (Echinoidea)
- b Physical properties of eggs. (Echinoidea)
- c Physiology of fertilization. (Echinoidea)
- HIROSHIMA, T.; B.Sc. – Biol. Inst., Kanazawa Med. Univ., UCHINADA-machi, Ishikawa-ken, Japan
- a Reaggregation of dissociated cells. *Callyspongia elongata* (Porifera)
- HIRSCH, H. V. B. – Dept. of Biol. Sci., State Univ. of New York, ALBANY, N.Y. 12222, U.S.A.
- a Methods are being formulated to analyze the postnatal development of linear receptive fields of cells in the visual cortex. *Felis domestica* (Carnivora) (with R. GORDON, Bethesda, Md.)
- HISHIDA, T.; D.Sc., Prof. – Lab. of Biol., Gifu Coll. of Dent., 1851 Takano, Hozumi-cho, Motosu-gun, GIFU-ken, Japan
- a Sex differentiation and sex reversal. *Oryzias latipes* (Teleostei)
- HOADLEY, L.; Ph.D., Prof. (Emer.) – 985 Memorial Drive, Apt. 403, CAMBRIDGE, MA 02138, U.S.A. ISDB
- HOAR, R. M.; Ph.D. – Teratol. Sect., Dept. of Exp. Pathol. and Toxicol., Res. Div., Hoffmann-La Roche Inc., Bldg. 100, NUTLEY, N.J. 07110, U.S.A.
- a Placental endocrine activity and adrenal activity of embryos exposed to maternal hyperadrenocorticalism. *Cavia porcellus* (Rodentia)
- b Maternal hyperadrenalism and the interrelationship of thyroid and adrenal activities of the embryo. Same species as a
- c Development of the structure and function of the yolk sac placenta and its relationship to birth defects. *Rattus norvegicus* (Rodentia)
- HODGETTS, R. B.; Ph.D. – Dept. of Genet., Univ. of Alberta, EDMONTON, Alta. T6G 2E9, Canada
- HOLLAND, C. A. – Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, Tenn. 37830, U.S.A.
- a Functions of satellite DNAs and macromolecular metabolism in regenerating tissues. *Gecarcinus lateralis* (Decapoda, Crustacea) (with D. M. SKINNER)
- b Interacting controls of regeneration and molting. Same species as a (with D. M. SKINNER)
- HOLLAND, Miss Y. – Dept. of Developm. and Neural Biol., Rockefeller Univ., 66th St. and York Ave., NEW YORK, N.Y. 10021, U.S.A.
- a Evaluation of large cinemicrographic material on cell interactions and specificity (with P. A. WEISS)
- HOLLINSHEAD, Ms. M. B.; Ph.D., Assoc. Prof. – Dept. of Anat., New Jersey Med. Sch., 100 Bergen St., NEWARK, NJ 07103, U.S.A.
- a Embryology of grey lethals showing osteopetrosis and eruption failure of molars (light and electron microscopy). *Mus musculus* (Rodentia)
- b Embryonic development of skeletal muscle (electron microscopy). *Homo sapiens* (Primates)
- HOLLYDAY, Miss M. A.; Ph.D. – Dept. of Biol., Washington Univ., Skinner and Lindell Ave., ST. LOUIS, Mo. 63130, U.S.A.
- a Autoradiographic studies of embryonic spinal cord. *Gallus domesticus* (Aves)
- b Motility studies on deafferented embryonic limbs. Same species as a
- HOLLYFIELD, J. G.; Ph.D. – Dept. of Ophthalmol., Coll. of Phys. and Surg., Columbia Univ., 630W. 168th St., NEW YORK, N.Y. 10032, U.S.A.
- a Retinal changes at metamorphosis. *Rana pipiens*, *Xenopus laevis* (Anura)
- b Growth of the visual system. *Xenopus laevis* (Anura)
- c Retinal differentiation and histogenesis. *Fundulus heteroclitus* (Teleostei)

- d Interactions between retina and pigmented epithelium during development. Same species as a
- e Phagocytosis by the pigmented retinal epithelium during development. Same species as a
- f Development of ganglion cell specificity for tectal loci. *Rana pipiens* (Anura)
- HOLMES, P. V.; Ph.D. – Div. of Morphol. Sci., Health Sci. Center, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Morphological and biochemical changes in trophoblast cells of the preimplantation embryo before and after estrogen stimulation. *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- b Direct or indirect role of estrogen in blastocyst implantation. *Mus musculus* (Rodentia)
- HOLMSTEDT, J. O. V.; D.D.S., Ph.D. – Dept. of Anat., Louisiana State Univ., 1100 Florida Ave., NEW ORLEANS, La. 70119, U.S.A.
- a Mechanisms of secondary palate formation (light microscopy, electron microscopy and autoradiography; normal development and spontaneous cleft lip and palate). *Mus musculus* (Rodentia)
- b Development of eyelids (light microscopy, electron microscopy and autoradiography; comparison with secondary palate). Same species as a
- HOLOWINSKY, A. W.; Ph.D., Assoc. Prof. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A.
- a Early events in light induced chloroplast development: membrane biogenesis. *Euglena gracilis* (Euglenophyceae)
- b Effect of culture conditions on chloroplast replication. Same species as a
- HOLTGRETER, J. K. F.; Ph.D., Prof. – Dept. of Biol., Univ. of Rochester, ROCHESTER, NY 14627, U.S.A. ISDB
- HONDA, S. I.; Ph.D., Prof. – Dept. of Biol. Sci., Coll. of Sci. and Engin., Wright State Univ., Col. Glenn Highway, DAYTON, OH 45431, U.S.A.
- a Structure and function of organelles, especially chloroplasts. (Angiospermae)
- HONJO, T. – Lab. of Molec. Genet., Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, Bldg. 6, Rm 324, BETHESDA, Md. 20014, U.S.A.
- a Divergence of immunoglobulin genes during embryogenesis. *Mus musculus* (Rodentia)
- HOOVER, R. L.; Ph.D. – Dept. of Zool., Michigan State Univ., 220 Nat. Sci. Bldg., EAST LANSING, Mich 48823, U.S.A.
- a Cell surface changes in relation to morphogenesis: cell positioning
- HOPPE, P. C.; Ph.D. – The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A.
- a Fertilization in vitro and embryo development. *Mus musculus* (Rodentia)
- b Requirements for epididymal sperm maturation, sperm metabolism, effects of gamete aging on development. Same species as a
- c Parthenogenesis. Same species as a
- HORI, I.; M.Sc. – Biol. Inst., Kanazawa Med. Univ., UCHINADA-machi, Ishikawa-ken, Japan
- a Regeneration. *Dugesia japonica*, *Bdellocephala brunnea* (Turbellaria)
- HORI, R.; D.Sc. – Biol. Inst., Toyama Univ., Gofuku 3190, TOYAMA, 930 Japan
- a Na, K, Ca, and Mg contents, ionic permeability, water soluble proteins, and fertilization phenomena (radioisotopes, thin-layer chromatography, electrophoresis). *Hemicentrotus pulcherrimus* (Echinoidea), *Oryzias latipes* (Teleostei)
- b Activation analysis of trace elements and fertilization phenomena. Same species as a
- HORSFALL, W. R.; Ph.D., Prof. – Dept. of Entomol., Univ. of Illinois, 320 Morrill Hall, URBANA, Ill. 61801, U.S.A.
- a Imaginal teratogenesis by thermal stress (morphological and histological changes; sensitive period). *Aedes sierrensis*, *A. punctator*, *A. communis*, *A. stimulans*, *A. dianteus*, *A. cataphylla*, *A. excrucians*, *A. barri* et al. (Culicidae, Diptera)
- HOSHINO, K.; M.D., Dr.Med.Sc., Prof. – Dept. of Anat., Univ. of Manitoba, 750 Bannatyne Ave., WINNIPEG, Man. R3E 0W3, Canada
- a Development, growth, and teratogenesis of mammary glands after prenatal exposure to hormones and carcinogen. *Mus musculus* (Rodentia)
- b Influences of hormones and carcinogen upon mammary growth of male and female immature animals. Same species as a
- c Regeneration of transplanted mammary and salivary glands. Same species as a
- d Structural and functional teratogenesis of mammary glands by glucocorticoids. Same species as a
- HOSHINO, K.; M.D., D.Med.Sc., Assoc. Prof. – Dept. of Developm. Pathol., Res. Inst. of Environm. Med., Nagoya Univ., Furo-cho, Chikusa-ku, NAGOYA, 464 Japan
- a Morphogenesis of genetic microphthalmia. *Mus musculus* (Rodentia) (with Y. KAMEYAMA)
- b Autoradiography of the generation cycle in the neural cells of the embryonic brain. Same species as a
- c Effects of low-dose x-irradiation upon the developing brain. Same species as a (with Y. KAMEYAMA and Y. HAYASHI)
- d Influences of intrauterine environment on the manifestation of genetic malformations. Same species as a (with Y. KAMEYAMA)
- HOSICK, H. L.; Ph.D. – Dept. of Zool., Wash. State Univ., PULLMAN, Wash. 99163, U.S.A.
- a Control of milk-protein synthesis in epithelial cells of the developing mammary gland in vitro (lactose synthetase as a marker for differentiation; stroma-epithelium interaction). *Mus domesticus* (Rodentia)
- b Control of albumin synthesis in a differentiated liver cell line (hormonal and translational control). *Rattus norvegicus* (Rodentia)
- HOSTETLER, J. R.; Ph.D. – Dept. of Anat., Ohio State Univ., 333 W. 10th Ave., COLUMBUS, Ohio 43210, U.S.A.
- a Effect of in vivo administration of phytohemagglutinin on fetal hemopoietic organs (light and

- electron microscopy). *Oryctolagus cuniculus* (Lagomorpha)
- b Light and electron microscopic histochemical analysis of supporting tissues in areas of hemopoiesis in embryos. (Aves; Mammalia)
- HOTTA, Y.; Ph.D. – Dept. of Biol., Univ. of Calif. San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A. ISDB
- a Regulation of DNA synthesis during meiotic development. *Trillium erectum*, *Lilium longiflorum*, *Tulipa gesneriana*, *Vicia faba*, *Bellevalia romana* (Angiospermae)
- b Cell transformation, especially of meiotic cells by biopolymer molecules in vitro. *Lilium longiflorum*, *Triticum aestivum* (Angiospermae)
- c Meiotic cell culture in vitro and the regulation of the meiotic process. *Rattus spec.* (Rodentia)
- HOUGH (RAYMOND), Mrs. B.; Ph.D. – Div. of Biol., Calif. Inst. of Technol., PASADENA, Calif. 91109, U.S.A.
- a Molecular biology of oogenesis and early development, particularly gene activation. *Ilyanassa obsoleta* (Gastropoda), *Strongylocentrotus purpuratus* (Echinoidea), *Engystomops pustulosus*, *Xenopus laevis* (Anura)
- HOWES, R. I.; D.D.S., Ph.D. – Dept. of Anat. Sci., Univ. of Oklahoma Health Sci. Ctr., P.O. Box 26901, OKLAHOMA-City, Okla. 73190, U.S.A.
- a Histologic and morphogenic development of tooth crowns and roots (ectopic tooth transplants). *Rana pipiens* (Anura), *Iguana iguana* (Reptilia) and other lower Vertebrata
- HRUDKA, F.; DVM, D.Sc., Prof. – Dept. of Vet. Anat., Western Coll. of Vet. Med., Univ. of Saskatchewan, SASKATOON, Sask. S7N 0W0, Canada
- a Spermatogenesis and sperm (cytogenetics, histochemistry and fine structure under normal and experimental conditions). domestic and laboratory animals (Mammalia)
- HSÜ (LIANG), Mrs. C. Y.; Ph.D., Prof. – Dept. of Biomorph., Natl. Defense Med. Ctr., P.O. Box 7432, TAIPEI 107, Taiwan, Rep. of China
- a Experimental sex differentiation. *Rana spec.* (Anura)
- HUANG, F. L.; Ph.D. – Dept. of Zool., Natl. Taiwan Univ., TAIPEI 107, Taiwan
- a Effect of carp pituitary gland extract on the maturation of *Clarias fuscus* (Teleostei)
- HUANG, L.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Cell membrane fusion. (Mammalia)
- b Isolation of membrane-bound proteins and lipid-protein interactions in differentiating cells. *Gallus domesticus* (Aves), *Mesocricetus auratus*, *Mus musculus* (Rodentia) (with R. E. PAGANO)
- HUBBERT, W. T.; D.V.M., Prof. – Dept. of Epidemiol. and Comm. Health, Sch. of Vet. Med., Louisiana State Univ., BATON ROUGE, La. 70803, U.S.A.
- a Vertical transmission of infection and its effect on the fetus and neonate. *Bos taurus* (Artiodactyla)
- HUBSCHMAN, J. H.; Ph.D., Prof. – Dept. of Biol. Sci., Coll. of Sci. and Engin., Wright State Univ., Col. Glenn Highway, DAYTON, Ohio 45431, U.S.A.
- a Endocrine control of growth and development (metamorphosis) in larvae. *Palaemonetes spp.* (Decapoda, Crustacea)
- HUCKINS, Miss C.; Ph.D. – Dept. of Anat., Tufts Univ., BOSTON, MA, U.S.A.
- HUGHES, A. F. W.; Ph.D., Prof. – Dept. of Anat., Developm. Biol. Center, Case Western Reserve Univ., 2119 Abington Rd., CLEVELAND Ohio 44106, U.S.A.
- a Experimental teratology of neural tube and axis in relation to sodium and potassium content of early embryo. *Gallus bankiva* (Aves), *Mus rattus* (Rodentia), *Homo sapiens* (Primates)
- HUMMEL, Miss K. P.; Ph.D. (Emer.) – The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A.
- a Developmental anatomy and genetics. *Mus musculus* (Rodentia)
- HUMPHREY, R. R.; Ph.D., Prof. (Emer.) – Dept. of Zool., Indiana Univ., BLOOMINGTON, IN 47401, U.S.A. ISDB
- HUMPHREYS, T. D.; Ph.D., Assoc. Prof. – Kewalo Lab., Pacif. Biomed. Res. Ctr., Univ. of Hawaii, 41 Ahui St., HONOLULU, Hawaii 96813, U.S.A. ISDB
- a RNA and protein synthesis in embryos. *Colobocentrotus atratus*, *Lytechinus pictus* (Echinoidea)
- b Characterization of aggregation factor. *Microciona prolifera*, *Terpioz zeteki*, *Haliclona oculata* (Porifera)
- c Relationship of cell contacts to growth control, as expressed in nucleic acid synthesis regulation, in embryonic skin fibroblasts. *Gallus domesticus* (Aves)
- HUMPHREYS, W. J.; Ph.D., Prof. – Dept. of Zool., Univ. of Georgia, Barrow Hall, ATHENS, Ga. 30602, U.S.A.
- a Ultrastructure of blastomeres in mosaic eggs. *Mytilus edulis* (Lamellibranchia)
- b Desiccated cytoplasm of viable, encysted embryos, studied by transmission EM, freeze-fracturing, and scanning EM. *Artemia salina* (Anostraca, Crustacea)
- c Macromolecular structures in extracellular coats of unfertilized and fertilized eggs, compared by freeze-etching. *Strongylocentrotus purpuratus* (Echinoidea)
- HUMPHRIES, A. A., Jr.; Ph.D., Prof. – Dept. of Biol., Emory Univ., ATLANTA, Ga. 30322, U.S.A.
- a Oogenesis and maturation. (Amphibia)
- b Chemistry and physiology of egg jelly. (Amphibia)
- c Ultrastructure of oocytes. (Amphibia)
- d Fertilization (Amphibia)
- HUNT, Miss D. M.; B.A. – Worcester Found. for Exp. Biol., 222 Maple Ave., SHREWSBURY, MA 01545, U.S.A.
- HUNT, E. L.; Ph.D., D.Sc., Prof. – Dept. of Biol., Emory Univ., ATLANTA, Ga. 30322, U.S.A.
- a Estrus cycle and gestation in alloxan-diabetic animals. *Rattus norvegicus* (Rodentia)

- b Developmental pathology of the endocrine pancreas. *Gallus domesticus* (Aves)  
 HUSKEY, R. J.; Ph.D. - Dept. of Biol., Univ. of Virginia, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Developmental genetics of early embryogenesis. *Volvox carteri* (Chlorophyta)
- b Regulation of differentiation. Same species as a  
 HUTCHISON, C. F.; B.S. - Dept. of Reprod. Biol., Merck Inst. for Therap. Res., RAHWAY, N.J. 07065, U.S.A.
- a Studies on fertilization. (Mammalia)
- HYODO (TAGUCHI), Mrs. Y.; Ph.D. - Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan
- a Change in radiosensitivity of germ cells during embryonic development. *Oryzias latipes* (Teleostei)
- b Embryology of reproductive organs. Same species as a  
 IDE, C.; M.D. - Dept. of Anat., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a The effect of innervation during the development of the skin. *Gallus spec.* (Aves)
- b The trophic functions of the nerve fibre during development. Same species as a  
 IFFT, J. D.; Ph.D., Assoc. Prof. - Dept. of Anat., Boston Univ., 80 E. Concord St., BOSTON, Mass. 02118, U.S.A.
- a Autoradiographic studies of hypothalamus development. *Rattus domesticus* (Rodentia)
- ii, I.; M.Sc. - Dept. of Biophys. and Biochem., Univ. of Tokyo, 7-3-1, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Glutathione reductase in early development. *Hemicentrotus pulcherrimus*, *Anthocidaris crassispina*, *Pseudocentrotus depressus* (Echinoidea)
- IKEDA, Miss M.; Ph.D. - Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- IKENISHI, K.; B.Sc. - Lab. of Biol., Gifu Coll. of Dent., 1851 Takano, Hozumi-cho, Motosu-gun, GIFU-ken, Japan
- a Electron microscopy of the germinal plasm. *Xenopus laevis* (Anura)
- IKUSHIMA, N.; D.Sc. - Biol. Lab., Kansai Med. Sch., HIRAKATA, Osaka Pref., Japan
- ILAN, J.; Ph.D., Assoc. Prof. - Dept. of Anat., Sch. of Med., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Studies on the regulation of protein synthesis and the control of mRNA translation during development and morphogenesis. (with Judith ILAN)
- ILAN, Mrs. Judith; Ph.D. - Dept. of Anat., Sch. of Med., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Studies on the regulation of protein synthesis and the control of mRNA translation during development and morphogenesis (with J. ILAN)
- IMAHORI, K.; D.Sc., Prof. - Dept. of Biol., Coll. of Gen. Educ., Osaka Univ., Toyonaka, OSAKA, 560 Japan
- a Morphogenesis, especially of sporelings. (Characeae)
- b Origin and cytogenesis of prokaryotic and eukaryotic cells. *Chara spec.*, *Nitella spec.*, *Bryopsis spec.* (Algae)
- IMBERSKI, R. B.; Ph.D., Assoc. Prof. - Dept. of Zool., Div. of Life Sci., Univ. of Maryland, COLLEGE PARK, Md. 20742, U.S.A.
- a Developmental genetics of enzymes and isozymes. *Drosophila spp.* (Diptera), *Ephestia kühniella* (Lepidoptera)
- b Control of growth and differentiation of imaginal disc cells. Same species as a
- c Changes in chromosomal proteins during development. Same species as a
- INFANTE, A. A.; Ph.D. - Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457, U.S.A.
- a Control of protein and nucleic acid synthesis during embryonic development (density gradient centrifugation, in vivo and in vitro protein synthesis, electrophoretic separations). *Strongylocentrotus purpuratus*, *Lytechinus pictus* (Echinoidea)
- b Role of a DNA-nuclear membrane complex in DNA-synthesis (enzymology, gradient centrifugation, light and EM autoradiography, cell synchrony). *Strongylocentrotus purpuratus* (Echinoidea) and several cell lines (Mammalia)
- INGRAM, V. M.; Ph.D., D.Sc., Prof. - Dept. of Biol., Massachusetts Inst. of Technol., 77 Massachusetts Ave., CAMBRIDGE, MA 02139, U.S.A.
- INOUE, S.; Ph.D. - Lab. de Biol. Moléc., Dépt. De Biol., Univ. de Montréal, C.P. 6128, MONTREAL 3, Que., Canada
- INOUE, T.; M.Sc. - Dept. of Vet. Obstet., Fac. of Vet. Med., Hokkaido Univ., N 18, W 9, SAPPORO, 060 Japan
- a Kinetics of spermatogenesis, especially with regard to the role of Sertoli cells. *Mustela vison* (Carnivora)
- INOUE, Mrs. Y. - Biol. Lab., Doshisha Univ., Karasumaru Imadegawa, Kamikyo-ku, KYOTO, Japan
- a Culture of embryonic heart cells. *Cynops pyrrhogaster* (Urodela)
- INOUE, M.; B.Sc. - Dept. of Embryol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Fetal brain lesions caused by maternal administration of monosodium glutamate and allied chemical substances. *Mus musculus* (Rodentia) (with U. MURAKAMI)
- IRIE, R.; B.S. - Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Biochemical mechanism of spore germination. *Bacillus subtilis*, *B. cereus* (Bacteria)
- ISHIDA, J.; D.Sc., Prof. - Dept. of Biochem., Fac. of Sci. and Engin., Saitama Univ., Shimo-Okubo 255, URAWA, Japan
- ISHIKAWA, M.; D.Sc. - Marine Biol. Stat., Nagoya Univ., Sugashima, TOBA, Mie-ken, 517 Japan

ISDB  
 ISDB

- a Physiology of fertilization and artificial parthenogenesis. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depressus* (Echinoidea)
- b Metamorphosis. *Halocynthia roretzi*, *Chelyosoma siboya*, *Ciona intestinalis* (Tunicata)  
 ISHIKAWA, T.; D.V.M., Prof. – Dept. of Vet. Obstet., Fac. of Vet. Med., Hokkaido Univ., N 18, W 9, SAPPORO, 060 Japan
- a Cytogenetics of congenital anomalies. *Bos taurus* (Artiodactyla)  
 ISHIZAKI, H.; D.Sc. – Dept. of Biol., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan
- ISONO, N.; Ph.D. – Embryol. Sect., Biol. Dept., Tokyo Metropolitan Univ., 2-1-1 chome, Fuka-zawa-machi, Setagaya-ku, TOKYO, 158 Japan
- a Effects of surface active agents on fertilization and embryonic development. *Hemicentrotus pulcherrimus*, *Anthocardia crassispina*, *Pseudocentrotus depressus* (Echinoidea), *Mytilus edulis* (Lamellibranchia)  
 ITO, R.; M.Sc. – Dept. of Anat., Fac. of Med., Tokyo Med. and Dental Univ., 1-5-45, Yushima, Bunkyo-ku, TOKYO, 113 Japan
- a Resorption of collagen fibres in the metamorphosing tadpole tail. *Rana catesbeiana*, *R. japonica*, *Bufo vulgaris* (Anura)
- b Histochemistry of glycosaminoglycans in the limb bud. *Xenopus laevis* (Anura)  
 IUCIF, S.; Ph.D. – Dept. de Morfol. Hum. Func. e Aplic., Univ. de São Paulo, C.P. 301, RIBEIRÃO PRÉTO, S.P., Brazil
- a Allometric study of the mandible during postnatal life under cortisone treatment. *Rattus rattus* (Rodentia)
- b The effects of castration on the growth of the eyes. Same species as  
 IVERSON, R. M.; Ph.D., Prof. – Dept. of Biol., Univ. of Miami, CORAL GABLES, FL 33124, U.S.A.
- IWAMATSU, T.; Ph.D. – Dept. of Biol., Aichi Univ. of Educ., Igaya-cho, KARIYA, Aichi Pref., 448 Japan
- a The acquisition of developmental capacity by the oocyte during maturation in vitro. *Oryzias latipes* (Teleostei)
- b Differentiation of primordial germ cells implanted into the eye cavity of castrated adults. Same species as a
- IWASA, K.; D.Sc. – Dept. of Biol., Coll. of Gen. Educ., Osaka Univ., Toyonaka, OSAKA, 560 Japan
- a Comparative morphology and biochemistry of cell wall and jelly coat. *Chlamydomonas reinhardi*, *Penium margaritaceum*, *Volvox aureus*, *Ankistrodesmus bibraianus* (Chlorophyceae), *Phaeodactylum tricornerutum* (Diatomeae)
- b Physiology and biochemistry of development and differentiation of unicellular and coenobial forms. *Chlamydomonas reinhardi*, *Volvox aureus* (Chlorophyceae), *Phaeodactylum tricornerutum* (Diatomeae)  
 IWASAKI, T.; Ph.D. – Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan
- a Effects of ionizing radiations on oogenesis and embryonic development (cytology). *Artemia salina* (Anostraca, Crustacea)
- b Cytological studies on the radiosensitivity of spermatogenesis. *Bombyx mori* (Lepidoptera)
- IWASAWA, H.; D.Sc. – Biol. Inst., Fac. of Sci., Niigata Univ., NIIGATA, 950-21 Japan
- a Embryological study on endocrine correlation. (Amphibia)
- b Comparative embryology of reproductive organs. (Anura)
- c Mechanism of sex differentiation (electron microscopy, organ culture), *Rana* spp., *Xenopus laevis* (Anura)
- IWATA, F.; D.Sc., Prof. – Zool. Inst., Fac. of Sci., Hokkaido Univ., 10, 8, SAPPORO, 060 Japan
- a Comparative embryology, especially taxonomic interrelationships. (Nemertea)
- b Development and regeneration. *Lineus vegitus* (Nemertea)
- c Comparative embryology. *Notoplana humilis* (Polycladida, Turbellaria), *Pugettia quadridens* (Brachyura, Decapoda), *Dendrodoris rubra* (Opisthobranchia, Gastropoda)
- IYER, R. D.; M.Sc. – Div. of Genet., Indian Agric. Res. Inst., NEW DELHI-110012, India
- a Anther culture for haploid production. Crop plants
- b Endosperm culture for triploid production. Same species as a
- c Protoplast culture from pollen tetrads. Same species as a
- d Embryological study of apomixis: its nature, origin and genetic basis. *Sorghum vulgare* (Gramineae), *Areca catechu* (Palmaeae)
- IZAWA, K.; B. Fish. – Fac. of Fish., Mie Univ., Edobashi, TSU, Mie, 514 Japan
- a Postembryonic development: nauplius, copepodid and chalmis stages. Cyclopoida; Caligoida; Lerneopodoida (Copepoda)
- IZZARD, C. S.; Ph.D. – Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, N.Y. 12222, U.S.A.
- a Asexual reproduction, especially morphogenesis and ultrastructure. *Botryllus schlosseri* (Ascidiacea)
- b Origin of germ cells, especially in asexual reproduction. Same species as a
- c Motility in fibroblast-like cells and its role in morphogenesis (critical optical techniques). *Xenopus laevis* (Anura), *Gallus domesticus* (Aves)
- JACOBS, R. M.; Ph.D., Prof. – Dept. of Oral Biol., Coll. of Dent., Univ. of Iowa, IOWA-City, IA 52240, U.S.A.
- JACOBS, W. P.; Ph.D., Prof. – Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A.
- JACOBSON, A. G.; Ph.D., Prof. – Dept. of Zool., Univ. of Texas, AUSTIN, Tex. 78712, U.S.A. ISDB
- a Experimental analysis and computer simulation of the shaping of the neural plate. *Taricha torosa* (Urodela)
- b Ultrastructural and experimental analysis of early development. *Drosophila montana* (Diptera)

- c Experimental analysis of the development of the hypothalamus-adenohypophysis complex and its role in reproduction. *Gallus domesticus* (Aves), *Taricha torosa*, *Ambystoma mexicanum* (Urodela)
- d Somite, notochord, and neural plate determination and morphogenesis; ultrastructural, cinematographic and experimental analysis. Same species as c
- c Analysis of form changes in coherent sheets of cells mediated by programmed cell-shape changes (eye, early embryonic germ layers, extra-embryonic membranes). Same species as c
- JACOBSON, M.; Ph.D., Prof. – Dept. of Physiol. and Biophys., Univ. of Miami Sch. of Med., P.O. Box 520875, MIAMI, Fla. 33152, U.S.A.
- a Formation of connections between eye and brain. (Amphibia; Teleostei; Mammalia)
- b Regeneration of optic nerve. (Anura; Teleostei)
- c Effects of prolactin and somatotrophin on brain cell DNA, RNA and protein synthesis. (Vertebrata)
- JAFFE, L. F.; Ph.D., Prof. – Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a Transcellular developmental currents and ion fluxes through developing cells (vibrating probe detecting nanovolt differences). *Fucus furcatus*, *Pelvetia fastigiata* (Phaeophyta), *Lilium spec.* (Liliaceae)
- b Ionic gradients during development (autoradiography, electron microprobe). Same species as a
- JANSSENS, P. A.; Ph.D. – Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, A.C.T. 2600, Australia
- a Development of enzyme systems, specially those concerned in nitrogen metabolism. *Xenopus laevis* (Anura)
- b Development of metabolic pathways, particularly gluconeogenesis. *Macropus eugenii* (Marsupialia)
- JAWORSKI, A.; Ph.D. – Dept. of Bot., Univ. of Georgia, ATHENS, Ga. 30601, U.S.A.
- a Molecular aspects of differentiation. *Blastocladiella spec.* (Phycomycetes)
- JAYSHREE MENON, Mrs.; M.Sc. – Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Endocrinology and tail regeneration. *Hemidactylus flaviviridis* (Lacertilia)
- JENSH, R. P.; Ph.D. – Dept. of Anat., Jefferson Med. Coll., 1025 Walnut St., PHILADELPHIA, Pa. 19107, U.S.A.
- a Teratogenic and growth-retarding effects of antisera, including abnormal development of yolk sac placenta. *Rattus rattus* (Rodentia)
- b Effects of microwave irradiation on prenatal and postnatal development. Same species as a
- JIT, I.; Ph.D., Prof. – Dept. of Anat., Postgrad. Inst. of Med. Educ. and Res., CHANDIGARH-12, India
- a Ages of ossification of various bones in children and adults. *Homo sapiens* (Primates)
- b Development of the muscularis submucosae ani. Same species as a
- JOHNSON, E. M.; Ph.D., Prof. – Dept. of Anat., Jefferson Med. Coll., 1020 Locust St., Rm 520, PHILADELPHIA, Pa. 19107, U.S.A.
- a Inductive-responding systems in vivo and in vitro; effect of teratogens on induction and differentiation. *Gallus spec.* (Aves), *Rattus spec.* (Rodentia)
- b Analysis of amniotic cells to predict non-genetic malformations. *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- JOHNSON, E. E.; Ph.D. – Dept. of Anat., Duke Univ., Box 3011, DURHAM, N.C. 27710, U.S.A.
- a Changes in cell contact behavior and cell surface properties during gastrulation. *Rana pipiens*, *Rana pipiens* x *R. catesbeiana* and other hybrids. (Anura)
- b Timing of gene expression in early development (starch gel electrophoresis, enzyme polymorphisms, enzyme histochemistry). *Xenopus laevis*, *Rana pipiens* x *R. sylvatica*, *R. pipiens* x *R. palustris* (Anura)
- JOHNSTON, M. C.; Ph.D. – Natl. Inst. of Dent. Res., N.I.H., BETHESDA, MD 20014, U.S.A.
- JOLLIE, M. T.; Ph.D., Prof. – Dept. of Biol. Sci., Northern Illinois Univ., DeKALB, Ill. 60115, U.S.A.
- a Development of the bony systems of the head. *Amia spec.*, *Lepisosteus spec.* (Holostei), *Acipenser spec.* (Chondrostei), *Squalus spec.* (Elasmobranchi) and other Vertebrata
- JONEJA, M. G.; Ph.D., Assoc. Prof. – Dept. of Anat., Queen's Univ., KINGSTON, Ont., Canada
- JONES, Miss A. H.; M.S. – Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B.C. V6T 1W5, Canada
- a Characterization of nuclear acidic proteins in early stages through neurulation (two-dimensional gel electrophoresis). *Xenopus laevis* (Anura) (with H. E. KASINSKY)
- JONES, R. F.; Ph.D. – Dept. of Biol. Sci., State Univ. of New York at Stony Brook, STONY BROOK, N.Y. 11790, U.S.A.
- a Physiology and biochemistry of development and differentiation during vegetative growth, asexual reproduction and gametogenesis. *Chlamydomonas reinhardtii* (Volvocales, Chlorophyceae)
- b Control of vegetative and reproductive development. *Marchantia polymorpha* (Hepaticae)
- JONES, W. R.; M.D., Ph.D., Prof. – Dept. of Obstet. and Gynecol., Center for Res. in Reprod. Biol., Univ. of Michigan Med. Center, ANN ARBOR, Mich. 48104, U.S.A.
- a Protein antigens from the placenta. *Homo sapiens* (Primates)
- b Testing for identity of placental antigens between species. (Primates)
- JORQUERA, B.; M.V., Prof. – Inst. de Embriol., Univ. Austral de Chile, Casilla no. 567, VALDIVIA, Chile
- a Normal development, and ultrastructural relationship between the pharyngeal pouch of the adult male and the integument of the tadpole. *Rhinoderma darwini* (Anura)

- b Limb development upon heterotypic recombination in the embryo (microsurgery and culture techniques). *Gallus domesticus* (Aves)
- JOSHI, P. V.; Ph.D. – Cell Res. Lab., Dept. of Zool., N. Wadia Coll., POONA-1, India
- JUDY, K. J.; Ph.D. – Zeecon Corp., 975 California Ave., PALO ALTO, Calif. 94304, U.S.A.
- a Endocrine regulation of metamorphosis and postembryonic development (tissue- and cell-level differentiation in the digestive system). (Lepidoptera; Orthoptera; Coleoptera; Hemiptera)
- KALTENBACH, Mrs. J. COUFFER; Ph.D., Prof. – Dept. of Biol. Sci., Clapp Lab., Mount Holyoke Coll., SOUTH HADLEY, Mass. 01075, U.S.A.
- a Local action of thyroxine on metamorphosis: histology and histochemistry. *Rana pipiens* (Anura)
- b Histochemistry of lysosomal enzymes in the metamorphosing tail and digestive tract. Same species as a
- KALTER, H.; Ph.D., Assoc. Prof. – Children's Hosp. Res. Found., Div. of Teratol., Elland & Bethesda Aves., CINCINNATI, OH 45229, U.S.A.
- KAMAR, G. A. R.; Ph.D., Prof. – Dept. of Anim. Prod., Fac. of Agric., Cairo Univ., GIZA, Egypt
- a Factors influencing reproduction and production as far as the endocrines and gonads are concerned. (Aves)
- b Growth and factors affecting especially the endocrines. (Aves)
- c Factors influencing production and reproduction as far as the environmental conditions are concerned. (Aves)
- KAMBYSELLIS, M. P.; Ph.D., Assoc. Prof. – Dept. of Biol., New York Univ., Washington Square, NEW YORK, NY 10003, U.S.A.
- a Hormonal regulation of spermatogenesis at the molecular level: effects of ecdysone, juvenile hormone and proteinaceous molecules on spermatocysts in vitro. *Samia cynthia*, *Hyalophora cecropia*, *Manduca sexta* (Lepidoptera)
- b Effects of ecdysone on embryonic cells in culture. *Drosophila melanogaster*, *Aedes taeniorhynchus* (Diptera)
- c Vitellogenesis: purification, synthesis, release and uptake; hormonal regulation. *Drosophila melanogaster* (Diptera)
- d Genetic control of vitellogenesis. Same species as c
- KAMEYAMA, Y.; M.D., D.Med.Sc., Prof. – Dept. of Developm. Pathol., Res. Inst. of Environm. Med., Nagoya Univ., Furo-cho, Chikusa-ku, NAGOYA, 464 Japan
- a Mechanism responsible for malformations of the extremities in the embryo. *Mus musculus*, *Rattus norvegicus* (Rodentia)
- b Morphogenesis of genetic microphthalmia. *Mus musculus* (Rodentia) (with K. HOSHINO)
- c Effects of low-dose x-irradiation upon the developing brain. Same species as b (with K. HOSHINO and Y. HAYASHI)
- d Influences of intrauterine environment on the manifestation of genetic malformations. Same species as b (with K. HOSHINO)
- KANATANI, H.; D.Sc., Assoc. Prof. – Lab. of Physiol., Ocean Res. Inst., Univ. of Tokyo, Minamidai, Nakano-ku, Tokyo 164, Japan ISDB
- a Mechanism of spawning. *Asterias amurensis*, *Asterina pectinifera* (Asteroidea)
- b Mode of action of l-methyladenine on oocyte maturation. (Asteroidea)
- c Mechanism of oocyte maturation. Same species as a
- KANE, R. E.; Ph.D., Prof. – Kewalo Lab., Pacif. Biomed. Res. Ctr., Univ. of Hawaii, 41 Ahui St., HONOLULU, Hawaii 96813, U.S.A. ISDB
- a Role of cortical granules in formation of hyaline and fertilization membrane. (Echinodermata)
- b Mechanism of cell division, studied by means of the isolated mitotic apparatus. (Echinodermata)
- KANKEL, D. R.; Ph.D. – Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Clonal analysis and general embryology of the nervous system; use of genetic mosaics in an analysis of neural wiring specificity. *Drosophila melanogaster* (Diptera)
- KANKI, T. – Embryol. Sect., Dept. of Biol., Tokyo Metropolitan Univ., 2-1-1 Chome, Fukazawamachi, Setagaya-ku, Tokyo, 158 Japan
- a RNA synthesis during early cleavage. *Hemicentrotus pulcherrimus* (Echinoidea)
- b RNA and protein synthesis during development of isolated micromeres. Same species as a
- KANO, Y.; D.Sc., Prof. – Akkeshi Marine Biol. Stat., Hokkaido Univ., AKKESHI, Hokkaido, Japan ISDB
- KAPLAN, N. O.; Ph.D., Prof. – Dept. of Biol., Univ. of Calif., San Diego, P.O. Box 109, La JOLLA, CA 92037, U.S.A.
- KAPLAN, S.; Ph.D., Assoc. Prof. – Dept. of Anat., Med. Coll. of Wisconsin, 561 N. 15th St., MILWAUKEE, Wis. 53233, U.S.A.
- a Investigations into the mechanisms underlying congenital malformations; bio-energetics of development and the influence of teratogens thereon. *Gallus domesticus* (Aves)
- KAPUR, S. P.; Ph.D. – Dept. of Anat., Georgetown Univ., 3900 Reservoir Rd., WASHINGTON, DC 20007, U.S.A.
- a Developmental anatomy of nasal tract, nasopharynx and oropharynx, with special reference to nerve pathways and sensory receptors. *Rattus spec.* (Rodentia)
- KARASAKI, S.; Ph.D., Assoc. Prof. – Res. Labs., Montreal Canc. Inst., Notre-Dame Hosp., 1560 Sherbrooke E., MONTREAL 133, Que., Canada ISDB
- a Ultrastructural aspects of cytodifferentiation in neoplastic development. *Rattus rattus* (Rodentia)
- b Analysis of the physico-chemical properties of DNA in differentiating cells. *Triturus viridescens* (Urodela), *Gallus domesticus* (Aves). *Mus musculus*, *Rattus rattus* (Rodentia), *Homo sapiens* (Primates) (with S. P. MODAK)
- c Modulation of growth and cytodifferentiation of cells of liver origin in vitro. Same species as a

- d Cell surface-to-nuclear communication in carcinogenic processes. Same species as a  
 KARLIN, Miss D.; B.Sc. - Dept. of Zool., Hebrew Univ., JERUSALEM, Israel
- KARP, G.; Ph.D. - Dept. of Zool., Univ. of Florida, GAINESVILLE, Fla. 32611, U.S.A.
- a Gene expression in early embryogenesis. (Echinoidea), *Oryctolagus cuniculus* (Lagomorpha)
- KASINSKY, H. E.; Ph.D. - Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B.C. V6T 1W5, Canada
- a Histone synthesis during cleavage. *Xenopus laevis* (Anura)
- b Histone transition in spermiogenesis. *Xenopus laevis* and other spp. (Anura)
- c Characterization of nuclear acidic proteins in early stages through neurulation (two-dimensional gel electrophoresis). Same species as a (with A. H. JONES)
- KASPI (VISHNIVETSKI), Mrs. Th.; M.Sc. - Dept. of Embryol. and Teratol., Ch. Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a Functional characteristics of placental syncytium. *Homo sapiens* (Primates) (with L. A. NEBEL)
- KATAGIRI, Ch.; D.Sc. - Zool. Inst., Fac. of Sci., Hokkaido Univ., N 10, W 8, SAPPORO, 060 Japan
- a Sperm-egg interactions in fertilization. *Rana spec.*, *Bufo spec.* (Anura)
- b Characterization and development of hatching enzyme. Same species as a
- c Ontogeny of immune system. *Rana spec.*, *Xenopus spec.* (Anura)
- KATAKURA, Y.; D.Sc. - Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- KATIRA, Mrs. V.; M.S. - Dept. of Anat., G.S.V.M. Med. Coll., KANPUR 208002, India
- a Histochemical and cytochemical study of the oviduct, cervix and vagina. *Rattus norvegicus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha) (with H. C. VARMA)
- KATO, K.-I.; Ph.D. - Dept. of Biol., Osaka Kyōiku Univ., Tennoji-ku, OSAKA, 543 Japan
- a Histochemical properties of developing embryos. *Triturus pyrrhogaster* (Urodela), *Xenopus laevis* (Anura)
- b Strobilation. *Aurelia aurita* (Scyphozoa)
- c Growth and medusa bud formation in a marine form. *Cladonema spec.* (Hydrozoa)
- KATO, M.; B.Sc. - Dept. of Anat., Tokyo Med. and Dental Univ., 1-5-45, Yushima, Bunkyo-ku, TOKYO, 113 Japan.
- a Experiments on lens regeneration. *Triturus pyrrhogaster*, *Hynobius tokyoensis* (Urodela)
- b Tissue culture studies on the development of the mammary gland. *Rattus norvegicus*, *Homo sapiens* (Mammalia)
- c The development and arrangement of collagen fibers. *Rana japonica*, *Bufo vulgaris* (Anura), *Hynobius tokyoensis*, *Triturus pyrrhogaster* (Urodela)
- d Hetero- and xenoplastic transplantation of tail. *Rana japonica*, *Bufo vulgaris*, *Rhacophorus schlegelii* (Anura)
- KATOH, A. K.; Ph.D. - Div. of Nucl. Pathol. and Oncol., Mercy Hosp., 1400 Locust St., PITTSBURGH, Pa. 15219, U.S.A.
- a Differentiation of the embryonic lens in vitro. *Gallus domesticus* (Aves)
- KATSURA, S.; M.D. - Inst. for Biol. and Exp. Med., Sch. of Med., Seto-cho, NARUTO (Tokushima), Japan
- a Changes in the cortical granules. *Hemicentrotus pulcherrimus* (Echinoidea)
- b Mechanisms of fertilization. Same species as a
- KAUFFMAN, Miss S.; M.D., Prof. - Dept. of Pathol., Downstate Med. Center, State Univ. of New York, 450 Clarkson Ave., NEW YORK, Brooklyn, N.Y. 11203, U.S.A.
- a The effects of urethane on embryogenesis of neural tube cells and lung cells. *Mus musculus* (Rodentia)
- b Lung development, and tumor induction in fetal lung.
- KAUFMAN, P. B.; Ph.D., Assoc. Prof. - Dept. of Bot., Univ. of Michigan, ANN ARBOR, MI 48104, U.S.A.
- KAUFMANN, B. P.; Ph.D., Prof. (Emer.) - Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Changing patterns of chromosome fine structure and function during development. *Drosophila melanogaster* and interspecific hybrids (Diptera)
- KAUSHAGEN, C. J.; - Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Mitochondrial nucleic acids. *Drosophila melanogaster* (Diptera)
- b Regulation of synthesis of nuclear and mitochondrial nucleic acids during early development. *Rana pipiens*, *Xenopus laevis* (Anura) (with I. B. DAWID)
- KAWAKAMI, I.; D.Sc., Prof. - Dept. of Biol., Fac. of Sci., Kyūshū Univ., Hakozaki-cho, FUKUOKA, 812 Japan ISDB
- a Inductive capacities of intercellular matrix of heterogeneous tissues. *Triturus pyrrhogaster* (Urodela)
- b Regional capacity of prechordal plate to induce cephalic sensory organs. Same species as a
- KAWAMURA, T.; D.Sc., Prof. - Lab. for Amph. Biol., Fac. of Sci., Hiroshima Univ., Higashisenda-cho, HIROSHIMA, Japan
- a Hybridization among European and Far Eastern forms. (Ranidae, Anura)
- b Morphological and sexual abnormalities in the offspring of animals derived from irradiated eggs or sperm. *Rana nigromaculata* (Anura)
- KECK, K.; Prof. - Inst. of Biol. Sci., Univ. of Arizona, TUCSON, AZ 85721, U.S.A. ISDB
- KEDES, L. H.; Dr. - Dept. of Med., Stanford Med. Sch., Vet. Adm. Hosp., 3801 Miranda Ave., PALO ALTO, Calif. 94304, U.S.A. ISDB
- a Characterization of histone messenger RNA and histone genes from embryos and sperm. *Lytechinus pictus*, *Strongylocentrotus purpuratus* (Echinoidea)



- KEEFE, J. R.; Ph.D. — Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTESVILLE, Va. 22901, U.S.A.
- a Cytochemistry, tissue culture, and ultrastructure of retinal development and regeneration. *Triturus* (*Notophthalmus*) *viridescens*, *T. cristatus* (*Urodela*), *Gallus domesticus* (*Aves*), (*Rodentia*)
  - b The cell cycle and its relation to pigment epithelial differentiation in the retinal regenerating system. Same species as a
  - c Contribution of neural crest cells to establishment of sensory axes in both visual and vestibular systems. Same species as a
  - d Cytochemistry, tissue culture, and ultrastructure of peripheral vestibular sensory development. Same species as a
- KEINO, H. — Dept. of Perinatol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Teratogenesis of exencephaly induced by cadmium. *Mus musculus* (*Rodentia*)
- KELLEY, R. O.; Ph.D. — Dept. of Anat., Univ. of New Mexico, 915 Stanford Dr. N. E., ALBUQUERQUE, N. Mex. 87131, U.S.A.
- a Electron microscopy of induction systems. *Xenopus laevis* (*Anura*)
  - b Electron microscopy of limb morphogenesis. (*Mammalia*)
  - c Growth and regulation of limb mesenchyme. *Homo sapiens* (*Primates*)
  - d Relationships of the cell surface with cell behavior in vitro. Same species as c
- KEMP, N. E.; Ph.D., Prof. — Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A. ISDB
- a Electron microscopy of metamorphic changes in the skeleton. *Rana pipiens* (*Anura*)
  - b Fine structure of fin rays in regenerating tailfins. *Tilapia mossambica*, *Carassius auratus* (*Teleostei*)
  - c Differentiation of enamel in teeth. *Carcharhinus menisorrhah* (*Elasmobranchi*)
  - d Polymerization of collagen fibrils in connective tissues. (*Elasmobranchi*; *Teleostei*; *Anura*; *Aves*; *Mammalia*)
- KEPHART, Miss J. E.; M.S. — Cell Res. Inst., Biol. Labs. 220, Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a Contributions of the Golgi apparatus to cell surfaces. (*Plantae*)
- KERNIS, M. M.; Ph.D. — Dept. of Anat., Coll. of Med., Univ. of Illinois, P.O. Box 6998 CHICAGO, Ill. 60680, U.S.A.
- a Morphological and physiological effects of teratogens with particular emphasis on the effects of these agents on placental function (in vitro and in vivo uptake of isotopes by embryos, autoradiography, electron microscopy, histochemistry, measurements of electrical potential differences). *Rattus norvegicus* (*Rodentia*)
  - b Chemical protection against drug-induced teratogenicity and its mechanism
- KERR, Miss M. S.; Ph.D. — Dept. of Biol., Syracuse Univ., 130 College Place, SYRACUSE, N.Y. 13210, U.S.A.
- a Biochemistry of lipovitellins in oocytes and hemolymph. *Callinectes sapidus* (*Decapoda*, *Crustacea*)
  - b Maturation of hemocytes and their biosynthetic capacities. (*Decapoda*, *Crustacea*)
  - c Hemocyanin synthesis and structure (characterization of complex hemocyanin proteins by isoelectric focusing. Same species as b)
- KERR, N. S.; Ph.D., Assoc. Prof. — Dept. of Zool., Coll. of Biol. Sci., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A.
- KERR, W. E.; Ph.D., Prof. — Dept. de Genet., Fac. de Med., Univ. de São Paulo, C.P. 301, 14100 RIBEIRÃO PRETO, S.P., Brazil
- a Genetics of sex determination. *Melipona quadrfasciata* and other spp. (*Apidae*, *Hymenoptera*)
  - b Genetics of caste determination. Same species as a
- KERSE (BÜYÜKÖZER), Mrs. I.; Dr., Prof. — Inst. of Histol. and Embryol., Hacettepe Univ., Med. Fac., ANKARA, Turkey
- a Ultrastructure of fetal membranes. *Homo sapiens* (*Primates*)
- KESSEL, R. G.; Ph.D., Prof. — Dept. of Zool., Coll. of Lib. Arts, Univ. of Iowa, IOWA-City, Iowa 52242, U.S.A.
- a Analysis of variations in cell structure and function, especially developmental phenomena (gametogenesis) (electron microscopy, cytochemistry, radioautography, biochemistry, hydrostatic pressure). Various organisms
  - b Scanning electron microscopy of early embryonic development. *Rana pipiens* (*Anura*)
- KETCHEL, M. M.; Ph.D., Prof. — Dept. of Physiol., Tufts Univ., 136 Harrison Ave., BOSTON, MA 02111, U.S.A.
- KEY, J. L.; Ph.D., Prof. — Dept. of Botany, Univ. of Georgia, ATHENS, Ga. 30601, U.S.A.
- a Molecular studies on auxin regulation of RNA synthesis. *Glycine max*, *Daucus carota*, *Zea mays*, *Hordeum vulgare*, *Pisum sativum* (*Angiospermae*)
- KEYNAN, A.; Dr. — Inst. of Life Sci., Hebrew Univ., JERUSALEM, Israel ISDB
- a Differentiation of spores into vegetative cells. *Bacillus cereus* (*Bacteria*)
- KHALIL, S. H.; Ph.D. — Dept. of Zool., Fac. of Sci., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt
- a Development of the urogenital system. *Bufo regularis* (*Anura*) (with M. I. MICHAEL and S. N. SEDRA)
  - b Development of olfactory organs. Same species as a
- KHAN, M. S.; M.Sc. — Dept. of Zool., Talim-Ui-Islam Coll., RABWAH, Distr. Jhangh, Pakistan
- KHAN, M. Z.; Ph.D. — Dept. of Zool., Univ. of Poona, Ganeshkind, POONA 411007, India

- a Effect of gamma rays and protein inhibitors on embryonic induction. *Gallus domesticus* (Aves)  
KHARE, M. K.; D.Phil. – Dept. of Zool., Fac. of Sci., Univ. of Gorakhpur, GORAKHPUR 273001, India
- a Neural induction: the mesencephalic differentiation tendencies of the neural ectoderm. *Gallus domesticus* (Aves)
- KIDDER, G. M.; Ph.D. – Dept. of Zool., Univ. of W. Ontario, LONDON, Ont. N6A 3K7, Canada
- a Pattern and significance of embryonic RNA synthesis; genomic activity in embryo studied by molecular hybridization. *Mulinia lateralis* (Mactridae, Lamellibranchia)
- b Development of the immune system (hemagglutinin tests). *Xenopus laevis* (Anura)
- c Genetic basis of enzyme regulation during development. *Drosophila melanogaster* (Diptera)
- KIDO, T.; D.Sc., Prof. – Biol. Inst., Kanazawa Med. Univ., UCHINADA-machi, Ishikawa-ken, Japan
- a Analysis of mechanism of pharynx-formation. *Dugesia japonica* (Turbellaria)
- b Reaggregation of dissociated cells. *Callyspongia elongata* (Porifera)
- c Cytological properties of neoblasts. Same species as a
- d Cytological properties of interstitial cells. *Hydra vulgaris* (Hydrozoa)
- KIEFER, B. I.; Ph.D., Assoc. Prof. – Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457, U.S.A.
- a Genetic control of differentiation and development of male germ cells (electron microscopy, electrophoresis, autoradiography, density gradient centrifugation). *Drosophila melanogaster* (Diptera)
- b Structure and function of the mitotic apparatus as compared to other motile systems (electron microscopy, density gradient centrifugation). *Strongylocentrotus purpuratus* (Echinoidea)
- c Regulation of ribosomal RNA and ribosomal protein synthesis during development (density gradient centrifugation, electrophoresis, autoradiography). Same species as a
- KILLE, J. W.; M.Sc. – The Worcester Found. for Exp. Biol., 222 Maple Ave., SHREWSBURY, MA 01545, U.S.A.
- KIMMEL, Mrs. C. A.; Ph.D. – Natl. Inst. of Environm. Health Sci., N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- a The teratology of heavy metals in combination with chelating agents. *Rattus spec.* (Rodentia)
- b Essential metal supplements with salicylate teratogenic effects. Same species as a
- c Environmental noise pollution and its effects on pregnancy. *Mus musculus* (Rodentia)
- KIMMEL, Ch.B.; Ph.D. – Dept. of Biol., Univ. of Oregon, EUGENE, Ore. 97403, U.S.A.
- a Gene regulation in immunoglobulin synthesizing cells: nucleic acid metabolism and somatic cell genetic analyses of cultured plasmacytomas (myelomas). *Mus musculus* (Rodentia)
- b Patterning and neurospecification in the early nervous system; development of Mauthner's cell and its synaptic connections. *Ambystoma mexicanum* (Urodela)
- KIMMEL, D. L.; Ph.D., Prof. (Emer.) – Dept. of Anat., Med. Ctr., West Virginia Univ., MORGANTOWN, W.Va. 26506, U.S.A.
- a Synaptogenesis of the Mauthner cell. *Ambystoma mexicanum* (Urodela)
- b Afferent systems in Australian forms. *Trichosurus spec.* (Marsupialia)
- c Golgi studies on the brain. *Ornithorhynchus spec.* (Monotremata)
- KIMMEL, D. L., Jr.; M.D., Ph.D. – Dept. of Biol., Davidson Coll., DAVIDSON, N.C. 28036, U.S.A.
- a Time and tissue specificity of tryptophan oxygenase and formylase appearance during larval development. *Drosophila melanogaster* (Diptera)
- b Factors regulating kynurenine deposition in larval fatbody granules. Same species as a
- c Development of neural centers regulating web building behavior. *Nephila clavipes* (Araneida)
- KIMURA, I.; M.Sc. – Dept. of Biophys. and Biochem., Univ. of Tokyo, 7-3-1 Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Nucleic acid metabolism during embryogenesis. *Hemicentrotus pulcherrimus*, *Anthocidaris crassispina*, *Pseudocentrotus depressus* (Echinoidea)
- KING, Mrs. D. WEI; Ph.D., Prof. – Dept. of Zool., Natl. Taiwan Univ., TAIPEI 107, Taiwan, Formosa
- a Congenital malformations due to maternal vitamin E deficiency: 1. morphology and histochemistry; 2. effects of hormones (progesteron, estrone), gamma-tocopherol, antioxidants, and different diets; 3. tissue tocopherol levels. *Rattus norvegicus* (Rodentia)
- b Teratogenic effects of mitomycin, antihistaminic drugs and monosodium glutamate. *Gallus domesticus* (Aves)
- c Effect of lead acetate and mercury on embryogenesis
- KING, R. C.; Ph.D., Prof. – Dept. of Biol. Sci., Northwestern Univ., EVANSTON, Ill. 60201, U.S.A  
ISDB
- a Formation and functioning of synaptonemal complex during meiotic prophase. *Bombyx mori* (Lepidoptera)
- b Genetic control of oogenesis. *Drosophila melanogaster* (Diptera)
- c Oogenesis. *Habrobracon juglandis* (Hymenoptera)
- KINOSHITA, S.; Ph.D., Assoc. Prof. – Zool. Inst., Univ. of Tokyo, Hongo 7-3-1, Bunkyo-ku, TOKYO, 113 Japan
- a Nucleo-cytoplasmic interactions and regulation of embryonic differentiation. *Clypeaster japonicus* (Echinoidea)
- b Mucopolysaccharide-protein complex in chromatin, with special reference to gene activation. *Rattus norvegicus* (Rodentia)
- KIRCHEN, R. V.; M.S. – Dept. of Developm. Biol., Carolina Biol. Supply Co., 2800 York Rd., BURLINGTON, N.C. 27215, U.S.A.
- a Mitotic activity in early development. *Oryzias latipes* (Teleostei)
- KIRK, D. L.; Ph.D., Assoc. Prof. – Dept. of Biol., Washington Univ., Skinner and Lindell Ave., ST. LOUIS, Mo. 63130, U.S.A.

- a Fine-structural and molecular analysis of determination in reproductive cells during response to the inducer of sexuality. *Volvox carteri*. *V. nagariensis* (Chlorophyceae)
- b Analysis of morphogenesis at the cellular and molecular level using morphogenetic mutants. Same species as a
- KISCHER, C. WARD; Ph.D., Assoc. Prof. – Dept. of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex. 77550, U.S.A.
- a Etiology and ultrastructure of the hypertrophic scar. *Homo sapiens* (Primates)
- b Biochemical ultrastructural studies on organogenesis
- c Ultrastructural and biochemical analyses of development of skin derivatives. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- d Effects of prostaglandins on developing skin and skin derivatives. Same species as c
- KISHIDA, Y.; D.Sc. – Biol. Inst., Fac. of Sci., Univ. of Kanazawa, Marunouchi-1, KANAZAWA, Japan
- a Depigmentation of eye after treatment with thiocarbamide and its derivatives. *Dugesia japonica* (Turbellaria)
- b Mechanisms of eye formation during regeneration. Same species as a
- c Reaggregation of dissociated cells. *Callyspongia elongata* (Porifera)
- d Ultrastructure of neoblast. Same species as a
- KLEIN, A. O.; Ph.D., Assoc. Prof. – Biol. Dept., Brandeis Univ., WALTHAM, MA 02154, U.S.A. ISDB
- KLEIN, N. W.; Ph.D., Assoc. Prof. – Dept. of Anim. Genet., Storrs Agric. Exper. Station, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A. ISDB
- a Protein metabolism and its relationship to growth and differentiation in the explanted embryo. *Gallus spec.* (Aves)
- b Mechanisms of teratogenic specificity in the explanted embryo. Same species as a
- c Growth regulation in the early embryo (culture of embryos on a growth limiting medium; synthesis and break-down of macromolecules in specific regions of the embryo). Same species as a
- KLEINFELD, Mrs. R. G.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of Hawaii, 1960 East-West Rd., HONOLULU, HI 96822, U.S.A.
- KLEINSMITH, L. J.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48110, U.S.A.
- a Role of nuclear proteins in the regulation of gene expression
- KLEISS, Miss Ch.; Lic. Biol. – Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela
- a Development of vascular patterns in the papillae of the tongue. *Homo sapiens* (Primates)
- KLEISS, E.; Dr.Med., Prof. – Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela  
personal address: Apartado 38, MERIDA, Venezuela
- a Teratogenesis of developmental failure (especially of the limbs) and excess (digits, twins, double monsters, etc.) in relation with teratological factors and the corresponding susceptibility. (Rodentia), *Homo sapiens* (Primates)
- b History of embryology and teratology
- c Embryological and teratological nomenclature. Domestic animals, *Homo sapiens* (Mammalia)
- d Classification of anomalies and malformations. Same species as c
- e Development of the vascular supply to the tonsils and salivary glands (injected specimens). *Homo sapiens* (Primates)
- f Histo- and toxoplasmosis as teratogenic factors. Same species as e (with L. DURAN de LOPEZ and members of the Dept. of Pathol.)
- KNOX, W. E.; M.D. – Dept. of Biol. Chem., Canc. Res. Inst., New England Deaconess Hosp., 185 Pilgrim Rd., BOSTON, Mass. 02215, U.S.A.
- a Identification of isoenzymic variants present in embryonic tissues. *Rattus spec.* (Rodentia)
- KOBAYASHI, H.; M.Sc. – Lab. of Biol., Gifu Coll. of Dent., 1851 Takano, Hozumi-cho, Motosu-gun, GIFU-ken, Japan
- a Immunological study of phosvitin. *Coturnix c. japonica* (Aves)
- KOBAYASHI, N.; Ph.D., Prof. – Biol. Lab., Doshisha Univ., Karasuma Imadegawa, Kamikyo-ku, KYOTO, Japan
- a Marine pollution bioassay using eggs. (Echinoidea)
- b Water pollution bioassay using eggs. *Radix spec.* (Gastropoda)
- KOBAYASHI, H.; Dr., Prof. – Biol. Lab., Japan Women's Univ., 2-8-1 Mejirodai, Bunkyo-ku, TOKYO, Japan
- KOCHAV, Sh. † M.Sc. – Dept. of Zool., Hebrew Univ., JERUSALEM, Israel
- KOCHERT, G.; Ph.D., Assoc. Prof. – Dept. of Bot., Univ. of Georgia, ATHENS, Ga. 30601, U.S.A.
- a Cell differentiation. *Volvox spec.* (Chlorophyceae)
- KOCHHAR, D. M.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTESVILLE, Va. 22901, U.S.A.
- a Teratogenesis of the craniofacial complex: role of neural crest (origin, migration, proliferation, and differentiation). *Mus musculus* (Rodentia)
- b Effect of vitamin A, nucleic acid antimetabolites, antiglutamines, and proline analogs on limb bud development in vivo and in vitro. Same species as a
- KOCK, J. M. de; M.Sc. – Zool. Inst., Fac. of Sci., Univ. of Stellenbosch, STELLENBOSCH, S. Africa
- KOEHLER, L. D.; Ph.D., Prof. – Dept. of Biol., Central Michigan Univ., Mt. PLEASANT, Mich. 48858, U.S.A. ISDB
- a Comparative study of ultrastructure of sperm and spermiogenesis. (Decapoda, Crustacea)

- b Ultrastructural aspects of spermatogenesis. *Esox vermiculatus* (Teleostei)  
 c Ultrastructure of spermiogenesis. (Aves)
- KOHL, D. M.; Ph.D. – Dept. of Biol. Sci., Univ. of Calif., SANTA BARBARA, CA 93106, U.S.A.
- KOJIMA, M. K.; D.Sc. – Marine Biol. Station, Nagoya Univ., Sugashima, TOBA, Mie-ken, 517 Japan  
 a Physiology of egg cleavage. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depressus* (Echinoidea)
- KOLLAR, E. J.; Ph.D. – Dept. of Oral Biol., Sch. of Dent. Med., Univ. of Connecticut Health Center, FARMINGTON, Conn. 06032, U.S.A. ISDB
- a Differentiation of skin derivatives (teeth, vibrissae, feathers); combinations of epithelium and mesoderm roles of these tissues, inductive sequence, temporal and spatial stability and plasticity of the integument during early stages. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b Suppression and stimulation of neural crest and integumental differentiation by beta-2-thienylalanine. Same species as a
- c Development of Meckel's cartilage. (Mammalia)
- d Long-term culture of dental papillae cells. (Mammalia)
- e Tissue-collagen interactions during epithelial differentiation (specificity of collagen as a mediator of developmental information). (Vertebrata)
- KOLLROS, J. J.; Ph.D., Prof. – Dept. of Zool., Univ. of Iowa, IOWA-CITY, Ia. 52242, U.S.A. ISDB
- a Influence of thyroid hormones upon limb regeneration in tadpoles. *Bufo americanus*, *Pseudacris nigrita*, *Rana pipiens*, *R. clamitans* (Anura)
- b Tissue responses and control of sequence in metamorphosis. *Rana pipiens*, *R. catesbeiana*, *Pseudacris nigrita*, *Ambystoma jeffersonianum* (Amphibia)
- c Development of spinal and cerebral centers. *Rana pipiens*, *R. catesbeiana*, *Pseudacris nigrita*, *Bufo americanus* (Anura)
- d Delineation of skin territories of different developmental capacities, especially as indicated by gland development. *Rana pipiens* and other spp. (Anura)
- e Beak development and loss in tadpoles. *Rana pipiens*, *R. clamitans*, *Pseudacris nigrita* (Anura)
- KONDO, K.; D.Sc. – Tokyo Metropolitan Inst. of Gerontol., 35-2 Sakaecho, Itabashi-ku, TOKYO, 173 Japan
- a Reaggregation of dissociated embryonic cells, especially the search for cell-reaggregating substances. (Echinoidea)
- b Adhesiveness of cells: 1. mechanism of adhesion; 2. changes in adhesiveness accompanying development and their significance. (Echinoidea)
- KONG, Y.-Cheung; Dr.Sc. – Biol. Dept., The Chinese Univ. of Hong Kong, SHATIN, N.T., Hong Kong
- a Purification and chemical identification of basic proteins from oocytes. *Triturus sinensis* (Urodela)
- KONIGSBERG, I. R.; Ph.D., Prof. – Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A. ISDB
- a Regulation of cell proliferation and myogenesis in clonal and mass cell culture of embryonic skeletal myoblasts. *Gallus domesticus*, *Coturnix c. japonica* (Aves)
- b Mechanism of regeneration of mature muscle fibers. *Coturnix c. japonica* (Aves)
- KONISHI, T.; D.Sc. – Lab. of Developm. Biol., Dept. of Anim. Sci., Coll. of Agric., Washington State Univ., PULLMAN, WA 99163, U.S.A.
- KORNGUTH, S. E.; Ph.D., Prof. – Depts. of Neurol. and Physiol. Chem., Coll. of Med., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A.
- a Changes in histone distribution during development of the nervous system. *Bos taurus*, *Sus domesticus* (Artiodactyla), *Macaca mulatta* (Primates)
- b Proteins of the synaptic complex and development of synaptic contacts. Same species as a
- c Development of fetal cerebellum (electron microscopy, Golgi staining). *Macaca mulatta* (Primates)
- KOSHIDA, Y.; D.Sc., Prof. – Dept. of Biol., Coll. of Gen. Educ., Osaka Univ., Toyonaka, OSAKA, 560 Japan
- a Histochemistry of developing digestive organs. (Mollusca, Amphibia)
- b Development of cartilage. (Polychaeta, Gastropoda, Cephalopoda)
- KOSIN, I. L.; Ph.D., Prof. – Lab. of Developm. Biol., Dept. of Anim. Sci., Coll. of Agric., Washington State Univ., PULLMAN, WA 99163, U.S.A.
- a Embryonic mortality, especially in unincubated eggs under optimum conditions (ultrastructure). *Gallus domesticus* (Aves)
- KOSTELLOW, Miss A. B.; Ph.D. – Dept. of Physiol., A. Einstein Coll. of Med., Yeshiva Univ., 1300 Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A.
- KOTANI, M.; D.Sc. – Lab. of Embryol., Fac. of Sci., Osaka City Univ., 459 Sugimoto-cho, Sumiyoshi-ku, OSAKA, 558 Japan
- a Nature of germinal cytoplasm. *Xenopus laevis* (Anura)
- KOYAMA, T.; M.D., Ph.D., – Dept. of Anat., Tokyo Med. and Dent. Univ., 1-5-45, Yushima, Bunkyo-ku, TOKYO, 113 Japan
- a Tissue transplantation. *Rana japonica*, *Rhacophorus schlegelii*, *Xenopus laevis* (Anura)
- KRAMER, J. P.; Ph.D., Assoc. Prof. – Dept. of Entomol., Cornell Univ., 10 Comstock Hall, ITHACA, NY 14850, U.S.A.
- KREJSA, R. J.; Ph.D., Assoc. Prof. – Biol. Sci. Dept., Calif. Polytechnic State Univ., SAN LUIS OBISPO, Calif. 93401, U.S.A.
- a Role of the epidermis in scale and fin-ray development; light and electron microscopy of developing skin. *Poecilia reticulata*, *Oryzias latipes*, *Salvelinus fontinalis*, *Ictalurus punctatus* (Teleostei)
- b Comparative aspects of integument morphogenesis. (Vertebrata)
- c Shedding of skin and skin derivatives. *Congiopodus spec.* (Teleostei)

- KRETCHMER, N.; Ph.D., M.D., Prof. — Dept. of Pediat., Stanford Univ., 300 Pasteur Drive, STANFORD, Calif. 94305, U.S.A.
- a Developmental enzymology: 1. disaccharidases in developing intestine; 2. pyrimidine biosynthesis. *Mus musculus*, *Rattus norvegicus* (Rodentia), *Zalophus californianus* (Pinnipedia)
- KRIDER, H. M.; Ph.D. — Inst. of Cell. Biol., Univ. of Connecticut, U-125, STORRS, Conn. 06268, U.S.A.
- a Regulation of nucleolar transcription in salivary glands of third instar larvae. *Drosophila* spec. (Diptera)
- KRISHNAKUMARAN, A.; Ph.D., Prof. — Dept. of Biol., Marquette Univ., 530 N. 15th St., MILWAUKEE, Wis. 53233, U.S.A.
- a Nucleic acid metabolism during embryonic and postembryonic development (autoradiography and surgical techniques). *Acheta* spec. (Orthoptera), *Tenebrio* spec. (Coleoptera), *Galleria* spec. (Lepidoptera), *Drosophila* spec. (Diptera)
- KUBOTA, T.; D.Sc., Prof. — Biol. Inst., Lib. Arts Coll., Kagoshima Univ., Kamoike-cho, KAGOSHIMA, 890 Japan
- a Development of contractile force in egg cortex (role of Ca ion). *Cynops* (= *Triturus*) *pyrrhogaster* (Urodela)
- KULANGARA, A. C.; Ph.D., Prof. — Dept. of Anat., Med. Coll. of Pennsylvania, 3300 Henry Ave., PHILADELPHIA, Pa. 19129, U.S.A.
- a Passage of homologous and heterologous proteins from the mother into the early conceptus. *Oryctolagus* spp. (Lagomorpha)
- b Kinetics of the passage of bovine serum albumin from maternal blood into the unimplanted blastocyst. Same species as a
- c Passage of proteins into uterine fluid. Same species as a
- d Selection among proteins by the blastocyst. Same species as a
- KULKA, R. G.; Dr. — Dept. of Biol. Chem., Hebrew Univ., JERUSALEM, Israel ISDB
- a Regulation of specific gene expression during the differentiation of the exocrine pancreas: role of corticosteroid hormones in the regulation of digestive enzyme and zymogen synthesis. *Gallus* spec. (Aves)
- KURIHARA, M. — Inst. of Appl. Entomol., Fac. of Agric., Iwata Univ., Ueda 3-18-8, MORIOKA, 020 Japan
- a Histology and histochemistry of oogenesis. (Insecta)
- KURIYAMA, K.; M.D., Ph.D., Prof. — Dept. of Pharmacol., Kyoto Pref. Univ., Kawaramachi-Hirokoji, Kamikyo-ku, KYOTO, 602 Japan
- a Developmental changes of amino acid metabolism in brain. *Mus musculus*, *Rattus* spec. (Rodentia)
- b Effect of addictive drugs on the metabolism of developing brain. Same species as a
- c Developmental changes of cyclic AMP metabolism in brain. Same species as a
- KURIYAMA, Miss R.; M.Sc. — Dept. of Biophys. and Biochem., Univ. of Tokyo, 7-3-1, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Tubulin in the mitotic apparatus of embryonic cells. *Hemicentrotus pulcherrimus* (Echinoidea)
- KURODA, Y.; D.Sc. — Dept. of Morphol. Genet., Natl. Inst. of Genet., Yata 1-111, MISIMA, Sizuoka-ken, 411 Japan
- a Gene expression in imaginal disc cells in organ and cell culture. *Drosophila melanogaster* (Diptera)
- b Single cell cultivation of embryonic cells carrying some genetic markers. Same species as a
- c Studies on histoformative cell aggregation from dissociated embryonic cells. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- d Gene expression and mutagenesis in diploid embryonic cells in culture. *Homo sapiens* (Primates)
- KVIST, T. N.; M.Sc. — 2032 S. 57th St., PHILADELPHIA, PA 19143, U.S.A.
- LACALLI, Th.C.; Ph.D. — Dept. of Biol., McGill Univ., MONTREAL H3C 3G1, Que. Canada
- a Morphogenesis: theories concerning the development of non-random structural features on the cell walls of single cells. *Micrasterias* spp. (Desmidiaceae)
- b Morphogenesis and development of the larval nervous system. *Abarenicola pacifica*, *Harmothoe imbricata*, *Spirorbis borealis* (Polychaeta), *Boltenia ovifera* (Tunicata)
- LAI-FOOK, Miss J. E. I.; Ph.D. — Ramsay Wright Zool. Labs., Dept. of Zool., Univ. of Toronto, 25 Harbord St., TORONTO, Ont. M5S 1A1, Canada
- a Fine structure of haemocytes during the moult/intermoult cycle. *Galleria mellonella*, *Calpodethlius* (Lepidoptera)
- b Cytochemistry of dermal glands. *Calpodethlius* (Lepidoptera)
- c Fine structure and cytochemistry of developing oenocytes. *Rhodnius prolixus* (Hemiptera)
- d Characterization of moulting fluid, especially with regard to the proteins in the metamorphic moult. Same species as b
- LAIRD, C. D.; Ph.D. — Dept. of Zool., Univ. of Washington, SEATTLE, WA 98105, U.S.A.
- LAKSHMANAN, K. K.; Ph.D., Prof. — Dept. of Bot., Pachaiyappa's Coll., MADRAS-30, India
- a Descriptive and experimental embryology. *Martynia* spec., *Rhizophora* spec., *Sesamum* spec. (Angiospermae)
- b Irregular embryogenesis and its possible correlation with embryo differentiation in tissue culture. *Corydalis* spec. (Fumariaceae)
- LAKSHMANAN, S.; M.Sc. — Dept. of Anat., Jawaharlal Inst. of Postgrad. Med. Educ. and Res., PONDICHERRY-605006, India
- a Effect of vascular occlusion on seminiferous epithelium cycle in the testis. *Mus musculus* (Rodentia)
- b Morphometric study of components of maturing testis. Same species as a

- c A study of meiotic chromosomes in altered blood supply to testis. Same species as a  
 LALA, P. K.; M.D., Ph.D., Assoc. Prof. – Dept. of Anat., McGill Univ., P.O. Box 6070, MONTREAL, Que. H3C 3G1, Canada
- a Control mechanisms in hemopoietic stem cell differentiation (using chromosomal markers). *Mus musculus* (Rodentia)
- LAMPRECHT, De V. B.; M.Sc. – Dept. of Anat., Univ. of the Orange Free State, P.O. Box 339, BLOEMFONTEIN 9300, S. Africa
- a Experimental vertebral development. (Vertebrata)
- LANDESMAN, R.; Ph.D. – Dept. of Zool., Univ. of Vermont, BURLINGTON, Vt. 05401, U.S.A.
- a Role of ribosomal and nuclear proteins in differentiation. *Xenopus laevis* (Anura)
- b Relationship of carcinogenesis and embryogenesis. Same species as a
- LANDMESSER, Miss L. T.; Ph.D. – Dept. of Biol., Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a The effects of the periphery on synaptogenesis and differentiation in the ciliary ganglion. *Gallus gallus* (Aves)
- b Patterns of innervation of muscle in developing limb. Same species as a
- c Sequence of synaptogenesis in the developing spinal cord. Same species as a
- d Specificity of early reflexes assessed electrophysiologically. Same species as a
- LANG, A.; Ph.D., Prof. – MSU/AEC Plant Research Lab., Michigan State Univ., EAST LANSING, Mich. 48824, U.S.A. ISDB
- a Hormone physiology. (Plantae)
- b Physiology of flowering. *Hyoscyamus niger* (Solanaceae) and other spp.
- LANGMAN, J.; M.D., Ph.D., Prof. – Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTESVILLE, Va. 22901, U.S.A. ISDB
- a Brain development under normal and abnormal conditions. *Gallus domesticus* (Aves), (Rodentia)
- LARRIVÉE, D. H.; M.A. – Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B.C. V6T 1W5, Canada
- a Molecular and cellular aspects of arm formation in larvae. *Strongylocentrotus droebachiensis*, *Dendraster excentricus*, and hybrids (Echinoidea) (with C. V. FINNEGAN)
- b Shell formation in larvae: molecular and cellular comparative studies. *Ilyanassa obsoleta* (Gastropoda)
- LASEK, R. J.; Ph.D., Assoc. Prof. – Dept. of Anat., Sch. of Med., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Proteins associated with growth and development of the axon. *Rattus spec.* (Rodentia)
- LASH, J. W.; – Dept. of Anat., Sch. of Med., Univ. of Pennsylvania, PHILADELPHIA, PA 19104, U.S.A. ISDB
- LATSHAW, W. K.; Ph.D., Assoc. Prof. – Dept. of Vet. Anat., Western Coll. of Vet. Med., Univ. of Saskatchewan, SASKATOON, Sask. S7N 0W0, Canada
- a Closure mechanisms of optic fissure. *Gallus domesticus* (Aves), *Mus musculus*, *Mesocricetus auratus* (Rodentia)
- b Mucopolysaccharide histochemistry of developing eye. *Gallus domesticus* (Aves), *Canis familiaris* (Carnivora)
- LAUFER, H.; Ph.D., Prof. – Biol. Sci. Group, Sect. of Developm. Biol., Univ. of Connecticut, Life Sciences Bldg. U-42, STORRS, Conn. 06268, U.S.A. ISDB
- a Effects of hormones on gene action as revealed by puffing of polytenic chromosomes. *Chironomus spec.* (Diptera)
- b Regulation of metamorphosis by hormones. (Insecta)
- c Regulation of yolk proteins, enzymes, salivary gland secretion proteins, and hemoglobins during metamorphosis. (Crustacea; Insecta)
- d Hemoglobin synthesis (cytological hybridization). Same species as a
- LaVAILE, Mrs. J. H.; Ph.D. – Dept. of Neurosci., Children's Hosp. Med. Center, Harvard Med. Sch., 300 Longwood Ave., BOSTON, Mass. 02115, U.S.A.
- a The retrograde movement of proteins in neurons of the visual system. *Gallus domesticus* (Aves)
- b The effect of genetically determined pigmentation on the projections of retinal ganglion cells. *Mus musculus* (Rodentia)
- LAVALLE, D.; B.Sc. – Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 – 4<sup>o</sup> andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- LAVARACK, J. O.; Ph.D. – Sch. of Anat., Univ. of Melbourne, PARKVILLE 3052, Vict., Australia
- a Histochemistry of cell interactions in the development of primary tissues. *Gallus gallus* (Aves)
- b Locomotion of embryonic cells in culture. Same species as a
- LaVELLE, A.; Ph.D., Prof. – Dept. of Anat., Univ. of Illinois, P.O. Box 6998, CHICAGO, Ill. 60680, U.S.A.
- a Developmental cytology of the neuron, normally and after experimental alterations (axotomy, drug treatment, antibrain serum); changes in the nucleolar apparatus and in Nissl substance. *Mesocricetus auratus* (Rodentia)
- b Proteins and antigenic changes in brain and nuclear areas of brain (gel-diffusion and micro-gel-diffusion). Same species as a
- LAWRENCE, I. E., Jr.; Ph.D., Assoc. Prof. – Dept. of Anat., East Carolina Univ., Box 2701, GREENVILLE, NC 27834, U.S.A.
- LAYTON, W. M.; M.D., Assoc. Prof. – Dept. of Anat., Dartmouth Med. Sch., HANOVER, N.H. 03755, U.S.A.
- a Teratogenic mechanisms of carbonic anhydrase inhibitors. *Mus musculus*, *Rattus norvegicus*, *Mesocricetus auratus* (Rodentia)
- b Asymmetry of developmental patterns. *Mus musculus* (Rodentia)

- LEACH, C. M.; Ph.D., Prof. – Dept. of Bot. and Plant Pathol., Oregon State Univ., CORVALLIS, Ore. 97331, U.S.A.
- a Light induction of reproduction in phytopathogenic species. (Fungi)
  - b Nature of sporogenic substances (P310) associated with spore formation. (Fungi)
  - c Interaction of light and temperature on the induction of reproduction. (Fungi)
- LEBLOND, C. P.; M.D., Ph.D., Prof. – Dept. of Anat., Med. Sch., McGill Univ., P.O. Box 6070, MONTREAL, Que. H3C 3G1, Canada
- a The development of bones and teeth as shown on radioautographs with the help of various labeled substances. (Vertebrata)
- LEE, H. H.; Ph.D., Assoc. Prof. – Biol. Dept., Univ. of Toledo, W. Bancroft St., TOLEDO, Ohio 43606, U.S.A.
- a Characterization of cell surface substances responsible for morphogenesis (testicular cells in vitro). *Gallus domesticus* (Aves)
- LEE, K. H.; M.D. – Dept. of Obstet. and Gynecol., Queen Mary Hosp., Univ. of Hong Kong, Hospital Rd., HONG KONG
- a Continuous fetal heart rate patterns. *Homo sapiens* (Primates)
  - b Fetal acid-base studies. Same species as a
  - c Fetal electrocardiogram configurations. Same species as a
- LEESON, C. R.; M.D., Prof. – Dept. of Anat., Coll. of Med., Univ. of Missouri, COLUMBIA, Mo. 65201, U.S.A.
- a Postnatal development of the liver, with reference to hepatocyte morphology and hematopoietic activity. *Oryctolagus cuniculus* (Lagomorpha)
  - b Postnatal development of muscle with emphasis on the ultrastructure of the mitochondrial population. *Sus domesticus* (miniature) (Artiodactyla)
- LEFFINGWELL, T. P.; Ph.D. – Cell Res. Inst., Biol. Labs. 220, Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a Contributions of the Golgi apparatus to cell surfaces. (Plantae)
- LEGNAMÉ, A. H.; Dr. Biochem., Prof. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Respiratory metabolism. *Bufo arenarum* (Anura)
  - b Metabolism, oocyte maturation and differentiation. Same species as a
- LEGNAMÉ, C. R. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMAN, Argentina
- a Nuclear transplantation (early stages until neurulation): 1. haploid and diploid nuclei; 2. electrophoretic analysis of proteins. *Bufo arenarum* (Anura)
- LEHMAN, H. E.; Ph.D. – Dept. of Zool., Univ. of N. Carolina, CHAPEL HILL, NC 27514, U.S.A.
- LEIGHTON, J.; M.D., Prof. – Dept. of Pathol., Med. Coll. of Pennsylvania, 3300 Henry Ave., PHILADELPHIA, Pa. 19129, U.S.A. ISDB
- a Neoplasia of urothelium. *Homo sapiens* (Primates) ISDB
- LENHOFF, H. M.; Ph.D., Prof. – Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A. ISDB
- a Chemistry, biosynthesis, and topography of mesoglea. *Hydra littoralis*, *H. pseudoligactis* (Hydrozoa)
  - b Movement and differentiation of interstitial cell. *Hydra attenuata* (Hydrozoa)
- LENSKY, Y.; Ph.D., Assoc. Prof. – Bee Res. Lab., Dept. of Entomol., Fac. of Agric., Hebrew Univ., P.O. Box 12, REHOVOTH 76 100, Israel
- a Exo- and endocrine control of the synthesis of female-specific proteins. *Apis mellifera* (Hymenoptera) (with H. SHKOLNIK)
  - b Control of female dimorphism. Same species as a (with M. AZENCOT)
- LEOPOLD, R. A.; Ph.D. – USDA Metab. & Radiat. Research Lab., State Univ. Station, FARGO, N.D. 58103, U.S.A.
- a Cytochemistry of developing reproductive structures. *Musca domestica* (Diptera)
  - b Developmental genetics of hybrids (spermatogenesis, embryogenesis). *Anthonomus grandis* x *Anthonomus gr. thurberiae* (Coleoptera)
- LESH-LAURIE, Mrs. G. E.; Ph.D. – Dept. of Biol., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Purification of neurotrophic substance(s) involved in interstitial cell differentiation. *Hydra* spec., *Podocoryne* spec., *Hydractinia* spec., *Pennaria* spec., *Aurelia* spec. (Hydrozoa)
  - b Control of differentiated state of interstitial cells. Same species as a
  - c Role of mesoglea in morphogenesis. Same species as a
- LESSEPS, R. J. (S.J.); Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Loyola Univ., NEW ORLEANS, La. 70118, U.S.A.
- a Ultrastructure of cell surface (embryonic liver, heart, neural retina, limb bud). *Gallus domesticus* (Aves)
  - b Sorting-out experiments to test hypotheses concerning morphogenetic movements (embryonic heart, neural retina, pigmented retina). Same species as a
  - c Cell movement in early development. *Nothobranchius neumanni* (Cyprinodontidae, Teleostei)
- LEV, R.; M.D., Assoc. Prof. – Dept. of Pathol., New York Med. Coll., Basic Sci. Bldg., VALHALLA, N.Y. 10595, U.S.A.
- a Ability of primate fetus to absorb and utilize proteins (including antibodies), antibiotics and nutrients injected into amniotic sac of term-pregnant mother. *Macaca mulatta*, *Homo sapiens* (Primates)
- LEVENSON, G. E.; Ph.D., D.D.S., Assoc. Prof. – Dept. of Histol., Embryol., and Genet., Sch. of Dent. Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.

- a Comparison of three types of embryonic cartilage when grown as monolayer cultures. *Gallus domesticus* (Aves)
- b Effect of ascorbic acid in medium on growth and differentiation of embryonic cartilage in monolayer culture. Same species as a
- c Histogenesis of embryonic liver: cell culture techniques, effects of metabolites on differentiation. Same species as a
- LEVI-MONTALCINI, Miss R.; M.D., Prof. – Dept. of Biol., Washington Univ., Skinker and Lindell Ave., ST. LOUIS, Mo. 63130, U.S.A. ISDB
- a Growth control mechanisms in the sympathetic nervous system
- b In vivo and in vitro analysis of the nervous system. *Periplaneta americana* (Blattariae)
- c A technique to grow nerve and glia cells from explants of brain and ganglia in order to study their growth and differentiation under different experimental conditions. Same species as b
- LHOTKA, J. F., Jr.; M.D., Ph.D., Prof. – Dept. of Anat. Sci., Univ. of Oklahoma Med. Center, 801 NE 13th St., OKLAHOMA-City, Okla. 73190, U.S.A.
- a Localization of Ca and Fe in the developing embryo. *Gallus domesticus* (Aves), *Sus scrofa* (Artiodactyla), *Homo sapiens* (Primates)
- b Histochemical localizations of polysaccharides in embryo and early fetus, with emphasis on vascular system. *Homo sapiens* (Primates)
- c Coat colour and neoplastic degeneration in advanced aging. *Mus musculus* (Rodentia)
- LIANG, H. M.; Ph.D., Prof. – Dept. of Biomorphics, Natl. Defense Med. Ctr., P.O. Box 7432, TAIPEI 107, Taiwan, Rep. of China
- a Experimental sex differentiation. *Rana spec.* (Anura)
- LILIEN, J. E.; Ph.D. – Dept. of Zool., Univ. of Wisconsin, 1117 W. Johnson St., MADISON, WI 53706, U.S.A. ISDB
- LIN, C. C.; Ph.D., Assoc. Prof. – Div. of Pediat. and Med. Biochem., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Cytogenetics and somatic cell genetics (emphasis on structural and functional chromosome aberrations). (Mammalia)
- LINDSAY, D. T.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of Georgia, ATHENS, Ga. 30602, U.S.A.
- a Cell-specific patterns of mitosis and histone synthesis in the embryo. *Strongylocentrotus purpuratus* (Echinoidea)
- b Cilia regeneration. Same species as a
- LINDSLEY, D. L.; Ph.D., Prof. – Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Genetic control of gametogenesis. *Drosophila melanogaster* (Diptera)
- LIPTON, B. H.; Ph.D. – Dept. of Anat., Med. Sch., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A.
- a Pattern development in embryos: morphogenetic mechanisms responsible for axial structure formation. (Amphibia, Aves)
- b Fine-structural analysis of myogenesis in vitro: cell fusion, cell substrate adhesion, basal lamina formation and satellite cell development. (Vertebrata)
- LIVERSAGE, R. A.; Ph.D., Prof. – Ramsay Wright Zool. Labs., Dept. of Zool., Univ. of Toronto, 25 Harbord St., TORONTO M5S 1A1, Ont., Canada
- a In vivo and in vitro studies on the influence of nerves and endocrines in regeneration (Amphibia, Teleostei)
- LOBO, J. F.; Ph.D. – Cell Res. Lab., Dept. of Zool., N. Wadia Coll., POONA-1, India
- a Alkaline phosphatase and mucopolysaccharides in eggs and larvae (histochemistry). *Betta splendens* (Teleostei)
- b Phospholipids and non-specific esterases in eggs and larvae (histochemistry). *Rana tigrina* (Anura)
- c Enzymes and mucopolysaccharides in the prothallus (histochemistry). *Pteris aquilina* (Filicinae)
- LOCKE, M.; Ph.D., Prof. – Dept. of Zool., Univ. of W. Ontario, LONDON, Ont. N6A 3K7, Canada ISDB
- a Developmental physiology and cell biology. *Calpododes ethlius* (Lepidoptera)
- LOCKSHIN, R. A.; Ph.D. – Dept. of Physiol., Univ. of Rochester, 260 Crittenden Blvd., ROCHESTER, NY 14620, U.S.A.
- LOMBARDO, F.; Dr.Biol. – Dept. de Biol. Anim., Lab. de Morfol., Univ. de Brasilia, BRASILIA, D.F., Brazil
- LONG, S. Y.; Ph.D. – Dept. of Anat., Med. Coll. of Wisconsin, 561 N. 15th St., MILWAUKEE, Wis. 53233, U.S.A.
- a Cleft palate and limb malformations as a model for genetic-teratogenetic interactions. *Mus musculus* (Rodentia)
- LONGENECKER, B. M.; Ph.D. – Dept. of Immunol., Fac. of Med., Univ. of Alberta, EDMONTON, Alta., Canada
- a Developmental immunology and embryonic resistance to herpesvirus-mediated lymphoma. *Gallus domesticus* (Aves)
- LONGO, F. J.; Ph.D., Assoc. Prof. – Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A.
- a Effect of meiotic state at moment of insemination on pronuclear development and association (light and electron microscopy). *Asterias forbesi* (Asteroidea), *Spisula solidissima*, *Mytilus edulis* (Lamellibranchia)
- b Effect of maternal cytoplasm on pronuclear development and association. *Arbacia punctulata*, *Lytechinus variegatus* (Echinoidea)
- c Effect of supernumerary male and female pronuclei on pronuclear development and association, i.e., investigation of heteroploidy, polyandry and polygyny. *Spisula solidissima* (Lamellibranchia), *Oryctolagus cuniculus* (Lagomorpha), *Mus musculus*, *Rattus norvegicus* (Rodentia)



- LOOMIS, W. F., Jr.; Ph.D. – Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a A biochemical and genetic investigation of the mechanisms of development. *Dictyostelium discoideum* (Acrosiales)
- LOPES, R. A. – Dept. of Pathol., Fac. de Odont. e Farm., 14100 RIBEIRÃO PRÊTO, S.P., Brazil
- a Hypervitaminoses during pregnancy (histochemistry). *Rattus rattus* (Rodentia)
- LOVE, D.; Ph.D. – Dept. of Anat., Developm. Biol. Center, Case Western Reserve Univ., 2119 Abington Rd., CLEVELAND, Ohio 44106, U.S.A.
- a Chemistry of developing muscle. *Gallus domesticus* (Aves)
- b Endocrine regulation of the rates of turnover of contractile proteins, particularly the subunits of myosin, during embryonic muscle development. Same species as a
- LOY, J. B.; Ph.D., Assoc. Prof. – Plant Sci. Dept., Univ. of New Hampshire, Nesmith Hall, DURHAM, N.H. 03824, U.S.A.
- a Genetics and physiology of sex differentiation. *Cucumis melo* (Cucurbitaceae)
- b Genetics and physiology of dwarfism. *Citrullus lanatus* (Cucurbitaceae)
- LU, M. H.; Ph.D. – Natl. Inst. for Environm. Health Sci., N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- a Effect of neonatal thyroidectomy (1–14 days) on subsequent development and reproduction (radio-immuno-assay of thyroid hormones). *Rattus rattus* (Rodentia)
- LUCAS, J. S.; Ph.D. – Zool. Dept., James Cook Univ. of North Queensland, P.O. Box 999, TOWNSVILLE, Qld. 4811, Australia
- a Effects of food quality and quantity and predation on larval development and young juveniles. *Acanthaster planci* (Asteroidea)
- LUCKETT, W. P.; Ph.D. – Dept. of Anat., Coll. of Phys. and Surg., Columbia Univ., 630 W. 168th St., NEW YORK, NY 10032, U.S.A.
- a Comparative development and evolution of fetal membranes and placenta. (Primates; Insectivora; Rodentia; Chiroptera; Dermoptera)
- b Embryology. *Tachyglossus spec.*, *Ornithorhynchus spec.* (Monotremata)
- LYMAN, H.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., State Univ. of New York at Stony Brook, STONY BROOK, N.Y. 11790, U.S.A.
- a Control mechanisms of chloroplast development and replication. *Euglena gracilis* (Euglenophyceae)
- LYNE, A. G.; Ph.D. – Div. of Anim. Physiol., CSIRO, P.O. Box 239, BLACKTOWN, N.S.W. 2148, Australia
- a Embryology. *Perameles nasuta*, *Isoodon macroceres* (Marsupialia)
- LYNN, W. G.; Ph.D., Prof. – Biol. Dept., Grad. Sch. of Arts and Sci., The Catholic Univ. of America, WASHINGTON, DC 20017, U.S.A.
- LYSER (SHOUBY), Mrs. K. M.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Hunter Coll., 695 Park Ave., Box 1030, NEW YORK, NY 10021, U.S.A.
- MACARAK, E. J.; Ph.D. – Dept. of Histol., Embryol., and Genet., Sch. of Dent. Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.
- a Cellular interactions and stability of the differentiated state of vascular endothelium (tissue culture of umbilical cord vein endothelium). *Homo sapiens* (Primates)
- b Ultrastructure of sorted out aggregates of dissociated pregastrular cells. *Gallus domesticus* (Aves)
- c Ultrastructure of junction formation in normal pregastrular blastoderms. Same species as b
- McAVOY, J. W.; B.Sc. (Hons.) – Sch. of Biol. Sci., Flinders Univ., BEDFORD PARK, S.A. 5042, Australia
- a Cell differentiation in the small intestinal epithelium. *Xenopus laevis* (Anura)
- MacCABE, J. A.; Ph.D. – Dept. of Zool., Univ. of Tennessee, KNOXVILLE, Tenn. 37916, U.S.A.
- a Morphogenesis in the early developing limb, particularly the establishment of axial polarities. *Gallus gallus* (Aves)
- b Effect of various heart-beat-stimulating drugs on cultured heart cells. Same species as a
- McCAFFERTY, R. E.; Ph.D., Prof. – Dept. of Anat., Med. Center, West Virginia Univ., MORGANTOWN, W.Va. 26506, U.S.A.
- a Histochemistry and ultrastructure of the Harderian gland at pre- and postnatal stages. *Rattus rattus* (Rodentia), *Sus scrofa* (Artiodactyla)
- b Histochemistry of the lacrimal gland from early development through patient demise; normal and abnormal. *Homo sapiens* (Primates)
- McCALLION, D. J.; Ph.D., Prof. – Dept. of Anat., McMaster Univ., 1200 Main St. West, Rm. 1-R-1, HAMILTON, Ont. L8S 4J9, Canada
- McDEVITT, D. S.; Ph.D., Assoc. Prof. – Dept. of Amin. Biol., School of Vet. Med., Univ. of Pennsylvania, 3800 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.
- a The soluble lens proteins (crystallins) in lens differentiation, as studied by column chromatography, electrophoresis, and immunofluorescence. *Rana pipiens* (Anura)
- b Ontogeny and localization of the gamma-crystallins (immunofluorescence). (Anura, Urodela) (with S. K. BRAHMA, Utrecht)
- MacDONALD, Mrs. E. L.; Ph.D. – Dept. of Biol., Wilson Coll., CHAMBERSBURG, Pa. 17201, U.S.A.
- a Histology of eye, heart, and somite region, stages 21-46, photomicrography. *Xenopus laevis* (Anura)
- b Cytological differences, especially number and location of mitochondria, associated with developmental potentialities of intestinal epithelium cells (light and electron microscopy). *Rana pipiens* (stage 25), *Xenopus laevis* (stage 46) (Anura)
- McGARRY, M. P.; Ph.D. – Dept. of Biol. Resources, Roswell Park Mem. Inst., 666 Elm St., BUFFALO, NY 14203, U.S.A.

- a Humoral control of eosinophil granulocyte regeneration and proliferation *in vivo* and *in vitro*, by using eosinophil-specific cell response to secondary challenge with antigen. *Mus musculus* (Rodentia)
- b Influence of Friend virus infection on developmental interrelationship between stem-precursor cells and the inductive stroma of hemopoietic tissues; determination of target cell(s). Same species as a
- MACINTYRE, M. N.; Ph.D., Prof. Dept. of Anat., Sch. of Med., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Cytogenetics of embryonic maldevelopment and reproductive failure. (Vertebrata)
- b Environmental factors relating to the production of chromosomal abnormalities. (Vertebrata)
- c Biochemical activity of certain chromosomes or portions of chromosomes from abnormal cell lines. (Vertebrata)
- d Morphology, biochemistry and behavior of fetal cells from amniotic fluid. (Vertebrata)
- McKIEL, G. D.; M.A. — Dept. of Zool., McGill Univ., MONTREAL, Que., Canada
- McKINNELL, R. G.; Ph.D., Prof. — Dept. of Zool., Coll. of Biol. Sci., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A.
- MACKLIN, M. R.; Ph.D., Assoc. Prof. — Dept. of Biomed. Engin., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Fetal electrocardiology. *Homo sapiens* (Primates)
- b The effects of the inorganic ionic environment, both extra-cellular and intra-cellular, on cell differentiation. *Hydra spec.* (Hydrozoa)
- c Onset of electrical activity in embryos. *Xenopus laevis* (Anura)
- MacMILLAN, Miss F. E.; A.B. — Pacif. Mar. Stat., Univ. of the Pacific, DILLON BEACH, CA 94929, U.S.A.
- McNUTT, C. W.; Ph.D., Prof. — Dept. of Anat., Health Sci. Center, Univ. of Texas, 7703 Floyd Curl Drive, SAN ANTONIO, Tex. 78284, U.S.A.
- a Developmental genetics of a tail-labyrinthine mutant (pr). *Mus musculus* (Rodentia)
- b Development and pathological progression of a new neuromuscular mutant. Same species as a
- McWHINNIE, Miss D. J.; Ph.D., Assoc. Prof. — Dept. of Biol. Sci., De Paul Univ., 1036 W. Belden Ave., CHICAGO, Ill. 60614, U.S.A.
- a Biochemistry of embryonic bone with particular reference to metabolic pathways, enzyme systems, and hormone effects. *Gallus domesticus* (Aves), *Rana pipiens* (Anura)
- MADERSON, P. F. A.; Ph.D., Assoc. Prof. — Dept. of Biol., Brooklyn Coll., Bedford Ave. & Ave. H. NEW YORK, Brooklyn, N.Y. 11210, U.S.A.
- a Influence of environmental factors and hormones on epidermal turnover, *in vitro* and *in vivo*. *Iguana iguana*, *Anolis carolinensis*, *Dipsosaurus dorsalis*, *Gekko gekko*, *Coleonyx variegatus* (Lacertilia), *Elaphe obsoleta* (Ophidia)
- b Wound healing. Same species as a
- c Tail regeneration with reference to epidermal replacement. *Iguana iguana*, *Anolis carolinensis*, *Dipsosaurus dorsalis*, *Gekko gekko*, *Coleonyx variegatus* (Lacertilia)
- MADHAVAN, K.; Ph.D. — Center for Pathobiol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Effects of hormones and analogues on development (biochemistry, cytology). *Drosophila melanogaster* and other spp. (Insecta and other Arthropoda)
- b Effects of juvenile hormone and ecdysones on molting and reproduction. *Armadillidium vulgare* (Isopoda, Crustacea)
- c Effects of regeneration on molting. Same species as a
- MADHAVAN, Mrs. M. M.; Ph.D. — Center for Pathobiol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Nucleic acid synthesis during embryonic development. *Drosophila melanogaster* (Diptera)
- b Origin of the nurse chamber, nucleic acid contribution of the nurse chamber to the oocytes, and development of the oviducts. *Heteropeza pygmaea*, *Mycophila speyeri* (Cecidomyiidae, Diptera)
- MAEDA (KIBATA), Mrs. M.; B.Sc. — Dept. of Biol., Coll. of Gen. Educ., Osaka Univ., Toyonaka, OSAKA, 560 Japan
- a The role of Ca<sup>++</sup> and Mg<sup>++</sup> in the chemotactic response to cAMP of amoebae. *Dictyostelium discoideum* (Acrasiales)
- MAHOWALD, A. P.; Ph.D. — Dept. of Zool., Indiana Univ., BLOOMINGTON, IN 47401, U.S.A.
- MAIBENCO, Miss H. C.; Ph.D., Prof. — Rush Med. Coll., Rm. 1405 Jelke Bldg., 1725 W. Harrison St., CHICAGO, Ill. 60612, U.S.A.
- a Nidation. *Rattus rattus* (Rodentia)
- b Origin, function, and fate of decidual cells (autoradiography). *Rattus rattus* (Rodentia)
- c Development of the early embryo (frozen-dried material, autoradiography). *Rattus rattus* (Rodentia)
- MAKINO, S.; D.Sc., Prof. (Emer.) — Chromosome Research Unit, Fac. of Sci., Hokkaido Univ., N10, W8, SAPPORO, 060 Japan
- a Chromosome aberrations in patients with congenital disorders, with special regard to the relationship between karyological features and disease states. *Homo sapiens* (Primates)
- b Chromosome studies in spontaneous and induced abortions. Same species as a
- c Virus-induced chromosome aberrations with special regard to teratogenesis and carcinogenesis. Same species as a
- MAKINODAN, T. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A.
- MALACINSKI, G. M.; Ph.D. — Dept. of Zool., Indiana Univ., BLOOMINGTON, Ind. 47401, U.S.A.
- ISDB
- a Isolation of cytoplasmic components which direct nuclear activity. *Ambystoma mexicanum* (Urodela), *Rana pipiens* (Anura)

- b Developmental genetics and biochemistry of the egg cytoplasm. *Ambystoma mexicanum* (Urodela), *Xenopus laevis* (Anura)
- MANASEK, F. J.; M.D., Assoc. Prof. — Dept. of Anat., Div. of Biol. Sci., Univ. of Chicago, 1025 East 57th St., CHICAGO, Ill. 60637, U.S.A.
- a Extrinsic and intrinsic factors regulating the shape of the heart. *Gallus domesticus* (Aves)
- b Biosynthesis of extracellular matrix components during development: regional differences in the intact embryo. Same species as a
- MANES, M. E.; Biol. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Cytoplasmic factors in differentiation: egg cortex. *Bufo arenarum* (Anura)
- MANION, P. J.; M.A. — Bur. of Sport Fish. and Wildlife, U. S. Dept. of the Interior, 446 E. Crescent St., P. O. Box 758, MARQUETTE, Mich. 49855, U.S.A.
- a Internal metamorphosis of landlocked animals (anatomy and histology of 16 organ systems). *Petromyzon marinus* (Cyclostomata)
- MANN, P. M.; M.Sc. — Dept. of Biomed. Sci., Ontario Vet. Coll., Univ. of Guelph, GUELPH, Ont. N1G 2W2, Canada
- a Embryonic and prenatal developmental anatomy, including the development of the placental membranes. *Blarina brevicauda* and other spp. (Soricidae, Insectivora), *Myotis lucifugus* and other spp. (Chiroptera, especially Microchiroptera)
- b Embryonic and prenatal development, with emphasis on the male genital system. *Equus caballus* (Perissodactyla)
- MANNER, H. W.; Ph.D., Prof. — Dept. of Biol., Loyola Univ., 6525 N. Sheridan Rd., CHICAGO, Ill. 60626, U.S.A.
- a The developmental effect of linear alkyl sulfonate on embryos. (Teleostei), *Mus musculus* (Rodentia)
- b Neurological effects of surfactants. Same species as a
- MANO, Y.; M.D., Prof. — Dept. of Physiol. Chem. and Nutr., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Molecular mechanisms of the cell cycle in macromolecular synthesis. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depressus*, *Anthocidaris crassispina*, *Strongylocentrotus nudus* (Echinoidea)
- b Macromolecular metabolism in early development. Same species as a
- MARAMOROSCH, K.; Dr. — Boyce Thompson Inst. of Plant Res., 1086 N. Broadway, YONKERS, NY 10701, U.S.A. ISDB
- MARCHOK, Miss A.; Ph.D. — Biol. Div., Oak Ridge Natl. Lab., OAK RIDGE, Tenn. 37830, U.S.A.
- a Regulation of normal and abnormal differentiation of respiratory epithelium in organ and cell cultures; identification of factors controlling proliferation, cell turnover, and synthesis of specific cell products. *Rattus norvegicus* (Rodentia)
- MARCUS, Z. H.; Ph.D. — Dept. of Embryol. and Teratol., Ch. Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a Delayed hypersensitivity to sperm antigens. (Rodentia)
- MARGOLIS, G.; M.D., Prof. — Dept. of Pathol., Dartmouth Med. Sch., HANOVER, NH 03755, U.S.A.
- MARIANO, Miss M. I. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Nuclear transplantation (early stages until neurulation): 1. haploid and diploid nuclei; 2. ultra-structure and metabolism of haploid embryos. *Bufo arenarum* (Anura)
- MARIN-PADILLA, M.; M.D. — Dept. of Pathol., Dartmouth Med. Sch., HANOVER, NH 03755, U.S.A.
- MARK, R. F.; M.Med.Sc., Doct. III — Dept. of Physiol., Monash Univ., CLAYTON, Vict. 3168, Australia
- a as from 1975: Austr. Natl. Univ., CANBERRA, A.C.T. 2600, Australia
- a Regenerating motor nerves and reinnervating muscle (descriptive, histochemical, experimental, and electrophysiological). *Astronotus ocellatus* (Cichlidae), *Carrasius carassius* (Cyprinidae, Teleostei), *Ambystoma spec.* (Urodela)
- MARKERT, C. L.; Ph.D., Prof. — Dept. of Biol., Osborn Mem. Lab., Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB
- a Gamete maturation, fertilization, and early development. *Mus musculus* (Rodentia)
- b Ontogeny of isozymic patterns. *Mus musculus* (Rodentia), various spp (Pisces)
- c Developmental genetics. Various spp. (Pisces)
- d Nuclear transplantation. Same species as a
- e Developmental genetics studied in allophenic or mosaic combinations. Same species as a
- MARKS, P. A.; Prof. — Dept. of Human Genet. and Developm., Coll. of Phys. and Surgeons, Columbia Univ., 630 W. 168th St., NEW YORK, NY 10032, U.S.A. ISDB
- MARKWALD, R. R.; Ph.D. — Dept. of Anat., Med. Univ. of South Carolina, 80 Barre St., CHARLESTON, S.C. 29401, U.S.A.
- a Teratogenic influences of a variety of known teratogens upon heart development. *Rattus norvegicus* (Rodentia)
- MARTIN, A. H.; Ph.D. — Dept. of Anat., Bardeen Med. Labs., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A.
- a Development, morphology, and histology of the central nervous system (light microscopy). *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b Teratogenic effect of various techniques and agents upon the developing embryo. Same species as a

- MARTIN, Ch. B., Jr.; M.D., Assoc. Prof. — Dept. of Obstet. and Gynecol., Univ. of S. Calif., Women's Hosp. 5K-22, 1240 N. Mission Rd., LOS ANGELES, Calif. 90033, U.S.A.
- a Fetal cardiovascular physiology, particularly responses to stress. *Macaca mulatta* (Primates)
- b Development of activity (sleep-waking) states in the fetus. *Macaca mulatta*, *Homo sapiens* (Primates)
- c Physiology of the uteroplacental and umbilical circulations. Same species as a
- MARTINS, R. PARENTONI — Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 — 4° andar, C.P. 253, BELO HORIZONTE, M. G., Brazil
- a Alteration of spermatogenesis following interspecific hybridization or ionizing radiations. (Triatominae, Hemiptera)
- MASCARENHAS, J. P.; Ph.D., Assoc. Prof. — Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, NY 12203, U.S.A. ISDB
- MASLOW, D. E.; Ph.D. — Dept. of Exp. Pathol., Roswell Park Mem. Inst., 666 Elm St., BUFFALO, N.Y. 14203, U.S.A.
- a The adhesion of cells to different cellular and non-cellular substrates. *Mus spec.* (Rodentia), *Homo sapiens* (Primates)
- b Differential adhesion in the morphogenesis of the limb bud. *Gallus domesticus* (Aves)
- c Specificity of interactions during aggregation of developing and tumor tissues and cells. (Aves), *Mus spec.* (Rodentia), *Homo sapiens* (Primates)
- d Role of cell movement in aggregation; experimental and model systems. (Aves)
- MASSOVER, W. H.; M.D., Ph.D. — Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE R. I. 02912, U.S.A.
- a Subcellular differentiation of the oocyte (including experimental manipulation). (Amphibia)
- MASUI, Y.; Ph.D., Assoc. Prof. — Ramsay Wright Zool. Labs., Dept. of Zool., Univ. of Toronto, 25 Harbord St., TORONTO, Ont. M5S 1A1, Canada ISDB
- a Cytoplasmic control of nuclear activity in oocyte meiosis and early development. *Rana pipiens*, *Xenopus laevis* (Anura), *Triturus viridescens* (Urodela)
- b Repair DNA synthesis in ovarian oocytes. *Mus musculus* (Rodentia)
- MATHUR, J. K.; M.Sc. — Dept. of Zool., Univ. of Poona, Ganeshkind, POONA 411007, India
- a Histochemical, cytochemical, teratological and in vitro studies on the development of limbs. *Calotes versicolor* (Lacertilia)
- MATSUMOTO, J.; D.Sc. — Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- MATTINGLY, Miss E.; Ph.D. — Dept. of Zool., Univ. of Georgia, ATHENS, Ga. 30602, U.S.A.
- a Development of reproductive system. Small spp. (Mammalia)
- b Development and histophysiology of the pineal gland. Small spp. (Rodentia)
- MAURER, R. R.; Ph.D. — Natl. Inst. for Environm. Health, N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- a Significance of uterine proteins to embryonic development. *Oryctolagus cuniculus* (Lagomorpha)
- b The male influence on the development of the early embryo (2 cell-blastocyst). Same species as a
- c Environmental factors affecting embryonic development (pre and post implantation stages). *Oryctolagus cuniculus* (Lagomorpha), *Mus musculus* (Rodentia)
- MAY CHING, T.; Dr., Assoc. Prof. — Agron. Dept., Oregon State Univ., CORVALLIS, OR 97331, U.S.A.
- MAYER, T. C.; Ph.D., Prof. — Dept. of Biol., Fac. of Lib. Arts and Sci., Rider Coll., TRENTON, N. J. 08602, U.S.A.
- a Developmental genetics of white-spotting patterns. *Mus musculus* (Rodentia)
- MAYHEW, E. G.; Ph.D. — Dept. of Exp. Pathol., Roswell Park Mem. Inst., 666 Elm St., BUFFALO, N.Y. 14203, U.S.A.
- a Mechanism of histiotypic sorting of heterospecific embryo cells; the effects of tumour cells on sorting patterns. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- MAZURKIEWICZ, M.; Ph.D. — Dept. of Oceanography, Ira C. Darling Center for Research, Teaching, and Service, (Marine Lab.), Univ. of Maine, WALPOLE, Me. 04573, U.S.A.
- a Development from the egg through F<sub>2</sub> generation. *Laonereis culveri* (Polychaeta)
- b Larval development and reproduction. *Hydrobia totteni*, *H. salsa* (Gastropoda)
- c Larval development. *Macoma balthica* (Lamellibranchia)
- d Larval development. *Echinarachnius parma* (Echinoidea)
- MEINS, F., Jr.; Ph.D. — Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A.
- MELTON, Ch. G., Jr.; Ph.D. — Dept. of Biol., Univ. of Pittsburgh, PITTSBURGH, PA 15260, U.S.A.
- MEMIKOĞLU (GÖNENÇ), Mrs. A. — Inst. of Histol. and Embryol., Med. Fac., Hacettepe Univ., ANKARA, Turkey
- a Ultrastructural differentiation of somitic mesoderm. *Gallus domesticus* (Aves)
- MENEZES, Miss A. M. C.; M.Sc. — Dept. of Bot., Univ. of Poona, Ganeshkind, POONA-7, India
- MENGE, A. C.; Ph.D., Assoc. Prof. — Dept. of Obstet. and Gynecol., Center for Res. in Reprod. Biol., 4003 Women's Hosp., ANN ARBOR, Mich. 48104, U.S.A.
- a Effects of immune reactions against spermatozoa on the development of embryos. *Oryctolagus cuniculus* (Lagomorpha)
- METZ, C. B.; Ph.D. — Inst. of Molec. Evolut., Univ. of Miami, 521 Anastasia Ave., CORAL GABLES, FL 33134, U.S.A. ISDB
- MEYER, D. B.; Ph.D. — Dept. of Anat., Wayne State Univ., 540 E. Canfield, DETROIT, Mich. 48201, U.S.A.
- a Morphogenesis and developmental histochemistry of embryonic eye. *Gallus domesticus* (Aves)
- b Histochemistry of gonadal development. Same species as a
- c Prenatal ossification of the skeleton. *Homo sapiens* (Primates)
- d Electron microscopy of retinal development. *Gallus domesticus*, *Coturnix c. japonica* (Aves)

- MEZEI (TEICHMANN), Mrs. C.; Ph.D. — Biochem. Dept., Med. Sch., Dalhousie Univ., Sir Charles  
Tupper Bldg., HALIFAX, N.S. B3H 4H7, Canada
- Control of myelinogenesis. *Gallus domesticus* (Aves)
  - Developmental changes in myelin composition of sciatic nerve. Same species as a
- MEZGER-FREED, Mrs. L.; Ph.D. — Inst. for Cancer Research, 7701 Burholme Ave., PHILADEL-  
PHIA, Pa. 19111, U.S.A.
- Genetics of haploid embryo cell lines including analysis by nuclear transfer. *Rana pipiens* (Anura)  
(with J. FREED)
  - Development of phenotypic variants in cell culture (thymidine kinase deficiency). Same species  
as a
  - Effect of mutagens on haploid and diploid cell cultures. Same species as a
- MICELI, Mrs. D. C.; Biochem. — Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de  
TUCUMÁN, Argentina
- Intermediate metabolism during early development: enzyme regulation. *Bufo arenarum* (Anura)
- MICHAEL, M. I.; Ph.D., Prof. — Dept. of Zool., Alexandria Univ., Moharram Bey, ALEXANDRIA,  
Egypt
- Experiments on the development of the cephalic ganglia and other derivatives of the head neural  
crest. *Ambystoma mexicanum* (Urodela)
  - Development of the urogenital system. *Bufo regularis* (Anura) (with S. N. SEDRA and S. H.  
KHALIL)
  - Hind limb regeneration after transection at various proximo-distal levels. Same species as b (with  
D. A. EL MEKKAWY)
  - Restoration of hind limb regeneration by the use of various chemical and mechanical means.  
Same species as b (with F. K. AZIZ)
- MICHAELI, Y.; D.M.D. — Dept. of Anat., Hebrew Univ. — Hadassah Med. Sch., P.O. Box 1172,  
JERUSALEM 91000, Israel
- The role of the periodontal ligament in the eruption of the incisor. *Rattus spec.* (Rodentia)
  - Relation between different rates of eruption and the behaviour of the odontogenic epithelial  
cells. Same species as a
- MIKAMI, Y.; Ph.D., M.D., Prof. — Dept. of Anat., Mie Pref. Univ., 2-174, Edobashi, TSU, Japan ISDB
- MIKI-NOUMURA, Mrs. T.; Ph.D. — Inst. of Molec. Biol., Fac. of Sci., Nagoya Univ., Chikusa-ku,  
NAGOYA, 464 Japan
- The mitotic apparatus protein of the egg. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depres-*  
*sus*, *Anthocidaris crassispina* (Echinoidea)
  - Cleavage. Same species as a.
  - An actin-like egg protein. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depressus*, *Anthocidaris*  
*crassispina*, *Ternopleurus toreumaticus* (Echinoidea)
  - Tubulin of sperm tail. Same species as a and *Oryctolagus cuniculus* (Lagomorpha), *Sus scrofa*  
*domesticus* (Artiodactyla)
- MILKMAN, R. D.; Ph.D., Prof. — Dept. of Zool., Coll. of Lib. Arts, Univ. of Iowa, IOWA-City, Iowa  
52242, U.S.A. ISDB
- Developmental biology, classical and physiological genetics. *Botryllus schlosseri* (Ascidiacea)
  - Developmental biology, genetics. *Drosophila melanogaster* and other spp. (Diptera)
- MILLER, J. H.; Ph.D., Prof. — Dept. of Biol., Syracuse Univ., 130 College Place, SYRACUSE, N.Y.  
13210, U.S.A.
- The role of ethylene as an inhibitor of cell division and its action as a co-factor in light-induced  
cell elongation. *Onoclea sensibilis* (Filicinae)
- MILLER, O. L.; Jr.; Ph.D. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830,  
U.S.A.
- MILLER, R. L.; Ph.D. — Dept. of Biol., Temple Univ., Broad and Berks St., PHILADELPHIA, PA  
19122, U.S.A.
- MILLER, Miss S. A.; Ph.D. — Biol. Dept., Reed College, PORTLAND, Ore. 97202, U.S.A.
- Development of surface immunoglobulin on thymic and splenic lymphocytes of poikilotherms  
(electron microscopy, radio-isotopes). *Triturus viridescens* (Urodela), *Xenopus laevis* (Anura)
- MILLER, W. A.; D.D.S., Assoc. Prof. — Dept. of Oral Biol., Sch. of Dent., State Univ. of New York at  
Buffalo, 5410 Main St., BUFFALO, N.Y. 14226, U.S.A.
- Tissue interactions in early development of dental lamina. Pouch embryos of *Didelphis marsupialis*,  
*Trichosurus vulpecula*, (Marsupialia), *Mus musculus* (Rodentia)
  - Tooth replacement. *Lepisosteus spec.* (Holostei)
  - Dental development and occlusal wear patterns with age. *Sciurus niger* (Rodentia)
  - Dental and morphological abnormalities in three chondrodystrophic strains. *Mus musculus*  
(Rodentia)
- MILLINGTON, W. F.; Ph.D., Prof. — Dept. of Biol., Marquette Univ., 530 North 15th St., MILWAU-  
KEE, Wis. 53233, U.S.A.
- Development at the shoot apex, and regulation of form in the leaf and shoot. *Sphagnum spec.*  
(Bryophyta)
  - Development in coenobial forms. *Pediastrum spp.* (Chlorophyceae)
  - Regulation of zoospore release and colony formation; factors regulating cell shape. *Rediastrum*  
*boryanum* (Chlorophyceae)
  - Emergence of pattern in cell differentiation in leaves. Fine structural analysis of differentiation of  
the hyaline and chlorophyllous cells. *Sphagnum spp.* (Bryophyta)
- MILLS, S. E.; Ph.D., Prof. — Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA,  
Calif. 92037, U.S.A.
- Regulatory mechanisms in cultured cells. (Plantae)

- MINATO, K.; M.Sc. — Dept. of Morphol. Genet., Natl. Inst. of Genet., Yata 1-111, MISIMA, Sizuoka-ken, 411 Japan
- a The relationship between cell growth cycle and molting cycle in the epidermis. *Philosamia cynthia ricini* (Lepidoptera)
- b Studies on growth-stimulating factors in the cultivation of cells. *Homo sapiens* (Primates)
- MINOR, R. R.; V.M.D., Ph.D. — Dept. of Anat., Univ. of Pennsylvania, Clin. Res. Ctr., Philad. Gen. Hosp., PHILADELPHIA, Pa. 19104, U.S.A.
- a Microscopic, biochemical, and immunochemical studies of mesodermal differentiation in organ culture of embryonic somites and lung buds. *Gallus domesticus* (Aves)
- b Microscopic, autoradiographic, biochemical, and immunochemical studies of basement membrane synthesis, accumulation and turnover in organ cultures of the embryonic parietal yolk sacs. *Rattus spec.* (Rodentia)
- MINTZ, Miss B.; Ph.D. — Inst. for Cancer Research, 7701 Burholme Ave., PHILADELPHIA, Pa. 19111, U.S.A. ISDB
- a Gene control of differentiation in allophenic animals with two genotypic populations of cells. *Mus musculus* (Rodentia)
- b Control of implantation. Same species as a
- c Early ontogeny of the cell surface. Same species as a
- d Differentiation of multipotential teratoma cells. Same species as a
- MISENHEIMER, H. R.; M.D. — Dept. of Obstet. and Gynecol., Rush Med. Coll., 1753 W. Congress Parkway, CHICAGO, IL 60612, U.S.A.
- MISHRA, N. C.; Ph.D., Assoc. Prof. — Dept. of Biol., Univ. of S. Carolina, COLUMBIA, S. C. 29208, U.S.A.
- a Genetics and biochemistry of cell wall biosynthesis (biochemical lesions in mutants and phenocopies). *Neurospora crassa* (Ascomycetes)
- MISRA, R.; M.S. — Dept. of Obstet. and Gynecol.; M.L.N. Med. Coll., Allahabad Univ., ALLAHABAD 1, India
- a Sex chromatin analysis in normal and congenitally abnormal neonates. *Homo sapiens* (Primates)
- MITCHELL, J. T.; Ph.D. — Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A.
- a Effect of chemical compounds on pre-implantation stages in vivo and in vitro, with emphasis on developmental morphology and teratology. *Mus musculus* (Rodentia)
- b Morphological and teratological effect of pesticides on the embryo. *Chelydra serpentina* (Chelonia)
- MITRA, S. C.; M.Sc. (Hons.) — Dept. of Anat., Jawaharlal Inst. of Postgrad. Med. Educ. and Res., PONDICHERRY-605006, India
- a Congenital anomalies. *Homo sapiens* (Primates)
- MITTENTHAL, J. E.; Ph.D. — Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a Developmental neurobiology of giant interneuron-fast flexor motoneuron system in the abdomen. *Procambarus clarkii* (Decapoda, Crustacea)
- MIYA, K.; D. Sc., Prof. — Inst. of Appl. Entomol., Fac. of Agric., Iwata Univ., Ueda 3-18-8, MORIOKA, 020 Japan
- a Electron microscopy of oogenesis and embryogenesis. *Bombyx mori* (Lepidoptera)
- b Analysis of early embryonic development. Same species as a
- MIYAHARA, Y. — Dept. of Plant Pathol. and Entomol., Kyūshū Natl. Agric. Exp. Station, Nishi 496, Izumi, CHIKUGO-shi, Fukuoka-ken, 833 Japan
- a Sterility induced by gamma rays, heat, and chemosterilants. *Spodoptera litura* (Noctuidae, Lepidoptera)
- MIYAKE, Y-I.; M.Sc. — Dept. of Vet. Obstet., Fac. of Vet. Med., Hokkaido Univ., N 18, W 9, SAPPORO, 060 Japan
- a Cytogenetic investigations on chromosomal abnormalities (quinacrine mustard staining), *Sus scrofa*, *Bos taurus* (Artiodactyla)
- MIZELL, M.; Ph.D., Prof. — Dept. of Biol., Tulane Univ., NEW ORLEANS, La 70118, U.S.A.
- a Induced limb regeneration. *Didelphis virginiana* (Marsupialia)
- b Effects of regenerating appendages on Lucké tumor (renal adenocarcinoma): tumor differentiation. *Rana pipiens* (Anura)
- c Infectious nucleic acids (Herpes type virus associated with Lucké tumor) as differentiating agents. *Rana pipiens* (Anura)
- MIZUNO, Takeo; Ph.D., Prof. — Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Tissue interaction in lens induction. *Gallus domesticus* (Aves)
- b Differentiation of the hypoblast. Same species as a
- c The mechanism of epidermal regeneration. *Mus musculus* (Rodentia)
- MOAV, B.; Ph.D. — Dept. of Zool., Tel-Aviv Univ., 155 Herzl St., TEL-AVIV, Israel ISDB
- MOCHIDA, O.; Dr.Agr. — Dept. of Plant Pathol. and Entomol., Kyūshū Natl. Agric. Exper. Station, Nishi 496, Izumi, CHIKUGO-shi, Fukuoka-ken, 833 Japan
- a Morphology and physiology of oogenesis. *Nilaparvata lugens* (Delphacidae, Homoptera)
- b Ecological and anatomical studies on reproduction. *Javesella pellucida* (Delphacidae, Homoptera)
- c Sterility induced by gamma rays, heat, and chemosterilants. *Spodoptera litura* (Noctuidae, Lepidoptera)
- MOHLER, J. D.; Ph.D., Prof. — Dept. of Zool., Univ. of Iowa, IOWA-CITY, Ia. 52242, U.S.A.
- a The induction, identification, and characterization of female-sterile mutants, especially those affecting internal milieu of the egg, as material for the study of oogenesis. *Drosophila melanogaster* (Diptera)
- MOLINARI, E.; M.V., — Inst. de Embriol., Univ. Austral de Chile, Casilla no. 567, VALDIVIA, Chile

- a Maintenance and regeneration of the apical ectodermal ridge of the limb bud cultured in vitro. *Gallus domesticus* (Aves)
- MOLLENHAUER, H. H.; Ph.D. - Charles F. Kettering Res. Labs., 150 E. South College St., YELLOW SPRINGS, OH 45387, U.S.A.
- MONDER, C.; Ph.D. - Res. Inst., Hosp. for Joint Dis., 1919 Madison Ave., NEW YORK, NY 10035, U.S.A.
- a Induction of enzyme formation by steroids in fetal liver in organ culture. *Rattus norvegicus* (Rodentia)
- MONIE, I. W.; M.D., Prof. - Dept. of Anat., Sch. of Med., Univ. of Calif., SAN FRANCISCO, Calif. 94143, U.S.A.
- a Morphology, histochemistry, and organ culture of congenital malformations of the cardiovascular, urogenital, and nervous system, induced by teratogenic agents. *Rattus rattus* (Rodentia)
- b Effects of cadmium and lead on fetal development. Same species as a
- MOOG, Miss F.; Ph.D., Prof. - Dept. of Biol., Washington Univ., Skinker and Lindell Ave., ST. LOUIS, Mo. 63130, U.S.A. ISDB
- a Development of enzyme systems in the embryo. *Gallus domesticus* (Aves), (Mammalia)
- b Role of the pituitary-adrenal axis in fetal and juvenile development. (Aves; Mammalia)
- c Chemo-architectural studies of differentiation of surface of intestinal epithelial cells. (Aves; Mammalia)
- MOORE, Mrs. B. C.; Ph.D. - Dept. of Biol., Univ. of California, RIVERSIDE, Calif. 92502, U.S.A.
- a Chromosomal analysis of lethal racial hybrid embryos. *Rana pipiens* (Anura) ISDB
- MOORE, G. P. M.; Ph.D. - Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, A.C.T. 2600, Australia
- a Transcription of the genome during cleavage (endogenous RNA polymerase in isolated nuclei). *Mus musculus* (Rodentia)
- b Genetic activity of blastocyst cells during delayed implantation and embryonic diapause. *Mus musculus* (Rodentia), (Marsupialia)
- MOORE, J. A.; Ph.D., Prof. - Dept. of Biol., Univ. of California, RIVERSIDE, Calif. 92502, U.S.A.
- a Development of diploid and haploid racial hybrids. *Rana pipiens* (Anura) ISDB
- MOORE, K. L.; Ph.D., Prof. - Teratol. Res. Lab., Dept. of Anat., Univ. of Manitoba, 750 Bannatyne Ave., WINNIPEG, Man. R3E 0W3, Canada
- a Pathogenesis of abnormal development. *Rattus spec.* (Rodentia)
- b Sex chromatin patterns and sex chromosomal abnormalities. *Felis catus*, *Canis familiaris* (Carnivora), *Homo sapiens* (Primates)
- MORI, H.; D.Agr., Prof. - Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- MORI, T.; M.Agr. - Zool. Lab., Fac. of Agric., Kyushu Univ., FUKUOKA, Japan
- a Electron microscopic analysis of the mechanism of fertilization. *Pipistrellus abramus*, *Miniopterus schreibersi* (Chiroptera)
- MORI, Y.; M.A., Prof. - Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- MORRILL, G. A.; Ph.D., Assoc. Prof. - Dept. of Physiol., A. Einstein Coll. of Med., Yeshiva Univ., 1300 Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A.
- MORRILL, J. B.; Ph.D., Prof. - Div. of Nat. Sci., New College, SARASOTA, Fla. 33578, U.S.A.
- a Chemical differentiation of eggs. *Lymnaea spec.* (Gastropoda) ISDB
- b Analyses of ooplasmic segregation. (Gastropoda)
- MORRIS, J. E.; Ph.D. - Dept. of Zool., Oregon State Univ., CORVALLIS, Ore., 97331, U.S.A.
- a Mechanisms of cell association in histogenesis of the neural retina (role of glycosaminoglycans). *Gallus domesticus* (Aves)
- b Differentiation after cryptobiosis. *Artemia salina* (Anostraca, Crustacea)
- MORRIS, Miss V. B.; Ph.D. - Sch. of Biol. Sci., Univ. of Sydney, Zool. Bldg., SYDNEY, N.S.W. 2006, Australia ISDB
- a Distribution pattern of newly formed cells in the developing retina. *Gallus domesticus* (Aves)
- MORROW, J. F.; Ph.D. - Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Purification of silk fibroin gene and regulation of its expression. *Bombyx mori* (Lepidoptera) (with D. D. BROWN)
- MOSCONA, A. A.; Ph.D., Prof. - Depts. of Biol. and Pathol., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A. ISDB
- a Regulatory mechanisms in development and differentiation at molecular, cellular, and histogenetic levels in embryos and in cell-tissue-organ culture systems: 1. enzyme induction in embryonic cells; 2. role of cell interactions and the cell surface in differentiation; 3. cell aggregation and tissue synthesis in vitro
- MOSCONA, Mrs. M. H. - Dept. of Biol., Div. of Biol. Sci., Univ. of Chicago, 1101, E. 57th St., CHICAGO, IL 60637, U.S.A.
- MOSSMAN, H. W.; Ph.D., Prof. (Emer.) - Dept. of Anat., Med. Sch., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A. ISDB
- a Comparative morphology of the fetal membranes and reproductive tracts. (Mammalia)
- MOTOMURA, I.; D.Sc., Prof. - Lab. of Embryol., Inst. of Biol., Tôhoku Univ., SENDAI, Japan ISDB
- MOTTET, N. K.; M.D., Prof. - Dept. of Pathol., Univ. of Washington Med. School. BB232, Univ. Hosp., SEATTLE, Wash. 98195, U.S.A.
- a The mechanism regulating ontogenetic metaplasia in the esophagus. *Gallus domesticus* (Aves), *Homo sapiens* (Primates)
- b Ultrastructural features of necrosis as an ontogenetic process. Same species as a
- c Methyl mercury teratogenesis. *Mus musculus* (Rodentia), *Macaca mulatta* (Primates)
- MOUSTAFA, Mrs. L. A.; Ph.D. - Natl. Inst. for Environm. Health Sci., Environm. Toxicol. Branch,

- N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- a The fate of single cells transplanted into preimplantation embryos (intra- and interspecies). *Mus musculus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- b Effect of direct application of test agent(s) to embryos on DNA repair, subsequent viability and development (micromanipulation, embryo culture and intrauterine administration; pre- and postimplantation stages). Same species as a
- MULHERKAR, Mrs. L.; Ph.D., Prof. – Dept. of Zool., Univ. of Poona, Ganeshkind, POONA 411007, India ISDB
- a Transplantations of embryonic tissues. *Gallus spec.* (Aves)
- b Studies on -SH groups and embryonic induction. Same species as a
- c Morphogenesis of skin in the embryo. *Calotes versicolor* (Lacertilia)
- d Effects of irradiation on embryos with particular reference to the formation of scales. Same species as c
- e Effects of hydrazine, urethane and actinomycin D on embryos. *Gallus spec.* (Aves)
- MUN, A. M.; Ph.D., Prof. – Dept. of Zool., Univ. of Maine, Murray Hall, ORONO, Me. 04473, U.S.A.
- a Induction of immunological tolerance by intracoelomic grafts in the 4-day embryo. *Gallus gallus* (Aves)
- b Growth stimulation of embryonic spleen graft by adult spleen across a filter membrane. Same species as a
- c Embryo morphogenesis in unfertilized eggs. *Meleagris gallopavo* (Aves)
- d Effects of glycoalkaloids from blighted potatoes on the development of the early embryo. Same species as a
- MURAKAMI, U.; M.D., D.Med.Sc., Prof. – Dept. of Embryol. and Dept. of Perinatol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Fetal brain lesions caused by maternal administration of monosodium glutamate and allied chemical substances. *Mus musculus* (Rodentia) (with M. INOUE)
- b Effects of x-irradiation upon developing embryos, especially on the central nervous system. *Mus musculus*, *Rattus norvegicus* (Rodentia) (with R. SHOJI)
- MURAMATSU, S.; D.Sc. – Div. of Radiat. Hazards, Natl. Inst. of Radiol. Sci., 4-9-1, Anagawa, CHIBA, 280 Japan
- a Radiation effects on reproductive organs (cytogenetics, histology). *Mus musculus* (Rodentia)
- MURATA, F.; M.D., Ph.D. – Dept. of Anat., Shinshu Univ., Asahi 3-1-1, MATSUMOTO, 390 Japan
- a Electron microscopy of hematopoiesis in embryonic and newborn animals. *Oryctolagus cuniculus* (Lagomorpha), *Cavia porcellus*, *Rattus spec.*, *Mus musculus* (Rodentia)
- MURATA, Y.; M.D. – Dept. of Obstet. and Gynecol., Univ. of S. Calif., Womens's Hosp. 5K-22, 1240 N. Mission Rd., LOS ANGELES, Calif. 90033, U.S.A.
- a Fetal cardiovascular physiology, particularly responses to stress. *Macaca mulatta* (Primates)
- b Development of activity (sleep-waking) states in the fetus. *Macaca mulatta*, *Homo sapiens* (Primates)
- MURISON, G. L.; Ph.D. – Dept. of Biol., Univ. of Miami, CORAL GABLES, FL 33124, U.S.A.
- MURRAY, Mrs. M. R.; Dr. – Natl. Inst. of Neurol. Dis. and Stroke, N.I.H., Bldg. 36, 4B-12, BETHESDA, Md. 20014, U.S.A. ISDB
- a Development of sympathetic nervous system in vitro, especially biosynthesis of monoamine neurotransmitters; development and functions of sympathetic interneurons. *Gallus domesticus* (Aves), *Mus musculus*, *Rattus spec.* (Rodentia)
- MURTA, I. M. da SILVA; Prof. – Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 – 4<sup>o</sup> andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- a Cytogenetics, cytophotometry, DNA content. Peripatus acacioi (*Onychophora*)
- MUTHUKKARUPPAN, V.; Ph.D. – Dept. of Biol. Sci., Madurai Univ., MADURAI-2, Tamil Nadu, S. India
- NABER, E. C; Ph.D., Prof. – Dept. of Poultry Sci., Coll. of Agric., Ohio State Univ., 674 West Lane Ave., COLUMBUS, Ohio 43210, U.S.A.
- a Nutrition and metabolism of the developing embryo. *Gallus domesticus* (Aves)
- b Antimetabolites and morphogenesis; relationships to biochemical function. Same species as a
- NACE, G. W.; Ph.D., Prof. – Dept. of Zool. and Amphib. Facility. Center for Human Growth and Developm., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A. ISDB
- a Development and maintenance of defined strains. *Rana* 5 spp., *Bufo* 3 spp. (Anura), several spp. (Urodela)
- b Transfer of macromolecules from maternal organism to egg. *Rana spec.* (Anura)
- c Etiology of neoplasia in larva and adult. Same species as b
- d Role of specific macromolecules in fertilization. Same species as b
- e Problems in developmental and population genetics. (Amphibia)
- NAGAE, H.; M.Sc. – Dept. of Anat., Mie Pref. Univ., 2-174, Edobashi, TSU, Japan
- NAGANO, H.; M.D. – Dept. of Biochem., Nippon Med. School, Sendagi, Bunkyo-ku, TOKYO, 113 Japan
- a Control of enzyme formation and activity in liver during development. *Rana catesbeiana* (Anura) (with R. SHUKUYA)
- b Metamorphic changes in serum proteins. Same species as a (with R. SHUKUYA)
- NAGATA, T.; M.D., Ph.D., Prof. – Dept. of Anat., Shinshu Univ., Asahi 3-1-1, MATSUMOTO, 390 Japan
- a DNA and RNA synthesis in the mitochondria of stomach, kidney and liver cells from embryos and newborns in vitro. *Mus musculus*, *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- NAKAMOTO, T.; D.D.S. – Dept. of Nutr. and Food Sci., Massachusetts Inst. of Technol., Rm E18-577, CAMBRIDGE, Mass. 02138, U.S.A.



- a Growth and development of bone in fetus and neonate. *Rattus spec.* (Rodentia)
- b The effect of malnutrition on bone development in fetus and neonate. Same species as a  
NAKAMURA, H.; B.Sc. — 2nd Dept. of Anat., Kyoto Pref. Univ. of Med., Kawaramachi-Hirokoji,  
Kamikyo-ku, KYOTO, 602 Japan
- a Development of limb bud. *Mus musculus* (Rodentia)
- b In vitro analysis of teratogenicity of vitamin A. Same species as a  
NAKAMURA, I.; M.D., Prof. — Dept. of Anat., Nippon Med. School, 1-5, Sendagi 1-chome,  
Bunkyo-ku, TOKYO, 113 Japan
- a The forming process of the secondary retroperitoneal organs. *Homo sapiens* (Primates)
- NAKAMURA, K.; M.D., Dr. Med. Sc., Assoc. Prof. — Dept. of Anat., Div. I, Kobe Univ., Kusunoki-  
cho, Ikuta, KOBE, 650 Japan
- a Experimental teratology of the central nervous system. *Rattus norvegicus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- b Development of the blood-brain barrier. Same species as a  
NAKAMURA, O.; D.Sc., Prof. — Dept. of Biol., Osaka Kyōiku Univ., Tennoji-ku, OSAKA, 543 Japan
- a Causality in epigenetic formation of organizer. (Amphibia) ISDB
- b Fate map and formative movements. (Amphibia)
- c Cytodifferentiation during cleavage. (Amphibia)
- d Ultrastructural changes during early development. (Amphibia)
- e Nucleo-cytoplasmic interaction during early development. (Amphibia)
- f Cell interactions in relation to cytodifferentiation. (Amphibia)
- NAKANO, E.; D.Sc. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan ISDB
- NAKAYAMA, T.; M.D. — Anat. Inst., Nihon Univ., 30 Ooyaguchi-kami-machi, Itabashi-ku, TOKYO,  
173 Japan
- NAKAZAWA, T.; Ph.D. — Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA,  
280 Japan
- a Effect of ionizing radiations on the biochemical mechanism of embryonic development. *Artemia salina* (Anostraca, Crustacea)
- b Changes in nucleic acids and some other phosphorus fractions of tissues during late embryonic and early postnatal development. *Rattus norvegicus* (Rodentia)
- c Ca<sup>++</sup> uptake, H<sup>+</sup> ejection and respiration in eggs on fertilization. *Anthocidaris crassispina*, *Pseudocentrotus depressus* (Echinoidea)
- d Development of the energy transfer system in liver mitochondria from the fetal stage. *Rattus spec.* (Rodentia)
- e X-irradiation-induced damage in the microsomal drug-metabolizing enzyme system of developing liver. Same species as b
- NANNEY, D. L.; Ph.D., Prof. — Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, U.S.A.
- a Genetic and developmental studies on cortical variations. *Tetrahymena pyriformis* (Ciliata)
- b Regulation of gene action in clonal cultures. Same species as a
- NARAYANAN, C. H.; Ph.D., Assoc. Prof. — Dept. of Anat., Louisiana State Univ., 1542 Tulane Ave., NEW ORLEANS, La. 70112, U.S.A.
- a Origin and migration of neural crest precursors of the ciliary ganglion (interspecific grafting). *Coturnix coturnix*, *Gallus domesticus* (Aves)
- b Comparative studies on ontogenetic patterns of (choline) acetyltransferase in embryonic ciliary ganglia. *Anas platyrhynchos*, *Coturnix coturnix*, *Gallus domesticus* (Aves)
- c Ultrastructural investigation of synaptogenesis in the ciliary ganglion. Same species as b
- NARAYANASWAMY, S.; Ph.D. — Bio-Org. Div., Plant Morphogen. Sect., Bhabha Atom. Res. Ctr., Trombay, BOMBAY 400085, India
- a Experimental morphogenesis of embryos and plantlets in organ, tissue and free cell cultures. Many spp. (Angiospermae)
- b Development of pollen plantlets (haploids) in tissue culture. Same species as a
- c Protoplast culture: cell hybridization. Same species as a
- d Dynamics of apical meristem culture. Many spp. (Angiospermae)
- e Hormonal control of shoot buds and plantlets in callus tissues. Same species as d
- f Suspension cultures of free cells. Same species as d
- g Radiobiological studies on tissue cultures. Same species as d
- NASH de PINJOSOVSKY, Mrs. R. E.; M.D. — Inst. de Embriol., Biol. e Histol., Fac. de Cienc. Med., Univ. Nac. de La Plata, 60 y 120, LA PLATA, Argentina
- NATSUKARI, Y. — Dept. of Maricult., Fac. of Fish., Nagasaki Univ., 1-14 Bunkyo-machi, NAGASAKI, 852 Japan
- a Embryonic development and early life history. *Loligo edulis*, *L. japonica*, *L. kobeiensis*, *L. sumatrensis* (Cephalopoda)
- NAVAGIRI, Mrs. S. S.; M.S. — Dept. of Anat., Med. Coll., NAGPUR-3, M.S., India
- a Effect of hypertrophic cartilage on perichondral ossification. *Gallus domesticus* (Aves)
- b Chromosomal study in cleft lip, cleft palate, and retinitis pigmentosa. (Mammalia)
- NEBEL, L. A.; M.D., Prof. — Dept. of Embryol. and Teratol., Ch. Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a Studies on immune factors in fertilization, implantation, and placentation. (Rodentia), *Homo sapiens* (Primates)
- b Effects of immuno-suppressive substances on implantation and embryonic differentiation. (Rodentia)
- NELSON, L.; Ph.D. — Dept. of Physiol., Med. Coll. of Ohio, P.O. Box 6190, TOLEDO, OH 43614, U.S.A. ISDB

- a DNA transcription and translation of RNA in early stage embryos. *Strongylocentrotus purpuratus*, *Lytechinus pictus* (Echinoidea)
- NIENHUIS, Miss M. R.; Ph.D. Biol. Dept., LeMoyne Coll., LeMoyne Heights; SYRACUSE, NY 13214, U.S.A.
- a Defining a culture system for cells and regenerating animals in order to manipulate the regenerative process and define it at the cellular level. *Dugesia dorotocephala* (Turbellaria)
- b Morphological studies of the nervous system in many different species in order to compare its development with regenerative abilities. (Turbellaria)
- NEUBERT, Ms. M. N.; Ph.D., Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Role of failure of X-chromosome-inactivation in death of parthenogenones. *Mus musculus* (Rodentia)
- b Developmental effects of specific chromosomal aberrations. Same species as a
- NEUBURG, R. W.; Ph.D., Prof. - Dept. of Biochem. and Biophys., Fac. of Sci., Oregon State Univ., CORVALLIS, Ore. 97331, U.S.A.
- a Chemical and biochemical changes during development (Insecta)
- NEWCOMB, W.; Ph.D. - Cabot Found., Harvard Univ., PETERSHAM, Mass. 01366, U.S.A.
- a Fine structure of embryogenesis with special reference to the suspensor of normal and mutant plants. *Lycopersicon spec.* (Solanaceae)
- b Fine structure of embryogenesis. *Triticum spec.* (Gramineae)
- NIAMI, I. A.; Ph.D. Dept. of Zool., Univ. of Rajasthan, JAIPUR-302004, India
- a Limb and tail regeneration. *Bufo spec.* (Anura)
- b Influence of hypo- and hypervitaminosis A on ontogenetic and regenerative development in embryos and larvae. Same species as a
- c Role of thyroid and adrenal hormones in larval limb regeneration. Same species as a
- d Morphological and physiological differentiation of the retina and its growth from embryo through adult. Same species as a
- NIIMI, M. & M.D., Ph.D., Prof. - Dept. of Anat., Tokyo Med. and Dent. Univ., TOKYO, 113 Japan
- NISHIMURA, H.; M.D., Prof. - Dept. of Anat., Kyoto Univ., Kono-cho, Yoshida, Sakyo-ku, KYOTO, 606 Japan ISDB
- a Malformations in early embryos and maternal factors. *Homo sapiens* (Primates)
- b Evaluation of teratological studies on experimental animals with respect to human safety. (Mammalia)
- c Prenatal hazards of environmental chemicals. *Rattus norvegicus* (Rodentia), *Homo sapiens* (Primates)
- NISHIOKA, Miss M.; D.Sc., Prof. - Lab. for Amph. Biol., Fac. of Sci., Hiroshima Univ., Higashisenda-cho, HIROSHIMA, Japan
- a Hybridization among European and Far Eastern forms. (Ranidae; Discoglossidae, Anura)
- b Morphological and sexual abnormalities in the offspring of animals derived from irradiated eggs or sperm. *Rana nigromaculata*, *R. japonica*, *Bombina orientalis* (Anura)
- NIU, M. C.; Ph.D., Prof. - Dept. of Biol., Temple Univ., Broad and Berks St., PHILADELPHIA, PA 19122, U.S.A. ISDB
- NODA, Y. D.; Ph.D., Assoc. Prof. - Biol. Inst., Ehime Univ., Bunkyo-cho, MATSUYAMA, 790 Japan
- a Ultrastructural changes during fertilization in vitro. *Mesocricetus auratus*, *Mus musculus*, *Rattus spec.* (Rodentia)
- b Fertilization. *Nereis spec.* (Polychaeta), *Urechis spec.* (Echiuroidea; Echinoidea)
- NOGAMI, H.; M.D. - Inst. for Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03 Japan
- a Induction, origin, and development of bone and cartilage cells (implantation, explantation). *Rattus spec.*, *Mus musculus* (Rodentia)
- NONAMI, Y.; Dr. Agric., Prof. - Dept. of Biochem. and Technol. of Anim. Products, Univ. of Niigata, Igarashi, NIIGATA, 950-21 Japan
- a Disc gel electrophoresis of proteins in albumen of incubated eggs. *Gallus domesticus* (Aves)
- NOODÉN, L. D.; Ph.D., Assoc. Prof. - Dept. of Bot., Univ. of Michigan, ANN ARBOR, MI 48104, U.S.A.
- NORMAN, C.; Ph.D., Prof. - Dept. of Biol., West Virginia Univ., MORGANTOWN, W.Va. 26506, U.S.A.
- a The intracellular distribution of sulfhydryl groups in embryonic, adult, and tumorous tissues. *Rana pipiens* (Anura)
- b Effects of pH on metabolism and fertilizing capacity of spermatozoa cultured in vitro. (Mammalia)
- c Effects of light on spermatozoa. (Mammalia)
- d Physiology and biochemistry of germ cells. (Mammalia)
- e Physiological and biochemical basis of cell senescence.
- f The effect of sterols on growth and development of sexuality. *Phytophthora cactorum* (Fungi)
- NORSTOG, K. J.; Ph.D., Prof. - Dept. of Biol. Sci., Northern Illinois Univ., DeKALB, Ill. 60115, U.S.A.
- a Development of cultured tissues. Cycadales and other spp. (Gymnospermae), cereals and other spp. (Angiospermae)
- b Embryology (tissue culture and electron microscopy). *Hordeum vulgare* (Gramineae)
- NOTO, T.; D.Sc. - Embryol. Lab., Dept. of Anat., Kagoshima Univ., 7-82, Shiroyama-cho, KAGOSHIMA, Japan

- a Molecular autoradiographic study of RNA synthesis during oogenesis. *Gallus domesticus* (Aves)  
 b Autoradiographic study of RNA synthesis during dental development. (Mammalia)  
 c Theoretical considerations on gene differentiation
- NOUMURA, T.; D.Sc. – Dept. of Biol., Tokyo Metropolitan Inst. of Gerontol., 35-2 Sakaecho, Itabashi-ku, TOKYO, 173 Japan
- a Identification of embryonic gonadal hormones in sex differentiation. *Gallus spec.* (Aves), *Rattus spec.* (Rodentia)  
 b Mechanism of Müllerian inhibition. *Gallus spec.*, *Anas spec.*, *Coturnix spec.* (Aves)
- NOVAES, P. M. – Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 – 4° andar, C.P. 253, BELO HORIZONTE, M. G., Brazil
- a Alteration of spermatogenesis following interspecific hybridization or ionizing radiations. (*Triatominae*, Hemiptera)
- NUMANOI, H.; Ph.D., Prof. – Biol. Lab., Sch. of Educ., Waseda Univ., Tozuka, Shinjuku, TOKYO, Japan
- a Biochemical control of metamorphosis. *Procambarus clarkii* (Decapoda, Crustacea)  
 b Organ culture of endocrine system involved in ecdysis. Same species as a
- NUSSBAUM, N. S.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Coll. of Sci. and Engin., Wright State Univ., Col. Glenn Highway, DAYTON, Ohio 45431, U.S.A.
- a Hormonal aspects of mineralization as studied in hypophysectomized, mature animals (using regenerating scales as test objects). *Carassius auratus*, *Fundulus heteroclitus* (Teleostei)  
 b Electron micrographic aspects of scale regeneration in non-juvenile animals (autoradiography and cytochemical techniques applied at ultrastructural level). *Carassius auratus* (Teleostei)
- OAKLEY, G. P., Jr.; M.D. – Cancer and Birth Defects Div., Bur. of Epidemiol., Center for Dis. Control. ATLANTA, Ga. 30333, U.S.A.
- a Blastocyst chromosomes with regard to delayed fertilization. *Rattus spec.* (Rodentia)  
 b Epidemiology of birth defects in spontaneous abortions and newborns. *Homo sapiens* (Primates)
- OBERLANDER, H.; Ph.D. – Insect Attract., Behav. and Basic Biol. Res. Lab., Agric. Res. Serv., U.S.D.A., 1700 S.W. 23rd Drive, P.O. Box 14565, GAINESVILLE, Fla. 32604, U.S.A. ISDB
- a Cellular aspects of the hormonal control of metamorphosis. *Galleria mellonella*, *Plodia interpunctella* (Lepidoptera)  
 b Developmental behavior of imaginal discs in vivo and in vitro. Same species as a
- OBIKA, M.; D.Sc. – Dept. of Biol., Keio Univ., YOKOHAMA-Hiyoshi, Japan
- ODA, S.; D.Sc., Prof. – Biol. Lab., Coll. of Gen. Educ., 'St. Paul's Univ., 3 Nishi-Ikebukuro, Toshima-ku, TOKYO, 171 Japan
- a Germination of statoblasts. *Lophopodella carteri*, *Pectinatella magnifica* (Phylactolaemata, Bryozoa)
- ODUTOLA, A. B.; Dr. – Dept. of Anat., Fac. of Med., Univ. of Ibadan, IBADAN, Nigeria
- a Explant culture of the embryonic trigeminal ganglion (ultrastructure, behaviour). *Rattus spec.* (Rodentia)
- O'FARRELL, A. F.; A.R.C.S., Prof. – Dept. of Zool., Sch. of Biol. Sci., Univ. of New England, ARMIDALE, N.S.W. 2351, Australia
- a Effect of wounding with and without treatment with hormones inducing moult and regeneration. *Blattella germanica* (Blattariae) (with A. STOCK)
- OGREN, R. E.; Ph.D. – Dept. of Biol., Wilkes Coll., WILKES-BARRE, PA 18703, U.S.A.
- OHASHI, T.; M.Sc. – Dept. of Anat., Mie Pref. Univ., 2-174, Edobashi, TSU, Japan
- OHJ, S.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Washington, 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Techniques for mapping of nucleic acids. *Xenopus laevis* (Anura)  
 b Purification of histocompatibility antigens from cells. *Mus musculus* (Rodentia)  
 c Regulation of synthesis of nuclear and mitochondrial nucleic acids during early development. *Rana pipiens*, *Xenopus laevis* (Anura) (With I. B. DAWID)
- OHNO, S.; Ph.D., D.Sc. – Dept. of Biol., City of Hope Med. Center, 1500 E. Duarte Rd., DUARTE, Calif. 91010, U.S.A.
- a The interaction between the X-linked *Tm* mutant gene and an (*O<sup>hV</sup>*) allele of the nearby 'controlling-element' site (restoration of testosterone responsiveness to various embryonic tissues; preferential X-activation). *Mus musculus* (Rodentia)
- OHSAKI, K. – Biol. Inst., Coll. of Lib. Arts, Univ. of Kanazawa, KANAZAWA, Japan
- a Development of egg. *Dugesia japonica* (Turbellaria)  
 b Reaggregation of dissociated cells. *Callyspongia elongata* (Porifera)  
 c Regeneration. *Hydra spec.* (Hydrozoa)
- OJIMA, Y.; D.Sc., Prof. – Dept. of Biol., Kwansai Gakuin Univ., Uegahara, NISHINOMIYA, 662 Japan
- a Developmental genetics. *Carassius auratus*, *Cyprinus carpio* (Teleostei)  
 b Developmental cytogenetics. Freshwater species and hybrids (Teleostei)
- OKA, H.; Ph.D., Prof. (Emer.) – Inst. of Zool., Tokyo Kyōiku Univ., Otsuka 3-29-1, Bunkyo-ku, TOKYO, 112 Japan ISDB
- OKADA, M.; Ph.D. – Inst. of Zool., Tokyo Kyōiku Univ., Otsuka 3-29-1, Bunkyo-ku, TOKYO, 112 Japan
- OKADA, T. S.; D.Sc., Prof. – Lab. of Cell Sci., Inst. of Biophys. and Molec. Biol., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, 606 Japan ISDB
- a Factors affecting cell aggregation and cell contact. *Gallus gallus* (Aves) (with M. TAKEICHI and K. YASUDA)  
 b Stability in the differentiation of cells from eye tissues in clonal cell culture. *Gallus gallus* (Aves), *Mus bactrianus* (Rodentia) (with G. EGUCHI and M. TAKEICHI)

- OKADA, Y. K.; Dr., Prof. (Emer.) Div. of Zool., Natl. Sci. Museum, Ueno Park, Daito-ku, TOKYO, Japan  
ISDB
- OKAMOTO, M. Lab. of Cell Sci., Inst. of Biophys. and Molec. Biol., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, 606 Japan
- a Ultrastructure of cell surfaces of early embryos. *Xenopus laevis* (Anura), *Triturus pyrrhogaster* (Urodela)
- OKAZAKI, Miss K.; D.Sc. Embryol. Sect., Biol. Dept., Tokyo Metropolitan Univ., 2-1-1 chome, Fukazawa-machi, Setagaya-ku, TOKYO, 158 Japan.  
ISDB
- a Mechanism of spicule formation. (Echinoidea)  
b Myogenesis. (Aves; Mammalia)
- OKAZAKI, T.; D.Med.Sci. - Dept. of Biochem., Nippon Med. Sch., Sendagi, Bunkyo-ku, TOKYO, 113 Japan
- a Genetic control of hemoglobin switch during metamorphosis. *Rana catesbeiana* (Anura) (with R. SHUKUYA)  
b Developmental changes in catalase and glutathione peroxidase in red cell and liver. Same species as a  
c Developmental aspects of the function of hemoglobin in red cell. Same species as a (with R. SHUKUYA)
- OLIPIANT, E. E.; Ph.D. - Dept. of Obstet. and Gynecol., Div. of Reprod. Biol., Univ. of Virginia Med. Sch., Box 179, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Role of seminal plasma components in sperm capacitation. *Oryctolagus cuniculus* (Lagomorpha), *Mus musculus* (Rodentia)  
b Molecular mechanism of induction of the sperm acrosome reaction. Same species as a  
c Effect of the oviduct on embryo development. *Mus musculus* (Rodentia)
- ONUMA, H.; Ph.D. - Sch. of Anim. Sci., Kitasato Univ., TOWADA-shi, Aomori, 034 Japan
- a Retention of tubal ova. *Equus caballus* (Perissodactyla)
- OOSHII, Miss S.; D.Sc. - Fac. of Fish., Mie Univ., Edobashi, TSU, Mie, 514 Japan
- a Postembryonic development: nauplius and copepodid stages. *Haplostoma* spec., *Haplostomides* spec., *Haplostomella* spec., *Haplosaccus* spec. (Ascidicolidae, Copepoda)
- OOYA (KONDO), Mrs. N.; M.Sc. - Dept. of Biol., Coll. of Gen. Educ., Osaka Univ., Toyonaka, OSAKA, 560 Japan
- a Morphology and embryology. *Nuphar* spec., *Brasenia* spec., *Nelumbo* spec., *Nymphaea* spec., *Victoria* spec. (Nymphaeaceae)
- OPPENHEIM, R.; Ph.D. - Neuroembryol. Lab., North Carolina Dept. of Mental Health., Dorothea Dix Hosp., Box 7532, RALEIGH, N.C. 27611, U.S.A.
- a Neural and behavioural aspects of embryonic development (behavioural observations, microsurgery). *Gallus gallus*, *Anas platyrhynchos*, *Columba livia* (Aves)  
b Early embryonic transplantation of brain and sense organs between species. *Gallus gallus*, *Anas platyrhynchos*, *Coturnix coturnix* (Aves)  
c Preliminary investigation of neural and behavioral development in pouch-young. *Didelphis virginiana* (Marsupialia)  
d Analysis of synaptogenesis in embryonic brain and spinal cord. *Gallus gallus* (Aves)
- OPPENHEIMER, Miss J. M.; Ph.D., Prof. - Dept. of Popul. Dynam., Sch. of Hyg. and Publ. Health, Johns Hopkins Univ., 615 N. Wolfe St., BALTIMORE, Md. 21205, U.S.A.  
ISDB
- OPPENHEIMER, S. B.; Ph.D. - Dept. of Biol., Calif. State Univ., 18111 Nordhoff St., NORTH-RIDGE, Calif. 91324, U.S.A.
- a Molecular basis of intercellular adhesion in normal and malignant cells (adhesive factors, cell surface sugars, plant lectins). (Echinoidea), *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)  
b Role of cell surface carbohydrates in differentiation, ageing, malignancy and cell interactions. Same species as a
- O'RAHILLY, R.; M.D., Prof. - Carnegie Embryol. Labs., Wayne State Univ., 540 East Canfield Ave., DETROIT, Mich. 48201, U.S.A.  
ISDB
- a Early development (stages 10 to 23). *Homo sapiens* (Primates)  
b Prenatal development of central nervous system. Same species as a
- O'RAND, M. G.; Ph.D. - Inst. for Molec. and Cell. Evol., Univ. of Miami, 521 Anastasia Ave., CORAL GABLES, Fla. 33134, U.S.A.
- a Membrane glycoproteins which are sperm-specific antigens; their role in fertilization. *Oryctolagus cuniculus* (Lagomorpha)  
b Sperm-specific antigens and their role in capacitation-like interaction during internal fertilization. *Campanularia flexuosa* (Hydrozoa)
- ORCE REMIŞ, A. M.; M.D. - Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMÁN, Argentina
- a Sperm metabolism: respiration, glycolysis. *Bufo arenarum*, *Leptodactylus chaquensis* (Anura)
- ORNOY, A.; M.D. - Dept. of Anat., Hebrew Univ.-Hadassah Med. Sch., P.O. Box 1172, JERUSALEM, Israel
- a Spontaneous and induced abortions: congenital anomalies, chromosomal aberrations and placental pathology (incl. ultrastructure). *Homo sapiens* (Primates)  
b Pathogenesis of congenital rubella. Same species as a  
c Transplacental effects of thyrocalcitonin, estrogens, corticosteroids and parathyroid hormone on fetal osteogenesis and calcium metabolism. *Mus musculus*, *Rattus spec.* (Rodentia)
- ORSINI, Mrs. M. W. G.; Ph.D., Prof. - Dept. of Anat., Bardeen Med. Labs., Univ. of Wisconsin, MADISON, Wis. 53706, U.S.A.  
ISDB
- a Fetal membranes, giant cells, and pregnancy changes in uterine vessels. *Mesocricetus auratus* (Rodentia)

- b Factors controlling implantation and loss of zona pellucida. *Mesocricetus auratus*, *Rattus norvegicus*, *Mus musculus*, *Cavia porcellus* (Rodentia), *Mustela putorius*, *M. vison* (Carnivora)
- c Decidualization during pregnancy and pseudopregnancy. Same species as b
- d Factors controlling life of corpora lutea. Same species as a
- e Immunological aspects of decidualization. Same species as a
- ORTIZ, Miss E.; Dr. - Dept. of Biol., Univ. of Puerto Rico, R10 PIEDRAS, Puerto Rico 00931 ISDB
- OSHIMA, K.; Assoc. Prof. - Dept. of Physiol., Primate Res. Inst., Kyoto Univ., INUYAMA, Aichi, 484 Japan
- a Endocrine organs, particularly gonadal system during fetal development. *Macaca fuscata* (Primates)
- OTERINO, Miss J. M.; Biochem. - Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMAN, Argentina
- OVERMAN, D. O.; Ph.D. - Dept. of Anat., Med. Ctr., West Virginia Univ., MORGANTOWN, W. Va. 26506, U.S.A.
- a Chondrogenesis and brain-face relationships during genesis of cleft palate; protection against cleft palate. *Mus musculus*, *Rattus norvegicus* (Rodentia)
- b Ascorbate protection against induced skeletal malformations. *Gallus domesticus* (Aves), *Rattus norvegicus* (Rodentia)
- OVERTON, Mrs. J. H.; Ph.D., Prof. - Dept. of Biol., Div. of Biol. Sci., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A. ISDB
- a Cell junctions in experimentally opposed cells, particularly formation of desmosomes. *Gallus domesticus* (Aves)
- OZAKI, H.; Ph.D. - Dept. of Zool., Coll. of Nat. Sci., Michigan State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Enzyme regulation during development; especially supernatant and mitochondrial malate dehydrogenases. *Strongylocentrotus purpuratus* (Echinoidea)
- b RNA synthesis primed by chromatin isolated from embryos. Same species as a
- c Rate of RNA synthesis and kinds of RNA synthesized in embryos animalized by zinc sulfate. Same species as a
- d Developmental biochemistry, especially ribosomal RNA synthesis during oogenesis. *Oryzias latipes*, *Brachydanio rerio*, *Pimephales promelas* (Teleostei)
- OZATO, K.; Ph.D. - Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Interactions between cell membrane and nucleus in the regulation of DNA synthesis, using ions and ionophores in a variety of cells in culture, including lymphocytes. (Vertebrata) (with J. D. EBERT)
- b Ontogeny of immunity, especially the development of the thymocyte membrane. *Mus musculus* (Rodentia)
- PACKARD, D. S., Jr.; Ph.D. - Dept. of Anat., Upstate Med. Ctr., State Univ. of New York, 766 Irving Ave., SYRACUSE, NY 13210, U.S.A.
- a Determination and segmentation of somitic mesoderm. *Gallus domesticus* (Aves)
- b Cellular site of action of nucleotide analog teratogens (bromodeoxyuridine, iododeoxyuridine). Same species as a
- PACKER, A. D.; M.D. - Dept. of Anat. and Histol., Univ. of Adelaide, ADELAIDE, S. Austr. 5000, Australia
- PADYKULA, Miss H. A.; Ph.D., Prof. - Lab. of Cell Biol., Dept. of Biol. Sci., Wellesley Coll., WELLESLEY, MA 02181, U.S.A. ISDB
- PAGANO, R. E.; Ph.D. - Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Isolation of membrane-bound proteins and lipid-protein interactions in differentiating cells. *Gallus domesticus* (Aves), *Mesocricetus auratus*, *Mus musculus* (Rodentia) (with L. HUANG)
- b Membrane fusion and membrane reconstitution in vitro. (Mammalia)
- PAI, S.; Dr. rer. nat. - Lab. of Developm. Physiol., Inst. of Exp. Biol., Acad. Sinica, 320 Yo Yang Rd., SHANGHAI, People's Rep. of China ISDB
- PALL, M. L.; Ph.D. - Program in Genet., Wash. State Univ., PULLMAN, Wash. 99163, U.S.A.
- a Isolation and characterization of developmental mutants and analysis of the regulation of sexual development. *Volvox carteri* (Chlorophyceae)
- PALMITER, R. D.; Ph.D. - Dept. of Pharmacol., Sch. of Med., Stanford Univ., STANFORD, CA 94305, U.S.A.
- PANDIT, R. V.; Ph.D. - Veterinary Coll., Seminary Hills, NAGPUR 440006, India
- a In vitro morphogenesis of lens from lens epithelium. *Bubalus bubalis*, *Bos taurus* (Artiodactyla)
- b Morphogenesis from ectopic lens epithelium grafts. Same species as a
- PANNBACKER, R. G.; Ph.D. - Charles F. Kettering Res. Labs., 150 E. South College St., YELLOW SPRINGS, OH 45387, U.S.A.
- PANT (AIYAR), Mrs. R.; Ph.D. - Dept. of Biochem., Fac. of Sci., Allahabad Univ., ALLAHABAD-2, U.P., India
- a Lipid metabolism and characterization of phospholipids during development from embryo till young adult (thin layer and gas-liquid chromatography). *Philosamia ricini* (Lepidoptera)
- b Enzymes in the egg and in the fat body from larva till young adult. Same species as a (with K. K. SHARMA)
- c Cuticle proteins in egg shell, larva, and pupa (electrophoresis). Same species as a
- d Free amino acids and transaminases, nucleoproteins, proteins and proteolytic enzymes in the silk gland during larval development. Same species as a (with K. K. SHARMA)
- e Phytosterol variation during seed germination. (*Phaseolus mungo*, *P. radiatus*, *Cicer arietinum*)

- (Leguminosae) (with K. K. SHARMA)  
 PAPANICOLAOU, J.: Ph.D. - Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A. ISDB
- PARK, Miss H. D.: Ph.D. - Natl. Inst. of Arthritis and Metab. Dis., Bldg.2, Rm B1-14, BETHESDA, MD 20014, U.S.A.
- PARK, K. F.: D.Agric. - Dept. of Sericult., Coll. of Agric., Seoul National Univ., SUWON, South Korea
- a Artificial hatching of egg. *Bombyx mori* (Lepidoptera)
- PARTANEN, C. R.: Ph.D., Prof. - Dept. of Biol., Univ. of Pittsburgh, PITTSBURGH, PA 15213, U.S.A.
- PATIL, T. L.: M.S. - Dept. of Anat., Med. Coll., NAGPUR-3, M.S., India
- a Effect of temperature differentials on cell differentiation. *Gallus domesticus* (Aves) (with P. N. DUBBY)
- PAVAN, C.: Ph.D., Prof. - Dept. of Zool., Univ. of Texas, AUSTIN, Tex. 78712, U.S.A.
- a DNA, RNA, and protein synthesis in polytene chromosomes in development of normal and infected larvae. (Sciaridae, Diptera)
- PEARCE, Th. L.: Ph.D. - Dept. of Biol., Colgate Univ., HAMILTON, N.Y. 13346, U.S.A.
- a Effects of inhibitors of mitosis (e.g. colcemid) and DNA synthesis (e.g. 5-bromodeoxyuridine) on the appearance of crystallins in the lens placode (immunofluorescence and peroxidase-labelled antibodies). *Gallus domesticus* (Aves)
- PEDERNERA, E. A.: Dr.Med. - Dept. of Histol. y Embriol., Univ. Nac. de Rosario, Santa Fe 3100, ROSARIO, Argentina
- a Activity of enzymes related to pentose phosphate pathway and steroid biosynthesis correlated to the functional differentiation of the adrenal gland in the embryo. *Gallus domesticus* (Aves)
- PENER, M. P.: Ph.D., Prof. - Dept. of Entomol., Hebrew Univ., JERUSALEM, Israel
- a Effect of temperature and humidity on embryonic development and their role in embryonic diapause. *Oedipoda miniata* and other spp. (Orthoptera)
- b Hormonal effects on oocyte development and egg-laying. various spp. (Acrididae, Tettigoniidae, Orthoptera)
- PENMAN, S. - Dept. of Biol., Massachusetts Inst. of Technol., CAMBRIDGE, MA 02139, U.S.A., ISDB
- PERKINS, D. L.: Ph.D. - Dept. of Zool., Univ. of Oklahoma, 730 Van Vliet Oval, NORMAN, Okla. 73069, U.S.A.
- a The effects of high hydrostatic pressure on amoeba-to-flagellate transformation. *Naegleria gruberi* (Rhizopoda)
- b The effects of ionic ratios and osmotic concentrations on the amoeba-to-flagellate transformation and the pseudomating reaction. *Naegleria gruberi* (Rhizopoda), *Spirostomum ambiquum* (Ciliata)
- PERSAUD, T. V. N.: M.D., Ph.D., Assoc. Prof. - Teratol. Res. Lab., Dept. of Anat., Univ. of Manitoba, 750 Bannatyne Ave., WINNIPEG, Man. R3E 0W3, Canada.
- a Teratological studies with prostaglandins and inhibitors of prostaglandin synthesis; involvement of prostaglandins in developmental processes. *Gallus spec.* (Aves), *Mus musculus*, *Rattus spec.* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- b Fetal toxicity of metals, in particular aluminium. *Mus musculus*, *Rattus spec.* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha)
- c Ontogenetic pattern of enzymes in normal and abnormal development (histochemistry, biochemistry). *Rattus norvegicus* (Rodentia)
- PETERS, A.: Ph.D., Prof. - Dept. of Anat., Boston Univ., 80 East Concord St., BOSTON, Mass. 02118, U.S.A.
- a Electron microscopy of the formation of myelin sheaths and development of neuroglial cells in the central nervous system. *Rattus domesticus* (Rodentia)
- b Electron microscopy of the cerebral cortex. Same species as a
- PETERS, J. J.: Ph.D., Prof. - Dept. of Biol., Xavier Univ., Victoria Parkway, CINCINNATI, Ohio 45207, U.S.A.
- a Episodes of conspicuously rhythmic electroencephalographic activity following hypothermic hypoxia in embryos between 15th and 20th day of incubation. *Gallus domesticus* (Aves)
- b Onset of bipedal locomotion. Same species as a
- PHILLIPS, D. M.: Ph.D. - Biomed. Div., The Popul. Council, Rockefeller Univ., York Ave. and 66th St., NEW YORK, NY 10021, U.S.A.
- a Ultrastructure of sperm development. (Invertebrata; Mammalia), *Homo sapiens* (Primates)
- PHILLIPS, H. M.: Ph.D. - Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Measurement of intercellular adhesiveness in cohering populations of embryonic cells. *Rana pipiens* (Anura), *Gallus domesticus* (Aves)
- PHILLIS, J. W.: Ph.D., D.Sc. - Dept. of Physiol., Univ. of Manitoba, 770 Bannatyne Ave., WINNIPEG 3, Man., Canada
- PHILPOTT, G. W.: M.D. - Dept. of Surg., Washington Univ., 4960 Audubon Ave., ST. LOUIS, Mo. 63110, U.S.A. ISDB
- a Biologic mediators of cell proliferation in fetal, adult, and neoplastic gastrointestinal cells. (Mammalia)
- PIATIGORSKY, J.: Ph.D. - Lab. of Molec. Genet., Natl. Inst. of Child Health and Human Development, Natl. Inst. of Health, Bldg. 6, Rm 333, BETHESDA, Md. 20014, U.S.A. ISDB
- a Lens development: 1. protein synthesis; 2. the role of microtubules; 3. synthesis and metabolism of RNA. *Gallus domesticus* (Aves)
- PIDDINGTON, R. L.: Ph.D., Assoc. Prof. - Dept. of Histol., Embryol. and Genet., Sch. of Dent.

- Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.
- a Correlations between glutamine synthetase development and specific structural biochemical, and physiological events in the functional maturation of nervous tissue (retina and brain). *Gallus domesticus* (Aves)
- PIERRO, L. J.; Ph.D., Prof. — Dept. of Anim. Genet., Storrs Agric. Exper. Station, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A. ISDB
- a Chemical teratogenesis: inhibitors of nucleic acid and protein metabolism. *Gallus domesticus* (Aves)
- b Eye development. *Mus musculus* (Rodentia)
- c Developmental genetics. Same species as a and b
- PIKÓ, L.; Ing. Agr., D. V. M. — Developm. Biol. Lab., Vet. Adm. Hosp., SEPULVEDA, CA, U.S.A. ISDB
- PILAR, G. R.; M.D., Prof. — Regulatory Biol., Biol. Sci. Group, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A.
- a Formation and function of synapses, and cell death in ganglia. (Aves)
- PILKINGTON, J. B.; Ph.D. — Dept. of Zool., Univ. of Otago, DUNEDIN, New Zealand
- a Physiology of calcified endolymphatic deposits during metamorphosis. *Litorea aurea* (Anura)
- PIPA, R. L.; Ph.D., Assoc. Prof. — Div. of Entomol., Univ. of Calif., BERKELEY, CA 94720, U.S.A
- PIPERBERG, J. B.; B.A. — Dept. of Histol., Embryol., and Genet., Sch. of Dent. Med., and Dept. of Biol., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A.
- a Cortisol receptor protein in the embryonic retina (chromatin binding capacity in target and non-target tissues). *Gallus domesticus* (Aves)
- b A protein catalogue of embryonal and adult proteins and their time of appearance in relation to morphogenesis. *Fundulus heteroclitus* (Teleostei)
- PITOT, H. C.; M.D., Ph.D. — McArdle Lab. for Cancer Res., Univ. of Wisconsin, 450 N. Randall Ave., MADISON, Wis. 53706, U.S.A.
- a RNA template stabilization in differentiation and neoplasia
- POIRIER, G. R.; Ph.D. — Dept. of Biol., Univ. of Alabama, 1919 Seventh Ave. South, BIRMINGHAM, AL 35233, U.S.A.
- POLLARD, D. R.; Ph.D. — Dept. of Anat., Cornell Univ., Med. Coll., 1300 York Ave., NEW YORK NY 10021, U.S.A.
- a Expression of embryonic-lethal genotypes in the allophenic animal. *Mus musculus* (Rodentia)
- b Effect of nucleic acid and protein inhibitors on cleavage stage embryos in vitro. Same species as a
- PORRAS de CARRERO, Mrs. I.; Lic. Bio. — Cat. de Embriol., Fac. de Med., Univ. de Los Andes, MERIDA, Venezuela
- a Development of the vascular system in limb muscles (injected specimens). *Homo sapiens* (Primates)
- b Development of the pericardial sac and its vascular pattern (injected specimens). Same species as a
- PORTER, K. R.; Ph.D., Prof. — Dept. of Molec., Cell., and Developm. Biol., Univ. of Colorado, BOULDER, CO 80302, U.S.A. ISDB
- POSTLETHWAIT, J. H.; Ph.D. — Dept. of Biol., Univ. of Oregon, EUGENE, Ore 97403, U.S.A.
- a The clonal nature of determination in homoecotic mutants. *Drosophila melanogaster* (Diptera)
- b The mechanism of action of homoecotic mutants. Same species as a.
- c The heritability of sex determination in triploid intersexes. Same species as a.
- d The role of the cortex in early development. Same species as a.
- e The hormonal control of metamorphosis. Same species as a.
- f Hormonal and genetic control of oogenesis. Same species as a
- POULSON, D. F.; Ph.D., Prof. — Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB
- a Mid-gut: genesis and differentiation. *Drosophila melanogaster* (Diptera)
- b Chromosomal control of differentiation. Same species as a
- c Neurogenesis in normal and genetically deficient embryos. Same species as a
- d Maternally inherited sex-ratio disturbances of development. *Drosophila melanogaster*, *D. bifasciata*, *D. willistonii*, *D. nebulosa*, *D. equinoxialis*, *D. robusta*, *D. paulistorum* (Diptera)
- e Developmental genetics. Same species as a
- POURANY, Mrs. A.; M.Sc. — Dept. of Anat., Jawaharlal Inst. of Postgrad. Med. Educ. and Res., PONDICHERRY-605006, India
- a Histogenesis of islets of Langerhans. *Homo sapiens* (Primates)
- PRAHLAD, K. V.; Ph.D., Prof. — Dept. of Biol. Sci., Northern Illinois Univ., DeKALB, Ill. 60115, U.S.A.
- a Biochemical and morphological effects of thyroid hormones on embryonic tissues. *Xenopus laevis* (Anura)
- b Effect of pesticides on embryogenesis and initiation of endocrine function, especially in the thyroid gland. *Xenopus laevis* (Anura), *Gallus domesticus* (Aves)
- PRASAD, M. R. N.; Ph.D., Prof. — Dept. of Zool., Univ. of Delhi, DELHI 110007, India
- a Action mechanism of hormones on nucleic acid and protein synthesis in the blastocyst and uterus. *Rattus spec.*, *Mesocricetus auratus* (Rodentia)
- PRATT, R. M.; Ph.D. — Exper. Pharmacol. Sect., Natl. Inst. of Dent. Res., Natl. Inst. of Health, Bldg. 30, BETHESDA, Md. 20014, U.S.A.
- a Biochemical and morphological changes in the epithelium of the secondary palate at the time of programmed cell death. (Rodentia)
- b Programmed cell changes in the secondary palate: lysosomal enzyme DNA and RNA synthesis, acid mucopolysaccharide and glycoprotein synthesis, collagen synthesis and the role of cAMP. (Rodentia)

- c Migration of cranial neural crest cells: nature and origin of extracellular matrix; biochemistry of crest cells cultured in vitro; biochemical factors that may control differentiation. (Rodentia)
- PRAY, T. R.; Ph.D., Prof. – Dept. of Biol. Sci., Univ. of S. California, University Park, LOS ANGELES, Calif. 90007, U.S.A.
- a Development of the gametophytes and juvenile stages of the sporophytes (Cheilantheae, Pteridaceae, Filicinae)
- b Development of the vein systems of leaves. *Anemia* spec., *Marsilea* spec., *Cyrtomium* spec., *Acrostichum* spec. and other spp. (Filicinae)
- c Factors controlling planes of cytokinesis in early gametophyte development. *Cheilanthes* spp. Pteridaceae, Filicinae)
- PRICE, Miss D.; Prof. (Emer.) – Dept. of Biol., Div. of Biol. Sci., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A. ISDB
- PRZYBYLSKI, R. J.; Ph.D., Assoc. Prof. – Dept. of Anat., Sch. of Med., Case Western Reserve Univ., CLEVELAND, Ohio 44106, U.S.A.
- a Regulation of myotube formation in vitro of embryonic skeletal muscle: reversible suppression by CO<sub>2</sub> tension. *Gallus* spec. (*Aves*)
- b Isolation of fusion sites from skeletal myoblasts utilizing concanavalin-A. Same species as a
- c Localization of myosin genes on the chromosome by in situ hybridization. Same species as a
- PUGIN, E. – Inst. de Embriol., Univ. Austral de Chile, Casilla no. 567, VALDIVIA, Chile
- a Auditory and vertebral cartilage differentiation in young embryos (xenoplastic grafts). (*Reptilia*)
- b Normal development, and ultrastructural relationship between the pharyngeal pouch of the adult male and the integument of the tadpole. *Rhinoderma darwini* (*Anura*)
- PURKO, J.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of W. Ontario, LONDON, Ont. N6A 3K7, Canada
- a Regulation and role of RNA and protein synthesis in early embryogenesis. (*Teleostei*)
- QUADEER, A.; B.S. – Dept. of Anat., Med. Coll., NAGPUR-3, M.S., India
- a Morphology and histochemistry of metanephros development to stage 40. *Gallus domesticus* (*Aves*) (with P.N. DUBEY)
- QUATRANO, R. S.; Ph.D., Assoc. Prof. – Dept. of Bot., Oregon State Univ., CORVALLIS, OR 97331, U.S.A.
- QUEVEDO, W. C., Jr.; Ph.D., Prof. – Div. of Biol. and Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A.
- a Genetic regulation and developmental variations of multiple forms of tyrosinase in melanocytes. *Mus musculus* (*Rodentia*)
- b Developmental variations in the isozymes of lactate dehydrogenase in the skin. Same species as a
- RADHAKRISHNAN, N.; M.Sc. – Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Tail regeneration in the adult. *Mabuya carinata* (*Lacertilia*)
- RAE, P. M. M.; Ph.D. – Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a DNA and protein components of constitutive heterochromatin; nucleic acid-protein interaction; constitutive heterochromatin in early embryogenesis; position-effect variegation. *Drosophila melanogaster*, *D. virilis* (*Diptera*), *Mus musculus* (*Rodentia*)
- b Synthesis and distribution of unusual deoxyribonucleotides. *Gyrodinium cohnii* and other spp. (*Dimorphaceae*)
- RAFFERTY, K. A., Jr.; Ph.D., Prof. – Dept. of Anat., Univ. of Illinois, P.O. Box 6998, CHICAGO, Ill. 60680, U.S.A.
- a Longevity and preservation of differentiated function in cultured cells. (*Primates* and other *Mammalia*)
- RAISMAN, J. S. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Fertilization: 1. acrosome reaction; 2. oviducal factors; 3. vitelline coat. *Bufo arenarum*, *Leptodactylus chaquensis* (*Anura*)
- RAMACHANDRAN, A. V.; M.Sc. – Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Tail regeneration in the adult. *Mabuya carinata* (*Lacertilia*)
- RAMIREZ, O. C.; M.D., Ph.D. – Dept. de Bioquím., Centro de Invest. y de Estudios Avanzados del Inst., Politécn. Nac., Apartado Postal 14-740, MEXICO 14, D. F., Mexico
- a Isolation and characterization of serum factors involved in early stages of myogenesis in vitro. *Gallus gallus* (*Aves*)
- b Characterization of factors obtained from conditioned media responsible for myoblast proliferation in vitro. Same species as a
- RAMUS, J. S.; Ph.D., Assoc. Prof. – Dept. of Biol., Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Biogenesis of cell surface polysaccharides in a unicellular organism. *Porphyridium aeruginum* (*Rhodophyceae*)
- RANGA RAO, K.; Ph.D., Assoc. Prof. – Fac. of Biol., Univ. of W. Florida, PENSACOLA, Fla. 32504, U.S.A.
- a The responses of chromatophores of zoea, megalopa and adult to purified chromatophorotropins. *Uca pugilator* (*Decapoda*, *Crustacea*)
- b A study on the control of pigmentation in regenerating appendages. *Uca pugilator*, *Cambarellus shufeldti* (*Decapoda*, *Crustacea*)
- c Comparative study of the effects of various ecdysones on regeneration of appendages. *Uca pugilator*, *U. minax*, *Clibanarius vittatus* (*Decapoda*, *Crustacea*)
- RAO, K. V.; Ph.D. – Dept. of Zool., Univ. of Delhi, DELHI 110007, India



- a Study of the role of sulfhydryl groups in primary organizer action by grafting and culturing in vitro pieces of early blastoderms. *Gallus domesticus* (Aves)
- b Role of surface properties of blastoderm cells in morphogenetic movements; isoelectrofocusing of living cells to determine surface charge. Same species as a
- c Nucleic acid synthesis in the early embryo. *Planorbis exustus*, *Lymnaea stagnalis* (Gastropoda)
- RAPPAPORT, R., Jr.; Ph.D., Prof. — Dept. of Biol. Sci., Union Coll., SCHENECTADY, NY 12308, U.S.A.
- RASCH (MYRBERG), Mrs. E. M.; Ph.D., Prof. — Dept. of Biol., Marquette Univ., 530 N. 15th St., MILWAUKEE, Wis. 53233, U.S.A.
- a Atypical nucleoprotein synthesis during larval development. *Sciara coprophila* (Diptera)
- b Cytochemistry and fine structural analysis of puffs in giant chromosomes. Same species as a
- c Triploidy in a gynogenetic form. *Poecilia formosa* (Teleostei)
- RASH, J. — Dept. of Molec., Cell. Developm. Biol., Univ. of Colorado, BOULDER, CO 80302, U.S.A.
- RASWEILER, J. J., IV; Ph.D. — Dept. of Anat., Coll. of Phys. and Surg., Columbia Univ., 630 W. 168th St., NEW YORK, NY 10032, U.S.A.
- a Comparative morphology of the early embryo and associated changes in the female reproductive tract, through the time of ovum implantation (light, transmission and scanning electron microscopy). *Glossophaga soricina*, *Artibeus lituratus*, *Noctilio labialis*, *Carollia perspicillata*, *Desmodus rotundus*, *Peropteryx kappleri* (Chiroptera)
- b Maintenance and breeding in the laboratory. (Chiroptera)
- RATTNER, J. B.; Ph.D. — Dept. of Developm. and Cell Biol., Univ. of California, IRVINE, Calif. 92664, U.S.A.
- a Laser microbeam studies on centrioles and chromosomes for the study of mitosis. *Potorous tridactylus* (Marsupialia)
- RAWLES (SPURBECK), Mrs. M. E.; Ph.D. — 4000 N. Charles St., BALTIMORE, MD 21218, U.S.A.
- REAMS, W. M., Jr.; Ph.D., Prof. — Dept. of Biol., Univ. of Richmond, RICHMOND, Va. 23173, U.S.A.
- a Effects of tissue environment on pigment cell morphogenesis. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b Factors affecting pigment behaviour in the skin. Same species as a
- c The Langerhans cell: origin and differentiation. *Mus musculus* (Rodentia)
- REDMAN, R. S.; Ph.D., Assoc. Prof. — Div. of Oral Biol., School of Dent., Univ. of Minnesota, MINNEAPOLIS, Minn. 55455, U.S.A.
- a Parotid gland: ductal development (light and electron microscopy); cell types involved in proliferation (electron microscopy, radioautography); effects of dietary changes on developmental pace (biochemical assay of exocrine enzymes and protein, light microscopy). *Rattus rattus* (Rodentia)
- b Minor salivary glands: initiation, ductal development, and acinar or alveolar differentiation; (light and electron microscopy, histochemistry). Same species as a
- REEDER, R. H.; Ph.D. — Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Analysis of proteins on the ribosomal genes of oocytes. *Xenopus laevis* (Anura) (with T. HIGASHINAKAGAWA)
- REESE, D. H.; Ph.D. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A.
- REEVES, O. R.; Ph.D. — Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B. C. V6T 1W5, Canada
- a Biochemical control mechanisms involved in the regulation of differential gene expression during early embryonic stages (specifically regulation of RNA synthesis). *Xenopus laevis* (Anura)
- b The role of direct intercellular communication in development; possible importance in the regulation of gene activity (cell and embryo culture). Same species as a
- RENNERT, O. M.; M.D., Assoc. Prof. — Dept. of Pediat. and Biochem., Coll. of Med., Univ. of Florida, GAINESVILLE, Fla. 32601, U.S.A.
- a Modification of isoaccepting species of transfer RNA isolated from embryos and adult liver and spleen (amino acyl-tRNA reaction, reverse phase chromatography). *Mus musculus*, *Rattus norvegicus* (Rodentia)
- b Isoleucyl-tRNA formation as a controlling factor in the 'turning-off of fetal hemoglobin' production. (Rodentia)
- c Identification of species of isopentenyl-tRNA's during embryonic development. Same species as a
- REPORTER, M. C.; Ph.D. — Charles F. Kettering Res. Labs., 150 E. South College St., YELLOW SPRINGS, OH 45387, U.S.A.
- RESTELLI, M. A.; M.D. — Inst. de Embriol., Biol. e Histol., Fac. de Cienc. Med., Univ. Nac. de La Plata, 60 y 120, LA PLATA, Argentina
- REYER, R. W.; Ph.D., Prof. — Dept. of Anat., Med. Center, West Virginia Univ., MORGANTOWN, W.Va 26506, U.S.A.
- a Causal mechanisms involved in lens regeneration from the dorsal iris and their relation to the processes of lens induction in the embryo. *Notophthalmus viridescens* (Urodela)
- b DNA synthesis, cell division and cell migration during neural retina regeneration using thymidine-H<sup>3</sup>. *Notophthalmus viridescens*, *Ambystoma mexicanum* (Urodela)
- c Ultrastructural changes during lens regeneration from the dorsal iris with special emphasis on the relation of the basal lamina to the lens capsule. Same species as a
- REYNOLDS, S. R. M.; Ph.D., D.Sc., Prof. (Emer. Univ. of Illinois) — 933 Olde Hickory Rd., LANCASTER, Pa. 17601, U.S.A.
- REYNOLDS (KING), Mrs. W. A.; Ph.D., Assoc. Prof. — Dept. of Anat., Univ. of Illinois, P.O. Box

- 6998, CHICAGO, Ill. 60680, U.S.A.
- a Fetal contributions to amniotic fluid. *Macaca mulatta*, *M. speciosa*, *M. irus*, *Homo sapiens* (Primates)
- b Toxicity of methylmercury for the fetus and neonate. Same species as a
- c Fetal metabolism and composition in diabetic pregnancy. Same species as a
- d Metamorphosis: uptake and localization of thyroxine in tissues and cells, collagen deposition. *Rana pipiens* (Anura)
- e Effect of cyclamate, saccharin and monosodium glutamate on fetus and neonate. Same species as a
- REZENDE, Miss E. S.; B.Sc. Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 - 4º andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- RICHARDS, Mrs. C. M.; Ph.D. - Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a The production of inbred strains using gynogenetic techniques of two types 1. combination of egg nucleus plus second polar body; 2. inhibition of the first cleavage of a haploid egg to produce completely homozygous diploids. *Rana pipiens* (Anura)
- b Genetics of various mutants including albino, blue, melanoid, as well as mutants uncovered by gynogenesis. Same species as a
- c Control of the sex of metamorphosed animals by the administration of estrogen or testosterone at appropriate larval stages. Same species as a
- d Embryonic development, genetics, and regeneration. *Hyperolius spec.* (Anura)
- RICHARDSON, W. N.; Ph.D. - Dept. of Biol., Univ. of Miami, CORAL GABLES, FL 33124, U.S.A.
- RIECK, A. F. † Ph.D., Prof. - Dept. of Physiol., Marquette Univ., MILWAUKEE, WI 53233, U.S.A.
- RIFKIND, R. A.; M.D. - Dept. of Human Genet. and Developm., Coll. of Phys. and Surg., Columbia Univ., 630 West 168th St., NEW YORK, N.Y. 10032, U.S.A. ISDB
- a Differentiation in virus-transformed hemopoietic cells; regulation of hemoglobin synthesis. *Mus musculus* (Rodentia)
- b Cell surface properties of differentiating hemopoietic cells; normal and virus-transformed. Same species as a
- RIKMENSOEEL, R.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, N.Y. 12222, U.S.A.
- a Control mechanisms of sperm motility. *Bos taurus* (Artiodactyla)
- b Contractile mechanisms in cilia
- RITCHIE, Mrs. A.; Ph.D. - Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210 U.S.A.
- a Ontogeny of nerve-muscle interactions. *Rattus norvegicus* (Rodentia) (with D. M. FAMBROUGH)
- RITSCHARD, R. L.; Ph.D., Assoc. Prof. - Biol. Sci. Dept., Calif. Polytechn. State Univ., SAN LUIS OBISPO, CA 93401, U.S.A.
- RIVERA, Miss E. M.; Ph.D., Assoc. Prof. - Dept. of Zool., Coll. of Nat. Sci., Michigan State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Analysis of hormone actions on mammary gland development in organ culture. *Mus musculus* (Rodentia)
- RIZKI, T. M.; Ph.D., Prof. - Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Mutant genes regulating the function and structure of fat cells in the functional differentiation of the fat body (fluorescence and electron microscopy). *Drosophila melanogaster* (Diptera)
- b The effects of various nucleic acid analogs in relation to morphogenesis, esp. those substances which can serve as mutagens. Same species as a
- ROBERTS, L. W.; Ph.D., Prof. - Dept. of Biol. Sci., Univ. of Idaho, MOSCOW, Ida. 83843, U.S.A.
- a Pre-pattern phenomenon of localization of enzymatic activity prior to the formation of wound vessel member. *Coleus blumei* (Labiatae) (with S. BABA)
- b Effect of environment on morphogenesis of vascular elements. *Coleus blumei* (Labiatae) (with S. BABA)
- c Developmental physiology of xylogenesis in pith parenchyma explants: differentiation patterns and hormonal requirements. *Lactuca sativa* (Compositae)
- ROBERTSON, A. D. J.; B.A. - Dept. of Biophys. and Theoret. Biol., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Theoretical and experimental study of the control of development (time-lapse cinematography). (Acrasiales, Plantae, Animalia)
- ROBERTSON, G. G.; Ph.D., Prof. - Dept. of Anat., Ctr. for Health Sci., Univ. of Tennessee, 800 Madison Ave., MEMPHIS, TN 38163, U.S.A. ISDB
- a Virus-induced abnormalities in embryos. *Gallus domesticus* (Aves)
- ROBERTSON, H. A.; Ph.D. - Dept. of Reprod. Physiol., Anim. Res. Inst., OTTAWA, Ont. K1A 0C6, Canada
- a Comparative aspects of early embryo-uterine interaction leading to implantation. *Ovis aries*, *Bos taurus*, *Sus scrofa* (Artiodactyla)
- b Endocrinology of the developing embryo. *Gallus gallus* (Aves)
- ROBINSON, Miss H. L.; Ph.D. - Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.
- a Biochemistry of metamorphosis, tail regression and lysosomal enzymes. *Xenopus laevis* (Anura)
- b Limb regeneration capacity in adults. Same species as a
- ROBINSON, J. C.; M.D., Ph.D. - Lab. of Biomed. Sci., Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, BETHESDA, Md. 20014, U.S.A.
- a Pregnancy-associated enzymes in maternal blood plasma. *Homo sapiens* (Primates)

- ROBISON, O. W.; Ph.D., Assoc. Prof. — Dept. of Anim. Sci., N. Carolina State Univ., P.O. Box 5127, RALEIGH, NC 27607, U.S.A.
- ROBKIN, M.; Ph.D., Assoc. Prof. — Dept. of Nucl. Engin., Univ. of Washington, BF 10, SEATTLE, Wash. 98195, U.S.A.
- a Embryo culture. *Rattus spec.* (Rodentia)
  - b Response of embryos in culture to physical and chemical environmental factors; effects on use of metabolites. Same species as a
  - c Distribution and effect of mercury in pregnant animals and abortuses. *Rattus spec.* (Rodentia), *Homo sapiens* (Primates)
- ROCKSTEIN, M.; Ph.D., Prof. — Dept. of Physiol. and Biophys., Sch. of Med., Univ. of Miami, P.O. Box 875, Biscayne Annex, MIAMI, Fla. 33152, U.S.A.
- a Physiological basis of aging, growth, and metamorphosis. *Musca domestica* (Diptera), *Rattus rattus* (Rodentia)
  - b Metachemogenesis — post emergence biochemical maturation. (Holometabola, Insecta)
  - c Hereditary vs. environmental factors in longevity. (Diptera; Hymenoptera)
  - d Effects of x-irradiation on development, aging, and longevity. *Musca domestica* (Diptera)
  - e Actomyosin in maturing and senescent heart muscle. *Rattus rattus* (Rodentia)
- RODRICK, G. E.; Ph.D. — Inst. for Pathobiol., Lehigh Univ., BETHLEHEM, Pa. 18015, U.S.A.
- a Development of blood cells. *Crassostrea virginica*, *Mercenaria mercenaria*, *Mya arenaria* (Lamellibranchia)
- ROGERS, K. T. † Ph.D. — Dept. of Anat., Univ. of Calif., SAN FRANCISCO, Calif., U.S.A.
- ROLLINS, E. A.; Ph.D. — Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, NY 12203, U.S.A. ISDB
- ROMANOFF, A. L.; Ph.D., Prof. (Emer.) — Lab. of Chem. Embryol., Cornell Univ., c/o 105 Rice Hall, ITHACA, N.Y. 14850, U.S.A.
- a Chemical embryology. (Aves)
  - b Developmental pathology. (Aves)
- RON, A.; Ph.D. — Dept. of Anat., Hebrew Univ. — Hadassah Med. Sch., P.O.B. 1172, JERUSALEM 91000, Israel
- a RNA and protein synthesis during sexual reproduction. *Tetrahymena pyriformis* (Ciliata)
  - b Biochemical characterization of micro- and macronuclei. *Loxodes striatus* (Ciliata)
- ROOS, T. B.; Ph.D., Prof. — Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.
- a Biochemical and morphological differentiation of the adrenal cortex from the anlage to the functional state (12 to 16 days, stages 19-33) (electron microscopy, histochemistry, and organ culture). *Rattus norvegicus* (Rodentia)
  - b Development of pituitary control of endocrine function; organ culture studies of independent differentiation of mesonephric ridge components in order to determine their interactions and competence and their response to pituitary and neural control. Same species as a
- ROSALES-RONQUILLO, Mrs. M. C.; Ph.D. — Dept. of Biol., Univ. of New Mexico, ALBUQUERQUE, N. Mex. 87131, U.S.A.
- a Successful aseptic rearing using a formulated diet. *Anopheles stephensi* (Diptera)
  - b Histochemical analysis of cells in culture. Same species as a
  - c Effect of ecdysone on primary cell culture. Same species as a
- ROSE, Mrs. F. C.; M.A. — Lab. of Developm. Biol., Dept. of Anat., Tulane Univ., Riverside Res. Ctr., BELLE CHASSE, LA 70037, U.S.A.
- ROSE, S. M.; Ph.D., Prof. — Lab. of Developm. Biol., Dept. of Anat., Tulane Univ., Riverside Res. Ctr., BELLE CHASSE, LA 70037, U.S.A. ISDB
- ROSENBAUM, J. L.; Ph.D., Assoc. Prof. — Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Relation between flagellar protein precursor pools and regeneration kinetics studied in amino acid-requiring and paralyzed flagella mutants by use of inhibitors of protein synthesis (cycloheximide), assembly (colchicine, vinblastine), pulse-labeling; isolation, characterization, and in vitro polymerization of flagellar microtubule subunits; growth zones of microtubules, in vivo and in vitro by autoradiography. (*Chlamydomonas reinhardi* (Volvocales, Chlorophyta), *Tetrahymena pyriformis* (Ciliata))
  - b Biochemistry, synthesis, and assembly in vivo and in vitro of neurotubules and their role in the development of neurites and axons of cultured neuroblastoma cells. *Mus musculus* (Rodentia)
- ROSS, L. M.; M.D., Ph.D. — Dept. of Anat., Michigan State Univ., EAST LANSING, Mich. 48823, U.S.A.
- a The role of the embryonic tongue in the process of closure of the secondary palate. *Mus musculus* (Rodentia)
  - b Effects of cleft palate-producing teratogens on embryonic tongue and cranial base development. Same species as a
  - c Scanning electron microscopic aspects of embryonic palate formation, normal and abnormal. Same species as a
- ROTH, S. A.; Ph.D. — Dept. of Biol., Johns Hopkins Univ., Charles and 34th Sts., BALTIMORE, MD 21218, U.S.A.
- ROTH, Th. F.; Ph.D. — Dept. of Biol. Sci., Univ. of Maryland, Baltimore County, CATONSVILLE, MD 21228, U.S.A.
- ROTHMAN, F. G.; Ph.D., Prof. — Div. of Biol. And Med. Sci., Brown Univ., PROVIDENCE, R.I. 02912, U.S.A.
- a Genetic and biochemical analysis of aggregation, differentiation, and morphogenesis. *Dictyostelium discoideum* (Acrasiales)

- ROWLEY, D. A.; M.D., Prof. – Depts. of Pathol. Pediatr., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Development of the immune system. (Vertebrata)
- RUBIN, L. N.; Ph.D., Prof. – Biol. Dept., Reed College, PORTLAND, Ore. 97202, U.S.A. ISDB
- a Development and evolution of immune responses with special emphasis on cell cooperation (immunocytoadherence, hapten-carrier immunization, haemagglutination). *Triturus viridescens* (Urodela), *Xenopus laevis*, *Rana pipiens* (Anura)
- RUBIN, R. W.; Ph.D. – Div. of Nat. Sci., New College, SARASOTA, Fla. 33578, U.S.A.
- a Regulation of protein synthesis during early development. *Lymnaea palustris* (Gastropoda)
- b Changing patterns of synthesis and phosphorylation of chromosomal proteins during induced encystation. *Acanthamoeba* spp. (Rhizopoda)
- RUBIN, Y. L.; Ph.D. – Dept. of Life Sci., Bar-Ilan Univ., RAMAT-GAN, Israel
- a Morphogenesis of appendages, with special reference to polarity and symmetry determination. *Gallus gallus*, *Coturnix coturnix* (Aves)
- b The acquisition of myogenic competence by undifferentiated limb-bud mesenchyme cells. (Aves)
- RUDDLE, F. H.; Ph.D., Prof. – Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB
- a Discrimination between genetic and epigenetic events in somatic cells in vitro by studying enzyme variants. *Mus musculus* (Rodentia)
- b Genetic and epigenetic analysis utilizing somatic cell hybrids.
- RUDNICK, Miss D.; Ph.D. – Dept. of Biol., Albertus Magnus Coll., 700 Prospect St., NEW HAVEN, Conn. 06511, U.S.A. ISDB
- a Development of pharyngeal derivatives. *Gallus domesticus* (Aves)
- RUGH, R.; Ph.D., Prof. (Emer.) – Bur. Radiol. Health, H.E.W., F.D.A., 5600 Fisher's Lane, ROCKVILLE, Md. 20852, U.S.A.
- a Microwave radiation effects on the embryo and fetus. (Mammalia)
- RUNNER, M. N.; Ph.D., Prof. – Inst. of Developm. Biol., Univ. of Colorado, BOULDER, CO 80302, U.S.A. ISDB
- RUSCH, H. P.; M.D., Prof. – McArdle Lab. for Cancer Res., Univ. of Wisconsin, 450 N. Randall Ave., MADISON, Wis. 53706, U.S.A.
- a Acidic nucleoproteins in the control of growth and differentiation. *Physarum polycephalum* (Eumycetozoina)
- RUSSELL, Mrs. D. H.; Ph.D., Assoc. Prof. – Dept. of Pharmacol., Med. Center, Univ. of Arizona, TUCSON, Ariz. 85724, U.S.A.
- a The relation of cell cycle phase and polyamine synthesis during development. *Lytechinus pictus* (Echinoidea)
- b Purification of S-adenosyl-L-methionine decarboxylase from eggs. Same species as SACHS, H. G.; Ph.D. – Dept. of Anat., Univ. of Illinois, P.O. Box 6998, CHICAGO, Ill. 60680, U.S.A.
- SACHS, L.; Prof. – Dept. of Genet., Weizmann Inst. of Sci., P.O.B. 26 REHOVOTH, Israel ISDB
- SACHS, T.; Dr. – Dept. of Bot., The Hebrew Univ., JERUSALEM, Israel ISDB
- a Control of organized vascular strand differentiation: relation to polar transport of radioactive hormones. *Phaseolus vulgaris* (Papilionaceae)
- b Role of hormones in tumour formation. (Plantae)
- SACK, W. O.; D.V.M., Ph.D., Prof. – Dept. of Anat., N.Y. State Vet. Coll., Cornell Univ., ITHACA, N.Y. 14850, U.S.A.
- a Establishing a comprehensive embryological slide collection of domestic and laboratory animals. *Canis familiaris*, *Felis catus*, *Bos taurus*, *Ovis aries*, *Rattus rattus*, *Mus musculus*, *Cavia porcellus* (Mammalia) (with H. E. EVANS)
- b Developmental morphology. *Canis familiaris* (Carnivora), *Bos taurus* (Artiodactyla)
- SADANA, G. L.; Ph.D. – Dept. of Zool., Punjab Agric. Univ., LUDHIANA, India
- a Embryonic development. *Pardosa bhatnagari* (Lycosidae, Araneida)
- SAGAWA, Y.; Ph.D., Prof. – Harold L. Lyon Arboretum and Horticults. Dept., Univ. of Hawaii, HONOLULU, Hawaii 96822, U.S.A.
- a Developmental studies of ovule formation. (Orchidaceae)
- b Developmental studies of apical meristem explants. (Orchidaceae and tropical plants)
- c Studies of in vivo growth of pollen tubes. Same species as SAITOH, M.; Ph.D. – Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Nutritional study to increase embryonic survival rate. *Sus scrofa domesticus* (Artiodactyla)
- SAKAI, H.; Ph.D., Assoc. Prof. – Dept. of Biophys. and Biochem., Univ. of Tokyo, 7-3-1, Hongo, Bunkyo-ku, TOKYO, 113 Japan ISDB
- a Polymerization of tubulin into microtubules. *Hemicentrotus pulcherrimus* (Echinoidea)
- b Mitotic apparatus and tubulin. Same species as a
- SALLACH, H. J.; Ph.D., Prof. – Dept. of Physiol. Chem., Univ. of Wisconsin, 1215 Linden Drive, MADISON, Wis. 53706, U.S.A.
- a Biochemical aspects of development and differentiation (enzyme changes; metabolism of carbohydrates and nucleic acids). *Rana pipiens*, *R. catesbeiana* (Anura)
- SALLÉS, J. M. de; B.Sc. – Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 – 4º andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- a Alteration of spermatogenesis following interspecific hybridization or ionizing radiations. (Triatominae, Hemiptera)
- SALOMON, D. S.; Ph.D. – Dept. of Cell Biol., Roche Inst. of Molec. Biol., NUTLEY, N.J. 07110, U.S.A.
- a Control of enzyme induction and repression during early embryonic development in relation to

- hormones; characterization of biochemical tissue-specific markers during development. *Mus musculus* (Rodentia)
- b Fetal-placental-maternal interactions at the morphological, endocrinological and biochemical levels; cell-cell interactions and relationships of fetal, placental and uterine tissues in culture. Same species as a
- SALOMÓN de LEGNAME, Mrs. H.; Dr. Biochem. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Intermediate metabolism during early development: nucleotide synthesis. *Bufo arenarum* (Anura)
- b Mitochondria during embryogenesis. Same species as a
- SALTHER, S. N.; Ph.D., Assoc. Prof. – Dept. of Biol., Brooklyn Coll., Bedford Ave. and Ave. H, NEW YORK, Brooklyn, N.Y. 11210, U.S.A.
- a Mechanism of expansion of perivitelline fluid in the egg. *Rana pipiens* (Anura)
- b Study of the hatching enzymes. (Amphibia)
- c Development of lactic dehydrogenase isoenzymes. *Rana pipiens*, *R. palustris* (Anura)
- SALTHE, V. M.; B.S. – Dept. of Anat., Med. Coll., NAGPUR-3, M.S., India
- a Effect of removal of the optic vesicle on histogenesis of the optic lobe. *Gallus domesticus* (Aves) (with P. N. DUBEY)
- SANCHES RIERA, Mrs. A. N.; Biochem. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Intermediate metabolism during early development: nucleotide synthesis. *Bufo arenarum* (Anura)
- SANCHEZ, Mrs. S. S.; Biochem. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S. M. de TUCUMÁN, Argentina
- a Intermediate metabolism during early development: nucleotide synthesis. *Bufo arenarum* (Anura)
- SANDERS, E. J.; Ph.D. – Dept. of Physiol., Univ. of Alberta, EDMONTON, Alta. T6G 2E1, Canada
- a Cell surface material and intercellular contacts during cleavage: morphology and physiology of intercellular coupling. *Xenopus laevis* (Anura)
- b Intercellular relationships during pre-streak morphogenesis; correlation of cell surface and cell contact characteristics with behaviour of cells during reaggregation. *Gallus domesticus* (Aves)
- SANDERS, T. G.; Ph.D. – Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A.
- SANFORD, W. C.; Ph.D. – Dept. of Zool., Oklahoma State Univ., STILLWATER, Okla. 74074, U.S.A.
- a Effect of cadmium salts on development, and the resulting male sexual potential. *Salmo gairdnerii* (Teleostei)
- SASAKI, Miss F.; Dr. – Dept. of Biol., Sch. of Dent. Med., Tsurumi Univ., Tsurumi, YOKOHAMA, Japan
- a Ultrastructural and histochemical study of tail muscles during metamorphosis. (Anura)
- SASAKI, M.; D.Sc., Prof. – Chromosome Research Unit, Fac of Sci., Hokkaido Univ., N 10, W 8, SAPPORO, 060 Japan
- a Chromosome studies in early embryogenesis, with special reference to spontaneous abortion, maldevelopment and sex ratio. *Homo sapiens* (Primates)
- SASAKI, N.; D.Sc. – Dept. of Biol., Fac. of Sci., Kyūshū Univ., Hakozaki-cho, FUKUOKA, 812 Japan
- a Change of regional effect in primary induction with special reference to molecular structure of inducing agent. *Triturus pyrrhogaster* (Urodela), *Gallus domesticus* (Aves)
- b Transformation of primarily activated ectoderm by RNA. *Triturus pyrrhogaster* (Urodela)
- c Reactivity of ectoderm cells in primary induction. Same species as b
- SATHANANTHAN, A. H.; Ph.D. – Dept. of Zool., Univ. of Melbourne, PARKVILLE, Vict. 3052, Australia
- a Morphological, cytochemical and ultra-structural aspects of early development from second maturation division (oviposition) to the post-gastrula stage. *Arion ater rufus* (Gastropoda)
- b Cell movements in morphogenesis. Same species as a
- SATO, G. H.; Ph.D., Prof. – Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Hormone dependent cell cultures. (Mammalia)
- SATO, H. – Dept. of Perinatol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Toxic effects of bilirubin on developing brain. *Rattus norvegicus* (Rodentia)
- SATO, T.; D.Sc., D. phil. nat., Prof. (Emer.) – Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan ISDB
- SAUNDERS, J. W., Jr.; Ph.D., Prof. – Dept. of Biol. Sci., State Univ. of New York, 1400 Washington Ave., ALBANY, N.Y. 12222, U.S.A. ISDB
- a The role of ectoderm in limb development. *Gallus domesticus* (Aves)
- b Factors affecting tract-specificity in embryonic feather areas. Same species as a
- c Ectoderm-mesoderm interactions in limb formation. Same species as a
- d Cellular deaths in morphogenesis. Same species as a
- SAWADA, N.; D.Sc., Prof. – Biol. Inst., Ehime Univ., Bunkyo-cho, MATSUYAMA, 790 Japan
- a Mitotic apparatus. (Echinodermata; Echiuroidea)
- b Ultrastructural changes in oogenesis and spermatogenesis. (Sipunculoidea; Echiuroidea; Gastropoda)
- SAWAI, T.; Dr. – Biol. Lab., Fac. of Gen. Educ., Yamagata Univ., Koshirakawa-cho, YAMAGATA, Japan
- SAXENA, Miss R.; M.Sc. – Dept. of Zool., Univ. of Gorakhpur, GORAKHPUR 273001, India
- a The neurosecretory system of developmental stages. (Insecta) (with H. S. CHAUDHRY)
- SCADDING, S. R.; Ph.D. – Dept. of Zool., Univ. of Guelph, GUELPH, Ont. N1G 2W1, Canada

- a Factors affecting and controlling limb regeneration, especially role of nerves and chalones. (Amphibia)
- b Regeneration of internal organs, especially kidney, ureter, oviduct. (Urodela)
- SCANDALIOS, J. G.; Ph.D., Prof. — Dept. of Biol., Univ. of S. Carolina, COLUMBIA, S.C. 29208, U.S.A.
- a Differential gene expression at the molecular level. *Zea mays* (Gramineae), *Drosophila melanogaster* (Diptera), *Homo sapiens* (Primates)
- b Regulatory mechanisms controlling the expression of enzyme loci during development of higher organisms; enzyme polymorphism
- SCHAEFFER, B. E.; Ph.D. — Dept. of Biol., New York Univ., 651 Brown Bldg., Washington Square, NEW YORK, NY 10003, U.S.A.
- a Cell surface changes in relation to morphogenesis (with H. E. SCHAEFFER)
- SCHAEFFER, Mrs. H. E.; Ph.D. — Dept. of Biol., New York Univ., 651 Brown Bldg., Washington Square, NEW YORK, NY 10003, U.S.A.
- a Cell surface changes in relation to morphogenesis (with B. E. SCHAEFFER)
- SCHIEFFLER, I. E.; Ph.D. — Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA Calif. 92037, U.S.A.
- a Biochemical differentiation during the cell cycle in vitro. *Cricetus griseus* (Rodentia)
- b Conditionally lethal mutations in cells in culture. (Mammalia)
- SCHIFF, J. A.; Ph.D., Prof. — Dept. of Biol., Brandeis Univ., WALTHAM, MA 02154, U.S.A. ISDB
- SCHIFFMAN, M. B.; Ph.D. — Dept. of Genet., Albert Einstein Coll. of Med., Yeshiva Univ., Eastchester Rd. and Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A.
- a Developmental genetics and biochemistry. *Mus musculus* (Rodentia)
- SCHIMKE, R. T.; M.D., Prof. — Dept. of Pharmacol., Sch. of Med., Stanford Univ., STANFORD, CA 94305, U.S.A.
- SCHJEIDE, O. A.; Ph.D., Prof. — Dept. of Biol. Sci., Northern Illinois Univ., DeKalb, Ill. 60115, U.S.A.
- a Biochemical, metabolic and ultrastructural parameters of cell growth and differentiation. (Plantae), *Gallus domesticus* (Aves)
- b Roles of acid mucopolysaccharides in cell differentiation. (Animalia, Homo)
- SCHLESINGER, A. B.; Ph.D., Prof. — Dept. of Biol., Creighton Univ., 2410 California St., OMAHA, Neb. 68131, U.S.A.
- a Phase cinematographic time-lapse recording of morphogenetic movements of marginal tissue. *Gallus spec.* (Aves)
- SCHMIDT, A. J.; Ph.D., Prof. — Dept. of Anat., Coll. of Med., Univ. of Illinois, P.O. Box 6998, CHICAGO, Ill. 60680, U.S.A.
- a Hormonal influences on regenerating systems. *Triturus viridescens* (Urodela)
- b The chemistry of regenerating systems. Same species as a
- c Fine structure of cells and tissues of regenerating systems. Same species as a
- d Histo- and cytochemistry of repairing cutaneous wounds. *Mus musculus* (Rodentia)
- e Regeneration of normal and dystrophic muscle. Same species as d
- SCHNEIDERMAN, H. A.; Ph.D. — Developm. Biol. Lab. and Center for Pathobiol., Univ. of Calif., IRVINE, Calif. 92664, U.S.A. ISDB
- a Mechanism of determination in embryos; analysis of mutants with defects in pattern formation and in intercellular communication. *Drosophila melanogaster* (Diptera)
- b Effects of juvenile hormones and ecdysones on organisms other than insects; mode of action of juvenile hormone. *Hyalophora cecropia*, *Tenebrio molitor*, *Galleria mellonella* (Insecta), *Armadillidium vulgare* (Isopoda, Crustacea)
- c Temperature-sensitive cell lethals and mitotic arrest mutants. Same species as a
- SCHOTTE, O. E.; Ph.D., Prof. (Emer.) — Dept. of Biol., Amherst Coll., AMHERST, MA 01002, U.S.A. ISDB
- SCHREIBER, G.; Ph.D., Prof. — Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 — 4° andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- a Cytogenetics, cytophotometry, DNA content. *Peripatus acacioi* (Onychophora)
- b Alteration of spermatogenesis following interspecific hybridization or ionizing radiations. (Triatominae, Hemiptera)
- c Quantitative cytology. *Salpa democratica* (Thaliacea)
- SCHROEDER, P. C.; Ph.D., Assoc. Prof. — Dept. of Zool., Coll. of Sci. and Arts, Wash. State Univ., PULLMAN, Wash. 99163, U.S.A.
- a Possible hormonal control of mucopolysaccharide synthesis during oogenesis. *Nereis spec.* (Polychaeta)
- b Spawning and ovulation; inhibitory effects of cytochalasin B (ultrastructure). *Patiria miniata* (Asteroidea), *Oryzias latipes* (Teleostei), *Rana pipiens* (Anura)
- SCHROEDER, Th. E.; Dr. — Friday Harbor Labs., Univ. of Wash., FRIDAY HARBOR, Wash. 98250, U.S.A. ISDB
- a Biochemical composition of microfilaments. *Strongylocentrotus droebachiensis* (Echinoidea)
- b Localization of calcium-binding sites in cellular contractile apparatus. Same species as a
- SCHRYVER, H. F.; Ph.D., D.V.M., Assoc. Prof. — Dept. of Large Anim. Med., Equine Res. Progr., N.Y. State Vet. Coll., Cornell Univ., ITHACA, N.Y. 14850, U.S.A.
- a Morphological and biochemical aspects of skeletal development. (Mammalia)
- b Calcium metabolism in development. (Mammalia)
- SCHUBIGER, G.; Ph.D. — Dept. of Zool., Univ. of Washington, SEATTLE, Wash. 98195, U.S.A.
- a Analysis of mutants affecting embryogenesis. *Drosophila melanogaster* (Diptera)
- b Developmental capacities of imaginal discs and embryos. Same species as a

- SCHUBIGER (STAUB), Mrs. M.; Ph.D. – Dept. of Zool., Univ. of Wash., SEATTLE, Wash. 98195, U.S.A.
- a Analysis of neuronal specificity of sensory nerves by appendage grafting. *Acheta domestica* (Orthoptera)
- SCHUETZ, A. W.; Ph.D., Assoc. Prof. – Dept. of Popul. Dynamics, Sch. of Hyg. and Publ. Health, Johns Hopkins Univ., 615 N.Wolfe St., BALTIMORE, Md. 21205, U.S.A.
- a Gonadal steroidogenesis. (Amphibia)
- b Testis differentiation and spermatogenesis. (Mammalia)
- c Oocyte growth and maturation. (Asteroidea; Amphibia; Mammalia)
- d Membrane structure and function. (Asteroidea; Amphibia)
- e Purine synthesis and secretion (Asteroidea)
- f Control of meiosis during spermatogenesis (cell culture, hormone effects). *Rattus spec.* (Rodentia and other Mammalia)
- g Regulation of oocyte yolk protein (vitellogenin) incorporation (cell culture, hormone effects). *Rana pipiens* (Anura)
- SCHULMAN, H. M.; Ph.D. – Lady Davis Inst. for Med. Res., 3755 Cote St. Catherine Rd., MONTREAL 249, Que., and Dept. of Biol., McGill Univ., MONTREAL 3, Que., Canada ISDB
- a Development of erythroid cells and control of erythropoiesis in adult animals in health and disease. *Oryctolagus cuniculus* (Lagomorpha), *Rattus spec.*, *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- b Development of root nodules and the biosynthesis of leghemoglobin. (Leguminosae)
- SCHULTZ, G. A.; Ph.D. – Div. of Med. Biochem., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a Control of gene expression in early development (emphasis on transcription and mRNA stability). (Mammalia)
- SCHULTZ, R. L.; Ph.D., Prof. – Dept. of Human Biol., Univ. of Colorado Dent. Sch., 4200 E. 9th Ave., DENVER, CO 80220, U.S.A.
- SCHWALM, F. E.; Dr.phil.nat., Assoc. Prof. – Dept. of Biol. Sci., Illinois State Univ., NORMAL, Ill. 61761, U.S.A.
- a Synthesis, storage and utilization of morphogenetic agents in oogenesis and early embryogenesis (electron microscopy, autoradiography). *Coelopa frigida* (Diptera)
- b Isolation and characterization of nucleic acids during oogenesis and embryogenesis. Same species as a
- c Fate and function of polar granules in the male gonads and during spermiogenesis. Same species as a
- SCHWEISTHAL, M. R.; Ph.D., Prof. – Dept. of Anat., Div. of Med. Sci., East Carolina Univ., Box 2701, GREENVILLE, NC 27834, U.S.A.
- SCOTT, F. W.; D.V.M., Ph.D., Assoc. Prof. – Dept. of Microbiol., N.Y. State Vet. Coll., Cornell Univ., ITHACA, N.Y. 14850, U.S.A.
- a Teratogenesis of mumps virus and feline panleukopenia virus: transplacental and fetal infection, passage of virus across the blood-brain barrier; teratologic changes, especially cerebellar hypoplasia, hydrocephalus, and endocardial fibroelastosis. *Felis catus* (Carnivora)
- b Teratogenesis of bovine viral diarrhoea virus, producing cerebellar hypoplasia, cataracts, retinal degeneration, optic nerve degeneration, mummified fetuses, abortions, and other changes. *Bos taurus* (Artiodactyla)
- SCOTT, Mrs. J. N.; – Dept. of Anat., Univ. of Kentucky, Rose St., LEXINGTON, Ky. 40506, U.S.A.
- a Uptake of 3H-labeled testosterone by brain, muscle, thymus, liver, and reproductive organs of Male and female neonate and adult animals. *Rattus rattus* (Rodentia) (with H. H. TRAUERIG)
- SCOTT, T. K.; Ph.D., Prof. – Dept. of Bot., Univ. of North Carolina, CHAPEL HILL, N.C. 27514, U.S.A.
- a Relation between auxin transport and growth in seedlings as influenced by age and light. *Pisum sativum* (Papilionaceae), *Zea mays* (Gramineae)
- b Apical dominance; characterization of the hormonal control exhibited by shoot apices in lateral bud suppression. *Pisum sativum* (Papilionaceae), *Coleus blumei* (Labiatae)
- SEAGO, J. L.; Ph.D., Assoc. Prof. – Dept. of Biol., State Univ. of New York, OSWEGO, NY 13126, U.S.A.
- a Regeneration of the root meristem and root cap. *Zea mays* (Gramineae), *Glycine max* (Papilionaceae)
- b Effects of the root meristem and root cap on the early development of the shoot apical meristem and leaf primordia (effects of demeristemizing and decapping roots. *Glycine max* (Papilionaceae)
- SEARLS, R. L.; Ph.D., Assoc. Prof. – Dept. of Biol., Temple Univ., Broad & Berks St., PHILADELPHIA, PA 19122, U.S.A. ISDB
- SEDRA, S. N.; Ph.D., Prof. – Dept. of Zool., Fac. of Sci., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt ISDB
- a Behaviour of egg laying. *Rana fusca*, *Bufo regularis* (Anura)
- b Development of the urogenital system. *Bufo regularis* (Anura) (with M. I. MICHAEL and S. H. KHALIL)
- SEECOF, R. L.; Ph.D. – Dept. of Biol., City of Hope Med. Center, 1500 E. Duarte Rd., DUARTE, Calif. 91010, U.S.A.
- a In vitro differentiation of embryonic cells. *Drosophila melanogaster* (Diptera)
- ŞEFTALIOĞLU, Miss A. – Inst. of Histol. and Embryol., Med. Fac., Hacettepe Univ., ANKARA, Turkey
- a Development and differentiation of mast cells after stimulation with 48/80 (histology and histochemistry). *Rattus norvegicus* (Rodentia)

- b Ultrastructural development and differentiation of mast cells. Same species as a
- c Ultrastructure of the elastic lamellae in the wall of the aorta of the embryo, fetus, newborn, and adult. *Mus musculus* (Rodentia)
- SEFGAL, S. J.; Ph.D. Biomed. Div., The Population Council, Rockefeller Univ., York Ave. and 66th St., NEW YORK, N.Y. 10021, U.S.A. ISDB
- a Immunologic analysis of pituitary gonadotrophin function: development and species specificity. (Vertebrata)
- b Mechanism of hormone action. (Vertebrata)
- c Action of blastotoxic chemical agents. (Vertebrata)
- d Oogenesis in the constant-estrus female. *Rattus norvegicus* (Rodentia)
- e Studies on RNA in implantation. *Rattus norvegicus* (Rodentia), (Primates)
- SEHGAL, P. P.; Dr. - Dept. of Biol., East Carolina Univ., P.O. Box 2577, GREENVILLE, NC 27834, U.S.A.
- SEIGER, M. B.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., Coll. of Sci. and Engin., Wright State Univ., Col. Glenn Highway, DAYTON, Ohio 45431, U.S.A.
- a The genetics and development of color and color pattern in the white and blue morphs. *Anser caerulescens* (Aves)
- b Egg lethality. *Anser caerulescens*, *Somateria mollissima sedentaria* (Aves)
- SEKELÉS, E.; M.V.M. - Dept. of Anat., Hebrew Univ. - Hadassah Med. Sch., P.O.B. 1172, JERUSALEM 91000, Israel
- a The pathogenesis of skeletal involvement in congenital rubella. *Homo sapiens* (Primates)
- b Microscopical and ultrastructural study of the placenta and membranes in spontaneous abortions with chromosomal anomalies. Same species as a
- c Electron microscopic and autoradiographic study of the initial stage of ossification of long bones. *Rattus spec.* (Rodentia)
- SEKIGUCHI, K.; Ph.D. - Inst. of Zool., Tokyo Kyōiku Univ., Otsuka 3-29-1, Bunkyo-ku, TOKYO, Japan
- SELVERSTON, A. I.; Ph.D. - Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Functional and architectural specificity in the stomatogastric ganglion. *Palinurus interruptus*, (Decapoda, Crustacea)
- SEMBA, R.; M.D. - Dept. of Perinatol., Inst. Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Epidemiology of cardiovascular anomalies in embryos. *Homo sapiens* (Primates)
- b Developmental pathology of anencephaly. Same species as a
- SETO, F.; Ph.D. - Dept. of Zool., Univ. of Oklahoma, 730 Van Vleet Oval, Rm. 222, NORMAN, Okla. 73069, U.S.A.
- a The ontogenetic appearance and maturation of the primary homograft rejecting and primary humoral antibody producing potential in embryos and growing juveniles. *Gallus domesticus* (Aves)
- SETOGUTI, T.; Dr.Med., Prof. - 3rd Dept. of Anat., Nagasaki Univ., School of Med., Sakamoto-machi, NAGASAKI, 852 Japan
- a Electron microscopy of mast cell development. *Triturus pyrrhogaster* (Urodela)
- SHAAYA, E.; Ph.D. - Lab. of Insect Physiol., Hebrew Univ., Terra Sancta Bldg., JERUSALEM, Israel
- a Control of nucleic acids and protein synthesis by ecdysone and juvenile hormone during postembryonic development. *Periplaneta americana* (Blattariae), *Calliphora erythrocephala* (Diptera)
- SHAH, R. V.; Ph.D., Prof. - Dept. of Zool., Fac. of Sci., M.S. Univ. of Baroda, BARODA-2, India
- a Tail regeneration in embryos and adults. *Gekko spec.*, *Mabuya spec.* (Lacertilia)
- b Liver regeneration and physiology. (Vertebrata)
- c Spleen, pancreas, and lymph gland regeneration. (Vertebrata)
- d Physiology of developing muscles (respiration). (Vertebrata)
- SHANKLIN, D. R.; M.D., Prof. - Depts. of Pathol., Obstet. and Gynecol., Univ. of Chicago, 1101 East 57th St., CHICAGO, IL 60637, U.S.A.
- SHAPIRO, B. L.; D.D.S., Ph.D., Prof. - Div. of Oral Biol., Sch. of Dent., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A.
- a Palatal development: programmed cell death in epithelial seam (histochemistry, biochemistry, ultrastructure). *Rattus rattus* (Rodentia)
- b Development of phenotype in Down's syndrome (trisomy 21) and other aneuploid conditions. (clinical studies). *Homo sapiens* (Primates)
- SHAPIRO, S.; Ph.D., Prof. - Dept. of Bot., Univ. of Massachusetts, AMHERST, MA 01002, U.S.A. ISDB
- SHAPPIRIO, D. G.; Ph.D., Prof. - Dept. of Zool., Univ. of Michigan, ANN ARBOR, Mich. 48104, U.S.A.
- a Developmental physiology and biochemistry, especially growth and metamorphosis. (Saturniidae etc., Lepidoptera; Chironomidae etc., Diptera; Lygacidae, Heteroptera)
- SHARMA, B.; M.Sc. - Dept. of Biochem., Fac. of Sci., Allahabad Univ., ALLAHABAD-2, India
- a Nitrogen metabolism during development. *Philosamia ricini* (Lepidoptera)
- SHARMA, K. K.; M.Sc. - Dept. of Biochem., Fac. of Sci., Allahabad Univ., ALLAHABAD-2, U.P., India
- a Enzymes in the egg and in the fat body from larva till young adult. *Philosamia ricini* (Lepidoptera) (with R. PANT)
- b Free amino acids and transaminases, nucleoproteins, proteins and proteolytic enzymes in the silk gland during larval development. Same species as a (with R. PANT)



- c Phytosterol variation during seed germination. *Phaseolus mungo*, *P. radiatus*, *Cicer arietinum* (Leguminosae) (with R. PANT)
- SHARMA, S. C.; Ph.D. – Dept. of Ophthalmol., New York Med. Coll., Flower and 5th Ave. Hosp., NEW YORK, N.Y. 10029, U.S.A.
- a Development and regeneration of the visual pathways. *Xenopus laevis*, *Rana pipiens* (Anura), *Carassius auratus* (Teleostei)
- b Developmental neurobiology: spinal cord. *Gallus domesticus* (Aves)
- SHAYER, Miss E. L.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of W. Ontario, LONDON, Ont., Canada
- a Chromosome abnormalities in blastocysts recovered from females inseminated with sperm stored at 5°C or in the frozen state. *Oryctolagus cuniculus* (Lagomorpha)
- SHAYER, J. R.; Ph.D., Prof. – Dept. of Zool., Coll. of Nat. Sci., Michigan State Univ., EAST LANSING, Mich. 48824, U.S.A. ISDB
- a Specificity of jelly-coat in fertilization (immunology, biochemistry). *Rana clamitans*, *R. pipiens* (Anura)
- b Antigenic localization on spermatozoa (electron microscopy, immunofluorescence). *Rana pipiens* (Anura)
- c Role of male accessory organs in reproduction. (Amphibia)
- SHEN, S. C.; Ph.D. – Dept. of Anat., Columbia Univ., 630 W. 168th St., NEW YORK, NY 10032, U.S.A. ISDB
- SHEPARD, T. H.; M.D., Prof. – Central Lab. for Human Embryol., Dept. of Pediat., School of Med., Univ. of Washington, SEATTLE, Wash. 98195, U.S.A.
- a Effect of rubella virus on the fetus. *Homo sapiens* (Primates)
- b Effect of galactoflavin on the fetus. *Rattus spec.* (Rodentia)
- c Histology and biochemistry of achondroplasia (ac/ac strain; organ culture, radio-isotopes) *Oryctolagus cuniculus* (Lagomorpha), *Homo sapiens* (Primates)
- d Effects of teratogens on embryos in vitro. *Rattus norvegicus* (Rodentia)
- e Effect of cytochalasin B on closure of the anterior neuropore in vitro. *Gallus domesticus* (Aves), *Rattus spec.* (Rodentia)
- SHERMAN, M. I.; Ph.D. – Dept. of Cell Biol., Roche Inst. of Molec. Biol., NUTLEY, N.J. 07110, U.S.A.
- a The biochemistry of differentiation of early embryos in vivo and in vitro; the role of cell communication during differentiation of early embryonic cell types (embryo proper, yolk sac, trophoblast). *Mus musculus* (Rodentia)
- b The mechanism of accumulation and organization of DNA during polyploidization in giant cells of trophoblast. Same species as a
- SHIMADA, T.; Ph.D. – Dept. of Hyg. and Prev. Med., Sch. of Med., Niigata Univ., Asahimachi, NIIGATA, 951 Japan
- SHIOKAWA, K.; D.Sc. – Dept. of Biol., Fac. of Sci., Kyūshū Univ., Hakozaki-cho, FUKUOKA, 812 Japan
- a Regulation of ribosomal RNA synthesis during embryonic development. *Xenopus laevis* (Anura)
- SHIOMI, T.; Dr., Prof. – Dept. of Genet., School of Med., Nagasaki Univ., 12-4, Sakamoto-machi, NAGASAKI, 852 Japan
- a Radiation genetics (embryo, germ cells). *Drosophila melanogaster* (Diptera)
- SHIRAI, H.; D.Sc. – Lab. of Physiol., Ocean Res. Inst., Univ. of Tokyo, Minamidai, Nakano-ku, TOKYO 164 Japan
- a Mechanism of spawning. *Asterias amurensis*, *Asterina pectinifera* (Asteroidea)
- b Electron microscopic study on spawning and oocyte maturation. (Asteroidea)
- c Biochemical pathway of l-methyladenine formation in ovary. (Asteroidea)
- SHIVERS, C. A.; Dr. – Dept. of Zool. and Entomol., Univ. of Tennessee, KNOXVILLE, TN 37916, U.S.A. ISDB
- SHKOLNIK, Mrs. H.; M.Sc. – Bee Res. Lab., Dept. of Entomol., Fac. of Agric., Hebrew Univ., P.O. Box 12, REHOVOTH 76 100, Israel
- a Exo- and endocrine control of the synthesis of female-specific proteins. *Apis mellifera* (Hymenoptera) (with Y. LENSKY)
- SHOGER, R. L.; Ph.D., Prof. – Biol. Dept., Carleton Coll., Olin Hall of Sci., NORTHFIELD, Minn. 55057, U.S.A.
- a Migration of primordial germ cells from 3H-thymidine-labelled heterotypic grafts of germinal crescent. *Gallus gallus* (Aves)
- b Activation of sperm by material derived from eggs or oviduct; artificial activators; sperm-egg interaction. *Limulus polyphemus* (Xiphosura)
- SHOJI, R.; Ph.D. – Dept. of Embryol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiya-cho, KASUGAI, Aichi 480-03, Japan
- a Effects of x-rays and ultrasound on developing embryos, especially on the central nervous system. *Mus musculus*, *Rattus norvegicus*, *Mesocricetus auratus* (Rodentia)
- b Developmental genetics of abnormal characters. Same species as a
- SHOSTAK, S.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Pittsburgh, 552 Crawford Hall, PITTSBURGH, PA 15213, U.S.A. ISDB
- SHRIVASTAVA, H. C.; M.S., Prof. – Dept. of Anat., Med. Coll., BARODA 390001 (Gujarat), India
- a Developmental morphology. (Vertebrata)
- SHUKLA, G. S.; Ph.D. – Dept. of Zool., Fac. of Sci., Univ. of Gorakhpur, GORAKHPUR 273001, India
- a Studies on life history stages and bionomics. *Sarcophaga ruficornis* (Diptera)

- SHUKUYA, R.; M.D., Prof. — Dept. of Biochem., Nippon Med. Sch., Sendagi, Bunkyo-ku, TOKYO, 113 Japan
- a Genetic control of hemoglobin switch during metamorphosis. *Rana catesbeiana* (Anura) (with T. OKAZAKI)
  - b Control of enzyme formation and activity in liver during development. Same species as a (with H. NAGANO)
  - c Developmental aspects of the function of hemoglobin in red cell. Same species as a (with T. OKAZAKI)
  - d Metamorphic changes in serum proteins. Same species as a (with H. NAGANO)
- SHULOV, A.; D.Sc., Prof. — Dept. of Entomol., Hebrew Univ., JERUSALEM, Israel
- a Regeneration, transplantation, and tissue implantation. *Leiurus quinquestriatus* (Scorpionidea)
- SHUPE, J. L.; D.V.M., Prof. — Dept. of Vet. Sci., Utah State Univ., LOGAN, Utah 84321, U.S.A.
- a Congenital malformations, especially musculo-skeletal and cleft palate. *Bos taurus*, *Ovis aries* (Artiodactyla)
  - b Congenital anterior polar cataracts, cleft lip and cleft palate. *Canis familiaris* (Carnivora)
  - c Congenital multiple exostosis (hereditary osteochondromatosis). *Equus caballus* (Perissodactyla)
  - d Fluorides as related to placental transfer and intra-uterine development. *Ovis aries*, *Bos taurus* (Artiodactyla)
  - e Comparative developmental anomalies and aging. domestic animals (Aves, Mammalia)
- SILHACEK, D. L.; Ph.D. — Insect Attract., Behav. and Basic Biol. Res. Lab., Agric. Res. Serv., U.S.D.A., 1700 S.W. 23rd Drive, P.O. Box 14565, GAINESVILLE, Fla. 32604, U.S.A.
- a Mechanisms of hormonal control of energy metabolism during development. *Plodia interpunctella* (Lepidoptera)
  - b Structural and conformational requirements of molecules with a juvenilizing effect. Same species as a
- SIMÕES, L. C. GOMES; Prof. — Dept. of Gen. Biol., Inst. of Biol. Sci., Fed. Univ. of Minas Gerais, Rua Carangola 288 — 4º andar, C.P. 253, BELO HORIZONTE, M.G., Brazil
- a Cytogenetics, cytophotometry, DNA content. *Peripatus acacioi* (Onychophora)
- SIMON, M. I.; Ph.D. — Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Mechanism of molecular assembly in development of subcellular organelles
- SINCLAIR, J. G. † Ph.D., Prof. — Dept. of Anat., Univ. of Texas, GALVESTON, TX 77550, U.S.A.
- SINGER, M.; Ph.D., Prof. — Dept. of Anat., Developm. Biol. Center, Case Western Reserve Univ., 2119 Abington Rd., CLEVELAND, Ohio 44106, U.S.A. ISDB
- a Regeneration. (Amphibia)
  - b The neurotrophic control of limb regeneration. *Triturus viridescens* (Urodela)
- SINGER, R.; D.Sc., Prof. — Dept. of Anat., Div. of Biol. Sci., Univ. of Chicago, 1025 East 57th St., CHICAGO, Ill. 60637, U.S.A.
- a General embryology. *Hystrix africaeaustralis* (Rodentia), *Homo sapiens* (Primates)
- SINGER (ALTBEKER), Mrs. R.; Ph.D. — Endocrinol. Unit of the Rogoff-Wellcome Med. Research Inst., Beilinson Hosp., PETAH-TIKVA, Israel
- a Histone content of developing ovaries. *Bos taurus* (Artiodactyla)
- SINGH, I.; Ph.D., Prof. — Dept. of Anat., Med. Coll., ROHTAK, India
- SINGH, R. P.; Ph.D., Assoc. Prof. — Dept. of Anat., Univ. of W. Ontario, LONDON, Ont., Canada
- a Ultrastructure of the developing gonads. *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- SINGH, Sh.; M.S., Prof. — Dept. of Anat., Inst. of Med. Sci., Banaras Hindu Univ., VARANASI 221001, U.P., India
- a Teratogenesis. (Vertebrata)
- SINGH, Y. N.; Ph.D. — Zool. Dept., Allahabad Univ., ALLAHABAD 211002, India
- a Developmental morphology of the nervous system. *Philosamia ricini* (Lepidoptera), *Polistes hebraeus* (Hymenoptera)
- SINHA, D. N.; M.S. — Dept. of Anat., G.S.V.M. Med. Coll., KANPUR 208002, India
- a Effect of NaF on developing embryos. *Gallus spec.* (Aves) (with H. C. VARMA)
- SIRAKAMI, K. I.; D.Sc., Prof. — Dept. of Developm. Biol., Zool. Inst., Kyôto Univ., Kitashirakawa, Sakyo-ku, KYOTO, 606 Japan ISDB
- SIRLIN, J. L.; Dr.nat.sci., Prof. — Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK, N.Y. 10021, U.S.A. ISDB
- a Functional correlation of transfer RNA in the embryo and placenta. *Mus musculus* (Rodentia)
- SKALKO, R. G.; Ph.D. — Embryol. Lab., Birth Defects Inst., N.Y. State Dept. of Health, 84 Holland Ave., ALBANY, N.Y. 12208, U.S.A.
- a Experimental teratogenesis in early stages: maternal and embryonic metabolism of teratogens (fluorouracil, 5-bromodeoxyuridine, methotrexate); development of model systems for teratogenesis (*Echinoidea*), *Mus musculus* (Rodentia)
  - b Cytology and cytochemistry of gametogenesis, fertilization, and cleavage. *Arbacia punctulata*, *Echinarachnius parma*, *Lytechinus pictus* (*Echinoidea*), *Mus musculus* (Rodentia)
- SKINNER, D. M.; Ph.D., Prof. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, Tenn. 37830, U.S.A. ISDB
- a Molt cycle correlated muscle degeneration and reformation. *Gecarcinus lateralis* (Decapoda, Crustacea) (with L. H. YAMAOKA)
  - b Functions of satellite DNAs and macromolecular metabolism in regenerating tissues. Same species as a (with C. A. HOLLAND)
  - c Interacting controls of regeneration and molting. Same species as a (with C. A. HOLLAND)
  - d Formation and dissolution of exoskeleton. Same species as a

- e Characterization of satellite DNAs. *Pagurus pollicaris*, *Cardisoma guanhumi*, *Gecarcinus lateralis* (Decapoda, Crustacea) (with W. G. BEATTIE)
- SKINNER, J. D.; Ph.D., Prof. – Mammal Res. Inst., Univ. of Pretoria, PRETORIA 0002, S. Africa
- a Growth and development of the foetus. *Giraffa camelopardalis* (Artiodactyla)
- b Development of skin and hair patterns and pigmentation in the foetus and its physiological significance. *Antidorcas marsupialis*, *Giraffa camelopardalis* (Artiodactyla), *Equus burchelli* (Perissodactyla)
- SKOOG, F.; Ph.D., Prof. – Inst. of Plant Developm. and Dept. of Bot., Univ. of Wisconsin, Birge Hall, MADISON, WI 53706, U.S.A. ISDB
- SLAVINSKI, Mrs. E. A.; B.Sc. – Dept. of Zool., Univ. of Brit. Columbia, VANCOUVER, B.C. V6T 1W5, Canada
- a The importance of certain environmental factors in determining the differentiated state of normal adrenocortical cells in vitro. *Rattus rattus* (Rodentia)
- SLAVKIN, H. C.; D.D.S. – Dept. of Biochem., Univ. of S. Calif., Sch. of Dent., Ahmanson Bldg., LOS ANGELES, CA 90007, U.S.A.
- SMIT, A. L.; D.Sc., Prof. – Dept. of Zool., Univ. of Durban-Westville, Private Bag 4001, DURBAN, S. Africa
- SMITH, C. W.; Ph.D., Assoc. Prof. – Dept. of Bot., Univ. of Hawaii, Plant Sci. Bldg. Rm. 101, 3190 Maile Way, HONOLULU, HI 96822, U.S.A.
- SMITH, G. F.; M.D., Prof. – Sect. of Genet., Dept. of Pediat., Rush Med. Sch., 1753 W. Congress Parkway, Rm. 1507, CHICAGO, Ill. 60612, U.S.A.
- SMITH, K. D.; Ph.D. – Dept. of Biol., Johns Hopkins Univ., Charles & 34th Sts., BALTIMORE, MD 21218, U.S.A.
- SMITH, L. D.; Ph.D. – Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A. ISDB
- a Quantitative and qualitative studies on RNA synthesis at several stages of oogenesis. *Xenopus laevis* (Anura)
- b Steroid receptors in relation to the induction of oocyte maturation. *Xenopus laevis*, *Rana pipiens* (Anura)
- SMITH, P. D.; Ph.D., Assoc. Prof. – Dept. of Biol., Emory Univ., ATLANTA, GA 30322, U.S.A.
- a Genetic control and enzymatic basis of DNA repair and recombination. *Drosophila melanogaster* (Diptera)
- SOFER, W. H.; Ph.D. – Dept. of Biol., Johns Hopkins Univ., Charles & 34th Sts., BALTIMORE, MD 21218, U.S.A.
- SOFFER, Y.; M.D. – Dept. of Embryol. and Teratol., Ch. Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a Cellular immunity against seminal elements in infertility. *Homo sapiens* (Primates) (with L. A. NEBEL)
- SOLL, D. R.; Ph.D. – Dept. of Zool., Univ. of Iowa, IOWA-City, Ia. 52242, U.S.A.
- a Metabolic effects and chemical nature of a regulatory molecule involved in the expression of the non-growing, stationary phase phenotype. *Dictyostelium discoideum* (Acrosiales)
- b The control of transcription during development employing in vitro transcription systems. Same species as a
- c A factor which maintains the zoospore phenotype. *Blastocladiella emersonii* (Phycomycetes)
- SOLURSH, M.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of Iowa, IOWA-City, Ia. 52242, U.S.A.
- a Differentiation in cultured sternal chondrocytes: 1. effects of growth hormone; 2. requirements for continuous RNA synthesis; 3. coregulation of collagen and chondroitin sulfate synthesis; 4. action of a conditioned medium factor produced by cultured chondrocytes. *Gallus domesticus* (Aves)
- SOMA, T.; B.Agr.Sc. – Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Transfer of fertilized eggs by non-surgical techniques. *Bos taurus* (Artiodactyla)
- SOMES, R. G.; Ph.D., Assoc. Prof. – Nutrit. Sci. Dept., Storrs Agric. Exper. Station, Univ. of Connecticut, STORRS, Conn. 06268, U.S.A.
- a Developmental genetics. *Gallus domesticus* (Aves)
- SONI, S. L.; Ph.D. – Dept. of Bot., Univ. of Michigan, ANN ARBOR, MI 48104, U.S.A.
- SONNEBORN, D. R.; Dr. – Dept. of Zool., Univ. of Wisconsin, MADISON, WI 53706, U.S.A. ISDB
- SOUZA, Miss M. L.; – Dept. de Morfol., Fac. de Med. Vet. de Jaboticabal, 14870 JABOTICABAL, S.P., Brazil
- a Development of nervous system (normal and experimental patterns). *Gallus spec.* (Aves), *Sus scrofa* (Artiodactyla)
- b Allometric growth of the brain during the lactation period. *Rattus norvegicus*, *R. rattus* (Rodentia)
- SPAZIANI, E.; Ph.D., Prof. – Dept. of Zool., Coll. of Lib. Arts, Univ. of Iowa, IOWA-City, Iowa 52242, U.S.A.
- a Mechanism of ovarian and testicular hormone action on growth and development of reproductive tissues: uterus, seminal vesicles, prostate. *Rattus norvegicus* (Rodentia)
- b Hormonal control of melanocyte differentiation and pigment synthesis. Same species as a
- c Biosynthesis of growth and differentiating hormone (ecdysone) by the Y-organ; variations according to molt cycle. Cancer spec. (Decapoda, Crustacea)
- SPECTOR, C.; Ph.D. – Dept. of Biol., Univ. of Pittsburgh, PITTSBURGH, PA 15213, U.S.A.
- SPENCER, R. P.; M.D., Ph.D., Prof. – Dept. of Radiol., Yale Univ., 333 Cedar St., NEW HAVEN, CT 06504, U.S.A.
- SPERRY, R. W.; Ph.D. – Div. of Biol., Calif. Inst. of Technol., PASADENA, Calif. 91109, U.S.A. ISDB

- SPIEGEL, Mrs. E. SCLUFER; Ph.D. — Dept. of Biol. Sci., Dartmouth Coll., HANOVER, N.H. 03755, U.S.A.
- Protein changes in development. *Lytechinus pictus*, *Strongylocentrotus purpuratus* (Echinoidea), *Rana pipiens*, *R. catesbeiana* (Anura) (with M. SPIEGEL)
  - Role of enzyme induction in development. *Rana pipiens*, *R. catesbeiana* (Anura) (with M. SPIEGEL)
  - Biochemistry of metamorphosis. Same species as b (with M. SPIEGEL)
  - Ultrastructure of metamorphosis. Same species as b (with M. SPIEGEL)
  - Cell adhesion. *Arbacia punctulata*, *Lytechinus pictus* (Echinoidea) (with M. SPIEGEL)
- SPIEGEL, M.; Ph.D., Prof. — Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A. ISDB
- Protein changes in development. *Arbacia punctulata*, *Lytechinus pictus*, *Strongylocentrotus purpuratus* (Echinoidea), *Rana pipiens*, *R. catesbeiana* (Anura) (with E. S. SPIEGEL)
  - Role of enzyme induction in development. *Rana pipiens*, *R. catesbeiana* (Anura) (with E. S. SPIEGEL)
  - Ultrastructure of metamorphosis. Same species as b (with E. S. SPIEGEL)
  - Biochemistry of metamorphosis. Same species as b (with E. S. SPIEGEL)
  - Cell adhesion. *Arbacia punctulata*, *Lytechinus pictus* (Echinoidea) (with E. S. SPIEGEL)
- SPIEGELMAN, Mrs. M.; Ph.D. — Dept. of Anat., Med. Coll., Cornell Univ., 1300 York Ave., NEW YORK, NY 10021, U.S.A.
- Fine structure of normal and mutant embryos. *Mus musculus* (Rodentia)
  - Differentiation of primordial germ cells. Same species as a
- SPIKER, S.; Ph.D. — Biol. Dept., American Univ. of Beirut, BEIRUT, Lebanon
- Comparison of chromosomal proteins from haploid and diploid cells. (Filicinae), *Nicotiana tabacum* (Solanaceae)
- SPIRA, A. W.; Ph.D. — Div. of Morphol. Sci., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- Histogenesis in the developing eye and heart (ultrastructure, histochemistry). (Mammalia)
- SPIROFF, B. E. N.; Ph.D. — Dept. of Biol., Loyola Univ., 6525 N. Sheridan Rd., CHICAGO, Ill. 60626, U.S.A.
- Effects of thalidomide on development. (Aves)
  - Function and structure of the epiphysis. (Aves)
  - Lymphocytes and epiphysis. (Aves)
- SPITZER, N. C.; Ph.D. — Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- Onset of electrogenesis in primary sensory neurons (Rohon-Beard cells) of tadpoles (N & F stages 24/5–49/50, recording and ultrastructure). *Xenopus laevis* (Anura)
  - Cell death in development: the electrical excitability of Rohon-Beard neurons prior to their regression at stage 50; hormonal dependence of physiological and anatomical changes beginning at stage 50. Same species as a
- SPRATT, N. T.; Jr.; Ph.D., Prof. — Dept. of Zool., Coll. of Biol. Sci., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A.
- SPYKER, J. M.; Ph.D. — Dept. of Anat., Univ. of Virginia, Jordan Med. Bldg., 1300 Jefferson Park Ave., CHARLOTTEVILLE, Va. 22901, U.S.A.
- Subtle and delayed effects of exposure to low-level chemicals during development. *Callithrix jacchus* (Primates), (Rodentia)
  - Brain development and behavior under normal and abnormal conditions. (Mammalia)
- SRIVASTAVA, A. K.; Ph.D. — Zool. Dept., Fac. of Sci., Univ. of Gorakhpur, GORAKHPUR 273001, India
- Effects of stress on development. *Rana tigrina* (Anura)
- STAAL, G. B.; Dr., Jr. — Zoecon Corp., 975 California Ave., PALO ALTO, Calif. 94304, U.S.A.
- Influence of insect hormones and synthetic analogs on metamorphosis, reproduction, and embryogenesis. (Orthoptera; Homoptera; Coleoptera; Lepidoptera; Diptera)
- STAPLES, R. E.; Ph.D. — Natl. Inst. for Environm. Health Sci., N.I.H., P.O. Box 12233, RESEARCH TRIANGLE PARK, N.C. 27709, U.S.A.
- Zygote development (physiological, biochemical). *Oryctolagus cuniculus* (Lagomorpha). *Rattus norvegicus*, *Mus musculus* (Rodentia)
  - Development of methods for screening of teratogenic factors. (DMSO, l-DOPA, microwave, CO, alcohol, pentobarbital, dichlorvos, tenuazonic acid, thalidomide). *Oryctolagus cuniculus* (Lagomorpha), *Rattus norvegicus*, *Mus musculus*, *Mesocricetus auratus* (Rodentia)
  - Effects of combinations of factors (e.g. drug and stress) on development, from gamete to adult (morphology, biochemistry, behaviour). (Mammalia)
- STAY, Miss B.; Ph.D., Assoc. Prof. — Dept. of Zool., Univ. of Iowa, IOWA-City, Ia. 52242, U.S.A.
- Secretion of the brood sac and structure and physiology of the pleuropodia in relation to the nutrition of the viviparous embryo, compared to a non-viviparous species. *Diploptera punctata*, *Pycnoscelus surinamensis* (Blattariae, Dictyoptera)
  - The composition and control of brood sac secretion in a viviparous form. *Diploptera punctata* (Blattariae, Dictyoptera)
- STARNER, S. P.; Ph.D. — Div. of Biol. and Med. Res., Argonne Natl. Lab., 9700 South Cass Ave., ARGONNE, Ill. 60439, U.S.A.
- Radiation effects on developing circulatory system. (Aves)
  - Development of microvascular damage: comparative effects of fission neutrons and  $^{60}\text{Co}$   $\gamma$ -rays. (Aves)
- STEFFEK, A. J.; D.D.S., Ph.D. — Dept. of Anat., Univ. of Chicago, 1025 East 57th St., CHICAGO, Ill. 60637, U.S.A.

- also: Am. Dent. Assoc., 211 E. Chicago Ave., CHICAGO, Ill. 60611, U.S.A.
- a Normal oral-facial development: formation of the primary and secondary palate. *Mustela putorius furo*, *Macaoca mulatta* and other Mammalia
- b Mechanisms involved and comparative pathogenesis of the lesions in experimentally-induced cleft lip and cleft palate. Same species as a
- c Correlation of drug metabolism, distribution, and localization with congenital malformations. Same species as a
- STEFFENSEN, D. M.; Ph.D., Prof. – Dept. of Bot., Univ. of Illinois, URBANA, IL 61801, U.S.A.
- STEIN, Miss K. F.; Ph.D., Prof. (Emer.) – Dept. of Biol. Sci., Clapp Lab., Mount Holyoke Coll., SOUTH HADLEY, Mass. 01075, U.S.A.
- a The culture in vitro of mutant embryos, e.g. Lp/Lp; tracer studies. (Rodentia)
- b Development and genetics of a circling mutation. *Mus musculus* (Rodentia)
- c Genetics and development of a mutation – similar to or identical with Ig/Ig – causing blindness with eyes open at birth. Same species as b
- d Ultrastructure of spinal tissue of Lp/Lp embryos at time of neural tube closure. Same species as b
- STEINBERG, M. S.; Ph.D., Prof. – Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A. ISDB
- STEINHARDT, R. A.; Ph.D., Assoc. Prof. – Dept. of Zool., Univ. of Calif., BERKELEY, Calif. 94720, U.S.A.
- a Ionic controls of metabolism in fertilization. *Lytechinus pictus*, *Strongylocentrotus purpuratus* (Echinoidea)
- b Differentiation of visual units. *Rana pipiens* (Anura)
- STERN, C.; Ph.D., Prof. (Emer.) – Dept. of Zool., Univ. of Calif., BERKELEY, Calif. 94720, U.S.A.
- a Developmental genetics of pattern formation. *Drosophila melanogaster* (Diptera)
- b Variations of mitotic recombination. Same species as a
- STERN, H.; Ph.D., Prof. – Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A. ISDB
- a Regulation of DNA synthesis during meiotic development. *Trillium erectum*, *Lilium longiflorum*, *Tulipa gesneriana*, *Vicia faba*, (Angiospermae)
- b Developmental genetics
- STERN, I. B.; D.D.S., Prof. – Dept. of Oral Biol., Sch. of Dent., Univ. of Washington, SEATTLE, WA 98105, U.S.A.
- STERN, K.; M.D., Prof. – Dept. of Life Sci., Bar-Ilan Univ., RAMAT-GAN, Israel.
- a Relationship of reticulo-endothelial function to growth processes, as exemplified by liver regeneration after partial hepatectomy. *Rattus spec.*, *Mus musculus* (Rodentia)
- b Effect on organ growth of administration of isogenic subcellular tissue fractions to weanlings of inbred strains. *Mus musculus* (Rodentia)
- STERN, R.; M.D. – Lab. of Biochem., Natl. Inst. of Dent. Res., Natl. Inst. of Health, BETHESDA, Md. 20014, U.S.A.
- a Synthesis of collagen in the developing embryo; isolation of mRNA for collagen; characterization of mRNA and control of translation of collagen by tRNA; isolation of prolyl and glycyl tRNA preceding and during collagen formation and from non-collagenous tissue. *Gallus domesticus* (Aves)
- b Proline metabolism in the developing embryo; synthesis of hydroxyproline and control of biosynthetic pathway for proline; temporal relationship to collagen synthesis and deposition. Same species as a
- STERN, S.; Ph.D. – Lab. of Human Reprod., Harvard Med. Sch., 45 Shattuck St., BOSTON, MA 02115, U.S.A. ISDB
- STETLER, D. A.; Ph.D. – Dept. of Biol. Sci., Dartmouth Coll., HANOVER, NH 03755, U.S.A.
- STEVENS, L. C.; Ph.D. – The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A. ISDB
- a Histogenesis of testicular teratoma (strain 129). *Mus musculus* (Rodentia)
- b Developmental genetics. Same species as a
- c The development of teratomas from parthenogenetically activated ovarian eggs. Same species as a
- d Parthenogenesis. Same species as a
- STEVENSON, J. ROSS; Ph.D., Prof. – Dept. of Biol. Sci., Kent State Univ., KENT, Ohio 44242, U.S.A.
- a Study of control of epidermal chitin biosynthesis for the developing cuticle by chemical assays and radiotracers. *Orconectes sanborni*, *O. obscurus* (Decapoda, Crustacea)
- STEWART, J. A.; Ph.D. – Biochem. Dept., Univ. of New Hampshire, DURHAM, NH 03824, U.S.A.
- STILES, Miss Sh.S.; M.Sc. – Biol. Lab., Natl. Marine Fish. Serv., Middle Atlantic Coastal Fish. Ctr., 212 Rogers Ave., MILFORD, Conn. 06460, U.S.A.
- a Mutagenic effects of marine pollutants on fertilized, meiotic, and cleaving eggs, and on larvae and gonads (gametogenesis). *Mulinia lateralis*, *Crassostrea virginica*, *Mercenaria mercenaria*, *Mytilus edulis* (Lamellibranchia)
- b Cytogenetic studies of irradiation effects on parthenogenetic eggs and cleavage stages 'fertilized' with genetically damaged sperm (also use of colchicine etc. for chromosome doubling). *Crassostrea virginica* (Lamellibranchia)
- STOCK, A.; Ph.D., Prof. – Dept. of Zool., Sch. of Biol. Sci., Univ. of New England, ARMIDALE, N.S.W. 2351, Australia
- a Effect of wounding with and without treatment with hormones inducing moult and regeneration. *Blattella germanica* (Blattariae) (with A. F. O'FARRELL)
- STOCKDALE, F. E.; M.D., Ph.D. – Dept. of Med., School of Med., Stanford Univ., Room S-025, STANFORD, Calif. 94305, U.S.A. ISDB
- a Mechanisms of skeletal muscle differentiation, with special reference to DNA synthesis and cell division. *Gallus domesticus* (Aves)

- b Mechanisms of hormone-dependent differentiation in mammary gland tissue in vitro, with special reference to DNA synthesis and cell division. *Mus musculus* (Rodentia)
- STOCUM, D. L.; Ph.D. – Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, U.S.A.
- a Morphogenesis during regeneration. *Ambystoma maculatum*, *Triturus viridescens* (Urodela)
- b Control of ribonucleic acid and protein synthesis by tissue interactions during regeneration. Same species as a
- c Cell recognition and adhesion during embryology. *Gallus domesticus* (Aves)
- STONE, L. S.; Ph.D., D.Sc., Prof. (Emer.) – Dept. of Comp. Anat., Yale Univ., 333 Cedar St., NEW HAVEN, Conn. 06510, U.S.A. ISDB
- STOUT, V. M.; Ph.D. – Dept. of Zool., Univ. of Canterbury, Private B.g. CHRISTCHURCH, New Zealand
- a Descriptive embryology. *Lepidurus apus* (Notostraca, Crustacea), *Daphnia magna* (Cladocera, Crustacea)
- STOWE, B. B.; Ph.D., Prof. – Dept. of Biol., 946A Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A.
- a Relationship between physiologically active lipids and membrane structure: modulation of growth, respiration and hormone synthesis by regulatory membranes. *Pisum sativum* (Papilionaceae), *Ficus carica* (Artocarpaceae)
- b Synthetic pathways of indole hormones and goitrogens: microanalysis, metabolism, and regulation. *Isatis tinctoria* (Cruciferae), *Polygonum tinctorium* (Polygonaceae), *Tephrosia spec.* (Leguminosae)
- STRATFORD (MILLER), Mrs. B. F.; Ph.D. – School of Anat., Univ. of Melbourne, PARKVILLE 3052, Vict., Australia
- a Developmental anatomy and pathology of the placenta. *Homo sapiens* (Primates)
- STULL, G. B.; V.M.D. – Lab. of Reprod. Physiol., Dept. of Anim. Biol., Sch. of Vet. Med., Univ. of Pennsylvania, 530 Lippincott Bldg., 25th & Locust Sts., PHILADELPHIA, Pa. 19103, U.S.A.
- a Characterization of RNA contained in oocytes and early embryos. *Mus musculus* (Rodentia)
- SUBTELNY, S.; Ph.D., Prof. – Dept. of Biol., Rice Univ., HOUSTON, TX 77001, U.S.A. ISDB
- SUBURO, Miss A. M.; M.D. – Inst. de Biol. Celular, Fac. de Med., Paraguay 2155, BUENOS AIRES, Argentina
- a Electron microscopy studies of neural differentiation in vivo and in vitro. *Gallus domesticus* (Aves)
- b Neural cell separation by velocity sedimentation. Same species as a
- SUCHESTON, Mrs. M. E.; Ph.D. – Dept. of Anat., Ohio State Univ., 333 W. 10th Ave., COLUMBUS, Ohio 43210, U.S.A.
- a Morphology and histology of the male and female adrenal gland from implantation to sexual maturity: histochemistry and electron microscopy of the cortical transient zone. *Meriones unguiculatus* (Rodentia)
- SUDARWATI, Miss S; Dr. – Dept. of Biol., Sect. Zool., Bandung Inst. of Technol., Jalan Ganesa 10, BANDUNG, Indonesia
- a The passage and distribution of maternally administered Au-198 in the foetus. *Mus musculus* (Rodentia)
- b The effect of cyclophosphamide on the embryo. *Gallus domesticus* (Aves)
- SUGA, T.; BVS – Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Biochemistry of uterine secretion. *Bos taurus*, *Capra hircus* (Artiodactyla)
- SUGIE, T.; Ph.D. – Natl. Inst. of Anim. Industry, CHIBA-shi, 280 Japan
- a Transfer of fertilized eggs by non-surgical techniques. *Bos taurus*, *Capra hircus* (Artiodactyla)
- SUGINO, H.; D.Sc., Prof. – Osaka Christian Coll., Maruyama-dōri, Abeno-ku, OSAKA 545, Japan
- a Effect of colchicine on regeneration. *Dugesia japonica* (Turbellaria) ISDB
- SUGIYAMA, M.; D.Sc., Prof. – Sugiyama-Gakuen Univ., Tashirocho-Kameiri, Chikusa-ku, NAGOYA, 464 Japan ISDB
- a Physiological studies on fertilization and artificial parthenogenesis. *Hemicentrotus pulcherrimus*, *Pseudocentrotus depressus* (Echinoidea)
- SULLIVAN, D. T.; Ph.D. – Dept. of Biol., Syracuse Univ., 130 College Place, SYRACUSE, N.Y. 13210, U.S.A.
- a Biochemical and genetic control of enzyme appearance during differentiation. *Drosophila melanogaster* (Diptera)
- b Biochemistry of pigment synthesis. Same species as a
- SULLIVAN, G. E.; Ph.D. – Dept. of Histol. and Embryol., Univ. of Sydney, SYDNEY, N.S.W. 2006, Australia
- a Teratogenic effects of cholinesterase inhibitors (insecticides, etc.). *Gallus spec.* (Aves)
- SUMMERS, R. G.; Ph.D. – Dept. of Zool., Univ. of Maine, Murray Hall, ORONO, Me. 04473, U.S.A.
- a Ultrastructure of fertilization and early development. (Invertebrata)
- SUSSEX, I. M.; Ph.D., Assoc. Prof. – Dept. of Biol., Yale Univ., NEW HAVEN, CT 06520, U.S.A.
- SUSSMAN, A. S.; Ph.D., Prof. – Dept. of Bot., Univ. of Michigan, ANN ARBOR, MI 48104, U.S.A.
- SUSSMAN, M.; Prof. – Div. of Molec. and Developm. Biol., Hebrew Univ., Migrash HaRussim, JERUSALEM, Israel ISDB
- a Genetic and developmental studies. *Dictyostelium spec.* (Acrasiales)
- SUSSMAN, Mrs. R. B. ROTMAN; Ph.D. – Dept. of Molec. Biol., Hebrew Univ. – Hadassah Med. Sch., JERUSALEM, Israel
- a Control of the cell growth and division cycle. (Protozoa)
- SUTASORJA, Miss L. A.; M.Sc. – Dept. of Biol., Sect. Zool., Bandung Inst. of Technol., Jalan Ganesa 10, BANDUNG, Indonesia

- a Induction of primordial germ cells: experimental morphology and autoradiography with <sup>3</sup>H thymidine in the blastula. *Ambystoma mexicanum*, *Triturus alpestris*, *T. cristatus carnifex* (Urodela)
- SUZUKI, Y.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Silk gland development and differentiation with special attention to the fibroin genes and gly-and ala-tRNA gene transcription. *Bombyx mori* (Lepidoptera)
- SWANEPOEL, J. H.; D.Sc. – Dept. of Zool., Rand Afrikaans Univ., P.O. Box 524, JOHANNESBURG, S. Africa
- SWANSON, R. F.; Ph.D. – Dept. of Biol., Gilmer Hall, Univ. of Virginia, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a Control of mitochondrial protein synthesis during early embryonic development. *Xenopus laevis* (Anura)
- b Function of mitochondrial DNA in mitochondrial biogenesis. Same species as a
- c Coordination of mitochondrial and cytoplasmic protein synthesis in mitochondrial biogenesis. Same species as a
- SWIFT, H. H.; Ph.D., Prof. – Depts. of Biol. and Pathol., Univ. of Chicago, 1101 E. 57th St., CHICAGO, IL 60637, U.S.A.
- a Cellular aspects of protein synthesis and differentiation
- SZULMAN, A. E.; Dr. – Dept. of Pathol., Magee Women's Hosp., PITTSBURGH, PA 15213, U.S.A. ISDB
- TACHIBANA, Miss T. – Dept. of Biol., Sch. of Dent. Med., Tsurumi Univ., No. 1–3, 2-chome, Tsurumi, Tsurumi-ku, YOKOHAMA, Japan
- a Ultrastructural study of the basal lamella during metamorphosis. (Anura)
- TAGUCHI, S.; Ph.D., Prof. – Biol. Lab., Sch. of Med., Keio Univ., 655 Hiyoshi, Kôhoku-ku, YOKOHAMA, 223 Japan
- a Biochemical effects of radiation on the embryo. *Oryzias latipes* (Teleostei), *Bufo vulgaris* (Anura)
- TAHARA, Y.; D.Sc. – Dept. of Biol., Osaka Kyôiku Univ., Tennoji-ku, OSAKA, 543 Japan
- a Dynamic aspects of interaction between embryo and Myxovirus. (Aves)
- TAKAGI, N.; D.Sc. – Chromosome Research Unit, Fac. of Sci., Hokkaido Univ., N 10, W 8, SAPPORO, 060 Japan
- a Chromosome studies in pre- and post-implantation embryos. *Mus musculus*, *Cricetus auratus* (Rodentia)
- b X chromosome differentiation. *Mus musculus* (Rodentia)
- TAKAHASHI, H.; D.Sc., Assoc. Prof. – Lab. of Fresh-water Fish Cult., Dept. of Biol., Hokkaido Univ., 3–1–1 Minatocho, HAKODATE, 040 Japan ISDB
- a Experimental studies of gonadogenesis and sex differentiation. *Poecilia spec.*, *Tilapia spec.*, *Oncorhynchus spec.* (Teleostei)
- b Extragonadal influences of sex steroids in juveniles in relation to subsequent gonad maturation. *Oryzias spec.*, *Carassius spec.* (Teleostei)
- TAKANO, K.; M.D., D.M.S. – Dept. of Drug Safety Evaluat., Takeda Chemical Ind. Ltd., 6–3–6 Himuro-cho, Takatsuki, OSAKA, 569 Japan
- a Strain differences in development: comparison between normal embryos and those transferred to the uterus of the same or a different strain. *Mus musculus* (Rodentia)
- b Cleft palate induction by a glucocorticoid with application of the egg transfer technique. Same species as a
- TAKASAKI, Mrs. H. – Dept. of Biol., Osaka Kyôiku Univ., Tennoji-ku, OSAKA, 543 Japan
- a Causality in epigenetic formation of organizer. (Amphibia)
- b Cytodifferentiation during cleavage. (Amphibia)
- c Nucleo-cytoplasmic interaction during early development. (Amphibia)
- d Cell interactions in relation to cytodifferentiation. (Amphibia)
- TAKATA, K.; D.Sc. – Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan ISDB
- TAKAYA, H.; D.Sc., Prof. – Dept. of Biol., Kônan Univ., Okamoto, Motoyama-cho, Higahinada-ku, KOBE, Japan ISDB
- TAKEDA, H.; M.D., Dr.Med.Sci., Prof. – Dept. of Anat., Div. I, Kobe Univ. School of Med., Kusunoki-cho, Ikuta, KOBE, 650 Japan
- a Phylogenetic and ontogenetic studies on the cerebellum and inferior olive. (Pisces; Amphibia; Reptilia; Aves; Mammalia)
- TAKEICHI, M.; Ph.D. – Lab. of Cell Sci., Inst. of Biophys. and Molec. Biol., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, 606 Japan
- a Mechanisms of cell adhesion. *Gallus gallus* (Aves)
- b Stability in the differentiation of cells from eye tissues in clonal cell culture. *Gallus gallus* (Aves), *Mus bactrianus* (Rodentia) (with T. S. OKADA and G. EGUCHI)
- c Factors affecting cell aggregation and cell contact. Same species as a (with T. S. OKADA and K. YASUDA)
- TAKEUCHI, H.; D.Sc. – Biol. Lab., Osaka Dent. Coll., Saka, HIRAKATA, Osaka Pref., Japan
- TAKEUCHI, I.; M.Sc. – Dept. of Embryol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiy-acho, KASUGAI, Aichi 480–03, Japan
- a Teratogenesis of the nervous system. *Rattus norvegicus* (Rodentia)
- b Electron microscopy of the embryogenesis of the nervous system. Same species as a
- TAKEUCHI, S.; D.Sc. – Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Mechanisms of epithelial migration during wound healing in the embryo. *Gallus domesticus* (Aves)

- FAKITA, S.; M.D., Prof. (Emer.) – 1st Dept. of Surg., School of Med., Tokushima Univ., Kuramoto-cho, TOKUSHIMA, 770 Japan
- a Functional development of the alimentary and biliary tracts in the earlier stages of the fetus. *Homo sapiens* (Primates)
- b Development of the nerve-plexus of fetal intestine and gall-bladder (electron microscopy). Same species as a
- TAKITA, T.; M.Agr. Dept. of Aquat. Biol., Fac. of Fish., Nagasaki Univ., 1-14 Bunkyo-machi, NAGASAKI, 852 Japan
- TAMANOI, I.; Ph.D. Biol. Lab., Chiba Univ., Yayoi-cho 1 33, CHIBA, 280 Japan
- a Radiation effects on haematopoietic organs (immunochemistry). *Mus musculus* (Rodentia)
- TAMARIN, A.; M.S.D., Assoc. Prof. – Dept. of Oral Biol., Sch. of Dent., Univ. of Washington, SEATTLE, WA 98105, U.S.A.
- TANABE, K.; B.Sc. Dept. of Med. Zool., Osaka City Univ., Asahi-machi, Abeno-ku, OSAKA, 545 Japan
- TANAKA, K.; M.A. – Inst. of Zool., Tokyo Kyōiku Univ., Otsuka 3-29-1, Bunkyo-ku, TOKYO, Japan
- a Recognition of specificity in compound forms. *Botryllus primigenus*, *Botrylloides violaceum* (Asciadiacea) (with H. WATANABE, Shimoda)
- TANAKA, O.; M.D. – Dept. of Anat., Kyoto Univ., Konoe-cho, Yoshida, Sakyo-ku, KYOTO, 606 Japan.
- a Epidemiology of skeletal anomalies in embryos and foetuses. *Homo sapiens* (Primates)
- b Histochemistry of embryo and fetus. Same species as a
- c Autopsy of external malformations in foetuses. Same species as a
- TANDAN, B. K.; Ph.D. – Dept. of Zool., Univ. of Lucknow, LUCKNOW, India
- a Developmental changes in the thorax. (Orthoptera)
- TANIMURA, T.; M.D., Assoc. Prof. – Dept. of Anat., Kyoto Univ., Konoe-cho, Yoshida, Sakyo-ku, KYOTO, 606 Japan.
- a Epidemiology and pathogenesis of malformations in embryos. *Homo sapiens* (Primates)
- b Teratogenicity test of chemicals. *Mus musculus*, *Rattus norvegicus* (Rodentia), *Macaca mulatta*, *M. fascicularis* (Primates)
- TARTAR, V.; Ph.D., Prof. – Dept. of Zool., Univ. of Washington Field Lab., R.1 Box 250, NAHCOTTA, Wash. 98637, U.S.A.
- a Production of decorticated cells by micurgical or chemical methods. *Stentor coeruleus* (Ciliata)
- b Cytokinesis studied by micurgery. Same species as a
- c Effects of single heat shocks. Same species as a
- d Mouthparts induction in the oral primordium. Same species as a
- e Bleaching and pigment regeneration. Same species as a
- f Size inheritance and regulation of number of body kinetics. Same species as a
- TASSAVA, R. A.; Ph.D. – Dept. of Zool., Coll. of Biol. Sci., Ohio State Univ., 1735 Neil Ave., COLUMBUS, Ohio 43210, U.S.A.
- a Role of hormones, nerves, and RNA synthesis in limb regeneration. *Notophthalmus viridescens* (Urodela)
- b Thyroid hormones and development. Same species as a
- c The initiation of DNA synthesis and mitosis in regenerating limbs. *Ambystoma mexicanum* (Urodela)
- TAUTVYDAS, K. J.; Ph.D. – Dept. of Biol., Marquette Univ., 530 N. 15th St., MILWAUKEE, WI 53233, U.S.A.
- a Molecular basis for the attainment of asexual reproductive capacity. *Eudorina californica*, *E. illinoisensis*, *E. elegans* (Volvocales, Chlorophyceae)
- b Mechanism of action of auxins in the regulation of development. (Spermatophyta)
- TAYLOR, A. C.; Ph.D., Prof. (emer.) – Dept. of Anat., Univ. of Texas Dental Branch, P.O. Box 20068, HOUSTON, Tex. 77025, U.S.A. ISDB
- TAYLOR, G. T.; Ph.D. – Dept. of Physiol., Southern Illinois Univ., Life Sciences II, CARBONDALE, Ill. 62901, U.S.A.
- a Polar lobe formation and early development: cytochemical and fine structural analysis of cytodifferentiation. *Ilyanassa obsoleta* (Gastropoda)
- b Early development through gastrulation: fine structural analysis of cytodifferentiation. *Crasostrea virginica* (Lamellibranchiata). *Chaetopterus variopedatus* (Polychaeta)
- TAYLOR, J. D.; Dr. – Dept. of Biol. and Dept. of Comp. Med., Wayne State Univ., DETROIT, MI 48202, U.S.A. ISDB
- TAYLOR, P. J.; D.Obst. – Div. of Obstet. and Gynecol., Health Sci. Centre, Univ. of Calgary, CALGARY, Alta. T2N 1N4, Canada
- a The effect of N-156-BIS on the secretion of pulmonary surfactant in the fetus. *Ovis aries* (Artiodactyla)
- TEICHMAN, R. J.; Ph.D. – Dept. of Anat., Univ. of Hawaii, 1960 East-West Rd., HONOLULU, HI 96822, U.S.A.
- TEITELMAN de PINCZUK, Mrs. G. N.; Ph.D. – Inst. de Biol. Celular, Fac. de Med., Paraguay 2155, BUENOS AIRES, Argentina
- a Biochemical differentiation of nervous tissue in vitro and in vivo, especially synthesis of neurotransmitters. *Gallus domesticus* (Aves)
- TEMIN, H. M.; Ph.D., Prof. – McArdle Lab. for Cancer Res., Univ. of Wisconsin, 450 N. Randall Ave., MADISON, Wis. 53706, U.S.A.
- a The role of RNA-directed DNA polymerase activity in embryonic development; the origin of



- viruses, and the formation of genes for neoplastic transformation. *Gallus domesticus* and other spp. (Aves)
- b The role of a purified polypeptide related to somatomedin from human serum in the control of cell multiplication in normal and neoplastic cells. *Gallus spec.* (Aves), *Rattus spec.* (Rodentia)
- TEN CATE, A. R.; Ph.D., Prof. – Div. of Biol. Sci., Fac. of Dent., Univ. of Toronto, 123 Edward St., TORONTO, Ont. M5G 1G6
- a Development of the supporting structures of teeth (electron microscopy and electron histochemistry). *Homo sapiens* (Primates)
- b Fibroblast function in connective tissue remodelling associated with both development and function. Same species as a
- TERASHIMA, Y.; M.D. – Dept. of Embryol., Inst. of Developm. Res., Aichi Pref. Colony, Kamiyacho, KASUGAI, Aichi 480-03, Japan
- a Biochemistry of bone and cartilage growth and differentiation in vivo and in vitro. *Rattus spec.* (Rodentia)
- b Teratogenesis of skeletal system. Same species as a
- TERAYAMA, H.; Ph.D., Prof. – Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Composition and biochemical activities of germ cell nuclei and early changes after fertilization. *Pseudocentrotus depressus* (Echinoidea)
- b Mechanism of homeostatic growth regulation in liver regeneration. *Rattus norvegicus* (Rodentia)
- c Biochemical changes in cell surface structure of tumor cells in comparison with corresponding normal cells. Same species as b
- d Activation of DNA-synthetic key enzymes in unfertilized eggs upon homogenization and fertilization. *Pseudocentrotus depressus* and other spp. (Echinoidea)
- THOMMES, R. C.; Ph.D., Prof. – Dept. of Biol. Sci., De Paul Univ., 1036 W. Belden Ave., CHICAGO, Ill. 60614, U.S.A.
- a Hormonal control of yolk sac membrane metabolism. *Gallus domesticus* (Aves)
- b Endocrine function of embryonic pancreas. Same species as a
- c Thyroid function in the embryo. Same species as a
- THOMPSON, R. P.; Ph.D., Prof. – Dept. of Biol. Sci., State Univ. Coll., BROCKPORT, NY 14420, U.S.A.
- a Mesodermal induction. (Amphibia)
- b Protein synthesis in the early embryo. (Amphibia)
- THOMPSON, R. S.; Ph.D. – Div. of Exp. Pathol., Dept. of Obstet. and Gynecol., Univ. of S. California, Livingston Res. Center, 1321 Mission Rd., LOS ANGELES, Calif. 90033, U.S.A.
- a Fertilization in vitro and in vivo. (Mammalia)
- b Short- and long-term preservation of living embryos (two-cell to blastocyst stage) and ova through cooling and/or freezing (utilizing cryoprotective agents). *Mus musculus* (Rodentia), *Ovis aries*, *Bos taurus* (Artiodactyla)
- c Preliminary studies on embryo transfer (8-cell to blastocyst stage) to improve superovulatory response and recipient synchronization. Same species as a
- THOMSON, Mrs. D. V.; B.Sc. – Dept. of Reprod. Physiol., Anim. Res. Inst., OTTAWA, Ont. K1A 0C6, Canada
- a Endocrinology of the developing embryo. *Gallus gallus* (Aves)
- THORNTON, C. S. † Ph.D., Prof. – Dept. of Zool., Michigan State Univ., EAST LANSING, MI 48823, U.S.A. ISDB
- THURMOND, W.; Ph.D., Prof. – Biol. Sci. Dept., Calif. Polytechnic State Univ., SAN LUIS OBISPO, Calif. 93401, U.S.A.
- a Development of hypothalamic and pituitary control of the adrenal cortex; (extirpation, transplantation and histochemistry). *Ambystoma tigrinum* (Urodela), *Xenopus laevis*, *Hyla regilla*, *Bufo boreas* (Anura)
- TIBA, T.; D.V.M., Assoc. Prof. – Monkey Care Lab., Prim. Res. Inst., Kyoto Univ., INUYAMA, Aichi, 484 Japan
- a Kinetics of spermatogenesis. (Primates)
- TOBIN, C. E.; Ph.D., Prof. – Dept. of Human Biol., Univ. of Colorado Dent. Sch., 4200 E. 9th Ave., DENVER, CO 80220, U.S.A.
- TODER, V.; M.D. – Dept. of Embryol. and Teratol., Ch. Sheba Med. Ctr., Tel-Aviv Univ., TEL-AVIV, Israel
- a In vitro studies on cytotoxicity of sensitized lymphocytes in delayed hypersensitivity to spermatozoal antigens. *Cavia porcellus* (Rodentia), *Homo sapiens* (Primates) (with L. A. NEBEL)
- TOERIENT, M. J.; Ph.D., D.Sc., Prof. – Dept. of Anat., Univ. of the O.F.S., P.O. Box 339, BLOEM-FONTEIN 9300, S. Africa ISDB
- a Morphological and experimental studies on cranial morphogenesis (by means of extirpation, heteroplastic and orthotopic transplants, the contributions and interrelationship of the visceral, axial, and capsular skeleton are studied). *Ambystoma spec.*, *Triturus spec.* (Urodela), *Xenopus spec.* (Anura), *Chelydra serpentina* (Chelonia), *Anas boschas*, *Spheniscus demersus*, *Gallus domesticus* (Aves), *Oryctolagus cuniculus* (Lagomorpha)
- b Microsurgical induction of malformations of the central nervous system, sense organs, and skull. *Gallus domesticus* (Aves)
- TOIT, C. A. du; Ph.D., Prof. – Zool. Inst., Fac. of Sci., Univ. of Stellenbosch, STELLENBOSCH, S. Africa ISDB
- TOKUNAGA, Miss C.; Sc.D. – Dept. of Zool., Univ. of Calif., BERKELEY, Calif. 94720, U.S.A.
- a Developmental genetics of pattern formation. *Drosophila melanogaster* (Diptera)
- b Variations of mitotic recombination during development. Same species as a

- IOKUYASU, K.: Ph.D. - Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a Spermatogenesis in relation to genetics. *Drosophila melanogaster* (Diptera)
- TOMPKINS, R.: Ph.D. - Dept. of Biol., Princeton Univ., PRINCETON, NJ 08540, U.S.A.
- TOTO, P. D.; D.D.S., Prof. - Dept. of Oral Pathol., Sch. of Dent., Loyola Univ., 2160 South First Ave., MAYWOOD, Ill. 60153, U.S.A.
- a Age changes in dental tissues, oral mucosa and salivary glands. *Rattus norvegicus* (Rodentia), *Homo sapiens* (Primates)
- TOURIAN, A. Y.; M.D., Assoc. Prof. - Dept. of Med., Div. of Neurol., Duke Univ. Med. Center, DURHAM, NC 27710, U.S.A.
- a Differentiation, hormonal induction and immunology of phenylalanine hydroxylase in a minimal deviation hepatoma cell culture. (Mammalia)
- TOWERS, B.; M.B., Ch.B. - Dept. of Paediat. & Anat., Center for Health Sci., Univ. of Calif., LOS ANGELES, Calif. 90024, U.S.A.
- a Development of fetal lung and changes at birth (experimental). *Rattus rattus* (Rodentia), *Ovis aries* (Artiodactyla)
- b Structure and functions of fetal larynx (experimental). Same species as a
- TRASLER, Mrs. D. G.; Ph.D. - Dept. of Biol., McGill Univ., MONTREAL H3C 3G1, Que., Canada
- a Mode of inheritance of, and elements of face shape that predispose an embryo to cleft lip. *Mus musculus* (Rodentia)
- TRAURIG, H. H.; Dr., Assoc. Prof. - Dept. of Anat., Univ. of Kentucky, Rose St., LEXINGTON, Ky. 40506, U.S.A.
- a Uptake of 3H-labeled testosterone by brain, muscle, thymus, liver, and reproductive organs of male and female neonate and adult animals. *Rattus rattus* (Rodentia) (with J. N. SCOTT)
- b Postnatal development of activities of several lysosomal acid hydrolases in the neonatal and adult lung. Same species as a
- TRELSTAD, R. L.; M.D. - Developm. Biol. Lab., Massachusetts Gen. Hosp., BOSTON, Mass. 02114, U.S.A. ISDB
- a Development of the fibrous architecture of the orthogonal collagen lamellae in the corneal stroma. *Gallus domesticus* (Aves)
- b Characterization of the molecular species of collagen in developing connective tissues. Same species as a
- c Synthesis and degradation of hyaluronic acid in the developing cornea. Same species as a
- d Collagen fibrillogenesis in vivo and in vitro using collagen types I, II, III and IV. Same species as a
- TRINKAUS, J. P.; Ph.D., Prof. - Dept. of Biol., Kline Biol. Tower, Yale Univ., NEW HAVEN, Conn. 06520, U.S.A. ISDB
- a Mechanism of normal morphogenetic cell movements (especially epiboly), of invasive movements of cancer cells, and of contact inhibition of cell movement. *Gallus domesticus* (Aves), *Fundulus heteroclitus* (Teleostei), normal and transformed cell lines (Mammalia)
- b The nature of cell adhesions and the mechanism of tissue cell locomotion, both in vitro and in vivo. Same species as a
- c The role of microtubules and contractile microfilaments in cell form changes and in locomotion. Same species as a
- d Structure and chemistry of the cell surface, as related to adhesiveness and locomotion. Same species as a
- TRIGONE, E. J.; Dr., Assoc. Prof. - Dept. of Bot. and Plant Pathol., Oregon State Univ., CORVALLIS, OR 97331, U.S.A.
- TRIPATHI, C. P. M.; M.Sc. - Dept. of Zool., Univ. of Gorakhpur, GORAKHPUR 273001, India
- a The effects of chemosterilants on developmental stages. *Sarcophaga ruficornis* (Diptera) (with H. S. CHAUDHRY)
- TRIPLETT, E. L.; Ph.D., Assoc. Prof. - Dept. of Biol. Sci., Univ. of California, SANTA BARBARA, CA 93106, U.S.A.
- TSAFRIRI, A.; Ph.D. - Dept. of Biodynamics, Weizmann Inst. of Sci., P.O.B. 26, REHOVOT, Israel temporarily: Dept. of Physiol., Univ. of Maryland, 660 Redwood St., BALTIMORE, Md. 21201, U.S.A.
- a Control of oocyte maturation. *Sus scrofa domestica* (Artiodactyla), *Macaca mulatta* (Primates)
- TSUKAHARA, J.; D.Sc. - Marine Biol. Station, Nagoya Univ., Sugashima, TOBA, Mie-ken, 517 Japan
- a Electron microscopy and biochemistry of oogenesis. *Hemicentrotus pulcherrimus*, *Mespilia globulus* (Echinoidea)
- TUCKER, G. S.; Ph.D. - Dept. of Ophthalmol., Coll. of Phys. and Surg., Columbia Univ., 630 W. 168th St., NEW YORK, NY 10032, U.S.A.
- a Developmental staging of the gonangium; inductive interactions between somatic cells and immature gametes in gonangiogenesis (ligation, excision, and nutrition experiments). *Campanularia flexuosa* (Hydrozoa)
- b Oogenesis and vitellogenesis: 1. contribution of yolk by somatic cells; 2. oocyte maturation; 3. staging (light and electron microscopy, histochemistry). Same species as a
- c Quantitative and qualitative electron microscopy of synapse formation in the inner plexiform layer of larvae reared in the light and dark. *Xenopus laevis* (Anura)
- d Neuromuscular junction formation in embryonic forelimb (light and electron microscopy). *Didelphys virginiana* (Marsupialia)
- TUNG, T. C.; Dr., Prof. - Inst. of Zool., Acad. Sinica, PEKING, Haitien, People's Rep. of China ISDB
- TUPPER, J. T.; Ph.D., Assoc. Prof. - Dept. of Biol., Syracuse Univ., College Place 130, SYRACUSE, N.Y. 13210, U.S.A.

- a The role of intercellular communication and membrane permeability in early embryonic differentiation  
 TWEDELL, K. S.; Ph.D., Prof. – Dept. of Biol., Univ. of Notre Dame, NOTRE DAME, Ind. 46556, U.S.A. ISDB
- a Oocyte development and incorporation of radioactive precursors. *Pectinaria gouldii* (Polychaeta)  
 b Cell source and movement during hydranth regeneration. *Tubularia crocea* (Hydrozoa)  
 c Renal tumor induction by subcellular fractions in embryonic and larval stages. *Rana pipiens* (Anura)  
 d Tissue and organ culture of embryonic and neoplastic cells. Same species as c  
 TWEDLE, Ch. D.; Ph.D. – Depts. of Biomech. and Zool., Coll. of Nat. Sci., Mich. State Univ., EAST LANSING, Mich. 48824, U.S.A.
- a Formation of neuromuscular junctions in developing muscle. *Ambystoma maculatum* (Urodela)  
 b Nerve effects on myogenesis and limb regeneration. Same species as a  
 c Collateral nerve sprouting in injured muscle. (Mammalia)  
 TYNDALE-BISCOE, C. H.; Ph.D. – Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, A.C.T. 2600, Australia
- a Early development including fine structure. *Antechinus stuarti* (Marsupialia)  
 b Fine structure of the blastocyst. *Macropus eugenii* (Marsupialia), *Oryctolagus cuniculus* (Lagomorpha)  
 c Factors involved in resumption of development by blastocysts in diapause. *Macropus eugenii* (Marsupialia)
- UCHIDA, T. A.; Dr. Agr., Prof. – Zool. Lab., Fac. of Agric., Kyushu Univ., FUKUOKA, Japan
- a Reproduction and embryology. *Pipistrellus abramus*, *Miniopterus schreibersi* (Chiroptera)  
 b Electron microscopic analysis of fertilization. Same species as a  
 UEMURA, I. – Embryol. Sect., Dept. of Biol., Tokyo Metropolitan Univ., 2-1-1 chome, Fukazawa-machi, Setagaya-ku, TOKYO, 158 Japan.
- a Electron microscopy of the development of primary mesenchyme cells. *Hemicentrotus pulcherrimus* (Echinoidea)  
 b Electron microscopy of calcification in the embryo. *Arbacia punctulata* (Echinoidea)  
 c Electron microscopy of cortical changes in early embryology. Same species as a  
 UMETANI, T.; M.D. – Dept. of Anat., Div. I, Kobe Univ., Kusunoki-cho, Ikuta-ku, KOBE, 650 Japan  
 a Phylogenetic and ontogenetic studies on the spinal cord and its fine structure. (Vertebrata)  
 UNSWORTH, B. R.; Ph.D. – Dept. of Biol., Marquette Univ., 530 N. 15th St., MILWAUKEE, WI 53233, U.S.A.
- a Specific RNA and protein synthesis during kidney tubulogenesis; control mechanisms acting in early stages of secondary induction; characterization of a neural factor responsible for tubule initiation. *Mus musculus* (Rodentia)  
 b In vitro differentiation of mammary carcinoma in response to certain embryonic tissues. Same species as a  
 c Brain differentiation; correlation between tetrodotoxin binding and brain function; comparison of development in two phyla. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- UPHOLT, W. B.; Ph.D. – Dept. of Embryol., Carnegie Inst. of Wash., 115 W. University Parkway, BALTIMORE, Md. 21210, U.S.A.
- a Regulation of synthesis of nuclear and mitochondrial nucleic acids during early development. *Rana pipiens*, *Xenopus laevis* (Anura) (with I. B. DAWID)  
 b Properties of recombinant mitochondrial DNA in hybrid somatic cells. *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- URANO, Mrs. S. OHASHI – Embryol. Sect., Dept. of Biol., Tokyo Metropolitan Univ., 2-1-1 chome, Fukazawa-machi, Setagaya-ku, TOKYO, 158 Japan
- a Cell differentiation. (Echinoidea)
- URBAN, P.; Ph.D. – Dept. of Biol. Sci., Union Coll., SCHENECTADY, NY 12308, U.S.A.
- URIST, M. R.; M.D. – Bone Res. Lab., Univ. of Calif., 1000 Veteran Ave., Rm. A3-34, LOS ANGELES, Calif. 90024, U.S.A.
- a Bone morphogenesis: the physiology and biochemistry of bone matrix in health and disease; the regulation of bone generation, growth and regeneration by a new enzyme system, BMP-BMPase. (Mammalia)  
 b Calcification and ossification. (Mammalia)
- UYSAI, M.; M.D. – Inst. of Histol. and Embryol., Med. Fac., Hacettepe Univ., ANKARA, Turkey  
 a Collagenogenesis in the umbilical cord. *Homo sapiens* (Primates)
- VACQUIER, V. D.; Ph.D. – Zool. Dept., Univ. of Calif., DAVIS, Ca. 95616, U.S.A.
- a The morphology and biochemistry of fertilization (beta-1, 3-glucanohydrolase and other enzymes). (Echinoidea)  
 b Mechanisms involved in the physical interactions of blastomeres during cleavage. (Echinoidea)
- VALDEZ TOLEDO, Mrs. C. L. – Inst. de Biol., Univ. Nac. de Tucumán, Chacabuco 461, S.M. de TUCUMAN, Argentina
- a Anaerobiosis in oocytes. *Bufo arenarum* (Anura)
- VANABLE, J. W., Jr.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., Purdue Univ., W. LAFAYETTE, Ind. 47907, U.S.A.
- a The possibility of selectivity in neuromuscular associations: extrinsic ocular muscles. *Xenopus laevis* (Anura)  
 b Visual mutants as a tool to study eye development. *Mus musculus* (Rodentia)
- VAN ALTEN, P. J.; Ph.D., Assoc. Prof. – Dept. of Anat., Coll. of Med., Univ. of Illinois, P.O. Box 6998, CHICAGO, Ill. 60680, U.S.A.
- a Ontogeny of the immunological mechanism. *Gallus domesticus* (Aves)

- b Development of lymphocyte competence to respond to mitogens in vitro. *Gallus domesticus* (Aves), *Rattus norvegicus* (Rodentia)
- c Development of antigenic components in the brain. *Mesocricetus auratus* (Rodentia)
- d Isotope studies of blood cell formation, especially lymphocytopoiesis. Same species as a
- VAN DETH, J. H. M. G.; M.D. - Dept. of Anat. and Histol., Univ. of Adelaide, ADELAIDE, S. Austr. 5000, Australia
- VAN STONE, J. M.; Ph.D., Prof. - Dept. of Biol., Trinity Coll., HARTFORD, Conn. 06106, U.S.A.
- a Influence of thyroxine upon the regenerative capacity of the tadpole hindlimb. *Rana sylvatica* (Anura)
- VANZULLI, Mrs. A.; M.D. - Sect. of Exp. Neurol., Inst. of Neurol., Hosp. de Clinicas, Piso 2, MONTEVIDEO, Uruguay
- VARMA, H. C.; Ph.D., Prof. - Dept. of Anat., G.S.V.M. Med. Coll., KANPUR 208002, India
- a Histochemistry and cytochemistry of the decidua parietalis and capsularis. *Homo sapiens* (Primates)
- b Histochemical and cytochemical study of the oviduct, cervix and vagina. *Rattus norvegicus* (Rodentia), *Oryctolagus cuniculus* (Lagomorpha) (with V. KATIRA)
- c Effect of NaF on developing embryos. *Gallus spec.* (Aves) (with D. N. SINHA)
- VARON, S. S.; M.D., Assoc. Prof. - Dept. of Biol., Univ. of California, San Diego, P.O. Box 109, LA JOLLA, Calif. 92037, U.S.A.
- a In vitro differentiation of nerve tissue. *Gallus domesticus* (Aves) and others
- b Growth- and differentiation-promoting agents from the submaxillary gland. *Mus musculus* (Rodentia)
- VAUGHN, J. E.; Ph.D. - Div. of Neurosci., City of Hope Med. Center, 1500 E. Duarte Road, DUARTE, Calif. 91010, U.S.A.
- a Development of neuroglial cells in the central nervous system (electron microscopy and autoradiography). *Rattus domesticus* (Rodentia)
- b Electron microscopy of spinal cord development. *Rattus domesticus*, *Mus musculus* (Rodentia)
- VENEZIANO, P. P.; Ph.D., Assoc. Prof. - Dept. of Biol., Wilbur Wright Coll., 3400 N. Austin Ave., CHICAGO, Ill. 60634, U.S.A.
- a Effect of artificial sweeteners on growth and development. *Gallus domesticus* (Aves)
- b Effect of antipituitary sera on development. Same species as a
- c Effect of low-intensity magnetic fields on the developing nervous system of 24, 36, and 48 hours blastoderms. Same species as a
- d Effect of low-intensity magnetic fields on heart beat. Same species as a
- VENZKE, W. G.; Ph.D., Prof. - Dept. of Vet. Anat., Coll. of Vet. Med., Ohio State Univ., 1900 Coffey Rd., COLUMBUS, Ohio 43210, U.S.A.
- a Morphogenesis and physiology of ultimobranchial gland, pineal gland, and blood (Aves)
- VERRUSIO, A. C.; Ph.D. - Dept. of Anat., Div. of Biol. Sci., Univ. of Chicago, 1025 East 57th St., CHICAGO, Ill. 60637, U.S.A.
- also: Am. Dent. Assoc., 211 E. Chicago Ave., CHICAGO, Ill. 60611, U.S.A.
- a Cellular events during fusion of the palatal processes, especially the factor(s) causing epithelial breakdown. (Mammalia)
- b A cytoplasmic factor affecting cleft palate production; biochemistry of a strain difference, perhaps due to a mitochondrial mutant. *Mus musculus* (Rodentia)
- VIDIC, B.; S.D. - Dept. of Anat., Georgetown Univ., 3900 Reservoir Rd., N.W., WASHINGTON, D.C. 20007, U.S.A.
- a Lipoprotein-lipase activity in pulmonary tissue during perinatal development (biochemical and electron-microscopical identification of enzymes). *Rattus spec.* (Rodentia)
- b Incorporation of isotopes (H-3 palmitate and C-14 leucine) during surfactant synthesis by type II pneumocytes in the perinatal period (electron-microscopical autoradiography). Same species as a
- VINCENT, W. S.; Ph.D., Prof. - Dept. of Biol. Sci., Univ. of Delaware, NEWARK, DE 19711, U.S.A. ISDB
- VISSCHER (NEUMANN), Mrs. S.; Ph.D., Assoc. Prof. - Dept. of Zool.-Entomol., Montana State Univ., BOZEMAN, MT 59715, U.S.A.
- VOLPE, E. P.; Ph.D., Prof. - Dept. of Biol., Tulane Univ., NEW ORLEANS, LA 70118, U.S.A. ISDB
- a Neural crest homotransplantation and its relation to the phenomena of immunity and tolerance. *Rana pipiens* (Anura)
- b Blood cell chimerism in parabiotic animals, as revealed in chromosome preparations of cultured leucocytes. Same species as a
- c Histocompatibility studies in animals produced by nuclear transplantation. Same species as a
- d Role of the thymus in the development and maintenance of immunity. Same species as a
- VOORHEES, F. R.; Ph.D. - Dept. of Biol., Knox College, GALESBURG, Ill. 61401, U.S.A.
- a Development of the reproductive system. *Aedes stimulans* and other spp. (Diptera)
- WADLEY, G. W.; B.Sc. - Industr. Bio-Test Labs. Inc., 1810 Frontage Rd., NORTHBROOK, IL 60062, U.S.A.
- WAELSCH, Mrs. S. GLUECKSOHN; Ph.D., Prof. - Dept. of Genet., Albert Einstein Coll. of Med., Yeshiva Univ., Eastchester Rd. and Morris Park Ave., NEW YORK, Bronx, NY 10461, U.S.A. ISDB
- a Developmental physiology, genetics, and pathology. *Mus musculus* (Rodentia)
- WAIIDYASEKERA, P. L. D.; Ph.D. - Dept. of Biol. Sci., Fac. of Sci., Vidyodaya Univ., Gangodawila, NUGEGODA, Sri Lanka (Ceylon)
- WAINWRIGHT, Mrs. L. K.; Ph.D., Prof. - Biol. Dept., Mount Saint Vincent Univ., HALIFAX, N.S., Canada
- a Regulation of hemoglobin synthesis in blood islands of blastodisc. *Gallus domesticus* (Aves)

- b Hemoglobin synthesis in cell aggregates formed from dissociated blastodiscs. Same species as a
- c Isolation and cytological study of erythropoietic cell populations from primitive streak blastodiscs. Same species as a
- WAINWRIGHT, S. D.; Ph.D., Prof. — Biochem. Dept., Med. Sch., Dalhousie Univ., Sir Charles Tupper Bldg., HALIFAX, N.S. B3H 4H7, Canada
- a Regulation of hemoglobin synthesis in blood islands of blastodisc. *Gallus domesticus* (Aves)
- b Hemoglobin synthesis in cell aggregates formed from dissociated blastodiscs. Same species as a
- c Isolation of erythropoietic cell populations from primitive streak blastodiscs. Same species as a
- d Development of enzymes of the melatonin biosynthetic pathway in the pineal gland, *in vivo* and *in organ culture*; influence of lighting conditions. Same species as a
- WAKAHARA, M.; D.Sc. — Zool. Inst., Fac. of Sci., Hokkaido Univ., N 10, W 8, SAPPORO, 060 Japan
- a Morphogenesis of the pineal and subcommissural organ. *Xenopus laevis* (Anura)
- WALKER, B. E.; M.D., Ph.D., Prof. — Dept. of Anat., Michigan State Univ., Giltner Hall, EAST LANSING, Mich. 48823, U.S.A.
- a Teratology, experiments on left palate, the action of different chemicals. *Oryctolagus cuniculus* (Lagomorpha), *Mus musculus* (Rodentia)
- WALKER, Mrs. K. Z.; Ph.D. — Dept. of Zool., Austr. Natl. Univ., P.O. Box 4, CANBERRA, A.C.T. 2600, Australia
- a An immunological study of fetomaternal relations in late gestation. *Macropus eugenii* (Marsupialia)
- WALLACE, R. A.; Ph.D. — Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, TN 37830, U.S.A. ISDB
- WARREN, Ch. O.; Ph.D., Assoc. Prof. — Dept. of Biol., Southwestern at Memphis, 2000 North Parkway, MEMPHIS, Tenn. 38112, U.S.A.
- a Regulatory role of mitochondria during growth and development. *Achlya ambisexualis* (Lepidoptera)
- b Hormonal regulation of sexual reproduction. Same species as a
- WATANABE, H.; Ph.D. — Shimoda Marine Biol. Stat., Shimoda 5-10-1, Shizuoka-ken, SHIMODA, Japan
- a Recognition of specificity in compound forms. *Botryllus primigenus*, *Botrylloides violaceum*, *Clavelina conrescens* (Asciadiacea) (with K. TANAKA, Tokyo)
- b Asexual reproduction of compound forms. *Perophora japonica*, *Polycitor mutabilis*, *Botryllus primigenus*, *Metandrocarpa taylori* (Asciadiacea)
- c Tissue culture. *Perophora japonica*, *Polycitor mutabilis*, *Botryllus primigenus* (Asciadiacea)
- d Periodical spawning in a compound form. *Polyandrocarpa misakiensis* (Asciadiacea)
- WATANABE, K.; Dr., Prof. — Dept. of Biol., Sch. of Dent. Med., Tsurumi Univ., Tsurumi, YOKOHAMA, Japan
- a Fibrillogenesis of connective tissue fibres. (Teleostei), *Rana catesbeiana*, *R. japonica*, *Bufo vulgaris* (Anura), *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- b Electron microscopy of metamorphosis. (Asciadiacea)
- c Experimental study of operculum perforation during metamorphosis. (Anura)
- d Ultrastructural and histochemical study of tail muscles during metamorphosis. (Anura)
- e Ultrastructural study of the basal lamella during metamorphosis. (Anura)
- WATANABE, K.; D.Sc. — Dept. of Anim. Virol., Res. Inst. for Microbial Dis., Osaka Univ., Yamada-kami, Suita, OSAKA, 565 Japan
- a Cell differentiation and virus infection. *Gallus gallus* (Aves)
- WATANABE, K.; M.Sc. — 2nd Dept. of Anat., Kyoto Pref. Univ. of Med., Kawaramachi-Hirokoji, Kamikyo-ku, KYOTO, 602 Japan
- a Wolffian lens regeneration. *Triturus pyrrhogaster* (Urodela)
- b Differentiation of cells *in vitro*. *Triturus pyrrhogaster* (Urodela), *Gallus gallus* (Aves)
- WATERMAN, A. J.; Ph.D., Prof. — Extramural Programs, Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, BETHESDA, Md. 20014, U.S.A. ISDB
- a Development of structure and function of the thyroid, hypophysis, and neuro-secretory system, (higher Vertebrata)
- b Function of the thyroid gland. *Eptatretus stouti* (Myxinoidea, Cyclostomata)
- c Limb regeneration and prolactin. *Diemyctylus viridescens* (Urodela)
- d Development of reproductive function: pineal-hypothalamic-pituitary-gonadal-target tissue axes. (Mammalia)
- WATERMAN, R. E.; Ph.D. — Dept. of Anat., Univ. of New Mexico, 915 Stanford Dr. N.E., ALBUQUERQUE, N.Mex. 87131, U.S.A.
- a Scanning and transmission electron microscopy of normal and abnormal oro-facial development. (Rodentia), *Homo sapiens* (Primates)
- b Mechanisms of gamete release. *Phialidium gregarium* (Leptomedusae, Hydrozoa)
- WATTERSON, R. L.; Ph.D., Prof. — Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, U.S.A. ISDB
- a Effects of hypophysectomy on development of muscular complexus, long bones, and fat bodies. *Gallus domesticus*, *Anas boschas* (Aves)
- b Correction of defects in pituitaryless embryos with anterior pituitary grafts and injections of trophic hormones. Same species as a
- c Sources and mechanisms of development of lumbosacral level of neural tube with emphasis on development of myeloschisis. *Gallus domesticus* (Aves)
- d Effects of aminoguanidine sulfate on development of liver, mesonephros, metanephros, and heart *in vivo* and *in vitro*. Same species as c
- WAYMOUTH, Miss C.; Ph.D. — The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A.

- a The characterization and *in vitro* development of embryonic tissues and the roles of Na and K and other cations on cellular behavior. *Mus musculus* (Rodentia)  
WEIDMAN, Th. A.; Ph.D. Dept. of Vet. Anat., Purdue Univ., WEST LAFAYETTE, IN 47901, U.S.A.
- WFINSTOCK, A.; D.D.S., Ph.D., Assoc. Prof. — Center for Health Sci., Sch. of Dent. 43-033, Univ. of Calif., LOS ANGELES, Calif. 90024, U.S.A.
- a Development of bone and tooth matrices, mainly glycoproteins (electron microscope radioautography). *Rattus rattus* (Rodentia)
- b Biosynthesis and secretion of bone and dentin procollagen (subcellular fractionation and radioautography). *Gallus gallus* (Aves), *Rattus rattus* (Rodentia)
- WFIRICH, G.; Dr.rer.nat. — Inst. of Developm. Biol., Texas A. & M. Univ., COLLEGE STATION, Tex. 77843, U.S.A.
- a Enzymes involved in the metabolism of juvenile hormone, especially their regulation and specificity. *Manduca sexta*, *Hyalophora cecropia* (Lepidoptera)
- b Proteins involved in transport and cellular action of juvenile hormone. Same species as a
- WFIS (SHULMAN), Mrs. J. S.; Ph.D., Prof. — Dept. of Zool., Rutgers Univ., 195 University Ave., NEWARK, N.J. 07102, U.S.A.
- a Effects of nerve growth factor and of pesticides on nervous system development. *Rana catesbeiana* (Anura), *Ambystoma maculatum* (Urodela), *Brachydanio rerio* (Teleostei)
- b Experimental modification of regenerative response in limbs and fins. Same species as a
- c Regeneration of limbs: modification by insecticides. *Uca pugnax* (Decapoda, Crustacea)
- WFIS, P.; D.D.S., Assoc. Prof. — Dept. of Anat., New Jersey Med. Sch., 100 Bergen St., NEWARK, NJ 07103, U.S.A.
- a Insecticide-induced teratogenesis. *Fundulus heteroclitus*, *Menidia menidia* (Teleostei)
- b Optic nerve regeneration (radioautographic and electron microscopic analysis). *Carassius auratus* (Teleostei)
- WEIS, L.; Sc.D., M.D., Ph.D., Prof. — Dept. of Exper. Pathol., Roswell Park Mem. Inst., 666 Elm St., BUFFALO, N.Y. 14203, U.S.A.
- a Biophysics of cell interactions
- WEISS, P. A.; Ph.D., Sc.D., M.D., Prof. (Emer.) — Dept. of Developm. and Neural Biol., Rockefeller Univ., 66th St. and York Ave., NEW YORK, N.Y. 10021, U.S.A. ISDB
- a Biology of growth, development, and organization of the nervous system.
- b Relations between development and systems theory
- c Evaluation of large cinemicrographic material on cell interactions and specificity (with Miss Y. HOLLAND)
- WELANDER, A. D.; Ph.D., Prof. — Lab. of Radiat. Ecol., Coll. of Fish., Univ. of Washington, 22 Fisheries Center, SEATTLE, Wash. 98195, U.S.A.
- a Effects of graded sublethal doses of X-rays on several different stages of the embryo. *Oncorhynchus kisutch*, *O. tshawytscha*, *Salmo gairdnerii* (Teleostei)
- b Experimental embryology. Same species as a
- c Effects of low, acute doses of X-rays on early development. *Oncorhynchus spec.*, *Salmo spec.* (Teleostei)
- d Comparative effects of 90Sr and X-irradiation on embryos. *Oncorhynchus tshawytscha* (Teleostei)
- WELLS, L. J.; Ph.D., Prof. — Dept. of Anat., Sch. of Med., Univ. of Minnesota, MINNEAPOLIS, MN 55455, U.S.A. ISDB
- WENGER, B. S.; Ph.D., Prof. — Dept. of Anat., Coll. of Med., Univ. of Saskatchewan, SASKATOON, Sask., Canada ISDB
- WERNER, Y. L.; Ph.D. — Dept. of Zool., Hebrew Univ. of Jerusalem, JERUSALEM, Israel
- a Tail regeneration, especially skeleton and skin: bifurcate tails. (Lacertilia)
- b Temperature effects during embryogenesis on the number of vertebrae. *Hemidactylus turcicus*, *Stenodactylus stenodactylus* (Gekkonoidea, Lacertilia)
- c Temperature dependence of the duration of embryonic development. (Gekkonoidea, Lacertilia)
- WFISSEL (HARDERS), Mrs. M.; B.Sc. — Dept. of Zool.-Entomol., Montana State Univ., BOZEMAN, MT 59715, U.S.A.
- WESSELS, N. K.; Dr. — Dept. of Biol. Sci., Stanford Univ., STANFORD, CA 94305, U.S.A. ISDB
- WESTERMAN, R. A.; Ph.D. — Dept. of Physiol., Monash Univ., CLAYTON, Vict. 3168, Australia
- a Histological and ultrastructural aspects of regenerating nerve fibres, particularly in the olfactory and visual systems. *Chlamydogobius cromius*, *Carassius carassius* (Teleostei)
- b Electrophysiological, histological, and ultrastructural aspects of the development of functional neuromuscular connections in the neonate. *Felis domestica* (Carnivora)
- WESTON, J. A.; Ph.D. — Dept. of Biol., Univ. of Oregon, EUGENE, Ore. 97403, U.S.A. ISDB
- a The migration and differentiation of neural crest cells. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b The cell surface as an effector of cell specificity. *Gallus domesticus* (Aves)
- c The action of morphogenetic agents on embryonic cell behavior *in vivo* and *in vitro*. Same species as b
- WHALEY, W. G.; Ph.D., Prof. — Cell Res. Inst., Univ. of Texas, Biol. Labs. 220, AUSTIN, Tex. 78712, U.S.A.
- a Contributions of the Golgi apparatus to cell surfaces. (Plantae)
- WHITELEY, A. H.; Ph.D., Prof. — Dept. of Zool., Univ. of Washington, SEATTLE, WA 98105, U.S.A. ISDB
- WHITT, G. S.; Ph.D. — Provis. Dept. of Genet. and Developm., Univ. of Illinois, 515 Morrill Hall, URBANA, IL 61801, U.S.A.

- a Developmental genetics: 1. expression of differential gene function during early embryogenesis and cytodifferentiation with an emphasis on those genes responsible for isozymes; 2. correlation of lactate dehydrogenase gene homology with the specificity of the gene activating mechanisms during development; 3. genetical, physical, and chemical analysis of the lactate dehydrogenase isozymes unique to the differentiated nervous system; 4. biochemical genetics of isozymes, especially lactate dehydrogenase; 5. asynchronous allele activation during embryogenesis of interspecific and intergeneric hybrids. *Micropterus dolomieu*, *M. salmoides* and other spp. (Centrarchidae, Teleostei)
- b Epigenetic and genetic control of protein synthesis during cytodifferentiation with emphasis on the post-translational control of gene product (especially lactate dehydrogenase isozymes), assembly and function. (Teleostei and other Vertebrata)
- WHITTAKER, J. R.; Ph.D. — The Wistar Inst. of Anat. and Biol., 36th St. at Spruce, PHILADELPHIA, PA 19104, U.S.A. ISDB
- WHITTEN, W. K.; D.Sc., B.V.Sc. — The Jackson Lab., BAR HARBOR, Me. 04609, U.S.A.
- a Preimplantation stages of development in vivo and in vitro. *Mus musculus* (Rodentia)
- b The numerology of development in aggregation chimeras (two half, two whole and four whole embryos). Same species as a
- c The mechanism of development of spontaneous sex mosaics (hermaphrodites). Same species as a
- WIDNELL, C. C.; Ph.D., Assoc. Prof. — Dept. of Anat. and Cell Biol., Sch. of Med., Univ. of Pittsburgh, PITTSBURGH, PA 15213, U.S.A.
- WILDE, Ch. E., Jr.; Ph.D., Prof. — Dept. of Histol., Embryol. and Genet., Sch. of Dent. Med., Univ. of Pennsylvania, 4001 Spruce St., PHILADELPHIA, Pa. 19174, U.S.A. ISDB
- a Cellular differentiation (pigment cell; ectomesenchyme): 1. causal biochemistry of cellular differentiation; 2. differentiation of cytoplasmic fragments. *Ambystoma maculatum* (Urodela)
- b Morphology and causal biochemistry of striated muscle differentiation. Same species as a
- c Cytochimeras in tissue culture from disaggregated cells of embryos of different classes. *Gallus spec.* (Aves), *Mus spec.* (Rodentia)
- d Role of probabilistic processes in cellular differentiation. Same species as c
- e Ontogeny of proteins and amino acids. *Fundulus heteroclitus* (Teleostei)
- f The energy pathways of differentiating systems. (Vertebrata)
- g Informational macromolecules in early development and differentiation (Echinodermata, Vertebrata)
- h The molecular basis of major and minor symmetry in embryogenesis. (Vertebrata)
- i Temporal control of morphogenetic information and morphogenesis in the early zygote. (Pisces; Amphibia; Aves)
- j Regeneration of lung. (Amphibia)
- k Maintenance of site specificity in behavioral differentiation of endothelium. (Aves), *Homo sapiens* (Primates)
- WILLIAMS, D. T.; B.S. — Dept of Reprod. Biol., Merck Inst. for Therap. Res., RAHWAY, N.J. 07065, U.S.A.
- a Studies on fertilization. (Mammalia)
- WILLIAMS, Miss G. H.; Ph.D. — Dept. of Pharmacol., Hershey Med. Ctr., Pennsylv. State Univ., HERSHEY, PA 17033, U.S.A.
- WILLIAMS, L. G.; B.A. — Pacif. Mar. Stat., Univ. of the Pacific, DILLON BEACH, CA 94929, U.S.A.
- WILLIAMS, N. E.; Ph.D., Prof. — Dept. of Zool., Coll. of Lib. Arts, Univ. of Iowa, IOWA-City, Iowa 52242, U.S.A.
- a Electron microscopy of developing oral apparatus. *Tetrahymena spec.* (Ciliata)
- b Regulation of protein synthesis in development. Same species as a
- WILLIAMS, R. C.; DVM, Ph.D., Prof. — Veterinary School, Tuskegee Inst., TUSKEGEE, Ala. 36088, U.S.A.
- a Development and calcification of teeth (utilizing a graded series of embryos and fetuses of purebred beagles). *Canis familiaris* (Carnivora) (with H. E. EVANS, Cornell Univ., Ithaca, N.Y.)
- WILLIER, B. H. † Ph.D., D.Sc., Prof. (Emer.) — Dept. of Biol., Johns Hopkins Univ., BALTIMORE, MD 21218, U.S.A. ISDB
- WILLIS (HORWITZ), Mrs. J.; Ph.D., Assoc. Prof. — Dept. of Entomol., Univ. of Illinois, URBANA, Ill. 61801, U.S.A.
- a Influence of juvenile hormone on cuticular proteins and morphology. *Hyalophora cecropia* (Lepidoptera), *Oncopeltus fasciatus* (Hemiptera), *Tenebrio molitor* (Coleoptera)
- WILT, F. H.; Ph.D., Prof. — Dept. of Zool., Univ. of California, BERKELEY, Calif. 94720, U.S.A. ISDB
- a Mechanism of origin of hemoglobin-synthesizing machinery during development. *Gallus domesticus* (Aves)
- b Activation of protein and RNA synthesis in cleaving eggs. *Strongylocentrotus purpuratus* (Echinoidea)
- c RNA synthesis during development. Same species as b
- WIMSATT, W. A.; Ph.D., Prof. — Div. of Biol. Sci. and Dept. of Anat., New York State Coll. of Vet. Med., Cornell Univ., 645 Emerson Hall, ITHACA, NY 14850, U.S.A. ISDB
- WISCHNITZER, S.; Ph.D., Prof. — Dept. of Biol., Yeshiva Univ., 186th St. and Amsterdam Ave., NEW YORK, NY 10033, U.S.A.
- WISEMAN, L. L.; Ph.D. — Dept. of Biol., Coll. of William and Mary, WILLIAMSBURG, Va. 23185, U.S.A.
- a Cell adhesion and cell movement of embryonic cells in culture. *Gallus gallus* (Aves), *Mus musculus* (Rodentia)
- WOLFE, J. S.; Ph.D. — Dept. of Biol., Wesleyan Univ., MIDDLETOWN, Conn. 06457, U.S.A.

- a Developmental aspects of conjugation (autoradiography, electron microscopy, density gradient centrifugation, electrophoresis, cell cycle analyses, chemical mutagenesis, surface probes). *Tetrahymena pyriformis* (Ciliata)
- b Regulation of ribosomal RNA synthesis during the cell cycle (selection synchrony, molecular hybridization, electrophoresis). Same species as a
- WOLK, M.; M.Sc. – Dept. of Zool., Hebrew Univ., JERUSALEM, Israel
- a A study of the differentiation and movement of the hypoblast cells based on antigenic differences between epiblast and hypoblast. *Gallus spec.* (Aves)
- WOLSKY, A.; Dr.phil., Prof. – Dept. of Radiol., New York Univ. Med. Center, 550 First Ave., NEW YORK, N.Y. 10016, U.S.A. ISDB
- a Effect of anti-metabolites, antibiotics (especially actinomycin) and nucleic acids on development and regeneration. *Paracentrotus lividus*, *Arbacia punctulata* (Echinoidea), *Triturus viridescens*, *Rana pipiens* (Amphibia)
- b A re-investigation of the influence of neurogenesis on the development of the compound eye. *Bombyx mori* (Lepidoptera)
- c Effect of ultrasound on development and regeneration. *Triturus viridescens*, *Rana pipiens* (Amphibia)
- d Possible stimulatory effect of small doses of X-rays on regeneration. *Triturus viridescens* (Urodela)
- WOOD, J. G.; Ph.D., Prof. – Sect. of Neurobiol., Univ. of Texas Med. Sch. at Houston, 6400 West Cullen St., HOUSTON, Tex. 77025, U.S.A.
- a Histochemistry and electron microscopy of developing adrenomedullary cells. *Mus musculus* (Rodentia)
- WOODS, J. E.; Ph.D., Assoc. Prof. – Dept. of Biol. Sci., De Paul Univ., 1036 W. Belden Ave., CHICAGO, Ill. 60614, U.S.A.
- a Histochemistry of androgens and estrogens in the gonads and adrenals of the developing embryo. *Gallus domesticus* (Aves)
- b Gonadal morphogenesis. Same species as a
- c Radioimmuno assay of plasma testosterone and  $17\beta$ -estradiol levels in the developing embryo. Same species as a
- WOURMS, J. P.; Ph.D. – New York Ocean Sci. Lab., P.O. Drawer EE, MONTAUK, NY 11954, U.S.A. ISDB
- a Cellular aspects of spontaneous dispersion-reaggregation during early development; description of embryogenesis in the reaggregation mass; experimental analysis of development; biochemistry of development; physiological and genetic basis of embryonic diapause. Annual fishes: *Austrofundulus spec.*, *Cynolebias spec.*, *Pterolebias spec.*, *Nothobranchius spec.*, *Aphyosemion spec.* (Cyprinodontidae, Teleostei)
- b Oogenesis; egg transport; oviduct differentiation; sperm storage; fertilization and early development; fetal and maternal adaptations for viviparity (ultrastructure, biochemistry, physiology). *Isurus spec.*, *Prionace spec.*, *Carcharinus spec.*, *Mustelus spec.* (Galeoidea), *Squalus spec.*, *Heterodontus spec.* (Squaloidea, Pleurotremata), *Raja spec.*, *Dasyatus spec.*, *Myliobatis spec.* (Batoidea, Hypotremata), *Hydrolagus spec.* (Holocephali, Elasmobranchii)
- WRIGHT, D. A.; Ph.D. – Dept. of Biol., Cancer Center, Univ. of Texas, M.D. Anderson Hosp. and Tumor Inst., HOUSTON, Tex. 77025, U.S.A.
- a Developmental genetics of enzymes in experimental hybrid embryos (gene activation and expression). *Rana pipiens* (Anura), *Xiphophorus maculatus*, *X. helleri* and hybrids (Teleostei)
- b Control of gene expression (enzymes) in diploid, haploid, and nuclear transplant hybrids. *Rana pipiens* and subspecies (Anura)
- WRIGHT, Th. R. F.; Ph.D., Assoc. Prof. – Dept. of Biol., Univ. of Virginia, Gilmer Hall, CHARLOTTESVILLE, Va. 22903, U.S.A.
- a The genetic control of enzyme activity during development. *Drosophila melanogaster* (Diptera)
- b Temperature sensitive lethal mutations affecting embryogenesis. Same species as a
- c Genetic control of myogenesis. Same species as a
- WU, G. J. – 150 W. 225th St., Sec. 8–17A, NEW YORK, Bronx, NY 10463, U.S.A.
- a Regulation of nucleic acid and protein synthesis in a cell-free transcription-translation-coupled animal system using differentiated or embryonic cells.
- WUDL, Mrs. L.; Ph.D. – Dept. of Reprod. Biol., Merck Inst. for Therap. Res., RAHWAY, N.J. 07065, U.S.A.
- a Studies on fertilization. (Mammalia)
- WYATT, G. R.; Ph.D., Prof. – Dept. of Biol., Queen's Univ., KINGSTON, Ont. K7L 3N6, Canada
- a Protein synthesis, RNA and ribosomes; changes during hormone action and metamorphosis. *Hyalophora cecropia*, *Manduca sexta* (Lepidoptera)
- b Protein synthesis and transport in oogenesis; regulation by hormones. *Hyalophora cecropia* (Lepidoptera), *Locusta migratoria* (Orthoptera) and other spp. (Insecta)
- WYTENBACH, Ch. R.; Ph.D. – Dept. of Physiol. and Cell Biol., Univ. of Kansas, LAWRENCE, KS 66044, U.S.A.
- YAFFE, D.; Dr. – Dept. of Cell Biol., Weizmann Inst. of Sci., P.O. Box 26, REHOVOT, Israel ISDB
- YAJIMA, H.; Ph.D. – Dept. of Biol., Fac. of Sci., Ibaraki Univ., Bunkyo-2-chome, MITO, Japan
- a Malformations induced by irradiation with monochromatic ultraviolet light. *Chironomus dorsalis* (Diptera)
- b Effects of temperature during and after centrifugation of eggs on the production of double malformations. Same species as a
- c Effect of ultraviolet irradiation upon the re-entry of pole cells (electron microscopy). Same species as a



- d Electron microscopy of eggs centrifuged at early and middle pre-migration stages. Same species as  
<sup>a</sup>  
YAMADA, J.; D.Agr., Prof. – Lab. of Physiol. and Ecol., Fac. of Fish., Hokkaido Univ., HAKODATE, ISDB  
Hokkaido, Japan
- YAMADA, K.; M.Sc. – Lab. of Biol., Gifu Coll. of Dent., 1851 Takano, Hozumi-cho, Motosu-gun, GIFU-ken, Japan
- a Electron microscopy of the embryonic gonad. *Gallus domesticus* (Aves)  
YAMADA, T.; Ph.D. – Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan.
- a Biochemical studies on effect of radiation on the embryo. *Oryzias latipes* (Teleostei), *Bufo vulgaris* (Anura)
- b Biochemical studies on radiation-induced death of thymic lymphocytes of growing animals. *Rattus spec.* (Rodentia)
- YAMADORI, T.; M.D., Prof. – Dept. of Anat., Div. 1, Sch. of Med., Hirosaki Univ., Zaifucho 5, HIROSAKI, Aomori-ken, 036 Japan
- YAMAGAMI, K.; Ph.D., Assoc. Prof. – Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Biochemical studies on embryonic and yolk proteins. (Teleostei)
- b Purification and characterization of chorionase. *Oryzias latipes*, *Salmo gairdnerii* (= *irideus*) (Teleostei)
- c Ontogeny of hemoglobins in embryos and larvae. *Salmo gairdnerii* (= *irideus*) (Teleostei)
- YAMAGUCHI, T.; Ph.D. – Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan.
- a Regeneration of cell renewal systems after radiation injury. *Mus musculus*, *Cavia porcellus* (Rodentia)
- b Chalone mechanisms and the cell cycle (regenerating ear epidermis and epidermis in vitro). Same species as a
- YAMAMOTO, K.; D.Sc., Prof. – Lab. of Fresh-water Fish Cult., Dept. of Biol., Hokkaido Univ., 3-1-1 Minatocho, HAKODATE, 040 Japan ISDB
- a Histo-physiological studies of oogenesis. (Teleostei)
- b Electron microscopy of oogenesis (Teleostei)
- c Studies on the hormones of reproduction. (Teleostei)
- YAMAMOTO, T.; D.Sc., Prof. – Biol. Inst., Fac. of Sci., Nagoya Univ., Chikusa-ku, NAGOYA, 464 Japan ISDB
- YAMAMOTO, T. S.; D.Sc. – Zool. Inst., Fac. of Sci., Hokkaido Univ., N 10, W 8, SAPPORO, 060 Japan
- a Cytochemistry of development. (Teleostei)
- YAMANA, K.; D.Sc., Assoc. Prof. – Dept. of Biol., Fac. of Sci., Kyūshū Univ., Hakozaki-cho, FUKUOKA, 812 Japan
- a Regulation of ribosomal RNA synthesis during embryonic development. *Xenopus laevis* (Anura)
- YAMAOKA, L. H. – Biol. Div., Oak Ridge Natl. Lab., P.O. Box Y, OAK RIDGE, Tenn. 37830, U.S.A.
- a Molt cycle correlated muscle degeneration and reformation. *Gecarcinus lateralis* (Decapoda, Crustacea) (with D. M. SKINNER)
- YAMASAKI, F.; M.D., Ph.D., Assoc. Prof. – Dept. of Biol., Sapporo Med. Coll., SAPPORO, 060 Japan
- a Development of digestive tract. *Ochotona hyperborea* (Lagomorpha), *Platanista gangetica*, *Pontoporia blainvillei* (Cetacea)
- YANAGIMACHI, R.; Ph.D., Assoc. Prof. – Dept. of Anat., Univ. of Hawaii, 1960 East-West Rd., HONOLULU, HI 96822, U.S.A.
- YANAGISAWA, T.; D.Sc., Prof. – Embryol. Sect., Dept. of Biol., Tokyo Metropolitan Univ., 2-1-1 chome, Fukazawa-machi, Setagaya-ku, TOKYO, 158 Japan
- a Phosphagens in egg and spermatozoa. (Echinodermata)
- b Ion exchange and paper chromatography of the nature of the acid-soluble nucleotides in the egg and their changes during development. *Hemicentrotus spec.*, *Anthocardaris spec.*, *Pseudocentrotus spec.* (Echinoidae), *Asterias spec.*, *Asterina spec.* (Asteroidea)
- c Tracer experiments on phosphate, sugar, and nucleic acid metabolism of the embryo. (Echinodermata)
- YASUDA, K.; Ph.D. – Lab. of Cell Sci., Inst. of Biophys. and Molec. Biol., Univ. of Kyoto, Kitashirakawa, Sakyo-ku, KYOTO, 606 Japan
- a Factors affecting cell aggregation and cell contact. *Gallus gallus* (Aves) (with T. S. OKADA and M. TAKEICHI)
- b Crystallin synthesis in lens cells differentiating in vitro. Same species as a
- YASUDA, M.; M.D. – 2nd Dept. of Anat., Kyoto Pref. Univ. of Med., Kawaramachi-Hirokoji, Kamikyo-ku, KYOTO, 602 Japan
- a Epidemiology of anomalies in embryos and fetuses. *Homo sapiens* (Primates)
- b Morphogenesis of certain malformations of extremities in embryos. Same species as a
- c Teratogenicity of herbicides and pesticides. *Rattus norvegicus* (Rodentia)
- YASUDA, Mrs. Y.; M.D. – Dept. of Anat., Kyoto Univ., Konoe-cho, Yoshida, Sakyo-ku, KYOTO, 606 Japan
- a Comparative study on in vitro development of organ primordia. *Mus musculus* (Rodentia), *Homo sapiens* (Primates)
- b Effects of thalidomide on colony formation of embryonic cartilaginous cells. *Homo sapiens* (Primates)

- c Transplacental carcinogenicity of ethinylestradiol administered during 11 to 17 day of gestation. *Mus musculus* (Rodentia)
- YASUGI, S. — Zool. Inst., Univ. of Tokyo, Hongo, Bunkyo-ku, TOKYO, 113 Japan
- a Tissue interactions in differentiating digestive organs. *Gallus domesticus* (Aves)
- b Effects of LiCl on regeneration. *Pelmatohydra robusta* (Hydroidea)
- YNTEMA, C. L.; Ph.D., Prof. — Dept. of Anat., Upstate Med. Centre, State Univ. of New York, 766 Irving Ave., SYRACUSE, N.Y. 13210, U.S.A. ISDB
- a Acceptance of homografts and xenografts during embryonic stages. (Chelonia)
- b Effects of temperature on development. (Chelonia)
- YOFFEY, J. M.; D.Sc., M.D., Prof. — Dept. of Anat., Hebrew Univ. — Hadassah Med. Sch., P.O.B. 1172, JERUSALEM 91000, Israel
- a Foetal haemopoiesis. *Cavia porcellus* (Rodentia), *Homo sapiens* (Primates)
- YOSHIKAWA, I. — Dept. of Genet., School of Med., Nagasaki Univ., 12-4, Sakamoto-machi, NAGASAKI, 852 Japan
- a Radiation genetics (embryo, germ cells). *Drosophila melanogaster* (Diptera)
- YOUSSON, J. H.; Ph.D., Assoc. Prof. — Dept. of Zool., Scarborough Coll., Univ. of Toronto, WEST HILL, Ont., Canada
- a Changes in the gills, kidneys, alimentary canal, and thyroid gland during transformation (autoradiography, electron microscopy). *Petromyzon marinus* (Cyclostomata)
- b Growth and development of the opisthonephric kidney throughout the life cycle (autoradiography, electron microscopy). Same species as a
- YU, M. C.; Ph.D. — Dept. of Anat., New Jersey Med. Sch., 100 Bergen St., NEWARK, NJ 07103, U.S.A.
- a Effects of hypoxia on the developing and adult central nervous system. *Rattus rattus* (Rodentia)
- b Effects of malnutrition on the developing central nervous system (biochemical and ultrastructural studies). Same species as a
- YÜ (KOU), Mrs. N. W.; B.S., Assoc. Prof. — Dept. of Biomorph., Natl. Defense Med. Ctr., P.O. Box 7432, TAIPEI 107, Taiwan, Rep. of China
- a Chemical hypophysectomy agent and metamorphosis. (Anura)
- YUKAWA, O.; M.Sc. — Div. of Biol., Natl. Inst. of Radiol. Sci., 9-1, 4-chome, Anagawa, CHIBA, 280 Japan
- a Function of microsomes in developing liver. *Rattus norvegicus* (Rodentia)
- b X-irradiation-induced damage in the microsomal drug-metabolizing enzyme system of developing liver. Same species as a
- ZALIK, S.; Ph.D., Prof. — Div. of Plant Biochem. and Physiol., Dept. of Plant Sci., Univ. of Alberta, EDMONTON, Alta., Canada
- ZALIK, Mrs. S. EISENBERG see EISENBERG ZALIK, Mrs. S.
- ZAMBONI, L.; M.D., Assoc. Prof. — Dept. of Pathol., Harbor Gen. Hosp., U.C.L.A., 1000 W. Carson St., TORRANCE, Calif. 90509, U.S.A.
- a Electron microscopy of the fertilization process. *Homo sapiens* and other spp. (Primates)
- b Embryonic development. *Homo sapiens* (Primates)
- ZELENKA, Mrs. P. S.; Ph.D. — Lab. of Molec. Genet., Natl. Inst. of Child Health and Human Developm., Natl. Inst. of Health, Bldg. 6, Rm 329, BETHESDA, Md. 20014, U.S.A.
- a Control of  $\delta$ -crystallin and  $\delta$ -crystallin mRNA synthesis in developing lens. *Gallus domesticus* (Aves)
- ZIMMERMAN, A. A.; Prof. (Emer.) — Dept. of Anat., Coll. of Med., Baylor Univ., HOUSTON, TX, U.S.A. ISDB
- ZIMMERMAN, E. F.; Ph.D. — Div. of Fetal Pharmacol., Children's Hosp. Res. Found., Elland & Bethesda Aves., CINCINNATI, OH 45229, U.S.A.
- a Developmental microheterogeneity of  $\alpha$ -fetoprotein (sialylation; effect of cyclic AMP & GMP: synthesis in yolk sac and fetal liver; presence in amniotic fluid and fetal plasma). *Mus musculus* (Rodentia), *Homo sapiens* (Primates) and other Mammalia
- b Palate shelf morphogenesis (movement); teratogens (including glucocorticoids) causing cleft palate. Same species as a
- ZÜST, Miss B.; Dr.spéc. — School of Biol. Sci., Flinders Univ., BEDFORD PARK, S.A. 5042, Australia
- a The germ plasm. *Xenopus laevis* (Anura)
- ZWAAN, J.; M.D., Ph.D., Assoc. Prof. — Dept. of Ophthalmol., Children's Hosp. Med. Center, and Dept. of Anat., Harvard Med. Sch., 25 Shattuck St., BOSTON, Mass. 02115, U.S.A. ISDB
- a Analysis of macromolecular synthesis during induction and differentiation of the eye lens. *Gallus domesticus* (Aves), *Mus musculus* (Rodentia)
- b Developmental genetics of mutations affecting eye development. *Mus musculus* (Rodentia)

# DIRECTORY OF INSTITUTES

## with Members engaged in Developmental Biology

(geographical order)

The Directory is arranged according to: 1) continents and subcontinents; 2) countries and states; and 3) cities. Within each of these categories an alphabetical order is maintained.

The Directory does not give *Institute addresses*. These can be found by looking up the name of one of the Institute members in the Directory of Names and Addresses.

Names of Institute members who are not explicitly engaged in developmental biology are as a rule not listed, with the exception of the names of Institute directors.

(\*) Asterisks indicate those Institute members who appear in the Directory of Names and Addresses with one or more research subjects. If all members of an Institute lack asterisks, this usually means that no information has been submitted by the Institute in 1974. Older information concerning such Institutes may be found in previous issues.

### AFRICA

#### EGYPT

Alexandria, Alexandria Univ.,  
Fac. of Sci., Dept. of Zool.  
\* SEDRA, S. N. — Prof., Head  
\* MICHAEL, M. I. — Prof.  
\* KHALIL, S. H. — Lect.  
\* EL MEKKAWY, D. A. — Asst. Lect.  
\* AZIZ, F. K. — Asst. Lect.  
Giza, Cairo Univ.,  
Fac. of Agric., Anim. Prod. Dept.  
\* KAMAR, G. A. R. — Prof.

#### NIGERIA

Ibadan, Univ. of Ibadan,  
Fac. of Med., Dept. of Anat.  
\* DESALU, A. B. O. — Acting Head  
\* ODUTOLA, A. B. — Lect.  
Ile-Ife, Univ. of Ife,  
Fac. of Health Sci., Div. of Hum. Biol. and  
Behav.  
GRILLO, T. A. I. — Prof.

#### SIERRA LEONE

Freetown, Njala Univ. Coll.,  
Dept. of Zool.  
CHAYTOR, D. E. B. — Assoc. Prof.

#### SOUTH AFRICA

Bloemfontein, Univ. of the O.F.S.,  
Dept. of Anat.  
\* TOERIEN, M. J. — Prof.  
\* BARNARD, Mrs. S. B. — Sen. Lect.  
\* LAMPRECHT, D. V. B. — Lect.  
Dept. of Zool.  
DREYER, Miss M. V. — Lect.  
Durban, Univ. of Durban-Westville,  
Dept. of Zool.  
SMIT, A. L. — Prof., Head  
FRANK, G. H. — Sen. Lect.  
Johannesburg, Rand Afrikaans Univ.,  
Dept. of Zool.  
SWANEPOEL, J. H. — Lect.  
Johannesburg, Univ. of the Witwatersrand,  
Med. Sch., Dept. of Anat.  
\* ANDREW, Miss A. — Sen. Lect.  
\* BERMAN, Mrs. B.  
Fac. of Sci., Dept. of Zool.  
BALINSKY, B. I. — Prof., Head  
GABIE (GUBBAY), Mrs. V. — Sen. Lect.  
FABIAN, B. C. — Sen. Lect.  
CAUNTER (DEVIS), Mrs. R. J. — Lect.  
Pretoria, Univ. of Pretoria,  
Mammal Res. Inst.  
\* SKINNER, J. D. — Prof., Dir.  
Stellenbosch, Univ. of Stellenbosch,  
Fac. of Sci., Zool. Inst.  
TOIT, C. A. du — Prof., Dir.  
KOCK, J. M. de — Sen. Lect.

## NORTH AMERICA

### CANADA

#### ALBERTA (Alta.)

Calgary, Univ. of Calgary.

Fac. of Arts & Sci., Dept. of Biol.

\* DUFURKSEN, J. D. — Prof.

\* BROWDER, L. W. — Assoc. Prof.

\* BFWLFY, J. D. — Asst. Prof.

Dept. of Physics

\* CHALLICE, C. E. — Prof.

Fac. of Med., Health Sci. Ctr.

Div. of Med. Biochem.

\* CHURCH, R. B. — Prof., Head

\* LIN, C. C. — Assoc. Prof.

\* SCHULTZ, G. A. — Asst. Prof.

Div. of Morphol. Sci.

\* DICKSON, A. D. — Prof., Head

\* HOLMES, P. V. — Asst. Prof.

\* SPIRA, A. W. — Asst. Prof.

Div. of Obstet. & Gynecol.

\* HAY, D. M. — Assoc. Prof.

\* TAYLOR, P. J. — Asst. Prof.

Edmonton, Univ. of Alberta.

Fac. of Med., Dept. of Immunol.

\* LONGENECKER, B. M.

Fac. of Sci., Dept. of Entomol.

\* CRAIG, D. A. — Assoc. Prof.

\* HEMING, B. S. — Assoc. Prof.

Dept. of Genet.

HODGETTS, R. B. — Asst. Prof.

Dept. of Physiol.

\* SANDERS, E. J. — Asst. Prof.

Dept. of Zool.

RUTH, R. F. — Prof.

\* EISENBERG ZALIK, Mrs. S. — Assoc. Prof.

KNIZETOVA (VEJP), F. — Res. Assoc.

SIDKY, Y. A. — Res. Assoc.

Div. of Plant Biochem. and Physiol.,

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#### BRITISH COLUMBIA (B.C.)

Vancouver, Univ. of Brit. Columbia,

Dept. of Zool.

\* FINNEGAN, C. V. — Prof.

\* FORD, P. — Assoc. Prof.

\* AUERSPERG, N. — Assoc. Prof.

\* BERGER, J. D. — Asst. Prof.

\* KASINSKY, H. E. — Asst. Prof.

\* REEVES, O. R. — Asst. Prof.

\* LARRIVÉE, D. H. — Grad. Stud.

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\* JONES, Miss A. H. — Grad. Stud.

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\* DONALDSON, E. M. — Res. Scient. II

#### MANITOBA (Man.)

Winnipeg, Univ. of Manitoba,

Fac. of Agric., Dept. of Entomol.

\* BRUST, R. A. — Prof.

Plant Sci. Dept.

LA CROIX, L. J. — Assoc. Prof.

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\* MOORE, K. L. — Prof., Head

\* BERTALANFFY, F. D. — Prof.

\* HOSHINO, K. — Prof.

\* PERSAUD, T. V. N. — Assoc. Prof.

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Dept. of Physiol.

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Dept. of Zool.

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#### NEWFOUNDLAND (Nfld.)

St. John's, Mem. Univ. of Newfoundland,

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\* DAVIS, Ch. C. — Prof.

\* BAL, A. K. — Assoc. Prof.

#### NOVA SCOTIA (N. S.)

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\* HALEY, L. E. — Assoc. Prof.

\* HICKS, G. S. — Asst. Prof.

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\* WAINWRIGHT, S. D. — Prof.

\* MEZEI (TEICHMANN), Mrs. C. — Asst. Prof.

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#### ONTARIO (Ont.)

Guelph, Univ. of Guelph,

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\* GEORGE, J. C. — Prof., Chairman

\* SCADDING, S. R. — Asst. Prof.

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\* DIXON, S. E. — Prof.

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\* HARDY, Ms. M. H. — Assoc. Prof.

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CARR, D. H. — Prof.

McCALLION, D. J. — Prof.

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\* WYATT, G. R. — Prof.

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\* SINGH, R. P. — Assoc. Prof.

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\* KIDDER, G. M. — Asst. Prof.

\* CAVENEY, S. — Asst. Prof.

ATKINSON, B. G. — Asst. Prof.

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\* ROBERTSON, H. A. — Princ. Res. Scient.  
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\* BETZ, T. W. — Assoc. Prof.  
Toronto, Univ. of Toronto,  
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\* TEN CATE, A. R. — Prof., Chairman  
Dept. of Zool.

CHANT, D. A. — Prof., Chairman  
\* LIVERSAGE, R. A. — Prof.  
\* MASUI, Y. — Assoc. Prof.  
\* LAI-FOOK, Miss J. E. I. — Asst. Prof.  
\* BROWN, J. R. — Asst. Prof.  
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FILOSA, M. F. — Prof.  
\* YOUSON, J. H. — Assoc. Prof.

## QUEBEC (Que.)

Montreal, Lady Davis Inst. for Med. Res.  
\* SCHULMAN, H. M.  
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Dept. of Anat.  
\* LEBLOND, C. P. — Prof.  
\* CLERMONT, Y. — Prof.  
\* LALA, P. K. — Assoc. Prof.

Dept. of Biol.  
\* FRASER, F. C. — Prof.  
\* FROMSON, D. R. — Asst. Prof.  
\* LACALLI, Th. C.  
\* TRASLER, Mrs. D. G. — Res. Assoc.  
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Notre Dame Hosp.  
\* KARASAKI, S. — Assoc. Prof.  
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COUSINEAU, G. H. — Asst. Prof.  
INOUE, S. — Asst. Prof.

## SASKATCHEWAN (Sask.)

Saskatoon, Agric. Canada, Res. Stat.  
\* DAVIS, G. R. F. — Res. Scient.  
\* CHURCH, N. S. — Res. Scient.  
\* EWEN, Al. B. — Res. Scient.  
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\* FEDOROFF, S. — Prof., Dir.  
\* BUTLER, H. — Prof.  
WENGER, B. S. — Prof.  
Western Coll. of Vet. Med.,  
Dept. of Vet. Anat.  
\* HRUDKA, F. — Prof.  
\* LATSHAW, W. K. — Assoc. Prof.  
\* AYZAZ-ZADEH, Miss B. — Grad. Stud.

## MEXICO

México, Centro de Invest. y de Estud. Avanza-  
dos del Inst. Politécn. Nac.,  
Dept. de Bioquim.  
\* HAMABATA, A. — Assoc. Prof.  
\* RAMIREZ, O. C. — Asst. Prof.

## UNITED STATES

## ALABAMA (AL: Ala)

Birmingham, Univ. of Alabama,  
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\* PILKINGTON, J. B. — Lect.



# SUBJECT INDEX

For an introduction to the subject index, see part 1 page 126.

The following changes have been made:

## *New Headings in part 2*

Amine(s)  
 Bio-electricity  
 Cell cycle  
 Chemical elements (formerly: Minerals; specific elements)  
 Cytogenetics  
 Interstitial cells  
 Matrix (extracellular)  
 Microcinematography  
 Self-Recognition

## *Subheadings*

These have undergone some change. They now often consist of two or more words. Therefore, the list of standardized one-word subheadings on page 127 of part 1 does not apply to part 2.

**ABDOMINAL CAVITY**  
 see Body cavities

**ABNORMALITIES**  
 see Anomalies (early development); Malformations  
 see also Teratogenesis

**ABORTIONS**  
 see Malformations; Pathology

**ACCESSORY SEX GLANDS**  
 see Reproductive system

**ACTIN**  
 see Muscle(s)

**ACTINOMYCIN**  
 see also Antibiotics

Amphibia	Berman
	Wolsky
Aves	Mulherkar
Echinoidea	Wolsky

**ACTIVATION**  
 see Fertilization

**ADAPTATION**  
 see also Environmental factors;  
 Phylogenesis

Anomura	Haley
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**ADHESIVE GLAND**  
 see Gland(s)

**ADIPOSE TISSUE(S)**  
 see also Lipid(s)

Aves	Watterson
Insecta	Butterworth
	Kimmel
	Pant
	Rizki
	Sharma

**ADRENAL GLAND**  
 see also Cortisone; Insulin;  
 Steroids

cortex in vitro	
Mammalia	Roos
	Slavinski

cortical differentiation	Mammalia	Roos
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cortical transient zone	Mammalia	Sucheston
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embryonic & postnatal	Mammalia	Sucheston
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enzyme activity	Aves	Pedernera
hypothal. & pituitary control	Amphibia	Thurmond

maternal hyperadrenalism	Mammalia	Hoar
--------------------------	----------	------

medullary cells	
Mammalia	Wood
relation with hypophysis	
Aves	Moog
Mammalia	Moog

## AGE (AGING)

cellular	
Mammalia	Norinan
coat colour	
Mammalia	Lhotka
effect of X-rays	
Insecta	Rockstein
Mammalia	Rockstein
heart muscle	
Mammalia	Rockstein
kidney	
Mammalia	Blount
neoplasms	
Mammalia	Lhotka
oral tissues	
Homo	Toto
Mammalia	Toto
role of cell surface	
Aves	Oppenheimer
Echinoidea	Oppenheimer
Mammalia	Oppenheimer

**AGGREGATION**  
 see Cell(s)

AIR BLADDER  
see Lung(s)

AIR SAC(S)  
see Lung(s)

ALGAE  
see Plant embryology &  
morphogenesis  
see also Unicellular organisms

ALIMENTARY TRACT  
see Digestive tract

ALKYLATING AGENTS

ALLANTOIS  
see Embryonic membranes

AMINE(S)  
see also Neurotransmitters

Aves Butros  
Echinoidea Russell

AMINO ACID(S)

brain  
Mammalia Kuriyama  
effect on primary mesenchyme  
Echinoidea Brookbank

free  
Amphibia Crawford  
Teleostei Crawford

(hydroxy) proline  
Aves Stern

kynurenine in fatbody  
Insecta Kimmel  
metabolism in early embryo  
Aves Harrison

ontogeny  
Teleostei Wilde  
silk gland  
Insecta Pant  
Sharma

transport in egg & embryo  
Echinoderm Crawford

AMITOSIS  
see Mitosis

AMNION  
see Embryonic membranes

ANABIOSIS  
see Diapause

ANDROGENESIS  
see Genetics

ANESTHESIA

ANEUPLOIDY  
see Heteroploidy

ANIMAL GRADIENT (ani-  
malization)  
see Gradients  
see also Embryology (expe-  
rimental); Embryology  
(physiological)

ANOMALIES (early  
development)  
see also Pathology;  
Teratogenesis

Aves Kosin  
Homo Nishimura  
Ornoy  
Sasaki  
Sekeles

ANOMALIES (Later  
development)  
see Malformations  
see also Teratogenesis

ANOXIA  
see Respiration

ANTIBIOTICS  
see also Actinomycin

Amphibia Schroeder  
Asteroidea Schroeder  
Aves Goldie

cytochalasin  
Aves Shepard  
Mammalia Shepard  
Teleostei Schroeder

effect on development  
Echinoidea Wolsky

effect on devel. & regen.  
Amphibia Wolsky

effect on myogenic cells  
Reptilia Cox

effect on teeth  
Mammalia Fitzgerald

injected into amn. fluid  
Homo Lev

Mammalia Lev  
mitomycin  
Aves King

ANTIBODIES  
see Immunology

ANTIGENS  
see Immunology

ANTIMETABOLITES

B-2-thienylalanine  
Aves Kollar  
Mammalia Kollar

effect on cell aggregation  
Echinoidea Hamada

effect on conn. tiss. differ.  
Aves Frederickson

effect on development  
Echinoidea Wolsky

effect on devel. & regen.  
Amphibia Wolsky

effect on epithelial differ.  
Aves Frederickson

effect on limb development  
Mammalia Kochhar

effect on morphogenesis  
Aves Naber

Insecta Rizki  
pyrimethamine  
Mammalia Coleman

teratogenesis  
Echinoidea Skalko  
Mammalia Skalko

therap. use in teratogen.  
Mammalia Chamberlain

ANTIMITOTIC AGENTS  
Aves Pearce  
Mollusca Stiles

ANTLERS  
see Horns

AORTA  
see Vascular system  
see also Heart (& great vessels)

APICAL DOMINANCE  
see Gradients; Plant embry-  
ology & morphogenesis

ARCHENTERON (roof)  
see Gastrulation; Neurulation  
see also Induction

ASEXUAL REPRODUCTION  
(& development)

Ascidiacea Izzard  
Watanabe  
Bryozoa Oda  
Hydrozoa Kato  
Scyphozoa Kato  
Trematoda Bilqees  
Tunicata Freeman

ASYMMETRY  
see Symmetry

AUDITORY ORGAN  
(& external ear)

Homo Dickson  
Reptilia Pugin  
Vertebrata Keefe

AUTONOMIC NERVOUS  
SYSTEM

Aves Levi  
Arms  
Murray  
Mammalia Murray

BACTERIA  
see also Unicellular organisms

Mammalia Fedinec

BEAK

BEHAVIOUR (embryonic &  
postnatal)

Amphibia Armstrong  
Aves Gottlieb  
Hamburger  
Heaton

Mammalia Hamburger  
Teleostei Armstrong

bipedal locomotion  
Aves Peters

corr. with brain devel.  
Mammalia Spyker

effect of cerebellar retard.  
Mammalia Altman

- embryonic  
Aves Oppenheim
- fetal activity  
Homo Martin  
Mammalia Murata  
Murata
- larval settling  
Gastropoda Hadfield
- pouch-young  
Mammalia Oppenheim
- relation to neurogenesis  
Amniota Decker
- web-building centres  
Arachnida Kimmel
- BIDDER'S ORGAN**
- BIO-ELECTRICITY**  
Vertebrata Becker
- BIOGENIC AMINES**  
see Neurotransmitters
- BIOMETRY**  
see Growth
- BIRTH**
- BLADDER**  
see Urogenital system
- BLASTEMA**  
see Regeneration (traumatic)
- BLASTOCYST**  
see also Cleavage
- activation  
Mammalia Dickson
- biochemistry  
Mammalia Gulyas
- chromosome abnormalities  
Mammalia Shaver
- chromosomes  
Mammalia Takagi
- chromosomes in delayed fertil  
Mammalia Oakley
- comparative morphology  
Mammalia Rasweiler
- delayed implantation  
Mammalia Moore  
Onuma
- diapause  
Mammalia Moore  
Tyndale
- effect of estrogen  
Homo Holmes  
Mammalia Holmes
- effect of father  
Mammalia Maurer
- effect of oviduct secretions  
Mammalia Hamner
- effect of toxic drugs  
Vertebrata Segal
- electrochemistry of implant.  
Mammalia Clemetson
- formation  
Mammalia Biggers
- gene activity  
Mammalia Moore
- giant cell transformation  
Mammalia Dickson
- hormone action  
Mammalia Prasad
- implantation  
Homo Nebel  
Mammalia Boell  
Butler  
Fein  
Fritz  
Gwatkin  
Holmes  
Maibenco  
Mintz  
Nebel  
Orsini  
Rasweiler  
Robertson  
Segal
- in vivo & in vitro  
Mammalia Whitten
- ionic environment  
Mammalia Biggers
- maternal protein uptake  
Mammalia Kulangara
- non-cellular coverings  
Mammalia Boving
- nucleic acid synthesis  
Mammalia Daentl  
Prasad
- preservation & transfer  
Mammalia Thompson
- protein selection  
Mammalia Kulangara
- protein synthesis  
Mammalia Prasad
- relation to uterine blood vessels  
Mammalia Boving
- single cell transplantation  
Mammalia Moustafa
- spacing, orientation & implant.  
Mammalia Boving
- teratogenesis  
Mammalia Fisher  
Mitchell
- transfer  
Mammalia Takano
- trophoblast  
Homo Coelho  
Holmes  
Mammalia Behrman  
Boving  
Dickson  
Fein  
Holmes  
Sherman
- ultrastructure  
Mammalia Gulyas  
Tyndale
- zona pellucida loss  
Mammalia Orsini
- BLASTODERM**  
see also Cleavage; Primitive streak
- cell junctions  
Aves Macarak
- cell migr. between germ layers  
Aves Azar
- cell surface properties  
Aves Rao
- erythroblasts  
Aves Wainwright
- formation  
Cephalopoda Arnold
- germ layer antigens  
Aves Wolk
- hemoglobin synthesis  
Aves Wainwright
- hemopoiesis in reaggregates  
Aves Wainwright
- hypoblast  
Aves Brick  
Mizuno  
Wolk
- intra-uterine stages  
Aves Eyal
- marginal tissue  
Aves Schlesinger
- morphogenetic movements  
Aves Schlesinger
- mortality  
Aves Kosin
- origin in holoblastic cleavage  
Crustacea Haley
- potencies  
Aves Eyal
- reaggregates  
Aves Macarak
- role of hypoblast in morphogen.  
Aves Alperin
- thermocautery  
Insecta Bownes
- ultrastructure  
Aves Kosin
- BLASTODISC**  
see Blastoderm
- BLASTOMERES**  
see Cleavage
- BLASTULA**  
see Cleavage
- BLOOD**  
see also Circulation; Hematopoiesis; Hemolymph; Vascular system
- binucleated erythrocytes  
Aves Bloom
- cells  
Lamellibr Rodrick
- cells & spermine  
Aves Butros
- cellular chimerism  
Amphibia Volpe
- corticosteroids  
Aves Hall
- erythrocyte enzymes  
Amphibia Okazaki
- erythrocyte membrane chemistry  
Mammalia Furusawa
- hemoglobin  
Aves Fraser  
Homo Doherty
- hemoglobin function  
Amphibia Okazaki  
Shukuya
- hemoglobin in metamorphosis  
Amphibia Hickey
- hemoglobin switch  
Amphibia Okazaki  
Shukuya
- hemoglobin synthesis  
Amphibia Grasso  
Aves Wainwright  
Wilt

Insecta	Bergtöm	ossification		effect of eye removal	
Mammalia	Laufer	Mammalia	Urist	Aves	Dubey
	Goldwasser	perichondral ossification			Salthe
	Rennert	Aves	Navagiri	effect of hormones	
	Rifkind	procollagen		Mammalia	Altman
Teleostei	Yamagami	Aves	Weinstock	Vertebrata	Jacobson
morphogen. & physiology		Mammalia	Weinstock	effect of nitrosourea	
Aves	Venzke	regeneration		Mammalia	Das
serum proteins		Mammalia	Urist	effect of thyroid hormone	
Amphibia	Nagano			Amphibia	Gona
	Shukuya	BONE MARROW		effect of undernutrition	
Aves	Heim			Mammalia	Altman
Mammalia	Heim	BRAIN		effect of X-rays	
sickle cell anemia				Mammalia	Altman
Homo	Grasso	Mammalia	Altman	Das	
		acid hydrolases		enzyme synthesis	
BLOOD VESSELS		Mammalia	Allen	Mammalia	Greengard
see Vascular system; specific organs, etc.		allatotropic centre		Golgi studies	
see also Circulation		Insecta	Granger	Mammalia	Kimmel
		allometric growth		hypothalamus	
BODY CAVITIES (& their linings)		Mammalia	Souza	Mammalia	Ifft
		amino acid metabolism		hypothalamus & hypophysis	
		Mammalia	Kuriyama	Amphibia	Jacobson
		antigenic changes		Aves	Jacobson
BONE(S)		Mammalia	LaVelle	Mammalia	Daikoku
see also Bone marrow; Cartilage; Skeleton		antigenic components		hypothermic hypoxia	
		Mammalia	Van Alten	Aves	Peters
		autoradiography		in cleft palate	
autoradiography		Mammalia	Hoshino	Mammalia	Overman
Vertebrata	Leblond	blood-brain barrier		in hydrocephaly	
biochemistry		Aves	Birge	Mammalia	Bryan
Mammalia	Terashima	Mammalia	Nakamura	induction	
biomechanics		cAMP metabolism		Aves	Khare
Homo	Felts	Mammalia	Kuriyama	inferior olive	
Mammalia	Felts	cell cycle		Vertebrata	Takeda
BMP-ase		Mammalia	Hoshino	irradiation	
Mammalia	Urist	cell migration		Mammalia	Hayashi
calcification		Mammalia	Das	Hoshino	Kameyama
Mammalia	Urist	cell proliferation		macrophages	
callus in regeneration		Mammalia	Das	Mammalia	Chamberlain
Mammalia	Deck	cellular teratology		Aves	Piddington
cellular origin		Mammalia	Das	Mauthner cell	
Aves	Hall	centres		Amphibia	Kimmel
culture in vitro		Amphibia	Kollros	neural specificity	
Mammalia	Terashima	cerebellum		Aves	Garber
effect of gravity		Amphibia	Gona	Mammalia	Garber
Mammalia	Felts	Mammalia	Altman	neuro-anatomy	
effect of hormones			Das	Teleostei	Armstrong
Aves	Daimon	Vertebrata	Kornguth	normal & abnormal development	
Mammalia	Ornoy	cochlear nucleus	Takeda	Aves	Langman
effect of malnutrition		Mammalia	Feldman	Mammalia	Langman
Mammalia	Nakamoto	connections with eye		Amphibia	Spyker
endocrinology		Amphibia	Jacobson	olfactory bulb ultrastructure	
Amphibia	McWhinnie	Mammalia	Jacobson	Mammalia	Hinds
Aves	McWhinnie	Teleostei	Jacobson	optic centre & tracts	
enzymes		corr. with behaviour		Amphibia	Hollyfield
Amphibia	McWhinnie	Mammalia	Spyker	Sharma	
Aves	McWhinnie	cortical neurogenesis		Aves	Coulombre
fetus & neonate		Mammalia	Feldman	Dubey	
Mammalia	Nakamoto		Hinds	Goldberg	
glycoproteins		cortical ultrastructure		Salthe	
Mammalia	Weinstock	Mammalia	Peters	Teleostei	Sharma
growth		cortical visual field		Vertebrata	Grobstein
Mammalia	Urist	Mammalia	Gordon	physiol. encephalization	
induction & origin			Hirsch	Teleostei	Armstrong
Mammalia	Nogami	differentiation		protein changes	
matrix physiology		Aves	Unsworth	Mammalia	LaVelle
Mammalia	Urist	Mammalia	Unsworth	protein synthesis	
metabolism		DNA		Vertebrata	Jacobson
Amphibia	McWhinnie	Vertebrata	Jacobson	reconstruct. from single cells	
Aves	McWhinnie	EEG		Aves	Garber
morphogenesis		Aves	Peters	Mammalia	Garber
Mammalia	Urist	effect of drugs on metabolism			
		Mammalia	Kuriyama		



culture in vitro	Moscona	ligands	Homo	Garber	role of cations in behaviour	Mammalia	Waymouth
Amphibia	Tweedell		Mammalia	Garber	role of matrix in migration	Aves	Hay
Homo	Kelley	lipid enzymes	Echinoidea	Barber	shape changes in morphogen.	Amphibia	Jacobson
Insecta	Kuroda		Aves	Huang		Aves	Jacobson
	Rosales	lipid-protein interactions		Pagano	shape in lens	Aves	Hendrix
cytochemistry			Mammalia	Huang	size in wing mesoderm	Aves	Cairns
Insecta	Rosales	longevity in vitro		Pagano	sorting	Aves	Lesseps
death	Fallon		Mammalia	Rafferty		Mammalia	Mayhew
	Mottet	membrane	Amphibia	Eisenberg	specificity		Holland
	Pilar		Aves	Eisenberg			Weiss
	Saunders	membrane & chemicals		Herold	stability of different. in vitro	Mammalia	Rafferty
Homo	Fallon		Vertebrata	Ebert	structure & function		Kessel
	Mottet	membrane-bound proteins		Ozato	surface		Moscona
Insecta	Bryant		Aves	Huang	surface antigens	Mammalia	Artzt
	Butterworth	migration	Mammalia	Huang			Bennett
Mammalia	Pratt			Pagano	surface biochemistry		Bovarnick
	Shapiro	membrane fusion		Pagano			Fedoroff
differentiation			Amphibia	Izzard	surface carbohydrates	Aves	Oppenheimer
Aves	Schjeide	membrane reconstitution	Aves	Cairns		Echinoidea	Oppenheimer
differentiation in vitro				DeHaan	surface changes	Mammalia	Oppenheimer
Amphibia	Watanabe	movement	Amphibia	Izzard			Hoover
Aves	Watanabe			Trinkaus	surface charge	Aves	Rao
Insecta	Seefof	Amphibia		Brick	surface genetics	Amphibia	Brick
effect of cytosine arabinoside				Eisenberg	surface immunochimistry	Aves	Fischman
Mammalia	Bertalanffy	Gastropoda		Lavarack	surface in behaviour	Homo	Kelley
effect of edysone		Hydrozoa		Maslow	surface in cleavage	Amphibia	Sanders
Insecta	Rosales			Wiseman	surface in differentiation	Mammalia	Rifkind
electrical communication		phenotypic variants in culture		Sathananthan	surface in embryo	Mammalia	Mintz
Insecta	Caveney			Lenhoff	surface in gastrulation	Amphibia	Johnson
electrical coupling		physical interactions		Tweedell	surface in metaplasia	Amphibia	Eisenberg
Amphibia	Sanders			Wiseman	surface in morphogenesis	Amphibia	Schaeffer
Aves	DeHaan	positioning		Allen		Aves	Eisenberg
electrokinetics				Lesseps	surface in recognition	Aves	Lee
Amphibia	Brick	programmed changes		Schjeide	surface lipids	Echinoidea	Barber
form changes				Schjeide	surface recognition	Aves	Garber
	Trinkaus	proliferation & differentiation		Hoover	surface specificity	Mammalia	Garber
fusion in myogenesis				Pratt		Aves	Weston
Vertebrata	Lipton	recognition		Cameron			
growth							
Aves	Schjeide	relations in early embryo					
Homo	Minato						
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Mammalia	Karasaki						
haploid embryonic							
Amphibia	Freed						
	Mezger						
homing							
Aves	Cameron						
interactions							
	Holland						
	Moscona						
	Weiss						
Aves	Lavarack						
	Maslow						
	Oppenheimer						
Echinoidea	Oppenheimer						
Homo	Maslow						
Hydrozoa	Ceron						
Insecta	Davenport						
Mammalia	Argyris						
	Maslow						
	Oppenheimer						
Spiralia	Cather						
interclass chimeras							
Aves	Wilde						
Mammalia	Wilde						
irradiation							
Mammalia	Bertalanffy						
junction							
Amphibia	Decker						
Aves	Macarak						
Mammalia	Decker						

- surface structure  
Trinkaus
- surface ultrastructure  
Amphibia Brick  
Okamoto  
Aves Lesseps
- ultrastructure  
Mammalia Shapiro
- velocity sedimentation  
Aves Suburo
- CELL CYCLE**
- Amphibia Byrd  
Aves Cairns  
Echinoidea Byrd  
Mano  
Russell  
Hydrozoa Campbell  
Mammalia Hoshino  
Scheffler  
Yamaguchi
- CELL DEATH**  
see Cell(s)
- CELL DIVISION**  
see Cell(s); Mitosis
- CELL FUSION**  
see also Cell heredity
- Mammalia Ruddle  
Harris
- CELL HEREDITY**  
see also Cell fusion
- Insecta Baker  
abnormal cell lines  
Vertebrata Macintyre  
blastoderm & somatic cells  
Insecta Bownes  
chromosomes  
Mammalia Lin  
Vertebrata Macintyre  
clonal analysis of N.S.  
Insecta Kankel  
embryonic cells in vitro  
Insecta Kuroda  
eye cell clones  
Aves Eguchi  
Okada  
Takeichi  
Mammalia Eguchi  
Okada  
Takeichi
- in cell-lethal mutants  
Insecta Arking
- in homeosis  
Insecta Postlethwai
- in internal adult organs  
Insecta Arking
- in larval organs  
Insecta Arking
- in myeloma cells in vitro  
Mammalia Kimmel
- iris cell clones  
Amphibia Eisenberg
- regulation  
Mammalia Duerksen
- somatic recombination  
Insecta Cline  
Stern  
Tokunaga
- CELL-LINEAGE**  
see Embryology (experimental)
- CELL RENEWAL**  
see Regeneration (physiological)
- CENTRAL NERVOUS SYSTEM**  
see also Brain; Neural crest; Neural plate; Spinal cord
- Aves Martin  
Homo O'Rahilly  
Mammalia Martin
- autoradiography  
Aves Corliss  
Mammalia Vaughn
- axonal protein movement  
Aves LaVail
- collagen secretion  
Aves Hay
- dis- & reaggr. of neural tube  
Aves Adler
- effects of hypoxia  
Mammalia Yu
- effect of lead  
Aves De Gennaro  
Mammalia De Gennaro
- effects of malnutrition  
Mammalia Yu
- glia cell  
Insecta Levi  
Mammalia Das  
Peters  
Vaughn
- glycogen body  
Aves De Gennaro
- in Lp/Lp mutant  
Mammalia Stein
- irradiation  
Mammalia Murakami
- irradiation & ultrasound  
Mammalia Shoji
- lumbosacral region  
Aves Watterson
- morphogenesis  
Insecta Berry
- motor neuron connections  
Amphibia Grant
- myelin  
Aves Mezei  
Mammalia Peters
- myeloschisis  
Aves Watterson
- neural epithelium  
Aves Corliss
- neural tube  
Mammalia Herman  
Kauffman
- role of trace elements  
Homo Agnew  
Mammalia Agnew
- specification of connections  
Amphibia Kimmel
- spinal cord  
Aves Hollyday
- teratogenesis  
Aves Corliss  
Mammalia Hayashi  
Herman  
Kauffman  
Nakamura
- ultrastructure  
Mammalia Hayashi  
Herman  
Kauffman  
Vaughn
- visual neuron connections  
Amphibia Grant
- web-building centres  
Arachnida Kimmel
- CENTRIFUGATION**  
see Embryology (experimental)  
Embryology (physiological)
- CEPHALOGENESIS**  
see Head
- CEREBELLUM**  
see Brain
- CHALONES**  
see Mitosis
- CHEMICAL ELEMENTS**  
see also Ions
- Al teratogenesis  
Mammalia Persaud
- Au transfer in placenta  
Mammalia Sudarwati
- Ca  
Echinoidea Uemura
- Ca & cell contraction  
Echinoidea Schroeder
- Ca & cortical contraction  
Amphibia Kubota
- Ca in egg activation  
Invertebr Epel
- Ca in embryo  
Aves Lhotka  
Homo Lhotka  
Mammalia Lhotka
- Ca in endolymphatic deposits  
Amphibia Pilkington
- Ca in fertilization  
Echinoidea Nakazawa
- Ca metabolism  
Mammalia Ornoy  
Schryver
- Cd in development & reproduction  
Teleostei Sanford
- Cd teratogenesis  
Mammalia Monie
- F  
Echinoidea Herold
- F effect on embryo  
Aves Sinha  
Varma
- F placental transfer  
Mammalia Shupe
- Fe in embryo  
Aves Lhotka  
Homo Lhotka  
Mammalia Lhotka
- heavy metals  
Mammalia Agnew  
Vertebrata Birge
- heavy metal teratogenesis  
Mammalia Kimmel  
Mollusca Calabrese
- Hg  
Homo King  
Mammalia Robkin  
Robkin

K in mother & fetus  
 Mammalia Fantel

Li in regeneration  
 Hydrozoa Yasugi

metal effect on enzyme systems  
 Echinoderm Hein  
 Turbellaria Hein

metals in devel. & regen.  
 Echinoderm Hein  
 Turbellaria Hein

N excretion in tadpole  
 Amphibia Arima

N metabolism  
 Amphibia Janssens  
 Insecta Sharma

P  
 Echinoderm Yanagisawa  
 Mammalia Nakazawa

Pb teratogenesis  
 King  
 Aves Gilani  
 Mammalia Monie

trace elements in CNS anomalies  
 Homo Agnew  
 Mammalia Agnew

trace elements in fertilization  
 Echinoidea Hori  
 Teleostei Hori

CHEMICAL MICRO-ANALYSIS

CHEMICALS (biologically active)  
 see specific chemicals  
 (Antibiotics; Antimitotic agents etc. etc.); Chemical elements; Drugs; Ions; Teratogenesis

CHEMORECEPTORS

CHIMERAS  
 Amphibia Volpe  
 Mammalia Benirschke  
 Whitten

CHONDROCRANIUM  
 Amphibia Toerien  
 Aves Toerien  
 Mammalia Toerien  
 Reptilia Toerien

CHONDROGENESIS  
 see Cartilage

CIORDA  
 see Notochord

CHORION  
 see Placenta  
 see also Embryonic membranes

CHOROID PLEXUS  
 see Brain

CHROMAFFIN CELLS  
 Aves Andrew

CHROMATIN  
 see Chromosomes

CHROMATOPHORE(S)  
 Amphibia Bagnara  
 Dalton  
 Crustacea Ranga

CHROMOSOMES  
 see also Cytogenetics

aberrations  
 Homo Makino  
 Shapiro  
 Mammalia Lin  
 Miyake  
 Nesbitt  
 Shaver  
 Vertebrata Macintyre

biochemical activity  
 Vertebrata Macintyre

blastocyst  
 Mammalia Takagi

cell genetics  
 Mammalia Lin

chromatin  
 Echinoidea Ozaki  
 Mammalia Kinoshita

congenital malformations  
 Homo Bhargava  
 Makino  
 Misra  
 Sasaki  
 Mammalia Navagiri

delayed fertilization  
 Mammalia Oakley

developmental changes  
 Amphibia DiBerardino

DNA replication  
 Insecta Calvet

DNA, RNA & protein synthesis  
 Insecta Pavan

DNA sequence  
 Insecta Calvet

doubling by colchicine  
 Mollusca Stiles

gene localization  
 Aves Przybylski

genetic activity  
 Insecta Gay

heterochromatin  
 Insecta Rae  
 Mammalia Rae

in abortions  
 Homo Makino  
 Sasaki

in lethal racial hybrids  
 Amphibia Moore

karyotype  
 Homo Ornoy  
 Sasaki

Onycho-  
 phora Cavenaghi  
 Murta  
 Schreiber  
 Simoes

lampbrush nucleic acids  
 Amphibia Gall

laser microbeam study  
 Amphibia Berns  
 Mammalia Berns  
 Rattner

mapping  
 Amphibia Freed

meiotic  
 Mammalia Lakshmanan

mitotic mutants  
 Aves Bloom

molecular structure  
 Insecta Gay

nucleic acid-protein interaction  
 Insecta Rae  
 Mammalia Rae

of cell clones  
 Amphibia Freed

proteins  
 Insecta Imberski

proteins on genes  
 Amphibia Higashinakagawa  
 Reeder

puffing  
 Insecta Doane  
 Gerbi  
 Laufer  
 Rasch

rearrangements  
 Insecta Donady

replication patterns  
 Amphibia Barr  
 Insecta Barr

role in differentiation  
 Insecta Poulson

sex  
 Homo Moore  
 Mammalia Moore

ultrastructure & function  
 Insecta Kaufmann

X-differentiation  
 Mammalia Takagi

X-inactivation  
 Mammalia Nesbitt  
 Ohno

CILIA  
 contractile mechanisms  
 Rikmenspoel

regeneration  
 Echinoidea Lindsay

CINEMICROGRAPHY  
 see Microcinematography

CIRCULATION

CLEAVAGE (& morula, blastula)  
 see also Blastocyst;  
 Blastoderm; Blastodisc  
 Cephalopoda Arnold  
 Echinoidea Hiramoto  
 Miki  
 Skalko

Gastropoda Sathanathan  
 Mammalia Gulyas  
 Skalko  
 Teleostei Kirchen

biochemistry  
 Echinoidea Kanki  
 Mano

Mammalia Pollard

blastomere interactions  
 Echinoidea Vacquier

blastomere ultrastructure  
 Lambellibr Humphreys

blastula surface ultrastructure  
 Amphibia Brick

cell coupling  
 Amphibia Sanders



- cell interactions  
Spiralia Cather
- cell surface  
Amphibia Sanders  
Echinoidea Uemura
- cortical contraction  
Amphibia Kubota
- cytodifferentiation  
Amphibia Nakamura  
Takasaki
- developmental potential  
Ctenophora Freeman  
Nemertea Freeman
- effect of father  
Mammalia Maurer
- effect of irradiation  
Mollusca Stiles
- effect of metabolic inhibitors  
Mammalia Pollard
- effect of methylated xanthines  
Echinoidea Cheney
- effect of pollutants  
Mollusca Stiles
- histone synthesis  
Amphibia Kasinsky
- holoblastic  
Crustacea Haley
- microfilament biochemistry  
Echinoidea Schroeder
- mitotic apparatus  
Echinoidea Kiefer  
Miki
- oxygen consumption  
Echinoidea Cheney
- physiology  
Echinoidea Kojima
- polar lobe formation  
Gastropoda Taylor
- proteins  
Echinoidea Wilt
- RNA  
Echinoidea Wilt
- role of Ca in contraction  
Amphibia Kubota
- role of vegetal body  
Gastropoda Cather
- transcription  
Mammalia Moore
- ultrastructure  
Aves Fainstain  
Echinoidea Uemura  
Mammalia Gondos
- CLOACA  
see Urogenital system
- CLONE(S)  
see Asexual reproduction;  
Cell(s); Cell heredity
- COELOM  
see Body cavities
- COLCHICINE  
see Antimitotic agents
- COLLAGEN  
Amphibia Kato  
bone Aves Weinstock  
bone & dentin Mammalia Weinstock
- cornea  
Aves Trelstad
- deposition in embryo  
Aves Stern
- deposition in metamorphosis  
Amphibia Reynolds
- fibrillogenesis  
Aves Trelstad
- in connective tiss. differ.  
Aves Frederickson
- in epithelial differentiation  
Aves Frederickson  
Vertebrata Kollar
- in micromelic mutants  
Aves Goetinck
- mediator of information  
Vertebrata Kollar
- morphogenetic role  
Mammalia Bernfield
- mRNA & tRNA  
Aves Stern
- polymerization  
Vertebrata Kemp
- proline metabolism  
Aves Stern
- resorption in tail  
Amphibia Ito
- role in eye development  
Aves Coulombre
- role in tissue interaction  
Aves Hay
- secretion by epithelia  
Aves Hay
- submandibular gland  
Mammalia Bernfield
- synthesis in chondrocytes  
Aves Solursh
- synthesis in embryo  
Aves Stern
- synthesis in palate  
Mammalia Pratt
- types  
Aves Trelstad
- umbilical cord  
Homo Uysal
- COLOUR PATTERNS  
see Chromatophore(s);  
Pigment(ation)
- COMPETENCE (inductive)
- CONGENITAL MALFOR-  
MATIONS  
see Malformations
- CONNECTIVE TISSUE  
see also Fibroblast(s)  
Amphibia Setoguti  
Watanabe  
Aves Frederickson  
Trelstad  
Homo Ten Cate  
Watanabe  
Mammalia Burton  
Dorfman  
Seftalioglu  
Watanabe  
Teleostei Watanabe  
Vertebrata Kemp
- CORPUS ALLATUM  
Insecta Beig  
Granger
- CORPUS LUTEUM
- CORTEX  
see Cell(s); Egg(s)
- CORTISONE  
see also Steroids  
Aves Kulka  
Mammalia Iucif  
Takano
- CRANIUM  
see Skull  
see also Chondrocranium
- CRYPTOBIOSIS  
see Diapause
- CULTURE (embryo)  
see also Rearing methods  
Aves Klein  
Homo Francoeur  
Dickey  
Elliott  
Mammalia Gunberg  
Hoppe  
Shepard  
Whitten
- drug assay system  
Aves Boone
- mutant embryos  
Mammalia Stein
- neuropore & cytochalasin  
Aves Shepard  
Mammalia Shepard
- teratogenesis  
Mammalia Gunberg  
Mitchell  
Moustafa
- CYCLIC AMP  
see Nucleotides
- CYTOGENETICS  
Homo Bhargava  
Doherty  
Mammalia Ishikawa  
Miyake  
Stiles  
Ojima
- CYTOLOGY  
see Cytogenetics
- CYTOSTATIC AGENTS  
see Antimitotic agents
- CYTOTOXIC AGENTS  
see Drugs
- DEDIFFERENTIATION  
see also Metaplasia  
denervated limb  
Amphibia Hearson

DE-OXYRIBONUCLEIC ACID  
see also Nucleic acids

Onychoph Cavenaghi  
Murta  
Schreiber  
Simoes  
Thaliacea Cavenaghi  
Schreiber  
amplified Insecta Gerbi  
brain Vertebrata Jacobson  
differentiating cells Vertebrata Karasaki  
effect of temp. on synthesis Echinoidea Brookbank  
enzymology Echinoidea Infante  
Mammalia Infante  
in cell division Aves Emerson  
in heterochromatin Insecta Rae  
Mammalia Rae  
initiation of synth. in regen. Amphibia Tassava  
mitochondrial Homo Upholt  
Mammalia Upholt  
non-repeated Mammalia Brown  
nuclear membrane complex Echinoidea Infante  
Mammalia Infante  
organization Aves Coleman  
regeneration Crustacea Holland  
Skinner  
regulation of synthesis Vertebrata Ebert  
Ozato  
repair Insecta Smith  
Mammalia Masui  
Moustafa  
replication Insecta Calvet  
satellite Crustacea Beattie  
Skinner  
Insecta Gall  
Gerbi  
sequence Insecta Calvet  
spacer regions Amphibia Brown  
synthesis Amphibia Hearson  
Aves Fischman  
Stockdale  
Echinoidea Brookbank  
Insecta Pavan  
Mammalia Hassell  
Pratt  
Stockdale  
synthesis in mitochondria Homo Nagata  
Mammalia Nagata  
synthetic enzymes in egg Echinoidea Terayama

transcription Amphibia Browder  
Echinoidea Nemer  
Insecta Browder  
Mammalia Browder  
Brown  
Church  
Schultz  
trophoblast giant cells Mammalia Sherman  
unusual Dinophyceae Rac  
DETERMINATION (embryonic)  
see also Induction; specific organs, etc.  
Insecta Schneiderman  
blastoderm Aves Eyal  
Insecta Bownes  
control of oogenesis Insecta Postlethwait  
early stages Mollusca Clement  
in homeosis Insecta Postlethwait  
molecular in melanophores Amphibia Brick  
skin areas Amphibia Kollros  
somatic cells Insecta Bownes  
somites Aves Packard  
various embryonic structures Amphibia Jacobson  
Aves Jacobson  
DEVELOPMENT (general)  
see also Asexual reproduction; Life cycle(s); Morphogenesis  
Ascidiacea Milkman  
Dermaptera Giles  
Diptera Milkman  
Hemichorda Burdon  
Homo Decker  
Nemertea Iwata  
Pinnipedia Bryden  
Polychaeta Mazurkiewicz  
Rodentia Bagwell  
Teleostei Donaldson  
Vertebrata Shrivastava  
biochemistry Moscona  
cell biology Lepidoptera Locke  
chemical & biochem. changes Insecta Newburgh  
control Robertson  
culture in vitro Moscona  
cytoplasmic & protein changes Amphibia DiBerardino  
effect of chemicals Echinoderm Hein  
Turbellaria Hein  
effect of combination of factors Mammalia Staples  
effects of hormones Arthropoda Madhavan

effect of stress Amphibia Srivastava  
endocrine control Insecta Aggarwal  
histogenesis Moscona  
imaginal maturation Insecta Rockstein  
marine species Invertebrata Fernald  
microcinematography Robertson  
mRNA translation Ilan  
nuclear & chromosomal changes Amphibia DiBerardino  
parallels Homo Burdi  
Mammalia Burdi  
patterns Aves Cameron  
physiology Lepidoptera Locke  
regulation of protein synth. Ilan  
size-age relationships Mammalia Bagwell  
transferred embryo Mammalia Takano  
DEVELOPMENT (larval)  
see also Polymorphism (insects)  
Crustacea Dotsu  
Echinoidea D'Asaro  
Mazurkiewicz  
Gastropoda D'Asaro  
Mazurkiewicz  
Lamellibr Polychaeta D'Asaro  
Teleostei Dotsu  
arm formation Echinoidea Finnegan  
Larrieve  
effect of food Asteroidea Lucas  
effect of prolactin Amphibia Arima  
endocrine control Crustacea Hubschman  
externally induced settling Gastropoda Hadfield  
growth & nitrogen excretion Amphibia Arima  
in fish hosts Cestoda Bilqees  
Nematoda Bilqees  
juvenilizing molecules Insecta Silhacek  
metabolic end-products Amphibia Arima  
nauplius eye Crustacea Aoto  
parasitic forms Crustacea Izawa  
Ooishi  
DEVELOPMENT (post-embryonic, fetal)  
Chiroptera Mann  
Insectivora Mann  
Perissodact Mann

Urodela	Ballard	chemical		immune factors	
endocrinology		Gastropoda	Morrill	Mammalia	Nebel
Insecta	Judy	cleavage		in vitro	
gestational age		Amphibia	Nakamura	Amphibia	Watanabe
Homo	Balakrishnan		Takasaki	Aves	Watanabe
hormonal control		control		interstitial cells	
Insecta	Shaaya	Acrasiales	Cohen	Hydrozoa	Lenhoff
nucleic acid & protein synth.		culture in vitro			Lesh
Insecta	Shaaya		Moscona	isoamylases	
role of prothoracic gland		Insecta	Seecef	Insecta	Doane
Insecta	Bodenstein	cytoplasmic fragments		lipid-protein interactions	
		Amphibia	Wilde	Aves	Huang
		differentiated state		Mammalia	Pagano
DEVELOPMENTAL		Insecta	Bownes		Huang
GENETICS		DNA properties			Pagano
see Genetics		Vertebrata	Karasaki	liver cells in vitro	
DEVELOPMENTAL		during cell cycle		Aves	L. venson
PATHOLOGY		Mammalia	Scheffler	lung buds in vitro	
see Pathology		early stages		Aves	Minor
DEVELOPMENTAL		Gastropoda	Taylor	lysosomes	
PHYSIOLOGY		Insecta	Coward	Amphibia	Decker
see Embryology (experimental);		Lamellibr.	Taylor	Aves	Decker
Embryology (physiological)		Mammalia	Brinster	mammary carcinoma	
see also Development		Polychaeta	Taylor	Mammalia	Unsworth
		Xiphosura	Coward	membrane-bound proteins	
		effects of biomech. fields		Aves	Huang
DIAPAUSE		Homo	Gasser		Pagano
		effect of hormones		Mammalia	Huang
		Insecta	Judy		Pagano
Crustacea	Morris	effect of ions		membrane function	
Insecta	Brust	Hydrozoa	Macklin	Aves	DeHaan
	Pener	effect of nucleoside analogues		modulation	
Mammalia	Moore	Aves	Coleman	Mammalia	Karasaki
	Tyndale	effect of temperature		neural crest	
Teleostei	Wourms	Aves	Dubey	Aves	Weston
			Patil	Mammalia	Weston
DIAPHRAGM		effect of virus infection		neural crest in vitro	
see Body cavities		Aves	Watanabe	Mammalia	Pratt
DIET		endocrine control		nuclear, chromos. & cytopl.	
see Nutrition		Insecta	Berry	Amphibia	DiBerardino
DIFFERENTIATION		energy pathways		nuclear nucleic acids	
see also Dedifferentiation;		Vertebrata	Wilde	Vertebrata	Alperin
Metaplasia; specific		enzyme activity		nucleic acids	
organs, etc.		Amphibia	Boell	Insecta	Berry
		Aves	Boell	nucleo-cytopl. interactions	
Amphibia	Legname	enzyme control		Echinoidea	Kinoshita
Cestoda	Cheng	Insecta	Sullivan	preservation in cultured cells	
ATP synthesis		eye cell clones		Mammalia	Rafferty
Amphibia	Crawford	Aves	Eguchi	primordial germ cells	
Teleostei	Crawford		Okada	Mammalia	Spiegelman
axial mesoderm			Takeichi	programmed cell changes	
Amphibia	Finnegan	Mammalia	Eguchi	Mammalia	Pratt
biochemistry			Okada	protein changes	
			Takeichi	Amphibia	DiBerardino
		eye lens in vitro		protein metabolism in vitro	
Amphibia	Moscona	Aves	Katoh	Aves	Klein
	Sallach	factors from submaxillary gland		relation with cell division	
	Wilde	Mammalia	Varon	Aves	Stockdale
Mammalia	Sherman	gene contr. in allophenic anim.		Mammalia	Stockdale
Teleostei	Brummett	Mammalia	Mintz	relation with DNA synthesis	
cartilage & bone		gene transcription		Mammalia	Stockdale
Mammalia	Terashima	Insecta	Suzuki	Aves	Stockdale
cell interactions		genetics		RNA stabilization	
		Teleostei	Whitt		Pitot
Amphibia	Moscona	genetic basis		RNA synthesis & processing	
	Nakamura	Mollusca	Cheng	Aves	Coleman
	Takasaki	germ cells		role of cell communication	
cell surface		Insecta	Kiefer	Mammalia	Sherman
		hemopoietic cells		role of cell cycle	
Mammalia	Moscona	Mammalia	Lala	Amphibia	Keefe
	Rifkind		Rifkind	Aves	Keefe
cellular		hypoblast		Mammalia	Keefe
		Aves	Mizuno	role of cell migration	
Aves	Swift	imaginal discs		Aves	Azar
Echinoidea	Cameron	Insecta	Imberski		
Urano	Urano				
Insecta	Coward				
Teleostei	Whitt				
Xiphosura	Coward				



maternal macromolecules		ribosomal synthesis		transmission of substances	
Amphibia	Nace	Insecta	Allen	Homo	Nishimura
Echinoidea	Harris	RNA		physical	
maturation		Mammalia	Stull	Mammalia	Alexander
Amphibia	Biggers	S-ad.-L-meth. decarboxylase		physiological	
	Bühler	Echinoidea	Russell	Mammalia	Alexander
	Humphries	shell proteins		protein passage	
	Legname	Insecta	Pant	Mammalia	Kulangara
	Smith		Sharma		
Asteroidea	Biggers	steroid receptors		EMBRYOLOGY (experimental)	
	Kanatani	Amphibia	Smith	see also specific stages,	
	Shirai	surface membrane		Determination; Gradients;	
Homo	Biggers	Amphibia	Brummett	Induction; Morphogenesis;	
Hydrozoa	Tucker	Teleostei	Brummett	Pattern formation; Regu-	
Mammalia	Biggers	temporal information control		lation	
	Tsafirri	Amphibia	Wilde	Anura	De Bavay
Teleostei	Iwamatsu	Aves	Wilde	Mammalia	Church
meiosis		Teleostei	Wilde	Teleostei	Welander
Amphibia	Masui	transplantation		Trematoda	Borojevic
Asteroidea	Longo	Mammalia	Benirschke	aggregation chimeras	
Lamellibr	Longo	transport		Mammalia	Whitten
membrane formation		Elasmo-	Wourms	axial mesoderm in vitro	
Echinoderm	Kane	branchii		Amphibia	Finnegan
membrane ultrastructure		Mammalia	Benirschke	Aves	Finnegan
Amphibia	Brummett	ultrastructure		axial structures	
Echinoidea	Humphreys	Amphibia	Massover	Amphibia	Lipton
Teleostei	Brummett	Asteroidea	Shirai	Aves	Lipton
metabolism		Aves	Fainstain	blastoderm potencies	
Mammalia	Biggers	Echinoidea	Uemura	Aves	Eyal
nucl. acids from nurse chamber		Hydrozoa	Tucker	cell sociology	
Insecta	Madhavan	vitellogenin		Amphibia	Dan
nucleo-cytoplasmic interact.		Amphibia	Schuetz	Echinoderm	Dan
Amphibia	Cole	water uptake		centrifugation & ultrastr.	
nucleotides		Reptilia	Goel	Insecta	Yajima
Echinoderm	Yanagisawa	white & development		developmental potential	
nurse		Aves	Fritz	Ctenophora	Freeman
Gastropoda	Hadfield	EGG MEMBRANES		Nemertea	Freeman
oocyte & maternal macromolec.		see Egg(s); Embryonic		dispersion-reaggregation	
Mammalia	Glass	membranes		Teleostei	Wourms
oocyte development				early stages	
Polychaeta	Tweedell	EGG SHELL		Insecta	Jacobson
oocyte ultrastructure		see Egg(s)		Mammalia	Miya
Amphibia	Humphries	ELECTRICITY			Brinster
ooplasmic segregation		see Bio-electricity		Mollusca	Whitten
Gastropoda	Morrill				Clement
oviposit., ovulat. & cytochalasin		ELEMENTS (chemical)		effects of gamete ageing	
Amphibia	Schroeder	see Chemical elements		Mammalia	Hoppe
	Sedra	EMBRYO-MATERNAL		effect of temperature	
Asteroidea	Schroeder	RELATIONSHIPS		Reptilia	Yntema
Insecta	Pener	see also Placenta		embryo culture	
Mammalia	Anderson			Mammalia	Hoppe
	Behrman			embryo preservation	
Teleostei	Schroeder			Mammalia	Thompson
oxygen consumption				embryo reaggregation	
Echinoidea	Cheney	Marsupialia	Walker	Echinoidea	Hamada
perivitelline fluid		cell interactions in vitro		fate maps	
Amphibia	Salthé	Mammalia	Salomon	Amphibia	Nakamura
phosphagens		intrauterine environment		germ layer morphogenesis	
Echinoderm	Yanagisawa	Mammalia	Hoshino	Amphibia	Jacobson
physical properties		K relations	Kameyama	Aves	Jacobson
Echinoidea	Hiramoto	Mammalia	Fantel	induction by prechordal plate	
polar lobe		maternal factors		Amphibia	Kawakami
Lamellibr	Fuke	Homo	Nishimura	intestinal epithelium	
pollution assay		perinatal antibody transfer		Amphibia	MacDonald
Echinoidea	Kobayashi	Mammalia	Anderson	laser studies	
Gastropoda	Kobayashi	role of maternal macromolec		Insecta	Amy
precursor incorporation		Mammalia	Glass	nervous system	
Polychaeta	Tweedell	teratogenesis		Aves	Souza
repair DNA synthesis		Mammalia	Hoshino	Mammalia	Souza
Mammalia	Masui	transfer	Kameyama		
ribosomal genes		Mammalia	Soma		
Amphibia	Higashinakagawa		Sugie		
	Reeder		Takano		
			Thompson		

neuropore & cytochalasin		Teleostei	Dotsu	cell communication	
Aves	Shepard	Thysanopt	Heming		Tupper
Mammalia	Shepard	Trematoda	Cheng	Mammalia	Sherman
numerology		Tunicata	Anderson	chemical & biochem. changes	
Mammalia	Whitten	Turbellaria	Iwata	Insecta	Newburgh
ooplasmic segregation			Ohsaki	control in early embryo	
Gastropoda	Morrill	comparative study		Mammalia	Bachvarova
organizer epigenesis		Chiroptera	Rasweiler	cultured cells & ecdysone	
Amphibia	Nakamura	Protochord	Anderson	Insecta	Kambysellis
	Takasaki	developmental anatomy		cytochemistry	
organogenesis		Urodela	Ballard	Teleostei	Yamamoto
Aves	Hamilton	dispersion-reaggregation		early differentiation	
potencies of embryo		Teleostei	Wourms	Mammalia	Sherman
Insecta	Schubiger	early stages		early stages	
RNA transf. of neurectoderm		Gastropoda	Sathananthan	Elasmobr	Wourms
Amphibia	Sasaki	Mammalia	Tyndale	Mammalia	Brinster
role of egg cortex		Primates	Butler		Markert
Insecta	Postlethwait	intra-uterine stages			Staples
role of vegetal body		Aves	Eyal	effect of chemicals	
Gastropoda	Cather	nomenclature		Insecta	Grosch
strain differences		Mammalia	Kleiss	effect of heavy metals	
Mammalia	Takano	normal table		Vertebrata	Birge
twinning		Homo	Gasser	effect of hormones	
Mammalia	Ferm	scanning E.M.		Insecta	Ewen
ultrastructure		Anura	Beams		Staal
Echinoidea	Herold		Kessel	effect of irradiation	
ultraviolet microbeam studies		serial sections		Insecta	Grosch
Insecta	Amy	Mammalia	Evans	electrical activity	
			Sack	Amphibia	Macklin
			Williams	embryo culture	
EMBRYOLOGY (general & descriptive)		size-age relationships		Mammalia	Robkin
see also specific stages;		Mammalia	Bagwell	embryo reaggregation	
Development (general);		thorax		Echinoidea	Hamada
Organogenesis		Orthoptera	Tandan	embryo storage	
		ultrastructure		Mammalia	Elliott
Anomura	Haley	Amphibia	Nakamura	embryonic diapause	
Anura	De Bavay	Arachnida	George	Teleostei	Wourms
	Goicoechea	Elasmobr	Wourms	enzymes	
	Jorquera	Gastropoda	Sathananthan	Aves	Moog
	Pugin	Insecta	Coward	Mammalia	Moog
	Richards		Jacobson	freezing embryos	
Arachnida	Sadana	Invertebrata	Summers	Mammalia	Elliott
Artiodactyla	Bryden	Mammalia	Spiegelman	gene action	
	Sack		Tyndale	Amphibia	Browder
Carnivora	Sack	Xiphosura	Coward	Insecta	Browder
Cestoda	Cheng	ultrastr. of encysted embryos		Mammalia	Browder
Chiroptera	Mann	Anostraca	Humphreys	gene activation	
	Uchida	unfertilized egg		Amphibia	Davidson
Cladocera	Stout	Aves	Mun	Echinoidea	Hough
Coleoptera	Church				Davidson
Crustacea	Iwata	EMBRYOLOGY (physiological)			Hough
Cyprinodont	Wourms	see also specific stages;		Gastropoda	Davidson
Diptera	Brat	Development; Energy;			Hough
	Chaudhry	Metabolism; Nutrition;		gluconeogenesis	
	Craig	Respiration, etc.		Mammalia	Janssens
Echinoidea	D'Asaro			glutathione reductase	
Gastropoda	Taylor	Mammalia	Church	Echinoidea	li
Homo	O'Rahilly		Waelsch	histochemistry	
	Singer	Rodentia	Gwatkin	Amphibia	Kato
	Zamboni	Trematoda	Borojevic	Elasmobr	Ford
Insectivora	Mann	albumen proteins		Homo	Tanaka
Lamelibr.	Taylor	Aves	Nonami	interaction with virus	
Lepidoptera	Miya	antimetabolites & morphogen.		Aves	Tahara
Marsupialia	Lyne	Aves	Naber	ionic environment	
Mollusca	Iwata	biochemistry		Lagomorpha	Biggers
	Natsukari	Aves	Romanoff	Rodentia	Biggers
Monotremata	Luckett	Echinoidea	Baker	isozymes	
Nemertea	Iwata	Elasmobr	Wourms	Rodentia	Knox
Notostraca	Stout	Mammalia	Schiffman	macromolecules	
Perissodact	Mann	biochemistry of excretion		Echinoidea	Mano
Pinnipedia	Bryden	Reptilia	Goel	maternal control	
Polychaeta	D'Asaro	cell aggregation		Mammalia	Bachvarova
	Taylor	Echinoidea	Kondo	membrane permeability	
Rodentia	Bagwell			Tupper	
	Hummel				
	Singer				



egg & larva  
 Amphibia Lobo  
 Teleostei Lobo  
 epigenetics of variants  
 Mammalia Ruddle  
 erythrocytes  
 Amphibia Okazaki  
 esterases  
 Amphibia Lobo  
 fat synthesis  
 Mammalia Fox  
 fertilization  
 Echinoidea Barber  
 Vacquier  
 formylase in larva  
 Insecta Kimmel  
 gene expression  
 Amphibia Wright  
 Teleostei Wright  
 genetic control  
 Aves Haley  
 Insecta Sullivan  
 Wright  
 genetic regulation  
 Insecta Dickinson  
 genetics  
 Mammalia Ruddle  
 Teleostei Whitt  
 glucuronate metabolism  
 Insecta Borack  
 glutamine synthetase in N.S.  
 Aves Piddington  
 glutathione reductase  
 Echinoidea li  
 hatching  
 Amphibia Katagiri  
 hexokinase  
 Amphibia Crawford  
 hormonal induction  
 Mammalia Tourian  
 hormonal regulation  
 Mammalia Greengard  
 in DNA repair & recombination  
 Insecta Smith  
 in embryo  
 Echinoidea Black  
 Scyphozoa Black  
 in hepatoma cells  
 Mammalia Tourian  
 induction  
 Amphibia Moscona  
 Spiegel  
 Mammalia Monder  
 Salomon  
 intracellular localization  
 Insecta Doane  
 isozymes  
 Insecta Imberski  
 Mammalia Knox  
 Markert  
 Pisces Markert  
 Teleostei Whitt  
 J.H. metabolism  
 Insecta Weirich  
 lactic dehydrogenase  
 Amphibia Salthe  
 lactose synthetase  
 Mammalia Hosick  
 LDH  
 Teleostei Whitt  
 LDH isozymes in skin  
 Mammalia Quevedo  
 lipase in lung tissue  
 Mammalia Vidic

lipid  
 Echinoidea Barber  
 liver  
 Amphibia Nagano  
 Okazaki  
 Shukuya  
 Mammalia Greengard  
 loci  
 Scandalios  
 lysosomal  
 Amphibia Kaltenbach  
 Robinson  
 Mammalia Pratt  
 malate dehydrogenase  
 Echinoidea Ozaki  
 melatonin synthesis  
 Aves Wainwright  
 microspectrophotometry  
 Elasmobr Ford  
 nitrogen metabolism  
 Amphibia Janssens  
 normal & abnormal development  
 Mammalia Persaud  
 nucleic acid polymerases  
 Mammalia Daentl  
 pancreas  
 Aves Kulka  
 phenylalanine hydroxylase  
 Mammalia Tourian  
 polymorphism  
 Scandalios  
 proteases & fertilization  
 Echinoidea Carroll  
 regulation  
 Amphibia Miceli  
 Insecta Kidder  
 retina  
 Mammalia Bal  
 RNA-directed DNA polymerase  
 Aves Temin  
 RNA polymerase  
 Insecta Forrest  
 role in devel. & regen.  
 Echinoderm Hein  
 Turbellaria Hein  
 S-ad.-L-meth. decarboxylase  
 Echinoidea Russell  
 silk gland  
 Insecta Pant  
 Sharma  
 steroid biosynthesis  
 Aves Pedernera  
 submandibular gland  
 Mammalia Bernfield  
 Cutler  
 synthesis & degradation  
 Insecta Doane  
 thymidine kinase  
 Amphibia Mezger  
 tryptophan oxygenase in larva  
 Insecta Kimmel  
 uterine during implantation  
 Mammalia Boell

EPIDERMIS  
 Amphibia Tachibana  
 Watanabe  
 Insecta Caveney  
 Mammalia Yamaguchi  
 Reptilia Maderson  
 Teleostei Krejsa

EPIDIDYMS  
 EPIPHYSIS  
 see Pineal organ  
 EPITHELIAL-MESENCHYMAL  
 INTERACTIONS  
 see also Induction  
 Aves Cairns  
 Goetinck  
 Kollar  
 Saunders  
 Mammalia Bemfield  
 Cunha  
 Cutler  
 Hosick  
 Miller  
 EPITHELIUM  
 Amphibia Brick  
 Aves Frederickson  
 EQUIPMENT  
 see Methods  
 ERYTHROCYTES  
 see Blood  
 ERYTHROPOIESIS  
 see Hematopoiesis  
 EVOLUTION  
 see Phylogenesis  
 EXCRETORY SYSTEM  
 see also Kidney(s), Urogenital  
 system  
 Reptilia Goel  
 EXTRA-CELLULAR MATRIX  
 see Matrix  
 EXTRA-EMBRYONIC  
 MEMBRANES  
 see Embryonic membranes  
 EXTREMITIES  
 see Limb(s); Wing(s)  
 EYE(S)  
 see also Eye lens  
 Amphibia MacDonald  
 Mammalia Pierro  
 Teleostei Edds  
 cell association  
 Aves Morris  
 cell pattern in retina  
 Aves Morris  
 clonal cell culture  
 Aves Eguchi  
 Okada  
 Takeichi  
 Mammalia Eguchi  
 Okada  
 Takeichi  
 cornea  
 Aves Hay  
 Trelstad  
 effect of X-rays  
 Amphibia Farberov



enzymes		Mammalia	Bal	macromolecules	
Aves	Piddington		Fisher	Aves	Zwaan
Mammalia	Bal		Hild	Mammalia	Zwaan
grafts to eyeless mutant			Hinds	microtubules	
Amphibia	Hibbard		Keefe	Aves	Piatigorsky
growth		Teleostei	Hollyfield	morphogenesis in vitro	
Amphibia	Hollyfield	retinal influence on lens		Mammalia	Pandit
Aves	Coulombre	Amphibia	Farberov	protein synthesis	
Mammalia	Lucif	retinal polarity		Aves	Piatigorsky
histogenesis		Aves	Goldberg	regeneration	
Mammalia	Spira	retino-tectal connections	Jacobson	Amphibia	Connelly
hormones & retinal differ.		Amphibia	Coulombre	Mammalia	Angra
Aves	Betz	Aves	Goldberg	RNA	
hyaluronic acid in cornea		Mammalia	Jacobson	Aves	Beebe
Aves	Trelstad		LaVail		Piatigorsky
lids comp. with palate		Teleostei	Jacobson	ultrastructure	
Mammalia	Holmstedt	role of collagen		Cephalopoda	Arnold
malformations & genes		Aves	Coulombre	FACE	
Mammalia	Gumbreck	teratogenesis		see Head	
metamorphosis		Mammalia	Brown	FALLOPIAN TUBE	
Amphibia	Hollyfield	thiocarbamide depigmentation	Kishida	see Oviduct	
microphthalmia		tissue interactions		FAT	
	Hoshino	Amphibia	Hollyfield	see Adipose tissues; Lipid(s)	
	Kameyama	ultrastructure		FAT BODY	
morphogenesis		Aves	Meyer	see Adipose tissues	
Amphibia	Jacobson	visual axis	Keefe	FATE MAPS	
Aves	Coulombre	vertebrata		see Embryology (experimental)	
	Jacobson	visual cells		FATTY ACIDS	
	Meyer	Amphibia	Steinhardt	see Lipid(s)	
mucopolysaccharides		visual pathway		FEATHER(S)	
Aves	Latshaw	Amphibia	Sharma	Aves	Goetinck
Mammalia	Latshaw	Teleostei	Sharma		Gopinath
mutant		EYE LENS			Kischer
Mammalia	Bal	see also Regeneration			Kollar
	Vanable	(traumatic)			Saunders
nauplius		biochemistry			FECUNDITY
Crustacea	Aoto	Aves	Goel		see Fertility
nerve fibre regeneration		Reptilia	Goel		FERTILITY (&sterility)
Teleostei	Westerman	cataract			Homo
neuron connections		Mammalia	Shupe		Insecta
Amphibia	Grant	cell shape			Soffer
neuron proteins		Aves	Hendrix		Miyahara
Aves	Lavail	crystallins			Mochida
optic fissure		Amphibia	McDevitt		Cheney
Aves	Latshaw	Aves	Beebe		FERTILIZATION
Mammalia	Latshaw		Pearce		Amphibia
optic nerve regeneration			Yasuda		Humphries
Amphibia	Jacobson		Zelenka		Katagiri
Teleostei	Weis				Crustacea
					Ackerson
pigment					Echinoidea
Amphibia	Hollyfield				Noda
	Keefe				Skalko
Aves	Coleman				Noda
	Harrison				Echiuroidea
	Keefe				Mammalia
Mammalia	Keefe				Andersen
Teleostei	Hasegawa				Gwatkin
regeneration					Hanada
Teleostei	Hasegawa				Hutchison
Turbellaria	Kishida				Markert
relation with neurogenesis					Skalko
Insecta	Wolsky				Williams
retina					Wudl
Amphibia	Fisher				Noda
	Hollyfield				
	Keefe				
	Niazi				
Aves	Keefe				
	Fujisawa				
	Harrison				
	Meyer				
	Morris				
	Piddington				
	Piperberg				

acrosome		polyspermy		FLAGELLA	
Amphibia	Cabada	Echinoidea	Carroll		
Mammalia	Raisman	Invertebr	Epel	FLUORESCENCE	
activation		Mammalia	Gulyas	MICROSCOPY	
Invertebr	Epel	prepenetration		see also Immunology	
Mammalia	Norman	Mammalia	Hartmann		
capacity of spermatozoa		pronucleus		FLUORINE	
Mammalia	Norman	Asteroidea	Longo	see Chemical Elements	
cell surface lipids		Lamellibr	Longo		
Echinoidea	Barber	proteases		FOLLICLE (egg-)	
chemical factors		Echinoidea	Carroll	see Ovary	
Amphibia	Armayer	respiration			
	Barbieri	Echinoidea	Nakazawa	FOLLICLE CELLS	
	del Pino	role of Ca		see Oogenesis	
comparative study		Invertebr	Epel		
Mammalia	Anderson	role of macromolecules		FREE-MARTINS	
cortical granules		Amphibia	Nacc	see Sexual Development	
Invertebr	Epel	role of sperm antigens			
cortical reaction		Hydrozoa	O'Rand	GALL BLADDER	
Invertebr	Epel	Mammalia	O'Rand	see Liver	
delayed		role of trace elements			
Mammalia	Oakley	Echinoidea	Hori	GAMETES (& gametogenesis)	
effect of surfactant		Teleostei	Hori	see also Germ cells; Oogenesis;	
Echinoidea	Isono	role of vitelline coat		Spermatogenesis etc.	
Lamellibr	Isono	Amphibia	Raisman		
energy metabolism		sperm-egg interaction		Echinoidea	Skalko
Echinoidea	Asami	Xiphosura	Shoger	Mammalia	Skalko
enzyme activation		testicular factors		cell structure & function	
Echinoidea	Terayama	Amphibia	Cabada	Kessel	
Invertebr	Byrd	ultrastructure		chromatoid bodies	
enzymes		Aves	Fainstain	Insecta	Coward
Echinoidea	Vacquier	Chiroptera	Mori	Xiphosura	Coward
frozen sperm			Uchida	cytochemistry	
Lagomorpha	Shaver	Homo	Zamboni	Mammalia	Bryan
gene activation		Invertebrata	Summers	effect of combination of factors	
Mammalia	Auclair	Mammalia	Gondos	Mammalia	Staples
general study			Noda	effect of marine pollutants	
Elasmobr	Wourms		Zamboni	Mollusca	Stiles
immune factors		Polychaeta	Fallon	genetic control	
Homo	Nebel	water-soluble proteins		Insecta	Lindsay
Mammalia	Nebel	Echinoidea	Hori	interaction	
in vitro		Teleostei	Hori	Polychaeta	Fallon
Homo	Francoeur			maturation	
Mammalia	Hammer	FETAL FLUIDS		Mammalia	Markert
	Hoppe	see Embryonic membranes		release	
	Noda			Hydrozoa	Waterman
in vitro & in vivo		FETAL MEMBRANES		ultrastructure	
Mammalia	Thompson	see Embryonic membranes		Homo	Gondos
ions				Insecta	Coward
Echinoidea	Hori	FETUS		Mammalia	Gondos
	Nakazawa	see also Development		Polychaeta	Fallon
	Steinhardt	(postembryonic, fetal)		Xiphosura	Coward
	Hori				
Teleostei		Homo	Lee	GANGLION (GANGLIA)	
jelly-coat			Lev		
Amphibia	Armayer		Martin	Amphibia	Michael
	Barbieri		Murata	Aves	Narayanan
	del Pino		Andrew		Pilar
	Shaver	Mammalia	Hay	Crustacea	Silverston
lipid enzymes			Martin	Mammalia	Odutola
Echinoidea	Barber		Murata		
membrane formation			Skinner	GASTRULA(TION)	
Amphibia	Cabada		Towers	Amphibia	Brick
Echinoderm	Kane	Vertebrata	Macintyre		Johnson
metabolism				Gastropoda	Sathanathan
Echinoidea	Steinhardt	FIBROBLAST(S)		Lamellibr	Taylor
nuclear changes		Amphibia	Izzard	Polychaeta	Taylor
Echinoidea	Terayama	Aves	Humphreys		
oviduct factors		Homo	Izzard	GENE(S)	
Amphibia	Raisman		Ten Cate	see also Genetics; Mutants	
physiology		FIN(S)			
Echinoidea		Teleostei	Kemp	action & hormones	
	Hiramoto		Krejsa	Insecta	Lauffer
	Ishikawa		Weis		
	Sugiyama				



oogenesis		Mammalia	Dixon	Harderian	
Insecta	Brown King		Duke Norman	Mammalia	McCafferty
pattern formation		Teleostei	Hyodo	inductive interactions	
Insecta	Stern Tokunaga			Mammalia	Bernfield
patterns		GERM CELLS (primordial)		lacrimal	
Insecta	Claxton	autoradiography		Homo	McCafferty
Mammalia	Claxton	Amphibia	Sutasurja	mammary	
physiology		differentiation		Homo	Duran
Insecta	Bender	Mammalia	Spiegelman	Mammalia	Kato
position effect variegation		germinal cytoplasm			Duran
Insecta	Barr	Amphibia	Dixon Ikenishi		Hoshino
	Rae		Kotani		Hosick
Mammalia	Rae		Züst		Kato
protein synthesis			Dixon	preputial	Rivera
Teleostei	Whitt	Mammalia		Mammalia	Stockdale
regulation in embryogenesis		induction		prostate	
Gastropoda	Collier	Amphibia	Sutasurja	Mammalia	Cunha
regulation of amylase isozymes		migration		role of cell division	
Insecta	Doane	Aves	Shoger	Mammalia	Stockdale
relation with teratogenesis		origin & migration		salivary	
Mammalia	Long	Aves	Fujimoto	Homo	Kleiss
retinal projection		Homo	Fujimoto		Toto
Mammalia	LaVail	Mammalia	Fujimoto	Insecta	Elgaard
role of egg cytoplasm		pole cells & UV		Mammalia	Hoshino
Amphibia	Malacinski	Insecta	Yajima		Redman
sex determination		transplantation to eye			Toto
Insecta	Kerr	Teleostei	Iwamatsu	sebaceous in asebia	
sex mosaics		GERM LAYERS		Mammalia	Hardy
Mammalia	Whitten	see Embryology (experimental); Embryology (general & descriptive)		secretory proteins	
somatic cell mutation		see also specific derivatives		Mammalia	Bressler
Homo	Kuroda			seminal vesicle	
spermatogenesis		GERMINAL VESICLE		Mammalia	Cunha
Insecta	Tokuyasu	see Nucleus		silk	
spotting patterns		GESTATION		Insecta	Gage
Mammalia	Mayer	see Pregnancy			Greene
testosterone responsiveness		GILL(S)		submandibular	Pant
Mammalia	Ohno			Mammalia	Sharma
triploid intersexes					Suzuki
Insecta	Postlethwait			vascularization	
tyrosinase in melanocytes				Homo	Kleiss
Mammalia	Quevedo				
X-activation				GLUCOSE	
Mammalia	Ohno			see Carbohydrate(s)	
GENITAL TRACT				GLYCOGEN	
see also Reproductive system;				see Carbohydrate(s)	
Urogenital system				GONAD(S)	
				see also Ovary; Testis	
Insecta	Beig	GLAND(S) (endocrine)			
Mammalia	Ayvaz	see specific endocrine glands;			
	Cunha	Endocrine organs			
	Flickinger	GLAND(S) (exocrine)			
	Gitlin	see also specific glands;			
	Katira	specific organs			
	Spaziani	adult-type secretion			
	Varma	Mammalia	Bressler	Reptilia	Chiplonkar
GENITALIA		biochemistry			Goel
see Reproductive system		Insecta	Elgaard	culture in vitro	
		dermal		Amphibia	Foote
		Insecta	Lai-Fook		Iwasawa
		DNA synthesis		Reptilia	Chiplonkar
		Mammalia	Stockdale		Goel
GERM CELLS (general)		effect of hormones		differentiation	
see also Gametes		Mammalia	Rivera	Aves	Amanuma
		effect of isoproterenol		embryonic hormones	
Amphibia	Dixon	Mammalia	Bressler	Aves	Noumura
Ascidacea	Izzard	enzymes		Mammalia	Noumura
Aves	Atkin	Mammalia	Cutler	experimental study	
Crustacea	Haley	epith. mes. interactions		Teleostei	Takahashi
Echinoidea	Terayama	Mammalia	Cutler		
Hydrozoa	Tucker	epithelial morphogenesis		Mammalia	Oshima
Insecta	Kiefer	Mammalia	Bernfield		
	Shiomi	experimental study			
	Yoshikawa	Mammalia	Redman		

histochemistry		effect of subcell. tissue fractions	HAPLOIDY	
Aves	Meyer	Mammalia	Stern	
malformations		endocrine control	Amphibia	Freed
Reptilia	Chipлонkar	Crustacea	Hubschman	Legname
	Goel	endocrinology		Mariano
maturation & steroids		Aves	Kamar	Mezger
Teleostei	Takahashi	facial structures		Moore
morphogenesis		Mammalia	Hassell	Wright
Aves	Woods	factors in vitro		Bloom
relation with reproduction		Homo	Minato	
Aves	Kamar	fetus		
steroids		Mammalia	Skinner	
Aves	Woods	functional hypertrophy	Amphibia	Katagiri
ultrastructure		Mammalia	Argyris	Salthe
Aves	Yamada	growth-limiting culture medium	Aves	Betz
Mammalia	Singh	Aves	Klein	Park
Homo	Singh	hormonal control	Insecta	Davis
		Aves	Teleostei	Yamagami
GRADIENT(S)		hormone interaction		
see also Symmetry		Amphibia	Frye	
		Aves	Frye	
animalization		imaginal discs	Homo	Burdi
Echinoidea	Ozaki	Insecta	Imberski	Carmona
effect on sensory structures		induction by drugs		Enlow
Amphibia	Hibbard	Mammalia	Argyris	Waterman
larval epidermis		larval		Burdi
Insecta	Caveney	Amphibia	Heath	Hassell
polarity in limb		limb mesenchyme		Kochhar
Aves	Rubin	Homo	Kelley	Overman
retinal polarity		neonatal thyroidectomy		Steffek
Aves	Goldberg	Mammalia	Lu	Waterman
tail regeneration		physiology		
Reptilia	Bryant	Insecta	Rockstein	
		Mammalia	Rockstein	
GRAFT REACTIONS		physiology & biochemistry	Amphibia	MacDonald
see Immunology; Transplantation		Insecta	Shappirio	acetylcholine receptors
		protein metabolism in vitro	Aves	Arms
		Aves	Klein	acetylcholinesterase
		regulation in liver	Aves	Arms
		Mammalia	Terayama	action potentials
		role of electrical phenomena	Aves	Arms
		Becker		actomyosin
		role of RES	Mammalia	Rockstein
		Mammalia	Stern	aorta
		stimulation by tumour	Mammalia	Seftalioglu
		Mammalia	Argyris	cell contact & biosynthesis
		sympathetic nervous system		Aves
		Levi		Fischman
				culture in vitro
				Amphibia
				Inoue
				MacCabe
				DNA synthesis
				Aves
				Fischman
				ECG
				Homo
				Lee
				Macklin
				effect of drugs
				Aves
				MacCabe
				effect of magnetic field
				Aves
				Veneziano
				electrophysiology
				Aves
				DeHaan
				experimental study
				Amphibia
				Amano
				factors regulating shape
				Aves
				Manasek
				histogenesis
				Mammalia
				Spira
				morphogenesis
				Aves
				DeHaan
				Gilani
				myosin synthesis
				Aves
				Fischman
				pacemaker formation
				Aves
				DeHaan

parasympathetic innervation		virus-transformed cells		control of metamorphosis	
Aves	Arms	Mammalia	Rifkind	Insecta	Judy
pericard & vascularization					Laufer
Homo	Porras	HEMOGLOBIN			Oberlander
rate		see Blood			Postlethwait
Aves	DeHaan				Staal
Homo	Lee	HEMOLYMPH		control of nucleic acids	Insecta
teratogenesis				Insecta	Shaaya
Aves	Fujimoto	Crustacea	Kerr	control of proteins	Insecta
	Gilani	Insecta	Butterworth	digestive system	Insecta
	Watterson		Ferkovich		Judy
Mammalia	Adams		Lai-Fook	disruption of morphogenesis	Insecta
	Fujimoto	HENSEN'S NODE		ecdysone	Crustacea
	Markwald	see Primitive streak			Madhavan
	Monie				Schneiderman
transplantation		HEREDITY			Spaziani
Mammalia	Goss	see Genetics			Insecta
ultrastructure					Bergtrom
Mammalia	Chalice	HERMAPHRODITISM			Butterworth
Vertebrata	Hirakow	see Sexual development			Kambycellis
					Rosales
HEMATOPOIESIS		HETEROPLIIDY		effect on blastocyst	Mammalia
antigen challenge					Prasad
Mammalia	McGarry	HETEROSIS		effect on bone	Amphibia
biochemistry		see Genetics			Aves
Mammalia	Goldwasser				McWhinnie
blastoderm		HISTOBLAST			Daimon
Aves	Wainwright				McWhinnie
blood islands					Mammalia
Aves	Wainwright	Insecta	Arking	effect on brain	Mammalia
cell surface properties					Vertebrata
Mammalia	Rifkind	HISTONE(S)			Jacobson
differentiation				effect on carbohydrate metabolism	Amphibia
Mammalia	Rifkind	Amphibia	Byrd		Frye
effect of phytohemagglutinin			Kasinsky	effect on cell renewal	Reptilia
Mammalia	Hostetler	Echinoidea	Byrd		Maderson
effect of virus infection			Kedes	effect on chromatophores	Crustacea
Mammalia	McGarry		Lindsay		Ranga
embryo & adult		Mammalia	Ber	effect on cultured cells	Insecta
Homo	Ackerman		Kornguth		Rosales
Mammalia	Ackerman		Singer	effect on differentiation	Insecta
erythrocyte					Berry
Amphibia	Grasso	HISTORY OF EMBRYOLOGY		effect on duodenal differ.	Aves
Homo	Schulman				Betz
Mammalia	Goldwasser		Bodemer	effect on embryogenesis	Insecta
	Schulman		Kleiss		Ewen
erythropoiesis		HOMEOSIS			Staal
Homo	Schulman	see Mutants		effect on embryonic growth	Aves
Mammalia	Goldwasser	see also Regeneration (traumatic)			Betz
erythropoietin action				effect on enzyme synthesis	Mammalia
Mammalia	Goldwasser	HOMOGENATES			Greengard
fetal		see Tissue(s)		effect on hatching	Aves
Homo	Yoffey				Betz
Mammalia	Yoffey	HOMOLOGOUS INHIBITION		effect on mammary gland	Homo
humoral control of eosinophils		see Tissue(s)			Mammalia
Mammalia	McGarry				Duran
immunochemistry		HORMONE(S)			Hoshino
Mammalia	Tamanoi	see also specific hormones;			Rivera
liver		Neurotransmitters;			Stockdale
Mammalia	Leeson	Steroids		effect on melanophore	Mammalia
radiation effects					Spaziani
Mammalia	Tamanoi	binding sites		effect on mineralization	Teleostei
stem cells		Insecta	Ferkovich		Nussbaum
Mammalia	Lala	calcitonin teratogenesis		effect on oocyte	Mammalia
	McGarry	Mammalia	Asling		Tsafiriri
supporting tissue in embryo		carrier proteins		effect on oogenesis	Insecta
Aves	Hostetler	Insecta	Ferkovich		Pener
Mammalia	Hostetler	control of development		effect on ovarian maturation	Insecta
supranuclear tissue		Arthropoda	Madhavan		Adams
Cyclostom	George	Insecta	Agarwal	effect on pars distalis	Aves
ultrastructure		control of mesonephros			Betz
Mammalia	Murata	Mammalia	Roos	effect on protein synthesis	Insecta
					Wyatt



egg jelly  
 Amphibia Shaver  
 fertilization  
 Homo Nebel  
 Mammalia Nebel  
 fertilization membrane  
 Amphibia Cabada  
 germ layer antigens  
 Aves Wolk  
 hemagglutinin test  
 Amphibia Kidder  
 histocompatibility  
 Amphibia Volpe  
 Mammalia Ohi  
 immune capacity  
 Mammalia Argyris  
 immune system  
 Amphibia Katagiri  
 immunoglobulins  
 Mammalia Honjo  
 Kimmel  
 liver  
 Mammalia Globerson  
 lymphocyte mitogen competence  
 Aves Van Alten  
 Mammalia Van Alten  
 neural crest transplantation  
 Amphibia Volpe  
 perinatal antibody transfer  
 Mammalia Anderson  
 pituitary gonadotr. function  
 Vertebrata Segal  
 placental antigens  
 Homo Jones  
 Mammalia Duke  
 Jones  
 placental antisera  
 Mammalia Duke  
 placentation  
 Homo Nebel  
 Mammalia Nebel  
 primary homograft reaction  
 Aves Seto  
 Primary humoral antibody  
 Aves Seto  
 reactions against spermatozoa  
 Mammalia Menge  
 reactivity of cultured cells  
 Mammalia Globerson  
 role of macrophages  
 Mammalia Argyris  
 sperm antigens  
 Amphibia Shaver  
 Homo Toder  
 Hydrozoa O'Rand  
 Mammalia Marcus  
 O'Rand  
 Toder  
 spermatogenesis & embryogen.  
 Mammalia Bennett  
 spleen  
 Mammalia Globerson  
 surface immunoglobulin  
 Amphibia Miller  
 thymocyte membrane  
 Mammalia Ozato  
 thymus  
 Amphibia Volpe  
 tolerance by grafts  
 Aves Mun  
 tumour grafts  
 Mammalia Argyris  
 virus-induced lymphoma  
 Aves Longenecker

yolk sac  
 Mammalia Globerson  
 IMPLANTATION  
 see Blastocyst  
 INDUCTION (embryonic)  
 see also Competence;  
 Determination; Epithelial-  
 mesenchymal interactions;  
 Pattern formation; specific  
 organs, etc.  
 bone & cartilage  
 Mammalia Nogami  
 by cell matrix  
 Amphibia Kawakami  
 by prechordal plate  
 Amphibia Kawakami  
 ectodermal reactivity  
 Amphibia Sasaki  
 effects of teratogens  
 Aves Johnson  
 Mammalia Johnson  
 electron microscopy  
 Amphibia Eakin  
 Kelley  
 in vivo & in vitro  
 Aves Johnson  
 Mammalia Johnson  
 irradiation  
 Aves Khan  
 mesoderm  
 Amphibia Thompson  
 neural  
 Aves Khare  
 of cephalic sense organs  
 Amphibia Kawakami  
 primary & SH-groups  
 Aves Rao  
 primordial germ cells  
 Amphibia Sutasurja  
 protein inhibitors  
 Aves Khan  
 regional effects  
 Amphibia Sasaki  
 Aves Sasaki  
 role of molecular structure  
 Amphibia Sasaki  
 Aves Sasaki  
 role of SH groups  
 Aves Mulherkar  
 INFECTIONS  
 see Bacteria; Virus  
 see also Pathology  
 INNERVATION  
 see specific organs, etc.  
 INSECTICIDES  
 see Pesticides  
 INSEMINATION  
 see Reproduction (sexual)  
 INSULIN  
 Aves Coalson  
 Mammalia Coalson

## INTEGUMENT

see also Skin  
 Crustacea Skinner  
 Stevenson  
 Insecta Lai-Fook  
 Minato  
 Pant  
 Willis  
 Mollusca Cather  
 Larrievee  
 Vertebrata Krejsa

## INTERSEXUALITY

see Sexual development

## INTERSTITIAL CELLS

Hydrozoa Bode  
 Lenhoff  
 Lesh

## INTESTINAL TRACT

cell differentiation  
 Amphibia McAvoy  
 cell surface differentiation  
 Aves Moog  
 Mammalia Moog  
 developmental potentiality  
 Amphibia MacDonald  
 differ. of intestinal epith.  
 Mammalia Anderson  
 disaccharidases  
 Mammalia Kretschmer  
 esophageal metaplasia  
 Aves Mottet  
 Homo Mottet  
 function  
 Homo Daikoku  
 mid-gut  
 Insecta Poulson  
 nerve plexus  
 Homo Takita  
 proliferation factors  
 Mammalia Philpott  
 regeneration  
 Amphibia Grubb  
 ultrastructure  
 Mammalia Anderson

## IODINE

see Chemical elements

## IONS

see also Chemical elements

Echinoderm Crawford  
 Echinoidea Hori  
 Hydrozoa Macklin  
 Mammalia Biggers  
 Waymouth  
 Teleostei Hori

## IRON

see Chemical elements

## IRRADIATION

see also Ultraviolet irradiation;  
 X-irradiation

Insecta Martins  
 Novaes  
 Salles  
 Schreiber



biochemical effects		KIDNEY(S)		LIMB(S)	
Amphibia	Taguchi	Mammalia	Blount	see also Regeneration (traumatic); Skeleton; Wing(s)	
	Yamada	biochemistry of	tubulogenesis	Mammalia	Nakamura
Crustacea	Nakazawa	Mammalia	Unsworth	Reptilia	Goel
Teleostei	Taguchi	compensatory hypertrophy	Goss		Mathur
	Yamada	enzyme synthesis		apical ectoderm.	ridge in vitro
change in sensitivity		Mammalia	Greengard	Aves	Molinari
Teleostei	Egami	mesonephros		axial polarity	
comparison of X-ray & 90Sr		Aves	Watterson	Aves	MacCabe
Teleostei	Welandar	Mammalia	Roos	cell adhesion and morphogen.	
effect on circulatory system		metanephros		Aves	Maslow
Aves	Stearner			cell death	
effect on haematopoiesis				Aves	Fallon
Mammalia	Tamanoi			Homo	Fallon
effect on offspring		neural control		cell interact. in	Brachypodism
Amphibia	Kawamura	Mammalia	Roos	Mammalia	Elmer
	Nishioka	neural factor in	tubulogen.	culture in vitro	
effect on oogenesis & embryo		Mammalia	Unsworth	Reptilia	Goel
Crustacea	Iwasaki	onset of function			Mathur
effect on parthenogenones		Mammalia	Desalu	deafferented	
Mollusca	Stiles	opisthonephric		Aves	Hollyday
effect on reprod. organs		Cyclostom	Youson	differentiation	
Mammalia	Muramatsu	pituitary control		Amphibia	Hearson
effect on scale formation		Mammalia	Roos	ectoderm-mesoderm interact.	
Reptilia	Mulherkar	regeneration		Aves	Saunders
effect on spermatogenesis				glycosaminoglycans	
Insecta	Iwasaki	secondary induction in vitro		Amphibia	Ito
effect on xanthine-treated eggs		Mammalia	Unsworth	heterotypic recombination	
Echinoidea	Cheney	teratogenesis		Aves	Goicoechea
electromagnetic & mitosis		Aves	Watterson		Jorquera
Insecta	Cole	transformation		innervation	
embryo		Cyclostom	Youson	Aves	Landmesser
Insecta	Shiomi	tubules		malformations	
	Yoshikawa	Mammalia	Unsworth	Homo	Becerra
embryonic lethality		ultrastructure			Duran
Insecta	Amy	Mammalia	Desalu		Yasuda
gamma rays				Mammalia	Kleiss
Aves	Khan	LABYRINTH		Reptilia	Goel
germ cells		see Static organ			Mathur
Insecta	Shiomi	LARVAL DEVELOPMENT		mechanism of malformation	
	Yoshikawa	see Development (larval)		Mammalia	Kameyama
Teleostei	Hyodo	LARYNX		Homo	Kelley
haploid cells		see Respiratory tract		mesoderm-ectoderm interaction	
Amphibia	Freed	LATERAL LINE SYSTEM		Aves	Goetinck
interaction with chemicals		LEUCOCYTES		morphogenesis	
Insecta	Grosch	see Blood		Aves	MacCabe
laser applied to embryo		LIFE CYCLE(S)		Mammalia	Kelley
Insecta	Amy	see also Development (general)		motility	
laser microbeam		Anomura	Haley	Aves	Hollyday
Amphibia	Berns	Diptera	Shukla	muscle	
Mammalia	Berns	Mollusca	Natsukari	Amphibia	Carlson
long-term effects		Trematoda	Bilqees	Aves	Hill
Teleostei	Etoh	LIGHT		polarity & symmetry	
low doses		see also Environmental factors		Aves	Rubin
Teleostei	Etoh			supernumerary	
microvascular damage				Amphibia	Carlson
Aves	Stearner			teratogenesis	
microwave				Mammalia	Kochhar
Mammalia	Jensh			vascularization	
	Rugh			Homo	Porras
	Staples			LIPID(S) (& fatty acids)	
thymic lymphocytes				see also Adipose tissues	
Mammalia	Yamada			Amphibia	Lobo
				Aves	Huang
JAW(S)					Pagano
see Skull				Echinoidea	Barber
				Insecta	Butterworth
JOINT(S)					Doane
see Skeleton					Pant
KARYOTYPE					
see Chromosome(s)					

Mammalia	Beall Chepenik Fox	LYMPHATIC SYSTEM see also Spleen, Thymus	Mammalia	Agnew Das De Lahunta Langman Nakamura Overman
LITHIUM see Chemical elements		Amphibia Aves	Pilkington Longenecker Spiroff Van Alten Ozato Yamada	comparative study Aves Mammalia
LIVER see also Regeneration (traum.)		Mammalia Vertebrata	Asnani Bonny Ebert Ozato Rowley Shah	congenital Homo
albumin synth. in cell line	Mammalia Hosick			Mitra Oakley Ornoy
biliary tract	Homo Takita			congenital & consanguinity Homo
biochemistry	Amphibia Aves			cranio-facial Homo Mammalia
cell culture	Aves Mammalia			Enlow Brown Kochhar Ross
cytochromes	Mammalia Asami	LYMPHOCYTES see Lymphatic system		cyclopia Mammalia
effect of metabolites	Aves Levenson	LYSOSOMES see Subcellular components		cytogenetics Mammalia
enzymes	Amphibia Nagano Okazaki Shukuya Mammalia Greengard Monder Nakazawa Yukawa	MACROPHAGE SYSTEM	Mammalia Chamberlain Stern	Ishikawa double monsters Homo Mammalia
gall bladder nerve plexus	Homo Takita	MAGNETIC FIELDS see also Environmental factors	Aves Veneziano	Down's syndrome Homo
glycogen metabolism	Aves Benzo	MALFORMATIONS see also Teratogenesis		epidemiology Homo
growth induction by drugs	Mammalia Argyris	Homo achondroplasia	Tanimura	exencephaly by vitamin A Mammalia
immunology	Mammalia Globerson	Homo Mammalia	Shepard Shepard	exostosis Mammalia
microsome function	Mammalia Nakazawa Yukawa	Homo anencephaly	Semba	external Homo
ribosome accumulation	Mammalia Argyris	Homo anophthalmia	Chase	eye Mammalia
role of hormones	Aves Benzo	Mammalia cardiovascular	Fujimoto Semba Fujimoto Monie	face Homo Mammalia
teratogenesis	Aves Watterson	Aves Homo Mammalia	Fujimoto Semba Fujimoto Monie	gene-conditioned Mammalia
thyroxine action	Amphibia Cohen	chondrodystrophy Mammalia	Miller	hand Homo
ultrastructure	Aves Benzo	chromosome aberrations Homo	Makino Ornoy Navagiri	hydrocephaly Mammalia
LOCOMOTION see Behaviour		Mammalia cleft lip & palate	Biddle Fraser Holmstedt Long Navagiri Overman Ross Shupe Steffek Trasler Verrusio Walker Zimmerman	limb Homo
LONGEVITY	Insecta Rockstein	Mammalia		limb bud in vitro Mammalia
LUNG(S) (& air sacs, swim bladder)	Amphibia Graver Wilde Aves Minor Homo Coelho Mammalia Herman Kauffman Taylor Towers Traurig Vidic	CNS Aves Homo	Langman Toerien Agnew	musculo-skeletal Mammalia
				nasal cavity Homo
				nervous system Mammalia
				nomenclature Mammalia
				oro-facial Homo Mammalia
				osteochondromatosis Mammalia
				phenotype in Down's syndrome Homo

placental pathology  
 Homo Ornoy  
 prediction from amniotic cells  
 Homo Johnson  
 Mammalia Johnson  
 reduplication in egg  
 Insecta Yajima  
 relation with aging  
 Aves Shupe  
 Mammalia Shupe  
 retinitis pigmentosa  
 Mammalia Navagiri  
 sense organs  
 Aves Toerien  
 sex chromatin  
 Homo Misra  
 situs inversus  
 Mammalia Evans  
 skeletal  
 Aves Overman  
 Homo Carmona  
 Tanaka  
 Mammalia Overman  
 skull  
 Aves Toerien  
 Mammalia De Lahunta  
 spina bifida  
 Homo Duran  
 spinal dysraphism  
 Mammalia De Lahunta  
 tongue & palate  
 Mammalia Ross  
 tooth  
 Homo Herold  
 Mammalia Bryan  
 Herold  
 Miller  
 urogenital system  
 Homo Duran  
 Mammalia Allison  
 Gumbreck  
 Monie  
 vertebral column  
 Mammalia De Lahunta  
 MALPIGHIAN TUBULES  
 see Excretory system  
 MAMMARY GLAND  
 see Gland(s) (exocrine)  
 MAST CELLS  
 see Bone marrow; Connective  
 tissue  
 MATERNAL EFFECTS  
 see Genetics  
 MATERNAL INHERITANCE  
 see Genetics  
 MATHEMATICS  
 see Theoretical biology  
 MATRIX (extracellular)  
 Amphibia Ito  
 Kawakami  
 Reyer  
 Sanders  
 Aves Hay  
 Hendrix  
 Manasek  
 Morris

Hydrozoa Lenhoff  
 Lesh  
 Mammalia Bernfield  
 Minor  
 Pratt  
 Urist  
 Weinstock  
 Vertebrata Lipton  
 MATURATION  
 see Egg(s)  
 MEIOSIS  
 see Egg(s)  
 see also Oogenesis  
 Spermatogenesis  
 MELANIN  
 see Pigment(ation)  
 see also Melanophore(s)  
 MELANOPHORE(S)  
 see also Neural crest; Pigment  
 Amphibia Berman  
 Brick  
 Wilde  
 Aves Reams  
 Mammalia Quevedo  
 Reams  
 Spaziani  
 MERISTEMS  
 see Plant embryology &  
 morphogenesis  
 MEROGONES  
 see Genetics; Hybrid(s)  
 MESENCHYME  
 Amphibia Finnegan  
 Echinoidea Brookbank  
 Uemura  
 MESODERM  
 see Embryology (experi-  
 mental); Embryology (general  
 & descriptive)  
 MESONEPHROS  
 see Kidney(s)  
 METABOLISM (general)  
 see also Energy; Respiration  
 Amphibia Amira  
 Bühler  
 Legname  
 Miceli  
 Salomon  
 Sanchez  
 Aves Naber  
 Echinoderm Yanagisawa  
 Echinoidea Mano  
 Mammalia Asami  
 Biggers  
 Gunberg  
 Janssens  
 Robkin  
 METALS  
 see Chemical elements

## METAMORPHOSIS

Ascidiacea Ishikawa  
 Echinoidea D'Asaro  
 Insecta Heming  
 Pleuronect Edds  
 basement lamella  
 Amphibia Tachibana  
 Watanabe  
 biochemical control  
 Crustacea Numanoi  
 biochemistry  
 Amphibia Robinson  
 Spiegel  
 carbohydrate metabolism  
 Amphibia Frye  
 chemical hypophysectomy  
 Amphibia Yu  
 collagen  
 Amphibia Ito  
 Reynolds  
 comparative study  
 Amphibia Dent  
 control of sequence  
 Amphibia Kollros  
 drug effects  
 Amphibia Corven  
 effect of hormones  
 Insecta Staal  
 endocrinology  
 Amphibia Frye  
 Gona  
 Hubschman  
 Crustacea Judy  
 Insecta Laufer  
 Oberlander  
 Postlethwait  
 endolymphatic deposits  
 Amphibia Pilkington  
 external induction  
 Gastropoda Hadfield  
 eye  
 Amphibia Hollyfield  
 hemoglobin  
 Amphibia Hickey  
 hemoglobin switch  
 Amphibia Okazaki  
 Shukuya  
 internal  
 Cyclostom Manion  
 liver & thyroxine action  
 Amphibia Cohen  
 local thyroxine action  
 Amphibia Kaltenbach  
 lysosomal enzymes  
 Amphibia Kaltenbach  
 Robinson  
 operculum perforation  
 Amphibia Watanabe  
 physiology  
 Insecta Rockstein  
 physiology & biochemistry  
 Insecta Shappirio  
 protein regulation  
 Crustacea Laufer  
 Insecta Laufer  
 protein synthesis  
 Insecta Wyatt  
 R. -B. neurons  
 Amphibia Spitzer  
 ribosomes  
 Insecta Wyatt  
 RNA  
 Insecta Wyatt

serum proteins		in mutants		disruption by hormones	
Amphibia	Nagano	Insecta	Schneiderman	Insecta	Adams
	Shukuya	initiation in regenerating limb		effect of nucleic acid analogues	
skeletal ultrastructure		Amphibia	Tassava	Insecta	Rizki
Amphibia	Kemp	laser microbeam study		embryonic cell adhesiveness	
tail		Mammalia	Rattner	Amphibia	Phillips
Amphibia	Fry	limb regeneration		Aves	Phillips
	Hickey	Amphibia	Hearson	epiboly	
	Robinson	liver regeneration		Teleostei	Trinkaus
	Sasaki	Mammalia	Bertalanffy	eye lens	
	Watanabe	myoblasts in vitro		Aves	Hendrix
thyroxine uptake & localization		Aves	Konigsberg	heart	
Amphibia	Reynolds	neoplastic cells		Aves	Manasek
tissue response		Mammalia	Bertalanffy	histochemistry	
Amphibia	Kollros	patterns in embryo		Aves	Goff
ultrastructure		Echinoidea	Lindsay	in coherent cell sheets	
Amphibia	Spiegel	proliferation		Amphibia	Jacobson
Ascidacea	Watanabe	Aves	Cameron	Aves	Jacobson
METANEPHROS		Mammalia	Philpott	larval nervous system	
see Kidney(s)		prolifer. & chemical differ.		Invertebrata	Lacalli
		Mammalia	Bressler	limb regenerate	
METAPLASIA		relation with differentiation		Amphibia	Carlson
		Aves	Stockdale	movements	
Amphibia	Eisenberg	Mammalia	Stockdale	Amphibia	Nakamura
Aves	Mottet	respiratory epithelium		Aves	Collins
Homo	Mottet	Mammalia	Marchok		Lesseps
Mammalia	Hardy	role of somatomedin			Schlesinger
Vertebrata	Alperin	Aves	Temin		Trinkaus
		Mammalia	Temin	Chondrostei	Ballard
				Elasmobr.	Ballard
METHODS (& equipment)		MONSTROSITIES		Gastropoda	Sathanathanan
see also Rearing methods		see Malformations		Holostei	Ballard
				Hydrozoa	Campbell
MICROCINEMATOGRAPHY		MORPHOGENESIS		Mammalia	Collins
		see also Culture; Development;		Teleostei	Ballard
Amphibia	Brick	Embryology; Plant embry-			Lesseps
Aves	Schlesinger	ology & morphogenesis;			Trinkaus
		Unicellular organisms		mRNA translation	
MINERALS				Ilan	
see Chemical elements		agents & cell behav.		neural crest migration	
MITOCHONDRIA		Aves	Weston	Aves	Weston
see Subcellular components		agents in embryo		Mammalia	Weston
		Insecta	Schwalm	neural plate	
MITOSIS		agents in oogenesis		Amphibia	Gordon
see also Antimitotic agents;		Insecta	Schwalm	Jacobson	
Cell(s)-division; Cleavage;		appendages		palatal fusion	
Growth factors		Aves	Rubin	Mammalia	Verrusio
Metazoa	Allen	arm formation in larvae		protein timing	
apparatus		Echinoidea	Finnegan	Teleostei	Piperberg
Echinoderm	Kane	blastoderm	Larrivee	regeneration	
	Sawada	Aves	Sanders	Amphibia	Stocum
Echinoidea	Kiefer	cardiac		regulation of protein synth.	
	Kuriyama	Aves	DeHaan	Ilan	
	Sakai	cell adhesion		role of cell adhesion	
Echiuroidea	Sawada	Hydrozoa	Campbell	Aves	Maslow
cellular biochemistry		cell & tissue migration		Aves	Saunders
Aves	Emerson	Hydrozoa	Diehl	role of cell motility	
centriole replication		cell interactions		Amphibia	Izzard
Echinoidea	Harris	Hydrozoa	Ceron	Aves	Izzard
chalones		cell migr. between germ layers		role of cell shape	
Amphibia	Scadding	Aves	Azar	Amphibia	Jacobson
Mammalia	Yamaguchi	cell relations		Aves	Jacobson
early development		Aves	Sanders	role of cell surface	
Teleostei	Kirchen	cell shape		Hoover	
effect of cytosine arabinoside		Hydrozoa	Campbell	Schaeffer	
Mammalia	Bertalanffy	cell surface material		Aves	Rao
effect of electromagn. radiation		Aves	Lee	role of cell types	
Insecta	Cole	CNS		Hydrozoa	Diehl
effect of spermine		Insecta	Berry	role of hypoblast	
Aves	Butros	control		Aves	Alperin
effect of ultracentrifugation		Acrasiales	Cohen	role of mesoglea	
Beams		cortical visual field		Hydrozoa	Lesh
		Mammalia	Gordon		
			Hirsch		

- role of mesoglea & perisarc  
Hydrozoa Diehl
- synthesis mesoglea & perisarc  
Hydrozoa Diehl
- temporal control  
Amphibia Wilde  
Aves Wilde  
Teleostei Wilde
- various embryonic structures  
Amphibia Jacobson  
Aves Jacobson
- MORPHOGENETIC FIELDS**  
see Embryology (experimental);  
Regeneration (traumatic)
- MORTALITY** (embryonic,  
fetal)  
see Pathology
- MORULA**  
see Cleavage
- MOSAICISM** (genetical)  
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- MOTILITY**  
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- MOULT(ING)**  
  
Crustacea Holland  
Madhavan  
Numanoi  
Skinner  
Spaziani  
Yamaoka  
  
Insecta Lai-Fook  
Minato  
  
Teleostei Krejsa
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- cell death in secondary palate  
Mammalia Pratt
- cell changes in sec. palate  
Mammalia Pratt
- cleft lip predisposing factors  
Mammalia Trasler
- cleft palate  
Mammalia Takano
- mechanism of palatal fusion  
Mammalia Verrusio
- oral mucosa  
Homo Toto  
Mammalia Toto
- palatal closure  
Mammalia Bagwell
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Mammalia Coleman  
Holmstedt  
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Mammalia Shupe
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Mammalia Ross
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Homo Gasser  
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Aves Allen
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Mammalia Rockstein
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Vertebrata Lipton
- biochemistry of differentiation  
Amphibia Wilde
- cell adhesion  
Vertebrata Lipton
- cell culture  
Aves Ramirez  
Vertebrata Lipton
- cell fusion  
Aves Fischman  
Vertebrata Lipton
- cell surface immunochemistry  
Aves Fischman
- chemistry  
Aves Love
- CO<sub>2</sub> & myotube formation  
Aves Przybylski
- cytochemistry  
Anderson
- denervated  
Mammalia Carlson
- differentiation  
Mammalia Allen
- differentiation in vitro  
Aves Coleman  
Konigsberg
- DNA synthesis  
Aves Stockdale
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Amphibia Tweedle
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Aves Love  
Watterson
- fibre types  
Mammalia Cassens
- genetic control of myogenesis  
Insecta Wright
- influence of nerves  
Mammalia Cassens
- informational macromolecules  
Echinoderm Wilde  
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- innervation in limb  
Aves Landmesser
- interaction with nerves  
Mammalia Devreotes  
Fambrough  
Ritchie
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Amphibia Carlson
- limb mesenchyme  
Aves Rubin
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Mammalia Leeson
- mo't  
Crustacea Skinner  
Yamaoka
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Amphibia Finnegan  
Aves Przybylski  
Ramirez
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Aves Ramirez  
Mammalia Cassens
- myogenesis in vitro  
Aves Hamabata
- myogenic cell lines  
Reptilia Cox
- myosin  
Aves Emerson  
Love  
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- myosin genes  
Aves Przybylski
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Aves Przybylski
- neuromuscular connections  
Amphibia Tweedle  
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Mammalia Westernman
- of anal submucosa  
Homo Jit
- physiology  
Vertebrata Shah
- proliferation in vitro  
Aves Konigsberg
- protein  
Aves Herrmann
- protein turnover  
Aves Love
- regeneration  
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Konigsberg  
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Yamaoka  
Mammalia Carlson  
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- Reptilia
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Amphibia Mark  
Teleostei Mark
- role of cell division  
Aves Stockdale
- sarcomere organization  
Aves Allen  
Mammalia Allen
- satellite cells  
Amphibia Dinsmore  
Mammalia Dinsmore  
Vertebrata Lipton
- serum factors  
Aves Hamabata  
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- skeletal  
Homo Hollinshead
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Amphibia Sasaki  
Watanabe

ultrastructure		grey lethals		NASAL ORGAN	
Vertebrata	Anderson Lipton	Mammalia	Hollinshead	see Olfactory organ	
MUTAGENIC AGENTS		hair growth in hr,	Re, sa	NEMATOCYSTS	
		Mammalia	Chase	Hydrozoa	Bode
Amphibia	Mezger	homeotic		NEOPLASIA	
Insecta	Rizki	Insecta	Baker	see Tumours	
Mammalia	Beall	hydrocephalic	Postlethwait	NEOTENY	
Mollusca	Stiles	Mammalia	Bryan	see Metamorphosis	
MUTANT(S)		in cultured cells	Scheffler	NERVE(S)	
see also Gene(s): Phenocopies		Mammalia	Stein	acid hydrolases	
Mammalia	Shoji	male-sterile		Mammalia	Allen
abnormal chorionic proteins		Insecta	Butterworth	degeneration	
Insecta	Goldsmith	Mammalia	Bryan	Aves	Ferreira
ac/ac organ culture		Aves	Goetnick	effect on skin development	Ido
Mammalia	Shepard	mitotic		interaction with muscle	Devreotes Fambrough Ritchie
affect. carbohydrate metab.		Aves	Bloom	myelin	Aves
Insecta	Doane	Insecta	Schneiderman	regeneration	Amphibia
affecting communication		neuromuscular		Aves	Mark
Insecta	Cline	Mammalia	McNutt	role in limb regeneration	Amphibia
affecting embryogenesis		ob/ob		terminals	Homo
Insecta	Schubiger	Mammalia	Fox	trophic function	Aves
affect. endocrine physiol.		oogenesis & embryogenesis		NERVE CELLS	
Insecta	Doane	Insecta	Fausto	axon proteins	Mammalia
affecting fat body		regulatory genes	of Amy	cell interactions	Mammalia
Insecta	Rizki	Insecta	Doane	culture	Insecta
affect. lipid metab.		retina		death at metamorphosis	Amphibia
Insecta	Doane	Mammalia	Bal	developmental cytology	Mammalia
affecting pattern formation		tail-labyrinthine		differentiation	Insecta
Insecta	Schneiderman	Mammalia	McNutt	electrogenesis	Mammalia
affect. reprod. physiol.		temperature-sensitive		experimental alterations	Amphibia
Insecta	Doane	Insecta	Fausto	functional specificity	Crustacea
affecting spermatogenesis		t.s. cell-lethal	Wright	giant interneurons	Crustacea
Mammalia	Bryan	Insecta	Arking	Mauthner's cell	Amphibia
asebia	Doohar	t.s. lethals with mat. eff.	Schneiderman	motoneurons	Crustacea
Mammalia	Hardy	Insecta	Cline	neuroblasts in vitro	Insecta
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Insecta	Fausto	Mammalia	Ohno	Nissl substance	Mammalia
blind		tissue transplants		nucleolar apparatus	Mammalia
Mammalia	Stein	Mammalia	Bryan	Mammalia	LaVelle
brachypodism		tooth development			
Mammalia	Elmer	Mammalia	Bryan		
chondrodystrophic		torpid			
Mammalia	Elmer	Mammalia	Dung		
circling		uncovered by gynogenesis			
Mammalia	Stein	Amphibia	Richards		
colour		visual	Vanable		
Amphibia	Richards	MUTATION			
conditionally lethal somatic		see Genetics			
Mammalia	Scheffler	MYCETOME			
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Mammalia	Spiegelman	see Central nervous system			
embryonic development		MYOBLASTS			
Mammalia	Bennett	see Muscle(s)			
embryonic lethals		MYOGENESIS			
Insecta	Fullilove	see Muscle(s)			
embryos in vitro	Wright	MYOSIN			
Mammalia	Stein	see Muscle(s)			
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Mammalia	Artzt	see Somite(s)			
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Mammalia	Pollard				
eye					
Amphibia	Hibbard				
Mammalia	Zwaan				
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Insecta	Bender				
	Mohler				

- polarity & growth  
Amphibia Hibbard
- protein movement  
Aves LaVail
- R. -B. neurons  
Amphibia Spitzer
- specific associations  
Aves Garber  
Mammalia Garber
- specification of connections  
Amphibia Grant
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Insecta Schubiger
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Crustacea Selverston
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Mammalia Das
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- NERVOUS SYSTEM**  
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- Aves Hamburger  
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Mammalia Kimmel
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Aves de Asua  
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Aves Fujisawa
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Aves Pilar
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Insecta Kankel
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Invertebr Lacalli
- differentiation in vitro  
Aves Adler  
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- effect of magnetic field  
Aves Veneziano
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Amphibia Weis  
Teleostei Weis
- effects of pesticides  
Amphibia Weis  
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- effects of surfactants  
Mammalia Manner  
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Insecta Kankel
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Aves Narayanan  
Teleostei Whitt
- exper. embryol. & ultrastr.  
Aves Adler
- genetically deficient embryos  
Insecta Poulson
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Mammalia Kornguth
- in neurogenesis  
Insecta Poulson
- in vivo & in vitro  
Insecta Levi
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Invertebr Lacalli
- morphology  
Insecta Singh
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Amphibia Vanable  
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Mammalia Brown
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Aves Oppenheim  
Mammalia Oppenheim
- relation with eye  
Insecta Wolsky
- sensory nerve specificity  
Insecta Schubiger
- specific connections  
Insecta Kankel
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Amphibia Kimmel  
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Aves Narayanan  
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Mammalia Cragg  
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- synaptic proteins  
Mammalia Kornguth
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Mammalia Monie  
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Mammalia Church
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Amphibia Tucker  
Mammalia Takeuchi
- ultrastr. differ.  
Aves Suburo
- NEURAL CREST**
- Amphibia Bagnara  
Brick  
Michael  
Volpe  
Wilde  
Aves Andrew  
Kollar  
Narayanan  
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Mammalia Kochhar  
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- NEURAL PLATE**
- Amphibia Gordon  
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- NEURONS**  
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- Amphibia Aoto  
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- NORMAL TABLES**  
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- NUCLEIC ACID(S)**  
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Insecta Gay
- cultured cleavage stages  
Mammalia Pollard
- distribution in nucleus  
Vertebrata Alperin
- early embryo  
Gastropoda Rao
- effect of hormones  
Insecta Shaaya
- effect of development  
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- effect on devel. & regen.  
Amphibia Wolsky
- electron microscopy  
Mammalia Dawid  
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Insecta Schwalm
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 Insecta Schwalm  
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 Polychaeta Schroeder  
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 Insecta Schwalm  
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 Amphibia Cole  
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 Insecta Mochida  
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 Amphibia Smith  
 Aves Noto  
 Echinoidea Davis  
 Insecta Berry  
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 Insecta King  
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 Amphibia Browder  
 Insecta Browder  
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 Insecta Fausto  
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 Echinoidea Tsukahara  
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Aves Hamilton  
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Mammalia Stern  
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Mammalia Argyris  
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Insecta Berry  
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Aves Alperin  
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Mammalia Argyris

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 Mammalia Andersen  
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 Insecta Fuchs

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 Mammalia Duke

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 Insecta Eschenberg  
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Mammalia Fisher  
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Insecta Bender  
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Insecta Goldsmith  
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Mammalia Anderson  
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Mammalia Coulson  
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Mammalia Coulson  
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Mammalia Ber  
 Singer

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 Insecta Fuchs  
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Asteroidea Shirai  
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Mammalia Andersen  
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Insecta Adams  
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Insecta Madhavan  
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Insecta Madhavan  
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Mammalia Guraya  
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Mammalia Fisher

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 Elasmobr Wourms  
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Insecta Madhavan  
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Aves Andrew  
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 Paedogenesis)

Aves Mun  
 Echinoidea Ishikawa  
 Sugiyama  
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PATHOLOGY (developmental)  
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Aves Romanoff  
 Mammalia Moore  
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 Mollusca Cheng

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 Vertebrata Segal

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 Homo Doherty  
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 Aves Goldie

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 Homo Robkin  
 Mammalia Robkin

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 Aves Seiger

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 Mammalia Dickey

embryonic radiation lethality  
 Insecta Amy

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 Aves Hunt

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 Mammalia Robkin

enzyme patterns	Mammalia	Persaud	PI-RITONEUM		Aves		Goel
fetal metabolism	Homo	Reynolds	PI-RIVITELLINE FLUID				Spiroff
histo- & toxoplasmosis	Homo	Duran	see Egg(s)		Mammalia		Venzke
		Kleiss	PI-RMEABILITY		Reptilia		Wainwright
immunology	Mammalia	Glass	PESTICIDES			PITUITARY	Mattingly
infection transmission	Mammalia	Hubbart	Amphibia	Prahlad		see Hypophysis	Goel
karyotype	Homo	Makino	Aves	Weis		PLACENTA(TION)	
lead	Aves	De Gennaro	Crustacea	Prahlad		see also Blastocyst; Embryo-	
	Mammalia	De Gennaro	Mammalia	Sullivan		maternal relationships;	
low-level chemical exposure	Mammalia	Spyker		Weis		Pregnancy	
methylmercury toxicity	Homo	Reynolds	Teleostei	Baksi		Chiroptera	Mann
	Mammalia	Doherty		Mitchell		Insectivora	Mann
		Reynolds		Yasuda		Mammalia	Fantel
nervous system	Aves	De Gennaro		Crawford		Primates	Butler
	Mammalia	De Gennaro		Weis		abortions	
neuromuscular mutant	Mammalia	McNutt	PHARMACOLOGY			Homo	Ornoy
placenta	Homo	Ornoy	see Drug(s)			anatomy & pathology	
placenta in abortions	Homo	Sekeles	PHARYNX			Homo	Stratford
placental antisera	Mammalia	Duke	see also Branchial region;			antiseria & abortion	
placental blood vessels	Homo	Bhargava	Mouth			Mammalia	Duke
prenatal diagnosis	Homo	Doherty	Amphibia	Garrido		barrier	
reaction to foreign bodies	Mollusca	Cheng		Jorquera		Mammalia	Fedinec
rubella	Homo	Ornoy		Pugin		Mammalia	Salomon
sickle cell anemia	Homo	Grasso	Aves	Rudnick		circulation	
skeleton in rubella	Homo	Sekeles	Homo	Dickson		Mammalia	Martin
teeth	Homo	Herold	Turbellaria	Kido		comparative study	
	Mammalia	Herold				Mammalia	Luckett
PATTERN FORMATION			PHENOCOPIES			cytomegalovirus-infection	
see also Induction			Aves	Goldie		Homo	Benirschke
Amphibia	Bagnara	Hollyfield				decidual cells	
	Lipton		PHOSPHORUS			Mammalia	Maibenco
Aves	Lipton		see Chemical elements			decidualization	
Insecta	Morris		PHYLOGENESIS			Mammalia	Orsini
	Arking		PHYSICAL FACTORS			effect of dichlorvos	
	Bryant		see specific physical agents;			Mammalia	Baksi
	Caveney		Environmental factors			effect of teratogens	
	Claxton		PHYSIOLOGY (developmental)			Mammalia	Kernis
	Schneiderman		see Embryology (experi-			endocrine activity	
	Stern		mental); Embryology			Mammalia	Hoar
	Tokunaga		(physiological)			fetal blood vessels	
Mammalia	Claxton		see also Development			Homo	Bhargava
Vertebrata	Grobstein		PIGMENT(ATION)			fluoride transfer	
			see also Chromatophore(s);			Mammalia	Shupe
			Melanophore(s);			giant cells	
			Neural crest			Mammalia	Orsini
			Amphibia	Bagnara		histochemistry	
				Brick		Homo	Hernandez
			Aves	Seiger		immune factors	
			Crustacea	Ranga		Homo	Nebel
			Insecta	Sullivan		Mammalia	Nebel
			Mammalia	LaVail		immunology	
				Mayer		Mammalia	Orsini
			Teleostei	Skinner		maternal hyperadrenalism	
				Hasegawa		Mammalia	Hoar
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							Jones
						specific proteins	
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						syncytium	
						Homo	Kaspi
						tissue relations	
						Mammalia	Alexander

transfer		Chlorophyc	Iwasa	embryo ultrastructure	
Mammalia	Fantel	Diatomeae	Iwasa	Angiosp	Bal
	Scott	Fungi	Mishra		Newcomb
	Sudarwati	Phaeophyta	Forman	embryogenesis	
transplacental carcinogenicity		chemical differentiation		Angiosp	Lakshmanan
Mammalia	Yasuda	Fungi	Jaworski	embryology	
tRNA correlated with embryo		chemical embryology		Angiosp	Norstog
Mammalia	Sirlin	Angiosp	Halperin		Ooya
ultrastructure		chemotaxis		encystment	
Mammalia	Carpenter	Acrasiales	Maeda	Fungi	Cantino
yolk sac		chloroplast		endosperm culture	
Mammalia	Hoar		Bartels	Angiosp	Iyer
	Jensh	Angiosp	Honda	enzyme	
PLACODE(S)		chromosomal proteins		Angiosp	Baba
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		Filicinae	Spiker		Bryan
		coenobia			Roberts
PLANT EMBRYOLOGY		Chlorophyc	Millington	Cyanophyc	Haselkorn
& MORPHOGENESIS		conjugation		Filicinae	Lobo
(experimental & physiol.)		Eumycetoz	Dan	ethylene	
see also Unicellular organisms		control of development		Filicinae	Miller
		Acrasiales	Robertson	experimental embryogenesis	
Acrasiales	Sussman	Hepaticae	Jones	Angiosp	Clutter
acidic nucleoproteins		Plantae	Robertson	experimental morphogenesis	
Eumycetoz	Rusch	culture in vitro		Angiosp	Narayanaswamy
aggregation		Angiosp	Lakshmanan	experimental morphology	
Acrasiales	Rothman	cytogenesis		Pteridoph	DeMaggio
anther culture		Charophyc	Imahori	Spermatoph	DeMaggio
Angiosp	Iyer	Chlorophyc	Imahori	experimental study	
apical dominance		cytokinesis		Angiosp	Lakshmanan
Angiosp	Scott		Bartels	floral organs in vitro	
apical meristem culture		Filicinae	Pray	Angiosp	Hicks
Angiosp	Narayanaswamy	cytokinins		flowering	
	Sagawa	Angiosp	Fosket	Angiosp	Lang
apomixis			Halperin	free cell culture	
Angiosp	Iyer	dedifferentiation in mesophyll		Angiosp	Narayanaswamy
auxin		Angiosp	Galun	fruit development	
Angiosp	Cleland	descriptive study		Angiosp	Dave
	Greenwood	Angiosp	Lakshmanan	fusion of protoplasts	
	Scott	development & regeneration		Angiosp	Galston
Gymnosp	Greenwood	Rhodophyc	Cleland	gametophyte	
Spermatoph	Tautvydas	developmental currents		Filicinae	Pray
biophysics & morphogenesis		Angiosp	Jaffe	gamma particles	
Plantae	Green	Phaeophyta	Jaffe	Fungi	Cantino
biochemistry		developmental physiology		genetic tumor induction	
Acrasiales	Loomis	Acrasiales	Gregg	Angiosp	Ames
Chlorophyc	Iwasa	Chlorophyc	Iwasa	genetics	
	Tautvydas	Diatomeae	Iwasa		Stern
Diatomeae	Iwasa	differentiation		Acrasiales	Anderson
Fungi	Cantino	Acrasiales	Rothman		Loomis
callus morphogenesis		Angiosp	Roberts	Angiosp	Sussman
Angiosp	Narayanaswamy	Chlorophyc	Huskey	Chlorophyc	Loy
cell culture			Iwasa	Fungi	Huskey
Angiosp	Halperin		Kirk		Brody
cell differentiation		Diatomeae	Iwasa	germination	
	Schjeide	Fungi	Cantino	Angiosp	Pant
Chlorophyc	Kochert	digitonin			Sharma
Cyanophyc	Haselkorn	Angiosp	Hanzely	goitrogens	
cell genetics system		DNA synthesis		Angiosp	Stowe
Angiosp	Galun	Angiosp	Hotta	Golgi & cell surface	
cell growth			Stern		Dauwalder
	Schjeide	dwarfism			Kephart
cell hybridization		Angiosp	Loy		Lefingwell
Angiosp	Narayanaswamy	early embryogenesis			Whaley
cell pattern in leaf		Chlorophyc	Huskey	growth	
Bryophyta	Millington	effect of sterols on growth		Angiosp	Bryan
cell shape regulation		Fungi	Norman		Cheney
Chlorophyc	Millington	effect of root on shoot		Hepaticae	Bryan
cell surface in embryogenesis		Angiosp	Seago	haploid chromosomes	
Angiosp	Clutter	embryo phenotype		Angiosp	Spiker
cell transformation		Angiosp	Halperin	Filicinae	Spiker
Angiosp	Hotta			haploids & triploids	
cell wall				Angiosp	Iyer
Angiosp	Chrispeels				
	Cleland				
	Galston				
	Hanzely				

hormones		pollen culture		tissue culture	
Angiosp	Lang	Angiosp	Narayanaswamy	Angiosp	Norstog
	Fosket	pollen tube growth		Gymnosp	Norstog
	Goldsmith	Angiosp	Sagawa	tracheids	
	Key	polysaccharides in prothallus		Angiosp	Halperin
	Narayanaswamy	Filicinae	Lobo	transcription control	
	Roberts	polytene chrom. in embryogen.		Acrasiales	Soll
	Sachs	Angiosp	Clutter	transformation in mutant cells	
indole hormones		protein secretion in vitro		Angiosp	Fosket
Angiosp	Stowe	Angiosp	Chrispeels	tropism	
inter-organ effects		protoplasts		Angiosp	Goldsmith
Angiosp	Hicks	Angiosp	Galston	tumor	
ion fluxes			Iyer		Sachs
Angiosp	Jaffe		Narayanaswamy	Angiosp	Ames
Phacophyta	Jaffe	radiobiology		vascular strand	
ionic gradients		Angiosp	Narayanaswamy	Angiosp	Baba
Angiosp	Jaffe	regeneration			Roberts
Phacophyta	Jaffe	Angiosp	Hicks		Sachs
jelly coat			Seago	wound vessel formation	
Chlorophyc	Iwasa	Gymnosp	Greenwood	Angiosp	Baba
Diatomeae	Iwasa	regulation in cultured cells			Roberts
juv. state & flowering & rooting		Mills		xylogenesi <i>s</i> in vitro	
Gymnosp	Greenwood	regulatory macromolecules		Angiosp	Roberts
leaf		Phaeophyta	Forman	zoospore phenotype factor	
Bryophyta	Millington	regulatory membranes		Fungi	Soll
leaf veins		Angiosp	Stowe	zoospore release	
Filicinae	Pray	reproductive cell determ.		Chlorophyc	Millington
leghemoglobin		Chlorophyc	Kirk		
Angiosp	Schulman	RNA synthesis		PLEURA	
light & reproduction		Angiosp	Key	see Body cavities	
Fungi	Leach	root			
lipids & membrane structure		Angiosp	Cheney	POLAR BODIES	
Angiosp	Stowe		Greenwood	see Egg(s)	
meiotic development			Hanzely		
Angiosp	Hotta	Gymnosp	Greenwood	POLARITY	
microcinematography		root nodules		see Gradient(s); Symmetry	
Acrasiales	Robertson	Angiosp	Schulman		
Plantae	Robertson	seed development		POLE CELLS	
mitosis		Angiosp	Dave	see Germ cells (primordial)	
Fungi	Fuller	sex differentiation			
molec basis of hormone action		Angiosp	Loy	POLYAMINES	
Angiosp	Galston	sex expression		see Amine(s)	
morphactins		Angiosp	Galun		
Angiosp	Hanzely	sexual development		POLYEMBRYONY	
morphogenesis		Chlorophyc	Pall		
Acrasiales	Rothman	Fungi	Norman	POLYMORPHISM	
morphogenesis & biochemistry		sexual differentiation			
Fungi	Brody	Filicinae	Furuya	Insecta	Azencot
motile cells		shoot apex			Beig
Fungi	Fuller	Angiosp	Dave		Camargo
mutants		Bryophyta	Millington		Dixon
Angiosp	Newcomb	side-body			Kerr
Chlorophyc	Kirk	Fungi	Cantino		Lensky
	Pall	spore			Shkolnik
Fungi	Mishra	Fungi	Cantino	Rotifera	Birky
nectaries			Leach		
Angiosp	Dave	sporeling morphogenesis		POLYPEPTIDES	
ovule formation		Charophyc	Imahori	see Proteins	
Angiosp	Sagawa	sporophyte			
photocontrol of development		Filicinae	Pray	POLYPLOIDY	
Angiosp	Butler	stationary phenotype factor			
photomorphogenesis		Acrasiales	Soll	Aves	Bloom
Fungi	Galun	stomata		Lamellibr	Longo
photosynthesis & development		Angiosp	Dave	Mammalia	Longo
Spermatoph	Butler	surface membrane structure			Sherman
physiology		Acrasiales	Gregg	Teleostei	Rasch
Angiosp	Lang	suspensor			
phytochrome		Angiosp	Newcomb	POLYSACCHARIDES	
Angiosp	Galston	temperature & reproduction		see Carbohydrate(s)	
Spermatoph	Butler	Fungi	Leach	POSTEMBRYONIC	
phytosterols		tendril morphogenesis		DEVELOPMENT	
Angiosp	Pant	Angiosp	Dave	see Development (post-embryonic, fetal)	
	Sharma				

POTENCY see Embryology (experimental) see also Determination; Pattern formation; Regulation	changes in development Amphibia Spiegel Echinoidea Spiegel chromosomal Insecta Gay Imberski Rae Kinoshita Rae	Mammalia Huang Pagano juv. horm. transp. & action Insecta Ferkovich Weirich
PREGNANCY see also Embryo-maternal relationships; Placenta(tion)	Mammalia	kidney tubulogenesis Mammalia Unsworth lipo- in lung tissue Mammalia Vidic $\alpha$ -2-macroglobulin Mammalia Heim membrane biogenesis Mammalia Chepenik metamorphosis Amphibia Nagano Shukuya
Homo Balakrishnan Robinson Mammalia Daniel Daniel Hunt Kimmel Orsini Robkin Marsupialia Walker	cleavage Echinoidea Wilt cortisol receptor in retina Aves Piperberg crystallin Amphibia McDevitt Aves Beebe Piatigorsky Zelenka	microheterogeneity Mammalia Zimmerman mitochondrial Amphibia Swanson mitochondrial-cytopl. coordin. Amphibia Swanson mitotic apparatus Echinoidea Miki
PRESSURE see also Environmental factors	cultured cleavage stages Mammalia Pollard	muscle Aves Herrmann mutant egg shells Insecta Goldsmith nuclear Amphibia Kleinsmith Jones Kasinsky Landesman
PRIMITIVE STREAK see also Blastoderm	cuticular Insecta Pant Willis	nucleoproteins in larva Insecta Rasch
PRIMORDIAL GERM CELLS see Germ cells (primordial)	developmental changes Amphibia DiBerardino	ontogeny Teleostei Wilde passage into early embryo Mammalia Kulangara passage into uterine fluid Mammalia Kulangara
PROLIFERATION see Mitosis	early development Amphibia Thompson Gastropoda Rubin effect of diet on parotid Mammalia Redman	phosvitin Aves Kobayashi placenta-specific Mammalia Behrman proline & limb development Mammalia Kochhar regulation in metamorphosis Crustacea Laufer Insecta Laufer
PRONEPHRIC DUCT see Urogenital system	effect of hormones Insecta Shaaya	relation to differ. in vitro Aves Klein relation to growth in vitro Aves Klein
PRONEPHROS see Kidney(s)	effect on larval growth Insecta Davis	ribosomal Amphibia Caston Landesman Kiefer
PROSPECTIVE MAPS see Embryology (experimental)	egg Echinoidea Miki	salivary gland Insecta Ellgaard secretion by corneal epith. Aves Hay selection by blastocyst Mammalia Kulangara
PROSTAGLANDIN	egg shell Insecta Pant	serum Amphibia Nagano Shukuya Aves Heim Mammalia Heim
Aves Kischer Persaud Mammalia Kischer Persaud	embryo Echinoidea Infante embryonic & yolk Teleostei Yamagami eye lens regeneration Mammalia Angra	silk gland Insecta Pant Sharma Somatomedin & proliferation Aves Temin
PROTEIN(S) (incl. Peptides & Polypeptides)	female-specific Insecta Lensky Shkolnik	
absorption by fetus Homo Lev Mammalia Lev	fertilization Echinoidea Hori Teleostei Hori	
after nuclear transplantation Amphibia Legname	$\alpha$ -fetoprotein Mammalia Zimmerman	
albumen Aves Nonami	fibroin Insecta Gage Greene	
albumin synth. in liver cells Mammalia Hosick	fibroin gene Insecta Morrow	
axonal Mammalia Lasek	genetic regulation Kleinsmith	
basic in egg Amphibia Kong	genetics Teleostei Whitt	
biochemistry Echinoidea Kanki	glycoproteins Amphibia Hamada Mammalia Weinstock	
blastocyst Mammalia Kulangara	hemocyanin Crustacea Kerr	
brain Vertebrata Jacobson	hormonal control in liver Mammalia Hosick	
catalogue & timing Teleostei Piperberg	inhibitors Aves Khan	
cell differentiation Teleostei Whit	interactions in development Mammalia Hassell	
cell division Aves Emerson	interaction with lipids Aves Huang Pagano	

Mammalia submandibular gland	Tennin	REGENERATION (physiological)		effect of colchicine	Turbellaria Sugino
Mammalia synaptic	Bressler			effect of LiCl	
Mammalia synthesis	Korngruth	Mammalia	Bertalanffy Chase McGarry Yamaguchi Maderson	Hydrozoa	Yasugi
	Swift			effect of limb blastema	Amphibia Dinsmore
Amphibia	Wu	Reptilia		effect of nucleic acids	Amphibia Wolsky
	Crawford			effect of small X-ray doses	Amphibia Wolsky
Insecta	Thompson	REGENERATION (traumatic)		effect of ultrasound	Amphibia Wolsky
Teleostei	Wyatt	see also Interstitial cells;		effect of vitamins	Amphibia Wolsky
	Crawford	Unicellular organisms;		effect on moulting	Amphibia Niazi
synthesis & nuclear RNA	Purko	Wound healing		Crustacea	Madhavan
Echinoidea	Allen	Amphibia	Richards Singer Shulov	effect on tumour	Mammalia Mizell
synth. & transp. in oogenesis	Wyatt	Arachnida	Burdon Ohsaki	Mammalia	Bromley
synthesis by follicle cells		Hemichorda	Iwata	Amphibia	Kollros
Insecta	Goldsmith	Hydrozoa	Bilgees Freeman	Teleostei	Liversage
synthesis in early development		Nemertea	Asai	Amphibia	Niazi Schmidt
Gastropoda	Collier	Trematoda	Asakura		Tassava
Mammalia	Prasad	Tunicata	Hori		Van Stone
synthesis in embryo		Turbellaria			Waterman
Amphibia	Greenhouse				Mammalia Beresford
	Hampel	biochemistry			Reptilia Jaysree
Echinoidea	Greenhouse	Amphibia	Foret Schmidt Stocum		Teleostei Liversage
synth. in mammary epith.	Humphreys		Holland Skinner		epidermal chalones
Mammalia	Hosick		Angra		Mammalia Yamaguchi
synthesis in metamorphosis		Crustacea			Teleostei Hasegawa
Insecta	Wyatt				Turbellaria Kishida
synthesis in organogenesis		Mammalia			Amphibia Eguchi
Insecta	Berry	blastema culture			Amphibia Eisenberg
synthesis in polytene chrom.	Pavan	Amphibia	Foret Hamada		Kato Reyer
Insecta					Watanabe
synthesis inhibitors		bone			Mammalia Angra
Echinoidea	Cheney	Mammalia	Urist		eye lens from cornea
synthesis regulation		bone callus			Amphibia Beebe
	Ilan	Mammalia	Deck		fins
translational control		cell & tissue ultrastructure			Teleostei Weis
Aves	Stern	Amphibia	Schmidt		growth control
Mammalia	Hosick				Mammalia Argyris
transl.-transcr. coupling	Wu	cell culture			I-cells
		Turbellaria	Nentwig		Hydrozoa Kido
tubulin		cell migration			in vitro system
Echinoidea	Kuriyama	Hydrozoa	Diehl		Turbellaria Nentwig
	Miki	cell origin			initiation of DNA synthesis
	Sakai	Hydrozoa	Tweedell		Amphibia Tassava
Mammalia	Miki	Polychaeta	Hill		Amphibia Tassava
turnover in muscle		cell potency			Amphibia Scadding
Aves	Love	Reptilia	Cox		Amphibia Grubb
uterine		cell surface changes			Amphibia Eisenberg
Mammalia	Maurer	Amphibia	Eisenberg		Amphibia Eisenberg
vitellogenin	Schuetz	cilia			Amphibia Eisenberg
		Echinoidea	Lindsay		Amphibia Eisenberg
		collateral nerve sprouting			Amphibia Eisenberg
		Mammalia	Tweedle		Amphibia Eisenberg
		cornea in vitro			Amphibia Eisenberg
PROTOZOA		Amphibia	Beebe		Amphibia Eisenberg
see Unicellular organisms		corr. with lens induction			Amphibia Eisenberg
		Amphibia	Reyer		Amphibia Eisenberg
RADIATION		de- & redifferentiation			Amphibia Eisenberg
see Irradiation		Amphibia	Hearson		Amphibia Eisenberg
		dental lamina			Amphibia Eisenberg
RADIOMIMETIC AGENTS		Amphibia	Graver		Amphibia Eisenberg
		determination of blastema			Amphibia Eisenberg
REAGGREGATION		Amphibia	Bryant		Amphibia Eisenberg
see Cell(s)		effect of antibiotics			Amphibia Eisenberg
		Amphibia	Wolsky		Amphibia Eisenberg
REARING METHODS		effects of antimetabolites			Amphibia Eisenberg
		Amphibia	Wolsky		Amphibia Eisenberg
Amphibia	Nace	effect of chemicals			Amphibia Eisenberg
Chiroptera	Rasweiler	Echinoderm	Hein		Amphibia Eisenberg
Insecta	Rosales	Turbellaria	Hein		Amphibia Eisenberg
Polychaeta	D'Asaro				Amphibia Eisenberg
	Mazurkiewicz				Amphibia Eisenberg

Amphibia (cont'd)		regenerative capacity & N.S. Turbellaria	Nentwig	Turbellaria	Coward Hay
	Hearson	regulation in blastema	Amphibia	visual pathway	
	Kollros	Amphibia	Bryant	Amphibia	Sharma
	Michael	relation with moult	Crustacea	Teleostei	Sharma
	Niazi	Crustacea	Holland	Vertebrata	Goldberg
	Robinson		Skinner		
	Scadding	restoration	Amphibia	REGULATION (embryonic)	
	Singer	Amphibia	Aziz	Aves	Dubey
	Tweedle		Michael		
	Waterman	retina	Amphibia	REPRODUCTION (asexual)	
	Weis	Amphibia	Keefe	see Asexual reproduction	
Crustacea	Weis	Aves	Reyer		
Mammalia	Deck	Mammalia	Keefe	REPRODUCTION (sexual)	
	Mizell	Vertebrata	Keefe	see also Egg(s); Fertility (& sterility); Fertilization; Reproductive system; Spermatozoa etc.	
liver		RNA turnover	Goldberg		
Mammalia	Stern	Amphibia	Hay		
Vertebrata	Terayama	Turbellaria	Hay		
	Asnani	role of cell types			
	Bonny	Hydrozoa	Diehl	Chiroptera	Uchida
	Shah	role of glycoproteins	Amphibia	Gastropoda	D'Asaro
lung		Amphibia	Hamada	Insecta	Mochida
Amphibia	Graver	role of mesoglea & perisarc	Hydrozoa	Polychaeta	Dean
	Wilde	Hydrozoa	Diehl	Primates	Butler
lymph gland		role of nervous system	Amphibia	Teleostei	Donaldson
Vertebrata	Asnani	Amphibia	Bromley	artificial insemination	
	Bonny		Hearson	Homo	Francoeur
	Shah		Liversage	Mammalia	Hamner
$\alpha$ -2-macroglobulin			Scadding	cervical mucus	
Mammalia	Heim		Singer	Mammalia	Coelingh
mammary gland			Tassava	constant estrus & oogenesis	
Mammalia	Hoshino	Mammalia	Tweedle	Mammalia	Segal
mitosis in liver			Carlson	cycle	
Mammalia	Bertalanffy		Deck	Anomura	Haley
molecular & cellular events			Liversage	early embryo preservation	
Amphibia	Eguchi	Teleostei		Mammalia	Thompson
morphogenesis		role of RES	Mammalia	effect of cadmium	
Amphibia	Stocum	Amphibia	Stern	Teleostei	Sanford
muscle		role of RNA		effect of chemicals	
Amphibia	Carlson	Amphibia	Tassava	Insecta	Grosch
	Deck	Mammalia	Hoshino	effect of gonads	
	Dinsmore	satellite cell in limb muscle	Amphibia	Aves	Kamar
Aves	Konigsberg	Amphibia	Dinsmore	effect of heavy metals	
Mammalia	Carlson	Mammalia	Dinsmore	Vertebrata	Birge
	Schmidt	scales	Teleostei	effect of irradiation	
myogenic cell lines		Teleostei	Asakura	effect of space flight	
Reptilia	Cox		Nussbaum	Insecta	Grosch
neoblasts		spleen		Insecta	Grosch
Turbellaria	Kido	Vertebrata	Asnani	effect of temperature	
	Kishida		Bonny	Aves	Boone
nerves			Shah	embryo transfer	
Amphibia	Mark	stability of phenotype	Turbellaria	Mammalia	Thompson
Aves	Erhart	Turbellaria	Coward	endocrinology	
	Ferreira	stem cells	Amphibia	Amphibia	Jacobson
Mammalia	Erhart	Turbellaria	Coward	Aves	Jacobson
	Tweedle	supernumerary limbs	Carlson	Crustacea	Kamar
Teleostei	Mark	Amphibia		Insecta	Madhavan
nerve fibre patterns		tail	Amphibia	Hickey	Ewen
Amphibia	Hearson	Amphibia	Hickey	Niazi	Staal
olfactory nerve fibres		Reptilia	Cox	Hiradhar	Warren
Teleostei	Westerman		Jayshree	Mammalia	Lu
optic nerve			Maderson	Teleostei	Scott
Amphibia	Jacobson		Radhakrishnan	Yamamoto	Traurig
Teleostei	Jacobson		Ramachandran	environmental factors	
	Weis		Shah	Aves	Kamar
	Westerman		Werner	estrus cycle in alloxan diabet.	
os priapi		tail polarity	Reptilia	Mammalia	Hunt
Mammalia	Beresford	Reptilia	Bryant	functional morphology	
pancreas		tentacles	Hydrozoa	Insecta	Ewen
Vertebrata	Shah	Hydrozoa	Heath	marine species	
pigmentation		ultrastructure	Amphibia	Invertebr	Fernald
Crustacea	Ranga	Amphibia	Hay		
proliferation					
Amphibia	Hearson				
redifferentiation	of blastema				
Amphibia	Bryant				





SEMEN  
see Reproduction (sexual)

SENSE ORGANS  
see also specific organs;  
Placodes

Amphibia Hibbard  
Kawakami  
Oppenheim  
Aves Hild  
Mammalia Hild  
Invertebr Eakin

SERUM  
see Blood

SEX CHROMATIN  
see Nucleus

SEX DETERMINATION  
see also Sexual development

Amphibia Richards  
Homo Moore  
Insecta Camargo  
Kerr  
Postlethwait  
Poulson  
Mammalia Moore

SEX DIFFERENTIATION  
see Sexual development

SEX HORMONES  
see Hormones

SEX-RATIO  
see Sexual development

SEX-REVERSAL  
see Sexual development

SEXUAL DEVELOPMENT  
see also specific sex organs;  
Reproductive system;  
Sex determination

Vertebrata Asayama  
endocrinology  
Aves Noumura  
Robertson  
Mammalia Noumura  
Teleostei Huang  
Takahashi  
experimental study  
Amphibia Hsu  
Liang  
hermaphroditism  
Mammalia Allison  
Gumbreck  
Whitten  
sex differentiation  
Amphibia Iwasawa  
Kawamura  
Nishioka  
Teleostei Hishida  
Takahashi  
sex ratio & karyotype  
Homo Sasaki  
sex reversal  
Teleostei Hishida  
spontaneous chimeras  
Mammalia Whitten

SHELL  
see Egg(s); Integument

SHELL GLAND  
see Integument; Oviduct

SHOULDER GIRDLE  
see Skeleton

SKELETON  
see also specific parts;  
Bone(s); Cartilage

Echinoidea Uemura  
Mammalia Schryver  
calcitonin teratogenesis  
Mammalia Asling  
exostosis  
Mammalia Shupe  
fracture healing & sex hormones  
Mammalia Beresford  
hormonal control  
Aves Hall  
limb  
Aves Goff  
Homo Gray  
malformations  
Homo Carmona  
Tanaka  
ossification  
Homo Meyer  
Mammalia Sekeles  
Urist  
ossification age  
Homo Jit  
osteopetrosis in mutants  
Mammalia Hollinshead  
rib joints  
Homo Gray  
spicule formation  
Echinoidea Herold  
Okazaki  
teratogenesis  
Mammalia Terashima  
ultrastructure in metamorphosis  
Amphibia Kemp  
variation between litters  
Mammalia Evans  
variation due to uterine posit.  
Mammalia Evans  
vertebral column  
Homo Gray

SKIN  
see also Epidermis; Integu-  
ment; Pigment(ation);  
Wound healing

Amphibia Dent  
Fry  
Kollros  
Gopinath  
Ide  
Kischer  
Kollar  
Carmona  
Hashimoto  
Mammalia Carmona  
Hardy  
Kischer  
Kollar  
Quevedo  
Reams  
Skinner

Reptilia  
Teleostei  
Mulherkar  
Krejsa

SKULL (& visceral skeleton)  
see also Chondrocranium

Actinopter  
Amphibia  
Aves  
Elasmobr  
Homo  
Mammalia  
Reptilia  
Vertebrata  
Jollie  
Graver  
Grubb  
Toerien  
Barnard  
Burd  
Coulombre  
Toerien  
Jollie  
Enlow  
Beresford  
Lucif  
Kollar  
Ross  
Toerien  
Toerien  
Jollie

SLIME MOLDS  
see Plant embryology &  
morphogenesis

SOMATIC MUTATIONS  
see Genetics

SOMATIC RECOMBINATION  
see Cell heredity

SOMITE(S)

Amphibia Jacobson  
MacDonald  
Allen  
Aves Jacobson  
Memikoglu  
Minor  
Packard

SPERMATOGENESIS  
see also Gametes

Insecta Kiefer  
Mammalia Guraya  
Schuetz  
cell culture  
Mammalia Schuetz  
cell surface antigens  
Mammalia Bennett  
Bovarnick  
cytochemistry  
Anderson  
cytogenetics  
Mammalia Hrudka  
effects of mutants  
Mammalia Doohar  
effects of vascular occlusion  
Mammalia Lakshmanan  
endocrinology  
Insecta Kambysellis  
Mammalia Schuetz  
fate of polar granules  
Insecta Schwalm  
genetic control  
Insecta Tokuyasu  
germinal epithelium cycle  
Mammalia Lakshmanan  
histochemistry  
Mammalia Hrudka



centrioles		ribosomes		TERATOGENESIS (experimental)	
Echinoidea	Harris	Amphibia	Caston	see also specific teratogenic	
contractile apparatus		Aves	Emerson	agents; Anomalies (early	
Echinoidea	Schroeder	Insecta	Allen	development); Drugs;	
germinal plasm			Kiefler	Malformations; Pathology;	
Amphibia	Ikenishi		Wyatt	Thalidomide; specific organs	
Golgi complex		Mammalia	Argyris		
Echinoderm	Dan				
Lamellibr	Dan	SUBCOMMISSURAL ORGAN		Aves	Fritz
Teleostei	Dan	see Brain		Mammalia	Martin
laser microbeam	irradiation				Bryden
Amphibia	Berns	SUCKER			Fritz
Mammalia	Berns	see Gland(s)-adhesive			Martin
lysosomes				Vertebrata	Singh
Amphibia	Decker	SUGARS		aluminium	
Aves	Decker	see Carbohydrate(s)		Mammalia	Persaud
Insecta	Butterworth			6-aminonicotinamide	
Mammalia	Traurig	SULPHYDRYL GROUPS		Mammalia	Chamberlain
membranes				anophthalmia	
Amphibia	Tupper	Amphibia	Norman	Mammalia	Chase
	Goldhor	Aves	Mulherkar	antimetabolites	
	Schuetz		Rao	Echinoidea	Skalko
Asteroidea	Schuetz			Mammalia	Skalko
Mammalia	Chepenik	SWIM BLADDER		antisera	
microfilaments		see Lungs		Mammalia	Jensh
Echinoidea	Schroeder			axial organs	
microfilaments in cell movem.	Trinkaus	SYMBIOSIS		Aves	Hughes
microsomes in liver		see also Mycetome		Homo	Hughes
Mammalia	Nakazawa	SYMMETRY (& asymmetry)		Mammalia	Hughes
	Yukawa	see also Gradient(s)		bio-energetics	
microtubules				Aves	Kaplan
Aves	Trinkaus	Aves	Eyal	blood-brain barrier	
Echinoidea	Piatigorsky		MacCabe	Mammalia	Nakamura
Mammalia	Sakai		Rubin	brain	
Mammalia	Rosenbaum	Mammalia	Layton	Mammalia	Hayashi
mitochondria		Vertebrata	Wilde		Inouye
Amphibia	Salomon				Murakami
Mammalia	Leeson	TAIL		cAMP	
mitochondria & chemicals		see also Regeneration		Insecta	Francoeur
Echinoidea	Herold	(traumatic)		Teleostei	Fiorentini
mitochondria & development					Francoeur
Insecta	Warren	Amphibia	Fry	carbonic anhydrase inhibitors	
mitochondria in development			Hickey	Mammalia	Layton
Insecta	Amy		Ito	cell reaggr. as model system	
mitochondria in intestine			Kaltenbach	Hydrozoa	Ceron
Amphibia	MacDonald		Kato	cell surface lipids	
mitochondrial biogenesis			Niazi	Echinoidea	Barber
Amphibia	Swanson	Aves	Goldie	cellular action	
mitochondrial differentiation		Reptilia	Werner	Aves	Packard
Mammalia	Boell	Teleostei	Kemp	centrifugation & temperature	
mitoch. energy transfer				Insecta	Yajima
Mammalia	Nakazawa	TEMPERATURE		chelating agents	
mitochondrial nucleic acids		see also Environmental factors		Mammalia	Kimmel
Amphibia	Dawid			chemical protection	
	Kaushagen	Aves	Azoubel		Kernis
	Ohi		Boone	chemicals	
	Swanson		Dubey	Aves	Watterson
	Upholt		Patil	Homo	Nishimura
Homo	Nagata	Echinoidea	Brookbank	Mammalia	Inouye
	Upholt	Insecta	Brust		King
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# BOOK NOTICES

Most of these notices are descriptive rather than critical. Their main aim is to provide an idea of the scope and potential usefulness of the books. All notices (unless signed) are written by the editor; if necessary he solicits the opinion of the staff of the Hubrecht Laboratory or of other specialists.

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*Collections of papers*: containing original research papers by various authors, or reprintings of papers by one author

*Books of readings*: containing reprintings of papers by various authors

*Reference works*: incl. glossaries, data books, source books, etc.

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1.  
P.FIORONI. 1973. EINFÜHRUNG IN DIE EMBRYOLOGIE  
BLV Verlagsgesellschaft, München, etc. Serie Moderne Biologie. 183 pp., 73 figs.,  
21 tabs., subject index. DM 25,- (paper)

The author of this introductory text has set himself the ambitious task of treating all the major aspects of metazoan development in a single short book. The result could be very useful to the really keen student, but may make too difficult reading for the average one. The text is extremely compact, packed with facts and concepts, but clearly organized. An almost equal amount of information is condensed into the numerous tables and the massive figure legends. It certainly is not an exciting book, but the amount of knowledge amassed in such a short space is impressive. The treatment is of course selective but scholarly and fairly up to date.

The main emphasis is morphological and comparative. Much more attention than is usual in such books is paid to invertebrates, particularly arthropods and molluscs. Two short chapters deal, on the whole admirably, with morphogenetic and regulatory principles, respectively. They are largely based on the classical literature of experimental embryology. The next two chapters each occupy about 50 pages. The first treats development from the egg to the adult (with emphasis on the establishment of the general body plan, and with organogenesis restricted to the eye). The second deals extensively with larval development, embryonic nutrition, and metamorphosis. A final short chapter is concerned with the relationships between ontogeny and phylogeny.

The illustrations consist of line drawings and photographic plates. The former are very good, though sometimes on a rather small scale. Of the photographs, those of whole mounts are very instructive; those of sections demand rather much histological experience of the student.

2.  
J.LASH and J.R.WHITTAKER, eds. 1974. CONCEPTS OF DEVELOPMENT  
Sinauer, Stamford. X,469 pp., 213 figs., 20 tabs., author and subject index. £ 7.60

*Contents:* 1. Gametogenesis; 2. Fertilization; 3. Cleavage; 4. Molecular mechanisms of cellular differentiation; 5. Molecular basis of embryogenesis; 6. Gastrulation and cell interactions; 7. Erythroid cell differentiation; 8. Aspects of differentiation and determination in pigment cells; 9. Regulation of the cell cycle and myogenesis by cell-medium interaction; 10. Tissue interactions and related subjects; 11. Morphogenesis of vertebrate organs; 12. Time flow in differentiation and morphogenesis; 13. Development of immunity; 14. Immunological tolerance and its possible role in development; 15. Developmental enzymology; 16. Developmental endocrinology; 17. Developmental genetics; 18. Congenital malformations; 19. Cellular basis of regeneration; 20. Aging

This multi-author text is a remarkable book. It is not a textbook in the conventional sense but is perhaps best characterized as a selective advanced lecture course in book-form on animal developmental biology. Its outstanding features are authority, topicality, and clarity of presentation. Of the 22 authors 18 are American, two Canadian, one English, and one Australian. All are recognized authorities in the field they cover.

The chapters range in length from ca. 15 to ca. 30 pages (except ch.1, which covers 45 pages). It will therefore be clear that the approach within each chapter is equally selective as that of the book as a whole. However, this is more than made good by the emphasis on unifying concepts in almost all chapters and the originality of approach in several. Moreover, the treatment is surprisingly up to date. Thus every advanced student, and indeed many researchers will be enriched and stimulated by its perusal.

The book is exceedingly well printed and illustrated. Cross-referencing and indexing are extensive.

3.

V.SCHWARTZ. 1973. VERGLEICHENDE ENTWICKLUNGSGESCHICHTE DER TIERE, ein kurzes Lehrbuch  
Thieme, Stuttgart. VIII,414 pp., 289 figs., combined subject and taxonomic index.  
DM 16.80 (paper)

This concise textbook can be very useful not only for students but also for researchers, considering the surprising lack of comparative-embryological knowledge one often encounters. It is amazing that no modern textbooks of this kind exist in English, and an English translation would certainly find a market.

The book bears the mark of careful consideration of what to select from this vast area. Its organization is original and the author has not shunned the presentation of new viewpoints wherever he deemed it necessary. A special feature is the inclusion of a brief chapter on cell division and differentiation in Protozoans. The cautious phylogenetic interpretations are based on Remane's trimerism hypothesis.

The general part (112 pp.) deals in concise form with the following subjects: the developmental programme, nucleus and cytoplasm, cellular differentiation (followed by the chapter on Protozoans mentioned above), the germ line, embryogenesis, blastogenesis (asexual reproduction), special aspects of the latter two processes, and the evolution of basic body form. Data from developmental physiology are added wherever necessary.

The interlude which follows (17 pp.) deals with the phylogenetic interpretation of embryonic and larval stages. Then follows the special part, arranged as follows: *Porifera*, *Coelenterata*, *Bilateria - Protostomia*, and *Bilateria - Deuterostomia*. In the section on protomians the normal systematic order is abandoned, partly because of the requirements of the underlying trimerism hypothesis, and partly because the criteria of ordering are based on ontogenetic stages, not on the adult forms.

The book is profusely illustrated with excellent line drawings, all redrawn and simplified if necessary. The selective bibliography is adequate for students but the researcher who uses the book would require some more literature. The book is well produced and surprisingly cheap.

4.

F.SEIDEL. 1972. ENTWICKLUNGSPHYSIOLOGIE DER TIERE. I. Ei und Furchung  
2nd. ed.  
de Gruyter, Berlin, etc. Sammlung Göschen Band 7162. 234 pp., 51 figs., author and subject indexes. DM 14.80 (paper)

This is the second edition of a short text which first appeared 20 years ago. (Part II is not yet available for review.) Although the major subdivisions have been retained, the book has been considerably expanded; beside a judicious selection from the classical data it also treats the most important recent experimental and molecular advances. The text is compact but well written and clearly organized (however, the style is personal and typically German, and might present difficulties to non-German readers). Because the author always starts from observations and experiments, the student gets a good impression of the characteristic working methods of the developmental biologist. At the same time, much care is devoted to the definition of concepts, and the vast gaps in our knowledge are pointed out.

The approach in part I is general rather than comparative. The main chapters consecutively deal with the localization of developmental factors in the egg nucleus; the structure and morphogenetic properties of the egg cytoplasm; nucleocytoplasmic interactions in the uncleaved and cleaving egg; and the reaction of the egg and early embryo to external influences (including fertilization and parthenogenesis). A final chapter deals with the more theoretical aspects of egg organization (e.g. regulation, egg types, axial organization, symmetry and asymmetry). This thoughtful chapter is opened by a section on the methodology of developmental physiology, and also devotes attention to the history of important present-day concepts. It could be read with profit by advanced students and active researchers.

The book is illustrated with very good original line drawings. Although authors' names are mentioned in the text, there are no literature references in part I (there will be a list of books and review articles in part II). The book is concluded by a very useful glossary.

5.  
S.J.COWARD, ed. 1973. DEVELOPMENTAL REGULATION, aspects of cell differentiation  
Academic Press, New York, etc. Cell Biology: A Series of Monographs. XII, 266 pp.,  
80 figs., 9 tabs., author and subject indexes. \$ 21.50, £ 10.30

*Contents:* 1. RNA and protein synthesis during early animal embryogenesis (Humphreys); 2. Developmental regulation in cotton seed embryogenesis and germination (Dure); 3. Plant hormones and developmental regulation: role of transcription and translation (Key & Vanderhoef); 4. Transitions in differentiation by the cellular slime molds (Gregg & Badman); 5. Metabolism, cell walls, and morphogenesis (Brody); 6. Colony differentiation in green algae (Kochert); 7. Myogenesis: differentiation of skeletal muscle fibers (Lentz); 8. Some comparative aspects of cardiac and skeletal myogenesis (Manasek); 9. Chondrogenesis (Searls)

Developmental biology more and more becomes a unifying discipline transcending the boundaries of classical compartments such as zoology, botany, and microbiology. It is therefore fortunate that the present book contains four chapters dealing with animal material, two dealing with higher plants, and three with organisms of a comparatively low degree of organization.

All contributors are Americans. All chapters are up to date and well organized and most suggest new ideas. In most chapters the discussion is on the biochemical, genetic, and cytological level, but some treat organismal factors as well.

The book is well produced and well illustrated.

6.  
G.D.TUMANISHVILI and N.V.SALAMATINA. 1973. DIFFERENTIATION, GROWTH, AND CELL INTERACTION (in Russian)  
Metsniereba, Tbilisi. 198 pp., 57 figs.

Research monograph with the following chapters: Preliminary remarks (34 pp.); Differentiation and growth (59 pp.); Fundamental types of intercellular interactions (62 pp.); Additional considerations on the problems of differentiation, growth, and intercellular interactions (12 pp.); 18-page bibliography (6 pp. of older and recent Russian literature).

## **THEORETICAL AND MATHEMATICAL DEVELOPMENTAL BIOLOGY** (see also 72)

### *Monographs*

7.  
H.H.PATTEE, ed. 1973. HIERARCHY THEORY, the challenge of complex systems  
G.Braziller, New York. XVI, 156 pp., 9 figs. \$ 6.95 (cloth), \$ 2.95 (paper)

*Contents:* 1. The organization of complex systems (Simon); 2. Hierarchical order and neogenesis (Grobstein); 3. Hierarchical control programs in biological development (Bonner); 4. The physical basis and origin of hierarchical control (Pattee); 5. The limits of complexity (Levins); Postscript: Unsolved problems and potential applications of hierarchy theories (Pattee)

This book arose out of a series of public lectures. One of the main aims of the lectures was to emphasize the fundamental necessity of hierarchical control in all living organizations. The essays are written in simple, non-technical language and serve admirably as an introduction to this important area. No comprehensive bibliographies are provided. The authors are physicists, biologists, and systems theorists. In several essays the computer as a hierarchical system is stressed as an analogue to living organizations.

Chapters 2, 3, and 5 are of the most immediate appeal to biologists. Whereas the first two are concerned with development from the relatively simple to the complex, the last focusses primarily on evolution and stresses that complex systems tend to evolve into hierarchies by a process of self-simplification. The postscript among other things elaborates the view that the relation between the structural and descriptive levels (between matter or event, and symbol) is the central problem for a hierarchy theory of the future. This discussion has pronounced philosophical aspects.

## **PLANT DEVELOPMENT (general) (see also 5,64,78)**

### *Textbooks*

8.

D.HESS. 1972. PFLANZENPHYSIOLOGIE, Molekulare und biochemisch-physiologische Grundlagen von Stoffwechsel und Entwicklung, 2nd edit.

Eugen Ulmer, Stuttgart. Uni-Taschenbücher 15. 373 pp., 248 figs., 11 tabs., subject index. DM 19.80 (paper)

Although the first edition of this concise textbook appeared already in 1970 and the present edition in 1972, we consider it important enough to provide a brief characterization. The author has earlier written a book on biochemical genetics. The book presents an integrated, modern treatment of the general and developmental physiology of higher plants, each of which occupies about half of the space available. The text reads very easily.

The first ten chapters are devoted to general physiology and start from the heterocatalytic function of DNA. The remaining nine chapters deal with all major aspects of development, again with DNA replication as the connecting thread. There are separate chapters on, among other things, growth by cell division, differential gene activity, gene regulation, and polarity and unequal cell division. The consideration of the more strictly metabolic aspects of development, with cross references to the first part of the book, serves the author's integrative approach very well.

The book is very well illustrated and has a good reading list.

9.

J.L.RIOPEL. 1973. EXPERIMENTS IN DEVELOPMENTAL BOTANY

Brown, Dubuque, Iowa. VIII, 134 pp., 57 figs., 24 tabs. \$ 3.95 (spiral bound)

*Contents:* 1. Organization of higher plants; 2. Plant cell structure; 3. Plant nutrition: growth of whole plants; 4. Plant nutrition: growth of organs; 5. Plant nutrition: growth of cells; 6. Cell differentiation: morphological expression; 7. Cell differentiation: experimental systems; 8. The flower: beginning of the cycle; 9. The embryo; 10. Seed germination; 11. Primary meristem; 12. Root structure and development; 13. Stem structure and development; 14. Secondary growth

This laboratory manual has grown out of the experience gained in actual one-semester courses. It makes a good impression, but of course its usefulness for a particular course can only be tested in practice. Special features are questions for discussion, lists of further reading, and the inclusion of facsimile reproductions of half a dozen research papers (authors: Burns & Ingle, Kuehnert, Lescure, Sobota & Partanen, Steeves, Wardlaw). Each exercise requires one to three sessions of 3-4 hours each, and each has a short theoretical introduction.

The manual is illustrated with good line drawings and photographs. An appendix lists practical comments and guidelines, as well as procedures for handling living material and sources of equipment, supplies and material. The book is concluded by a glossary.

10.  
R.SATTLER. 1973. ORGANOGENESIS OF FLOWERS, a photographic text-atlas  
Univ. of Toronto Press, Toronto. XXVI, 208 pp., 1056 figs. \$ 27.50

This book is unique in its kind. It illustrates floral organogenesis in 50 selected species belonging to 43 families and 32 orders of the Angiosperms (11 mono- and 39 dicotyledons). The photographic material was obtained by means of the dissection technique and emphasizes differential growth in the developing flower bud. No histological sections are included. The author stresses that the book is only a beginning. No attempt is made at a unified interpretation; this is left to the reader. Much of the material was contributed by the author's associates and students at McGill University.

The material of each species is presented in the same format: floral diagram, floral formula, sequence of primordial inception, brief description of floral organogenesis, other authors, bibliography, and photographs. The latter contain much more information than is included in the text.

Almost all photographs are of really stunning quality, and are meticulously labelled and captioned. The production and lay-out of the book are excellent and esthetically pleasing.

*Symposium reports*

11.  
J.M.ASHWORTH and J.E.SMITH, eds. 1973. MICROBIAL DIFFERENTIATION  
Cambridge Univ. Press, London, etc. X, 450 pp., 63 figs., 30 pls., 11 tabs., combined  
subject and taxonomic index. £ 7.00, \$ 21.00

The appearance of this volume is a welcome event. Never before has so much information on the differentiation of micro-organisms (in the broad sense) been brought together in one book, and it is sure to serve as an eye-opener to most developmental biologists. The introduction by Bonner and the 14 reviews were presented at a symposium held in London in April 1973. Of the 26 contributors the majority were British; seven came from the U.S.A., two from the European continent, and one from Israel.

The reviews are well written and clearly organized. We will restrict ourselves to mentioning the organisms treated. These include both prokaryotes and eukaryotes: bacteria, *Myxobacteria*, *Actinomycetes*, blue-green algae, yeast, *Fungi* (including *Mucorales* and *Aspergilli*), *Trypanosomatidae*, *Physarum*, and *Dictyostelium*. Morphology, physiology, and biochemistry are duly considered in all instances, and genetic aspects wherever possible.

The book is well produced and very well illustrated. The numerous photographs and electron micrographs are of top quality.

12.  
E.F.CORTI and G.SARFATTI, eds. 1973. FROM OVULE TO SEED: ULTRASTRUC-  
TURAL AND BIOCHEMICAL ASPECTS  
Univ. of Florence, Florence. Caryologia suppl.25. 314 pp., 228 figs., 8 pls., 9 tabs.

This is the report of the third in a series of biennial symposia on the cytology of higher plant reproduction. The present international meeting was held in October 1972 in Siena, Italy. The great majority of the 24 contributors came from various European countries (nine from France). The discussions are not recorded. Half of the papers are in English and the other half in French, but all have English summaries.

The area covered by the symposium is a relatively new one and very few definitive

conclusions have been reached. The papers in this issue therefore have the character of an inventory of research on an extremely broad range of aspects of the central problem, as yet without much coherence. In most papers the emphasis is on ultrastructure or cytochemistry. Some present molecular-biological studies.

The issue is well printed and the numerous light and electron micrographs are well reproduced.

## INVERTEBRATE DEVELOPMENT (general) (see also 11,79)

### *Monographs*

13.

D.T.ANDERSON. 1973. EMBRYOLOGY AND PHYLOGENY IN ANNELIDS AND ARTHROPODS

Pergamon, Oxford, etc. XIV,495 pp., 164 figs., 4 tabs., taxonomic, author and subject indexes. £ 8.-, \$ 24.-

This scholarly monograph is a purely descriptive study. It contains much original work by the author. Its main purpose is phylogenetic, but it will be very useful to invertebrate embryologists generally. The author has attempted "to establish a uniform terminology for annelid and arthropod embryology which takes cognizance of underlying causal processes."

The phylogenetic starting points and conclusions are concentrated in the opening and closing chapters. The author feels they support the view of S. M. Manton that the arthropods are a polyphyletic assemblage and should be split into three phyla.

The remaining eight chapters provide a detailed and fully illustrated account of the comparative embryology of the polychaetes, oligochaetes and leeches, onychophorans, myriapods, apterygotes, pterygotes, crustaceans, and chelicerates, each concluded by a section summarizing the basic pattern of development in the group in question. Much emphasis is placed on cleavage, the blastula (or blastoderm), and particularly on fate maps in the blastula. Postembryonic stages are considered particularly for polychaetes and crustaceans. The imaginal discs of insects are not considered.

All illustrations have been redrawn and are of excellent quality. Very complete bibliographies are provided throughout. The book is well produced.

### *Dissertations*

14.

P.WIRTZ. 1973. DIFFERENTIATION IN THE HONEYBEE LARVA, a histological, electron-microscopical and physiological study of caste induction in *Apis mellifera mellifera* L.

Ph.D. thesis, Agric. Univ., Wageningen. Mededelingen Landbouwhogeschool Wageningen 73 (5). 155 pp., 55 figs., 10 tabs.

Comparative study of colony-reared worker larvae and "induced" queen larvae of known ages, with special reference to influence of food, cellular morphology, and endocrine system; emphasis on fat body development, corpus allatum activity, and role of JH (titres and external application to worker larvae); numerous very good light and electron micrographs.



## VERTEBRATE DEVELOPMENT (general)

### Textbooks

15.  
L.E.DOWNS. 1972. LABORATORY EMBRYOLOGY OF THE CHICK, 2nd edit.  
Brown, Dubuque, Iowa. Biology Series. X,95 pp., 16 figs. \$ 3.50 (spiral bound)

This is the second edition of a laboratory guide first published in 1963. It follows the same basic plan as the first edition, but the text has been revised and two-thirds of the illustrations are new.

Exercise 1 deals with mitosis and meiosis (in fish and ascaris eggs, respectively), exercise 2 with the rat ovary, and exercise 3 with early starfish embryology. The remaining 15 exercises relate to the chick embryo. The following stages are considered: unincubated egg, and embryos of 12h., 18h., 21h., 25h., 33h., 40h., 48h., 56h., and 72h. A drawing of a whole mount representing an actual embryo is shown for each stage. These are supplemented by drawings of selected serial cross sections at 24h., 33h., 48h., and 72h., shown both separately and "*in situ*" in an "exploded" three-dimensional drawing of the embryo in question. This greatly helps the student to obtain a correct mental image.

The text is brief but adequate, and is supplemented by instructions and questions to be answered by the student. The drawings are diagrammatical but executed with care, and on the whole clearly labelled.

16.  
E.HADORN. 1974. EXPERIMENTAL STUDIES OF AMPHIBIAN DEVELOPMENT,  
translated from the German by D.Turner  
Springer, Berlin, etc. X,138 pp., 45 figs., 2 tabs., combined author and subject index.  
DM 20.00, \$ 8.20 (paper)

This is a slightly adapted and extended translation of the second (1970) German edition of a book written mainly for the educated layman, the school teacher, and the beginning student. It is eminently suited for a rapid orientation in experimental embryology and some areas of developmental genetics. The translator has admirably preserved the captivating style of the original.

Although the treatment is of course selective, and in the main restricted to amphibians, the student gets a clear picture of the most important classical data, while enough is said about major recent advances to enable him to appreciate their importance. Evidence from other organisms is occasionally used to supplement the amphibian data.

Apart from a good list of mostly recent books no literature references are given. The line drawings which illustrate the book are excellent and have good explanatory captions.

## DEVELOPMENT OF MAMMALS AND MAN (general) (see also 24,33,43,80)

### Textbooks

17.  
K.L.MOORE. 1973. THE DEVELOPING HUMAN: clinically oriented embryology  
Saunders, Philadelphia. XVI,374 pp., 352 figs., subject index. \$ 11.00, £ 4.70

The conception of this book is similar to that of R. S. Snell's *Clinical Embryology for Medical Students* (1972; see G.E.I.S. 15, 1, 1973). The need for such book arises from the increasing limitations in the time available for the teaching of anatomy and embryology. The present book arose from notes for a core course in medical embryology. It aims at bridging the gap between embryology and adult anatomy, histology, pathology,

obstetrics, pediatrics, and surgery. The book contains a wealth of well-organized and, above all, entirely up-to-date information. There is a lot of interesting secondary or additional information set in small print or in the form of footnotes.

The account of normal development is shorter than in the classical textbooks, yet sufficiently detailed and illustrated to provide a sound background. In addition, the main congenital malformations are described and illustrated and a separate 17-page chapter on their causes is included. Early development is arranged by weeks (1st through 3rd) and this is followed by chapters on the embryonic and fetal periods, on the fetal membranes and placenta, and on the various organ systems. All chapters have a brief summary.

The numerous line drawings, all original, are of excellent quality. Colour is used to great advantage in many of them. In addition, there are a large number of good photographs. A very useful feature is a 4-page illustrated time-table of human development. Extensive and up-to-date reference lists are provided. The book is well produced at a very reasonable price.

18.

G.H.SPERBER. 1973. CRANIOFACIAL EMBRYOLOGY

Wright, Bristol. Dental Practitioner Handbook No. 15. XII, 132 pp., 89 figs., subject index. £ 2.50 (paper)

This is probably the first textbook in which human craniofacial development is described starting from its very inception. It is meant to make up for the very limited time devoted to developmental anatomy in most undergraduate dental curricula.

The first section of 52 pages concisely treats early embryonic development and orofacial development up to about 8 weeks, followed by two chapters on the branchial arches and grooves and the pharyngeal pouches. A diagram summarizes salient features of embryonic development. Section two then describes craniofacial development up to adulthood. For convenience the head is subdivided into 11 components, each allotted a separate chapter. A second diagram summarizes postulated mechanisms of odontogenesis.

In the text and diagrams the interactions between genetic, cytoplasmic, and environmental factors are briefly touched upon. Attention is paid to the major anomalies of craniofacial development. The book is illustrated with simple but effective line drawings and a number of photographs. Each chapter has a brief selected bibliography.

### *Monographs*

19.

C.R.AUSTIN, ed. 1973. THE MAMMALIAN FETUS IN VITRO

Chapman & Hall, London. XII, 388 pp., 75 figs., 23 pls., 29 tabs., author and subject indexes. £ 8.00, \$ 25.00

This book was written by an Anglo-American team of outstanding experts, with one contribution from Australia. The word "fetus" in the title encompasses developmental stages from implantation till term. In most chapters the main emphasis is on the sophisticated techniques that have been developed to maintain fetuses outside the uterus, but most authors also discuss the sort of research that can be done with such fetuses.

The first three chapters are of most immediate interest to developmental biologists generally: a brief but interesting chapter on the implications of viviparity (Austin); a chapter on rat, mouse, and opossum post-implantation embryos *in vitro* (New); and a chapter on the anatomical and physiological adaptations of marsupial pouch young for extra-uterine existence (Sharman). The later chapters are perhaps of more specific interest to clinicians. They deal with the extra-uterine sustainment of mid-term sheep, dog and human fetuses, the pre-term human fetus, and the premature human infant. Attention is

given to the exteriorized fetus, placenta, and feto-placental unit, and to the various perfusion techniques and "artificial organs" involved. A final chapter deals with the future potentialities of research on the human fetus and with its social, ethical and legal aspects.

The book is well produced and illustrated with excellent drawings and photographs.

20.

J.M.BERKVEN. 1974. EMBRYOLOGIE VAN DE MUIS (Embryology of the mouse) (in Dutch)

Landelijke Werkcommissie Laboratoriumdieren, Lange Kleiweg 151, Rijswijk. Biotechniek 1/3, nr.1. 44 pp., 7 figs., 56 pls. \$ 3.45 (paper)

Concise photographic atlas of the normal development of the Swiss (CD1) mouse, meant to assist in interpretation of pathological findings; 56 histological sections from primary follicle to day 17 *post coitum* (at daily intervals for the later stages); text in Dutch, figure labels from day 8 also in English; copies available at D.fl. 5.— from the author, Dr.Johanna M.Berkvens, Lab. of Pathol., R.I.V., P.O. Box 1, Bilthoven, the Netherlands.

21.

G.H.M.GOTTSCHEWSKI and W.ZIMMERMANN. 1973. DIE EMBRYONAL-ENTWICKLUNG DES HAUSKANINCHENS; NORMOGENESE UND TERATOGENESE Schaper, Hannover. 376 pp., 230 figs., 55 tabs., author and subject indexes. DM 180.00

The authors of this book have been working with rabbit embryos for nearly two decades. The book is primarily an extensive survey of their own work and that of their associates, placed against the background of a digest of the literature. The authors' aim has been to give a survey of all basic aspects of mammalian embryology and teratogenesis as illustrated by the rabbit embryo. The literature of rabbit embryology has never been reviewed so extensively before.

The six major chapters successively discuss (1) early development, (2) embryogenesis, (3) implantation and placentation, (4) organogenesis, (5) protein studies on the rabbit, and (6) the modification of development (teratogenesis in the broad sense). Chapters 4 and 5 are largely based on original work, and are therefore not comprehensive. Much factual material has been condensed into tables, particularly in the last chapter, which has extensive tables of teratogenic agents and their effects; this chapter also contains several diagrams summarizing the authors' theoretical concepts of teratogenesis. An appendix presents a brief summary of the phases of rabbit development with reference to the developmental-physiological and genetic viewpoints discussed in the main text.

The book is illustrated mainly with good photographs. The bibliography contains more than 650 titles up to the beginning of 1973; most of these are in German, English or French. The price of the book is excessive.

22.

R.O'RAHILLY. 1973. DEVELOPMENTAL STAGES IN HUMAN EMBRYOS, including a survey of the Carnegie collection

Part A: Embryos of the first three weeks (stages 1 to 9)

Carnegie Inst. of Washington, Washington. Carnegie Inst. of Washington Publication 631. VIII,167 pp., 75 figs., 16 tabs., specimen and subject indexes. \$ 5.00 (paper)

This book and its sequel constitute the final outcome of work started more than three decades ago by the late G. L. Streeter. It must be a great satisfaction to the present author to have brought this work to a close. Streeter's and O'Rahilly's aims were to provide a descriptive atlas and bibliography of early human embryology, a formal

classification by stages of embryonic development, a catalogue of the embryos present in the Carnegie Collection, and a reference guide to important specimens in other laboratories.

For the present work Streeter's original "horizons" were converted and supplemented to yield a series of 23 stages designated with arabic numerals and covering the period up to about 30 mm. CR length (about eight weeks). Part A covers the first nine stages (first three weeks) while part B will treat the remaining ones.

In part A each chapter deals with a particular stage, generally according to the following format: a lengthy introduction giving much background information essential for the interpretation of the specimens; specimens present in the Carnegie Collection (tables); specimens whose description was already published elsewhere (both from the Carnegie and other collections); additional specimens (usually provided with insufficient measurements).

The book is illustrated with excellent photographs, line drawings, and diagrams. It is a pity that it could not be provided with a hard cover.

## REPRODUCTION, SEXUAL DEVELOPMENT, GAMETOGENESIS, FERTILIZATION

(see also 50,56,73,79)

### *Textbooks*

23.

A. MONROY. 1973. FERTILIZATION AND ITS BIOCHEMICAL CONSEQUENCES  
Addison-Wesley, Reading, Mass. Addison-Wesley Module in Biology No. 7. 37 pp., 18 figs.,  
2 tabs.

This is a well-written, well-illustrated review of the cell-biological and biochemical aspects of fertilization. An important feature is that fertilization is placed in the context of the events preceding and following it, i.e., oogenesis, egg maturation, and early embryogenesis. The literature cited is extensive and up to date.

### *Monographs*

24.

S. SUZUKI. 1973. AN ATLAS OF MAMMALIAN OVA  
1st edit., 1973. Igaku Shoin, Tokyo  
2nd edit., 1974. Thieme, Stuttgart; Igaku Shoin, Tokyo  
XII, 139 pp., 130 figs. DM 128.—, Yen 9.900.—

This atlas consists of a rather haphazard collection of black-and-white and colour photographs and electron micrographs of mammalian ova and early embryos. The species illustrated are man (follicular oocytes only), monkey (oocytes and ova only), rabbit, rat, and mouse. The stages shown are follicular oocytes (many of them cultured), tubal ova (unfertilized and in the process of fertilization), cleavage stages, and blastocysts. Some electron micrographs of mouse tubal epithelium and some autoradiographs and chromosome pictures are also included.

The text consists of a brief introduction (without references) highlighting some features of early mammalian development, and brief accounts of the methodology of (1) *in vitro* culture of human and monkey follicular oocytes, (2) fertilization of aged rabbit ova, (3) *in vitro* fertilization of rabbit ova in tubal fluid, (4) autoradiography of nucleic acid and protein synthesis in rat embryos, and (5) demonstration of chromosomes in rabbit embryos; none of these have references, and none refer directly to the illustrations.

The illustrations are on the whole of very good quality (with the exception of most of the electron micrographs), but the figure captions are grossly deficient. No magnifications

are given for the photographs, often ages are not stated, the electron micrographs are entirely devoid of labels, no details of staining or micrography are supplied, and terminology is inconsistent.

The 1st and 2nd editions are practically identical. The production is luxurious and the price high; the English is often awkward and should have been corrected.

### *Dissertations*

25.

M.VIANEY-LIAUD. 1972. GAMETOGENESES ET VOIES GENITALES CHEZ LE PLANORBE AUSTRALORBIS GLABRATUS SAY (MOLLUSQUE GASTEROPODE PULMONE); description et étude expérimentale de leur contrôle  
Ph.D. thesis, Univ. de Paris VI, 57 pp., 15 pls., mimeographed

Description of ovotestis development; differentiation of germ cells in organ culture with or without CNS; castration of juveniles or adults: effect on genital tract and spawning, germinal regeneration; numerous good photo-micrographs.

### *Symposium reports*

26.

C.THIBAUT and P.MAULÉON, organizers. 1973. COLLOQUE SUR L'OVOGENÈSE ET LA FOLLICULOGENÈSE  
Inst. Natl. de la Rech. Agronomique, Versailles. Ann. de Biol. Anim. Biochim. Biophys. 13. 258 pp., 156 figs., 44 tabs. Fr. 160.50 (paper)

This special issue contains the papers read at an international symposium held in Nouzilly, France in December, 1972. Of the 43 contributors 16 came from outside France; seven of these were British. Most papers are research reports; some are reviews of recent work.

Work on various mammals is most extensively covered. Of the 24 papers only the first four deal with various invertebrates. Two of these are reviews of oogenesis in invertebrates and of the endocrine control of oogenesis in insects, respectively. One paper deals with the *in vitro* maturation of fish oocytes. The remaining papers on mammals are extremely varied and contain much valuable new information, morphological as well as ultrastructural and endocrinological.

The book is profusely illustrated; the numerous photomicrographs are very well reproduced. The price, however, is excessive for a journal supplement.

## **IMPLANTATION, PLACENTA, FETAL MEMBRANES**

### *Monographs*

27.

D.V.I.FAIRWEATHER and T.K.A.B.ESKES, eds. 1973. AMNIOTIC FLUID, Research and clinical application  
Excerpta Medica, Amsterdam. X, 344 pp., 108 figs., 65 tabs., subject index, index to contributors. D.fl.91.00, ca. \$ 28.50

The interest in human amniotic fluid has greatly increased during the last decade, particularly as a result of new clinical applications. This research monograph was written by an international team of 25 specialists; most of them are clinicians, and the majority work in the United Kingdom, the U.S.A., and the Netherlands. The book is intended as a comprehensive "state of the art" of the subject.

Most of the 17 chapters are a mixture of review and research report, and a great variety of aspects are considered. Among these are circulation, volume, and water dynamics of amniotic fluid; biochemistry, cytology, and spectrophotometry; hormones, enzymes, lipids (among them prostaglandins); and gas tensions, pH, and amniotic fluid pressure. Proper attention is given to methodology. All chapters have up-to-date bibliographies.

The book is well produced and well illustrated; the price is on the high side.

28.

E.A.PETROPOULOS. 1973. MATERNAL AND FETAL FACTORS AFFECTING THE GROWTH AND FUNCTION OF THE RAT PLACENTA

Periodica, Copenhagen. Acta Endocrinologica Suppl. 176. 69 pp., 34 figs., 10 tabs.

Ovariectomy, adrenalectomy, and fetectomy (alone or in combination) of 13-day pregnant rats; determination at day 15–21 of placental weight, histology, protein, DNA and RNA content, leucine incorporation, and labelled blood uptake; statistical analysis; main result: only ovariectomy and fetectomy in combination affect the endocrine elements, which proliferate and undergo biochemical changes similar to those of normal gestation; numerous excellent colour photographs and micrographs; 162 references.

### *Symposium reports*

29.

L.D.LONGO and H.BARTELS, eds. 1973. RESPIRATORY GAS EXCHANGE AND BLOOD FLOW IN THE PLACENTA

U.S. Dept. of Health, Education & Welfare, Bethesda. DHWE publication No(NIH) 73–361. XX,570 pp., 256 figs., 47 tabs., author and subject indexes. \$ 6.05 (paper)

This book embodies the proceedings of a symposium held in Hannover, Germany in 1971. It was attended by 40 scientists of many different specializations from nine countries. The 32 papers presented range in length from less than five to over 20 pages; two papers, both dealing with mathematical models of placental oxygen transfer, are over 40 pages long. Most papers are research reports, several contain a certain amount of review material, and a few are pure reviews. The group discussions are often extensive and have their own references and sometimes separate illustrations.

The papers are arranged in Sessions as follows: I. Embryologic and anatomic aspects (4 papers); II. Physiologic aspects – blood (4); III. Physiologic aspects – blood flow (8); IV. Physiologic aspects – respiratory gas exchange (4); V. Physiologic aspects – mathematical models (4); VI. Pharmacologic aspects (1); VII. Clinical aspects (7).

The illustrations are mainly graphs and diagrams; the papers in Session I have good photographs. The book is well printed at a surprisingly low price.

### *Collections of papers*

30.

K.S.LUDWIG and H.BARTELS. 1973. PROGRESS IN COMPARATIVE PLACENTOLOGY

Karger, Basel, etc. Acta Anat. suppl. 61. IV,102 pp., 63 figs., 2 tabs. S.Fr. 39.50

*Contents:* Fine structure of the fetal-maternal area of exchange in the epitheliochorial and endotheliochorial types of placentation (Björkman, 22 pp.); Guinea pig placenta: fine structure and development (Davidoff, 24 pp.); Ultrastructure of the abnormal human trophoblast (Larsen, 28 pp.); Notes on the use of stereological methods in comparative placentology (Baur, 28 pp.); excellent photo- and electronmicrographs.

*Textbooks*

31.

M.E.SUCHESTON and M.S.CANNON. 1973. CONGENITAL MALFORMATIONS, case studies in developmental anatomy  
Davis, Philadelphia. X,271 pp., 62 figs., 6 tabs., subject index. \$ 8.25 (paper)

This book was written to be used as a supplement in basic and advanced courses of anatomy. Its purpose is to present case studies of congenital defects selected so as to demonstrate, among other things, basic developmental concepts. There are 32 such case studies, each consisting of a short history of the case, sections on diagnosis and treatment, and a general discussion covering normal and abnormal embryonic development, etiology, associated malformations, and often other matter such as classification and possibilities of repair. The case studies are arranged in sections as follows: Metabolic and genetic disturbances and early embryonic differentiation (5), Head and neck (5), Thorax (5), Abdomen (5), Pelvis (7), and Back, body wall, and limbs (5). Each section has a list of references for further reading.

The case studies are preceded by a short chapter on general principles of teratology and teratogenesis. The sections on differentiation, determination and induction in this chapter are rather unsatisfactory. The sections on embryology in the case studies themselves are well illustrated and on the whole clearly written, although those on cleavage, implantation, gastrulation and neurulation contain some mistakes and the wording is occasionally unfortunate. A useful concise timetable of normal human development is provided.

32.

J.G.WILSON. 1973. ENVIRONMENT AND BIRTH DEFECTS  
Academic Press, New York, etc. Environmental Sciences, an Interdisciplinary Monograph Series. XIV,305 pp., 61 figs., 27 tabs., author and subject indexes. \$ 19.00, £ 9.50

*Contents:* 1. Is the unborn at risk in the environment?; 2. Principles of teratology; 3. Causes of developmental abnormality; 4. Mechanisms of teratogenesis; 5. Manifestations of abnormal development; 6. Access of environmental factors to developing tissues; 7. Normal development and susceptible periods; 8. The assessment of teratologic risk; 9. Collection and interpretation of results; 10. Suggested protocols for embryotoxicity testing

This book by one of the world's leading experimental teratologists was originally planned for use by scientific administrators, but has grown into a general introduction. Although it is a concise book it covers all the major theoretical and practical aspects of the subject. Thanks to its lucid style and clear organization it is eminently suited for advanced students and for those about to enter the field. But it will also be read with profit by many active teratologists and mammalian embryologists.

Most of the chapter headings speak for themselves. Ch.2 provides the theoretical background in exemplary fashion. Ch.3 discusses the known and suspected causes of abnormal development in animals and man separately. Ch.4 is a lucid survey of what is known (and not known) about the earliest identifiable events in abnormal development. Ch.8 discusses, among other things, the advantages and disadvantages of specific mammals in teratogenicity testing. Ch.9 is mainly methodological in nature, and ch.10 finally presents a new concept based on "multilevel" animal tests for embryotoxicity.

Appendix I (15 pp.) gives selected references on the embryology and reproduction of twelve laboratory mammals. Appendix II briefly highlights key events in early embryogenesis of the rat, while appendix III is an atlas of 15 clearly labelled photographs of freehand sections of the normal 20-day rat fetus.

The coverage of the literature had to be selective, but the reader is referred to books and reviews wherever possible. Still the bibliography covers 40 pages; although the emphasis is on English literature, there are many titles in French and several in other languages. The book is well produced and illustrated.

33.

R.B.ROSS and M.C.JOHNSTON. 1972. CLEFT LIP AND PALATE

Williams & Wilkins, Baltimore. X,319 pp., 232 figs., 9 tabs., subject index. \$ 24.50

This book was written primarily for students and clinicians, but will also be useful to teratologists. This holds particularly for the non-clinical chapters. One of the purposes of the book was to compile and interpret the often contradictory and confusing literature, and to integrate the data from animal experiments and human population studies. The discussions are placed against a broad embryological background. The clinical chapters will not be considered here.

A basic chapter is of course that on Normal embryonic development of the face (14 pp.). The next two chapters are: Cleft lip with or without cleft palate (30 pp.) and Isolated cleft palate (21 pp.), each with long sections on embryogenesis and etiology. Then follows a chapter on Facial development from cleft formation to birth – Deficiencies and distortions (14 pp.) The other non-clinical chapters we mention are Growth of the normal face (from infancy to adulthood; 15 pp.) and Facial growth in unrepaired cleft lip and palate (7 pp.). A brief final chapter contains reflections on etiology and prevention. A number of appendices present numerical data on the incidence of facial clefts in relation to race, sex, and age, on malformations associated with facial clefts, on familial relationships (including computation of heritability values), and on concordance in twins.

The book is very well produced and admirably illustrated with line drawings and photographs.

*Reference works*

34.

T.H.SHEPARD. 1973. CATALOG OF TERATOGENIC AGENTS

Johns Hopkins Univ. Press, Baltimore, etc. XXII,211 pp., author and subject indexes. \$ 10.—

This catalog lists over 500 agents with teratogenic or suspected teratogenic activity: chemicals, drugs, physical factors, and viruses. It is based on a careful scrutiny of the literature reporting experiments on birds and mammals. Each entry contains a brief account of published work selected for its review nature, originality, or currency. The account considers species, dose, gestational age at time of administration, and type of defects produced (sometimes absence of effects). The most recent literature cited dates from 1972; the author envisages future revisions and solicits the cooperation of the readers to fill up gaps.

The book has been composed by computer, which has reduced the time of production and facilitates future revisions. The endpapers carry a very useful comparative time table of development in man, rhesus monkey, rat, mouse, rabbit, golden hamster, Guinea pig, and chick.



*Monographs*

35.

G.V.SHERBET, ed. 1974. NEOPLASIA AND CELL DIFFERENTIATION  
Karger, Basel, etc. XIV,411 pp., 47 figs., 7 tabs., subject index. Sfr. 140.00, \$ 43.40,  
£ 20.30, DM 133.—

*Contributors:* Auersperg, Burgess, Carlson, Collins, Easty, Finnegan, Gaillard,  
Lakshmi, Neyfakh, Sherbet, Sigot-Luizard, Simnett, Wolsky

In recent years the possibility of interrelations between neoplasia and epigenetic mechanisms acting in normal development is being increasingly stressed. This collection of extensive reviews (most are ca. 30–50 pages long) is of interest to both cancer researchers and developmental biologists, particularly as a work of reference. In this connection the absence of an author index is to be regretted.

The reviews are authoritative and well organized. Most cover the literature up to about 1970, a few up to 1972. Among the subjects covered are the following: nuclear differentiation in normal and neoplastic development; molecular biology of embryonic development; early events in regeneration; genome control in blastema cells; gene-inhibiting chemicals and regeneration; the cell surface in morphogenesis; differentiation of tumours *in vitro*; teratomas; embryonic-tumour cell association and cell interaction.

The book is well produced but definitely too expensive.

36.

R.E.STEVENSON. 1973. THE FETUS AND NEWLY BORN INFANT, influences of the prenatal environment  
Mosby, St. Louis. X,391 pp., 58 figs., 133 tabs., subject index. \$ 31.80

*Contents:* I. Prenatal immunologic influences (2 chs.); II. Prenatal chemical influences (chs. on metabolic disturbances, and on drugs and hormones); III. Prenatal infections (5 chs.); IV. Prenatal nutrition (2 chs.); V. Other influences (chs. on radiation, oxygen, malignant diseases, and maternal age)

Because of its systematic organization this book will be very useful as a reference source for clinicians and others interested in human development. An important feature is that the magnitudes of the environmental influences are quantified wherever possible. Placental abnormalities and inherited disorders of the fetus are not considered. The treatment is to some extent selective, with emphasis on the most important and best-investigated topics.

A large amount of literature is cited throughout the book. References more recent than 1970 or '71 and non-English titles are rare. Numerous literature data are brought together in synoptic tables.

The book is printed on glossy paper and well illustrated.

*Symposium reports*

37.

E.V.D.PERRIN and M.J.FINEGOLD, eds. 1973. PATHOBIOLOGY OF DEVELOPMENT  
— or ontogeny revisited  
Williams & Wilkins, Baltimore. XII,151 pp., 53 figs., 34 tabs., subject index. \$ 19.75

*Contributors:* Bolande, Brent, Epstein, Holtzer, Kretchmer, Landing, Mayne, Saxén,  
Sever, Warkany, Wilson

This book is the report of a symposium held by the American Association of Pathologists and Bacteriologists in Cincinnati, Ohio some time during 1972. Of the 11 contributors ten were North-Americans. The book is probably of most use to clinicians

who want to update themselves on the subject. For experimental teratologists more comprehensive sources are available. The discussions, which were apparently not edited, are of limited use.

All ten papers are reviews. Most are well organized, some less so. Four have no more than 4-9 pages of text. In short, the quality is uneven and the nature partly ephemeral.

It is not clear why such a book should be produced so luxuriously and consequently at too high a price for its value.

38.

L.TOMATIS, U.MOHR, and W.DAVIS, eds. 1973. TRANSPLACENTAL CARCINOGENESIS

World Health Organization, Intern. Agency for Research on Cancer, Lyon. IARC Scient. Publications No. 4. XVI, 181 pp., 98 figs., 43 tabs. £ 5.00, \$ 12.00, Sw.fr. 40.00, Fr.fr. 56.00 (paper)

This book contains the papers read at a symposium held at Hannover, Germany in 1971. It was convened to review the most recent experimental results in transplacental carcinogenesis in laboratory mammals, and to assess their significance in relation to a possible carcinogenic risk for man. The 44 participants came from various Western-European countries and the USA (with one participant from Japan).

Almost all of the 20 papers are of direct or indirect interest to those who work on teratogenesis in mammals. They range in length from four to 16 pages. Several papers discuss the embryotoxic and teratogenic effects of particular carcinogens. Although the nervous system seems to be most susceptible to transplacental carcinogenesis, tumours in a variety of other organs are also described. Much attention is devoted to the possible modes of action of the drugs concerned.

The discussions held at the symposium are not recorded. There is a brief summary of a general discussion at the end of the book. The book is well produced and well illustrated. It has no indexes.

## REGENERATION, RENEWAL (see also 2,61,64)

### *Dissertations*

39.

W.VAN DER MEER-FIEGGEN. 1973. REGULATION OF CELL PROLIFERATION AND DIFFERENTIATION IN INTESTINAL EPITHELIUM

M.D. thesis, Rotterdam. 72 pp., 15 figs., 17 tabs.

Study of cell proliferation (3H-thymidine) and differentiation (microchemistry of carboxyl esterase) in crypts and villi of the duodenum of conventional and germ-free rats treated with low doses of X-irradiation; feedback regulation from villus to crypt; no effect of partial resection of jejunum and ileum.

### *Books of readings*

40.

C.S.THORNTON and S.C.BROMLEY, eds. 1973. VERTEBRATE REGENERATION

Dowden, Hutchinson & Ross, Stroudsburg. Benchmark Papers in Biological Concepts, Vol. 2. XIV, 512 pp., 156 figs., 27 pls., 47 tabs., author citation index, subject index. \$ 25.00, £ 13.25

This book contains 29 facsimile reprintings of seminal articles in the field of vertebrate regeneration. The emphasis is on the amphibian limb, but there are also papers on the amphibian lens, amphibian and reptilian tail, mammalian antler, and mammalian limb.

The only non-American authors represented are Guyénot (a brief paper of 1926 in French), Polezhayev, and Faber. There are two papers prior to 1940, and three prior to 1950, while the rest range in publication date from 1956 to 1970.

The papers are arranged in four groups as follows: Origin and fate of blastemal cells (8 papers); Outgrowth and differentiation of the blastema (8); Systemic factors in regeneration (10, with emphasis on the role of the nervous system); Mammalian regeneration (3). There is a four-page introduction by the editors, with separate references, while 1–3 pages of useful editors' comments precede each group of papers.

The papers are on the whole well reproduced. The photographs have inevitably lost some detail in reproduction, though actually very little. The author citation index is a useful feature; the subject index is somewhat limited. The book's price is unfortunately prohibitive for students, to whom it would obviously be of most value.

**ORGANOGENESIS, HISTOGENESIS** (incl. tissue and organ culture, histochemistry) (see also 2,6,25,39,60,65,67,68,77,78,82)

### *Treatises*

41.

W.HIMWICH, ed. 1973. **BIOCHEMISTRY OF THE DEVELOPING BRAIN**, Vol. 1  
Dekker, New York. XVI,388 pp., 58 figs., 53 tabs., subject and author indexes. \$ 24.50

*Contributors:* Agrawal, Balázs, Berl, Davis, Davison, Haber, H. E. Himwich, W. A. Himwich, Kuriyama, Levi, Richter

As far as we are aware this is the first systematic treatise on this subject. It was written by an international team of authors, most of them American and British. The coverage is not restricted to man and laboratory mammals but also includes domestic mammals and other vertebrates.

The seven chapters in vol. 1 deal successively with the following subjects: historical survey, amino acids and proteins, GABA system, myelination, amino acid transport, metabolic compartmentation, and hormonal effects on maturation. Vol. 2 will discuss such subjects as growth and DNA content, carbohydrates, metabolism *in vitro*, enzymes, cellular growth, and the influence of hypoxia and hypokinesia.

The book is produced in offset print and has many graphs and tables and a few photographs. There is a bibliography of over 600 titles; the most recent literature is from 1971, with a few titles of 1972.

### *Textbooks*

42.

N.K.WESSELLS. 1973. **TISSUE INTERACTIONS IN DEVELOPMENT**  
Addison-Wesley, Reading, Mass. Addison-Wesley Module in Biology No. 9. 43 pp., 22 figs.

The treatment of the subject matter in this module, though of course selective, is up to date, broad-ranging, thoughtful, and didactically clear. The major sections are as follows: A conceptual framework of development (restrictive and expressive phases); Types of tissue interaction (reference to organogenesis, morphogenesis, cell differentiation, and hormonal interactions); Nerves and tissue interactions; Inhibitory interactions; Cell surfaces and development (including cell coupling and positional information). Clear line drawings support the text.

43.

E.BLECHSCHMIDT. 1973. DIE PRÄNATALEN ORGANSYSTEME DES MENSCHEN, untersucht unter funktionellen Gesichtspunkten Hippokrates, Stuttgart. XII, 184 pp., 212 figs., subject index. DM 160.—

This is essentially an atlas of human prenatal development with emphasis on organogenesis. The early stages receive relatively little attention. The general point of view is provided by the author's well-known ideas on "kinetic anatomy", which lead him to the statement that each organ's first beginnings are already the expression of its functional differentiation. The work is for the far greater part based on original investigations and material.

The plates are arranged strictly according to O'Rahilly's recent staging of human development (see review nr. 22 in this issue). The majority (81 plates) refer to the second month of intra-uterine life (4–29 mm. CR length). Selective features of the fetus and neonate take up 12 plates. The brief, partly interpretative text (41 pp.), which embodies the legends to the plates, is printed separate from the latter, which is economical but rather inconvenient.

The photographic and graphical plates are of superb technical and artistic quality. In many, colour is used to great advantage, mainly to show what the author calls "Grenzgewebe" (lining tissues). The brief glossary mainly explains terms from "kinetic anatomy".

An English translation of the book is in preparation. Two sequels will appear, one dealing with "functional differentiation" and one with practical implications in teaching.

44.

R.M.EAKIN. 1973. THE THIRD EYE Univ. of Calif. Press, Berkeley, etc. XII, 157 pp., 78 figs., combined author and subject index. \$ 7.50

The author of this monograph has worked with lizards for more than fifteen years and is the originator (together with Stebbins) of the most widely accepted theory of the function of the reptilian parietal eye. The book makes delightful reading due to a style which is both light and lucid. The approach is largely historical. Professional terminology is avoided as far as possible. The author and his associates have recently conducted much research specifically to obtain new information for this book.

There are chapters on the evolution (19 pp.), structure (53 pp.), development (21 pp.), and function (32 pp.) of the parietal eye in reptiles and such other forms as have been studied (particularly tree frogs and lampreys). The chapter on development is restricted mainly to reptiles and has sections on the formation of the pineal complex, the differentiation of receptors, the induction of the pineal anlage (discussed mainly on the basis of experiments on amphibians), the development of the lens, and the origin of the parietal nerve.

The book is beautifully produced and superbly illustrated. Many of the figures, particularly the electron micrographs, have not been published before. The book is concluded by a 15-page bibliography.

45.

V.FITZE-GSCHWIND. 1973. ZUR ENTWICKLUNG DER CHORIOALLANTOIS-MEMBRAN DES HÜHNCHENS Springer, Berlin, etc. Advan. Anat. Embryol. Cell Biol. Vol. 47, pt. 1. 52 pp., 19 figs., 7 tabs., subject index.

Light and electron microscopical study of the development of the CAM from 5 till 21 days of incubation; morphometric data on surface expansion, thickness, volume, and thickness of air-blood barrier; extensive literature discussion; numerous excellent electron micrographs

46.

W.W.McCRORY. 1972. DEVELOPMENTAL NEPHROLOGY

Harvard Univ. Press, Cambridge, MA. A Commonwealth Fund Book. XIV, 216 pp., 31 figs., 9 pls., 16 tabs., subject index. \$ 12.—, £ 4.50

*Contents:* 1. Embryologic development of the kidney; 2. Development of renal function *in utero*; 3. Quantitative measurement of renal function during growth in infancy and childhood; 4. Renal function in the postnatal period; 5. Cellular processes underlying growth and development of the kidney

This scholarly monograph is interesting not only for clinicians but also for bio-medical scientists. Although it emphasizes the human kidney, its basis is broadly biological. It lays the modern foundation needed for experimental work on a great variety of subjects. Particular stress is placed on the possible causes of renal maldevelopment and malfunction, and on the roles of compensatory hyperplasia and hypertrophy and the significance of the "renal work load" (particularly in chapter 5). Gross structure as well as cellular structure, function and organization are considered.

In ch.1 the author draws heavily on J. Oliver's monograph *Nephrons and Kidneys* (1968). Nine plates from this book, illustrating early stages of human kidney development based on microdissection, are reproduced at the end of the chapter. Ch.5 has sections on changes in renal enzymes, nucleic acids, and proteins, and on the subjects mentioned in the first paragraph above.

The book is beautifully printed and well illustrated. The literature is considered up to 1970 (ca. 360 titles).

47.

E.PANNESE. 1974. THE HISTOGENESIS OF THE SPINAL GANGLIA

Springer, Berlin, etc. *Advan. Anat. Embryol. Cell Biol.* Vol. 47, 5. 97 pp., 25 figs., subject index

Review based on original studies on the chick embryo and an analysis of the literature; light and electron microscopy; origin of organelles; RNA and AChE; cell junctions; mitosis and neuronal differentiation; cell degeneration; satellite cells, etc.; good diagrams and original electron micrographs; 17-page bibliography.

48.

N.A.SMITTEN. 1972. THE SYMPATHO-ADRENAL SYSTEM IN THE PHYLO- AND ONTOGENESIS OF VERTEBRATES (in Russian)

Izdat. Nauka, Moscow. 347 pp., 119 figs.

Part one: Comparative morphology in 6 vertebrate classes; Part two: Ontogenesis-1. development and recapitulation; 2. differentiation; 3. functional morphology and secretory cycles; 4. main trends in evolution. Bibliography of 33 pp. (8 pp. of Russian titles).

49.

F.VANPEPERSTRAETE. 1973. THE CARTILAGINOUS SKELETON OF THE BRONCHIAL TREE

Springer, Berlin, etc. *Advan. Anat. Embryol. Cell Biol.* Vol. 48, Part 3. 80 pp., 42 figs., 6 tabs.

Contains a chapter (8 pp.) on 30 human fetal lungs from week 7 till week 24; emphasis on cartilage differentiation (weeks 11–14); Lundvall cartilage stain and histology; brief theoretical discussion of morphogenesis.

G.VAN WAGENEN and M.E.SIMPSON. 1973. POSTNATAL DEVELOPMENT OF THE OVARY IN HOMO SAPIENS AND MACACA MULATTA and Induction of Ovulation in the Macaque  
Yale Univ. Press, New Haven, etc. XXII,306 pp., 122 pls., 12 tabs. \$ 27.50, £ 13.75

This book is a sequel to *Embryology of the Ovary and Testis* published in 1965 by the same authors. It is essentially an atlas of histology. The descriptive part, which is of most interest to embryologists, occupies about one third of the text pages (4 for the human, 13 for the macaque ovary) but about two thirds of the total of 122 plates. The rest of the book is devoted to reports of various experiments, conducted over many years, on the induction of ovulation in the macaque by gonadotropic hormones in various combinations.

The section on the postnatal development of the human ovary encompasses infancy, childhood, menarche, and the reproductive and postreproductive periods. It has 32 plates. For the macaque, the periods covered are the pre-reproductive phase (subdivided into eight periods of one to several months), the premenarchal and menarchal phases, and the reproductive period (menarche till 25 or 30 years). The number of plates for the macaque is 49, 16 of which give details of the corpus luteum and follicles on various days of the menstrual cycle. There is a brief section comparing ovarian development in man and the macaque, with a comparative table.

The plates are of excellent quality. Most of them consist of 3-4 micrographs at magnifications ranging from very low to high. The book is magnificently produced at a very reasonable price. It is concluded by a bibliography of 62 titles.

51.

D.YOUNG, ed. 1973. DEVELOPMENTAL NEUROBIOLOGY OF ARTHROPODS  
Cambridge Univ. Press, London, etc. VIII,268 pp., 36 figs., 14 pls., 2 tabs., author and subject indexes. £ 5.60, \$ 16.50

*Contributors:* Aloe, Bate, Bentley, Chen, Edwards, Horridge, Hoy, Lawrence, Levi-Montalcini, Meinertzhagen, Palka, Pipa, Seshan, Young

This is a highly interesting and stimulating book. It does not cover a well-established field but its nine reviews by leading investigators describe the momentary state and potentials for the future of an area that is just starting to expand and to yield exciting results. Some of the advantages of arthropods for developmental neurobiological studies are: sensory neurons are situated peripherally and are therefore easily accessible to experimental manipulation; neuron populations are relatively small and single neurons can be identified from one animal to the other; *in vitro* culture of nervous tissue is remarkably easy.

Because all contributions are of great interest to all neuro-embryologists we will not review them in detail. Suffice it to say that they are all very readable and remarkably well illustrated. No attempts are made at premature generalization; on the other hand, the great potential of arthropod systems for future work is emphasized. Finally, the book as a whole reflects the renewed interest in supracellular patterns as the counterpart of individual cell function.

The book is very well produced.

52.

I.S.MARKENS. 1974. DE EMBRYONALE ONTWIKKELING VAN DE SUTURA CORONARIA BIJ DE MENS EN DE RAT EN ENIGE EIGENSCHAPPEN VAN DIT WEEFSEL (The embryonic development of the coronal suture in man and rat and some of its structural properties)

M.D. thesis, Utrecht. 66 pp., 23 figs. English summary (2 pp.)

Description of a sutural blastema in human and rat fetal skulls; transplantation of rat presumptive coronal suture area to exposed dura mater of adult rats, resulting in autonomous suture formation.

53.

J.G.J.VISSER. 1972. ONTOGENY OF THE CHONDROCRANIUM OF THE CHAMAELEON, MICROSAURA PUMILA PUMILA (DAUDIN)

Ph.D. thesis, Stellenbosch. Ann. Univ. Stellenbosch 47, serie A No. 2, 68 pp., 49 figs.

Descriptive study based on material of nine stages ranging from the blastematous/procartilagenous to the adult condition; extensive discussion; numerous photomicrographs and reconstructions.

### *Symposium reports*

54.

D.H.FORD, ed. 1973. NEUROBIOLOGICAL ASPECTS OF MATURATION AND AGING

Elsevier, Amsterdam, etc. Progress in Brain Research 40. XII,529 pp., 328 figs., 84 tabs., subject index and index to contributors. D.fl. 175.—, ca. \$ 64.00

This volume embodies the 35 papers presented at an all-American symposium (only one contributor from outside the U.S.A.) held in Brooklyn, N.Y. in June, 1972. The subjects discussed relate to the origin, differentiation, morphology, and particularly the biochemistry of nerve and glial cells of the (mainly postnatal) mammalian CNS and of the CNS as a tissue.

At least a dozen papers are of direct interest to those working on the development of the nervous system; the remainder deal with aging, pathology, and miscellaneous subjects. The range of biochemical aspects covered is very broad. Electrophysiological aspects are not considered except in one theoretical paper.

Most of the papers are research reports or mixtures of review and research material. An important review by Ordy and Schjeide is devoted to univariate and multivariate models for evaluating long-term changes in neurobiological development, maturity and aging (18 pp.).

The book is well printed and very well illustrated, but the luxurious production has resulted in a much too high price.

55.

J.I.NURNBERGER, ed. 1973. BIOLOGICAL AND ENVIRONMENTAL DETERMINANTS OF EARLY DEVELOPMENT

Williams & Wilkins, Baltimore. Res. Publ. Assoc. for Research in Nervous and Mental Disease, Vol. 51, XII,457 pp., 111 figs., 40 tabs., subject index.

This symposium was held in New York in December, 1971. All of the 22 papers by leading experts are in some way concerned with the mammalian nervous system, the

majority with the functional, pathological, and physiological aspects of its development after birth. However, at least half a dozen are of potential interest to neuro-embryologists and teratologists, and the discussions following these papers also contain some interesting material.

We just list the following subjects and authors: Developmental biochemistry of the nervous system (Kretchmer); Nutrition and brain development (McKhann *et al.*); Morpho-physiological development of brain (Purpura); Nervous maturation *in vitro* (Crain); Drug effects (Kelsey); Regeneration after lesions to the fetal septum (DeMyer); Effects of methyl-mercury (Kurland).

56.

H. PETERS, ed. 1973. THE DEVELOPMENT AND MATURATION OF THE OVARY AND ITS FUNCTIONS

Excerpta Medica, Amsterdam. Internat. Congress Series No. 267. X, 189 pp., 89 figs., 44 tabs., author and subject indexes. D.fl. 56. -, \$ ca. 20. -

This volume contains the proceedings of an international workshop held in Copenhagen in July 1972. Of the 24 short research papers six are abstracts or not much more. The papers are arranged in three groups as follows: Regulation of ovarian follicle growth in the immature animal (7 papers); Ultrastructural studies of the immature ovary (6); Maturation of reproductive function (11).

Group one is mainly endocrinological in character. Group two contains three papers on fetal mammalian ovaries and one on mouse primordial germ cells. Group three deals mainly with postnatal stages; it includes one paper each on amphibians, lampreys (abstract), and voles.

57.

M. ROCKSTEIN, ed. 1973. DEVELOPMENT AND AGING IN THE NERVOUS SYSTEM  
Academic Press, New York, etc. XII, 218 pp., 73 figs., 34 tabs. \$ 9.25

*Contributors:* Bondareff, Brody, Cowan, de Vellis, Eccles, Finch, Ford, Himwich, Jacobson, Nandy, Richardson

This is the report of an all-American symposium held in Miami, Fla. in February, 1973. The 11 papers deal with a variety of cellular and biochemical aspects of CNS development from the embryo to senility, with emphasis on mammals and man but adducing data on other vertebrates as well. Some papers will be almost exclusively of interest to gerontologists and other clinicians. Most of the papers are reviews of recent to very recent work, while only a few consist partially or entirely of previously unpublished work. The discussions are not recorded.

The book is produced in offset print and adequately illustrated. It has no indexes. Some authors do not indicate clearly whether illustrations are new or taken from other publications.



*Textbooks*

58.

J.M.ASHWORTH. 1973. CELL DIFFERENTIATION

Chapman & Hall, London, 64 pp., 35 figs., 4 tabs., subject index. £ 0,90, \$ 2.75 (paper)

J.M.ASHWORTH. 1974. ZELLDIFFERENZIERUNG, aus dem Englischen übersetzt von H. Lörz

Fischer, Stuttgart. VIII,95 pp., 35 figs., 4 tabs., subject index. DM 8.80 (paper)

This guide book is a selective but very competent survey of recent advances in animal cell differentiation, mainly from the molecular-biological point of view. It will be most useful to advanced students. The book is organized in two main sections. The first takes the reductionist approach and looks at simple model systems such as plagues, bacteria, cellular slime molds, and tissue culture cells. The second section deals with the more complex special systems most frequently used today; it has sections on chromosome structure and function, RNA synthesis, protein synthesis, protein degradation, protein modification, and intermediary metabolism.

There are ca. 70 references cited in the text and an annotated list of books for further reading.

The German edition is well turned out, but unfortunately the translator obviously did not know enough English. There are numerous outright mistakes, and often the meaning of whole sentences is lost. In this form the text is in places almost useless and extremely confusing.

59.

R.L.DAVIDSON. 1973. SOMATIC CELL HYBRIDIZATION: STUDIES ON GENETICS AND DEVELOPMENT

Addison-Wesley, Reading, Mass. Addison-Wesley Module in Biology No. 3. 39 pp., 6 figs., 8 tabs.

This is an admirably concise and well-organized survey of the applications of a method which has rapidly become of basic significance to mammalian cell and developmental genetics. It is well suited for a rapid orientation in this field. Of most direct interest to developmental biologists is the 11-page section entitled Regulation of differentiation in hybrid cells. It has subsections on pigment cells (suppression of a differentiated function; effect of gene dosage), on kidney cells (reappearance of a differentiated function), on glial and neuroblastoma cells, and on liver cells (induction of a differentiated function). In connection with these results attention is devoted to the implications for the problem of determination, and to the possible existence of diffusible gene regulator substances which may be either suppressors or inducers.

60.

D.R.GARROD. 1973. CELLULAR DEVELOPMENT

Chapman & Hall, London. 64 pp., 47 figs., subject index. £ 0.90, \$ 2.75 (paper)

D.R.GARROD. 1974. ZELLENTWICKLUNG; zelluläre Interaktionen in der Embryonalentwicklung, aus dem Englischen übersetzt von D. Hess

Fischer, Stuttgart. VIII,95 pp., 47 figs., subject index. DM 8.80 (paper)

This guide book, written for advanced students, is a highly selective but ably written outline of recent to very recent advances and ideas in some areas of animal developmental biology: pattern formation, cell movement and morphogenesis, and intercellular com-

munication. (The title is therefore somewhat misleading.) The presentation is up to date and correct except for a few minor errors. It is a pity that mesoderm induction in the amphibian blastula is not mentioned at least briefly.

The illustrations are simple but good and there is a list of 155 references cited in the text. There are rather many printing errors and inaccuracies.

The German edition is well turned out and the translation is competent. The subtitle is an improvement. A reading list of German books has been added.

### Monographs

61.

A.C.GIESE. 1973. BLEPHARISMA, the biology of a light-sensitive protozoan  
Stanford Univ. Press, Stanford. XII,366 pp., 205 figs., 27 tabs., combined author and subject index. \$ 17.50, £ 8.75

This valuable monograph for the first time collects the large and widely scattered literature on *Blepharisma*. The author has worked with this organism for more than 40 years. It is a large, slow-moving ciliate provided with well-differentiated feeding organelles, which make it a favourite object for morphogenetic studies, comparable to *Stentor*. This review will concentrate on the parts of the book dealing with structural and morphogenetic aspects.

Chapters 1 and 2 (38 pp.) were for the most part contributed by S. Suzuki and deal with general morphology and nuclear behaviour. Ch. 3, contributed by R. A. Jenkins (15 pp.) deals with fine structure and is followed by a collection of 39 electron micrographs. Ch. 8 is again a contribution by S. Suzuki (43 pp.) and discusses morphogenesis in binary fission and regeneration, mainly on the basis of the published results of this contributor. Ch. 9, entitled The molecular biology of regeneration (32 pp.) is essentially a summary of the work of the author and his associates covering a time-span of about 20 years. Finally, ch. 10 (19 pp.) deals with encystment and excystment. Other chapters contain much information, e.g. on culture methods, that will be indispensable for those starting work on this organism.

The book is beautifully produced and very well illustrated; the electron micrographs are of good quality. The book is concluded by a useful glossary.

62.

H.HARRIS. 1974. NUCLEUS AND CYTOPLASM. 3rd edit.  
Clarendon Press – Oxford Univ. Press, London. XIV,186 pp., 17 figs., 18 pls., author and subject indexes. £ 4.20 (cloth), £ 1.90 (paper)

Although this new edition of a successful book has been more extensively revised than the second edition (1970), the basic arrangement of the chapters has remained unaltered and the book is of the same size.

One is inclined to regret that the author did not extend his chapter on differentiation with a section on the important and topical subject of the cell cycle and its role in differentiation. This is particularly felt in the last pages where he speaks about transdetermination and cellular metaplasia, subjects which would definitely require such an extension to be discussed meaningfully.

The author's account of the first beginnings of cell fusion work, which was recently challenged rightly by Ephrussi, has not been corrected.

Some new plates have been added. The total amount of literature cited has again increased by almost 50%. The more than two-fold price increase in four years' time is alarming.

63.  
M.BALLS and F.S.BILLETT, eds. 1973. THE CELL CYCLE IN DEVELOPMENT AND DIFFERENTIATION  
Cambridge Univ. Press, London. XII,483 pp., 128 figs., 14 pls., 58 tabs., combined subject and taxonomic index. £ 11.00, \$ 32.50

This book contains the 26 papers presented at a symposium held in Bristol in July 1972. Most of the contributors came from Great Britain, but there were several from other Western-European countries. The contributions vary widely in scope.

Two introductory reviews deal with differentiation within the cell cycle (Mitchison, 12 pp.) and with the measurement of the intermitotic period (Steel, 18 pp.). Two other contributions are pure reviews, size are mixtures of review and research report, and the remainder are reports on recent research in special areas, some only a few pages long. Yet together they provide an interesting survey of what is going on in this field in Britain and parts of Europe. The range of organisms involved in this work comprises slime moulds and ciliates, lower and higher plants, invertebrates, and vertebrates.

The book is well produced and illustrated. It has an extensive index.

64.  
S.BONOTTO, R.GOUTIER, R.KIRCHMANN, and J.R.MAISIN, eds. 1972. BIOLOGY AND RADIOBIOLOGY OF ANUCLEATE SYSTEMS  
Academic Press, New York, etc.  
Vol. I Bacteria and animal cells. XVIII,227 pp. \$ 7.00  
Vol. II Plant cells. XX,368 pp., 191 figs., 6 tabs. \$ 11.00

Although vol. I of this symposium report was not available for review, we briefly review vol. II because of the intrinsic interest of the subject. The Symposium was held in Mol, Belgium in June 1971.

Vol. II contains 16 papers on plant cells. Most of the contributors came from five Western-European countries. One contribution by a group from Novosibirsk (U.S.S.R.) was read by title. Of the 16 papers, nine are concerned partly or entirely with problems of development and morphogenesis in unicellular algae: five on *Acetabularia* and four on *Micrasterias*.

Vol. I contains an opening lecture by Brachet and 11 papers on work with bacteria and animal cells.

65.  
CIBA – Symposium. 1973. HAEMOPOIETIC STEM CELLS  
Elsevier – Excerpta Medica – North-Holland, Amsterdam, etc. X,345 pp., 84 figs., 33 tabs., index to contributors, subject index. D.fl. 44.00, ca. U.S. \$ 19.00

This symposium was held in London in July, 1972. Attendance was truly international, and encompassed both morphologists and physiologists. As with most Ciba Symposia the book is a must for all those who are themselves working in this field. However, a large proportion of the 13 papers and the group discussions held is of interest to those working on cell differentiation generally.

The following aspects may be highlighted: morphological identification of stem cells, kinetics of proliferation in cell populations, differentiation in cell populations and its interplay with proliferation, hormonal and cell-to-cell controls in cell differentiation, and the role of the micro-environment.

As usual the book's production is excellent and the price reasonable.

66  
CIBA Symposium. 1973. LOCOMOTION OF TISSUE CELLS  
Elsevier Excerpta Medica North-Holland, Amsterdam, etc. Ciba Foundation Symposium 14 (new series). VIII, 381 pp., 130 figs., 12 tabs., index to contributors, subject index. D.fl. 49.00, about US \$ 19.60

*Contributors:* Abercrombie, Allison, Berg, Bray, Bunge, Bushnell, Büültjens, Chang, Curtis, De Petris, Dickerman, Dunn, Gail, Gelfand, Goldman, Gustafson, Harris, Hopkins, Ludueña, Middleton, Miller, Pollack, Porter, Raff, Spooner, Steinberg, Trinkaus, Vasiliev, Wang, Wessells

The mechanism of cell movement is of direct interest to developmental biologists, particularly those interested in morphogenetic movements. This symposium, held in 1972 in London, was apparently the first international meeting on the locomotion of tissue cells, as opposed to large rhizopod protozoa. There were 24 participants from various European countries and the U.S.A., and the papers and discussions collectively represent the latest state of the subject. The papers either review recent to very recent published data, or report results unpublished in 1972, or both.

Almost all papers will be read with great interest by developmental biologists. Together they cover all aspects of the subject that are now known to be important: cell surface movement and fluidity, intracellular actomyosin, microfilaments and microtubules, cell adhesion, formation and behaviour of the various classes of processes put out by cells, contact inhibition of movement (of which a new interpretation is suggested), and the roles of serotonin, acetylcholine, and calcium.

All these are studied in a variety of cells *in vitro* and *in vivo*, including nerve cells and cells in fish and sea urchin embryos. The discussions are particularly interesting and often contain the newest material, complete with illustrations and references. There are two lengthy general discussions dealing, among other things, with cell adhesion, directed cell movement, and the role of the substrate.

The book is beautifully produced and illustrated, at a reasonable price.

67.  
E.KULONEN and J.PIKKARAINEN, eds. 1973. BIOLOGY OF FIBROBLAST  
Academic Press, London, etc. XIV, 689 pp., 229 figs., 89 tabs., author and subject indexes. £ 12.60, \$ 35.50

The role of connective tissue and, more generally, of extracellular matrices in developmental processes is becoming more and more evident. Though not dealing with development only, this symposium contains much that will interest developmental biologists, particularly those working on subjects like cell differentiation *in vitro*, wound healing, and tissue regeneration. The symposium was held in Turku, Finland in August 1972. Most of the participants came from various Western and Middle-European countries and the U.S.A.

Most of the 60 brief to medium-length papers report on and/or review recent results. They touch on a great many aspects of fibroblast biology, but also on such subjects as chondrogenesis, osteogenesis, matrix synthesis and metabolism, and the cell surface.

The papers are grouped as follows: General (4 papers); Cytological aspects and differentiation (14, of which at least 6 are of direct interest to developmental biologists); Extracellular space and cell surface (9); Specific synthetic functions (17); and Inflammation, repair and fibrosis (16).

The book is well produced and illustrated.

68.  
B.S.SPOONER, S.R.HILFER, and E.D.HAY, preface. 1973. FACTORS CONTROLLING CELL SHAPE DURING DEVELOPMENT

American Society of Zoologists, Thousand Oaks. Amer. Zool. 13, 4, pp. 937-1135. 157 figs., 23 tabs.

*Contributors:* Banerjee, Bernfield, Burnside, Cohn, Conrad, Gilula, Hay, Hendrix, Hilfer, Meier, Rappaport, Roth, Schroeder, Sheridan, Shur, Solursh, Spooner, Toole, Vaerewyck, Weisenberg, Zwaan

This all-American symposium was held in December, 1972. It brought together a number of eminent specialists working in three related areas: the intracellular machinery involved in changes in cell shape, the extracellular materials that are thought to determine cell and tissue shape, and the cell surface specializations probably involved in cell communication. Of the 15 papers, eight deal with the first, four with the second, and three with the third area. The discussions are not recorded.

The papers provide a very useful survey of the major aspects of this general area, as well as accounts of some interesting new approaches. Most papers are a mixture of research report and review, while some are just reviews of recent data. A broad range of cell and tissue types in animal development are covered. The papers are very well illustrated.

**DEVELOPMENTAL BIOCHEMISTRY, MOLECULAR BIOLOGY** (see also 2,5,8,23,39, 41,54,55,57,58,61,67,76,79,83)

*Textbooks*

69.  
H.DENIS. 1974. PRÉCIS D'EMBRYOLOGIE MOLÉCULAIRE  
Presses Univ. de France, Paris. Collection SUP, Le Biologiste 3. 232 pp., 47 figs., 2 tabs., subject index

This student's text, though very concise, has the advantage of being both didactically clear and thoroughly up to date. The student who has read it will really have grasped the essentials of the subject, which is no small achievement. The book could even serve as an introduction for non-molecular embryologists at various stages in their career.

The book deals with both oogenesis and embryogenesis, with particular reference to sea urchins and amphibians. It is in two parts, the first and longest of which treats all the various classes of DNA and RNA and their interrelations, as well as some selected classes of proteins. Part two, which occupies the remaining quarter of the book, discusses briefly but very clearly the various molecular-embryological theories in existence today. Its three chapters deal consecutively with levels of regulation, intracellular coordination of gene activity, and intra- and intercellular communication.

Most of the illustrations are diagrams and graphs. They are of great didactic clarity, and those which give the results of experiments have extensive captions explaining the methods used. No references are given in the text. The book is concluded by a very good glossary and a brief reading list.

70.  
J.ILAN. 1973. REGULATION OF MESSENGER RNA TRANSLATION IN DEVELOPMENT: THE CRITICAL ROLE OF TRANSFER RNA  
Addison-Wesley, Reading, Mass. Addison-Wesley Module in Biology No. 5. 27 pp., 7 figs., 10 tabs.

This is essentially an account of the important recent work of the author and his associates on the regulation of the synthesis of adult cuticular protein in *Tenebrio*. However, it has been placed against the background of the regulation of gene expression generally. The module reads well but presupposes rather much biochemical knowledge.

71.

B.F. POGLAZOV. 1973. MORPHOGENESIS OF T-EVEN BACTERIOPHAGES

Karger, Basel, etc. Monographs in Developmental Biology vol. 7. VI, 105 pp., 56 figs., 6 tabs. SFr. 54. , \$ 16.75, £ 7.85, DM 51.

Molecular self-assembly is now generally considered to be basic to the emergence of all macromolecular structure in biological systems. (Whether one wishes in this context to use the word "morphogenesis", which was originally coined for quite different processes is largely a matter of taste.) The T-even phages have contributed much to this view, but as far as the reviewer is aware this is the first book to be devoted entirely to their molecular assembly. It is therefore to be welcomed, although it seems to have been written for other specialists in the field and is not very suitable for the uninitiated.

The author and his co-workers have been active in this field for more than a decade, but most of their work was published in Russian. This work is covered extensively in the book, but it is integrated into a review of relevant work by others. The emphasis is on the assembly of bacteriophages from ready-made protein subunits. The molecular-genetic aspects are sketched in as a necessary background.

Most of the illustrations are original; they mainly consist of diagrams, optical diffraction photographs, and excellent electron micrographs of a variety of structures and their precursors and subunits.

The book has no indexes. It is luxuriously produced and therefore rather expensive.

72.

B.E. WRIGHT. 1973. CRITICAL VARIABLES IN DIFFERENTIATION

Prentice Hall, Englewood Cliffs. Concepts of Modern Biology Series. XVI, 109 pp., 31 figs., 16 tabs., combined author and subject index. \$ 7.95, £ 4.—

*Contents:* 1. The importance of metabolite flux; 2. The intermediate metabolism of a model system: the cellular slime mold; 3. Using kinetic models to find the critical variables; 4. Speculations on the evolution of flux control in differentiation

This book is interesting particularly because it presents a novel viewpoint. Paraphrasing the author's own words, this viewpoint is that enzyme profiles have little functional significance, and that the important parameter for the metabolic state of a cell is net flux of small metabolites through a metabolic pathway (ch. 1).

Consequently, in ch. 2 she focusses on the consequences for differentiation of metabolite availability and metabolic interactions, rather than gene activation and synthesis of isolated enzymes, which so far have attracted most of the attention. The pathways she singles out for particular consideration are those of the synthesis of carbohydrate end products of differentiation in the model system, *Dictyostelium*. Critical variables are defined as variables which limit the rate of differentiation at particular points in time by directly affecting the rates of reactions essential to end product accumulation. It is argued that enzymes are not critical variables.

On the basis of these data ch. 3 present a simplified kinetic model of carbohydrate metabolism, and this is then used for computer simulations. This part of the book can only be judged by the specialist. The author's conclusion is that changes in the flux of endogenous metabolites may play a surprisingly prominent role in biochemical differentiation. She stresses the heuristic value of (admittedly primitive) kinetic models and the fact that they may give us a new dimension of understanding of complex metabolic systems.

Finally, ch. 4 speculates on the evolution of closed developmental systems.

73.  
M.C.NIU and S.J.SEGAL, eds. 1973. THE ROLE OF RNA IN REPRODUCTION AND DEVELOPMENT  
North-Holland, Amsterdam, etc.; American Elsevier, New York. XIV,357 pp., 148 figs.,  
95 tabs., subject index. D.fl. 48.—, ca. \$ 17.50

This book contains most of the papers read at an international symposium held in Washington, D.C. in December 1972. Of the 50 participants, 14 came from ten countries outside the U.S.A. Most papers range in length from ca. 10 to ca. 20 pages; most report on work unpublished at the time of writing, while some are mixtures of review and research report. Together they provide a selective but broadly oriented survey of the present state of this field. The work reported was done on a great variety of organisms and organs (the higher plants are only represented once).

The 25 papers are arranged in five sessions as follows: RNA metabolism in developing embryos and organs (4 papers; 2 dealing with gene transcription in sea urchin and amphibian embryos, respectively); RNA effects on *in vivo* synthesis of specific proteins (5); Transfer of tissue specificity (5; 2 dealing with induction in avian and amphibian embryos, respectively); Nucleic acid-induced changes in living systems (6; one dealing with heart induction, one with epithelial-mesenchymal interaction in tooth rudiments); Mechanisms of RNA action (5; one dealing with RNA-directed DNA synthesis in the chick embryo).

The luxurious production has resulted in an unnecessarily high price. Some of the photographic illustrations are very pale. The number of printing errors is large.

74.  
J.K.POLLAK and J.W.LEE, eds. 1973. THE BIOCHEMISTRY OF GENE EXPRESSION IN HIGHER ORGANISMS  
Reidel, Dordrecht, etc. X,656 pp., 311 figs., 127 tabs., subject index. D.fl. 120.—

This volume contains the 36 papers presented at an international symposium held in Sydney in May, 1972. The place of assembly is reflected in the fact that no less than 20 of the contributions have one or more Australian authors. The work described deals with a variety of organisms, both plant and animal. The great majority of the papers range in length between 12 and 25 pages.

The papers are arranged in six sections as follows: Chromosome structure and the manipulation and analysis of genes (4 papers); Transcriptional and translational control mechanisms (12); Gene expression and development (5); Gene expression in differentiated cells (4); Gene expression in mitochondria and chloroplasts (5); and Gene expression and the immune response (9). The authors in section three are Holtzer et al. (on DNA synthesis requirement), Duck-Chong and Pollak (on membrane assembly in the rat), Thomson (on *Calliphora* larval tissues), Kessler (on modulation of gene expression in plants), and Millerd (on cell expansion in plants).

The book is well printed but the photographic illustrations are not always optimally reproduced.

#### *Books of readings*

75.  
THE SEA URCHIN. 1973. Vols. II and III: Molecular Biology  
MSS Inf. Corp., New York. Vol. II 202 pp., 61 figs., 4 pls., 20 tabs. \$ 15.00, Vol. III  
222 pp., 61 figs., 1 pl., 13 tabs. \$ 15.00

For a general characterization of this series the reader is referred to Gen. Embryol. Inf. Serv. vol. 15, pt. 1, page 242 (review nr. 139).

Vol. II: Mitochondrial transcription in the early embryo (1 paper); nuclear and riboso-

mal RNA synthesis in oocytes and embryos (6); gamete and embryo chromatin (3). First authors: Chamberlain, Seonzo, Kronenberg, Brandhorst, Aronson, Emerson, Hill, Wilt, Ozaki. Publication dates: 1971, 1972.

Vol. III: Characteristics of protein synthesis in early embryogenesis (6 papers); tubulin synthesis in the early embryo (2); histones and histone genes in embryos (3); transfer and 5S RNA (2); technical innovations (3 papers on purification and fractionation of oocytes, and removal of vitelline membrane). First authors: Terman, Berg, Infante, Ruždijić, Humphreys, Raff, Meeker, Ord, Bentsinen, Kedes, O'Melia, Molinaro, Giudice, Epel. Publication dates: 1970–1972.

## DEVELOPMENTAL GENETICS, EVOLUTION (see also 2,3,13,16,48,59,62,69,70,74)

### *Monographs*

76.

J.B.GURDON. 1974. THE CONTROL OF GENE EXPRESSION IN ANIMAL DEVELOPMENT

Clarendon Press – Oxford Univ. Press, London, etc. X,160 pp., 29 figs., 12 tabs., subject index. £ 3.50 (cloth), £ 1.25 (paper)

*Contents:* 1. Nuclear transplantation and somatic cell genes; 2. Translational control and message-injection into living cells; 3. Gene transcription and the initiation of cell differentiation; 4. General conclusions

This book is based on a series of lectures given in 1971, but the lectures have been brought up to date and expanded. The treatment is judiciously selective and for that very reason the book seems ideal as a teaching aid and as a refresher for biologists not themselves working in this field. It certainly conveys the excitement of an author who is actively involved in the most recent advances. Understandably, much emphasis is placed on amphibian experiments, but other systems are adduced in appropriate places.

This reviewer is inclined to regret that although the stability of determination in imaginal discs is mentioned, transdetermination is not discussed, and only very cursory attention is paid to the role of cell division in cellular differentiation.

A useful appendix provides technical and other additional information on the cloning of animals, the genetic analysis of somatic cells, and micro-injection experiments with *Xenopus* eggs and oocytes. The book is well produced and adequately illustrated.

## DEVELOPMENTAL PHYSIOLOGY (incl. endocrinology, immunology, behaviour, etc.) (see also 2,14,29,51,55,56)

### *Treatises*

77.

G.GOTTLIEB, ed. 1973-1974. STUDIES ON THE DEVELOPMENT OF BEHAVIOR AND THE NERVOUS SYSTEM

Academic Press, New York, etc.

Vol. 1 (1973) Behavioral embryology. XX,369 pp., 124 figs., 14 tabs., author and subject indexes. \$ 22.50

Vol. 2 (1974) Aspects of neurogenesis. XVI,287 pp., 74 figs., 2 tabs., author and subject indexes. \$ 18.50, £ 9.25

This new multi-author serial publication grew from the realization that the existing books on neurobehavioural development treat prenatal ontogeny either highly selectively or rather superficially. The first two (companion) volumes are best characterized by a quotation from the preface to vol. 1:

[They] are meant to present a fairly basic orientation to some of the more persistent and most important "philosophical", theoretical, and empirical problems of behavioral



embryology. Also included are a few studies on new and interesting animal groups, and some new and different approaches, to give some sample of the less conventional, more ground-breaking aspects in the field.

In both books an explicit attempt was made to present the subject at a level which allows readers not familiar with the field to follow the discussion. The editor provides the necessary background in an introductory chapter dealing with methodological and theoretical aspects. Moreover, his introductions to the various sections bring continuity to the two volumes. Most of the work presented deals with avian and mammalian embryos, but in vol. 1 one paper (Berrill) deals with crustaceans, while in vol. 2 one paper (Székely) is devoted entirely to amphibians and another (Hughes) gives much attention to them.

Vol. 1 has the following sections: Embryonic motility and its neural correlates (chapters by Hamburger, Provine, Foelix and Oppenheim, and Berrill); Hatching: hormonal, physiological, and behavioral aspects (chapters by Oppenheim and by Corner, Bakhuis, and van Wingerden); Sensory processes: embryonic behavior in birds (chapters by Vince and by Impeken and Gold). In vol. 2 the sections are as follows: Synaptogenesis and the problem of neuronal specificity: structural and functional aspects (chapters by Berry, Crain, Székely, and Jacobson); Fetal brain function: sensory and motor aspects (chapters by Meyerson and Persson and by Bergström); Metamorphosis and birth: hormonal and physiological aspects (chapters by Hughes and Sedláček).

The volumes are well produced and well illustrated.

78.

J. LOBUE and A.S. GORDON, eds. 1973. HUMORAL CONTROL OF GROWTH AND DIFFERENTIATION.

Academic Press, New York, etc. 2 vols.

Vol. I Vertebrate regulatory factors. XVI, 412 pp., 78 figs., 21 tabs., author and subject indexes. \$ 31.50, £ 15.10

Vol. II Nonvertebrate neuroendocrinology and aging. XIV, 319 pp., 33 figs., 7 tabs., author and subject indexes. £ 11.50

In recent years much advance has been made in the field covered by the title of this multi-author treatise. In both volumes special emphasis is placed on those chemical messengers (stimulators and inhibitors) which have received relatively little attention in standard endocrinology books. The books are written by a large team of specialists, most of them Americans. All chapters are critical reviews, and most have references up till 1971 and occasionally later. The volumes are packed with information. Both have a general summary provided by the editors, which facilitates selective reading.

In vol. I there are three major sections. The first is taken up by a review of chalone control systems by Bullough. The section on blood cell formation and release is the most complete one and consists of no less than nine chapters. Finally, the section on humoral control of organ and tissue growth deals consecutively with nerve growth factor, liver regeneration, renal growth factor, skeletal growth and regeneration, and trauma and tumour growth (the "wound hormone" concept).

Vol. II is more varied and selective in content. The first section devotes attention to insect diapause, *Hydra* development, sponge aggregation, and chemical messengers in cellular slime moulds. Then follow two chapters on very divergent plant systems, one on the control of sexuality in algae (including *Volvox*), and one on root growth. The chapter on animal allomones and pheromones seems a little out of place. The next chapter deals with hormones and neurogenesis in mammals, and would therefore have been placed more properly in vol. I. The volume is concluded by a long and interesting chapter on ageing, which features discussions of the many theories, humoral and non-humoral, that have been advanced to explain this "process".

M. ROCKSTEIN, ed. 1973. THE PHYSIOLOGY OF INSECTA. 2nd edit. Vol. I Academic Press, New York, etc. XVI, 512 pp., 107 figs., 25 tabs., author and subject indexes. \$ 38.00

*Contents:* 1. Biology of the Insecta (Rockstein, 7 pp.); 2. Reproduction (de Wilde and de Loof, 85 pp.); 3. Reproduction – Endocrine control (de Wilde and de Loof, 62 pp.); 4. Physiological and biochemical changes during insect development (Agrell and Lundquist, 91 pp.); 5. Physiology of growth and development: endocrine aspects (Gilbert and King, 121 pp.); 6. Aging in Insects (Rockstein and Miquel, 108 pp)

The first edition of this collaborative treatise appeared in three volumes in 1964. It has now been expanded to six volumes, of which we only review the first. Of the five major chapters in his volume, only ch. 5 has been updated until 1972, the others no further than 1971. Nevertheless, they are all competent, readable, and comprehensive (though not exhaustive) reviews, and are particularly useful as a guide to the specialized literature.

Only one chapter is somewhat disappointing, that by Agrell and Lundquist. One does not expect complete coverage of morphogenesis and pattern formation in a book on insect physiology. However, since the authors do treat some of the classical material on these subjects, it is surprising how inadequately they cover the modern literature, particularly the many recent advances made with techniques such as somatic crossing-over, nuclear transplantation, and transplantation of imaginal disc fragments. The more is the pity since imaginal discs are (understandably) only cursorily treated in chapter 5. It is also surprising that important books such as that by Chen (1971) and the series edited by Counce and Waddington (1972) are not mentioned.

The book is well produced and adequately illustrated. It is regrettable that no titles are given in the reference lists.

P.S. TIMIRAS. 1972. DEVELOPMENTAL PHYSIOLOGY AND AGING

Macmillan, New York; Collier-Macmillan, London. XII, 692 pp., 183 figs., 72 tabs., subject index. £ 9.95

*Contents:* I *Physiology of development*; 1. General considerations; 2. Gametogenesis and fertilization; 3. Sex determination and sex-linked inheritance; 4. Heredity; 5. Course of pregnancy, early embryonic stages, and differentiation; 6. Hormones of pregnancy: placental, fetal, and maternal; 7. Fetal and maternal membranes, and placental physiology; 8. Fetal circulation and metabolism; 9. Development and plasticity of the nervous system; 10. Labor and delivery: their effects on the fetus and the newborn; 11. Respiratory and circulatory changes after birth; 12. Gastrointestinal function: thermoregulatory and metabolic adjustments; 13. Developmental aspects of immunity; 14. Development of kidney function; 15. Body growth; 16. Regulatory action of hormones on growth; 17. Development and maturation of gonadal function; 18. Physiologic changes at adolescence; 19. Factors affecting growth and development; II *Physiology of aging*; 20. General considerations; 21. Nature of aging processes; 22. Degenerative changes in cells and cell death; 23. Aging of tissues: alterations in collagen and immune system; 24. Diseases of aging; 25. Cardiovascular alterations with age: atherosclerosis; 26. Structural, biochemical, and functional aging of the nervous system; 27. Changes in gonadal function; 28. Decline in homeostatic regulation; 29. Theories of aging; 30. Aging of and in populations; 31. Factors affecting aging: pharmacologic agents

This book is the first of its kind to appear. It is particularly useful for students, perhaps somewhat less so for specialists in some areas. The emphasis is on human biology. Several laudatory reviews have already appeared, so that we will restrict ourselves mainly to printing the table of contents and a quotation from the preface:

The selections of topics presented herein have been made with a threefold purpose:

to give an overview of the sequence of development and decline of the organism from conception to death; to focus upon the functional changes that mark critical stages of development and aging, with emphasis upon the interrelationships among various functions and processes and with time; and to integrate classic theories with current hypotheses and experimental research. Thus, discrete events at the molecular, cellular, and tissular levels have been chosen essentially on the basis of their contribution to overall physiologic competence at selected ages. Similarly, the development and the aging of endocrine and nervous systems have been given particular emphasis, because of their significant role in regulating all bodily functions and in enabling the organism to respond to internal and external environmental challenges from birth to old age.

The author has solicited the help of six other contributors for seven of the 31 chapters. Optional reading, mostly of an advanced nature, is set in smaller type. The book is very well produced and illustrated, and all chapters have extensive and up-to-date bibliographies. The index is very extensive.

### *Symposium reports*

81.

H.ANKERMANN and A.TRAEGER, eds. 1972. BEITRÄGE ZUR ENTWICKLUNGSPHARMAKOLOGIE

Friedrich Schiller Univ., Jena. Wissenschaftliche Beiträge der Friedr.-Schiller Univ. 230 pp., 102 figs., 13 tabs. ca. M 14.– (paper)

This book contains the 28 papers read at an international and interdisciplinary symposium held in November 1971 in Jena, East Germany. Half of the papers were by East and West-German groups, while the remaining contributions came from Czechoslovakia, the U.S.S.R., Sweden, and the U.S.A. The majority of the papers are in German; four are in English.

The subject is considered from the viewpoints of pharmacology, pre- and postnatal developmental biology, pediatrics, and gynecology. At least a dozen of the papers are of potential interest to mammalian developmental physiologists and teratologists.

The book is plainly produced and has only line illustrations.

82.

B.K.FORSCHER and J.C.HOUCK, eds. 1973. CHALONES: concepts and current researches

U.S. Dept. of Health, Education, and Welfare, Bethesda. National Cancer Inst. Monograph 38. VIII, 233 pp., 88 figs., 39 tabs. \$ 4.75

Chalones are tissue-specific endogenous mitotic inhibitors. This symposium was held in Augusta, Mich, in June, 1972. According to the preface "almost every significant investigator of chalones over the past decade" was invited. The participants came from North America and a number of Western-European countries.

The 23 papers are arranged in three groups as follows: The epidermal chalone (7 research papers, a review by Laurence, and a summary of mechanisms by Bullough); The leucocyte chalone (a review by Lajtha and 6 research papers); Miscellaneous chalones (7 papers on fibroblast, liver, kidney, melanocyte, and tumor chalones). Furthermore, there is an introductory review by Bullough, a paper by Bard on chalones and homeostasis, and an apt summary of the symposium by Iversen. The discussions held at the symposium are not recorded. There are no indexes.

*Monographs*

83.

M.J. CHRISPEELS, ed. 1973. MOLECULAR TECHNIQUES AND APPROACHES IN DEVELOPMENTAL BIOLOGY

J. Wiley, New York, etc. XIV, 306 pp., 53 figs., 4 pls., 34 tabs., subject index. £ 9.20

This book arose from a project called the La Jolla Summer Workshop on Molecular Techniques in Developmental Biology. This is an annual enterprise, but it is not clear whether the book represents one workshop or a selection from a series of successive ones. That the latter is the case is suggested by the fact that in four of the 11 contributions the most recent literature cited dates from 1971 or earlier. No reasons are given for publishing this particular collection of papers, nor is it clear whether more books of this kind are to be expected.

The contributions, each by a recognized specialist, describe a variety of techniques and procedures down to the minutest detail. They therefore constitute the best possible substitute for personal training, and as such are of great value. There is no common theme in the book, and the best we can do is to briefly characterize the contributions one by one as follows: organelles and membranes from rat liver; rat tissue proteins; steroid receptor proteins; protein separation by gel filtration; enzyme synthesis in germinating seeds; RNA polymerases from *Dictyostelium*; DNA from eukaryotic cells; quantitative measurement of RNA synthesis; nucleic acid hybridization on filters; tRNA species; and hybridization and reassociation of nucleic acids from cells of higher animals. The last contribution is by far the longest (80 pp.); the others range in length from about 10 to over 30 pages.

**HISTORY, BIOGRAPHIES**, etc. (no entries)

**MISCELLANEOUS ITEMS** (no entries)















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