





**GENERAL EMBRYOLOGICAL
INFORMATION SERVICE**

1949

(first issue)

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INTRODUCTION

The foundation of a GENERAL EMBRYOLOGICAL INFORMATION SERVICE was an experiment on a large scale. Success or failure depended not on the activity of one institute alone, but on the general interest, goodwill and active cooperation of all embryologists the world over.

Surveying the progress of our common project at the end of its first year, we can say that it has achieved a real success. In our first issue one can find data on the current investigations of more than 550 workers in the field of Embryology.

The great interest shown in this undertaking must be based on a general desire for better international contact and cooperation with colleagues all over the world. We have had enthusiastic letters from many correspondents. This general establishment of contact may be of very great importance for the progress of Science especially in more isolated countries. The fact that the Hubrecht Laboratory has helped in the fulfilment of such a widespread need is a real pleasure to us.

We will not conceal however that this first attempt has not yet achieved complete success. Not every embryologist was reached, since many addresses were unknown to us. With the help of our colleagues we tried to supplement our list of addresses, which indeed grew very quickly in the course of this year. In the second place, we have not yet received information from every institute to which our circulars were sent. We could not, indeed, expect a direct collaboration of every institute in this first year, as the significance of our project may not have appeared immediately to everybody. Propaganda remains, indeed, important¹⁾. We expect, however, a much better understanding of our enterprise after we have distributed this first issue of the G.E.I.S., in which unfortunately a few institutes must still be marked „data not yet received“. We hope and expect that we can offer you a complete survey of current embryological work in the issue for the year 1950.

The development of the rather extensive organisation has taken more time than we had hoped when we started this project in the spring of last year. As our list of addresses grew only gradually, circulars could not be sent to many institutes before the summer of this year, so that their data did not arrive until the beginning of the autumn. We cannot therefore offer you this first issue before the beginning of 1950. We hope, however, that the organisation will run more smoothly in its second year. We will try to send you the second issue in the last quarter of 1950.

¹⁾ The list of cooperating European institutes is more complete than that of American institutes. This difference finds its explanation in the fact that we have been able to discuss the plans of the Hubrecht Laboratory in personal conversation at several international and national congresses in Europe. Personal contact and relations facilitate enormously this international work. The number of personal contacts with American embryologists is, however, still small. We therefore hope that we will be able to extend our relations with American colleagues in the near future in order to make our work, which is in the interest of all embryologists, more familiar to them.

I will briefly discuss the arrangement of chapters b — e and the contents of chapters f — h.

Chapter b gives the alphabetical list of names with addresses. The present collaborators of the G.E.I.S. have been marked with *.

Chapter c contains the list of institutes and has been arranged according to a geographical order, which forms the best supplement to the alphabetical list of chapter b. The institutes have been grouped according to continent, country, district, town and street. Within each of these groups we use an alphabetic arrangement.

Members of the staff have been placed in the left column, embryologists not belonging to the staff in the right column.

Three groups of institutes can be distinguished:

- a. Those institutes which are mainly concerned with embryology or which have a separate embryological department with a rather extensive staff of embryological workers.
- b. Those institutes, in which only a small number of embryologists are working (individual workers).
- c. Those institutes, from which we have not yet received information. They are included in order to give as complete a survey as possible of all embryological Institutes. They have been marked "data not yet received".

The size of this issue compelled us to restrict the data concerning the composition of staffs to the embryological workers and directors only.

In *chapter d* you will find the names of embryologists and the subjects on which they are working. This chapter has given us some trouble, especially in those cases, in which forms have not been filled in completely.

The indices at the end of each subject refer to the arrangement in the next chapter.

Chapter e with the classification of data according to subjects has, however, given the greatest trouble, again especially when forms have not been filled in completely ¹⁾, or when investigations deal with more than one of the main groups distinguished in our general classification. Sometimes it was necessary to divide a subject into two separate ones, and in a few cases it was even impossible to classify an investigation in the right place. We, therefore, urgently request every collaborator to give us *complete data*!

The order of classification into subjects is of course a more or less arbitrary one. We have tried to develop the most practical system. We classified the investigations according to general group, general subject, special subject and only finally according to systematic group. The arrangement according to subject could be followed out completely in the case of special investigations, but was soon exhausted in the case of general investigations, so that here we soon fell back upon the systematic order (cf. the general rubrics I. 2, II. 2, IIIa. 2 and IIIb. 2). This was also the case with investigations on Invertebrates, as the classification

¹⁾ Incomplete data give rise to wrong classifications and can be classified in main groups only.

into subjects used here, holds good mainly for Vertebrates. Therefore, the systematic arrangement was directly applied within the general subjects for investigations on Invertebrates.

The names of cooperating embryologists have been arranged alphabetically.

The enormous variety of subjects did not allow any entirely consistent and adequate classification, so that in several cases an investigation could have been classified under more than one heading. In order to avoid an enormous extension of this issue we tried to classify every investigation under one heading only, which, however, often required a Solomon's judgment. We have, therefore, added supplementary indices, placed behind the corresponding line, which refer to other headings under which the investigation in question can also be placed.

The indices before the corresponding line refer to the systematic group.

In the above mentioned chapters b—e we have not translated the text received in order to avoid any change in its character. For the same reason any correction of the text has been restricted as much as possible.

We hope that chapter f will develop into a section in which every embryologist will record new practical technical methods or his own experiences with new technics; in general, data which would not be published otherwise, or which are in danger of being neglected. These annotations can be inserted in the form of references to little known publications, or in the form of very short notes, in which only the essential data are given. The examples may further demonstrate the intended contents of this section.

Chapter g will discuss general questions and projects, which are of importance and interest to every embryologist. (Cf. the project of the Central Embryological Library at the Hubrecht Laboratory, and that of the Normal Table of *Xenopus laevis*).

Chapter h will finally be destined for communications from the "Institut International d'Embryologie".

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GENERAL LIST OF NAMES

With Subjects of Work in Preparation

(Alphabetical order)

- ABELOOS, M. Regeneration in marine *Annelids*. IV. 2. C.
 — Regeneration in marine *Planarians*. IV. 2. C.
 — Regeneration in *Sphaeroma* (*Crustacea*). IV. 2. D.
 — Compensatory regulation in the *Serpulid Hydroïdes*. IV. 2. B.
 — Growth and relative growth in *Mammalia* and *Arthropods*.
 II. 19. M. and D.
- ABERCROMBIE, M. A study of artificially produced duplicitas anterior. *Gallus domesticus*. IIIa. 1c. L.
 (in collaboration with Miss M. R. MORGAN)
 — Transplantation experiments on chick blastoderm in tissue culture, with particular reference to induction of the prechordal head and regulation of the primitive node. *Gallus domesticus*. IIIa. 7. L.
 — Quantitative description of development of the otocyst. *Oryctogalus cuniculus*. I. 10. M.
 — A study of liver regeneration in tissue culture. *Rattus norvegicus*. IV. 5. M.
- ADAMS, Miss A. E. (data not yet received).
- ADELMANN, H. B. (data not yet received).
- AGARWALA, D. Biology of oviposition. *Locusta*. IIIb. 4. D.
- ALDEN, R. H. Study of egg transport and implantation; early development of trophoblast; embryo-maternal relationships during nidation. *Mus*. IIIb. 3. M.
- ALOISI, Miss G. Effects of egg extracts on tumours induced by 1,2 benzopirene in *Anura*. III d. 5. J.
- ALTSCHUL, R. Regeneration of skeletal muscle in tadpoles. *Amblystoma*. IV. 5. J.
 — Regeneration of skeletal muscle in *mammals*. IV. 5. M.
 — Tissue culture of normal and damaged endothelium. *Mammals* (?) IIIa. 16. M (?)
- ALVAREZ—GUTIÉRREZ, Miss J. Cytochrome oxidase in the embryo. *Chick* and *pig*. IIIb. 2c. c. HV.
 (together with the related work of W. BUNO and R. GONZALEZ MARINO)
- AMOROSO, E. C. Development of the urino-genital canals in domestic *Mammals*. II. 17. M.
 (in collaboration with G. R. de BEER)
 — The structure of the placenta of *Anomalurus*. II. 3. M.
 (in collaboration with G. R. de BEER)
- AMPRINO, R. M. Study of the effect of the removal of the whole anlage of the eye (or of parts of it) on the organogenesis and histogenesis of extrinsic eye muscles, of the lids, of the lacrymal glands, of the naso-lacrymal duct. *Chick*. IIIa. 10. L.

- Study of the effect of the removal of the anlage of the rhombomesencephalon on morphogenesis and histogenesis of the extrinsic eye muscles. *Chick*. IIIa. 10. L.
- ANCEL, P. (data not yet received).
- ANDERS, G. Developmental physiology and genetics of the lozenge alleles in *Drosophila melanogaster*. IIIc. 3. D.
- ANDERSON, Miss I. L. An X-ray study of bone development in *Rana clamitans* during metamorphosis. V. 4. d. J.
- ANDRES, G. Chemische Beeinflussung der *Tubifex*-Mitose durch Chinone. IIIb. 20. e. C.
- Erzeugung von Teratomen bei *Xenopus*. III d. 2. J.
- ANNEZ, Ch. Experimental and cytochemical embryology. *Passalurus ambiguus* (Nematode). IIIb. 2a. c. C.
- AREY, L. B. (data not yet received).
- ARIËNS KAPPERS, J. Function of the paraphysis cerebri in *Amblystoma mexicanum*. IIIb. 9. J.
- Development and function of the paraphysis in *Lacertilia*. *Lac. muralis*, *Lac. viridis* and *Lac. vivipara*. I. 9. K.
- Embryological development of the roof of the IV ventricle. *Amblystoma mexicanum*. I. 9. J.
- Development of the meninges and its connection to the circulation of cerebrospinal fluid. *Amblystoma mexicanum*. I. 9. J.
- ARMSTRONG, P. B. Function in the developing liver. *Amblystoma punctatum* and *Ameiurus nebulosus*. IIIb. 13. I. and J.
- ASSENMACHER, I. Development of gonads, hypophysis and hypothalamus in birds. *Chick, duck and pigeon*. I. 18. L.
(in collaboration with J. BENOIT)
- ATLAS, M. Conditions of maturation of the egg and ovulation. *Rana pipiens*. IIIb. 4. J.
- Nature of the yolk and its changes in development. *Gallus domesticus*. IIIb. 2c. c. L.
- AUER, J. The development of hypothalamic fiber connections in the golden hamster fetus as well as in young specimens. *Cricetus cricetus* (Rodentia). I. 9. M.
- Studies of regeneration and degeneration of brain material after extirpation of parts of the forebrain (in particular of diencephalon) in early development (14—21 days of pregnancy) of rat fetus. *Mus norvegicus albus* (Rodentia). IV. 5. M.
- AUSTOKER, Mrs J. The bursa ovarica of *Elephantulus myurus jamesoni*. I. 17. M.
- AVEL, M. (data not yet received).
- AVIS, F. Study of intra-uterine influences upon embryonic growth, differentiation, and organogenesis by means of ova and ovary transplants between races known to differ genetically in adult body size as determined by the general size factors and also by genetic factors affecting specific regions of the axial skeleton. *Oryctolagus cuniculus*. IIIc. 1b. M.
(in collaboration with P. B. SAWIN and D. DIETZ)
- BÄCKSTRÖM, S. A. A. Morphological studies on lithium-treated developing sea-urchin eggs. *Psammechinus miliaris*. IIIa. 2a. e. G.

- BACON, R. L. (data not yet received).
- BAERENDS, G. P. Embryological development of *Ammophila campestris pubescens* (*Hymenoptera* (*Insecta*)), and dependence of its velocity of microclimate. I. 2a. D.
- BAFFONI, G. Reaction of nervous cells to periphery. *Amphibians*. IIIa. 9. J.
- Regeneration of spinal medulla. *Reptiles*. IV. 5. K.
- BAKER, H. B. (data not yet received).
- BAKER, R. C. Origin and development of the human pharyngeal hypophysis. I. 18. M.
- (joint problem with L. F. EDWARDS)
- BALINSKY, B. I. Prenatal growth and differentiation of the mammary glands. Investigation of some cytochemical properties of mammary gland rudiments (ribonucleic acid, alkaline phosphatase, indophenoloxydase content) as compared with the same in skin epidermis, hair follicles and mesenchyme. Differentiation of mammary gland rudiments in vitro. *Mus musculus* and *Lepus cuniculus*. IIIb. 8. M.
- BALTZER, F. (data not yet received).
- BANGMA, P. The influence of malonitril on the development of *Amblystoma mexicanum*. IIIb. 2a. e. J.
- BARBASETTI, Miss M. A. Developmental potencies of neural crest in *Anura*, *Rana esculenta*. (transplantations). IIIa. 7. J.
- Determination of the ear anlage. *Rana esculenta*. IIIa. 10. J.
- Effects of antimetotics on early development. *Rana esculenta*. (in collaboration with P. PASQUINI) IIIb. 2a. e. J.
- BARENTS, J. W. Implantation of fertilized rabbit ova in the uterus. IIIb. 3.
- Artificial deciduomes in rats. IIIb. 17.
- BARIGOZZI, C. Development of tumours in rats. III d. 5. M.
- BARKA, T. The role of the autonomous nervous system in the regeneration of the lens. *Triton*. IV. 5. J.
- BARNETT, S. A. Effects of low temperature on growth and reproduction in *Mus musculus* (*Rodentia*). IIIa. 19. d. M.
- BARTELMEZ, G. W. (data not yet received).
- BARTH, L. G. (data not yet received).
- BAST, T. H. Embryology and anatomy of the middle and internal ear. *Homo*. I. 10. M.
- BATTAGLIA, B. Phosphatase distribution in Amphibian eggs. *Rana*, *Bufo*. IIIb. 2c. c. J.
- BATTY, Th. Development of all systems of the toadfish in relation to behavior. IIIa. 2a. I.
- (in collaboration with H. C. TRACY and J. WINBLAD)
- BAUMANN, J. A. Développement du nerf facial (périphérique). Rameaux transitoires et définitifs. Leur composition — leur distribution. *Cobaye*. I. 9. M.
- BAX, W. A. Development of the mediastinal connective tissue. *Mammals*. I. 16. M.
- BAXTER, E. W. Biology of *Lampreys* (*Cyclostomata*). (Including development and metamorphosis). IIIb. 2a. I.

BEAN, Mrs E. S. (data not yet received).

BEATTY, R. A. Effect of specific enzyme poisons on embryonic development. Correlation of developmental events with activity of specific enzymes. *Rana temporaria* and *Triton spp.* IIIb. 2c. e. J.

— Influence of maternal environment and cytoplasm of female-sterile mutants on egg development. Mode of action of the "fused" factor on development. *Drosophila melanogaster.* IIIc. 1b. D.

— Heteroploidy in mammals. Spontaneous heteroploidy — analysis of factors involved. Induced heteroploidy — methods of production. Viability of polyploid embryos. Physiological embryology of polyploid embryos. *Mus musculus.* IIIc. 2. M.

(in collaboration with M. FISCHBERG)

— Transplantation of mammalian ova. *Mus musculus.* IIIa. 1b. M.

(in collaboration with M. FISCHBERG)

BECCARI, N. (no embryol. work in progress).

BEER, G. R. de Studies on the structure of the egg-tooth and the caruncle in *amphibians, reptiles* and *birds.* II. 8. V.

— The egg-tooth and caruncle of the *Monotremes.* II. 8. M.

(in collaboration with J. P. HILL)

— Studies in the derivatives of the neural crest with special reference to dermal bone. *Vertebrates.* II. 7. V.

— Some aspects of the problems of homology (with sp. ref. to the bicentenary of the birth of GOETHE). *Vertebrates.* II. 1a. V.

— Development of the urino-genital canals in *domestic mammals.*

(in collaboration with E. C. AMOROSO)

II. 17. M.

— The structure of the placenta of *Anomalurus.* II. 3. M.

(in collaboration with E. C. AMOROSO)

BELANGER, L. F. The mechanism of deposition of Phosphorus and other mineral components of bones and teeth, as revealed with the help of radioisotopic tracers and the "coated autograph" technique. *White Rat, the Golden Hamster (Cricetus aureus)* and the *Frog tadpole.* Small reptiles of the order *Squamata* are also to be used shortly. IIIb. 11. d. V.

BELLAIRS, A. d'A. Development and morphology of the head structures in a large number of species of *reptiles*, studied mainly by serial sections of the forms below. II. 2b. K.

BENAZZI, M. Fertilization, pseudogamy, cytology, heredity in Planarians. Species of *Tricladida.* I. 4. C.

BENAZZI—LENTATI, Mrs G. Fertilization and cytology in Planarians. Species of *Dugesia (Tricladida).* I. 4. C.

BENOIT, J. Development of gonads, hypophysis and hypothalamus in birds. *Chick, duck* and *pigeon.* I. 18. L.

(in collaboration with I. ASSENMACHER)

BER, A. The influence of hormones on metamorphosis. *Vertebrates?*

(in collaboration with A. ORLOWSKI)

V. 2. f. V.?

BEREK, L. Researches on the time of appearing of lipoids in the embryonic cartilages. *Vertebrates.* IIIb. 11. c. V.

(in collaboration with I. NAGY and Gy. SAVAY)

BERG, W. E. Physiological and biochemical studies of mosaic eggs. *Mytilus edulis (Pelecypoda).* IIIb. 2a. c. E.

- BERGERARD, Madame Yv. In vitro studies on *mammalian* fetal sexual structures. IIIb. 17. M.
- BERRILL, N. J. (data not yet received).
- BEZEM, J. J. Determination of Li in amphibian-eggs, treated with LiCl. *Amblystoma*. IIIb. 2c. e. J.
- BIJTEL, Miss J. H. Investigations concerning the process of outgrowth of the tail in Amphibia with special reference to the rôle of the chorda dorsalis and the tail mesoderm. *Amblystoma mex.*, *Triton taen.* and *Xenopus laev.* IIIa. 2b. J.
- Experiments concerning the factors which determine the normal course of the outgrowing pronephric duct in Amphibia. *Amblystoma mex.*, *Triton taen.* and *Xenopus laev.* IIIb. 17. J.
- Development and phylogenetic origin of the columella auris in Amphibia. *Amblystoma mex.*, *Triton taen.* and *Xenopus laev.* I. 10. J.
- BISS, Mrs R. Elektronenoptische Studien über Plasmastruktur des Eies von *Tubifex*. I. 2a. C.
- BLACHER, L. J. (data not yet received).
- BLOUNT, R. F. Relations of the hypophysis to development. *Amblystoma*. IIIb. 18. J.
- Endocrine studies and development. *Mus musculus*. IIIb. 18. M.
- BLUNTSCHLI, H. (data not yet received).
- BOD, A. The morphological and microchemical development of the epithelial fat of the skin, with special regard to the vernix caseosa. *Man*. I. 8. M.
(in collaboration with S. KROMPECHER)
- BOEKE, J. Regeneration and development of the central nervous system. *Vertebrates*. IV. 5. V.
- The autonomous nervous system. *Vertebrates*. I. 9. V.
- The infundibular organ of *Amphioxus*. IIIa. 9. H.
- BOELL, E. J. Hypertrophy of enzyme development in *Amblystoma punctatum* resulting from rearing embryos in solutions containing enzyme substrates. IIIb. 2c. c. J.
- Development of cholinesterase in the Amphibian nervous system in relation to the functional maturation of various regions. *Amblystoma punctatum*. IIIb. 9. c. J.
(in collaboration with S. C. SHEN)
- Cholinesterase in brain hyperplasia and hypoplasia following eye transplantation and extirpation. *Amblystoma punctatum* and *Ambl. tigrinum*. IIIb. 9. c. J.
(in collaboration with S. C. SHEN)
- BOISSELOT, Mlle J. Influence avitaminose maternelle chez la *rate*
avitaminose B2
avitaminose biotine
avitaminose pantothenique
avitaminose folique III d. 2. M.
(en collaboration avec A. GIROUD)
- BONDE, C. von Embryology of the Cape Crawfish, *Jasus lalandii* (*Crustacea*) with metamorphosis. I. 2a. D.
V. 3. D.

- Embryology of certain *Elasmobranchii*. I. 2a. I.
- BONÉ, E. Modifications of the competence in Urodeles (*Triturus taeniatus*) after local action of LiCl. IIIa. 7. J.
(in collaboration with G. VANDEBROEK)
- BONIN, W. Origine des ganglions craniaux aux dépens des placodes épiblastiques. *Amia calva*. I. 9. I.
- Structure d'un oeuf *humain* au stade de la ligne primitive. Origine du mésoblaste. Mode de formation du chorion villeux. I. 6. M.
- BONNEVIE, Kr. (no embryol. work in progress).
- BOOKHOUT, C. G. "The development of *Dasybranchus caducus* (*Polychaeta*) from egg to pre-adult." Egg deposition, culture methods, day to day observations and records of living larvae and juveniles, study of fixed material. II. 2a. C.
- Embryology and development of *Haploscoloplos bustoris* (*Polychaeta*). II. 2a. C.
(in collaboration with E. C. HORN)
- BOREI, H. Respiration of sea urchin eggs in different stages of development. Enzymatic constitution of eggs, kinetics of enzyme action. *Paracentrotus lividus*, *Psammechinus miliaris* and other sea urchins. IIIb. 2a. a. G.
- BOTERENBROOD, Miss E. Analysis of the neural induction. Transfer of inductive substances in horizontal direction through the presumptive neural plate (heteroplastic transplantation of ectoderm) *Triturus taeniatus*, *alpestris* and *cristatus*. IIIa. 7. J.
(in collaboration with P. D. NIEUWKOOP and Miss A. KREMER)
- BOUIN, P. (data not yet received)
- BOUMAN, Miss M. Regulation potencies in the neural plate. Formation of neural crest by regulation after implantation of young neural plate tissue in the ventral side of neurulae, or by homogenetic induction after implantation in middle gastrulae. (heteroplastic transplantation). *Triturus taeniatus*, *alpestris* and *cristatus*. IIIa. 1c. J.
(in collaboration with P. D. NIEUWKOOP and B. de PLANQUE)
- BOUNOURE, L. (data not yet received).
- BOUR, J. W. H. Development of diencephalon and hypophysis in *man*. I. 9. M.
(in collaboration with J. DANKMEYER and W. LUYENDIJK)
- BOYD, J. D. *Human* and *mammalian* embryology with special reference to nervous system. II. 9. M.
- BOYDEN, E. A. Development of the branchopulmonary segments. *Homo sapiens*. I. 14. M.
(in collaboration with L. J. WELLS)
- BOYER, C. C. Rate of metabolism during development. *Domestic fowl*. IIIb. 2a. b. L.
- Development of Golden Hamster, *Cricetus auratus*. I. 2a. M.
- BRACHET, J. L. A. Studies on the action of a heat shock on development and cytochemistry on *Amphibian* eggs. IIIb. 2a. d. J.
- Studies on the action of specific antisera on morphogenesis. *Vertebrates*. IIIb. 2a. e. V.

- Cytochemical observations on the first stages of *Amphibia*, (various species). IIIb. 2c. c. J.
(in collaboration with J. PASTEELS)
- BRETSCHER, A. (data not yet received).
- BRETSCHNEIDER, L. H. Electron microscopical investigation on differentiation: Insemination, growth and differentiation of the egg of *Limnaea*. I. 2a. E.
- BRIEN, P. Reproduction asexuée. Régénération. Études des facteurs conditionnant l'apparition de la sexualité. Formation des cellules sexuelles. Développement embryonnaire. *Tuniciers, Eponges, Coelentérés et Oligochètes*. IIIa. 2a. EV. (A, C, G et H).
(partiellement en collaboration avec Madame M. H. HERLANT)
- BRINI, A. Origine des cellules pigmentaires de la choréïde chez les *vertébrés supérieurs*. IIIa. 10. HV.
- BROERS, C. J. The development of tympanic region and skull of *Tarsius spectrum*. I. 10. M.
- BRØNDSTED, H. V. Regeneration. *Triclad*s (?). IV. 2. C.
— *Mammalian embryology* (first stages). I. 2a. M.
- BRUNETTI, G. M. Régénération de la queue des *Reptiles*. IV. 4. K.
- BUCCIANTE, L. (data not yet received).
- BUCHER, N. Influence of radiation and chemicals on *Drosophila melanogaster* (*Insecta*)-ovaries. IIIb. 17. e. D.
- BUCHTOWNA, Miss A. Development of ribs. *Salmonidae* and *Cyprinodontidae* (*Teleostei*) and *Salamandra* (*Urodela*). II. 11. LV.
- BUNO, W. Normal table of the development of *Bufo arenarum* Hensen. I. 2a. J.
— Rôle of the Hensen knot. Induction in *birds*. IIIa. 7. L.
— Prospective areas in the *chick* blastoderm. IIIa. 2b**. HV.
(in collaboration with C. M. FRANCHI)
— Enzymes in the development of the embryo. *Chick* and *pig*. IIIb. 2c. c. HV.
(in collaboration with R. E. GONZALEZ MARINO and Miss J. ALVAREZ GUTIÉRREZ)
- BURNS, R. K. The experimental control of sex differentiation in the embryo by means of hormones. *Didelphys virginiana* (*Marsupialia*). IIIa. 17. M.
- BURR, H. S. (data not yet received).
- BUTLER, E. G. A study of the mechanics of the formation of the regeneration blastema. The influence of nerves on blastema formation. Regression in nerveless non-regenerating limbs. *Amblystoma punctatum* and *Amblystoma opacum*. IV. 2. J.
- BUTLER, E. G. Blastema formation and regeneration in urodele limbs in which proximo-distal polarity has been reversed. *Amblystoma punctatum* and *Amblystoma opacum*. IV. 4. J.
- CAIRNS, J. M. Study of the determination of details of feather structure, including both regional characteristics and hereditary variations. *Gallus domesticus*. IIIa. 8. L.
— Study of the differentiation of the limb structure. *Gallus domesticus*. IIIa. 2b. L.

- McCALLION, D. J. Experimental studies on the regeneration of the tadpole of *Rana clamitans*. IV. 4. J.
ticus. IIIa. 2b. L.
 (work completed, May '47, and published in Can. Jour. Research, vol. 26, pp. 62—65; 82—92, 1948)
- CAMBAR, R. (data not yet received).
- CAMPENHOUT, E. van Embryol. development of the innervation of the gonads. *Birds*. I. 17. L.
 — Regeneration of the central nervous system in the *chick* embryo. IV. 5. L.
- CARTER, T. C. Developmental study of a new tibial hemimelia mutant in *Mus musculus*. IIIc. 3. M.
- CASE, J. F. Investigating the ontogeny of endocrine correlation and integration mainly by intracoelomic grafting techniques. *Chick*. IIIa. 18. L.
- CASPARI, E. Development of eye pigmentation in wild type, aa and wa wa *Ephestia kuhniella* (*Lepidoptera*). IIIc. 3. D.
 — Development of tail structure in normal, Brachyury Kinky and Fused. *Mus musculus*. IIIc. 2. M.
- CASPERSSON, T. (data not yet received).
- CASTIGLIONI, M. C. Development of imaginal discs, for the study of the cell size in different developmental conditions. *Drosophila* (*Insects*). IIIc. 1b. D.
- CATE, G. ten Biochemical investigations about developmental physiology. Development of enzymes, embryonic metabolism. *Rana*, *Amblystoma* and *Gallus*. IIIb. 2c. b. J. and L.
 — Biochemical embryology: serological investigations about development of organ-specific substances (lens of the eye). *Rana* and *Gallus*. IIIb. 10. e. J. and L.
- CEI, J. M. Ecological and biochemical characteristics of the first stages of development of typical neotropical forms. *South-American Batrachians*. IIIb. 2a. J.
- CHAMBERS, R. (no embryol. work in progress).
- CHAMBERS, W. W. Studies on regeneration of *mammalian* spinal cord. IV. 5. M.
- CHANDLER, S. B. Study of the *human* inguinal canal, with special reference to its developmental anomalies. III d. 4. M.
- CHANG, C. Y. Sex determination in amphibians by steroid hormones. *Anurans*. IIIb. 17. f. J.
- CHANMUGAM, P. K. Descriptive and Comparative Embryology. *Primates*. II. 2a. M.
- CHASE, H. B. Study of anophthalmia and microphthalmia. *Mus musculus*. IIIc. 3. M.
 — Study of skin and its derivatives with emphasis on hair development and pigment distribution. *Mus musculus*. IIIc. 3. M.
- CHASE, S. W. (data not yet received).
- CHATTERJEE, H. Étude des cas tératologiques individuels y compris les tératomes. (cyclopie). *Homo*. III d. 2. M.
 (en collaboration avec A. LELIÈVRE et A. GIROUD)
- CHENEY, R. H. (data not yet received).

- CHUANG, HSIAO-HUI. Das Material über die Zusammenarbeit der Keimblätter — Versuche mit Grossdefekt an verschiedenen Regionen der Neurula — soll weiter bearbeitet werden. *Triton alpestris* und *Tr. taeniatus*. IIIa. 1c. J.
(darüber erschien bereits eine vorläufige Mitteilung in Z. Naturforschg 2b. 1947)
- Die Wirkung von Sulfa-Verbindungen auf die embryonale Entwicklung von *Rana nigromaculata*. IIIb. 2a. e. J.
- CIGADA, M. Development of myosin and actin. *Vertebrates*. IIIb. 12. V.
- CITTERIO, P. Determination in early development. *Amphibia* and *Echinodermata*. IIIa. 1c. J. and G.
- CLAES, M. T. The development of the trabeculae cranii in perch embryos treated with LiCl. *Perca (Osteichthyes)*. IIIa. 11. I.
(in collaboration with G. VANDEBROEK)
- CLANCY, CL. W. Relations of genes in the development of eye colour in *Drosophila melanogaster*. IIIc. 3. D.
- Biochemical studies of the eye pigments in *Drosophila melanogaster*. IIIb. 10. c. D.
- CLARK, E. R. Studies on growth of various implanted tissues with the rabbit's ear chamber technique. IIIa. 19. M.
(in collaboration with R. G. WILLIAMS)
- CLARK, H. Effect of ultrasonic vibrations on molting response in the newt, on regeneration of the limbs of the newt, and on gonads. *Triturus viridescens*. IV. 4. J.
- Carbohydrate and fat metabolism in chick embryos. *Gallus domesticus*. IIIb. 2a. b. L.
- CLARK, L. B. (data not yet received).
- CLARK, S. L. (no embryol. work in progress).
- CLAVERT, J. Egg formation in birds. (Rôle of female hormone in vitellogenesis). *Pigeon, duck and chick*. IIIb. 4. f. L.
- CLEAVE, H. J. van (data not yet received).
- CLEMENT, A. C. (data not yet received).
- CODDENS, J. G. The influence of different hormone-concentrations on the growth of tissue-cultures of embryonic origin. We search for the optimal concentration of several hormones (growth-promoting hormone, oestrone, a.o.) for different sorts of tissues. *Gallus domesticus*. IIIb. 19. f. L.
- COHEN, S. The chemistry of muscle differentiation. Fractionation of proteins, determination of nucleic acids in mitochondria, nuclei and cytoplasm of muscle tissue in differentiated state at various stages of differentiation of fibrils and cross-striation during development of isolated somites and undifferentiated mesoderm. *Chick*.
(in collaboration with H. HERRMANN) IIIb. 12. c. L.
- Metabolic interaction between tissues. Exchange of metabolites between tissue components (epithelium-stroma) with different degrees of oxidative or anaerobic metabolism. The investigation is carried out with model tissues, such as cornea, as well as with tissue-cultures. *Higher Vertebrates*. IIIb. 2b***. b. HV.(?)
(in collaboration with H. HERRMANN)

- The metabolic maturation of human liver. The capacity to synthesize creatine from glycoyamine and methyl donors is tested with livers of *human* feti of different inauterine age. IIIb. 13. b. M.
(in collaboration with H. HERRMANN)
- COLOMBO, G. Cytology during embryogenesis. *Amphibians*. IIIa. 2a. J.
- COLWIN, A. L. Fertilization reaction. *Saccoglossus (Enteropneusta)*. IIIb. 4. F.
(in collaboration with Mrs L. H. COLWIN)
- Normal and experimental development. *Saccoglossus (Enteropneusta)*. IIIa. 2a. F.
(in collaboration with Mrs L. H. COLWIN)
- Effect of certain chemicals on development. *Molgula, Ciona* and *Styela (Tunicata)*. IIIb. 2a. e. H.
- COLWIN, Mrs L. H. Fertilization reaction. *Saccoglossus (Enteropneusta)*. IIIb. 4. F.
(in collaboration with A. L. COLWIN)
- Normal and experimental development. *Saccoglossus (Enteropneusta)*. IIIa. 2a. F.
(in collaboration with A. L. COLWIN)
- Development of *Thyone (Holothuria)*. IIIa. 2a. G.
- COMANDON, J. (data not yet received).
- CONKLIN, E. G. (data not yet received).
- O'CONNOR, R. J. Factors affecting mitosis. *Amphibians and birds*. IIIId. 2. J. and L.
- CORDER, R. Prenatal growth and differentiation of the organs (brain, cord, hypophysis, etc.) in the *fetal puppy*. IIIa. 19. M.
(in collaboration with H. B. LATIMER)
- CORNER, G. W. Histology of uterus and ovaries in reproductive cycle of primates. Chiefly *Macaca rhesus*. I. 17. M.
- Embryological study of pregnancies terminated because of genetic or maternal factors threatening the fetus, e.g. rubella, mongolism. *Homo sapiens*. IIIId. 2. M.
- COPENHAVER, W. M. (data not yet received).
- COSTA, A. Celestino da Development of the adrenals. *Birds and mammals*. I. 18. L. and M.
- Development of the sympathetic. *Birds and mammals*. I. 9. L. and M.
- COSTELLO, D. P. Research in cyto-embryology and cyto-physiology on Marine *Invertebrate* eggs. IIIb. 2c. c. EV.
- Research in the general field of Heteroploidy. This includes surveys of frequency of polyploidy and haploidy in natural populations of salamander larvae; induction of heteroploidy by cold and heat; effects of chemicals, etc., in production of abnormalities of mitosis as the basis for induction of heteroploidy. *Amblystoma punctatum*. IIIc. 2. J.
(in collaboration with Miss C. HENLEY)
- COTRONEI, G. Recerche su trapianti, espianti e parabiosi tra anfibi anuri e urodeli allo scopo di indagare i processi di regolazione. differenziazione nel quadro dei problemi della costituzione biologica. *Anfibi*. IIIa. 1c. J.
(in collaboration with T. PERRI and Mrs L. URBANI—MISTRUZZI)

- CROMPTON, A. W. Cranial ontogenesis of *Spheniscus demersus*. II. 2b. L.
- CZAPIK, A. Development of heart of Insects. *Agelastica alni* L. (*Co-leoptera*). I. 15. D.
- CZEKANOVSKAJA, O. (data not yet received).
- DAGG, C. P. Nuclear differentiation and development. *Chicken*.
(in collaboration with A. M. SCHECHTMAN) IIIb. 19. L.
- DALCQ, A. M. Cytochemistry of early stages of development. *Rodentia and Insectivora*. IIIb. 2c. c. M.
(in collaboration with coworkers)
- Regulation in blastula and gastrula stage. *Urodela and Anura*.
(in collaboration with coworkers) IIIa. 1c. J.
- DALES, R. P. Breeding, larval development and ecology of Polychaetes. *Nereis diversicolor* (*Nereidae*), *Tharyx marioni* (*Cirratulidae*), *Heteromastus filiformis* (*Capitellidae*). I. 2a. C.
- DALTON, H. C. Gene action controlling development of pigmentation in white and dark strains of Mexican axolotl. *Siredon mexicanum*. IIIc. 3. J.
- DAM, L. van Structure of larval pharyngeo-branchial apparatus as a respiratory and food-collecting organ. *Xenopus laevis*. I. 14. J.
- DAMAS, H. F. C. Étude du développement des Lamproies, *Lampetra fluviatilis*; *L. planeri* (*Cyclostomes*). I. 2a. I.
- Étude de l'influence de la lumière sur le développement des Vertébrés inférieurs. *Cyclostomes et Brataciens*. IIIa. 2a. d. LV.
- D'ANCONA, U. Differentiation of the gonads in Vertebrates. *Teleosteans and other Fishes*. II. 17. I.
- DANIELLI Investigations if there occur any changes in the nucleus in course of differentiation. *Vertebrates*. IIIb. 2c. V.
- DANKMEYER, J. Permeability of the placenta in *rat* and *guinea-pig*. Investigation with isotopes. IIIb. 3. M.
(in collaboration with C. B. HEYN)
- Development of uterus and ovary in *man*. I. 17. M.
(in collaboration with Miss A. DEKKER)
- Development of diencephalon and hypophysis in *man*. I. 9. M.
(in collaboration with W. LUYENDIJK and J. W. H. BOUR)
- Investigations on congenital heartmalformations. *Homo*. III d. 4. M.
(in collaboration with H. A. SNELLEN and W. H. v. d. WEL)
- DATKOWNA, H. Osmotic pressure and fish embryos. *Salmo trutta*. IIIb. 2a. b. I.
- Physico-chemical properties of embryos: the yolk. *Salmo* (*Pisces*), *Lacerta* (*Reptilia*) and *Gallus* (*Aves*). IIIb. 2c. c. V.
(in collaboration with Z. GRODZINSKI and K. SWIERZAWSKA)
- DAVIES, D. H. Embryology of the commoner food *Fishes* of South Africa. I. 2a. I.
- DEKKER, Miss A. Development of uterus and ovary in *man*. I. 17. M.
(in collaboration with J. DANKMEYER)
- DELANNEY, L. E. (data not yet received).

- DELSOL, M. Étude de l'action des antithyroïdiens (thiouracil etc.) au de la vie larvaire et de la métamorphose des Batraciens. *Discoglossus pictus*. V. 2. J.
- DESCLAUX, P. Développement du diencéphale; étude structurale en rapport avec l'apparition des fonctions. *Rat*. I. 9. M.
(en collaboration avec A. GIROUD et Mlle J. TEYSSEYRE)
- Influence tératogène des intoxications maternelles. *Femme et rat*.
(en collaboration avec A. GIROUD et C. MORLON) III d. 2. M.
- DETH, J. H. M. G. van Determination of sex in birds and mammals. *Gallus domesticus* and *Cavia cobaya*. III b. 17. HV.
- Origin of the asymmetry of the embryo. *Gallus domesticus*. III a. 1c. L.
- Lens induction in vitro. *Gallus domesticus*. III a. 10. L.
- Tooth development. *Rat*. III a. 8. M.
- DETWILER, S. R. (data not yet received).
- DEUCHAR, E. M. Regional induction in relation to cell-arrangement of primary organizer, using organizer tissue dissociated into separate cells which are aggregated again to form tissue. *Triton alpestris*. III a. 7. J.
- DEVILLERS, Ch. (data not yet received).
- DIDINGS, S. Embryology of *Branchiopodes* (esp. *Crania*). I. 2a. D.
- DIETZ, D. Study of intra-uterine influences upon embryonic growth, differentiation, and organogenesis by means of ova and ovary transplants between races known to differ genetically in adult body size as determined by the general size factors and also by genetic factors affecting specific regions of the axial skeleton. *Oryctolagus cuniculus*. III c. 1b. M.
(in collaboration with P. B. SAWIN and F. AVIS)
- DODDS, G. S. Development and growth of bones, with special reference the epiphyseal cartilages. General survey of epiphyseal cartilages in various bones and at different ages. *Dog, cat, rat and man*. I. 11. M.
- DOLLANDER, A. Études relatives à la régulation d'un blastomère II isolé. *Triturus helveticus*. III a. 1c. J.
- Étude du revêtement superficiel de l'oeuf. *Triturus helveticus*, *Tr. alpestris* and *Tr. cristatus*. III b. 4. J.
- DRAGOMIROW, N. (data not yet received).
- DREYER, Miss M. V. Epithelio-neural bodies in the chick. I. 9. L.
- DUBOIS, Mlle F. Migration des cellules de régénération chez les Planaires dulcicoles. *Euplanaria lugubris* (*Plathelminthes*). IV. 2. C.
- DUSHANE, G. Ph. (data not yet received).
- EAKIN, R. M. Development of the amphibian pituitary. Study of independent or dependent differentiation of the partes buccales and pars nervosa of the pituitary. *Hyla regilla*. III a. 18. J.
(assisted by Miss N. EATON, Miss E. OLDENBORG and W. THURMOND)
- Survival of transplanted pituitaries in Amphibia (homoplastic and xenoplastic). *Hyla regilla*. III d. 2. J.
(in collaboration with M. HARRIS)

- Studies on antagonism between host and transplanted tissues. Survival of transplanted ovaries in rats (autogenous, sibling, intra-strain, homogenous and heterogenous). *Rattus norvegicus* (*Mammalia*) and *Hyla regilla* (*Amphibia*). III d. 2. V.
(in collaboration with M. HARRIS)
- Studies in protein synthesis in the amphibian embryo. I. Uptake of radio-active glycine. II. Uptake of radio-active methionine. *Hyla regilla*. III b. 2c. d. J.
- EALLES, Miss N. B. *Mammalian embryology*. I. 2a. M.
- EBERT, J. D. Investigating the ontogeny of tissue antigens by immunological techniques. *Chick*. III b. 2a. h. L.
- EDDS Jr, M. V. Study of factors influencing the spreading of intact axons in partially denervated muscles. *Vertebrates*. IV. 5. V.
- Study of the influence of peripheral "load" on the diameter of nerve fibers. *Vertebrates*. IV. 5. V.
- EDWARDS, L. F. Origin and development of the *human* pharyngeal hypophysis. I. 18. M.
(joint problem with R. C. BAKER)
- EEDEN, G. A. van Ontogenesis of the skull of *Ascaphus tonei*. I. 11. J.
- ELSHOUT, Miss A. M. Listing and investigation of the historical collection of the Institute containing a large number of embryological preparations. *Vertebrates*. I. 2. V.
- EMERSON WARREN, A. (data not yet received).
- ENGLÄNDER, H. Regionale Induktion bei *Urodelen*. III a. 7. J.
- ENTZ, B. A. G. Breeding experiments with pikeperch eggs, *Lucioperca sandra* *cuv. et val.*, in moisture atmosphere. III b. 2a. I.
- Desinfection experiments on eggs. *Fishes*. III b. 1b. I.
- FABER, J. Establishing of "normal stages" from fertilization till the end of metamorphosis (Normal Table). *Xenopus laevis*. I. 2a. J.
- Influence of different kinds of food on the development of *Xenopus laevis*. III b. 2a. g. J.
- FABIAN, G. Development of a new peiotropic mutant "bordo-sterile" in *Drosophila melanogaster* and the comparative embryology of normal and "bordo-sterile" eggs. III c. 3. D.
- FALCONER, D. S. Development and morphology of a new mutant (crinkled) that affects hair and skin. *Mus musculus*. III c. 3. M.
(in collaboration with A. S. FRASER)
- Development and morphology of hair and skin mutants, particularly the mimic hair-waving genes. *Mus musculus*. III c. 2. M.
(in collaboration with A. S. FRASER)
- FANKHAUSER, G. Cytological study of polyploidizing effect of heat and cold on fertilized eggs, and of parthenogenetic cleavage induced by heat and cold treatment of unfertilized eggs. *Triturus viridescens*. III c. 2. J.
- Study of effects of triploidy on development of gonads. *Triturus viridescens*. III c. 2. J.
- Study of the reactions of diploid and triploid larvae to pituitary hormones. *Triturus viridescens*. III b. 2a. f. J.

- Thyroidectomy in diploid and triploid embryos. Effects of thiourea, etc. *Triturus viridescens*. IIIb. 2a. f. J.
- Study of progeny of triploid, tetraploid and other heteroploid individuals among axolotls. *Amblystoma mexicanum*. IIIc. 2. J.
(in collaboration with R. R. HUMPHREY)
- FAURÉ FRÉMIET, E. (data not yet received).
- FAUTREZ, J. C. Experimental embryology of the otocyst and the microplacods of the cranial nerves. *Amphibians*. IIIa. 10. J.
- Influence of ureum on the development. *Amphibians*. IIIa. 2a. e. J.
- FAUTREZ—FIRLEFYN, Mrs N. J. P. E. Descriptive and cytochemical embryology. *Artemia salina (Phyllopoede)*. IIIb. 2a. c. D.
- FEKETE, E. Method of ova transplants. *Mus musculus*. IIIb. 1b. M.
- FELL, Miss H. (data not yet received).
- FEREMUTSCH, K. Endhirnentwicklung, speziell der Rinde und Bauplan. *Maus und Mensch*. I. 9. M.
- FERNALD, R. L. Blood Island-development and differentiation in amphibians. *Hyla regilla*. IIIa. 15. J.
- Ascidian development. *Asciodiopsis paratropa*. IIIa. 2a. H.
- FERREIRA, W. A. Neuro-embryology. *Bufo arenarum*. IIIa. 9. J.
- Experimental analysis of the development of the heart. *Bufo arenarum*. IIIa. 15. J.
(in collaboration with R. E. GONZALEZ MARINO)
- FILATOW, D. (data not yet received).
- FILOGAMO, G. Study of the consequences of the removal of the secondary optic vesicle on the organogenesis and histogenesis of the optic lobe. *Chick*. IIIa. 9. L.
- Histogenesis of the nervous cells of the sympathetic nervous system of the intestinal tract. *Sheep*. I. 9. M.
- FISCHBERG, M. Influence of maternal environment and cytoplasm on development of *Drosophila*-repeated transplantation of embryonic gonads between species. *Drosophila buzzati* and *D. arizonensis (Insecta)*. IIIc. 2. D.
- Experimental heteroploidy and partenogenesis in newts. Heteroploid newt hybrids — developmental potentialities and expression of species characters, sex determination. *Triton alpestris* and *T. palmatus*. IIIc. 2. J.
- Heteroploidy in mammals. Spontaneous heteroploidy — analysis of factors involved. Induced heteroploidy — methods of production. Viability of polyploid embryos. Physiological embryology of polyploid embryos. *Mus musculus*. IIIc. 2. M.
(in collaboration with R. A. BEATTY)
- Transplantation of mammalian ova. *Mus musculus*. IIIa. 1b. M.
(in collaboration with R. A. BEATTY)
- FISK, A. The development of the ear and associated structures in the *Lamprey (Cyclostomes)*. I. 10. I.
- The development of parachordals and trabeculae in the *Lamprey (Cyclostomes)*. I. 11. I.
(in collaboration with Miss M. TRIBE)

- FITZGERALD, L. R. Development of enzymes in grasshopper egg and embryo. *Melanoplus differentialis* (Orthoptera). IIIb. 2c. c. D.
 — Enzyme activities of embryo and extra-embryonic membranes of chick and rat. IIIb. 2c. c. HV.
- FLEXNER, L. B. Placental transfer. *Common laboratory mammals*. IIIb. 3. M.
 — Correlation of morphological, physiological and biochemical differentiation of fetal cerebral cortex and liver. *Guinea pig*. IIIb. 9. and 13. M.
- FLICKINGER, R. A. Study of certain metabolic aspects of cell migration in vitro. (Glycolysis, respiratory quotient, effect of various metabolic inhibitors). *Triturus torosus*, *Tr. rivularis* and *Amblystoma punctatum*. IIIb. 2b***. J.
- FLORSCHÜTZ, P. F. Normal development of *Xenopus laevis*; especially gastrulation and neurulation. I. 6. J.
 (in collaboration with P. D. NIEUWKOOP)
- FONSECA SACARRÃO, G. da Embryology of *Cephalopods*. I. 2a. E.
- FORD, P. An experimental and morphological study of the development of the ear with special respect to the endolymphatic duct and glands of Swammerdam. *Rana temporaria*. IIIa. 10. J.
 — The relationship of the neural crest to the orientation of the ear. *Amblystoma tigrinum*. IIIa. 7. J.
- FRANCHI, C. M. Prospective organ-forming areas in the chick and rabbit blastoderms. IIIa. 2b**. HV.
 (in collaboration with W. BUNO)
- FRANKENBERGER, Z. Embryology of the cormorant, *Phalacrocorax carbo*. I. 2a. L.
 — Embryology of Primates, esp. *Gorilla*. I. 2a. M.
- FRAPPIER, J. Rôle de la vitamine E dans la reproduction. *Rat et souris*. IIIb. 17. f. M.
- FRASER, A. S. Development and morphology of a new mutant (crinkled) that affects hair and skin. *Mus musculus*. IIIc. 3. M.
 (in collaboration with D. S. FALCONER)
 — Development and morphology of hair and skin mutants, particularly the mimic hairwaving genes. *Mus musculus*. IIIc. 2. M.
 (in collaboration with D. S. FALCONER)
- FRASER, Miss E. A. (data not yet received).
- FREEDMAN, R. M. Studies of differentiation by immunological and other techniques. *Triton alpestris*. IIIb. 2a. h. J.
- FRICK, H. Placentation of *Roussetus leschenaulti* (Megachiroptera). II. 3. M.
- FRILLEY, M. Étude des capacités de développement des différentes parties de l'appareil génital des embryons, après destruction des ébauches de l'hypophyse et des glandes génitales. *Mammifères*. IIIb. 17. f. M.
 (en collaboration avec A. RAYNAUD)
 — Recherches sur le développement embryonnaire de la glande mammaire de la souris. IIIb. 8. M.
 (en collaboration avec A. RAYNAUD)

- FROUD, M. D. The development and inheritance of abnormalities of the aortic arches of the chick and their relation to hatching. *Gallus domesticus*. IIIc. 2. L.
- FUMAGALLI, Z. Ricerche sperimentali sulla morfogenesi dei gangli spinali (*Anfibi e Anuri*). IIIa. 9. J.
- GAILLARD, P. J. Developmental potencies of the *human* fetal germinal epithelium in explants. IIIa. 17. M.
- Primary genesis of thyroid follicles in explants and factors governing colloid formation. *Gallus domesticus*. IIIB. 18. L.
- GALLERA, J. Transplantation of prechordal material. *Triturus (Urodela)*. IIIa. 7. J.
- Incubation of chick eggs under modified atmospheric conditions. *Gallus*. IIIId. 2. L.
- GALLIEN, L. Étude de l'action des hormones sexuelles dans l'embryogénèse sexuelle des Amphibiens. *Discoglossus pictus* et *Pleurodeles Waltlii*. IIIb. 17. f. J.
- GARRETT, F. D. Development of pharyngeal region. *Homo*. I. 14. M.
- Segmental pattern and innervation of dermatomes. *Homo*. IIIId. 2. M.
- GAZDA, A. The respiratory vessels of the yolk sac in the *trout*. I. 15. I.
- GEIGY, R. (data not yet received).
- GEORGE, W. C. (no embryol. work in progress).
- GÉRARD, P. (no embryol. work in progress).
- GHIRETTI, F. S. Biochemistry of regeneration in Urodeles with special consideration of the activity of some enzymes during the determination of the blastema. *Triturus cristatus*. IV. 2. J.
- GILBERT, Miss Chr. A study of the early development (somite stages) of *Elephantulus myurus jamesoni* with special reference to the landmarks in organization. I. 2a. M.
- GILCHRIST, F. G. (data not yet received).
- GILLMAN, J. Embryology in *baboon*. I. 2a. M.
- GILMARTIN, Miss R. Development of oxidative enzymes in relation to nucleoproteins and various centrifugable elements in the amphibian embryo. *Amblystoma punctatum* and *Rana pipiens*. (under direction of E. J. BOELL) IIIb. 2c. c. J.
- GIROUD, A. Développement du système nerveux central, surtout l'encéphale et spécialement le diencéphale. Étude structurale en rapport avec l'apparition des fonctions. *Rat*. I. 9. M.
- (en collaboration avec P. DESCLAUX et Mlle J. TEYSSEYRE)
- Recherches sur l'influence tératogène des infections. *Rat*. (en collaboration avec P. GIROUD, M. MARTINET et divers autres collaborateurs) IIIId. 2. M.
- Recherches sur l'influence tératogène des avitaminoses maternelles. *Rat*. IIIId. 2. M.
- (en collaboration avec Mlle J. BOISSELOT)
- Recherches sur l'influence tératogène des intoxications maternelles. *Femme et Rat*. IIIId. 2. M.
- (en collaboration avec P. DESCLAUX et C. MORLON)

- Étude des cas tératologiques individuels y compris les tératomes. (*cyclopie*). *Homo*. III d. 2. M.
(en collaboration avec A. LELIÈVRE et H. CHATTERJEE)
- GIROUD, P. Recherches sur l'influence tératogène des infections. *Rat*.
(en collaboration avec M. MARTINET, A. GIROUD III d. 2. M.
et divers autres collaborateurs)
- GLOOR, H. Development of a lethal character in *Drosophila melanogaster* (*Insecta*). III c. 3. D.
- GODET, R. Action des hormones sexuelles dans l'embryogénèse du tractus génital et des gonades chez les Insectivores. *Talpa europaea* L. III b. 17. f. M.
- GODINA, G. Study of the histogenesis of the various layers of the cortex of the different areas of the brain during embryonic and fetal development. (Golgi's method and Nissl staining). *Sheep*. I. 9. M.
- GODLEWSKI, H. G. Cytochemical studies upon the ovogenesis of Coelenterata. *Aurelia aurita*. III b. 4. c. B.
- The ultraviolet- and X-rays influence on spermatozoa under various experimental conditions. *Rana temporaria*. III b. 4. d. J.
- GOLDSMITH, E. D. (data not yet received).
- GÖMÖRY, A. Regenerative capacity of the optic nerve. *Albino rat*. IV. 5. M.
- GONZALEZ MARINO, R. E. Experimental study of the development of the heart. *Bufo arenarum*. III a. 15 J.
(in collaboration with W. A. FERREIRA)
- Sites of lipase activity in the chick embryo. III b. 2c. c. L.
(together with the related work of W. BUNO and Miss J. ALVAREZ GUTTIÉRREZ)
- GOODHART, C. B. The nature and mode of action of the evocator in *amphibia*. III a. 7. J.
- The motive power behind morphogenetic movements. *Amphibians*. III b. 1c. J.
- Resemblances between atypical regenerative and embryonic growth and malignant tumours. *Amphibia*. III d. 5. J.
- GOODRICH, H. B. Investigation of the terminal phases of differentiation of color patterns in *fish*. I. 8. I.
- GÖSZWALD, K. Embryologische Studien an Ameisen. *Formica rufa* und andere Arten. I. 2a. D.
- GRAHAM, G. L. (data not yet received).
- GRAY, P. (data not yet received).
- GREGG, J. R. Quantitative biochemical determination of yolk distribution in the axolotl gastrula. *Amblystoma mexicanum*. III b. 2c. c. J.
- GROBSTEIN, C. The behavior of tissues from the early mouse embryo in tissue culture and in the anterior chamber of the eye. III b. 19. M.
- GRODZIŃSKI, Z. Physico-chemical properties of the yolk. *Salmo* (*Pisces*), *Lacerta* (*Reptilia*) and *Gallus* (*Aves*). III b. 2c. c. V.
(in collaboration with K. SWIERZAWSKA and H. DATKOWNA)
- Heart rate and temperature. *Salmo*. III b. 15. d. I.
- GROS CLARK, W. E. le (data not yet received).

- GRUENWALD, P. Embryonic development of selenium-induced malformations. *Chick*. III d. 2. e. L.
- Systematic investigation of current cases of prenatal disease and malformation in autopsy material. (Part of "Brooklyn Survey of Neonatal Pathology"). *Man*. III d. 2. M.
- GRÜNEBERG, H. Developmental genetics of the mouse skeleton (mutant genes and natural polymorphism of wild populations). *Mus musculus*. III c. 2. M.
- GUBBINS, J. F. Comparative developmental morphology of dog skulls. *Canis familiaris*. III a. 11. M.
- GUSTAFSON, T. Continued studies on the protein chemistry of normal and lithium-treated developing sea urchin eggs. (Studies on amino acids, peptides and enzymes). *Paracentrotus lividus*, *Psammechinus miliaris* and other sea urchins. III b. 2c. e. G.
- Continued studies on the "dorsoventral" (oral-aboral) organization of the unfertilized sea urchin egg. *Echinocardium cordatum* and other sea urchins. III b. 4. G.
- GUYÉNOT, E. Étude des potentialités des territoires de régénération par la déviation des nerfs et par les transplantations; mécanisme de la duplication. *Triton cristatus*. IV. 2. J.
- GYLLENSTEN, L. J. W. Development of urinary bladder of homo: 1) openings of ureters and Wolffian ducts; 2) musculature. I. 17. M.
- Postnatal histogenesis of the lymphatic system under normal conditions and under the influence of experimental infections. *Guinea pig*. III d. 2. M.
- HADORN, E. Regeneration and differentiation of the notochord. *Triton species*. III a. 11. J.
- Merogony-experiments. *Triton sp*. III c. 2. J.
- Field organization of the genital imaginal disc. *Drosophila species*. III a. 17. D.
- Developmental analysis of lethal factors. *Drosophila sp*. III c. 3. D.
- HALE, L. J. A study of some of the features of the evocation of the scleral (sclerotic) bones in the chick embryo. This includes anatomical work, quantitative analysis of mitotic and degenerative activity, some histochemical investigations, and the experimental growth of isolated scleral bone primordia. *Gallus domesticus*. III a. 10. L.
- HALL, E. K. Further experimental modifications of muscle attachments in *Amblystoma*. III a. 12. J.
- Development of technical procedures for experimental work on the mammalian embryo. *White rat*. III a. 1b. M.
- HALL, R. E. (data not yet received).
- HALL, T. S. Effect of chemical inhibitors on the development of amphibian eggs. *Rana* and *Amblystoma*. III b. 2a. e. J.
- HAMBURGER, V. Control of proliferation and differentiation of the nervous system. *Chick*. III a. 9. L.
- (in collaboration with Mrs R. LEVI—MONTALCINI)
- Stage series of *chick* embryo. I. 2a. L.

- HAMILTON, Howard L. Completion of some work on the developmental physiology of the squid, *Loligo pealli* (*Cephalopoda*). IIIb. 2a. E.
- Revision of Dr Frank R. LILLIE's textbook of embryology. "The Development of the Chick". *Gallus domesticus*. I. 2a. L.
- HAMILTON, W. J. Descriptive embryology. *Mammals*. I. 2a. M.
- Early development. *Mammals*. IIIa. 2a. M.
- HAMMOND, W. S. Development of the autonomic nervous system. *Gallus domesticus*. IIIa. 9. L.
- Differentiation of sensory neurons. *Gallus domesticus*. IIIa. 9. L.
- Development of the thymus. *Gallus domesticus*. IIIa. 18. L.
- Effects of sulfa drugs on mammalian embryo. *Mus musculus*. III d. 2. M.
- HAMPÉ, A. A. Effet de faibles doses d'hormones femelles sur le développement du testicule de poulet. Différence entre la 1ère et la 2ème poussée de cordons sexuels. IIIb. 17. f. L.
- Expérimentation sur la 1ère et la 2ème poussée de cordons sexuels. Poulet. IIIa. 17. L.
- HARDE, ... Entwicklungsfragen am Kaninchenhirn. I. 9. M.
- HARKMARK, W. Morphological and experimental investigation of the pontine and inferior olivary nuclei in birds. *Gallus domesticus*. IIIa. 9. L.
- HARRIS, M. Studies on antagonism between host and transplanted tissues. Survival of transplanted ovaries in rats (autogenous, sibling, intrasrain, homogenous, and heterogenous). *Rattus norvegicus*. (in collaboration with R. M. EAKIN) III d. 2. M.
- Studies on antagonism between host and transplanted tissues. Survival of transplanted pituitaries in amphibia (homoplastic and xenoplastic). *Hyla regilla*. III d. 2. J. (in collaboration with R. M. EAKIN)
- HARRISON, R. G. Development of limbs of Amphibia with reference to the rôles played by ectoderm and mesoderm. *Amblystoma* (various species). IIIa. 2b. J.
- Induction and symmetry relations in the development of the internal ear. *Amblystoma punctatum*. IIIa. 10. J.
- HARTMAN, C. G. (no embryol. work in progress).
- HARTMAN, J. F. Physiology of digestion in fetal rat, *Rattus norvegicus albinus*. IIIb. 13. g. M. (in collaboration with L. J. WELLS)
- HARTWIG, H. Analyse der einzelnen unter dem Einfluss des Schilddrüsenhormons erfolgenden Differenzierungs- bzw. Reduktionsvorgänge. *Vertebraten*. V. 2. V.
- Einfluss elektrischer Ströme auf die frühesten Entwicklungsstadien der *Amphibien*. IIIb. 2a. d. J.
- HARVEY, E. B. Centrifuging eggs, and development of fractions obtained by centrifugal force. Parthenogenetic merogony. Development of pluteus larva. *Arbacia punctulata*. IIIb. 2b*. d. G.
- Monograph on *Arbacia punctulata*, including classified compilation of all experimental work. (in preparation). IIIb. 2a. G.
- HARVEY, E. N. (data not yet received).

- HAY, Mlle D. Étude d'un Free-martin naturel. *Boeuf*. I. 17. M.
- HAYES, E. R. Histochemistry of development of selected species of various vertebrate classes, of various organs and tissues under varying physiological and pathological states, of metamorphosis, regeneration and senescence. *Vertebrates*. IIIb. 2c. c. V.
- HEAYSMAN, Miss J. E. M. Factors involved in the development of the shell in the mollusca. *Paludina viviparus*, *Helix pomatia* and *Nucella labillus*. I. 8. E.
- HEILBRUNN, L. V. A study of the factors which cause initiation of development. *Arbacia punctulata* (*Echinoidea*) and *Chaetopterus pergamentaceus* (*Polychaeta*). IIIb. 4. EV.
- HEIMANN, H. Endhirnentwicklung. *Teleostier*. I. 9. I.
- HENKE, K. Embryonale und post-embryonale Entwicklungsgeschichte und Entwicklungsphysiologie bei *Insekten*, *Mollusken*, *Amphibien* und *Aves*. IIIb. 2a. D, E, J, and L.
(mit Mitarbeiter)
- HENLEY, C. Chromosomal mosaicism and abnormalities of mitosis produced by experimental temperature shock on the developing embryos of the California salamander, *Triturus torosus*. IIIc. 2. J.
- An investigation of natural and experimentally-induced heteroploidy in *Amblystoma punctatum*, including the effects of phenylthiourea on mitosis. IIIc. 2. J.
(in collaboration with D. P. COSTELLO)
- HERLANT—MEEWIS, Madame H. Régénération. Reproduction asexuée. Formation des cellules sexuelles. Développement embryonnaire. *Éponges*. IIIa. 2a. A.
(en collaboration avec P. BRIEN)
- Régénération. Reproduction asexuée. Formation des cellules sexuelles. Développement embryonnaire. *Oligochètes*. IIIa. 2a. C.
(en collaboration avec P. BRIEN)
- HERRICK, Ch. J. (data not yet received).
- HERRMANN, H. Metabolic interaction between tissues. Exchange of metabolites between tissue components (epithelium-stroma) with different degrees of oxidative or anaerobic metabolism. The investigation is carried out with model tissues, such as cornea, as well as with tissue-cultures. *Higher Vertebrates*(?). IIIb. 2b***. b. HV.(?)
(in collaboration with S. COHEN)
- The chemistry of muscle differentiation. Fractionation of proteins, determination of nucleic acids in mitochondria, nuclei and cytoplasm of muscle tissue in differentiated state at various stages of differentiation of fibrils and cross-striation during development of isolated somites and undifferentiated mesoderm. *Chick*. IIIb. 12. c. L.
(in collaboration with S. COHEN)
- The metabolic maturation of *human* liver. The capacity to synthesize creatine from glyocyamine and methyl donors is tested with livers of human feti of different inauterine age. IIIb. 13. b. M.
(in collaboration with S. COHEN)

- HERTIG, A. T. A morphologic, descriptive study of *human* embryos, both normal and abnormal found in surgically removed uteri, in age ranging from 1 to 16 days of age. I. 2a. M.
(in collaboration with J. ROCK for the past 10 years)
- Description of two *human* ova; a 2-cell tubal specimen and a blastula of 4½ days of age which have been recovered this past year. I. 2a. M.
- HETTIG, R. A. The production of hemopoietic and other anomalies in rat embryos by nitrogen mustards. *Mus norvegicus*. III d. 2. M.
- HEUSER, C. H. Morphology of early human and other primate embryos. *Homo, Pan, Papio and Macaca rhesus*. I. 2a. M.
- HEY, D. (no embryol. work in progress).
- HEYN, C. B. Permeability of the placenta in *rat* and *guinea-pig*. Investigation with isotopes. III b. 3. M.
(in collaboration with J. DANKMEYER)
- HIBBARD, H. (data not yet received).
- HILL, J. P. The egg-tooth and caruncle of the *Monotremes*. II. 8. M.
(in collaboration with G. R. de BEER)
- HILLER, S. Regeneration in *Amphibians*. The influence of inanition on that phenomenon. IV. 2. J.
(in collaboration with E. H. WISKONT and T. KROTKIEWICZ)
- Developmental physiology of the pronephros in *Amphibians*. III b. 17. J.
- HINTZSCHE, E. Eierstock, Menstruation, funktioneller Bau von Tube und Uterus. *Homo*. I. 17. M.
- HISLOP, F. M. Morphological and experimental investigation of coiling in *Limnea peregra*. III c. 2. E.
- HJELMMAN, G. Development and appearance of the heparinocytes. *Human* and other *mammal embryos*. I. 13. M.
- HOADLEY, L. (data not yet received).
- HOCHSTETTER, F. (data not yet received).
- HOGEWONING, C. H. Influence of vitamin D. on the calcification of developing bone-tissue in explants. *Gallus domesticus*. III b. 11. f. L.
III b. 11. f. L.
- Influence of estrogens on the development and calcification of embryonic endosteal tissue in vitro. *Gallus domesticus*. III b. 11. f. L.
- HOGUE, Miss M. J. Study of neurons and glia cells from the different parts of the brain, especially from the cerebellum. Also, the survival of neurons after death of the fetus. *Chick* and *Homo sapiens*-human fetuses and newborn babes and adult *monkey rhesus* and *spider*). (in collaboration with S. C. WILLIAMS) III a. 9. L. and M.
- HOLMDAHL, E. (data not yet received).
- HOLST CHRISTENSEN, P. J. Studies on the embryology of Insects. *Cochlidion limacodes (Lepidoptera)*. I. 2a. D.
- Studies on the development of mammalian lungs. *Talpa europaea (Insectivora)*. I. 14. M.
- HOLTER, H. Localization of cell constituents in *amphibian* egg. III b. 2c. J.

- HOLTFRETER, J. K. F. Effects of carcinogens on successive developmental stages of *amphibian* embryos. III d. 2. J.
- HOOKE, D. (data not yet received).
- HORN, E. C. Embryology and development of *Haploscoloplos bustoris* (*Polychaeta*). II. 2a. C.
(in collaboration with C. G. BOOKHOUT)
- HORST, C. J. van der The placentation of *Elephantulus myurus jamesoni*. I. 3. M.
- *Elephantulus myurus jamesoni* going into anoestrus. I. 17. M.
- Post-partum phenomena in *Elephantulus myurus jamesoni*. I. 17. M.
- The placenta of *Tupaia javanica*. I. 3. M.
- HÖRSTADIUS, S. Analysis of the gradients and the processes behind them in the sea urchin egg. III b. 1c. G.
- Investigations if there occur any changes in the nucleus in course of differentiation. Sea urchin egg. III b. 19. G.
- HOUSSAY, B. A. (data not yet received).
- HUANG, A. C. (data not yet received).
- HUBER, W. Recherches expérimentales sur le développement de la tête chez le Poulet, *Gallus domesticus*. III a. 2b. L.
(en collaboration avec E. WOLFF)
- HUBL, H. Geschwulstproblem, bearbeitet durch Regeneration und Transplantation an *Lumbricus* (*Annelida*). III d. 5. C.
- HUESTIS, R. R. Investigations on the development of several asymmetrical mutations involving the tail and the eye in *Peromyscus*, the deer mouse. III c. 3. M.
- HUGON de SCOEU, Mlle F. Essai de filtration, "in vivo", de la substance inductrice à l'aide de membranes de porosité connue, sur des explantats de jeunes gastrulas. *Axolotl* (*Urodèles*). III b. 7. d. J.
- HUIJBERS, Miss M. M. Investigations to the function of the gonad in the chick-embryo by implantation and castration experiments. III b. 17. L.
- HULTIN, J. M. T. Nitrogen metabolism in early sea urchin development studied by means of N-labelled ammonia. III b. 2c. b. G.
- Protein turnover of different cell fractions of chicken liver studied by injection of N-labelled amino acids. The liver is afterwards homogenized and fractionated by centrifugation. III b. 13. c. L.
- HUMMEL, Miss K. P. Studies on the form and function of ovaries which have been grafted into spleens of castrates and subsequently retransplanted into normal position within the ovarian capsule of a normal mouse. Offspring of these ovaries are examined for abnormalities which may be correlated with the time the graft remained in the spleen. *Mus musculus*. III d. 2. M.
(in collaboration with C. C. LITTLE)
- HUMPHREY, R. R. Studies on spontaneous haploidy and polyploidy. *Amblystoma* (*Siredon*) *mexicanum*. III c. 2. J.
- The offspring of polyploids; their chromosome number, mortality, pathology, etc. *Amblystoma* (*Siredon*) *mexicanum*. III c. 2. J.
- Study of progeny of triploid, tetraploid an other heteroploid individuals among axolotls. III c. 2. J.
(in collaboration with G. FANKHAUSER)

HUXLEY, J. S. (data not yet received).

HYDÉN, H. (data not yet received).

IMMERS, J. Biochemistry of fertilization, espec. on carbohydrates metabolism. *Echinus esculentus*, *Echinocardium cordatum*, *Strongylocent. droeb.*, *Paracentrotus lividus*, etc. IIIb. 4. b. G.

— Enzymatic destruction of jelly coat substances of the eggs. *Echinocardium cordatum*, *Echinus esculentus*, *Brisopsis lyr.*, etc. IIIb. 4. G.

INCE, Miss F. E. (data not yet received).

JANSEN, J. Morphological investigation of the cetacean nervous system, particularly the development of the cerebellum. *Balaenoptera musculus*. I. 9. M.

JANSSENS, J. Development of the neural system of *Balanoglossus kowalewskii* (*Enteropneusta*). I. 9. F.

(in collaboration with G. VANDEBROEK)

JOHNELS, A. G. Development and morphology of the skeleton of the head. *Petromyzon* (*Cyclostomes*). I. 11. I.

— Observations on the connective tissue of the head. *Petromyzon* (*Cyclostomes*). I. 16. I.

JOHNSON, M. W. Transplantation of early mammalian embryonic rudiments. *Cricetus auratus*. IIIa. 2b** . M.

— Effect of certain carcinogens on regeneration. *Amphibians*. IV. 2. J.

JOLLY, J. (no embryol. work in progress).

JORDAN, H. Respiratory malformations (anomalies): Causes, clinical and pathological significance. *Homo sapiens*. III d. 4. M.

JOST, A. D. Developmental physiology of the mammalian fetus. Foetal endocrinology and morphogenesis. *Rabbit, rat and hamster*. IIIb. 17. f. M.

KAELIN, J. (data not yet received).

KALSBECK, F. Development of foot and hand in *man*. I. 2b. M.

KAMER, J. C. van de Normal development of pineal organ and paraphysis. *Amblystoma mexicanum* and *Xenopus laevis*. I. 9. J.

— Comparative embryological study of pineal cytology. *Vertebrates*. II. 9. V.

— Experiments concerning the determination of pineal organ and paraphysis. *Amblystoma mex.*, *Triton taeniatus*, *Tr. alpestris* and *Xenopus laevis*. IIIa. 9. J.

KAUDEWITZ, F. Determination der Furchung und Sonderung der Organanlagen bei *Daphnia* (*Crustacea*). IIIa. 5. D.

KEMP, Norman E. Development of coiling in the intestine of anuran tadpoles. *Rana pipiens*. IIIa. 13. J.

— Utilization of yolk during morphogenesis of amphibians. *Rana pipiens* and *Amblystoma maculatum*. IIIb. 2c. c. J.

KERKHOF, Miss A. M. Influence of gonadal hormones on the development of the female genital system in the *rat*. IIIb. 17. f. M.

KERR, J. Graham (data not yet received).

KING, Miss H. D. (data not yet received).

KINDAHL, Miss M. E. The development of the teeth. *Insectivora*. I. 8. M.

- KLAPPER, C. E. Development of the pharyngeal derivatives. *Syrian hamster*. I. 14. M.
- KLOFT, W. Embryonic development and metamorphosis of *Tropinota hirta* (Coleoptera). I. 2a. D. V. 3. D.
- KNIEP, Mrs M. A. Embryology of *Pedetes caffer* (Rodentia). I. 2a. M.
- KNOUFF, R. A. Histochemistry of amphibian development and metamorphosis. IIIb. 2c. c. J.
- Contributions of the neural crest and epibranchial placodes to the origin of cranial ganglia in mammals. I. 9. M.
- KOLLROS, J. J. (data not yet received).
- KOLTZOFF, N. K. (data not yet received).
- KONOPACKA, B. The behavior of yolk and its different components in developing fish embryos. *Ciprinus carpio*. IIIb. 2c. c. I.
- Histochemistry of mammalian eggs. *Mouse* and *Homo*. IIIb. 2c. c. M.
- KOPSCH, E. (data not yet received).
- KORNFELD, V. Histogenesis of neuroglia. *Vertebrates*. I. 9. V.
- KRABBE, K. H. Continuation of my paper (in 4 volumes) on development of the brain in fetal life. *Vertebrates*. II. 9. V.
- KRAHELSKA, J. Implantation of blastocysts in *Rhodentia*. IIIa. 3. M.
- KRAIŃSKA, M. K. A cytochemical study of the Insect egg (esp. the glycogen formation) during maturation and development. *Cynipidae* and other *Insects*. IIIb. 2c. c. D.
- KREDIET, G. Development of genital tract and gonads in domestic animals. *Birds* and *Mammals*. I. 17. HV.
- KREMER, Miss A. Analysis of the neural induction. Transfer of the inductive substances in horizontal direction through the presumptive neural plate. (heteroplastic transplantation of ectoderm) *Triturus taeniatus*, *alpestris* and *cristatus*. IIIa. 7. J.
- (in collaboration with P. D. NIEUWKOOOP and Miss E. BOTERENBROOD)
- KROMPECHER, S. Experimental and clinical new-formation of articulations. Embryology, regeneration, new-formation. Causal and functional analysis; biological synthesis gained by the effect of directed regenerative potency. *Man*, *dog* and *rabbit*. IV. 5. M.
- The qualitative adaptation of the surface of embryonic cartilage and bone, due to the influences of surrounding tissues. Exper. alteration of these circumstances. A causal and functional analysis on human embryos and young animals. *Man* and *cat*. IIIa. 11. M.
- (in collaboration with L. NÉBEL)
- The development of the oesofagus epithelium and musculature in its causal and functional aspect. An initial study to regenerative work. *Man* and *rat*. I. 13. M.
- Changes in the proctal epithelium in its embryonic and postfetal development, in grown up individuals of different ages, and under pathological circumstances, with special regard to its microtopographic situation. Adequate experiments on animals. *Man* and *dog*. IIIa. 13. M.
- (in collaboration with Z. ZAKARIAS)

- The morphological and microchemical development of the epithelial fat of the skin, with special regard to the vernix caseosa. *Man.* (in collaboration with A. BOD) I. 8. M.
- KROPP, B. N. Development of vascular pattern of teeth, mouth and face. *Homo.* I. 15. M.
- Development, structure and functions of trophoblast. *Homo, Rattus* and *Lepus.* IIIa. 3. M.
- KROTKIEWICZ, T. Regeneration in *Amphibians.* The influence of inanition on that phenomenon. IV. 2. J. (in collaboration with S. HILLER and E. H. WISKONT)
- KRUGELIS, Miss E. J. Alkaline phosphatase activity during development. *Amblystoma mexicanum* and *Xenopus laevis.* IIIb. 2c. c. J.
- KRZANOWSKI, A. Embryological metamery of insect head. *Periplaneta orientalis, (Blattodea).* I. 2b. D.
- KRZYSZTOFOWICZ, A. Early developmental stages of Insects. *Polydrosus sericeus (Coleoptera).* I. 2a. D.
- KÜHN, A. Wundheilung und Regeneration bei *Ephestia (Ptychopoda)* *Lepidopteren.* IV. 2. D.
- Entwicklung der Schuppen von *Ephestia (Ptychopoda)* *Lepidopteren* bei verschiedenen Mutanten und unter experimentellen Bedingungen. IIIc. 3. D.
- KURKIEWICZ, T. Histogénèse de la corticosurrénale. *Rat.* IIIa. 18. M.
- KUTSKY, P. B. Phosphorus metabolism in the amphibian embryo studied with radioactive phosphorus. *Rana pipiens.* IIIb. 2c. d. J.
- KUUSI, Miss T. The chemical nature of the specific inductive substances (isolated from liver and kidney of the guinea-pig). *Triton.* IIIb. 7. J.
- LALLIER, R. A. Action du Lithium sur le développement embryonnaire. *Triton* and *Axolotl (Urodèles).* IIIb. 2a. e. J.
- L'induction chez les Amphibiens. *Triton* and *Axolotl* IIIb. 1c. J.
- LANDAUER, W. Developmental studies on various mutants of fowl, such as "duplicate", "creeper chondrodystrophy", etc. *Gallus domesticus.* IIIc. 3. L.
- A causal analysis of teratogenic action of insulin on developing chicken embryos. *Gallus domesticus.* III d. 2. L.
- LANGEVOORT, H. L. Development of paraphysis in birds and the circulation of the cerebrospinal fluid. *Gallus.* IIIb. 9. L.
- LANGMAN, J. Transplantation of cultivated endocrine organs. Differences caused by autologous, heterologous and homologous media. *Vertebrates.* IIIb. 18. V.
- LARAMBERGUE, M. de Recherches sur le développement embryonnaire de l'appareil génital hermaphrodite de divers Gastropodes; différenciation des gamètes. *Calyptraea (Prosobranches)* et *Pulmonés* divers. IIIa. 17. E.
- Recherches sur le développement comparé de l'appareil génital des formes euphalliques et aphalliques chez *Bulinus truncatus (contortus)*, (*Gastropodes Pulmonés*). II. 17. E.
- Recherches génétiques des races euphalliques et aphalliques chez *Bulinus truncatus (contortus)*, (*Gastropodes Pulmonés*). IIIc. 3. E.

- LATIMER, H. B. Some anomalies found in a series of 180 fetal *dogs*. III d. 2. M.
- Prenatal growth and differentiation of the organs (brain, cord, hypophysis, etc.) in the fetal *puppy*. III a. 19. M.
(in collaboration with R. CORDER)
- Growth of the organs and systems of the *rabbit* in the prenatal and postnatal periods. III a. 19. M.
- Statistical study of the parts of the nervous system and of the endocrine glands in the *guinea pig*. III a. 19. M.
- LAVELLE, A. Development of chromophil substance in central nervous system. *Guinea pig* and *man*. I. 9. M.
(in collaboration with W. F. WINDLE)
- LEACH, W. J. Studies in progress on the development of the endocrine organs in the *Cyclostomes* and their histophysiology during metamorphosis. I. 18. I.
- LEBEDINSKY, N. G. (data not yet received).
- LEDUC, Miss E. H. A study of mitotic activity and other cytological phenomena in liver regeneration. *Vertebrates*. IV. 2. V.
- LEE, G. M. Development of the central and peripheral nervous system in relation to behavior patterns along Coghillian lines of investigation. *Amblystoma punctatum*.
(in collaboration with P. G. ROOFÉ)
- LEGHISSA, S. Study of the cortex of *Ascidian* eggs. III b. 4. H.
- Fusion of blastomeres. *Ascidians*. III a. 2b*. H.
- Differentiation and morphology of nervous tissue in *Coelenterata*. I. 9. G.
- Differentiation and morphology of nervous tissue in *Vertebrates*. I. 9. V.
- Effects of antimetotics on the regeneration of peripheral nerves. *Amphibians*. IV. 5. J.
(in collaboration with P. PASQUINI)
- Regeneration of peripheric-nerves and of the spinal cord in *Fishes* and other *Vertebrates*. IV. 5. V.
- Effects of antimetotics on metamorphosis of *Amphibians*. V. 2. J.
- LEHMAN, H. E. Investigation of problems relating the behavior, differentiation and metabolism of Amphibian pigment cells, and the analysis of factors relating to the establishment of specific pigment patterns of larvae and adults. Species of *Amblystoma* and *Triturus*. III b. 8. J.
- Investigation of the relation of external media and physical surfaces on the migration and differentiation of Amphibian tissues in vitro. Species of *Amblystoma* and *Triturus*. III b. 19. J.
- LEHMANN, F. E. Allometrisches Wachstum bei *Amphibien*. I. 19. J.
(in Zusammenarbeit mit diversen Mitarbeiter)
- The influence of chloramine-compounds on the early development (neurulation and embryo-formation) of the Amphibian egg. *Triturus alpestris* and *Tr. taeniatus*. III a. 2a. e. J.
(in collaboration with P. D. NIEUWKOOP)
- Schwanzregeneration von *Xenopus*, normal und chemisch beeinflusst. (in Zusammenarbeit mit diversen Mitarbeiter) IV. 4. J.

- LELIÈVRE, A. Étude des Tératomes. *Homo*. III d. 2. M.
(en collaboration avec A. GIROUD et A. CHATTERJEE)
- LENDER, Th. Régénération des yeux chez les *Planaires*. IV. 5. C.
- LENNEP, Jhr E. W. van Development of the gonads and genital tract in *whales*. I. 17. M.
- LEPORI, N. G. Fertilization and Cytology in Planarians. *Polycelis nigra (Tricladida)*. I. 4. C.
- LEVI, G. H. Recherches sur les transformations qui se produisent dans les organismes et dans les tissus cultivés in vitro pendant l'accroissement. *Vertébrés*. IIIa. 19. V.
- Recherches sur les caractères de la structure et des propriétés biologiques dans les tissus cultivés in vitro. *Vertébrés*. IIIa. 19. V.
- LEVI—MONTALCINI, Mrs R. Origin of sympathetic and parasympathetic nervous system. *Chick and Reptilians*. IIIa. 9. HV.
- Control of proliferation and differentiation of the nervous system. *Chick*. IIIa. 9. L.
(in collaboration with V. HAMBURGER)
- LEWIS, F. Th. The shape of cells in certain early embryonic tissues. *Chick, rabbit and man*. I. 1c. M.
- An embryological study of *human* tracheo-oesophageal fistula. III d. 4. M.
- LEWIS, W. H. (data not yet received).
- LI, Miss S. C. To study the influence of the optic vesicle on the development of head skeleton and accessory organs of the eye ball, by extirpation of the optic vesicle at tail bud stage. *Rana nigromaculata*. IIIa. 11. J.
- LIAO, Y. K. The reactive capacity of *Rana nigromaculata* to abnormal inductor seems to be weaker than that of *Triton*. In order to find out whether the ectoderm of *Rana* is less sensitive to inductive stimuli Holtfreter's experimental method (1947) was adopted. Isolated gastrular ectoderm of *Rana* was given a treatment with acid and alkali solution of various concentration for various length of duration. Thus it will be found whether the ph ranks which cause neural differentiation in *Triturus* (or *Amblystoma*) and in *Rana* ectoderm are different. Furthermore, the cause why *Triturus* and *Rana* ectoderms react differently to the same ph rank will also be studied. III b. 7. J.
- LILLIE, R. S. (data not yet received).
- LINDAHL, P. E. Large scale separation of macromeres, mesomeres and micromeres of the developing sea urchin egg. IIIa. 2b*. G.
- Changements of dehydrogenase system at fertilization of the sea urchin egg. III b. 4. c. G.
- The biochemical mechanism of the animalization of the unfertilized sea urchin egg. III b. 4. b. G.
- LINDBERG, N. O. H. On surface reactions of the sea urchin egg with special attention to phosphate-metabolism. On the dehydrogenase systems of the sea urchin egg. III b. 2a. b. G.
- LINDSTRÖM, T. J. J. V. Development and anatomy of the ganglia and peripheral nerves of the trigeminal complex and the trigeminal and facial muscles. *Bdellostoma* and *Petromyzon (Cyclostomes)*. II. 9. I.

- LINDVALL, S. Studies on the proteins of unfertilized and the first stages of fertilized *sea urchin* eggs. IIIb. 4. c. G.
- LIOSNER, L. D. (data not yet received).
- LIPSCHÜTZ, A. (no embryol. work in progress).
- LITTLE, C. C. Studies on the form and function of ovaries which have been grafted into spleens of castrates and subsequently retransplanted into normal position within the ovarian capsule of a normal mouse. Offspring of these ovaries are examined for abnormalities which may be correlated with the time the graft remained in the spleen. *Mus musculus*. III d. 2. M.
(in collaboration with Miss K. P. HUMMEL)
- LIU, J. C. Regeneration in mammalian central nervous system. (Recovery of neurons following trauma, alteration in their internal environment). *Cat and dog*. IV. 5. M.
(in collaboration with W. F. WINDLE and several other coworkers)
- LOPASHOV, G. (data not yet received).
- LØVTRUP, S. Cytochemistry of amphibian eggs. *Amblystoma mexicanum* and *Xenopus laevis*. IIIb. 2c. c. J.
- LUNDBLAD, ... Investigation on the nature of the sperm-factor which brings about the fluidification of the jelly layer surrounding the eggs. *Echinodermes*. IIIb. 4. c. G.
(in collaboration with A. MONROY)
- LÜSCHER, M. (data not yet received).
- LUTZ, H. La polyembryonie et la monstruosité double expérimentales chez les oiseaux. IIIa. 1c. L.
- LUYENDIJK, W. Development of diencephalon and hypophysis in *man*. I. 9. M.
(in collaboration with J. DANKMEYER and J. W. H. BOUR)
- LYON, M. F. The developmental effect of the "pallid" gene on the inner ear of *Mus musculus*. IIIc. 3. M.
- MÄCS, Miss K. Development of lateralis system. *Triton cristatus* and *T. punctatus* (*Urodela*), *Rana agilis*, *R. arvalis* and *Bufo vulgaris* (*Anura*). II. 8. J.
- MALAN, M. E. Development of palate of the nightjar, *Nyctisyrignus pectoralis*. II. 13. L.
- MANGOLD, O. (data not yet received).
- MANTON, S. M. Embryology of *Peripatus* (*Onychophora*). I. 2a. C.
- MARCHLEWSKI, J. H. Intergeneric crosses in birds by means of artificial insemination. *Gennaeus nyctemerus* and *Gallus domesticus*. IIIc. 2. L.
- Artificial inseminations with semen stored in different conditions. *Gallus domesticus*. IIIb. 4. L.
- MARLIER, G. Métamorphoses. *Insectes aquatiques*. V. 3. D.
- MARTINET, M. Recherches sur l'influence tératogène des infections. *Rat*. III d. 2. M.
(en collaboration avec P. GIROUD et A. GIROUD et divers autres collaborateurs)

- MASY, ... Experimental analysis of the development of the appendicular skeleton in the *chick* embryo. IIIa. 11. L.
- MAZANEC, K. Young *human* embryos. I. 2a. M
- Cultivation of *mammalian* eggs. IIIb. 1b. M.
- MENSCHIK, Z. The embryos and fetuses of normal, vitamin E-deficient and vitamin E-rich guinea-pigs are being investigated histologically and histochemically with special reference to the distribution of lipids and carbohydrates, in order to find out the influence of vitamin E on the development and on the lipid and carbohydrate metabolism. *Cavia cobaya* (*Rodentia*). IIIb. 2c. f. M.
- METZ, C. B. Rôle of fertilizin and anti-fertilizin in fertilization: Mechanism of adjuvant-fertilizin agglutination of starfish sperm, specificity of antifertilizin in echinoids, agglutination of eggs and sperm by basic proteins. Various marine *Invertebrates*, including *asteroid* and *echinoid echinoderms*. IIIb. 4. EV.
- MEYER, ... de Embryol. development of the nodal tissue in the *avian* heart. I. 15. L.
- MICHELI, A. Origine du noyau tangentiel du nerf vestibulaire. Son origine. *Poissons et oiseaux*. II. 9. V.
(en collaboration avec M. NEIGER)
- MIETKIEWSKI, C. Les transformations de la glande interstitielle du testicule au cours de son développement. *Cobaye*. IIIa. 17. M.
- MILLARD, N. A. H. Complete development of the veins and arteries. *Xenopus laevis*. I. 15. J.
- MINGANTI, A. The rôle of induction and morphogenetic movements in the brain and pigment spots formation in *Ascidians*. IIIa. 1c. H.
(in collaboration with G. REVERBERI)
- The development of *Ascidian* hybrids. IIIc. 2. H.
- Development of nucleic acids and phosphatases in *Limnaea stagnalis*. I. 2c. c. E.
- MOLEN, L. A. v. d. Development of the eye in *Tarsius spectrum*. (development of functional adaptations). I. 10. M.
- MOLL, J. Hybridization in *Triturus alpestris* and *taeniatus*. IIIc. 2. J.
- Knee-joint development in *Homo*. I. 11. M.
- Relations between organweight and bodyweight in ontogeny. *Various mammals*. II. 1c. M.
- MONNÉ, L. Correlations between structure and function of the cytoplasm. *Sea urchins*. IIIb. 2c. G.
- MONROY, A. Investigations on the biochemistry of fertilization in *sea urchin* eggs with special consideration to the changes occurring in proteins. IIIb. 4. c. G.
- Investigation on the nature of the sperm-factor which brings about the fluidification of the jelly layer surrounding the eggs. *Echinoderms*. IIIb. 4. c. G.
(in collaboration with LUNDBLAD)
- MONROY—ODDO, Mrs A. Behaviour and importance of Potassium during fertilization of the sea urchin egg. *Paracentrotus* and *Arbacia*. IIIb. 4. c. G.
- MONTALENTI, G. Determinism of meiosis. *Asellus* and other species (*Crust. Isop.*). IIIb. 4. D.

- MOOG, F. Patterns of development of enzymes in embryos; differentiation of enzymes in relation to differentiation of functional ability in embryonic organs. *Rana pipiens* and *Gallus domesticus*. IIIb. 2c. c. J. and L.
- Radioactive tracer study of the metabolism of *amphibian* eggs, with special reference to the organizer. IIIb. 7. b. J.
(in collaboration with E. L. WENGER)
- MOOKERJEE, S. Experimental study of the origin and relation to surrounding tissue of the notochord in Amphibia. *Triton alpestris*. IIIa. 2b**. J.
- MOORE, A. R. On the origin and nature of the precursors of egg-membranes in echinoidea. *Dendraster excentricus* and *Strongylocentrotus purpuratus*. IIIb. 4. G.
- The form of the pluteus in sea urchin hybrids. Study of skeletal development and body form. *Strongylocentrotus purpuratus*, *S. franciscanus* and *Dendraster excentricus* (Echinoidea). IIIa. 11. G.
- MOORE, C. R. (data not yet received).
- MORGAN, Miss M. R. A study of artificially produced duplicitas anterior. *Gallus domesticus*. IIIa. 1c. L.
(in collaboration with M. ABERCROMBIE)
- MORLON, C. Influence t ratog ne des intoxications maternelles. *Rat*. (en collaboration avec A. GIROUD et P. DESCLAUX) IIIId. 2. M.
- MOSSMAN, H. W. Regeneration of the ovary of mammals. *Mus rattus*, *Lepus cuniculus*, *Erethizon dorsatus*, and probably others. IV. 5. M.
- Comparative morphology of the fetal membranes and reproductive tracts in *Mammals*. II. 3. and 17. M.
- MULNARD, J. Cytochemical observations on oogenesis and development of *Acanthocelides* (C1.) and *Drosophila* (Dipt.). II. 2a. D.
- Study of the nucleoles of the giant cells of *Diptera* (Insecta). II. 2c. D.
- MURRAY, P. D. F. Histogenesis of fusion of parallel bones. *Hyla*, (*Amphibia*), *Rattus* (*Mammalia*), etc. I. 11. V.
- MUSTAKALLIO, M. On the appearance of elastic tissue in the vessels of *human* foetus. I. 15. M.
- NACE, G. W. Plasma proteins during development in the *chick* embryo. (in collaboration with A. M. SCHECHTMAN) IIIb. 2c. c. L.
- NAGY, I. Researches on the time of appearing of lipoids in the embryonic cartilages. *Vertebrates*. IIIb. 11. c. V.
(in collaboration with Gy. SAVAY and L. BEREK)
- NATER, H. Structure and development of genitalia in different species of *Drosophila* (Insects). II. 17. D.
- N BEL, L. The qualitative adaptation of the surface of embryonic cartilage and bone, due to the influences of surrounding tissues. Exper. alteration of these circumstances. A causal and functional analysis on human embryos and young animals. *Man* and *cat*. IIIa. 11. M.
(in collaboration with S. KROMPECHER)
- NEEDHAM, A. E. (data not yet received).
- NEEDHAM, J. (data not yet received).

- NEIGER, M. Développement du noyau tangentiel du nerf vestibulaire — son origine. *Poissons, Batraciens, Reptiles et Oiseaux*. II. 9. V. (en collaboration avec A. MICHELI)
- NELSEN, O. E. The cumulative of oxygen-pressure and the production of various degrees of blocking of the processes of gastrulation in the embryo of the frog, *Rana pipiens*. IIIb. 6. d. J.
- NEWELL, G. E. Breeding habits, embryology and larval life-history of *Arenicola marina* and *Clymenella torquata* (*Polychaetes*). (completion of previous work published in: J. Mar. Biol. Assc. 1948) I. 2a. C.
- NEWHALL, C. A. Anatomical findings in congenital anomaly of the heart and great vessels together with discussion of the more interesting features involved. *Homo*. III d. 4. M.
- NEWTH, D. R. An attempt to determine the origin of the trabeculae cranii and the branchial skeleton of *Lampetra planeri* (*Cyclostomata*). IIIa. 11. I.
- The study of the normal development of the cornea of the eye in an amphibian. *Xenopus laevis*. I. 10. J.
- NEWTON, B. L. Continued investigation by homologous and heterologous transplantation of embryonic material relating to its development in the anterior chamber in the eye using the method developed by H. S. N. GREENE. Material from *human* fetuses as well as *guinea pigs* and *mouse* embryos will be used. IIIa. 2b**. M.
- NICHOLAS, J. S. Studies on the rat egg. *Mus norvegicus*. IIIa. 2a. M.
- The development of rat muscle. *Mus norvegicus*. IIIa. 12. M.
- The development of actomyosin in developing rat muscle. *Mus norvegicus*. IIIb. 12. c. M.
- The interaction of the roof of the archenteron upon the nervous system. *Amblystoma mexicanum*. IIIa. 7. J.
- NICOLA, M. de Calcium distribution in early development of sea urchin eggs. *Paracentrotus* and *Arbacia*. IIIb. 2c. c. G.
- Phosphatase distribution in Crustacean eggs. *Cymothoids* and *Asellus* (*Crust. Isop.*). IIIb. 2c. c. D.
- NIEUWKOOP, P. D. The influence of Li on the primitive development of the Ascidian egg for analysing the potencies of regulation in this "mosaic" egg. *Ascidia malaca*. IIIa. 1c. H.
- The influence of Li on respiration and metabolism of the Ascidian egg. *Ascidia malaca*. IIIb. 2a. a. H.
- The influence of chloramine-compounds on the early development (neurulation and formation of the central nervous system) of the Amphibian egg. *Triturus alpestris* and *Tr. taeniatus*. IIIa. 2a. e. J. (in collaboration with F. E. LEHMANN)
- Normal development of *Xenopus laevis*, especially gastrulation and neurulation (for a normal table of *Xenopus laevis*). I. 6. J. (in collaboration with P. F. FLORSCHÜTZ)
- Analysis of the regulative potencies of the invaginating archenteron roof and the induced neural plate along the dorso-ventral and cranio-caudal axes in the Amphibian egg by heteroplastic transplantation of parts of the dorsal blastoporal lip. *Triturus alpestris*, *taeniatus* and *cristatus*. (in collaboration with S. TOIVONEN) IIIa. 1c. J.

- Regulation potencies in the neural plate. Formation of neural crest by regulation after implantation of young neural plate tissue in the ventral side of neurulae, or by homogenetic induction after implantation in middle gastrulae (heteroplastic transplantation). *Triturus taeniatus*, *alpestris* and *cristatus*. IIIa. 1c. J.
(in collaboration with Miss M. BOUMAN and B. de PLANQUE)
- Analysis of the neural induction. Transfer of inductive substances in horizontal direction through the presumptive, neural plate. (heteroplastic transplantation of ectoderm). *Triturus taeniatus*, *alpestris* and *cristatus*. IIIa. 7. J.
(in collaboration with Miss A. KREMER and Miss E. BOTERENBROOD)
- Analysis of the neural induction. Separation of archenteron roof and overlying ectoderm by semipermeable membranes. *Triturus taeniatus* and *alpestris*. IIIb. 7. d. J.
- NIU, M. C. (data not yet received).
- NOEL, Miss E. Effect of metabolic analogs on morphological and biochemical development. *Amblystoma punctatum* and *Rana pipiens*. (under direction of E. J. BOELL) IIIb. 2a. e. J.
- NOVIKOFF, A. B. Biochemical and cytochemical properties of rapidly growing tissue — normal (i.e., controlled) and autonomous growth (tumors). *Rat*. III d. 5. M.
- NÜESCH, H. Phänotypische Geschlechtsbestimmung. *Planaria (Turbell.)* and *Lymnaea (Gastr.)*. IIIc. 1b. C. and E.
- ODÉ, Miss E. Development of aorta, art. pulmonalis and ductus Botalli. *Mammals*. I. 15. M.
- OLIVO, O. M. Electrophysiology of embryonic heart tissue. *Gallus gallus*. IIIb. 15. d. L.
- OLSSON, R. Development and anatomy of the nuclei and nerve fibres in the brain. *Polypterus (Brachiopterygii)*. II. 9. I.
- OORT, J. Development of the anterior hypophysis of the black-headed gull. *Larus ridibundus*. I. 18. L.
- OPPENHEIMER, J. M. (data not yet received).
- ORLANDI, Miss A. Development of nucleoproteins. *Aves* and *Amphibia*. IIIb. 2c. c. V.
- ORŁOWSKI, A. The influence of hormones on metamorphosis. *Vertebrates(?)*. V. 2. f. V.(?)
(in collaboration with A. BER)
- ORSKA, Miss J. Development of the vertebral column centra in Teleosts. *Salmonidae* and *Cyprinodontidae*. II. 11. I.
- ORTS—LLORCA, F. Embryology of birds and mammals. I. 2a. L. and M.
- OSTERTAG, Mlle Y. La g n se de l'asym trie du tractus g nital des oiseaux et la r gression des canaux de Muller. *Gallus domesticus*. IIIa. 17. L.
- R le des hormones dans la diff renciation du sexe par les m thodes d'injections d'hormones, des greffes coelomiques, des castrations embryonnaires, des explantations. *Poulet*. IIIb. 17. f. L.
(en collaboration avec Et. WOLFF, Madame Em. WOLFF et G. STRUDEL)

- OVERGAARD, C. Regeneration. *Invertebrates*. IV. 2. EV.
- PADOA, E. Experimental sex reversal of larval *Amphibians*. IIIb. 17. J.
 — Control of metamorphosis. *Amphibians*. V. 2. J.
- PAI, S. (data not yet received).
- PANIJEL, J. Histochemistry of nucleic acids in the gametogenesis and development of *Parascaris equorum* (*Nematodes*). IIIb. 2c. c. C.
 (in collaboration with J. PASTEELS)
- PAO, W. K. (data not yet received).
- PAPI, F. Reproduction, Cytology in *Rhabdocoela*. I. 4. C.
- PARMENTER, Ch. L. A continuation of the study of the origin of the diploid and other chromosome numbers in parthenogenetically developed frog embryos. *Rana pipiens* and *R. palustris*. IIIa. 4. J.
 — An analysis of the "second factor" in the first cleavage in the artificial parthenogenesis of the frog egg. *Rana pipiens* and *R. palustris*. IIIb. 4. J.
- PASCHMA, M. Embryology of *Enchytraeidae* (*Oligochaeta*). I. 2a. C.
- PASQUINI, P. Effects of antimetotics on early development. *Rana esculenta*. IIIb. 2a. e. J.
 (in collaboration with M. A. BARBARETTI)
- Effects of antimetotics on the regeneration of peripheral nerves. *Amphibians*. IV. 5. J.
 (in collaboration with S. LEGHISSA)
- PASTEELS, J. J. Centrifugation of amphibian blastula-gastrula. Various sp. of *Urodela* and *Anura*. IIIa. 6. d. J.
 — General survey of Turtle development. *Chrysemis*, *Pseudemys* and *Chelone*. II. 2a. K.
 — Histochemistry of nucleic acids in the gametogenesis and development of *Parascaris equorum* (*Nematodes*). IIIb. 2c. c. C.
 (in part in collaboration with J. PANIJEL)
- Cytochemical observations on the first stages of *Amphibia*, various species. IIIb. 2c. c. J.
 (in collaboration with J. BRACHET)
- PATTEN, B. M. (data not yet received).
- PEACOCK, A. Development of vertebral column in *man*. I. 11. M.
- PEASE, D. C. (data not yet received).
- PEERS, Miss D. J. An investigation into the spawning habits and early development of the common carp, *Cyprinus carpio*. I. 2a. I.
- PEHRSON, G. T. Development and morphology of the laterans system in the head. *Dipnoans* and *Characinids*. II. 8. I.
- PENNERS, A. Regeneration auf verschiedenen Altersstadien von *Tubifex rivulorum* (*Clitellata*), (*Oligochaeten*). IV. 2. C.
 — Geschwulstproblem bei *Lumbricus* (*Clitellata*), (*Oligochaeten*). IIIb. 5. C.
- PERITZ, Miss K. Ontogenesis of the skull of *Hynobius fuscus*. II. 11. J.
- PERLMANN, H. P. Serological and chemical studies on the proteins of developing sea urchin eggs. *Paracentrotus lividus* and *Arbacia lixula*. IIIb. 2c. c. G.

- PERRI, T. Ricerche sull'indizione di arti soprannumerari mediante trapianti di parti di ibridi o di embrioni irradiati con raggi X. *Bufo vulg.*, *B. viridis* and *Rana esculenta*. IIIa. 2b. J.
- Ricerche su trapianti e espianti tra *Anfibi anuri e urodeli* allo scopo di indagare i processi di regolazione, differenziazione nel quadro dei problemi della costituzione biologica. IIIa. 1c. J.
(in collaboration with G. COTRONEI)
- PERRY, J. H. Differentiation in the nervous system. *Amblystoma*. IIIa. 9. J.
- Vascular patterns in the developing nervous system. *Homo sapiens*. I. 15. M.
- PESONEN, S. The magnitudes of the pronuclei of fertilized ova. *Albino mouse*. I. 4. M.
- The parthenogenetic development of unfertilized ova induced by chemical stimulation. *Albino rat*. IIIa. 4. e. M.
- The effect of substituted acetic acids on the early ontogenetic development. *Bufo* and *Rana (Anura)* and *Triturus (Urodela)*. IIIa. 2a. e. J.
- PETER, K. Das Leben des Keimlings, Aufsätze über funktionelle Embryologie. *Vertebraten*. IIIa. 1c.
- PFLÉGER, Miss D. Recherches sur les hormones sexuelles embryonnaires. *Oiseaux*. IIIb. 17. L.
- Rôle des acides nucléiques dans les phénomènes d'induction. *Batraciens*. IIIa. 1c. J.
- PHILLIPS, R. J. S. Developmental study of a new fifth-toe polydactyly character in *Mus musculus*. IIIc. 3. M.
- PIATT, J. Transplantation of brachial cord segments in *Amblystoma punctatum* embryos. With a view to analyzing the factors responsible for normal cord structure and function; i.e. is continuity of neural axis necessary for normal form and function of specific parts? IIIa. 9. J.
- Survey of the motor regions of the brain of *Amblystoma*. With a view to a morphological and functional separation of each. I. 9. J.
- PIEPHO, H. Metamorphose der *Insekten*. V. 2. D.
- PINCUS, G. (data not yet received).
- PIOTROWSKA, J. The influence of the short wave radiation on the fertilization in *Amphibia*. IIIb. 4. d. J.
- PISANO', A. Development of isolated blastomeres of the *Ascidian* egg. IIIa. 2b*. H.
- Parabiosis between pure breed and hybrids Urodela. *Triturus sps.* IIIc. 2. J.
- PLANQUE, B. de. Regulation potencies in the neural plate. Formation of neural crest by regulation after implantation of young neural plate tissue in the ventral side of neurulae, or by homogenetic induction after implantation in middle gastrulae. (heteroplastic transplantation). *Triturus taeniatus*, *Tr. alpestris* and *Tr. cristatus*. IIIa. 1c. J.
(in collaboration with Miss M. BOUMAN and P. D. NIEUWKOOP)
- PLETZEN, R. van. Ontogenesis of the breast-shoulder apparatus of the skeletogenous strata. *Xenopus laevis*. I. 11. J.

- POLEZAJEW, L. W. (data not yet received).
- POLICARD, A. (no embryol. work in progress).
- POLITZER, G. (data not yet received).
- PORTMANN, A. Untersuchungen über embr. und postembryonale Entw. der Wirbeltiere, vor allem postembryonale Phase. Vor allem *Vögel*. II. 2a. V.
- Untersuchungen über Larvenentwicklung mariner *Gastropoda* (*Prosobranchier*). II. 2a. E.
- POSALAKY, Z. The rôle of the autonomous nervous system in the regeneration of the lens. *Triton*. IV. 5. J.
- POULSON, D. F. Development of *Drosophila* using genetic principles and radio-active materials to trace the embryonic components. IIIb. 2c. d. D.
- PREDA, V. Action du cholesterol (sous forme de solution 4 % en acides biliaries et sous la forme de solution huileuse 4 % de palmitate de cholesterol) sur la régénération des membres du *Triton vulgaire*. IV. 4. e. J.
- Action de la greffe de cancer sur la régénération des membres du *Triton vulgaire*. IV. 4. J.
- L'effet de l'action de certains minéraux (uraninite, tourmaline, galène, blende, chalcopryrite) sur la régénération des membres du *Triton vulgaire*. IV. 4. J.
- Production de malformations tératologiques sur l'embryon de *poulet*, par l'action de l'adrenaline et de la pilocarpine. III d. 2. L.
- Production de malformations tératologiques sur l'embryon de *poulet*, par l'action de l'extrait gastrulaire de *Rana*. III d. 2. L.
- Inductions morphogénétiques chez l'embryon de *poulet*, à l'aide de la moelle osseuse de veau. IIIa. 1c. L.
- L'effet de l'action de l'uraninite sur le développement de l'oeuf de grenouille. *Rana esculenta*. IIIa. 2a. e. J.
- Extirpation de la crête neurale crânienne chez la neurale de *Rana esculenta*. IIIa. 9. J.
- Action des hormones gonadotropes sur le déterminisme du sexe chez le *poulet*. IIIa. 17. f. L.
- Action des hormones gonadotropes sur le déterminisme du sexe chez la grenouille. *Rana esculenta*. IIIa. 17. f. J.
- Origine des cellules sexuelles second. chez le *poulet*. IIIa. 17. L.
- PRETO PARVIS, V. Ricerche sullo sviluppo delle ghiandole surrenali nei mammiferi. I. 18. M.
- Ricerche sullo sviluppo dei centri nervosi nell'uomo e nei mammiferi. I. 9. M.
- PRINS, I. X. Ontogenesis of the musculus orbitoquadratus and „trigeminal” musculature. *Spheniscus demersus*. I. 12. L.
- PUSEY, H. K. (data not yet received).
- RADECKA, E. Mitochondria during the development. *Parascaris equorum* (*Nematoda*). I. 2c. C.
- RADKOWA, M. Early developmental stages in mammals. I. 2a. M.
(in collaboration with Z. SEMBRATOWA)
- RAJKOVITS, C. Reinnervation of peripheric nerve stumps after direct implantation into the central nervous system. *Albino rat*. IV. 5. M.

- RAMSEY, E. M. Placentation — Study of vascular pattern of endometrium throughout pregnancy. *Macaca mulatta* (*Rhesus monkey*). I. 3. M.
- RANZI, S. Proteins in embryonic development. *Echinoderma* and *Amphibia*. IIIb. 2c. c. G. and J.
- RAUNICH, L. Lateral mesoderm explants in tail bud stage. *Anura*. IIIa. 2b**. J.
- Development of blood and vascular system. *Petromyzontidae* (*Cyclostomes*), *Amia* and *Lepidosteus* (*Osteoganooids*). IIIa. 15. I.
- RAVEN, Chr. P. Nature of polar plasms. *Limnaea stagnalis* (*Gastropoda*). IIIa. 4. E.
- Chemical embryology. *Sabellaria alveolata* (*Annelida*). IIIb. 2c. c. C.
- Influence of Li on the development of *Limnaea stagnalis* (*Gastropoda*). IIIb. 2a. e. E.
- RAWLES, Miss M. E. The rôle that sex and other hormones play in modifying the expression of pigment cells in color feather formation. Utilizing various techn. such as grafting and *in vitro* cultures, the various phases of the over-all problem are being investigated. *Chick*. (in collaboration with B. H. WILLIER) IIIa. 8. f. L.
- The nature of the processes involved in formation of pigment of the hair and skin of mammals. *Mouse* and *rat*. IIIa. 8. M.
- Developmental origin of the abdominal musculature by means of carbon reference marks. *Chick*. IIIa. 12. L.
(in collaboration with W. L. STRAUSS)
- RAYNAUD, A. Étude du développement embryonnaire normal de l'appareil génital de la *souris*. I. 17. M.
- Recherches sur le développement embryonnaire des glandes prostatiques des Mulots (*Apodemus sylvaticus*) de sex femelle. IIIb. 17. M.
- Recherches expérimentales sur les facteurs du développement des différentes parties de l'appareil génital des embryons de *souris*:
a. Étude de l'action des hormones sexuelles sur le développement de l'appareil génital des embryons. IIIb. 17. f. M.
b. Étude des capacités de développement des différentes parties de l'appareil génital des embryons, après destruction des ébauches de l'hypophyse et des glandes génitales. IIIb. 17. f. M.
(en collaboration avec M. FRILLEY)
- Recherches sur le développement embryonnaire de la glande mammaire de la *souris*. IIIb. 8. M.
(en collaboration avec M. FRILLEY)
- REEVE, E. C. R. Developmental study of lines selected for large and small body size in *Drosophila melanogaster* (*Insecta*). IIIc. 2. D.
(in collaboration with F. W. ROBERTSON)
- REHM, Miss M. Histogenese inkretorischer Organe von *Lepidopteren* bei der Wildform und bei Mutanten. I. 18. D.
- REVERBERI, G. The rôle of induction and morphogenetic movements in the brain and pigment spots in *Ascidians*. IIIa. 1c. H.
(in collaboration with A. MINGANTI)

- The morphogenetic rôle of the yolk material in *Amphibians*, studied by means of heterospecific transplantations. IIIa. 1c. J.
- REYER, R. W. Regeneration problems. *Invertebrates* and *Vertebrates*. IV. 1. EV. + V.
- REYNOLDS, B. D. (data not yet received).
- REYNOLDS, S. R. M. Factors in fetal maturity. *Homo, Macaca rhesus, Lepus cunic.* and *Ovis*. IIIb. 2a. M.
- Fetal vascular physiology. *Homo, Lepus* and *Ovis*. IIIb. 15. M.
- Uterine contraction patterns in *women*. IIIb. 17. M.
- RHODES, S. The lens induction in a number of amphibian species. *Rana clamitans* and *R. catesbiana*. IIIa. 10. J.
(under direction of E. C. HORN)
- RISLER, H. Kernwachstum in verschiedenen Geweben während der Metamorphose bei *Ephestia küniella (Ptychopoda seriata) (Lepidopteren)*. V. 1. D.
- RISLEY, P. L. Behavior of nucleic acids in development of telolecithal ova. (Especially the behavior of the nucleoli and their development). *Lower Vertebrates*. IIIb. 2c. c. LV.
- Histochemical studies of germ cells in relation to physiological alterations in the life cycle of the organism. *Vertebrates*.
(in collaboration with A. L. SODERWALL) IIIb. 17. c. V.
- RIZZOLI, C. Protein metabolism in chicken embryo. *Gallus gallus*. IIIb. 2c. b. L.
- ROBERTSON, F. W. Developmental study of lines selected for large and small body size in *Drosophila melanogaster (Insecta)*.
(in collaboration with E. C. R. REEVE) IIIc. 2. D.
- ROBERTSON, G. G. The appearance and development of early ossification centers in the face of *human* embryos. I. 11. M.
- The production of hemopoietic and other anomalies in rat embryos by nitrogen mustards. *Mus norvegicus*. IIIa. 2. M.
- ROCK, J. A morphologic, descriptive study of *human* embryos, both normal and abnormal found in surgically removed uteri, in age ranging from 1 to 16 days of age.
(in collaboration with A. T. HERTIG)
- ROETHELI, A. Chemische Beeinflussung der plasmatischen Vorgänge der Meiose bei *Tubifex*. IIIb. 4. e. C.
- Physiologie des *Knochenfischspermas*. IIIb. 4. L.
- ROOFE, P. G. Development of the central and peripheral nervous system in relation to behavior patterns along Coghillian lines of investigation. *Amblystoma punctatum*. IIIa. 9. J.
(in collaboration with G. M. LEE)
- ROSE, S. M. (data not yet received).
- ROSENBAUM, R. M. Stage series studies and metamorphosis in relation to irradiated embryos. *Triturus viridescens viridescens (Salamandridae)*. IIIa. 2a. d. J.
- ROSIN, S. (data not yet received)
- ROSTAND, P. J. (data not yet received).
- ROTMANN, E. Regionale Induktion bei Amphibien. *Triton*. IIIb. 7. J.
- Regeneration der Extremität. *Triton*. IV. 4. J.

- RUDNICK, Miss D. Differentiation of early embryonic tissues in vitro. *Gallus*. IIIa. 19. L.
- RUGH, R. (data not yet received).
- RUNNER, M. N. Experimental production of genetic and developmental variations in genetically stable material by treatment of gonads, germ cells and embryos. *Mus musculus*. IIIc. 2. M.
- Studies on the prenatal influences which produce congenital abnormalities in inbred. *Mus musculus*. III d. 3. M.
- RUNNSTRÖM, J. A. M. (Cf. work on the Institute). *Echinoderms*. IIIb. G.
- RUSSEL, E. S. Comparison of blood formation in yolk-sac, transfer to liver, formation in liver, and transfer to bone-marrow in normal embryos and those with severe macrocytic anemia due to W, W^V genes. *Mus musculus*. IIIc. 3. M.
- Erythrocyte count of normal and abnormal embryos from 12—18 days. Abnormal embryos carry dominant genes WW, WW^V, W^VW . *Mus musculus*. IIIc. 3. M.
- Description of gonad and especially germ-cell differentiation in normal and abnormal embryos. Embryos which carry WW, W^VW , and W^VW^V genes have abnormal gonads. *Mus musculus*. IIIc. 3. M.
- RUUD, G. (no embryol. work in progress).
- SALZGEBER, Mlle B. Stérilization et intersexualité chez l'embryon de poulet par irradiation aux rayons X. IIIa. 17. d. L.
- SANDISON, Miss E. E. The developmental stages of ova and larvae of barnacles with special reference to the naupliar stages and settlement. *Tetraclita serrata, Octomeris angulosa, Chthamalus dentatus, Balanus algicola, B. trigonus, B. maxillaris* and *B. amphitrite* (*Cirripedia*). I. 2a. D.
- SARA', M. Development of the gonads in *Psychoda* (*Diptera*). IIIb. 17. D.
- SAUNDERS (data not yet received).
- SAVAY, Gy. Researches on the time of appearing of lipoids in the embryonic cartilages. *Vertebrates*. IIIb. 11. c. V.
(in collaboration with I. NAGY and L. BEREK)
- SAWIN, P. B. Study of intra-uterine influences upon embryonic growth, differentiation, and organogenesis by means of ova and ovary transplants between races known to differ genetically in adult body size as determined by the general size factors and also by genetic factors affecting specific regions of the axial skeleton. *Oryctolague cuniculus*. IIIc. 1b. M.
(in collaboration with F. AVIS and D. DIETZ)
- Study of two unrelated genetic types of achondroplasia in the rabbit, (1) the type originating at the Rockefeller Institute and (2) a new type discovered in California. *Oryctolague cuniculus*. IIIc. 3. M.
- SCHECHTMAN, A. M. Plasma protein development in the chick embryo. (in collaboration with G. W. NACE) IIIb. 2c. c. L.
- Differentiation of the nucleus during embryological development. *Chicken*. (in collaboration with Ch. P. DAGG) IIIb. 19. L.

- SCHENK, R. Einfluss weiblicher Sexualhormone auf die Histogenese von *Triton alpestris*. IIIb. 19. f. J.
- Mikrokephalie durch Defektoperationen in der Gegend des Urmundgrübchens von jungen Tritongastrulae. *Triton alpestris*. IIIa. 7. J.
- SCHJEIDE, O. A. Development of blood cells of the chick embryo. IIIb. 15. L.
- SCHMIDT, G. A. (data not yet received).
- SCHMIRLER, H. Regenerationsversuche an verschieden alten *Tubifex rivulorum* (Annelida). IV. 2. C.
- SCHOTTÉ, O. E. (data not yet received).
- SCHREIBER, B. Bone regeneration. *Amphibians*. IV. 5. J.
- SCHUÉ, Mlle M. Origine des cellules de régénération chez les Batraciens. *Triton*. Potentialités de ces cellules. IV. 2. J.
- SCHWINCK, Fr. E. Metamorphoseveränderungen der Epidermis und inkretorischer Organe bei *Panorpa* (Insecta). V. 4. D.
- SEDRA, S. N. Metamorphosis of the jaws and their muscles correlated with the changes in the animal's feeding habits. *Bufo regularis*. V. 4. J.
- SEMBRAT, K. Experimental analysis of the early developmental stages of the Sea Anemones. *Sagartia leucolena* (Anthozoa). IIIa. 2a. B.
- Localization of the primary gonocytes in the early gastrula of *Amphibians*. IIIa. 17. J.
- The morphogenetical functions of the thyroid gland in poikilothermic Vertebrates. *Pisces*, *Amphibia* and *Reptilia*. IIIa. 18. V.
- Early developmental stages in the rat, *Epimys norvegicus*. I. 2a. M.
- SEMBRATOWA, Z. Heteroplastic transplantation of the hind part of neural plate. *Amblystoma punctatum* and *A. tigrinum* (Urodeles). IIIa. 2b. J.
- Analysis of the hind part of the neural plate in Anura. *Rana palustris* and *R. silvatica*. IIIa. 2b. J.
- Early developmental stages in mammals. I. 2a. M.
(in collaboration with M. RADKOWA)
- SENSENG, E. C. Development of meninges of spinal cord. *Homo sapiens*. I. 9. M.
- Development of postotic axial anomalies. *Homo sapiens*. III d. 3. M.
- SHANER, R. F. A study of abnormal hearts in pig embryos corresponding to the third month of human development. III d. 4. M.
- SHAPIRO, H. Metabolic changes on fertilization. *Arbacia punctulata*, *Asterias forbesii* and *Chaetopterus pergamentaceus*. IIIb. 4. EV.
- Quantitative investigations of the rate of cell division in marine eggs, in relation to cellular metabolism, and ionic environment. *Arbacia punctulata*, *Asterias forbesii* and *Chaetopterus pergamentaceus*. IIIb. 19. b. EV.
- Water permeability of marine eggs. *Arbacia punctulata*, *Asterias forbesii* and *Chaetopterus pergamentaceus*. IIIb. 2a. b. EV.
- Waterpermeability of mammalian eggs. *Lepus cuniculus*. IIIb. 2a. b. M.

- Oxidative metabolism of mammalian eggs. *Lepus cuniculus*. IIIb. 2a. a. M.
- Mammalian parthenogenesis. *Lepus cuniculus*. IIIb. 4 M.
- SHAVER, J. R. Initiation of artificial parthenogenesis in frog eggs. *Rana fusca (Anura)*. IIIb. 4. J.
- Immunological characteristics of embryonic cytoplasmic granules. *Rana fusca (Anura)*. IIIb. 2c. h. J.
- Biochemistry of development of frog embryos. *Rana fusca (Anura)*. IIIb. 2c. c. J.
- SHELLHAMER, R. H. Histochemistry in the development of *Cyclostomes*. IIIb. 2c. c. I.
- SHEN, S. C. Development of cholinesterase in the amphibian nervous system in relation to the functional maturation of various regions. *Amblystoma punctatum*. IIIb. 9. c. J.
- (in collaboration with E. J. BOELL)
- Cholinesterase in brain hyperplasia and hypoplasia following eye transplantation and extirpation. *Amblystoma punctatum* and *Ambl. tigrinum*. IIIb. 9. c. J.
- (in collaboration with E. J. BOELL)
- SIEKERT, R. G. (Physiology of the fetus). Sex difference in human coronary arteries. *Homo sapiens*. IIIb. 15. M.
- SILBERBAUER, Mrs B. I. Structure and development of Cape Crawfish, *Jasus lalandii (Decapoda)*. IIIa. 2a. D.
- SINCLAIR, J. G. Preparation of models and description of early human embryos. (15 day, 17 day, 26 day, 3,5 mm. and 6 mm.). I. 2a. M.
- Studies of placenta related to twinning and to conditions of birth. (Three papers published). *Homo*. I. 3. M.
- Correlated fetal and maternal blood studies at time of birth. (The data have been collected on cell types and distribution. Data on placental structure are known. Statistical analysis is yet to be done). *Homo*. I. 15. M.
- Experimental studies of carcinogenic agents passing the placenta in mice. (Preliminary paper published). Morphological effects both immediate and remote. Metabolism of the compounds to determine the mechanisms. IIIb. 5. M.
- SINGER, J. An investigation of the organising action of the oral cone in the regeneration of the hydroid *Cordylophora lacustris*. IV. 2. B.
- SINGER, M. Influence of nerves on regeneration of urodele limb. *Triturus viridescens*. IV. 4. J.
- Histology of limb and nerve regeneration in urodele. *Triturus viridescens*. IV. 4. J.
- SINHA, T. P. (Physiology of the fetus). Study of changes in pulmonary blood volume and changes in the liver at birth and in the early postnatal period in guinea pigs. IIIb. 13 and 14. M.
- SIPPEL, T. Morphological, physiological and biochemical differentiation of the amphibian heart. *Amblystoma punctatum* and *Rana pipiens*. (under direction of E. J. BOELL) IIIb. 15. J.
- SLOTWIŃSKI, J. Cytologie du développement de la membrane olfactive. *Mammifères*. II. 10. M.

- SMRECZYŃSKI, S. Determination of early developmental stages in
Insects *Agelastica alni* (Coleoptera). IIIc. 1c. D.
- SNELLEN, H. A. Investigations on congenital heart-malformations.
Homo. III d. 4. M.
(in collaboration with J. DANKMEYER and W. H. v. d. WEL)
- SNYDER, F. F. Respiratory physiology of fetus and newborn. *Rabbit*
and *human*. IIIb. 2a. a. M.
- SOBELS, F. H. Developmental physiology and genetics of a lethal
mutant character in *Drosophila melanogaster* (lethal-translucida).
IIIc. 3. D.
- SODERWALL, A. L. Histochemical studies of germ cells in relation
to physiological alterations in the life cycle of the organism. *Verte-*
brates. IIIb. 17. c. V.
(in collaboration with P. L. RISLEY)
- SOLEWSKI, W. The development of the gill vessels in the *trout*.
I. 15. I.
- SPEIDEL, C. C. (data not yet received).
- SPIEGELMAN, S. (data not yet received).
- SPIKES, J. D. (data not yet received).
- SPIRITO, A. (data not yet received).
- SPRATT Jr, N. T. Investigating the nutrient requirements essential
to morphogenesis and growth of organisms in the early stages of
chick development (pre-streak and streak blastoderms).
IIIb. 2a. g. L.
- STARCK, D. Placentation of *Macroscelides* (Insectivora). II. 3. M.
— Chondrocranium and Osteocranium of *Scotophilus temmincki* (*Mi-*
crochiroptera). II. 11. M.
- STEFANELLI, A. Determination and differentiation of nervous cells.
Reptiles, Pisces and *Amphibians*. IIIa. 9. V.
— Regenerations of nervous tissue. *Reptiles* and *Amphibians*. IV. 5. V.
— Embryo metabolism, respiration. *Pisces* and *Amphibians*.
IIIb. 2a. a. LV.
— Nucleic acid synthesis in development. *Fishes*. IIIb. 2c. c. I.
- STEINER, H. Development of the tetrapod-limb with special reference
to Mammals, (embryological evidence of their aboreal origin).
Amphibia, Reptilia, Aves and *Mammalia*. II. 2b. V.
— New embryological evidence of the "biogenetic law" in connection
with the phenomenon of iteration and convergence, rudimentation
and adaptation. *Vertebrates*. II. 1a. V.
— Embryological analysis of feather-growth. The problems of the
"afterschaft" and of "diastataxy". *Ratites* and *Carinatae*. IIIa. 8. L.
— Colour and pigment-differentiation in the bird's feather. *Melopsit-*
tacus undulatus. I. 8. L.
- STELT, v. d. Investigation of the development of the artery-arches in
turtle embryos. I. 15. K.
- STEPHAN, F. Le développement du système vasculaire (coeur et
système vasculaire embryonnaire et extra-embryonnaire). *Gallus*
domesticus. IIIa. 15. L.
— Les anomalies du système vasculaire (coeur et système vasculaire
embryonnaire et extra-embryonnaire). *Gallus domesticus*. III d. 4. L.

- STEPHENSON, N. G. Development of *Leiopelma archeyi* and *Ascaplus truci*. II. 2a. J.
- STEVENS, L. C. Developmental potencies of the neural crest in Anurae. *Xenopus laevis*. IIIa. 7. J.
- STICH, H. Plasmatische Verhältnisse — Ectosomenphänomen. *Cyclops (Entomostraka)*. IIIb. 2c. D.
- Karyologische Untersuchungen — Karyomerentropismus. *Cyclops (Entomostraka)*. IIIb. 19. D.
- STIEVE, H. (data not yet received).
- STOIGER, H. Nähreidetermination bei stenoglossen *Prosobranchier*-Arten. IIIc. 1b. E.
- Cytologie und Cytogenetik der *Prosobranchier*. IIIc. 2. E.
- STOLL, R. Tératologie. *Rana fusca* et *Gallus*. III d. 2. J. and L.
- STONE, L. S. Complete analysis of the ocular mechanisms in *Amblystoma* studying the regeneration of the lens and regulation of the nervous mechanisms after ocular transposition. IV. 5. J.
- STRAUSS, F. Early development and implantation of mammals. *Hominidae (Insectivora)*. II. 3. M.
- Place of fertilization of the mammalian egg. *Rodentia* and *Carnivora*. IIIb. 4. M.
- (under direction of H. W. MOSSMANN)
- STRAUSS Jr, W. L. Developmental origin of the abdominal musculature by means of carbon reference marks. *Chick*. IIIa. 12. L.
- (in collaboration with Miss M. E. RAWLES)
- STRAWINSKI, S. Development of the blood vessels in the frog. *Rana esculenta (Salientia)*. I. 15. J.
- STRUDEL, G. Étude de la polyembryonie chez les Poissons. *Traite*. IIIa. 1c. I.
- Corrélations nerveuses chez l'embryon de poulet, *Gallus domesticus*. IIIa. 9. L.
- Rôle des hormones dans la différenciation du sexe par les méthodes d'injections d'hormones, des greffes coelomiques, des castrations embryonnaires, des explantations. *Poulet*. IIIb. 17. f. L.
- (en collaboration avec Et. WOLFF, Madame Em. WOLFF et Mlle Y. OSTERTAG)
- STULTZ, W. A. Inter-relationships between the development of limbs and the central and peripheral nervous systems. *Amblystoma punctatum*. IIIa. 2b. J.
- Symmetry relations in developing limbs. *Amblystoma punctatum*.
- STUMP, W. (data not yet received).
- SUOMALAINEN, H. Thyroid gland in delayed metamorphosis of *Xenopus* larvae. V. 2. J.
- (in collaboration with S. TOIVONEN)
- SVETLOV, P. (data not yet received).
- SWEDMARK, B. G. Sulphate metabolism in sea urchin development. IIIb. 2c. b. G.
- SWIERZAWSKA, K. Physico-chemical properties of embryos: the yolk. *Salmo (Pisces)*, *Lacerta (Reptilia)* and *Gallus (Aves)*. IIIb. 2c. c. V.
- (in collaboration with Z. GRODZINSKI and H. DATKOWNA)

- SZARSKI, K. W. Development of the kidneys in Anamnia. *Amphibia anura* and *Teleostei*. I. 17. LV.
- SZENTAGOTHAI, J. Regenerative capacity of the central nervous system. Replacement of central pathways by degenerated peripheric nerves. *Albino rat*. IV. 5. M.
- Regenerative capacity of peripheric ganglion grafts. Reinnervation of degenerated motor end-plates by processes of grafted peripheric ganglion cells. *Albino rat*. IV. 5. M.
- SZENTPÉTERY, J. C. Growth and development of intramural autonomic nerve plexus of the stomach and small intestine by the silver impregnation methods and experimental nerve cuts. *Albino rat*. I. 9. M.
- TAMINI, Miss E. P. (no embryol. work in progress).
- TAYLOR, A. C. (data not yet received).
- TEYSSEYRE, Mlle J. Développement du diencéphale. *Rat*. I. 9. M.
(en collaboration avec A. GIROUD et P. DESCLAUX)
- Modifications du développement de l'encéphale sous l'action des antithyroïdiens. *Rat*. III d. 4. M.
- THEILER, K. Ueber die Entstehung von Blockwirbeln beim *Menschen*. III d. 4. M.
- Ueber die Entwicklung von Missbildungen der Wirbelsäule. *Mensch und Triton*. III d. 4. M. and J.
- THERMES, G. Regenerative processes of the spinal medulla. *Reptiles*. IV. 5. K.
- THOMSON FLYNN, T. (data not yet received).
- TOIVONEN, S. The specific action of heterogenous inductors. *Triton*. III b. 7. J.
- Analysis of the regulative potencies of the invaginating archenteron-roof and of the induced neural plate along the dorsoventral and cranio-caudal axes by heteroplastic transplantation of parts of the dorsal blastoporal lip. *Triturus alpestris*, *taeniatus* and *cristatus*. III a. 1c. J.
(in collaboration with P. D. NIEUWKOOP)
- Thyroid gland in delayed metamorphosis of *Xenopus* larvae. (in collaboration with H. SUOMALAINEN) V. 2. J.
- TÖNDURY, G. Systematische Untersuchungen typischer *menschlicher Missbildungen* unter Bezugnahme auf die Ergebnisse entwicklungsphysiologischer Forschung. Gegenwärtig werden Kopfmissbildungen und sireniforme Missbildungen analysiert. III d. 3. M.
- Untersuchungen über die Entwicklung des *menschlichen* Gesichts und ihre Beziehungen zur Entstehung der Hasenscharte und anderer Spaltbildungen. III d. 3. M.
- Untersuchungen zur Frage der Gonadenentwicklung beim *Menschen* und der Potenzen des Ovar epithels beim Erwachsenen. III a. 17. M.
- TÖRÖ, I. Biology of the reticulo-endothelial system. *Mammals*. III b. 16. M.
- Splenectomy and the embryonic life. *Albino rat*. III d. 2. M.

- Thymectomy and the calcium content of the *bird's* egg. IIIb. 2c. f. L.
- Influence of yolk on the germ layers. *Birds*. IIIb. 1c. L.
- TOWNES, Ph. L. Selective cellular adhesion in embryonic germ layers. *Urodeles* and *Anurans*. IIIb. 1c. J.
- TRACY, H. C. The development of all systems of the toadfish in relationship to behavior. IIIa. 2a. I.
(in collaboration with J. WINBLAD and Th. BATTY)
- TRAMPUSCH, H. A. L. Experiments on the head-organizer by means of X-rays and a new micro-surgical device. *Amphibians*. IIIa. 7. d. J.
- Experiments on secondary inductors, mainly on sense organs. *Amphibians*. IIIa. 10. J.
- Experiments on the gradient-concept. *Hydroidea*. IV. 1. B.
- TRIBE, Miss M. Development of the trabeculae and parachordals in the *Lamprey*. (in collaboration with A. FISK) I. 11. I.
- TRINKAUS, J. P. Mechanism of gastrulation in teleost eggs. The nature of the surface gel layer of the egg and its possible rôle in the cell movements (particularly epiboly) characteristic of teleost gastrulation. Extensive utilization of the methods of marking, wounding, transplantation. *Fundulus heteroclitus* (*Osteichthyes*). IIIa. 6. I.
- Rôle of hormones in differentiation of pigment patterns. Investigation of estrogen and thyroid hormone as morphogenetic agents in pigment pattern differentiation. The particular emphasis has been on the response of melanoblasts to these hormones and the rôle of epidermis in conditioning this response. *Gallus domesticus*. IIIb. 8. f. L.
- TROMBETTA, P. Serology of embryo. *Birds*. IIIb. 15. L.
- TRUSLOVE, G. M. The study of the normal development of the lateral lines in an amphibian with observations on their regenerative capacity. *Xenopus laevis* (*Anura*). I. 8. J.
- TSCHÜMI, P. Chemische Beeinflussung der Extremitätenbildung von *Xenopus*. IIIa. 2b. e. J.
- TSENG, Miss M. P. Localization of the factors which cause situs inversus in tadpoles by defect and inversion experiments. (Removal and inversion of different parts of neural plate and chorda-mesoderm, or chorda-mesoderm, or lateral plate). *Rana nigromaculata*. IIIa. 13. J.
- Intestinal canal can only be formed in the whole embryo; in the extirpated entoderm no canal formation ever occurs. By combination of entoderm fragments with different parts of mesoderm in explants the formation of the intestinal canal may be studied. *Rana nigromaculata*. IIIa. 13. J.
- Determination of; how entoderm regulates its lost parts; when entoderm loses its power of regulation; and whether the regulation power is lost gradually or suddenly at a certain stage. Moreover the question: whether the entoderm at the neural plate stage still retains its power of regulation when different portions of entoderm are removed. Afterwards earlier stages will be examined in similar way. *Rana nigromaculata*. IIIa. 1c. J.

- TUCKER, G. H. (data not yet received).
- TUNG, T. C. (data not yet received).
- TWITTY, V. C. (data not yet received).
- TYLER, A. (data not yet received).
- TYLER, D. B. Factors responsible for the changes in brain metabolism during its development. *Rat and guinea pig.* IIIb. 9. b. M.
- UBISCH, L. v. Entwicklungsprobleme (Buch, c. 250 S.). *Evertebraten und Vertebraten.* IIIb. 1a. EV. + V.
- Entwicklungsphysiologie (Buch, c. 100 S.). *Evertebraten und Vertebraten.* IIIb. 1a. EV. + V.
- Entwicklungsgeschichte der *Seeigel* (Monogr. 100 S.). IIIa. 2a. G.
- Biologische Synthesen (Im Druck). *Evertebraten und Vertebraten.* IIIa. 1a. EV. + V.
- UMANSKI, E. (data not yet received).
- URBANI, E. Ricerche sulla respirazione embrionale dei *Teleostei.* IIIb. 2a. a. I.
- Ricerche sul comportamento degli acidi nucleici durante l'oogenesi. *Amphibians.* IIIb. 4. c. J.
- Azione degli antimitotici sul metabolismo respiratoria degli *Anfibi.* IIIb. 2a. a. J.
- Ricerche sulla determinazioni embrionali precoci nella *Ascidie.* (in collaboration with Mrs L. URBANI—MISTRUZZI) IIIa. 1c. H.
- URBANI—MISTRUZZI, Mrs L. Ricerche sulla determinazioni embrionali precoci nella *Ascidie.* IIIa. 1c. H.
- (in collaboration with E. URBANI)
- Ricerche su parabiosi tra *Anfibi Anuri* e *Urodeli* allo scopo di indagare i processi di regolazione, differenziazione nel quadro dei problemi della costituzione biologica. IIIa. 1c. J.
- (in collaboration with G. COTRONEI)
- Azione dei raggi X sugli embrioni di *Anfibi*, studiata con il metodo della parabiosi. IIIb. 2a. d. J.
- Ricerche sull'acido ascorbico durante lo sviluppo embrionale degli *Anfibi.* IIIb. 2c. c. J.
- Ricerche sulla catalasi durante la metamorfosi. *Anfibi.* V. 2. J.
- VACEK, Z. Origin and development of the oesophageal epithelium in *Batrachians.* IIIa. 13. J.
- VACHON, M. Embryologie et développement postembryonnaire. *Arachnides et Myriapodes.* I. 2a. D.
- Embryologie et développement postembryonnaire. *Arachnides et Myriapodes.* IV. 2. D.
- VANDEBROEK, G. Morphogenetic movements during the gastrulation of *Ascidia aspersa* and *Styela partita* (*Ascidians*). IIIa. 6. H.
- The mechanics of gastrulation in *Ascidie aspersa* and *Styela partita* (*Ascidians*). IIIa. 6. H.
- Protoplasmic movements after fertilization of *Ascidia aspersa.* IIIa. 4. H.
- The organization of *Ascidian* embryos studied by the influence of centrifugation; a. action on isolated parts; b. local action of centrifugation. (recombination after centrifugation). IIIa. 2b*. d. H.

- Induction and competence phenomena during the development of *Ascidia aspersa*. IIIa. 1c. H.
- Action of LiCl and NaSCN on the development of *Ascidia aspersa* and *Styela partita* (Ascidians). IIIa. 2a. e. H.
- Development of the neural system of *Balanoglossus kowalewskii* (*Enteropneusta*). I. 9. F.
(in collaboration with J. JANSSENS)
- Morphogenetic movements during gastrulation of *Coelenterata*, *Enteropneusta* and lower *Chordates*. II. 2a. EV. + LV.
- The general comparative, descriptive and experimental embryology of the *Metazoa* and their classification. The place of the Cyclo-
neuria (Echinoderma, Enteropneusta, Pterobranchia and Chaeto-
gnatha) in the animal Kingdom. II. 2a. EV. + V.
- Nucleids acids during the organogenesis of *Eisenia foetida* (*An-
nelida*). IIIb. 2c. c. C.
- Comparative organogenesis in *Protostomes* and *Chordates*. II. 2a. EV. + V.
- The development of the trabeculae cranii in perch embryos from
which the prosencephalon has been removed. *Perca* (*Osteichthyes*). IIIa. 11. I.
- The development of the trabeculae cranii in perch embryos treated
with LiCl. *Perca* (*Osteichthyes*). IIIa. 11. I.
(in collaboration with M. T. CLAES)
- Modifications of the competence in *Triturus taeniatus* (*Urodeles*)
after local action of LiCl. IIIa. 7. J.
(in collaboration with E. BONÉ)
- Morphogenetic movements in the primitive streak of *rat* embryos. IIIa. 6. M.
- VANDEL, A. (data not yet received).
- VANNINI, E. Embryogenesis and differentiation of the gonads in
Vertebrates. *Amphibia* and *Amniota*. IIIb. 17. f. V.
- Regeneration in *Polychaeta*. IV. 2. C.
- VASSEUR, E. J. E. Studies on the chemical composition and the
species specificity of its chemical composition. Action of dissolved
jelly coat substance (fertilizin) on the spermatozoa. *Paracentrotus
lividus*, *Psammechinus miliaris* and other sea urchins. IIIb. 4. G.
- VERMAAK, D. Ontogenesis of commissural connexions of the vena
pudenda externa and v.p. interna in an advanced *human* embryo. I. 15. M.
- VILLAFRANCA, G. de Studies of various protein fractions in devel-
oping muscle in relation to changes in physical properties and the
development of contractility. *Mus norvegicus albinus*. IIIb. 12. c. M.
(under direction of E. J. BOELL)
- VINTEMBERGER, P. Recherches sur le déterminisme de la symétrie
bilatérale chez les Vertébrés. *Amphibiens*. IIIa. 1c. J.
- VITAGLIANO, G. Ribonucleic acid suply to germ cells and deter-
minism of meiosis. *Asellus* (*Crust. Isop.*). IIIb. 4. D.
- VOGT, Frl. M. Development of semilethals in *Drosophila melanogaster*. IIIc. 3. D.

- WADDINGTON, C. H. Regional specificity in living and dead organizers. *Triton alpestris*. IIIb. 7. J.
- Cinematographic study of morphogenetic movements. *Amphibians and Birds*. I. 2a. d. J. and L.
- Transplantation of cell constituents. *Triton alpestris*. IIIb. 2c. J.
- Developmental efforts of some genes in *Drosophila melanogaster* (*Insecta*). IIIc. 3. D.
- WANG, Y. T. Mit Hilfe der Exstirpation des Entoderms im Neurulastadium und der Defektsetzung in der Seitenplatte einer Spätgastrula und Frühneurula soll die Entstehung der Geschlechtszellen studiert werden. *Rana nigromaculata*. IIIa. 17. J.
- Der Zeitpunkt der Determination und der Auswanderung der Geschlechtszellen werden mit der Wiederholung der oben genannten Versuchen in verschiedenen Entwicklungsstadien zum feststellen versucht. *Rana nigromaculata*. IIIa. 17.
- WARD, Miss M. Development and reproduction in the hamster. I. 2a. M.
- WEBER, A. Développement des synapses dans les centres nerveux. Leur dégénérescence et leur régénération. *Mammifères (?)*. IV. 5. M. (?)
- WEDIN, B. Treatise on the head coeloms during the development of lower vertebrates. (Thesis). II. 16. LV.
- WEGLARSKA, B. Early developmental stages of Insects. *Agelastica alni* (*Coleoptera*). I. 2a. D.
- WEISS, P. (data not yet received).
- WEISSENBERG, J. R. (data not yet received).
- WEISZ, P. B. Differentiation of cilia in *Protozoa, Ciliata*; regeneration. IV. 2.
- The rôle of the macronuclei. *Ciliata*. IIIc. 1b.
- WEL, W. H. v. d. Investigations on congenital heart-malformations. *Homo*. III d. 4. M.
- (in collaboration with J. DANKMEYER and H. A. SNELLEN)
- WELLS, L. J. Development of the pleural sacs and diaphragm. *Homo sapiens*. I. 16. M.
- Development of the broncho-pulmonary segments. *Homo sapiens*. (in collaboration with E. A. BOYDEN) I. 14. M.
- Functioning of the glands of internal secretion in the fetus (hypophysis, gonads, adrenals, thyroid). *Rattus norvegicus albinus*. IIIb. 18. M.
- Capacity of the fetus to digest food experimentally introduced into the fetal stomach. *Rattus norvegicus albinus*. IIIb. 13. g. M.
- (in collaboration with J. F. HARTMANN)
- WENGER, E. L. Radio-active tracer study of *amphibian* eggs, with special reference to organizer action. IIIb. 7. d. J.
- (in collaboration with F. MOOG)
- Analysis of interrelations between parts of the embryonic spinal cord by means of defect experiments. *Gallus domesticus*. IIIa. 9. L.
- WESTHUIZEN, C. M. v. d. Ontogenesis of the skull of *Heleophayne purcelli*. I. 11. J.
- WHITAKER, D. (data not yet received).

- WHITELEY, A. H. Study of the importance of the phosphorylated compounds in the energetic changes accompanying activation of the eggs. *Strongylocentrotus purpuratus* and *Dendraster excentricus*. IIIb. 4. b. G.
- WICKLUND, Miss E. On fertilizability of the egg under different conditions acting on sperm and eggs. *Psammechinus miliaris*, *Strongylocentrotus drobeckiensis* and *Arbacia lixula*. IIIb. 4. G.
- WILENS, S. Vital staining of mesoderm and endoderm under the hindbrain and ear. *Amblystoma punctatum*. IIIa. 2b**. J.
- WILLIAMS, R. G. Studies on growth of various implanted tissues with the rabbit's ear chamber technique. IIIa. 19. M.
(in collaboration with E. R. CLARK)
- WILLIAMS, S. C. Tissue culture of young isolated neuroblasts from special areas of brain, esp. cerebellum, trigeminal. *Chick* and *Man*. IIIa. 9. L. and M.
(in collaboration with Miss M. J. HOGUE)
- Early development of *human* teeth. I. 8. M.
- WILLIAMS, T. W. Study of the ear by modern methods involving use of plastics and photographic procedure. *Man*. I. 10. M.
- Study of the capillary bed in various organs, making use of special technique to visualize the capillaires. Illustrated by stereoscopic photography. Various small *mammals*. I. 15. M.
- WILLIER, B. H. The mechanisms whereby feather color patterns are produced.
- a) Interaction of pigment cells of known genotype with feather germ ("the builder" of the structural parts of the feather);
 - b) Factors regulating migration of pigment cells and their growth (multiplication) and differentiation (synthesis of specific melanin granules);
 - c) The rôle that sex and other hormones play in modifying the expression of pigment cells in color feather formation.
(Utilizing various techniques such as grafting and *in vitro* cultures)
Gallus domesticus (various breeds and varieties). IIIa. 8. f. L.
(in collaboration with Miss M. E. RAWLES and students)
- WILSON, J. W. A study of mitotic activity and other cytological phenomena in liver regeneration. *Vertebrates*. IV. 5. V.
- WINBLAD, J. Development of all systems of the toadfish in relation to behavior. IIIa. 2a. I.
(in collaboration with H. C. TRACY and Th. BATTY)
- WINDLE, W. F. Development of fiber tracts in brain of *human* embryos of 4th to 7th week. I. 9. M.
- Development of chromophil substance in central nervous system neurons. *Guinea pig* and *man*. I. 9. M.
(in collaboration with A. LAVELLE)
- Regeneration in mammalian central nervous system. (Recovery of neurons following trauma, alterations in their internal environment). *Cat* and *dog*. IV. 5. M.
(in collaboration with J. C. LIU and other coworkers)
- Changes in pulmonary blood volume at birth and in early postnatal life. *Guinea pig*. IIIb. 14. M.

- Structure of the coronary arteries at birth. *Man.* IIIa. 15. M.
- WINIWARTER, H. de (data not yet received).
- WINOWSKA, Mrs K. W. Development of the air-bladder in Teleost Fishes. *Xiphophorus.* II. 14. I.
- WISKONT, H. Regeneration in *Amphibians.* The influence of inanition on that phenomenon. IV. 2. J.
(in collaboration with S. HILLER and T. KROTKIEWICZ)
- WISLOCKI, G. B. The cytology and histochemistry of the uterus and placenta. *Mammals.* II. 17. c. M.
- WITSCHI, E. Experimental sex determination by steroid hormones, and by overripeness of the egg. *Anurans.* IIIb. 17. f. J.
- Neoplastic development of overripe frog eggs. III d. 2. J.
- Metamorphosis of the *amphibian* ear. V. 4. J.
- Nutritional conditions in the incubating *bird's* egg. IIIb. 2a. g. L.
- WITTEK, Miss M. Oogenesis and vitellogenesis of various *Amphibians.* I. 4. J.
(under direction of J. PASTEELS)
- Oogenesis of Reptiles. *Lacerta vivipara.* I. 4. K.
(under direction of J. PASTEELS)
- WOERDEMAN, M. W. Lensregeneration. *Birds* and *Mammals.* IV. 5. HV.
- Induction in tissue cultures and potencies of cells in tissue culture. *Birds* and *Mammals.* IIIa. 1c. HV.
- WOLFF, Et. Production exp. de monstres simples chez les oiseaux. IIIa. 1c. L.
- Organogénèse de la face et du système nerveux. *Gallus domesticus.* IIIa. 2b. L.
(en collaboration avec W. HUBER)
- Rôle des hormones dans la différenciation du sexe par les méthodes d'injections d'hormones, des greffes coelomiques, des castrations embryonnaires, des explantations. *Poulet.* IIIb. 17. L.
(en collaboration avec Madame Em. WOLFF, Mlle Y. OSTERTAG et G. STRUDEL)
- WOLFF, Madame Em. Rôle des hormones dans la différenciation du sexe par les méthodes d'injections d'hormones, des greffes coelomiques, des castrations embryonnaires, des explantations. *Poulet.* IIIb. 17. L.
(en collaboration avec Et. WOLFF, Mlle Y. OSTERTAG et G. STRUDEL)
- WOODGER, J. H. General embryological methodology. *Invertebrates* and *Vertebrates.* IIIa. 1b. EV. and V.
- WORONZOWA, M. A. (data not yet received).
- WSZELACZYŃSKA, M. Developmental physiology of the pronephros in *Amphibians.* IIIb. 17. J.
- YAO, T. The distribution and relation to development of ribose-nucleic acid, desoxyribose nucleic acid, —SH groups, alkaline and acid phosphatase in preimaginal *Drosophila melanogaster* (*Insecta*). I. 2c. c. D.

YCAS, M. (data not yet received).

YNTEMA, C. L. Induction and differentiation of ear ectoderm. *Amblystoma punctatum*. IIIa. 10. J.

— Regeneration of aneural limbs. *Amblystoma punctatum*. IV. 4. J.

— Development of autonomic nervous system. *Gallus domesticus*. IIIa. 9. L.

— Effects of sulfa drugs on mammalian embryo. *Mus musculus*. IIIc. 2. M.

ZAAIJER, Miss J. J. P. Factors governing dentin formation. *Mus musculus*. IIIb. 8. M.

— Rôle of the odontoblasts in the formation of secondary dentin. *Mus musculus*. IIIa. 8. M.

ZAKARIAS, Z. Changes in the proctal epithelium in its embryonic and postfetal development, in grown up individuals of different ages, and under pathological circumstances, with special regard to its microtopographic situation. Adequate experiments on animals. *Man and dog*. IIIa. 13. M.

(in collaboration with S. KROMPECHER)

ZEUTHEN, E. Study with Cartesian divers of mitotic rhythm in metabolism during cleavage period. *Echinoderms and Amphibia*. IIIb. 19. b. G. and L.

ZHINKIN, L. (data not yet received).

ZWEIBAUM, J. (no embryol. work in progress).

ZWILLING, E. The rôle of epithelial components in the developmental origin of the "wingless" syndrome of chick embryos. *Gallus domesticus*. IIIc. 3. L.

— The effect of nicotinamide and α -ketoglutaric acid on insulin-induced hypoglycemia in chick embryos; relation to micromelia. *Gallus domesticus*. IIIb. 2a. e. L.

— Hypoglycemia following injection of insulin into chick embryos of 30 hours of incubation; relation to rumplessness. *Gallus domesticus*. IIIc. 2. L.

— Sulfanilamide and its micromelia-inducing effects in chick embryos; enhancement of the effects by para-aminobenzoic acid and antagonism of nicotinamide. *Gallus domesticus*. IIIc. 2. L.

GENERAL LIST OF SUBJECTS

With Names of Investigators

(arranged according to organ systems and systematic groups)

CLASSIFICATION INTO SUBJECTS

General groups.

- I. Descriptive embryology.
- II. Comparative embryology.
- III. Experimental embryology.
 - a. Developmental morphology.
 - b. Developmental physiology.
 - c. Development and genetics.
 - d. Development and pathology.
- IV. Regeneration.
- V. Metamorphosis.

Subdivision of groups I, II, IIIa and IIIb into general subjects.

1. a. Theoretical problems.
 - b. Technics.
 - c. General questions (induction, determination, regulation, organization, symmetry and asymmetry, gradients).
2. Complete development or development during special periods
 - a. of whole organism,
 - b. of part of the organism (e.g. head, tail, limbs, etc.),
 - b*. of isolated blastomeres,
 - b**. of organ-rudiments,
 - b***. of special tissues,
 - c. of cell-constituents and special substances.

Early development.

3. Implantation, placentation and development of fetal membranes.
4. Orogenesis, spermatogenesis, structure of egg and sperm, maturation, oviposition, fertilization (activation, parthenogenesis).
5. Cleavage.
6. Gastrulation.
7. Neurulation (including development of neural crest).

Development of organ-systems.

8. Skin, dermal formations (exo-skeleton, teeth, feathers), sense organs and glands of skin (including mammae) and pigment patterns.
9. Nervous system, ganglia, nerves and enveloping membranes.
10. Special sense-organs (nasal organ, eye and ear).
11. Embryonic temporary endo-skeleton, skeleton, skull and joints.
12. Muscular system.
13. Alimentary tract.
14. Respiratory-organs (including swim-bladder).
15. Heart, vascular system and blood.
16. Coelomic cavity, endothelia, lymphatic system and connective tissue.
17. Urogenital system (development and structure), sex determination.
18. Endocrine glands (development, structure and functioning).
19. Growth and differentiation (including mitosis).

Extra subdivision of IIIa and IIIb.

- a. Respiration.
- b. Metabolism and osmotic properties.
- c. Cytochemistry (enzymes, carbohydrates, proteins, lipoids, etc.).
- d. Physical treatment and physical methods.
- e. Chemical treatment.
- f. Influence of hormones and vitamins.
- g. Nutrition of embryo.
- h. Immunological studies.

Subdivision of group IIIc.

1. a. Theoretical problems.
b. General questions.
2. General genetical studies (heteroploidy, hybridization, chimaeras, etc.).
3. Analysis of influence of special genes and mutants in development (including lethal factors).

Subdivision of group III d.

1. Theoretical problems and general questions.
2. General investigations on pathological development.
3. Development of special malformations.
4. Pathological development of special organs.
5. Tumours.

Subdivision of group IV.

1. Theoretical problems and general questions.
2. General investigations on regeneration, including total regeneration (3).
4. Partial regeneration (tail, limbs, etc.).
5. Regeneration of special organs (lens, etc.).

Subdivision of group V.

1. Theoretical problems and general questions.
2. General investigations on metamorphosis.
3. Investigations of whole process of metamorphosis.
4. Metamorphosis of special organs.

*Systematical subdivision.*EV. **Evertebrata.**

- A. Porifera.
- B. Coelenterata.
- C. Vermes and Onychophora, Tardigrada and Linguatulida.
- D. Arthropoda.
- E. Mollusca.
- F. Bryozoa, Entoprocta, Brachiopoda and Hemichordata.
- G. Echinodermata.
- H. Acrania.
- V. Vertebrata.

LV. **Lower Vertebrates.**

- I. Pisces.
- J. Amphibia.

HV. **Higher Vertebrates.**

- K. Reptilia.
- L. Aves.
- M. Mammalia.

I. Descriptive embryology.

1a. Theoretical problems.

1b. Technics.

1c. General questions (induction, determination, regulation, organization, symmetry and asymmetry, gradients, etc.).

HV. The shape of cells in certain early embryonic tissues.

Chick, rabbit and man.

F. Th. LEWIS

(Cf. Proc. Amer. Acad. Arts and Sci., 1949, 77, 147—186)

2a. Complete development, or development during special periods (e.g. early, late, etc.) of whole organism.

C. Breeding, larval development and ecology of *Nereis diversicolor* (Nereidae), *Tharyx marioni* (Cirratulidae), *Heteromastus filiformis* (Capitellidae), (Polychaetes). V. 3.
R. P. DALES

C. Breeding habits, embryology and larval life-history history of *Arenicola marina*, *Clymenella torquata* (Polychaetes). V. 3.
G. E. NEWELL
(Completion of previous work published in J. Mar. Biol. Ass. 1948)

C. Embryology of *Enchytraeidae* (Oligochaeta).
M. PASCHMA.

C. Elektronenoptische Studien über Plasmastruktur des Eies von *Tubifex*.
Mrs R. BISS

C. Embryology of *Peripatus* (Onychophora).
S. M. MANTON

D. Embryology of *Branchiopods*, esp. *Crania*. S. DIDING.

D. The developmental stages of ova and larvae of barnacles with special reference to the naupliar stages and settlement. *Tetraclita serrata*, *Octomeris angulosa*, *Chthamalus dentatus*, *Balanus algicola*, *B. trigonus*, *B. maxillaris* and *B. amphitrite* (Cirrepedia). V. 3.
Miss E. E. SANDISON

D. Embryology of the Cape Crawfish, *Jasus lalandii* (Crustacea).
C. von BONDE

D. Embryologie et développement post-embryonnaire. *Arachnides* et *Myriapodes*. V. 3.
M. VACHON IV. 2.

D. Embryological development of *Ammophila campestris pubescens* (Hymenoptera, Insecta) and dependence of its velocity of microclimate. G. P. BAERENDS

D. Embryologische Studien an Ameisen. *Formica rufa* und andere Arten. IIIa. 2a.
K. GÖSZWALD

D. Studies on the embryology of Insects. *Cochlidion lima-codes* (Lepidoptera). P. J. HOLST CHRISTENSEN

D. Embryonic development of *Tropinota hirta*. (Coleoptera).
W. KLOFT

- D. Early developmental stages of Insects. *Polydrosus sericeus* (Coleoptera, Insecta).
A. KRZYSZTOFOWICZ
- D. Early developmental stages of Insects. *Agclastica alni* (Coleoptera).
B. WĘGLARSKA
- E. Electron microscopical investigation on differentiation: Insemination, growth and differentiation of the egg of *Limnaea*.
L. H. BRETSCHNEIDER
- E. Embryology of *Cephalopods*.
G. da FONSECA SACARRÃO
- V. Listing and investigation of the historical collection of the Institute containing a large number of embryological preparations. *Vertebrates*. Miss A. M. ELSHOUT
- I. Étude du développement des Lamproies. *Lampetra fluviatilis*, *L. planeri* (Cyclostomes). H. F. C. DAMAS
- I. Embryology of certain *Elasmobranchii*.
C. von BONDE
- I. An investigation into the spawning habits and early development of the common carp, *Cyprinus carpio*.
Miss D. J. PEERS
- I. Embryology of the commoner Food Fishes of South Africa.
D. H. DAVIES
- J. Cinematographic study of morphogenetic movements. *Amphibians*.
C. H. WADDINGTON
- J. Normal table of the development of *Bufo arenarum*.
W. BUNO
- J. Establishing of "normal stages" from fertilization till the end of metamorphosis (Normal Table). *Xenopus laevis*.
J. FABER
- L. Embryology of *birds*.
F. ORTS LLORCA
- L. Cinematographic study of morphogenetic movements. *Birds*.
C. H. WADDINGTON
- L. Stage series of *chick* embryo. V. HAMBURGER
- L. Revision of Dr. Frank. R. LILLIE's textbook of embryology, "The Development of the Chick". *Gallus domesticus*.
Howard. L. HAMILTON
- L. Embryology of the cormorant *Phalacrocorax carbo*.
Z. FRANKENBERGER.
- M. *Mammalian* embryology (first stages).
H. V. BRØNDSTED
- M. Early developmental stages in *mammals*.
M. RADKOWA and Z. SEMBRATOWA
- M. *Mammalian* embryology. Miss N. B. EALES
- M. Descriptive embryology. *Mammalia*.
W. J. HAMILTON
- M. Embryology of *mammals*.
F. ORTS LLORCA
- M. A study of the early development (somite stages) of *Elephantulus myurus jamesoni* with special reference to the landmarks in organization. Miss Chr. GILBERT

II. 2.

II. 2a.
IIIa. 2a.

II. 2a.

V. 3.

IIIa. 2a.
II. 2a.

II. 2a.

II. 2a.

IIIa. 2a.
IIIb. 2a.

- M. Embryology of *Pedetes caffer*. (*Rodentia*).
Mrs M. A. KNIEP
- M. Early developmental stages in the rat, *Epimys norvegicus*.
K. SEMBRAT
- M. Development of golden hamster, *Cricetus auratus*.
C. C. BOYER
- M. Development and reproduction in the *hamster*.
Miss M. WARD
- M. Embryology of primates, esp. *Gorilla*. II. 2a.
Z. FRANKENBERGER
- M. Embryology of *baboon*. J. GILLMAN
- M. Morphology of early human and other primate embryos. *Homo, Pan, Papio and Macaca rhesus*. II. 2a.
C. H. HEUSER
- M. A morphologic, descriptive study of *human* embryos, both normal and abnormal found in surgically removed uteri, in age ranging from 1 to 16 days of age. III d. 2.
A. T. HERTIG and J. ROCK
- M. Description of two *human* ova; a 2 cell tubal specimen and a blastula of 4½ days of age which have been recovered this past year. A. T. HERTIG
- M. Young *human* embryos. K. MAZANEC
- M. Preparation of models and description of early *human* embryos. 15 day, 17 day, 26 day, 3,5 mm. and 6 mm.
J. G. SINCLAIR

2b. Complete development or development during special periods (e.g. early, late, etc.) of part of the organism (e.g. head, tail, limbs, etc.).

- D. Embryological metamery of insect head. *Periplaneta orientalis* (*Blattodea, Insecta*). A. KRZANOWSKI II. 2b.
- M. Development of foot and hand in *man*. F. KALSBECK

2c. Complete development or development during special periods (e.g. early, late, etc.) of cell-constituents and special substances.

- C. Mitochondria during the development. *Parascaris equorum* (*Nematoda*). E. RADECKA
- D. The distribution and relation to development of ribose-nucleic acid, desoxyribose nucleic acid, -SH groups, alkaline and acid phosphatase in praemaginal *Drosophila melanogaster* (*Insecta*). T. YAO
- E. Development of nucleic acids and phosphatases in *Limnaea stagnalis*. A. MINGANTI

Early development.

3. Implantation, placentation and development of fetal membranes.

- M. The placentation of *Elephantulus myurus jamesoni*.
C. J. van der HORST

M. The placenta of *Tupaia javanica*.

C. J. van der HORST

M. Placentation-study of vascular pattern of endometrium throughout pregnancy. *Macaca mulatta* (*Rhesus monkey*).

E. M. RAMSEY

M. Studies of placenta related to twinning and to conditions of birth. (Three papers published). *Homo*.

J. G. SINCLAIR

II. 3.

4. *Ovogenesis, spermatogenesis, structure of eggs and sperm, maturation, oviposition, fertilization (activation, parthenogenesis)*.

C. Reproduction, Cytology in *Rhabdocoela*. F. PAPI

I. 2a.

C. Fertilization, Pseudogamy, Cytology, Heredity in Planarians. Species of *Tricladida*. M. BENAZZI

I. 2a.

IIIc. 2.

C. Fertilization and Cytology in Planarians. Species of *Dugesia* (*Tricladida*).

I. 2a.

Mrs G. BENAZZI—LENTATI

C. Fertilization and Cytology in Planarians. *Polycelis nigra* (*Tricladida*)

I. 2a.

N. G. LEPORI

J. Oogenesis and vitellogenesis of various *Amphibians*. (under direction of J. PASTEELS) Miss M. WITTEK

II. 4.

K. Oogenesis of Reptiles. *Lacerta vivipara*.

II. 4.

(under direction of J. PASTEELS) Miss M. WITTEK

M. The magnitudes of the pronuclei of fertilized ova. *Albino mouse*. S. PESONEN

S. PESONEN

5. *Cleavage*.

6. *Gastrulation*.

J. Normal development of *Xenopus laevis*, especially gastrulation and neurulation (for a normal table of *Xenopus laevis*) (*Anura*).

I. 7.

P. F. FLORSCHÜTZ and P. D. NIEUWKOOP

M. Structure d'un oeuf *humain* au stade de la ligne primitive. Origine du mésoblaste. Mode de formation du chorion villeux.

I. 3.

W. BONIN

7. *Neurulation (including development of neural crest)*.

Development of organ-systems.

8. *Skin, dermal formations (exo-skeleton, teeth, feathers), sense organs and glands of skin (including mammae) and pigment patterns*.

General subjects.

E. Factors involved in the development of the shell in the mollusca. *Paludina viviparus*, *Helix pomatia* and *Nucella lapillus*.

II. 8.

Miss J. E. M. HEYSMAN

- M. The morphological and microchemical development of the epithelial fat of the skin, with special regard to the vernix caseosa. *Homo*. IIIb. 2b. c.

A. BOD and S. KROMPECHER

Teeth.

- M. The development of the teeth. *Insectivora*. II. 8.

Miss M. E. KINDAHL

- M. Early development of *human* teeth. S. C. WILLIAMS

Sense organs.

- J. The study of the normal development of the lateral lines in an amphibian with observations on their regenerative capacity. *Xenopus laevis* (*Anura*). IV. 5.

G. M. TRUSLOVE

Colour patterns.

- I. Investigation of the terminal phases of differentiation of colour patterns in *fish*. H. B. GOODRICH

- L. Colour and pigment-differentiation in the bird's feather. IIIc. 2.
Melopsittacus undulatus. H. STEINER

9. *Nervous system, ganglia, nerves and enveloping membranes.*

- F. Development of the neural system of *Balanoglossus kowalewskii*. (*Enteropneusta*).

J. JANSSENS and G. VANDEBROEK

- G. Differentiation and morphology of nervous tissue in *Coelenterata*. S. LEGHISSA

Central nervous system.

- V. Differentiation and morphology of nervous tissue in *Vertebrates*. S. LEGHISSA

- V. Histogenesis of neuroglia. *Vertebrates*.

V. KORNFELD

- I. Endhirnentwicklung. *Teleostier*. H. HEIMANN

- J. Survey of the motor regions of the brain of *Amblystoma*. With a view to a morphological and functional separation of each. J. PIATT

- M. Ricerche sullo sviluppo dei centri nervosi nell'uomo e nei mammiferi. V. PRETO PARVIS

- M. Development of chromophil substance in central nervous system. *Guinea pig* and *man*.

A. LAVELLE and W. F. WINDLE

- M. Entwicklungsfragen am *Kaninchenhirn*. HARDE

- M. Development of fiber tracts in brain of *human* embryos of 4th to 7th week. W. F. WINDLE

- M. Study of the histogenesis of the various layers of the cortex of the different areas of the brain during embryonic and fetal development. (Golgi's method and Nissl staining). *Sheep*. G. GODINA

- M. Développement du système nerveux central, surtout l'encéphale et spécialement le diencéphale. Étude structurale en rapport avec l'apparition des fonctions. *Rat*. P. DESCLAUX, A. GIROUD

et J. TEYSSEYRE

- I. 9.
- M. Development of diencephalon and hypophysis in *man*.
J. W. H. BOUR, J. DANKMEYER
and W. LUYENDIJK I. 9.
- M. The development of hypothalamic fiber connections in
the golden hamster fetus as well as in young specimens.
Cricetus cricetus (Rodentia). J. AUER. I. 18.
- M. Morphological investigation of the cetacean nervous
system, particularly the development of the cerebellum.
Balaenoptera musculus. J. JANSEN II. 9.
- M. Endhirnentwicklung, speziell der Rinde und Bauplan.
Maus und Mensch. K. FEREMUTSCH II. 9.
- J. Embryological development of the roof of the IV ven-
tricle. *Amblystoma mexicanum*. J. ARIËNS KAPPERS II. 9.
- J. Normal development of pineal organ and paraphysis.
Amblystoma mexicanum and *Xenopus laevis*. IIIb. 9.
- J. C. van de KAMER I. 18.
- K. Development and function of the paraphysis in *Lacer-
tilia. Lac. muralis, Lac. viridis* and *Lac. vivipara*. II. 9.
- J. ARIËNS KAPPER IIIb. 9.
- Ganglia and nerves.**
- I. Origine des ganglions craniaux aux dépens des placodes
épi-blastiques. *Amia calva*. W. BONIN
- L. Epithelio-neural bodies in the *chick*.
Miss M. V. DREYER
- M. Contributions of the neural crest and epibranchial
placodes to the origin of cranial ganglia in *mammals*. R. A. KNOUFF
- M. Développement du nerf facial (périphérique). Rameaux
transitoires et définitifs. Leur composition, leur distri-
bution. *Cobaye*. J. A. BAUMANN
- Sympathetic and intramural nervous system.**
- V. The autonomous nervous system. *Vertebrates*.
J. BOEKE
- L. Development of the sympathetic. *Birds*.
A. Celestino da COSTA
- M. Development of the sympathetic. *Mammals*.
A. Celestino da COSTA
- M. Histogenesis of the nervous cells of the sympathetic
nervous system of the intestinal tract. *Sheep*. I. 13.
- G. FILOGAMO
- M. Growth and development of intramural autonomic nerve
plexus of the stomach and small intestine by the silver
impregnation methods and experimental nerve cuts.
Albino rat. J. C. SZENTPÉTERY I. 13.
- Meninges.**
- J. Development of the meninges and its connection to the
circulation of cerebrospinal fluid. *Amblystoma mexi-
canum*. J. ARIËNS KAPPERS II. 9.
- IIIb. 9.
- M. Development of meninges of spinal cord. *Homo sapiens*.
E. C. SENSENIG

10. *Special sense-organs (nasal organ, eye and ear).*

Eye.

- J. The study of the normal development of the cornea of the eye in an amphibian. *Xenopus laevis*.
D. R. NEWTH
- M. Development of the eye in *Tarsius spectrum*. (development of functional adaptations).
L. A. v. d. MOLEN

Ear.

- I. The development of the ear and associated structures in the *Lamprey*. (*Cyclostomes*).
A. FISK
- J. Development and phylogenetic origin of the columella auris in Amphibia. *Amblystoma mex.*, *Triton taen.* and *Xenopus laevis*.
J. H. BIJTEL
- M. Quantitative description of development of the otocyst. *Oryctolagus cuniculus*.
M. ABERCROMBIE
- M. The development of tympanic region and skull of *Tarsius spectrum*.
C. J. BROERS
- M. Embryology and anatomy of the middle and internal ear. *Homo*.
T. H. BAST
- M. Study of the ear by modern methods involving use of plastics and photographic procedure. *Homo*.
T. W. WILLIAMS

11. *Embryonic temporary endo-skeleton, skeleton, skull and joints.*

Skull.

- I. Development and morphology of the skeleton of the head. *Petromyzon* (*Cyclostomes*).
A. G. JOHNELS
- I. The development of parachordals and trabeculae in the *Lamprey*. (*Cyclostomes*).
A. FISK and Miss M. TRIBE
- J. Ontogenesis of the skull of *Helcophayne purcelli*.
C. M. v. d. WESTHUIZEN
- J. Ontogenesis of the skull of *Ascaphus tonei*.
G. A. v. EEDEN
- M. The appearance and development of early ossification centers in the face of *human* embryos.
G. G. ROBERTSON

Truncal skeleton.

- V. Histogenesis of fusion of parallel bones. *Hyla* (*Amphibia*), *Rattus* (*Mammalia*), etc. P. D. F. MURRAY
- J. Ontogenesis of the breast-shoulder apparatus and of the skeletogenous strata. *Xenopus laevis*.
R. van PLETZEN
- M. Development of vertebral column in *Man*.
A. PEACOCK
- M. Knee-joint development in *Homo*.
J. MOLL

- M. Development and growth of bones, with special reference to the epiphyseal cartilages. General survey of epiphyseal cartilages in various bones and at different ages. *Dog, cat, rat and man.* G. S. DODDS

12. Muscular system.

- L. Ontogenesis of the musculus orbitoquadratus and "trigeminal" musculature. *Spheniscus demersus.* II. 12.
I. X. PRINS

13. Alimentary tract.

- M. The development of the oesophagus epithelium and musculature in its causal and functional aspect. An initial study to regenerative work. *Man and rat.* II. 13.
S. KROMPECHER

- M. Development and appearance of the heparinocytes. II. 13.
Human and other mammal embryos. G. HJELMAN

14. Respiratory-organs. (including swim-bladder).

- J. Structure of larval pharyngo-branchial apparatus as a respiratory and food-collecting organ. *Xenopus laevis.* I. 13.
L. van DAM

- M. Development of the pharyngeal derivates. *Syrian Hamster.* II. 14.
C. E. KLAPPER

- M. Development of pharyngeal region. *Homo.* I. 13.
F. D. GARRETT

- M. Development of the branchopulmonary segments. *Homo sapiens.* E. A. BOYDEN and L. J. WELLS

- M. Studies on the development of mammalian lungs. *Talpa europaea (Insectivora).*
P. J. HOLST CHRISTENSEN

15. Heart, vascular system and blood.

Heart.

- D. Development of heart of *Insects. Agelastica alni (Coleoptera).* A. CZAPIK

- L. Embryol. development of the nodal tissue in the avian heart. de MEYER

Vascular system.

- I. The respiratory vessels of the yolk sac in the *trout.* A. GAZDA

- I. The development of the gill vessels in the *trout.* W. SOLEWSKI

- J. Development of the blood vessels in the frog, *Rana esculenta (Salientia).* S. STRAWINSKI

- J. Complete development of the veins and arteries. *Xenopus laevis.* N. A. H. MILLARD

- K. Investigation of the development of the artery-arches in *turtle embryos.* v. d. STELT

M. On the appearance of elastic tissue in the vessels of *human* foetus. M. MUSTAKALLIO

M. Development of aorta, art. pulmonalis and ductus Botalli. *Mammalia*. Miss E. ODÉ

M. Ontogenesis of commissural connexions of the vena pudenda externa and v.p. interna in an advanced *human* embryo. D. VERMAAK

M. Development of vascular pattern of teeth, mouth and face. *Homo*. B. N. KROPP

M. Vascular patterns in the developing nervous system. *Homo sapiens*. J. H. PERRY

M. Study of the capillary bed in various organs, making use of special technique to visualize the capillaries. Illustrated by stereoscopic photography. Various small *mammals*. T. W. WILLIAMS

M. Correlated fetal and maternal blood studies at time of birth. (The data have been collected on cell types and distribution and on placental structure. Statistical analysis is yet to be done). *Homo*. J. G. SINCLAIR

I. 9.

16. Coelomic cavity, endothelia, lymphatic system and connective tissue.

Coelomic cavities and endothelia.

M. Development of the pleural sacs and diaphragm. *Homo sapiens*. L. J. WELLS

Connective tissue.

I. Observations on the connective tissue of the head. *Petromyzon (Cyclostomes)*. A. G. JOHNELS

M. Development of the mediastinal connective tissue. *Mammalia*. W. A. BAX

II. 16.

V. 3.

17. Urogenital system (development and structure), sex determination.

Development of the urinary system.

LV. Development of the kidneys in Anamnia. *Amphibia anura* and *Teleostei*. K. W. SZARSKI

M. Development of urinary bladder of *Homo*. a. openings of ureters and Wolffian ducts; b. musculature.

L. J. W. GYLLENSTEN

Development of the gonadal system.

L(?) Embryol. development of the innervation of the gonads. *Birds (?)*. E. van CAMPENHOUT

HV. Development of genital tract in domestic animals. *Birds* and *Mammals*. G. KREDIET

M. The bursa ovarica of *Elephantulus myurus jamesoni*. J. AUSTOKER

M. *Elephantulus myurus jamesoni* going into anoestrus. C. J. van der HORST

M. Post-partum phenomena in *Elephantulus myurus jamesoni*. C. J. van der HORST

I. 9.

- I. 17. M. Development of the gonads and genital tract in *whales*.
Jhr E. W. van LENNEP
- M. Étude du développement embryonnaire normal de l'appareil génital de la *Souris*. A. RAYNAUD
- M. Histology of uterus and ovaries in reproductive cycle of primates. Chiefly *Macaca rhesus*. G. W. CORNER
II. 17.
IIIa. 17.
IIIb. 17.
- M. Eierstock, Menstruation, funktioneller Bau von Tube und Uterus. *Homo*. E. HINTZSCHE
- M. Development of uterus and ovary in *man*.
J. DANKMEYER and Miss A. DEKKER
Sex-determination.
- M. Étude d'un free-martin naturel. *Boeuf*. Miss D. HAY
III d. 3.
18. *Endocrine glands (development, structure and functioning)*.
- General subjects.
- D. Histogenese inkretorischer Organe von *Lepidopteren* bei der Wildform und bei Mutanten.
Miss M. REHM
IIIc. 2.
V. 2.
- I. Studies in progress on the development of the endocrine organs in the *Cyclostomes* and their histophysiology during metamorphosis.
W. J. LEACH
II. 18.
V. 2.
- L. Development of the adrenals. *Birds*.
A. Celestino da COSTA
- M. Development of the adrenals. *Mammals*.
A. Celestino da COSTA
- M. Ricerche sullo sviluppo delle ghiandole surrenali nei *mammiferi*.
V. PRETO PARVIS
Hypophysis.
- L. Development of the anterior hypophysis of the black-headed gull. *Larus ridibundus*. J. OORT
- L. Development of gonads, hypophysis and hypothalamus in birds. *Chick, duck and pigeon*.
I. 9.
I. 17.
I. ASSENMACHER and J. BENOIT
- M. Origin and development of the *human* pharyngeal hypophysis. R. C. BAKER and L. F. EDWARDS
19. *Growth and differentiation. (including mitosis)*.
- J. Allometrisches Wachstum bei *Amphibien*.
F. E. LEHMANN und diverse Mitarbeiter

II. Comparative embryology.

1a. Theoretical problems.

- V. Some aspects of the problems of homology (with sp. ref. to the bicentenary of the birth of GOETHE). *Vertebrates*. G. R. de BEER
- V. New embryological evidence of the "biogenetic law" in connection with the phenomenon of iteration and convergence, rudimentation and adaptation. *Vertebrates*. H. STEINER

1b. Technics.

1c. General questions. (*Induction, determination, regulation, organization, symmetry and asymmetry, gradients*).

- M. Relations between organweight and bodyweight in ontogeny. Various *mammals*. J. MOLL II. 19.

2a. Complete development or development during special periods (e.g. early, late, etc.) of whole organism.

- EV. + V. The general comparative, descriptive and experimental embryology of the *Metazoa* and their classification. The place of the *Cycloneuria* (*Echinoderma*, *Enteropneusta*, *Pterobranchia* and *Chaetognatha*) in the animal kingdom. G. VANDEBROEK I. 2a. IIIa. 2a.
- EV. + V. Comparative organogenesis in *Protostomes* and *Chordates*. G. VANDEBROEK I. 2a.
- EV. + LV. Morphogenetic movements during gastrulation of *Coelenterata*, *Enteropneusta* and *lower Chordates*. G. VANDEBROEK I. 2a.
- C. "The development of *Dasybranchus caducus* (*Polychaeta*) from egg to pre-adult". Egg deposition, culture methods, day to day observations and records of living larvae and juveniles, study of fixed material. C. G. BOOKHOUT I. 2a.
- C. Embryology and development of *Haploscoloplos bustoris* (*Polychaeta*). G. C. BOOKHOUT and E. C. HORN I. 2a.
- D. Cytochemical observations on oogenesis and development of *Insecta*. *Acanthocelides* (C1) and *Drosophila* (*Dipt.*). J. MULNARD II. 4.
- E. Untersuchungen über Larvenentwicklung mariner *Gastropoda* (*Prosobranchia*). A. PORTMANN I. 2a.
- V. Untersuchungen über embr. und postembryonale Entw. der Wirbeltiere, vor allem postembryonale Phase. *Vertebraten*, vor allem *Vögel*. A. PORTMANN I. 2a.
- J. Development of *Leiopelma archeyi* and *Scaphis truei* (*Amphicoelous Anura*). N. G. STEPHENSON I. 2a.
- K. General survey of Turtle development. *Chrysemis*, *Pseudemys* and *Chelone*. J. J. PASTEELS I. 2a.

M. Descriptive and comparative embryology of *Primates*.
P. K. CHANMUGAM

I. 2a.

2b. *Complete development or development during special periods (e.g. early, late, etc.) of part of the organism (e.g. head, tail, limbs, etc.).*

V. Development of the tetrapod-limb with special reference to Mammals (embryological evidence of their aboreal origin). *Amphibia, Reptilia, Aves* and *Mammalia*.

I. 2b.

H. STEINER

K. Development and morphology of the head structures in a large number of species of *reptiles*, studied mainly by serial sections of the forms below.

I. 2b.

A. d'A. BELLAIRS

L. Cranial ontogenesis of *Spheniscus demersus*.

I. 2b.

A. W. CROMPTON

2c. *Complete development or development during special periods (e.g. early, late, etc.) of cell-constituents and special substances.*

D. Study of the nucleoles of the giant cells of *Diptera* (*Insecta*).

I. 2c.

J. MULNARD

Early development.

3. *Implantation, placentation and development of fetal membranes.*

M. Comparative morphology of the fetal membranes. *Mammalia*.

I. 3.

H. W. MOSSMAN

M. Placentation von *Macroselides* (*Insectivora*).

I. 3.

D. STARCK

M. Early development and implantation of mammals. *Insectivora* (*Hominidae*).

I. 3.

F. STRAUSS

I. 2a.

M. Placentation of *Roussetus leschenaulti* (*Megachiroptera*).

I. 3.

H. FRICK

II. 2a.

M. The structure of the placenta of *Anomalurus*.

I. 3.

E. C. AMOROSO and G. R. de BEER

4. *Ovogenesis, spermatogenesis, structure of egg and sperm, maturation, oviposition, fertilization (activation, parthenogenesis).*

5. *Cleavage.*

6. *Gastrulation.*

7. *Neurulation (including development of neural crest).*

V. Studies in the derivatives of the neural crest with special reference to dermal bone. *Vertebrates*.

I. 7.

G. R. de BEER

Development of organ-systems.

8. *Skin, dermal formations (exo-skeleton, teeth, feathers), sense organs and glands of skin (including mammae) and pigment patterns.*
- General subjects.
- V. Studies on the structure of the egg-tooth and the caruncle in *amphibians, reptiles* and *birds*. G. R. de BEER I. 8.
- M. The egg-tooth and caruncle of the *Monotremes*. I. 8.
G. R. de BEER and J. P. HILL
- Lateralis system.
- I. Development and morphology of the lateralis system in the head. *Dipnoans* and *Characinids*. G. T. PEHRSON I. 8.
- J. Development of lateralis system. *Triton cristatus* and *T. punctatus (Urodela)*, *Rana agilis*, *R. arvalis* and *Bufo vulgaris (Anura)*. Miss K. MÁCS V. 4.
9. *Nervous system, ganglia, nerves and enveloping membranes.*
- General subjects.
- V. Determination and differentiation of nervous cells. *Reptiles, Pisces* and *Amphibians*. A. STEFANELLI I. 9.
IIIa. 9.
- M. *Human and mammalian* embryology with special reference to nervous system. I. 9.
J. D. BOYD IIIa. 9.
- Central nervous system.
- V. Continuation of my paper (in 4 volumes) on development of the brain in fetal life. *Vertebrates*. I. 9.
K. H. KRABBE
- I. Development and anatomy of the nuclei and nerve fibres in the brain. *Polypterus (Brachiopterygii)*. R. OLSSON I. 9.
- V. Origine du noyau tangentiel du nerf vestibulaire.— Son origine. *Poissons, Batraciens, Reptiles* et *Oiseaux*. I. 9.
A. MICHELI et M. NEIGER
- Accessory organs.
- V. Comparative embryological study of pineal cytology. *Vertebrates*. I. 9.
J. C. van de KAMER I. 18.
- Ganglia and nerves.
- I. Development and anatomy of the ganglia and peripheral nerves of the trigeminal complex and the trigeminal and facial muscles. *Bdellostoma* and *Petromyzon (Cyclostomes)*. I. 9.
I. 12.
II. 12.
T. J. J. V. LINDSTRÖM
10. *Special sense-organs (nasal organ, eye and ear).*
- M. Cytologie du développement de la membrane olfactive. *Mammalia*. I. 10.
J. SŁOTWIŃSKI
11. *Embryonic temporary endo-skeleton, skeleton, skull and joints.*
- LV. Development of ribs. *Salmonidrae, Cyprinodontidae (Teleostei)* and *Salamandra (Urodela)*. I. 11.
Miss A. BUCHTOWNA

- I. Development of the vertebral column centra in Teleosts. *Salmonidae and Cyprinodontidae*. Miss J. ORSKA I. 11.
- J. Ontogenesis of the skull of *Hynobius fuscus*. Miss K. PERITZ I. 11.
V. 3.
- M. Chondrocranium and Osteocranium of *Scotophilus temmincki* (*Microchiroptera*). D. STARCK I. 11.
12. *Muscular system*.
13. *Alimentary tract*.
- L. Development of palate of the nightjar-*Nyctisyrigmus pectoralis*. M. E. MALAN I. 13.
14. *Respiratory-organs (including swim-bladder)*.
- I. Development of the air-bladder in Teleost Fishes. *Xiphophorus*. Mrs K. W. WINOWSKA I. 14.
15. *Heart, vascular system and blood*.
16. *Coelomic cavity, endothelia, lymphatic system and connective tissue*.
- LV. Treatise on the head coeloms during the development of lower vertebrates. (Thesis). B. WEDIN I. 16.
I. 16.
17. *Urogenital system (development and structure), sex determination*.
- D. Structure and development of Genitalia in different species of *Drosophila* (*Insects*). H. NATER I. 17.
- E. Recherches sur le développement comparé de l'appareil génital des formes euphalliques et aphalliques chez *Bulinus truncatus (contortus)* (*Gastropodes Pulmonés*). M. de LARAMBERGUE I. 17.
- I. Differentiation of the gonads in Vertebrates. *Teleosts* and other *Fishes*. U. d'ANCONA I. 17.
IIIa. 17.
IIIb. 17.
- M. Development of the urino-genital canals in *domestic mammals*. E. C. AMOROSO and G. R. de BEER I. 17.
- M. Comparative morphology of the reproductive tracts in *mammals*. H. W. MOSSMAN I. 17.
- M. The cytology and histochemistry of the uterus and placenta. *Mammalia*. G. B. WISLOCKI II. 3. c.
18. *Endocrine glands (development, structure and functioning)*.
19. *Growth and differentiation (including mitosis)*.
- D. Growth and relative growth in *Arthropods*. M. ABELOOS I. 19.
- M. Growth and relative growth in *Mammalia*. M. ABELOOS I. 19.

IIIa. Experimental developmental morphology.

1a. Theoretical problems.

- EV. + V. Biologische Synthesen (Im Druck). *Invertebraten* I. 1a.
 und *Vertebraten*. L. v. UBISCH IIIb. 1a.
 IIIc. 1a.

1b. Technics.

- EV. + V. General embryological methodology. *Invertebrates*
 and *Vertebrates*. J. H. WOODGER
 M. Development of technical procedures for experimental
 work on the mammalian embryo. *White rat*.
 E. K. HALL
 M. Transplantation of mammalian ova. *Mus musculus*. IIIb. 3.
 R. A. BEATTY and M. FISCHBERG IIIc. 1b.

1c. General questions. (*Induction, determination, regulation, organization, symmetry and asymmetry, gradients*).

General subjects.

- V. Das Leben des Keimlings, Aufsätze über funktionelle IIIb. 1c.
 Embryologie. *Vertebraten*. K. PETER
 J. Recherches sur le déterminisme de la symétrie bilatérale IIIb. 1c.
 chez les Vertébratés. *Amphibiens*. IIIId. 1.
 P. VINTEMBERGER
 J. The morphogenetic rôle of the yolk material in *Am-* IIIb. 1c.
phibians, studied by means of heterospecific transplan-
 tation. G. REVERBERI
 L. Origin of the asymmetry of the embryo. *Gallus domes-*
ticus. J. H. M. G. van DETH
 Induction.
 H. Induction and competence phenomena during the IIIb. 7.
 development of *Ascidia aspersa*. G. VANDEBROEK
 H. The rôle of induction and morphogenetic movements IIIb. 1c.
 in the brain and pigment spots formation in *Ascidians*.
 A. MINGANTI and G. REVERBERI
 J. Rôle des acides nucléiques dans les phénomènes d'induc-
 tion. *Batraciens*. Miss D. PFLEGER
 HV. Inductions in tissue cultures and potencies of cells in
 tissue culture. *Birds* and *Mammals*.
 M. W. WOERDEMAN
 L. Inductions morphogénétiques chez l'embryon de *poulet*,
 à l'aide de la moelle osseuse de veau. V. PREDA
 Determination.
 D. Determination of early developmental stages in *Insects*. IIIa. 2a.
Agelastica alni (*Coleoptera*). S. SMRECZYŃSKI
 H. Ricerche sulla determinazioni embrionali precoci nelle
Ascidie.
 E. URBANI and Mrs L. URBANI—MISTRUZZI
 G. Determination in early development. *Echinoderms*.
 P. CITTERIO

- J. Das Material über die Zusammenarbeit der Keimblätter — Versuche mit Grossdefekt an verschiedenen Regionen der Neurula — soll weiter bearbeitet werden. *Triton alpestris* und *Tr. taeniatus*. HSIAO-HUI CHUANG (darüber erschien bereits eine vorläufige Mitteilung in Z. Naturforschg. 2b. 1947)
- J. Determination in early development. *Amphibians*.
P. CITTERIO
- H. Regulation.
The influence of Li on the primitive development of the ascidian egg for analysing the potencies of regulation in this "mosaic" egg. *Ascidia malaca*.
P. D. NIEUWKOOP IIIb. 2a. e.
- I. Étude de la polyembryonie chez les Poissons. *Truite*.
G. STRUDEL
- J. Études relatives à la régulation d'un blastomère II isolé. *Triturus helveticus*.
A. DOLLANDER IIIb. 1c.
- J. Regulation in blastula and gastrula stage. *Urodela* and *Anura*. A. M. DALCQ in collaboration with coworkers
- J. Analysis of the regulative potencies of the invaginating archenteron roof and the induced neural plate along the dorso-ventral and cranio-caudal axes in the amphibian egg by heteroplastic transplantation of parts of the dorsal blastoporal lip. *Triturus alpestris*, *taeniatus* and *cristatus*. S. TOIVONEN and P. D. NIEUWKOOP IIIa. 7.
- J. Regulation potencies in the neural plate. Formation of neural crest by regulation after implantation of young neural plate tissue in the ventral side of neurulae, or by homogenetic induction after implantation in middle gastrulae (heteroplastic transplantation). *Triturus taeniatus*, *alpestris* and *cristatus*.
Miss M. BOUMAN, B. de PLANQUE
and P. D. NIEUWKOOP IIIa. 7.
- J. Ricerche su trapianti, espanti e parabiosi tra *Anfibi anuri* e *Urodela* allo scopo di indagare i processi di regolazione, differenziazione nel quadro dei problemi della costituzione biologica.
G. COTRONEI, T. PERRI
and L. URBANI—MISTRUZZI
- J. Determination of: how entoderm regulates its lost parts, when entoderm loses its power of regulation, and whether the regulation power is lost gradually or suddenly at a certain stage. Moreover the question: whether the entoderm at the neural plate stage still retains its power of regulation when different portions of entoderm are removed. Afterwards earlier stages will be examined in similar way. *Rana nigromaculata*.
Miss M. P. TSENG IIIa. 13.
- L. La polyembryonie et la monstruosité double expérimentales chez les *Oiseaux*.
H. LUTZ IIIb. 1c.

- L. Production exp. de monstres simples chez les oiseaux.
E. WOLFF
- L. A study of artificially produced duplicitas anterior.
Gallus domesticus.
M. ABERCROMBIE and Miss M. R. MORGAN

2a. Complete development or development during special periods (e.g. early, late, etc.) of whole organism.

General subjects.

- A. Reproduction asexuée. Régénération. Études des facteurs conditionnant l'apparition de la sexualité. Formation des cellules sexuelles. Développement embryonnaire. *Eponges*. P. BRIEN et Mme M. H. HERLANT IV. 2.
- B. Experimental analysis of the early developmental stages of the Sea-Anemones. *Sagartia leucolena* (*Anthozoa*). K. SEMBRAT I. 2a.
- C. Reproduction asexuée. Régénération. Études des facteurs conditionnant l'apparition de la sexualité. Formation des cellules sexuelles. Développement embryonnaire. *Oligochètes*. P. BRIEN et Madame M. H. HERLANT IV. 2.
- D. Structure and development of Cape Crawfish, *Jasus lalandii* (*Decapoda*). Mrs B. I. SILBERBAUER I. 2a.
IV. 3.
V. 3.
- F. Normal and experimental development. *Saccoglossus* (*Enteropneusta*). A. L. COLWIN and Mrs L. H. COLWIN I. 2a.
- G. Reproduction asexuée. Régénération. Études des facteurs conditionnant l'apparition de la sexualité. Formation des cellules sexuelles. Développement embryonnaire. *Coelentérés*. P. BRIEN IV. 2.
- G. Entwicklungsgeschichte der Seeigel. (Monografie, c. 100 S.). L. v. ÜBISCH I. 2a.
IIIb. 2a.
- G. Development of *Thyone* (*Holothuria*). L. H. COLWIN I. 2a.
- H. Reproduction asexuée. Régénération. Études des facteurs conditionnant l'apparition de la sexualité. Formation des cellules sexuelles. Développement embryonnaire. *Tuniciers*. P. BRIEN IV. 2.
- H. Ascidian development. *Ascidiopsis paratropa*. R. L. FERNALD V. 3.
- I. Development of all systems of the toadfish in relation to behavior. Th. BATTY, H. C. TRACY and J. WINBLAD IIIb. 2a.
- J. Cytology during embryogenesis. *Amphibians*. G. COLOMBO IIIb. 2a.
- M. Early development. *Mammalia*. W. J. HAMILTON IIIb. 2a.
- M. Studies on the rat egg. *Mus norvegicus*. J. S. NICHOLAS IIIa. 1b.

Physical treatment and physical methods (d).

- LV. Étude de l'influence de la lumière sur le développement des Vertébrés inférieurs. *Cyclostomes* et *Batraciens*.
H. F. C. DAMAS

- J. Stage series studies and metamorphosis in relation to irradiated embryos. *Triturus viridescens viridescens*, *Salamandridae*.
R. M. ROSENBAUM

I. 2a.
III d. 2.
V. 2.

Chemical treatment (e).

- G. Morphological studies on lithium-treated developing sea urchin eggs. *Psammechinus miliaris*.

S. A. A. BÄCKSTRÖM

- H. Action of LiCl and NaSCN on the development of *Ascidia aspersa* and *Styela partita* (Ascidians).

G. VANDEBROEK

IIIb. 2a. e.

- J. The effect of substituted acetic acids on the early ontogenetic development. *Bufo* and *Rana*, *Anura*; *Triturus*, *Urodela*.

S. PESONEN

- J. Influence of ureum on the development. *Amphibians*.

J. C. FAUTREZ

- J. L'effet de l'action de l'uraninite sur le développement de l'oeuf de grenouille, *Rana esculenta*.

V. PREDÁ

- J. The influence of chloramine-compounds on the early development (neurulation and embryo-formation) of the Amphibian-egg. *Triturus alpestris* and *Tr. taeniatus*.

F. E. LEHMANN and P. D. NIEUWKOOP

IIIb. 2a. e.

2b. Complete development or development during special periods (e.g. early, late, etc.) of part of the organism (e.g. head, tail, limbs, etc.).

Head.

- L. Recherches expérimentales sur le développement de la tête chez le Poulet (face et système nerveux). *Gallus domesticus*.

W. HUBER et E. WOLFF

Limbs.

- J. Symmetry relations in developing limbs. *Amblystoma punctatum*.

W. A. STULTZ

IIIa. 1b.

- J. Development of limbs of Amphibia with reference to the roles played by ectoderm and mesoderm. Various species of *Amblystoma*.

R. G. HARRISON

- J. Ricerche sull'indizione di arti soprannumerari mediante trapianti di parti di ibridi o di embrioni irradiati con raggi X. *Bufo vulg.*, *viridis* and *Rana esculenta*.

T. PERRI

- J. Inter-relationships between the development of limbs and the central and peripheral nervous systems. *Amblystoma punctatum*.

W. A. STULTZ

IIIa. 9.

- J. Chemische Beeinflussung der Extremitätenbildung von *Xenopus*.

P. TSCHUMI

- L. Study of the differentiation of the limb structure. *Gallus domesticus*.

J. M. CAIRNS

IIIc. 2.

Tail.

- J. Heteroplastic transplantation of the hind part of neural plate. *Amblystoma punctatum*, *A. tigrinum* (*Urodeles*). IIIb. 2b.
Z. SEMBRATOWA
- J. Analysis of the hind part of the neural plate in *Rana palustris* and *R. silvatica* (*Anura*).
Z. SEMBRATOWA
- J. Investigations concerning the process of outgrowth of the tail in Amphibia with special reference to the role of the chorda dorsalis and the tail mesoderm. *Amblystoma mex.*, *Triton taen.* and *Xenopus laevis*. IIIb. 2b.
J. H. BIJTEL

2b*. Complete development or development during special periods (e.g. early, late, etc.) of isolated blastomeres.

- H. Development of isolated blastomeres of the *Ascidian* egg. A. PISANO
- H. Fusion of blastomeres. *Ascidians*. S. LEGHISSA
- H. The organization of *Ascidian* embryos studied by the influence of centrifugation; a. action on isolated parts; b. local action of centrifugation (recombination after centrifugation) G. VANDEBROEK IIIa. 2a. d.
- G. Large scale separation of macromeres, mesomeres and micromeres of the developing sea urchin egg. IIIb. 1b*.
P. E. LINDAHL

2b**. Complete development or development during special periods (e.g. early, late, etc.) of organ rudiments.

- J. Vital staining of mesoderm and endoderm under the hindbrain and ear. *Amblystoma punctatum*. I. 2b.**
S. WILENS
- J. Experimental study of the origin and relation to surrounding tissue of the notochord in Amphibia. *Triton alpestris*. I. 2b.**
S. MOOKERJEE
- J. Lateral mesoderm explants in tail bud stage. *Anura*. IIIb. 2b.**
L. RAUNICH
- HV. Prospective areas in the chick and rabbit blastoderms. W. BUNO and C. M. FRANCHI
- M. Transplantation of early mammalian embryonic rudiments. *Cricetus auratus*. M. W. JOHNSON
- M. Continued investigation by homologous and heterologous transplantation of embryonic material relating to its development in the anterior chamber in the eye using the method developed by H. S. N. GREENE. Material from human fetuses as well as Guinea pigs and mouse embryos will be used. III d. 2.
B. L. NEWTON

2b***. Complete development or development during special periods (e.g. early, late, etc.) of special tissues.

- 2c. Complete development or development during special periods (e.g. early, late, etc.) of cell-constituents and special substances.

Early development.

3. Implantation, placentation and development of fetal membranes.

M. Implantation of blastocysts in *Rhodentia*.

J. KRAHELSKA

M. Development, structure and functions of trophoblast.
Homo, Rattus and *Lepus*.

IIIb. 3.

B. N. KROPP

4. Oogenesis, spermatogenesis, structure of egg and sperm, maturation, oviposition, fertilization (activation, parthenogenesis).

E. Nature of polar plasms. *Limnaea stagnalis* (*Gastropoda*).

Chr. P. RAVEN

IIIb. 4.

H. Protoplasmic movements after fertilization of *Ascidia aspersa*.

G. VANDEBROEK

J. A continuation of the study of the origin of the diploid and other chromosome numbers in parthenogenetically developed frog embryos. *Rana pipiens* and *R. palustris*.

Ch. L. PARMENTER

IIIc. 2.

M. The parthenogenetic development of unfertilized ova induced by chemical stimulation. *Albino rat*.

S. PESONEN

5. Cleavage.

D. Determination der Furchung und Sonderung der Organanlagen bei *Daphnia* (*Crustacea*).

F. KAUDEWITZ

IIIa. 2a.

6. Gastrulation.

H. Morphogenetic movements during the gastrulation of *Ascidia aspersa* and *Styela partita* (*Ascidians*).

G. VANDEBROEK

H. The mechanics of gastrulation in *Ascidia aspersa* and *Styela partita*.

G. VANDEBROEK

I. Mechanism of gastrulation in teleost eggs. The nature of the surface gel layer of the egg and its possible rôle in the cell movements (particularly epiboly) characteristic of teleost gastrulation. Extensive utilization of the methods of marking, wounding, transplantation. *Fundulus heteroclitus* (*Osteichthyes*).

J. P. TRINKAUS

IIIb. 6.

- J. Centrifugation of *Amphibian* blastula-gastrula. Various sp. of *Urodela* and *Anura*. J. J. PASTEELS IIIa. 7. d.
- M. Morphogenetic movements in the primitive streak of rat embryos. G. VANDEBROEK

7. *Neurulation (including development of neural crest).*

Induction.

- J. Mikrokephalie durch Defektoperationen in der Gegend des Urmundgrübchens von jungen Tritongastrulae. *Triton alpestris*. R. SCHENK
- J. Transplantation of prechordal material. *Triturus (Urodela)*. J. GALLERA
- J. Experiments on the head-organizer by means of X-rays and a new micro-surgical device. *Amphibians*. H. A. L. TRAMPUSCH
- J. The interaction of the roof of the archenteron upon the nervous system. *Amblystoma mexicanum*. J. S. NICHOLAS
- J. The nature and mode of action of the evocator in *amphibia*. C. B. GOODHART
- J. Regionale Induktion bei *Urodelen*. H. ENGLÄNDER IIIb. 7.
- J. Regional induction in relation to cell-arrangement of primary organizer, using organizer tissue dissociated into separate cells which are aggregated again to form tissue. *Triton alpestris*. E. M. DEUCHAR IIIb. 7.
- J. Analysis of the neural induction. Transfer of inductive substances in horizontal direction through the presumptive neural plate (heteroplastic transplantation of ectoderm). *Triturus taeniatus*, *alpestris* and *cristatus*. Miss A. KREMER, Miss E. BOTERENBROOD and P. D. NIEUWKOOP
- J. Modifications of the competence in *Triturus taeniatus (Urodeles)* after local action of LiCl. IIIb. 7. E. BONÉ and G. VANDEBROEK
- L. Transplantation experiments on chick blastoderm in tissue culture, with particular reference to induction of the prechordal head and regulation of the primitive node. *Gallus domesticus*. M. ABERCROMBIE IIIa. 1c.
- L. Rôle of the Hensen knot. Induction in *birds*. W. BUNO
- Neural crest.**
- J. The relationship of the neural crest to the orientation of the ear. *Ambystoma tigrinum (Axolotl)*. P. FORD IIIa. 10.
- J. Developmental potencies of the neural crest in Anurae. *Xenopus laevis*. L. C. STEVENS
- J. Developmental potencies of neural crest in Anura (transplantations). *Rana esculenta*. Maria A. BARBasetti

Development of organ-systems.

8. Skin, dermal formations (exo-skeleton, teeth, feathers), sense organs and glands of skin (including mammae) and pigment patterns.

Formation of teeth.

M. Tooth development. *Rat.* J. H. M. G. van DETHM. Rôle of the odontoblasts in the formation of secondary dentin. *Mus musculus.* Miss J. J. P. ZAAIJER

Feather and hair development.

L. Study of the determination of details of the feather structure, including both regional characteristics and hereditary variations. *Gallus domesticus.* J. M. CAIRNS IIIc. 2.L. Embryological analysis of feather-growth. The problems of the "afterschaft" and of „diastataxy". *Ratites* and *Carinatae.* H. STEINER I. 8. II. 8.

Pigment pattern.

L. The mechanisms whereby feather colour patterns are produced. IIIb. 8. IIIc. 2.

a) Interaction of pigment cells of known genotype with feather germ ("the builder" of the structural parts of the feather);

b) Factors regulating migration of pigment cells and their growth (multiplication) and differentiation (synthesis of specific melanin granules);

c) The rôle that sex and other hormones play in modifying the expression of pigment cells in color feather formation.

(Utilizing various techniques such as grafting and *in vitro* cultures).*Gallus domesticus* (various breeds and varieties).

B. H. WILLIER, Miss M. E. RAWLES and students

L. The rôle that sex and other hormones play in modifying the expression of pigment cells in color feather formation. Utilizing various techn. such as grafting and *in vitro* cultures, the various phases of the over-all problem are being investigated. *Chick.* IIIb. 8.

Miss M. E. RAWLES and B. H. WILLIER

M. The nature of the processes involved in formation of pigment of the hair and skin of mammals. (*mouse* and *rat*). Miss M. E. RAWLES

9. Nervous system, ganglia, nerves and enveloping membranes.

General subjects.

H. The infundibular organ of *Amphioxus.* J. BOEKE I. 9.J. Neuro-embryology. *Bufo arenarum.* W. A. FERREIRA I. 9.J. Differentiation in the nervous system. *Amblystoma.* J. H. PERRY

Central nervous system.

- J. Development of the central and peripheral nervous system in relation to behavior patterns along Coghillian lines of investigation. *Amblystoma punctatum*. IIIb.
 G. M. LEE and P. G. ROOFE
- J. Reaction of nervous cells to periphery. *Amphibians*.
 G. BAFFONI
- J. Transplantation of brachial cord segments in *Amblystoma punctatum* embryos. With a view to analyzing the factors responsible for normal cord structure and function; i.e., is continuity of neural axis necessary for normal form and function of specific parts? J. PIATT
- L. Corrélations nerveuses chez l'embryon de Poulet. *Gallus domesticus*. G. STRUDEL
- L. Control of proliferation and differentiation of the nervous system. *Chick*. IIIb. 9.
 V. HAMBURGER and R. LEVI—MONTALCINI
- L. Differentiation of sensory neurons. *Gallus domesticus*. I. 9.
 W. S. HAMMOND
- L. Tissue culture of young isolated neuroblasts from special areas of brain, esp. cerebellum, trigeminal. *Chick*. IIIb. 9.
 IV. 5.
 Miss M. J. HOGUE and S. C. WILLIAMS
- L. Study of the consequences of the removal of the secondary optic vesicle on the organogenesis and histogenesis of the optic lobe. *Chick*. G. FILOGAMO
- L. Morphological and experimental investigation of the pontine and inferior olivary nuclei in birds. *Gallus domesticus*. I. 9.
 W. HARKMARK
- L. Analysis of interrelations between parts of the embryonic spinal cord by means of defect experiments. *Gallus domesticus*. E. L. WENGER
- M. Tissue culture of young neurons and glia cells from the different parts of the brain, especially from the cerebellum. Also, the survival of neurons after death of the fetus. *Human fetuses and newborn babes and adult monkey (rhesus and spider)*. IIIb. 9.
 IV. 5.
 Miss M. J. HOGUE and S. C. WILLIAMS
- Accessory organs.**
- J. Experiments concerning the determination of pineal organ and paraphysis. *Amblystoma mex.*, *Triton taeniatus*, *Tr. alpestris* and *Xenopus laevis*. IIIa. 18.
 J. C. van de KAMER
- Neural crest.**
- J. Extirpation de la crête neurale cranienne chez la neurula de *Rana esculenta*. V. PREDA
- J. Ricerche sperimentali sulla morfogenesi dei gangli spinali (*Anfibi e Anuri*). Z. FUMAGALLI
- Sympathetic and intramural nervous system.**
- HV. Origin of sympathetic and parasympathetic nervous system. *Chick* and *Reptilians*. I. 9.
 II. 9.
 Mrs R. LEVI—MONTALCINI

- L. Development of the autonomic nervous system. *Gallus domesticus*. W. S. HAMMOND
 L. Development of autonomic nervous system. *Gallus domesticus*. C. L. YNTEMA

I. 9.

10. Special sense-organs (nasal organ, eye and ear).

General subjects.

- J. Experiments on secondary inductors, mainly on sense organs. *Amphibians*. H. A. L. TRAMPUSCH

Eye development.

- J. The lens induction in a number of amphibian species. *Rana clamitans* and *Rana catesbiana*. S. RHODES
 (under direction of E. C. HORN)
 L. Lens induction in vitro. *Gallus domesticus*.

IIIa. 1c.

- HV. Origine des cellules pigmentaires de la choroïde chez les *vertébrés supérieurs*. A. BRINI

- L. Study of the effect of the removal of the whole anlage of the eye (or of parts of it) on the organogenesis and histogenesis of extrinsic eye muscles, of the lids, of the lacrimal glands, of the naso-lacrimal duct. *Chick*.

R. M. AMPRINO

- L. Study of the effect of the removal of the anlage of the rhombo-mesencephalon on morphogenesis and histogenesis of the extrinsic eye muscles. *Chick*.

R. M. AMPRINO.

- L. A study of some of the features of the evocation of the scleral (sclerotic) bones in the chick embryo. This includes anatomical work, quantitative analysis of mitotic and degenerative activity, some histochemical investigations, and the experimental growth of isolated scleral bone primordia. *Gallus domesticus*. L. J. HALE

I. 10.

IIIb. 10.

Ear.

- J. Induction and differentiation of ear ectoderm. *Amblystoma punctatum*. C. L. YNTEMA

- J. Determination of the ear anlage. *Rana esculenta*.

Miss Maria A. BARBARETTI

- J. Induction and symmetry relations in the development of the internal ear. *Amblystoma punctatum*.

R. G. HARRISSON

- J. An experimental and morphological study of the development of the ear with special respect to the endolymphatic duct and glands of Swammerdam. *Rana temporaria*. P. FORD

IIIb. 10.

V. 3.

- J. Experimental embryology of the otocyst and the microplacods of the cranial nerves. *Amphibians*.

IIIa. 9.

J. C. FAUTREZ

11. *Embryonic temporary endo-skeleton, skeleton, skull and joints.***General subjects.**

- G. The form of the pluteus in sea-urchin hybrids. Study of skeletal development and bodily form. *Strongylocentrotus purpuratus*, *S. franciscanus* and *Dendraster ezeentricus* (Echinoidea). A. R. MOORE IIIb. 11.
IIIc. 2.
- J. Regeneration and differentiation of the notochord. *Triton* species. E. HADORN IIIb. 11.
IV. 5.
- I. An attempt to determine the origin of the trabeculae cranii and the branchial skeleton of the *Lampetra planeri* (Cyclostomata). D. R. NEWTH
- I. The development of the trabeculae cranii in perch embryos treated with LiCl. *Perca* (*Osteichthyes*). M. T. CLAES and G. VANDEBROEK
- I. The development of the trabeculae cranii in perch embryos from which the prosencephalon has been removed. *Perca* (*Osteichthyes*). G. VANDEBROEK
- J. To study the influence of the optic vesicle on the development of head skeleton and accessory organs of the eye ball, by extirpation of the optic vesicle at tail bud stage. *Rana nigromaculata*. Miss S. C. LI IIIa. 10.
- M. Comparative developmental morphology of bone formation of dog skulls. *Canis familiaris*. J. F. GUBBINS II. 11.
Truncal skeleton.
- L. Experimental analysis of the development of the appendicular skeleton in the *chick* embryo. MASY
- M. The qualitative adaptation of the surface of embryonic cartilage and bone, due to the influences of surrounding tissues. Exper. alteration of these circumstances. A causal and functional analysis on human embryos and young animals. *Man* and *cat*. I. 11.
IIIb. 11.
IV. 5.
S. KROMPECHER and L. NÉBEL

12. *Muscular system.*

- J. Further experimental modifications of muscle attachments in *Amblystoma*. E. K. HALL
- L. Developmental origin of the abdominal musculature by means of carbon reference marks. *Chick*. Miss M. E. RAWLES and W. L. STRAUSS
- M. The development of rat muscle. *Mus norvegicus*. J. S. NICHOLAS

13. *Alimentary tract.*

- J. Localization of the factors which cause situs inversus in tadpoles by defect and inversion experiments. Removal and inversion of different parts of neural plate and chorda-mesoderm, or chorda-mesoderm, or lateral plate. *Rana nigromaculata*. Miss M. P. TSENG

- J. Development of coiling in the intestine of anuran tadpoles. *Rana pipiens*. Norman E. KEMP
- J. Intestinal canal can only be formed in the whole embryo; in the extirpated entoderm no canal formation ever occurs. By combination of entoderm fragments with different parts of mesoderm in explants the formation of the intestinal canal may be studied. *Rana nigromaculata*. Miss M. P. TSENG
- J. Origin and development of the oesophageal epithelium in *Batrachians*. Z. VACEK
- M. Changes in the proctal epithelium in its embryonic and postfetal development, in grown up individuals of different ages, and under pathological circumstances, with special regard to its microtopographic situation. Adequate experiments on animals. *Man and dog*. S. KROMPECHER and Z. ZAKARIAS
- I. 13.
III d. 4.
14. *Respiratory-organs (including swim-bladder)*.
15. *Heart, vascular system and blood*.
- Heart.**
- J. Experimental analysis of the development of the heart. *Bufo arenarum*. W. A. FERREIRA and R. E. GONZALEZ MARINO
- M. Structure of the coronary arteries at birth. *Homo*. W. F. WINDLE
- I. 15.
- L. Le développement du système vasculaire. (coeur et système vasculaire embryonnaire et extra-embryonnaire). *Gallus domesticus*. F. STEPHAN
- Vascular system and blood.**
- I. Development of blood and vascular system. *Petromyzontidae (Cyclostomes)* and *Amia, Lepidosteus (Osteoganoïds)*. L. RAUNICH
- I. 15.
- J. Blood island-development and differentiation in amphibians. *Hyla regilla*. R. L. FERNALD
16. *Coelomic cavity, endothelia, lymphatic system and connective tissue*.
- M. ? Tissue culture of normal and damaged endothelium. *Mammalia (?)*. R. ALTSCHUL
17. *Urogenital system (development and structure), sex determination*.
- General subjects.**
- D. Field organisation of the genital imaginal disc. *Drosophila species*. E. HADORN
- III b. 17.
III c. 2.
- E. Recherches sur le développement embryonnaire de l'appareil génital hermaphrodite de divers *Gastropodes*, différenciation gamètes. *Calyptraea (Prosobranches)* et *Pulmonés divers*. M. de LARAMBERGUE
- II. 17.
. IV. 5

Germ cells.

- J. Localisation of the primary gonocytes in the early gastrula of *Amphibians*. K. SEMBRAT I. 17.
IIIa. 6.
- J. Mit Hilfe der Exstirpation des Entoderms im Neurulastadium und der Defektsetzung in der Seitenplatte einer Spätgastrula und Frühneurula soll die Entstehung der Geschlechtszellen studiert werden. *Rana nigromaculata*. Y. T. WANG
- J. Der Zeitpunkt der Determination und der Auswanderung der Geschlechtszellen werden mit der Wiederholung der oben genannten Versuchen in verschiedenen Entwicklungsstadien zum feststellen versucht. *Rana nigromaculata*. Y. T. WANG
- L. Origine des cellules sexuelles secondaires chez le poulet. I. 17.
V. PREDA

Gonad development.

- L. Expérimentation sur la 1ère et la 2ème poussée de cordons sexuels. *Poulet*. A. A. HAMPÉ IIIb. 17.
- M. Untersuchungen zur Frage der Gonadenentwicklung beim Menschen und der Potenzen des Ovar epithels beim Erwachsenen. G. TÖNDURY I. 17.
- M. Developmental potencies of the human fetal germinal epithelium in explants. P. J. GAILLARD IIIb. 17.
- M. Les transformations de la glande interstitielle du testicule au cours de son développement. *Cobaye*. C. MIETKIEWSKI

Genital tract.

- L. La genèse de l'asymétrie du tractus génital des oiseaux et la régression des canaux de Muller. *Gallus domesticus*. Miss Y. OSTERTAG IIIa. 1c.
IIIb. 17.

Sex-Determination.

- J. Action des hormones gonadotropes sur le déterminisme du sexe chez la grenouille, *Rana esculenta*. V. PREDA
- L. Action des hormones gonadotropes sur le déterminisme du sexe chez le poulet. V. PREDA
- L. Stérilisation et intersexualité chez l'embryon de *Poulet* par irradiation aux rayons X. Mlle B. SALZGEBER
- M. The experimental control of sex differentiation in the embryo by means of hormones. *Didelphys virginiana (Marsupialia)*. R. K. BURNS I.
II.

18. Endocrine glands (development, structure and functioning).**General subjects.**

- L. Investigating the ontogeny of endocrine correlation and integration mainly by intracoelomic grafting techniques. *Chick*. J. F. CASE IIIb. 18.

Special endocrine glands.

- V. The morphogenetical functions of the thyroid gland in poikilothermic Vertebrates. *Pisces, Amphibia and Reptilia*. K. SEMBRAT

- J. Development of the amphibian pituitary. Study of independent or dependent differentiation of the partes buccales and pars nervosa of the pituitary. *Hyla regilla*.
M. E. EAKIN
(assisted by Miss N. EATON, Miss E. OLDENBORG, and W. THURMOND)
- L. Development of the thymus. *Gallus domesticus*.
W. S. HAMMOND
- M. Histogénèse de la corticosurrénale. Le rat.
T. KURKIEWICZ

19. *Growth and differentiation (including mitosis).*

- V. Recherches sur les transformations qui se produisent dans les organismes et dans les tissus cultivés in vitro pendant l'accroissement. *Vertébrés*. G. H. LEVI
- V. Recherches sur les caractères de la structure et des propriétés biologiques dans les tissus cultivés in vitro. *Vertébrés*. G. H. LEVI
- L. Differentiation of early embryonic tissues in vitro. *Gallus*. Miss D. RUDNICK
- M. Statistical study of the parts of the nervous system and of the endocrine glands in the *guinea pig*.
H. B. LATIMER
- M. Effects of low temperature on growth and reproduction in mice, *Mus musculus (Rodentia)*. S. A. BARNETT
- M. Growth of the organs and systems of the *rabbit* in the prenatal and postnatal periods. H. B. LATIMER
- M. Prenatal growth and differentiation of the organs (brain, cord, hypophysis, etc.) in the *fetal puppy*.
R. CORDER and H. B. LATIMER
- M. Studies on growth of various implanted tissues with the *rabbit's ear chamber technique*.
E. R. CLARK and R. G. WILLIAMS

I. 9.
I. 18.

I. 2a.

IIIa. 9.
IIIa. 18.

IIIb. Experimental developmental physiology.

1a. Theoretical problems.

- EV. + V. Entwicklungsprobleme (Buch, c. 250 S.) *Evertebraten und Vertebraten.* L. v. UBISCH I. 1a.
IIIa. 1a.
IIIc. 1a.
- EV. + V. Entwicklungsphysiologie (Buch c. 100 S.)
Evertebraten und Vertebraten. L. v. UBISCH

1b. Technics.

- I. Desinfection experiments on eggs. *Fishes.*
B. A. G. ENTZ
- M. Method of ova transplants. *Mus musculus.* E. FEKETE
- M. Cultivation of *mammalian* eggs. K. MAZANEC IIIa. 1b.

1c. General questions. (*Induction, determination, regulation, organization, symmetry and asymmetry, gradients*).

- G. Analysis of the gradients and the processus behind them in the sea urchin egg. S. HÖRSTADIUS IIIa. 1c.
- J. L'induction chez les Amphibiens. *Triton et Axolotl.* R. A. LALLIER IIIb. 1c.
- J. The motive power behind morphogenetic movements. *Amphibians.* C. B. GOODHART IIIa. 1c.
- J. Selective cellular adhesion in embryonic germ layers. *Urodeles and Anurans.* Ph. L. TOWNES IIIc. 1c.
- L. Influence of yolk on the germ-layers. *Birds.* I. TÖRÖ IIIc. 2.

2a. Complete development or development during special periods (e.g. early, late, etc.) of whole organism.

General subjects.

- D. Embryonale und post-embryonale Entwicklungsgeschichte und Entwicklungsphysiologie bei *Insekten.* K. HENKE mit Mitarbeiter IIIc. 2.
- E. Embryonale und postembryonale Entwicklungsgeschichte und Entwicklungsphysiologie bei *Mollusken.* K. HENKE mit Mitarbeiter IIIc. 2.
- E. Completion of some work on the developmental physiology of the squid, *Loligo pealii* (*Cephalopoda*).
Howard L. HAMILTON
- G. Monograph on *Arbacia punctulata*, including classified compilation of all experimental work. (In preparation)
E. B. HARVEY IIIa. 2a.
- I. Biology of *Lampreys* (*Cyclostomata*). (Including development and metamorphosis). E. W. BAXTER I. 2a.
V. 3.
- I. Breeding experiments with pikeperch eggs *Lucioperca sandra cuv. et val.* in moisture atmosphere.
B. A. G. ENTZ

- J. Ecological and biochemical characteristics of the first stages of development of typical neotropical forms. *South American Batrachians*. J. M. CEI II. 2a.
V. 3.
- J. Embryonale und postembryonale Entwicklungsgeschichte und Entwicklungsphysiologie bei *Amphibien*. K. HENKE mit Mitarbeiter IIIc. 2.
- L. Embryonale und postembryonale Entwicklungsgeschichte und Entwicklungsphysiologie bei *Vögel*. K. HENKE mit Mitarbeiter IIIc. 2.
- M. Factors in fetal maturity. *Homo, Macaca rhesus, Lepus cunic.* and *Ovis*. S. R. M. REYNOLDS II. 2a.
Respiration (a).
- G. Respiration of sea urchin eggs in different stages of development. Enzymatic constitution of eggs, kinetics of enzyme action. *Paracentrotus lividus, Psammechinus miliaris* and other sea urchins. H. BOREI
- H. Influence of Li on respiration and metabolism of the Ascidian egg. *Ascidia malaca*. P. D. NIEUWKOOP IIIb. 2a. e.
- I. Ricerche sulla respirazione embrionale dei teleostei. E. URBANI
- LV. Embryo metabolism, respiration. *Pisces* and *Amphibians*. A. STEFANELLI
- J. Azione degli antimetabolici sul metabolismo respiratorio degli *Anfibi*. E. URBANI
- M. Respiratory physiology of fetus and newborn. *Rabbit* and *Human*. F. F. SNYDER
- M. Oxidative metabolism of mammalian eggs. *Lepus cuniculus*. H. SHAPIRO
Metabolism and osmotic properties (b).
- EV. Water permeability of marine eggs. *Arbacia punctulata, Asterias forbesii* and *Chaetopterus pergamentaceus*. H. SHAPIRO
- I. Osmotic pressure and fish embryos. *Salmo trutta*. H. DATKOWNA
- L. Rate of metabolism during development. *Domestic fowl*. C. C. BOYER
- L. Carbohydrate and fat metabolism in chick embryos. *Gallus domesticus*. H. CLARK
- M. Waterpermeability of mammalian eggs. *Lepus cuniculus*. H. SHAPIRO
Cytochemistry (c).
- C. Experimental and cytochemical embryology. *Passalurus ambiguus (Nematoda)*. Ch. ANNEZ I. 2a.
IIIb. 2c.
- D. Descriptive and cytochemical embryology. *Artemia salina (Phyllopora)*. Mrs N. J. P. E. FAUTREZ—FIRLEFYN I. 2a.
IIIb. 2c.
- E. Physiological and biochemical studies of mosaic eggs. *Mytilus edulis (Pelecypoda)*. W. E. BERG IIIb. 2c.
- J. Biochemistry of development of frog embryos. *Rana fusca (Anura)*. J. R. SHAVER

- Physical treatment and physical methods (d).**
- J. Studies on the action of a heat shock on development and cytochemistry on *Amphibian* eggs. IIIc. 2.
J. L. A. BRACHET
- J. Einfluss elektrischer Ströme auf die frühesten Entwicklungsstadien der *Amphibien*. IIIa. 2a. d.
H. HARTWIG
- J. Azione dei raggi X sugli embrioni di *Anfibi*, studiata con il metodo della parabiosi. IIIa. 2a. d.
Mrs L. URBANI—MISTRUZZI
- Chemical treatment (e).**
- E. Influence of Li on the development of *Limnaea stagnalis* (*Gastropoda*). Chr. P. RAVEN
- H. Effect of certain chemicals on development. *Molgula*, *Ciona* and *Styela* (*Tunicata*). IIIa. 2a. e.
A. L. COLWIN
- V. Studies on the action of specific antisera on morphogenesis. *Vertebrates*. J. L. A. BRACHET
- J. The influence of malonitril on the development of *Amblystoma mexicanum*. IIIa. 2a. e.
P. BANGMA IIIId. 2.
- J. Effects of antimetabolites on early development. *Rana esculenta*.
Maria A. BARBARETTI and P. PASQUINI
- J. Die Wirkung von Sulfa-Verbindungen auf die embryonale Entwicklung von *Rana nigromaculata*. IIIa. 2a. e.
Hsiao-Hui CHUANG
- J. Effect of metabolic analogs on morphological and biochemical development. *Amblystoma punctatum* and *Rana pipiens*. IIIa. 2a. e.
Miss E. NOEL IIIb. 2c.
(under direction of E. J. BOELL)
- J. Effect of chemical inhibitors on the development of amphibian eggs. *Rana* and *Amblystoma*. T. S. HALL
- J. Action du Lithium sur le développement embryonnaire. IIIb. 7.
Triton et *Axolotl* (*Urodèles*). R. A. LALLIER
- L. The effect of nicotinamide and α -ketoglutaric acid on insulin-induced hypoglycemia in chick embryos; relation to micromelia. *Gallus domesticus*. IIIb. 2b. e.
E. ZWILLING
- Influence of hormones and vitamins (f).**
- J. Study of the reactions of diploid and triploid larvae to pituitary hormones. *Triturus viridescens*. IIIc. 2.
V. 2.
G. FANKHAUSER
- J. Thyroidectomy in diploid and triploid embryos. Effects of thiourea, etc. *Triturus viridescens*. IIIc. 2.
V. 2.
G. FANKHAUSER
- Nutrition of embryo (g).**
- J. Influence of different kinds of food on the development of *Xenopus laevis*. IIIb. 19.
J. FABER
- L. Nutritional conditions in the incubating *bird's* egg. E. WITSCHI
- L. Investigating the nutrient requirements essential to morphogenesis and growth of organisms in the early stages of *chick* development (pre-streak and streak blastoderms). IIIa. 2a. g.
N. T. SPRATT Jr.

Immunological studies (h).

- J. Studies of differentiation by immunological and other techniques. *Triton alpestris*. R. M. FREEDMAN
 L. Investigating the ontogeny of tissue antigens by immunological techniques. *Chick*. J. D. EBERT

IIIc. 2

2b. Complete development or development during special periods (e.g. early, late, etc.) of part of the organism (e.g. head, tail, limbs, etc.).

2b*. Complete development or development during special periods (e.g. early, late, etc.) of isolated blastomeres.

- G. Centrifuging eggs, and development of fractions obtained by centrifugal force. Parthenogenetic merogony. Development of pluteus larva. *Arbacia punctulata*. IIIa. 2b*. d. V. 3.
 E. B. HARVEY
 J. Study of certain metabolic aspects of cell migration in vitro. (Glycolysis, respiratory quotient, effect of various metabolic inhibitors). *Triturus torosus*, *Tr. rivularis* and *Amblystoma punctatum*. R. A. FLICKINGER

2b**. Complete development or development during special periods (e.g. early, late, etc.) of organ rudiments.

2b***. Complete development or development during special periods (e.g. early, late, etc.) of special tissues.

- HV.(?) Metabolic interaction between tissues. Exchange of metabolites between tissue components (epithelium-stroma) with different degrees of oxidative or anaerobic metabolism. The investigation is carried out with model tissues, such as cornea, as well as with tissue-cultures.
 S. COHEN and H. HERRMANN

2c. Complete development or development during special periods (e.g. early, late, etc.) of cell-constituents and special substances.

- General subjects.
 D. Karyologische Untersuchungen — Karyomerentropismus. *Cyclops (Entomostraka)*. IIIb. 4. IIIb. 19.
 H. STICH
 G. Correlations between structure and function of the cytoplasm. *Sea-urchins*. L. MONNÉ
 V. Investigations if there occur any changes in the nucleus in course of differentiation. *Vertebrates*. IIIb. 19.
 DANIELLI
 J. Localization of cell constituents in *amphibian* egg. H. HOLTER
 J. Transplantation of cell constituents. *Triton alpestris*. IIIa. 2c.
 C. H. WADDINGTON

Respiration (a).

Metabolism (b).

- G. Sulphate metabolism in *sea urchin* development. B. G. SWEDMARK
- G. Nitrogen metabolism in early *sea urchin* development studied by means of N-labelled ammonia. J. M. T. HULTIN
- G. On surface reaction of the *Sea urchin* egg with special attention to phosphate-metabolism. On the dehydrogenase systems of the *Sea urchin* egg. IIIb. 2c. c.
N. O. H. LINDBERG
- J. Biochemical investigations about developmental physiology. Development of enzymes, embryonic metabolism. *Rana* and *Amblystoma*. IIIb. 2c. c.
G. ten CATE
- L. Biochemical investigations about the developmental physiology. Development of enzymes, embryonic metabolism. *Chicken*. IIIb. 2c. c.
G. ten CATE
- L. Protein metabolism in chicken embryo. *Gallus gallus*. C. RIZZOLI
- Cytochemistry (c).
- EV. Research in cyto-embryology and cyto-physiology on Marine *Invertebrate* eggs. D. P. COSTELLO
- C. Chemical embryology. *Sabellaria alveolata*, *Annelida*. IIIa. 2a. c.
Chr. P. RAVEN
- C. Histochemistry of nucleic acids in the gametogenesis and development of *Ascaris*. *Parascaris equorum* (*Nematodes*). II. 2a. c.
J. J. PASTEELS and J. PANIJEL II. 4.
- C. Nucleic acids during the organogenesis of *Eisenia foetida* (*Annelida*). G. VANDEBROEK
- D. Phosphatase distribution in Crustacean eggs. *Cymothoids*, *Asellus* (*Crust. Isop.*). M. DE NICOLA
- D. A cytochemical study of the Insect egg (esp. the glycogen formation) during maturation and development. *Cynipidea* and other *Insects*. M. K. KRAIŃSKA
- D. Development of enzymes in grasshopper egg and embryo. *Melanoplus differentialis* (*Orthoptera*). I. 2a.
L. R. FITZGERALD
- G. Serological and chemical studies on the proteins of developing sea-urchin eggs. *Paracentrotus lividus* and *Arbacia lixula*. H. P. PERLMANN
- G. Proteins in embryonic development. *Echinoderms*. IIIa. 2c. c.
S. RANZI III d. 2.
- G. Calcium distribution in the development of *sea urchin* eggs. *Paracentrotus* and *Arbacia*. M. de NICOLA
- V. Physico-chemical properties of embryos: the yolk. *Salmo* (*Pisces*), *Lacerta* (*Reptilia*) and *Gallus* (*Aves*). H. DATKOWNA, Z. GRODZIŃSKI and K. ŚWIERZAWSKA

- V. Histochemistry of development of selected species of various vertebrate classes, of various organs and tissues under varying physiological and pathological states, of metamorphosis, regeneration and senescence. E. R. HAYES I. 2b. c.
IV. 4.
V. 4.
- V. Development of nucleoproteins. *Aves* and *Amphibia*. Miss A. ORLANDI
- LIV. Behavior of nucleic acids in development of telolecithal ova. (Especially the behavior of the nucleoli and their development). *Lower Vertebrates*. P. L. RISLEY I. 2c.
II. 2c.
IIIa. 2c. c. IIIa. 2c. c.
I. 2a.
- I. Histochemistry in the development of *Cyclostomes*. R. H. SHELLHAMER
- I. The behavior of yolk and its different components in developing fish embryos. *Cyprinus carpio*. B. KONOPACKA
- I. Nucleic acid synthesis in development. *Fishes*. A. STEFANELLI
- J. Cytochemical observations on the first stages of *Amphibia* (various species). J. L. A. BRACHET and J. PASTEELS II. 2a. c.
- J. Histochemistry of amphibian development and metamorphosis. R. A. KNOUFF I. 2a.
V. 3.
- J. Cytochemistry of amphibian eggs. *Amblystoma mexicanum* and *Xenopus laevis*. S. LØVTRUP
- J. Utilization of yolk during morphogenesis of amphibians. *Rana pipiens* and *Ambystoma maculatum*. Norman E. KEMP
- J. Quantitative biochemical determination of yolk distribution in the axolotl gastrula. *Ambystoma mexicanum*. J. R. GREGG IIIb. 6. c.
- J. Patterns of development of enzymes in embryos; differentiation of enzymes in relation to differentiation of functional ability in embryonic organs. *Rana pipiens*. F. MOOG
- J. Development of oxidative enzymes in relation to nucleoproteins and various centrifugable elements in the amphibian embryo. *Amblystoma punctatum* and *Rana pipiens*. Miss R. GILMARTIN IIIa. 2c. c.
(under direction of E. J. BOELL)
- J. Hypertrophy of enzyme development in *Amblystoma punctatum* resulting from rearing embryos in solutions containing enzyme substrates. E. J. BOELL
- J. Alkaline phosphatase activity during development. *Amblystoma mexicanum* and *Xenopus laevis*. Miss E. J. KRUGELIS
- J. Phosphatase distribution in Amphibian eggs. *Rana* and *Bufo*. B. BATTAGLIA
- J. Proteins in embryonic development. *Amphibians*. S. RANZI IIIa. 2c. c.
III d. 2.
- J. Ricerche sull'acido ascorbico durante lo sviluppo embrionale degli *Anfibi*. Mrs L. URBANI—MISTRUZZI I. 2a. c.

- HV. Enzyme activities of embryo and extra-embryonic membranes of *chick* and *rat*. L. R. FITZGERALD I. 3.
- HV. Enzymes in the development of the embryo. Cytochrome oxidase and lipase. *Chick* and *pig*.
J. ALVAREZ GUTIÉRREZ, W. BUNO
and R. E. GONZALEZ MARINO
- L. Nature of the yolk and its changes in development. *Gallus domesticus*. M. ATLAS
- L. Patterns of development of enzymes in embryos; differentiation of enzymes in relation to differentiation of functional ability in embryonic organs. *Gallus domesticus*. F. MOOG
- L. Plasma proteins during development in the *chick* embryo. G. W. NACE and A. M. SCHECHTMAN
- M. Cytochemistry of early stages of development. *Rodentia* and *Insectivora*. A. M. DALCQ in collaboration with coworkers
- M. Histochemistry of mammalian eggs. *Mus* and *Homo*.
B. KONOPACKA
- Physical treatment and physical methods (d).**
- D. Development of *Drosophila* using genetic principles and radio-active materials to trace the embryonic components. D. F. POULSON IIIc. 2.
- J. Phosphorus metabolism in the amphibian embryo studied with radio-active phosphorus. *Rana pipiens*. IIIb. 2a. d.
P. B. KUTSKY
- J. Studies in protein synthesis in the amphibian embryo. I. Uptake of radio-active glycine. II. Uptake of radio-active methionine. *Hyla regilla*. R. M. EAKIN
- Chemical treatment (e).**
- G. Continued studies on the protein chemistry of normal and lithium-treated developing sea urchin eggs. (Studies on amino acids, peptides and enzymes). *Paracentrotus lividus*, *Psammechinus miliaris* and other sea urchins. T. GUSTAFSON
- J. Determination of Li in amphibian eggs, treated with LiCl. *Amblystoma*. J. J. BEZEM
- J. Effect of specific enzyme poisons on embryonic development. Correlation of developmental events with activity of specific enzymes. *Rana temporaria* and *Triton spp.* R. A. BEATTY
- Influence of hormones and vitamins (f).**
- L. Thymectomy and the calcium content of the *bird's* egg. I. TÖRÖ
- M. The embryos and fetuses of normal, vitamin E-deficient and vitamin E-rich guinea-pigs are being investigated histologically and histochemically with special reference to the distribution of lipids and carbohydrates, in order to find out the influence of vitamin E on the development and on the lipid and carbohydrate metabolism. *Cavia cobaya (Rodentia)*. Z. MENSCHIK IIIb. 2a. b.
III d. 2.

Nutrition of embryo (g).
Immunological studies (h).

- J. Immunological characteristics of embryonic cytoplasmic granules. *Rana fusca* (*Anura*). J. R. SHAVER

Early development.

3. Implantation, placentation and development of fetal membranes.

- M. Implantation of fertilized *rabbit* ova in the uterus. J. W. BARENTS
- M. Study of egg transport and implantation; early development of trophoblast; embryo-maternal relationships during nidation. *Mus*. R. H. ALDEN
- M. Permeability of the placenta in *rat* and *guinea-pig*. Investigation with isotopes. J. DANKMEYER and C. B. HEYN
- M. Placental transfer. Common laboratory *mammals*. II. 3. L. B. FLEXNER

4. Oogenesis, spermatogenesis, structure of egg and sperm, maturation, oviposition, fertilization (activation, parthenogenesis).

- Oogenesis.
- B. Cytochemical studies upon the oogenesis of coelenterata. *Aurelia aurita*. I. 4. H. G. GODLEWSKI
- J. Ricerche sul comportamento degli acidi nucleici durante l'oogenesi. *Amphibians*. E. URBANI
- L. Egg formation in birds. (Rôle of female hormone in vitellogenesis). *Pigeon, duck and chick*. IIIa. 4. f. J. CLAVERT
- G. Continued studies on the "dorsoventral" (oral-aboral) organization of the unfertilized sea urchin egg. *Echinocardium cordatum* and other sea urchins. T. GUSTAFSON
- G. On the origin and nature of the precursors of egg-membranes in echinoidea. *Dendraster excentricus* and *Strongylocentrotus purpuratus*. IIIa. 4. A. R. MOORE
- G. Studies on the proteins of unfertilized and the first stages of fertilized sea urchin eggs. S. LINDVALL
- G. The biochemical mechanism of the animalization of the unfertilized sea urchin egg. IIIb. 1c-b. P. E. LINDAHL
- H. Study of the cortex of *Ascidian* eggs. S. LEGHISSA
- J. Étude du revêtement superficiel de l'oeuf. *Triturus helveticus*. *Tr. alpestris* et *Tr. cristatus*. I. 4. A. DOLLANDER
- I. Physiologie des *Knochenfisch*spermas. A. ROETHELI Meiosis.
- C. Chemische Beeinflussung der plasmatischen Vorgänge der Meiose bei *Tubifex*. A. ROETHELI

- D. Ribonucleic acid supply to germ cells and determinism of meiosis. *Asellus* (Crust. Isop.). G. VITAGLIANO
- D. Determinism of meiosis. *Acellus* (Crust. Isop.) and other species. G. MONTALENTI
- J. Conditions of the maturation of the egg and ovulation. *Rana pipiens*. M. ATLAS
- Oviposition.**
- D. Biology of oviposition. *Locusta*. D. AGARWALA
- Fertilization**
- EV. Rôle of fertilizin and anti-fertilizin in fertilization: Mechanism of adjuvant-fertilizin agglutination of starfish sperm, specificity of antifertilizin in echinoids, agglutination of eggs and sperm by basic proteins. *Various marine invertebrates*, including *asteroid* and *echinoid echinoderms*. C. B. METZ
- EV. A study of the factors which cause initiation of development. *Arbacia punctulata* (Echinoidea) and *Chaetopterus pergamentaceus* (Polychaeta). L. V. HEILBRUNN
- EV. Metabolic changes on fertilization. *Arbacia punctulata*, *Asterias forbesii* and *Chaetopterus pergamentaceus*. H. SHAPIRO
- F. Fertilization reaction. *Saccoglossus* (Enteropneusta). A. L. COLWIN and Mrs L. H. COLWIN
- G. Enzymatic destruction of jelly coat substances of the eggs. *Echinus esculentus*, *Echinocardium cordatum*, *Brisopsis lyr.*, etc. J. IMMERS
- G. Studies on the chemical composition and the species specificity of its chemical composition. Action of dissolved jelly coat substance (fertilizin) on the spermatozoa. *Paracentrotus lividus*, *Psammechinus miliaris* and other sea urchins. E. J. E. VASSEUR
- G. Investigation on the nature of the sperm-factor which brings about the fluidification of the jelly layer surrounding the eggs. *Echinoderms*. LUNDBLAD and A. MONROY
- G. On fertilizability of the egg under different conditions acting on sperm and eggs. *Psammechinus miliaris*, *Strongylocentrotus droebeckiensis* and *Arbacia lixula*. Miss E. WICKLUND
- G. Biochemistry of fertilization, espec. on carbohydrate metabolism. *Echinus esculentus*, *Echinocardium cordatum*, *Strongylocent. droeb.*, *Paracentrotus lividus*, etc. J. IMMERS
- G. Changements of dehydrogenase system at fertilization of the sea urchin egg. P. E. LINDAHL
- G. Investigations on the biochemistry of fertilization in sea urchin eggs with special consideration to the changes occurring in proteins. A. MONROY
- IIIb. 17.
- IIIc. 2.
- I. 4.
- IIIa. 4.

G. Behaviour and importance of Potassium during fertilization of the sea urchin egg. *Paracentrotus* and *Arbacia*. Mrs A. MONROY—ODDO

G. Study of the importance of the phosphorylated compounds in the energetic changes accompanying activation of the eggs. *Strongylocentrotus purpuratus* and *Dendroaster excentricus*. A. H. WHITELEY

J. The influence of the short wave radiation of the fertilization in *Amphibia*. J. PIOTROWSKA

J. The ultraviolet- and X-rays influence on spermatozoa under various experimental conditions. *Rana temporaria*. H. G. GODLEWSKI

L. Artificial inseminations with semen stored in different conditions. *Gallus domesticus*. J. H. MARCHLEWSKI

M. Place of fertilization of the mammalian egg. *Rodentia* and *Carnivora*. F. STRAUSS
(under direction of H. W. MOSSMANN)

I. 4.

Parthenogenesis.

J. Initiation of artificial parthenogenesis in frog eggs. *Rana fusca* (*Anura*). J. R. SHAVER

J. An analysis of the "second factor" in the first cleavage in the artificial parthenogenesis of the frog egg. *Rana pipiens* and *R. palustris*. Ch. L. PARMENTER

M. Mammalian parthenogenesis. *Lepus cuniculus*. H. SHAPIRO

5. Cleavage.

6. Gastrulation.

J. The cumulative of oxygen-pressure and the production of various degrees of blocking of the processes of gastrulation in the embryo of the frog, *Rana pipiens*. O. E. NELSON

I. 6.

7. Neurulation (including development of neural crest).

J. The reactive capacity of *Rana nigro-maculata* to abnormal inductor seems to be weaker than that of *Triton*. In order to find out whether the ectoderm of *Rana* is less sensitive to inductive stimuli Holtfreter's experimental method (1947) was adopted. Isolated gastrular ectoderm of *Rana* was given a treatment with acid and alkali solution of various concentration for various length of duration. Thus it will be found whether the ph ranks which cause neural differentiation in *Triturus* (or *Amblystoma*) and in *Rana* ectoderm are different. Furthermore, the cause why *Triturus* and *Rana* ectoderms react differently to the same ph rank will also be studied. Y. K. LIAO

IIIa. 1c.

IIIa. 7.

IIIb. 1c.

- J. Essai de filtration, „in vivo”, de la substance inductrice à l'aide de membranes de porosité connue, sur des explantats de jeunes gastrulas. *Axolotl (Urodèles)*.
Mlle F. HUGON de SCOEUX
- J. Analysis of the neural induction. Separation of archenteron roof and overlying ectoderm by semipermeable membranes. *Triturus taeniatus* and *Tr. alpestris*.
P. D. NIEUWKOOP
- J. Radio-active tracer study of the metabolism of *amphibian* eggs, with special reference to the organizer. IIIb. 7d.
F. MOOG and E. L. WENGER
- J. Regionale Induktion bei Amphibien. *Triton*. IIIa. 7.
E. ROTMANN
- J. Regional specificity in living and dead organisers. *Triton alpestris*.
C. H. WADDINGTON
- J. The chemical nature of the specific inductive substances (isolated from liver and kidney of the guinea-pig).
Triton. Miss T. KUUSI
- J. The specific action of heterogenous inducers. *Triton*.
S. TOIVONEN

Development of organ-systems.

8. Skin, dermal formations (exo-skeleton, teeth, feathers), sense organs and glands of skin (including mammae) and pigment patterns.

- Formation of teeth.**
- M. Factors governing dentin formation. *Mus musculus*.
Miss J. J. P. ZAAIJER
- Mammary gland.**
- M. Prenatal growth and differentiation of the mammary glands. Investigation of some cytochemical properties of mammary gland rudiments (ribonucleic acid, alkaline phosphatase, indophenoloxydase content) as compared with the same in skin epidermis, hair follicles and mesenchyme. Differentiation of mammary gland rudiments in vitro. *Mus musculus* and *Lepus cuniculus*.
B. I. BALINSKI
- M. Recherches sur de développement embryonnaire de la glande mammaire de la *Souris*. I. 8.
IIIa. 8.
M. FRILLEY et A. RAYNAUD
- Color pattern.**
- J. Investigation of problems relating the behavior, differentiation and metabolism of Amphibian pigment cells, and the analysis of factors relating to the establishment of specific pigment patterns of larvae and adults. Species of *Amblystoma* and *Triturus*. IIIa. 8.
H. E. LEHMAN
- L. Rôle of hormones in differentiation of pigment patterns. IIIa. 8.
Investigation of estrogen and thyroid hormone as morphogenetic agents in pigment pattern differentiation.

The particular emphasis has been on the response of melanoblasts to these hormones and the rôle of epidermis in conditioning this response. *Gallus domesticus*.

J. P. TRINKAUS

9. *Nervous system, ganglia, nerves and enveloping membranes.*

Central nervous system.

- M. Correlation of morphological, physiological and biochemical differentiation of fetal cerebral cortex. *Guinea pig*. IIIa. 9.
L. B. FLEXNER

- M. Factors responsible for the changes in brain metabolism during its development. *Rat and guinea pig*.

D. B. TYLER

- J. Development of cholinesterase in the Amphibian nervous system in relation to the functional maturation of various regions. *Amblystoma punctatum*. IIIa. 9. c.

E. J. BOELL and S. C. SHEN

- J. Cholinesterase in brain hyperplasia and hypoplasia following eye transplantation and extirpation. *Amblystoma punctatum* and *Amb. tigrinum*. IIIa. 9c.

E. J. BOELL and S. C. SHEN

Accessory organs.

- J. Function of the paraphysis cerebri in *Amblystoma mexicanum*. I. 9.
J. ARIENS KAPPERS II. 9.

- L. Development of paraphysis in birds and the circulation of the cerebrospinal fluid. *Gallus*. I. 9.
II. 9.

H. L. LANGEVOORT

10. *Special sense-organs (nasal organ, eye and ear).*

- D. Biochemical studies of the eye pigments in *Drosophila melanogaster*. CI. W. CLANCY

- V. Biochemical Embryology: Serological investigations about development of organ-specific substances (lens of the eye). *Rana* and *chicken*. G. ten CATE

11. *Embryonic temporary endo-skeleton, skeleton, skull and joints.*

- V. Researches on the time of appearing of lipoids in the embryonic cartilages.

L. BEREK, I. NAGY and Gy. SAVAY

- V. The mechanism of deposition of phosphorus and other mineral components of bones and teeth, as revealed with the help of radio-isotopic tracers and the "coated autograph" technique. *White Rat*, the *Golden Hamster* (*Cricetus aureus*), the *Frog* tadpole. Small reptiles of the order *Squamata* are also to be used shortly.

L. F. BELANGER

- L. Influence of vitamin D. on the calcification of developing bone-tissue in explants. *Gallus domesticus*.

C. H. HOGEWONING

- L. Influence of estrogens on the development and calcification of embryonic endosteal tissue in vitro. *Gallus domesticus*.
C. H. HOGEWONING

12. Muscular system.

- V. Development of myosin and actin. *Vertebrates*.
M. CIGADA IIIa. 12.
- L. The chemistry of muscle differentiation. Fractionation of proteins, determination of nucleic acids in mitochondria, nuclei and cytoplasm of muscle tissue in differentiated state at various stages of differentiation of fibrils and cross-striation during development of isolated somites and undifferentiated mesoderm. *Chick*.
S. COHEN and H. HERRMANN
- M. The development of actomyosin in developing rat muscle. *Mus norvegicus*.
J. S. NICHOLAS
- M. Studies of various protein fractions in developing muscle in relation to changes in physical properties and the development of contractility. *Mus norvegicus albinus*.
(under direction of E. J. BOELL)
G. de VILLAFRANCA

13. Alimentary tract.

General subjects.

- M. Capacity of the fetus to digest food experimentally introduced into the fetal stomach. *Mus (Rattus norvegicus albinus)*.
L. J. WELLS and J. F. HARTMANN

Liver.

- I. Function in the developing liver. *Ameiurus nebulosus*.
P. B. ARMSTRONG
- J. Function in the developing liver. *Amblystoma punctatum*.
P. B. ARMSTRONG
- L. Protein turnover of different cell fractions of chicken liver studied by injection of N-labelled amino acids. The liver is afterwards homogenized and fractionated by centrifugation.
J. M. T. HULTIN
- M. The metabolic maturation of human liver. The capacity to synthesize creatine from glycoamine and methyl donors is tested with livers of human feti of different inuterine age. S. COHEN and H. HERRMANN
- M. Correlation of morphological, physiological and biochemical differentiation in fetal liver. *Guinea pig*.
L. B. FLEXNER IIIa. 13.
- M. (Physiology of the fetus) Study of changes in pulmonary blood volume and changes in the liver at birth and in the early postnatal period in guinea pigs.
T. P. SINHA

14. *Respiratory-organs (including swim-bladder).*

- M. (Physiology of the fetus) Study of changes in pulmonary blood volume and changes in the liver at birth and in the early postnatal period in *guinea pigs*. T. P. SINHA
- M. Changes in pulmonary blood volume at birth and in early postnatal life. *Guinea pig*. W. F. WINDLE

15. *Heart, vascular system and blood.***Heart.**

- I. Heart rate and temperature. *Salmo*. Z. GRODZIŃSKI
- J. Morphological, physiological and biochemical differentiation of the amphibian heart. *Amblystoma punctatum* and *Rana pipiens*. T. SIPPEL
(under direction of E. J. BOELL) IIIa. 15.
- L. Electrophysiology of embryonic heart tissue. *Gallus gallus*. O. M. OLIVO
- M. (Physiology of the fetus). Sex difference in human coronary arteries. R. G. SIEKERT
- Vascular system.**
- M. Fetal vascular physiology. *Homo*, *Lepus* and *Ovis*. S. R. M. REYNOLDS II. 15.
IIIa. 15.

Blood.

- L. Development of blood cells of the *chick* embryo. O. A. SCHJEIDE IIIa. 15.
- L. Serology of embryo. *Birds*. P. TROMBETTA

16. *Coelomic cavity, endothelia, lymphatic system and connective tissue.*

- M. Biology of the reticulo-endothelial system. I. TÖRÖ IIIa. 16.

17. *Urogenital system (development and structure), sex determination.***Urinary system.**

- J. Developmental physiology of the pronephros in *Amphibians*. M. WSZELACZYŃSKA
- J. Developmental physiology of the pronephros in *Amphibians*. S. HILLER
- J. Experiments concerning the factors which determine the normal course of the outgrowing pronephric duct in *Amphibia*. *Amblystoma mex.*, *Triton taen.* and *Xenopus laev.* J. H. BIJTEL

Germ cells.

- V. Histochemical studies of germ cells in relation to physiological alterations in the life cycle of the organism. P. L. RISLEY and A. L. SODERWALL I. 17.
II. 17.
IIIa. 17. c.
- Gonads.**
- D. Development of the gonads in *Diptera*. *Psychoda*. I. 17.
M. SARA' IIIa. 17.

- D. Influence of radiation and chemicals on *Drosophila* ovaries. *Drosophila melanogaster* (*Insecta*).
N. BUCHER
IIIa. 17c.
IIIc. 2.
- V. Embryogenesis and differentiation of the gonads in Vertebrates. *Amphibia* and *Amniota*. E. VANNINI
II. 17.
IIIa. 17.
- L. Investigations to the function of the gonad in the chick-embryo by implantation and castration experiments.
Miss M. M. HUIJBERS
IIIa. 17.
- L. Effet de faibles doses d'hormones femelles sur le développement du testicule de *Poulet*. Différence entre la 1ère et la 2ème poussée de cordons sexuels.
A. A. HAMPÉ
IIIa. 17. f.
- Genital system.**
- J. Étude de l'action des hormones sexuelles dans l'embryogénèse sexuelle des Amphibiens. *Discoglossus pictus* and *Pleurodeles Waltlii*.
L. GALLIEN
IIIa. 17. f.
- M. In vitro studies on mammalian fetal sexual structures.
Madame Yv. BERGERARD
- M. Rôle de la vitamine E dans la reproduction. *Rat* et *souris*.
J. FRAPPIER
IIIa. 17. f.
IIId. 2.
- M. Recherches expérimentales sur les facteurs du développement des différentes parties de l'appareil génital des embryons de *Souris*: Étude des capacités de développement des différentes parties de l'appareil génital des embryons, après destruction des ébauches de l'hypophyse et des glandes génitales.
M. FRILLEY et A. RAYNAUD
IIIa. 17. f.
- M. Action des hormones sexuelles dans l'embryogénèse du tractus génital et des gonades chez les Insectivores. *Talpa europaea*.
R. GODET.
- M. Developmental physiology of the mammalian fetus. Foetal endocrinology and morphogenesis. *Rabbit*, *rat* and *hamster*.
A. D. JOST
- M. Influence of gonadal hormones on the development of the female genital system in the *rat*.
Miss A. M. KERKHOF
- M. Recherches expérimentales sur les facteurs du développement des différentes parties de l'appareil génital des embryons de *Souris*: Étude de l'action des hormones sexuelles sur le développement de l'appareil génital des embryons.
A. RAYNAUD
- M. Recherches sur le développement embryonnaire des glandes prostatiques des Mulots (*Apodemus sylvaticus*) de sex femelle.
A. RAYNAUD
I. 17.
IIIa. 17.
- M. Artificial deciduomes in *rats*. J. W. BARENTS
I. 17.
- M. Uterine contraction patterns in *women*.
S. R. M. REYNOLDS

Sex determination.

- J. Experimental sex reversal of larval *Amphibians*.
E. PADOA

- J. Sex determination in amphibians by steroid hormones. *Anurans*. C. Y. CHANG
- J. Experimental sex determination by steroid hormones, and by overripeness of the egg. *Anurans*. E. WITSCHI
- HV. Determination of sex in birds and mammals. *Gallus domesticus* and *Cavia cobaya*. J. H. M. G. van DETH
- L. Recherches sur les hormones sexuelles embryonnaires. *Oiseaux*. Miss D. PFLEGER IIIa. 18.
- L. Rôle des hormones dans la différenciation du sexe par les méthodes d'injections d'hormones, des greffes coelomiques, des castrations embryonnaires, des explantations. *Poulet*. Mlle Y. OSTERTAG, G. STRÜDEL, Madame Em. WOLFF et Et. WOLFF IIIa. 17.

18. Endocrine glands (development, structure and functioning).

General subjects.

- V. Transplantation of cultivated endocrine organs. Differences caused by autologous, heterologous and homologous media. *Vertebrates*. J. LANGMAN IIIa. 18.
- M. Endocrine studies and development. *Mammals*. *Mus musculus*. R. C. BLOUNT IIIa. 18.
- Special glands.**
- J. Relations of the hypophysis to development. *Amblystoma*. R. F. BLOUNT IIIa. 18.
- L. Primary genesis of thyroid follicles in explants and factors governing colloid formation. *Gallus domesticus*. P. J. GAILLARD IIIa. 18.
- M. Functioning of the glands of internal secretion in the fetus (hypophysis, gonads, adrenals, thyroid). *Mus (Rattus norvegicus albinus)*. L. J. WELLS

19. Growth and differentiation (including mitosis).

General subjects.

- D. Plasmatische Verhältnisse — Ectosomenphänomen. *Cyclops (Entomostraka)*. H. STICH
- G. Investigations if there occur any changes in the nucleus in course of differentiation. *Sea urchin egg*. S. HÖRSTADIUS

Mitosis.

- EV. Quantitative investigations of the rate of cell division in marine eggs, in relation to cellular metabolism, and ionic environment. *Arbacia punctulata*, *Asterias forbesii*, *Chaetopterus pergamentaceus*. H. SHAPIRO
- C. Chemische Beeinflussung der *Tubifex*-Mitose durch Chinone. G. ANDRES
- G.+J. Study with Cartesian divers of mitotic rhythm in metabolism during cleavage period. *Echinoderms* and *Amphibians*. E. ZEUTHEN IIIb.5.

Growth.

- L. The influence of different hormone-concentrations on the growth of tissue-cultures of embryonic origin. We search for the optimal concentration of several hormones (growth-promoting hormone, oestrone, a.o.) for different sorts of tissues. *Gallus domesticus*.

J. G. CODDENS

Differentiation.

- J. Einfluss weiblicher Sexualhormone auf die Histogenese von *Triton alpestris*.

R. SCHENK

- J. Investigation of the relation of external media and physical surfaces on the migration and differentiation of Amphibian tissues in vitro. Species of *Amblystoma* and *Triturus*.

H. E. LEHMAN

- L. Nuclear differentiation and development. *Chicken*.

C. P. DAGG and A. M. SCHECHTMAN

- M. The behavior of tissues from the early *mouse* embryo in tissue culture and in the anterior chamber of the eye.

C. GROBSTEIN

IIIa. 19.

IIIc. Experimental embryology

Development and genetics.

1a. Theoretical problems.

1b. General questions.

- The rôle of the macronuclei. *Ciliata*. P. B. WEISZ
- C. Phänotypische Geschlechtsbestimmung. *Planaria* (*Turbell.*). I. 17.
H. NÜESCH II. 17.
- D. Influence of maternal environment and cytoplasm of female-sterile mutants on egg development. Mode of action of the "fused" factor on development. *Drosophila melanogaster*. IIIb. 2a.
R. A. BEATTY
- D. Development of imaginal discs, for the study of the cell size in different developmental conditions. *Drosophila* (Insects). IIIa. 1c.
M. C. CASTIGLIONI
- E. Phänotypische Geschlechtsbestimmung. *Limnaea* I. 17.
(*Gastr.*). H. NÜESCH II. 17.
- E. Nähreidetermination bei stenoglossen *Prosobranchier*-Arten. IIIb. 1c.
H. STOIGER
- M. Study of intra-uterine influences upon embryonic growth, differentiation, and organogenesis by means of ova and ovary transplants between races known to differ genetically in adult body size as determined by the general size factors and also by genetic factors affecting specific regions of the axial skeleton. *Oryctolagus cuniculus*. IIIa. 19.
F. AVIS, D. DIETZ and P. B. SAWIN

2. General genetical studies (*heteroploidy, hybridization, chimaeras, etc.*).

- General subjects.
- D. Influence of maternal environment and cytoplasm on development of *Drosophila*; repeated transplantation of embryonic gonads between species. *Drosophila buzzati* and *D. arizonensis* (Insecta). IIIb. 17.
M. FISCHBERG
- D. Developmental study of lines selected for large and small body size in *Drosophila melanogaster* (Insecta).
E. C. R. REEVE and F. W. ROBERTSON
- E. Morphological and experimental investigation of coiling in *Limnaea peregra*. IIIa. 1c.
F. M. HISLOP
- E. Cytologie und Cytogenetik der *Prosobranchier*. I. 2a.
H. STOIGER
- H. The development of *Ascidian* hybrids. A. MINGANTI
- L. The development and inheritance of abnormalities of the aortic arches of the chick and their relation to hatching. *Gallus domesticus*. IIId. 4.
M. D. FROUD

- L. Hypoglycemia following injection of insulin into chick embryos of 30 hours of incubation; relation to rumpleness. *Gallus domesticus*. E. ZWILLING
- L. Sulfanilamide and its micromelia-inducing effects in chick embryos; enhancement of the effects by paraaminobenzoic acid and antagonism of nicotinamide. *Gallus domesticus*. E. ZWILLING
- M. Experimental production of genetic and developmental variations in genetically stable material by treatment of gonads, germ cells and embryos. *Mus musculus*. M. N. RUNNER IIIa. 2a.
IIIb. 2a.
- M. Developmental genetics of the mouse skeleton (mutants genes and natural polymorphism of wild populations). *Mus musculus*. H. GRÜNEBERG III d. 3.
- M. Development and morphology of hair and skin mutants, particularly the mimic hair-waving genes. *Mus musculus*. I. 8.
D. S. FALCONER and A. S. FRASER
- M. Development of tail structure in normal, Brachyury Kinky and fused mice. *Mus musculus*. E. CASPARI IIIa. 2b.
Heteroploidy.
- J. Research in the general field of heteroploidy. This includes surveys of frequency of polyploidy and haploidy in natural populations of salamander larvae; induction of heteroploidy by cold and heat; effects of chemicals, etc., in production of abnormalities of mitosis as the basis for induction of heteroploidy. Effect of phenylthiourea on mitosis. *Amblystoma punctatum*. IIIb. 4.
D. P. COSTELLO and Miss C. HENLEY
- J. Study of effects of triploidy on development of gonads. *Triturus viridescens*. G. FANKHAUSER IIIa. 17.
IIIb. 17.
- J. Study of progeny of triploid, tetraploid and other heteroploid individuals among axolotls, *Amblystoma mexicanum*. G. FANKHAUSER and R. R. HUMPHREY IIIb. 4.
- J. Cytological study of polyploidizing effect of heat and cold on fertilized eggs, and of parthenogenetic cleavage induced by heat and cold treatment of unfertilized eggs. *Triturus viridescens*. G. FANKHAUSER IIIb. 2a. d.
- J. Experimental heteroploidy and parthenogenesis in newts. Heteroploid newt hybrids — developmental potentialities and expression of species characters, sex determination. *Triton alpestris* and *T. palmatus*. IIIa. 4.
IIIb. 4.
III d. 2.
M. FISCHBERG
- J. Chromosomal mosaicism and abnormalities of mitosis produced by experimental temperature shock on the developing embryos of the California salamander, *Triturus torosus*. C. HENLEY
- J. The offspring of polyploids; their chromosome number, mortality, pathology, etc. *Amblystoma (Siredon) mexicanum*. R. R. HUMPHREY III d. 2.
- J. Studies on spontaneous haploidy and polyploidy. *Amblystoma (Siredon) mexicanum*. R. R. HUMPHREY III d. 2.

- M. Heteroploidy in mammals. Spontaneous heteroploidy — analysis of factors involved. Induced heteroploidy — methods of production. Viability of polyploid embryos. Physiological embryology of polyploid embryos. *Mus musculus*. R. A. BEATTY and M. FISCHBERG
Hybridization.
- J. Hybridization in *Triturus alpestris* and *taeniatus*. J. MOLL
- J. Parabiosis between pure breed and hybrids Urodela. *Triturus* spp. A. PISANO' IIIa. 1b.
- L. Intergeneric crosses in birds by means of artificial insemination. *Gennaeus nyctemerus* and *Gallus domesticus*. J. H. MARCHLEWSKI
- J. Merogony-experiments. *Triton* sp. E. HADORN
3. Analysis of influence of special genes and mutants in development (incl. lethal factors).
- D. Developmental efforts of some genes in *Drosophila melanogaster* (Insecta). C. H. WADDINGTON
- D. Developmental physiology and genetics of the lozenge alleles in *Drosophila melanogaster*. G. ANDERS
- D. Development of eye pigmentation in wild type, aa and wa wa *Ephestia kuhniella* (Lepidoptera). IIIa. 10.
E. CASPARI
- D. Relations of genes in the development of eye colour in *Drosophila melanogaster*. Cl. W. CLANCY IIIa. 10.
- D. Development of a new peiotropic mutant "bordo-sterile" in *Drosophila melanogaster* and the comparative embryology of normal and "bordo-sterile" eggs. G. FABIAN
- D. Development of semilethals in *Drosophila melanogaster*. Fr. M. VOGT
- D. Developmental physiology and genetics of a lethal mutant character in *Drosophila melanogaster* (lethal-translucida). F. H. SOBELS IIIb. 2a.
- D. Developmental analysis of lethal factors *Drosophila* sp. III d. 2.
E. HADORN
- D. Development of a lethal character in *Drosophila melanogaster* (Insecta). H. GLOOR
- D. Entwicklung der Schuppen von *Lepidopteren* bei verschiedenen Mutanten und unter experimentellen Bedingungen. *Ephestia* (Ptychopoda). A. KÜHN.
- E. Recherches génétiques des races euphalliques et aphaalliques chez *Bulinus truncatus* (contortus) (*Gastropodes Pulmonés*). M. de LARAMBERGUE
- J. Gene action controlling development of pigmentation in white and dark strains of Mexican axolotl. *Siredon mexicanum*. H. C. DALTON

- L. Developmental studies on various mutants of fowl, such as "duplicate", "creeper chondrodystrophy", etc. *Gallus domesticus*. W. LANDAUER IIIb. 2a.
III d. 3.
- L. The rôle of epithelial components in the developmental origin of the "wingless" syndrome of chick embryos. *Gallus domesticus*. E. ZWILLING
- M. Study of anophthalmia and microphthalmia. *Mus musculus*. H. B. CHASE I. 10.
IIIa. 10.
- M. Investigations on the development of several asymmetrical mutations involving the tail and the eye in *Peromyscus*, the deer mouse. R. R. HUESTIS
- M. The developmental effect of the "pallid" gene on the inner ear of mice. *Mus musculus*. M. F. LYON I.
- M. Developmental study of a new tibial hemimelia mutant in mice. *Mus musculus*. T. C. CARTER I. 11.
- M. Study of two unrelated genetic types of achondroplasia in the rabbit, (1) the type originating at the Rockefeller Institute and (2) a new type discovered in California. *Oryctolagus cuniculus*. P. B. SAWIN II. 11.
IIIa. 11.
- M. Developmental study of a new fifth-toe polydactyly character in mice. *Mus musculus*. R. J. S. PHILLIPS I. 2b.
- M. Study of skin and its derivatives with emphasis on hair development and pigment distribution. *Mus musculus*. H. B. CHASE IV. 4.
- M. Development and morphology of a new mutant (crinkled) that affects hair and skin. *Mus musculus*. D. S. FALCONER and A. S. FRASER I. 8.
- M. Description of gonad and especially germ-cell differentiation in normal and abnormal embryos. Embryos which carry WW, WW, and W^vW^v genes have abnormal gonads. *Mus musculus*. E. S. RUSSEL I. 17.
IIIa. 17.
III d. 3.
- M. Erythrocyte count of normal and abnormal embryos from 12—18 days. Abnormal embryos carry dominant genes WW, WW^v, W^vW. *Mus musculus*. E. S. RUSSEL I. 15.
III. 15.
III d. 3.
- M. Comparison of blood formation in yolksac, transfer to liver, formation in liver, and transfer to bone-marrow in normal embryos and those with severe macrocytic anemia due to W, W^v genes. *Mus musculus*. E. S. RUSSEL I. 15.
IIIa. 15.
III d. 3.

III d. Experimental embryology

Development and pathology.

1. Theoretical problems and general questions.

2. General investigations on pathological development.

General subjects.

- J. Neoplastic development of overripe frog eggs.
E. WITSCHI
- V. Factors affecting mitosis. *Amphibians* and *Birds*. IIIa. 19.
R. J. O'CONNOR IIIb. 19.
- L. Incubation of chick eggs under modified atmospheric IIIa. 2a. d.
conditions. *Gallus*. J. GALLERA
- M. Splenectomy and the embryonic life. *Albino rats*. IIIa. 16.
I. TÖRÖ IIIb. 16.
- M. Some anomalies found in a series of 180 fetal *dogs*.
H. B. LATIMER
- M. Systematic investigation of current cases of prenatal
disease and malformation in autopsy material. (Part of
"Brooklyn Survey of Neonatal Pathology"). *Homo*.
P. GRUENWALD
- Relations between host and graft.
- V. Studies on antagonism between host and transplanted IIIa. 17.
tissues. Survival of transplanted ovaries in rats (auto-
genous, sibling, intrastrain, homogenous and hetero-
genous). *Rattus norvegicus* (*Mammalia*) and *Hyla*
regilla (*Amphibia*). R. M. EAKIN and M. HARRIS
- J. Studies on antagonism between host and transplanted IIIa. 18.
tissues. Survival of transplanted pituitaries in amphibia
(homoplastic and xenoplastic). *Hyla regilla*.
R. M. EAKIN and M. HARRIS
- M. Studies on the form and function of ovaries which have IIIa. 17.
been grafted into spleens of castrates and subsequently IIIb. 17.
retransplanted into normal position within the ovarian IIIc. 2.
capsule of a normal mouse. Offspring of these ovaries
are examined for abnormalities which may be correlated
with the time the graft remained in the spleen. *Mus*
musculus. Miss K. P. HUMMEL and C. C. LITTLE
- Pathological influences of chemicals.
- J. Effects of carcinogens on successive developmental IIIa. 2a. e.
stages of *amphibian* embryos. J. K. F. HOLTFRETER
- L. Embryonic development of selenium-induced malfor- IIIa. 2a. e.
mations. *Chick*. P. GRUENWALD
- M. The production of hemopoietic and other anomalies in IIIb. 2a. e.
rat embryos by nitrogen mustards. *Mus norvegicus*.
G. G. ROBERTSON
- M. The production of hemopoietic and other anomalies in IIIb. 2a. e.
rat embryos by nitrogen mustards. *Mus norvegicus*.
R. A. HETTIG
- M. Effects of sulfa drugs on mammalian embryo. *Mus IIIc. 2.
musculus*. C. L. YNTEMA

- M. Effects of sulfa drugs on mammalian embryo. *Mus musculus*. W. S. HAMMOND
Teratology.
- J. Erzeugung von Teratomen bei *Xenopus*. G. ANDRES
- J. Tératologie. *Rana fusca*. R. STOLL IIIa. 2a.
- L. Tératologie. *Poulet*. R. STOLL IIIa. 2a.
- L. A causal analysis of teratogenic action of insulin on developing chicken embryos. *Gallus domesticus*. IIIb. 2a. f.
W. LANDAUER
- L. Production de malformations tératologiques sur l'embryon de *poulet*, par l'action de l'adrenaline et de la pilocarpine. V. PREDA
- L. Production de malformations tératologiques sur l'embryon de *poulet*, par l'action de l'extrait gastrulaire de *Rana*. V. PREDA
- M. Embryological study of pregnancies terminated because of genetic or maternal factors threatening the fetus, e.g. rubella, mongolism. *Homo sapiens*. I. 2a.
G. W. CORNER
- M. Influence avitaminose maternelle chez la *rate*; avitaminose B2, biotine, pantothénique, folique. IIIa. 2a. f.
Jeanne BOISSELOT et A. GIROUD IIIb. 2a. f.
- M. Postnatal histogenesis of the lymphatic system under normal conditions and under the influence of experimental infections. *Guinea pig*. L. J. W. GYLLENSTEN IIIa. 16.
- M. Influence tératogène des intoxications maternelles. *Femme et Rat*.
P. DESCLAUX, A. GIROUD et C. MORLON
- M. Recherches sur l'influence tératogène des infections. *Rat*. A. GIROUD, P. GIROUD et M. MARTINET
- M. Étude des cas tératologiques individuels y compris les tératomes (cyclopie). *Homme*.
H. CHATTERJEE, A. LELIÈVRE et A. GIROUD
- M. Segmental pattern and innervation of dermatomes. *Homo*. I. 8.
F. D. GARRETT

3. Development of special malformations.

- M. Systematische Untersuchungen typischer *menschlicher* Missbildungen unter Bezugnahme auf die Ergebnisse entwicklungsphysiologischer Forschung. Gegenwärtig werden Kopfmissbildungen und sireniforme Missbildungen analysiert. G. TÖNDURY IIIa. 1c.
III d. 4.
- M. Untersuchungen über die Entwicklung des *menschlichen* Gesichts und ihre Beziehungen zur Entstehung der Hasenscharte und anderer Spaltbildungen. I. 2b.
IIIa. 2b.
G. TÖNDURY
- M. Development of postotic axial anomalies. *Homo sapiens*. E. C. SENSENIG
- M. Studies on the prenatal influences which produce congenital abnormalities in inbred mice. *Mus musculus*. IIIa. 2a.
IIIb. 2a.
M. N. RUNNER IIIc. 2.

4. *Pathological development of special organs.*

- J. Ueber die Entwicklung von Missbildungen der Wirbelsäule. *Triton*. K. THEILER
- L. Les anomalies du système vasculaire. (coeur et système vasculaire embryonnaire et extra-embryonnaire). *Gallus domesticus*. F. STEPHAN
- M. Anatomical findings in congenital anomaly of the heart and great vessels together with discussion of the more interesting features involved. *Homo*. C. A. NEWHALL I. 15.
- M. Investigations on congenital heart-malformations. *Homo*. J. DANKMEYER, H. A. SNELLEN and H. W. v. d. WEL IIIa. 15.
- M. A study of abnormal hearts in *pig* embryos corresponding to the third month of human development. R. F. SHANER IIIa. 15.
- M. Modifications du développement de l'encéphale sous l'action des antithyroïdiens. *Rat*. Mlle J. TEYSSEYRE IIIa. 9. f.
- M. Ueber die Entwicklung von Missbildungen der Wirbelsäule. *Mensch*. K. THEILER
- M. Ueber die Entstehung von Blockwirbeln beim *Menschen*. K. THEILER
- M. Respiratory malformations (Anomalies): Causes, clinical and pathological significance. *Homo sapiens*. H. JORDAN IIIa. 14. IIIb. 14.
- M. An embryological study of tracheo-oesophageal fistula. *Homo*. F. Th. LEWIS I. 13. I. 14.
- M. Study of the human inguinal canal, with special reference to its developmental anomalies. *Homo*. S. B. CHANDLER I. 16. I. 17.

5. *Tumours.*

- C. Geschwulstproblem bei *Oligochaeten*. *Lumbricus (Clitellata)*. A. PENNERS IV. 1.
- C. Geschwulstproblem, bearbeitet durch Regeneration und Transplantation an *Lumbricus (Annelida)*. H. HUBL IV. 2.
- J. Effects of egg extracts on tumours induced by 1,2 benzopyrene in *Anura*. Miss Gabriella ALOISI
- J. Resemblances between atypical regenerative and embryonic growth and malignant tumours. *Amphibians*. C. B. GOODHART IV. 2.
- M. Development of tumours in *rats*. C. BARIGOZZI
- M. Biochemical and cytochemical properties of rapidly growing tissue — normal (i.e., controlled) and autonomous growth (tumours). *Rat*. A. B. NOVIKOFF IIIb. 19.
- M. Experimental studies of carcinogenic agents passing the placenta in *mice*. Preliminary paper published. Morphological effects both immediate and remote. Metabolism of the compounds to determine the mechanisms. J. G. SINCLAIR IIIb. 3.

IV. Regeneration.

1. Theoretical problems and general questions.

EV. + V. Regeneration problems. *Invertebrates* and *Vertebrates*. R. W. REYER

B. Experiments on the gradient-concept. *Hydroidea*. H. A. L. TRAMPUSCH

2. General investigations on regeneration (including total regeneration, IV. 3).

EV. Regeneration. *Invertebrates*. C. OVERGAARD
Differentiation of cilia in *Ciliata* (Protozoa). Regeneration. P. B. WEISZ

B. Compensatory regulation in the *Serpulid Hydroïdes*. M. ABELOOS

B. An investigation of the organising action of the oral cone in the regeneration of the *hydroid Cordylophora lacustris*. J. SINGER

C. Regeneration in marine *Planarians*. M. ABELOOS

C. Regeneration. *Triclad*s (?). H. V. BRØNDSTED

C. Migration des cellules de régénération chez les Planaires dulcicoles. *Euplanaria lugubris* (*Plathelminthes*).

Mlle. F. DUBOIS

C. Regeneration in marine *Annelids*. M. ABELOOS

C. Regeneration in *Polychaeta*. E. VANNINI

C. Regenerationsversuche an verschieden alten *Tubifex rivulorum* (*Annelida*). H. SCHMIRLER

C. Regeneration auf verschiedenen Altersstadien von *Tubifex rivulorum* (*Clitellata*). A. PENNERS

D. Regeneration in *Sphaeroma* (*Crustacea*). M. ABELOOS

D. Wundheilung und Regeneration bei *Ephestia* (*Ptychopoda*), (*Lepidoptera*). A. KÜHN

J. Origine des cellules de régénération chez les *Batraciens*. Potentialités de ces cellules. *Triton*. Mlle M. SCHUÉ

J. A study of the mechanics of the formation of the regeneration blastema. The influence of nerves on blastema formation. Regression in nerveless non-regenerating limbs. *Amblystoma punctatum* and *Ambl. opacum*. IV. 4.

E. G. BUTLER

J. Étude des potentialités des territoires de régénération par la déviation des nerfs et par les transplantations; mécanisme de la duplication. *Triton cristatus*. IIIa. 2b.

E. GUYÉNOT

J. Biochemistry of regeneration in Urodeles with special consideration of the activity of some enzymes during the determination of the blastema. *Triturus cristatus*.

F. S. GHIRETTI

J. Regeneration in *Amphibians*. The influence of inanition on that phenomenon.

S. HILLER, T. KROTKIEWICZ
and E. H. WISKONT

J. Effect of certain carcinogens on regeneration. *Amphibians*.
M. W. JOHNSON

4. *Partial regeneration (of special parts of the organism) (tail, limbs, skin, etc.).*

Tail-regeneration.

J. Experimental studies on the regeneration of the tail of the tadpole of *Rana clamitans*. D. J. McCALLION
(work completed, May '47 and published in Can. Jour. Research, vol. 26, pp. 62—65; 82—92, 1948)

J. Schwanzregeneration von *Xenopus*, normal und chemisch beeinflusst.

F. E. LEHMANN und diverse Mitarbeiter

K. Régénération de la queue des *Reptiles*.

G. M. BRUNETTI

Limb-regeneration.

J. Regeneration der Extremität. *Triton*. E. ROTMANN

J. Blastema formation and regeneration in urodele limbs in which proximo-distal polarity has been reversed. *Amblystoma punctatum* and *Ambl. opacum*.

E. G. BUTLER

J. Influence of nerves on regeneration of urodele limb. *Triturus viridescens*. M. SINGER

J. Histology of limb and nerve regeneration in urodele. *Triturus viridescens*. M. SINGER

IV. 5.

J. Regeneration of aneural limbs. *Amblystoma punctatum*. C. L. YNTEMA

IIIa. 2b.

J. Effect of ultrasonic vibrations on molting response in the newt, on regeneration of the limbs of the newt, and on gonads. *Triturus viridescens*. H. CLARK

IIIb. 17. d.

J. L'effet de l'action de certains minéraux (uraninite, tourmaline, galène, blende, chalcopryrite) sur la régénération des membres du *Triton vulgaire*. V. PREDA

J. Action du cholestérol (sous forme de solution 4% en acides biliaires et sous la forme de solution huileuse 4% de palmitate de cholestérol) sur la régénération des membres du *Triton vulgaire*. V. PREDA

J. Action de la greffe de cancer sur la régénération des membres du *Triton vulgaire*. V. PREDA

5. *Regeneration of special organs (lens, etc.).*

Regeneration of nervous system.

V. Regeneration and development of the central nervous system. *Vertebrates*. J. BOEKE

I. 9.

IIIa. 9.

- V. Regenerations of nervous tissue. *Reptiles and Amphibians*. A. STEFANELLI II. 9.
- L. Regeneration of the central nervous system in the chick embryo. E. van CAMPENHOUT IIIa. 9.
- M. Studies of regeneration and degeneration of brain material after extirpation of parts of the forebrain (in particular of diencephalon) in early development (14—21 days of pregnancy) of rat fetus. *Mus norvegicus albus (Rodentia)*. J. AUER IIIa. 9.
- M. Regeneration in mammalian central nervous system. (Recovery of neurons following trauma, alteration in their internal environment). *Cat and dog*. J. C. LIU, W. F. WINDLE and several coworkers
- M. Regenerative capacity of the central nervous system. Replacement of central pathways by degenerated peripheral nerves. *Albino rat*. J. SZENTAGOTHAI
- V. Regeneration of peripheral nerves and of the spinal cord in *Fishes* and other *Vertebrates*. S. LEGHISSA
- K. Regeneration of spinal medulla. *Reptilia*. G. BAFFONI
- K. Regenerative processes of the spinal medulla. *Reptiles*. G. THERMES
- M. Studies on regeneration of *mammalian* spinal cord. IIIa. 9.
- W. W. CHAMBERS
- Nerve-regeneration.**
- V. Study of the influence of peripheral "load" on the diameter of nerve fibers. *Vertebrates*. M. V. EDDS Jr
- V. Study of factors influencing the spreading of intact axons in partially denervated muscles. *Vertebrates*. M. V. EDDS Jr
- J. Effects of anti-mitotics on the regeneration of peripheral nerves. *Amphibians*. S. LEGHISSA and P. PASQUINI
- M. Reinnervation of peripheral nerve stumps after direct implantation into the central nervous system. *Albino rat*. IIIa. 9.
- C. RAJKOVITS
- M. Regenerative capacity of peripheral ganglion grafts. Reinnervation of degenerated motor end-plates by processes of grafted peripheral ganglion cells. *Albino rat*. J. SZENTAGOTHAI
- M.(?) Développement des synapses dans les centres nerveux. Leur dégénérescence et leur régénération. *Mammalia(?)* IIIa. 9.
- A. WEBER
- Regeneration of optic nerve and eye.**
- C. Régénération des yeux chez *Planaires*. Th. LENDER IIIa. 10.
- J. Complete analysis of the ocular mechanisms in *Amblystoma* studying the regeneration of the lens and regulation of the nervous mechanisms after ocular transposition. L. S. STONE
- M. Regenerative capacity of the optic nerve. *Albino rat*. A. GÖMÖRY

Lens-regeneration.

- J. The rôle of the autonomous nervous system in the regeneration of the lens. *Triton*. Z. POSALAKY
- J. The rôle of the autonomous nervous system in the regeneration of the lens. *Triton*. T. BARKA
- HV. Lensregeneration. *Birds* and *Mammals*. M. W. WOERDEMAN

Bone-regeneration.

- J. Bone-regeneration. B. SCHREIBER IIIa. 11.
- M. Experimental and clinical new-formation of articulations. Embryology, regeneration, new-formation. Causal and functional analysis; biological synthesis gained by the effect of directed regenerative potency. *Man, dog* and *rabbit*. S. KROMPECHER IIIa. 11.

Muscle-regeneration.

- J. Regeneration of skeletal muscle in tadpoles, *Amblystoma*. R. ALTSCHUL
- M. Regeneration of skeletal muscle in *mammals*. R. ALTSCHUL

Liver-regeneration.

- V. A study of mitotic activity and other cytological phenomena in liver regeneration. *Vertebrates*. Miss E. H. LEDUC IIIa. 13.
- V. A study of mitotic activity and othher cytological phenomena in liver regeneration. *Vertebrates*. J. W. WILSON
- M. A study of liver regeneration in tissue culture. *Rattus norvegicus*. M. ABERCROMBIE
- Gonad-regeneration.**
- M. Regeneration of the ovary of mammals. *Mus rattus*, *Lepus cuniculus*, *Erethizon dorsatus* and probably others. H. W. MOSSMAN IIIa. 17.

V. Metamorphosis.

1. Theoretical problems and general questions.

- D. Kernwachstum in verschiedenen Geweben während der Metamorphose bei *Ephestia küniella* (*Ptychopoda seriata*), (*Lepidopteren*). H. RISLER

2. General investigations on metamorphosis.

General subjects.

- D. Metamorphose der *Insekten*. H. PIEPHO

J. Control of metamorphosis. *Amphibians*. E. PADOA

J. Ricerche sulla catalasi durante la metamorfosi. *Anfibi*. IIIb. 2a. c.

Mrs L. URBANI—MISTRUZZI

- J. Effects of antimetotics on metamorphosis of *Amphibians*. S. LEGHISSA

Hormones and metamorphosis.

V. The influence of hormones on metamorphosis. *Vertebrates*. A. BER and A. ORŁOWSKI

V. Analyse der einzelnen unter dem Einfluss des Schilddrüsenhormons erfolgenden Differenzierungs- bzw. Reduktionsvorgänge. *Vertebraten*. H. HARTWIG

J. Thyroid gland in delayed metamorphosis of *Xenopus* larvae. H. SUOMALAINEN and S. TOIVONEN

J. Étude de l'action des antithyroïdiens (thiouracil etc.) au de la vie larvaire et de la métamorphose des *Batrachiens*. *Discoglossus pictus*. M. DELSOL IIIa. 17. f.

3. Investigations of whole process of metamorphosis.

D. Metamorphosis of the Cape Crawfish. *Jasus lalandii* (*Crustacea*). C. von BONDE

D. Metamorphosis of *Tropinota hirta* (*Coleoptera*).

W. KLOFT

D. Métamorphoses. *Insectes aquatiques*. G. MARLIER

4. Metamorphosis of special organs.

D. Metamorphoseveränderungen der Epidermis und inkretorischer Organe bei *Panorpa* (*Insekta*).

I. 8.

I. 18.

Fr. E. SCHWINCK

J. Metamorphosis of the *amphibian* ear. E. WITSCHI

J. Metamorphosis of the jaws and their muscles correlated with the changes in the animals feeding habits. *Bufo regularis*. S. N. SEDRA

I. 11.

I. 12.

J. An X-ray study of bone development in *Rana clamitans* during metamorphosis. Miss I. L. ANDERSON

Short Notes and References to new Technical Methods ¹⁾

Some data concerning the cultivation of young and adult Amphibians.
P. D. Nieuwkoop, Hubrecht Laboratory, Utrecht.

The *Triturus* species *taeniatus*, *crystatus* and *alpestris* are our most suitable amphibians for experimental work. The adult animals are only available during spring-time. We kept them, however, with success during summer-, autumn- and winter-time in rather flat aquaria made of a mixture of cement and gravel, in a layer of water of 10—15 cm. In these closed aquaria an island of stones and tussocks of moss was built. A series of these aquaria formed a current-water system. The current water keeps the temperature at a rather constant level and avoids pollution. The animals can be fed on land or in the water. They become so accustomed to a regular feeding that they will take also dead food like strips of liver and meat, which is a great advantage during winter-time when living food (worms) is scarce.

We already got indications that a rise in light, food and temperature can provoke normal breeding reactions. Probably the light plays the most important role. A complete winter-rest seems not to be necessary for a new breeding period. The breeding season can be anticipated for two or three months when optimal conditions are introduced already in winter-time, which fact enable us to extend considerably the period for experimental work.

We have similar current water systems in use for foreign amphibian species. They are also very practical for subtropical forms as *Xenopus laevis*, which are cultivated in deeper (25—30 cm) wooden aquaria clothed with zinc, at a temperature of $\pm 25^{\circ}$ C. Pollution of these aquaria is strongly reduced by the current water.

Several species, which in captivity, as a rule, only breed after artificial stimulation with hormones, can probably also be stimulated by a temperature shock, but only in case the animals are kept under really good and natural conditions. This holds e.g. for *Pleurodeles* and *Amblystoma*, *Discoglossus* and perhaps also *Xenopus*.

Young amphibian larvae are reared with succes in round glass aquaria filled with a rather thick layer of mud and a thin layer of water, and in which water plants guarantee a good oxygen supply. In such well-balanced aquaria the larvae can get a supplementary feeding with *Tubifex*, *Enchytraeus* and small worms.

One should, in general, pay more attention to the ecological conditions under which foreign and native species are living in their natural habitat in order to get really good results.

General Questions and Announcements ²⁾

CENTRAL EMBRYOLOGICAL LIBRARY.

In the general circular of the Hubrecht Laboratory in 1948, we mentioned

^{1) 2)} We ask every embryologist to send us communications for these chapters. The data mentioned here in this first issue deal casually with the work of the Hubrecht Laboratory only. They only serve as general examples.

the project of a Central Embryological Library, which will be at the disposal of every embryologist over the whole world.

The collection of this central library will consist in the first place of a complete collection of reprints of embryological work, and in the second place of a collection of special handbooks and embryological periodicals ¹⁾.

The significance of such a central library will become clear when we give a short survey of its general modes of use.

- a. Every embryologist can ask for information about literature on special subjects or of certain authors, about newly published literature, etc., etc.
- b. Every embryologist can ask for special papers which are not available in his own country. The Hubrecht Laboratory will lend them — under certain general conditions — to every embryologist.
- c. Every embryologist can personally consult the Library of the Hubrecht Laboratory at all times.
- d. The central library will be at the disposal of every embryologist, who is carrying out scientific work at the Hubrecht Laboratory.

Since a part of this central collection will be regularly lent out, a single collection cannot fulfil all requirements. For providing information about literature and for the scientific work of the staff of the Hubrecht Laboratory and of visiting embryologists we need a collection which is complete and which is at their disposal at all times. We therefore ask every embryologist to send us two copies of his reprints, one under the name of the "Central Embryological Library of the Hubrecht Laboratory" and one under the name of Dr P. D. Nieuwkoop, whose collection will form the special collection for internal use.

As you will understand, however, there is one general condition for the success of our enterprise, viz., the collaboration of every embryologist, a collaboration in the form of a regular sending of all publications dealing with embryology in its widest sense.

First, however, we must supplement our present collection of older literature, as there are several gaps in it. The Hubrecht Laboratory, having been a descriptive embryological institute only up till 1947, possesses a rather complete collection of the older descriptive and comparative literature, but lacks the more recent descriptive and experimental literature for the greater part.

We originally intended to send every embryologist a list of his own publications present in our library in order to facilitate a supply. The extent of the administrative work at the Hubrecht Laboratory does not allow such an enormous work at this moment, nor, probably, in the near future. Moreover, several authors are not yet represented at all in our collection. It seems, therefore, better to ask every embryologist to send us his older publications, and, if possible, also all duplicates of embryological papers which are of little or no use to his own institute. Private collections, which cease to be used, and which may otherwise get lost, can be of a very great value for completion of this Central Library.

¹⁾ These handbooks and periodicals are only intended for providing information about literature (a) and for internal use in the Institute (d.).

A NORMAL TABLE OF XENOPUS LAEVIS.

The anuran species *Xenopus laevis*, which has already been introduced into several Institutes for pregnancy tests, appears to be very suitable for experimental embryological work. At a number of institutes experimental work has already been started, but it has met one great impediment up till now, viz., a general deficiency of our knowledge of normal development. We will, therefore, try to solve this problem by the composition of a Normal Table of this very interesting anuran species. This project was already started at the beginning of 1948.

The elaboration of a complete normal table from the beginning of development up to the end of metamorphosis is, however, an enormous project. We, therefore, asked a number of embryologists already working with this species to cooperate.

As the Hubrecht Laboratory tries to stimulate *international cooperation*, and a project like this one appeared to be very suitable for elaboration by a group of embryologists working at different institutes, we chose the form of *international team-work*. The general interest in our enterprise allowed us to found an international team of more than 20 collaborators, spread over 8 countries on three continents.

At the present moment the material for this extensive project has been collected in South Africa, the native country of *Xenopus laevis*, and will be distributed among the collaborators in the early part of 1950. We hope that the elaboration of this material can be carried out in the course of 1950, so that we can publish the Normal Table in 1951.

Communication of the „Institut International d'Embryologie" (Embryological Section of the I.U.B.S.)

A meeting of the I.I.E. was held in the Zoological Laboratory of the university of Berne, Switzerland on September 10th—11th, 1949. It was preceded by a Symposium on September 6th—9th, organised by Prof. F. E. Lehmann under the auspices of the I.I.E. and with the financial aid of the I.U.B.S. and the Cantonal Direction of Education of Berne.

The theme of the symposium was: *Organised field actions (induction and competence) and cellular genetic factors in embryonic development.*

The program comprised the following papers:

I. The experimental data.

A. Neural induction.

1. A. M. Dalcq, Bruxelles: La g n se du complexe inducteur chez les chord s.
2. P. D. Nieuwkoop, Utrecht: Neural competence and neural fields.
3. S. Toivonen, Helsinki: Stoffliche Induktoren.
4. J. Brachet, Bruxelles: Caract ristiques biochimiques de la comp tence et de l'induction.
5. Tr. Gustafson, Stockholm: Survey of the morphogenetic action of the lithium ion and the chemical basis of its action.

B. *Developmental physiology of regions of different genetic constitution.*

1. F. Baltzer, Bern: Chimären und Merogonen bei Amphibien.
2. E. Hadorn, Zürich: Das Verhalten von transplantierten Drosophilablastemen aus genetisch-lethalen Spendern im normalen Wirt.
3. H. Grüneberg, London: Developmental Genetics in Rodents.

II. Synthesis of results.

- A. F. E. Lehmann, Bern: Das Problem plasmatischer Gestaltungsfaktoren.
- B. C. H. Waddington, Edinburgh: Das Problem chromosomaler Gestaltungsfaktoren.

The introductory papers gave rise to animated discussion. A report of the symposium will be published elsewhere.

In the morning of Saturday, September 10th, 1949, a private meeting of the I.I.E. was held. It was attended by 18 members from 9 countries. A new Executive Committee was elected, consisting of M. W. Woerdenman, president; G. R. de Beer, E. Fauré Frémiet, P. Weiss, vice-presidents; A. Dalcq, F. E. Lehmann; Chr. P. Raven, secretary-treasurer; It was decided that the next meeting will be held in the late summer of 1951 in the Hubrecht Laboratory at Utrecht, Netherlands. It will be preceded by a symposium, the theme of which will be chosen by the Committee. Guests will be admitted to the scientific meetings of the I.I.E.; they may read a paper if invited by the Committee.

In the afternoon of September 10th and the morning of September 11th, scientific meetings were held.

The following papers were delivered:

H. V. Brønsted, København: *The "time-factor" in the activity of the field.*

E. Hadorn, Zürich: *Experimentell bewirkte Blockierung des Dotterabbaues in der Chorda von Triton.*

Wird aus einer embryonalen Chorda im vorderen Rumpfbereich zur Zeit, da sie noch nicht vakuolisiert ist, ein Stück exstirpiert, dann unterbleibt in jenen Regionen, die an die Lücke grenzen, der Dotterabbau und die Vakuolisierung. In der Region des „Dotterblockes“ finden sich nach 2—3 Wochen zahlreiche pyknotische Kerne. Die Längenausdehnung des Dotterblockes ist umso grösser, je grösser die Lücke zwischen den beiden Chorda-Enden ist. Das grosse, caudal der Lücke stehende Chordastück zeigt einen ausgedehnten Dotterblock als das kleinere craniale Chordastück. Zwischen der Zone des Dotterblockes und den normal differenzierten Chordaregionen findet sich eine Zone mit zahlreichen Mitosen.

Wird das exstirpierte Chordastück in den entodermalen Bereich des Kopf- oder Rumpfdarmes transferiert oder als Inhalt eines ektodermalen Sandwich-Explantates aufgezogen, so verschwindet der Dotter in normaler Weise. Es werden dann auch jene Regionen völlig vakuolisiert, die an den Schnittrand grenzen. Es ist anzunehmen, dass die Blockierung

des Dotterabbaues in den „in situ“ stehenden Chordastümpfen durch Faktoren bewirkt wird, die nicht im Chordamaterial selbst liegen. Die Frage steht zur Diskussion, ob hier ein Zusammenhang besteht zwischen der Regenerationsaktivität der Chorda-Teilstücke und der Differenzierungshemmung in den an die Lücke grenzenden Zonen.

A. Dalcq, Bruxelles: *Le développement de l'oeuf du Rat, de l'oocyte jusqu'à la ligne primitive* (avec démonstration).

Exposé et démonstration (20 préparations et nombreux dessins) des résultats obtenus par l'étude de la basophilie cytoplasmique chez le rat et accessoirement quelques autres Mammifères.

Ces données sont publiées dans une note préliminaire (D. et Seaton-Jones, C. R. Cl. des Sc., Ac. Rle Belgique, 5e S, 35, p. 500 à 511).

Le mémoire in extenso (A. Seaton-Jones) paraîtra prochainement dans les Archives de Biologie.

L'auteur annonce en outre que l'examen d'un premier ovaire humain lui a permis d'observer dans quelques oocytes la zone corticale ribonucléique caractéristique.

A. Weber, Genève: *Utilité pour les recherches embryologiques expérimentales d'une technique permettant d'observer la différenciation des neuroblastes, aux stades les plus précoces des larves d'Amphibiens* (avec démonstration).

Notre technique donnant la possibilité d'observer d'une manière constante l'apparition des neurofibrilles dans des neuroblastes encore bourrés de plaquettes vitellines, il est ainsi permis d'aborder le déterminisme de ces différenciations. Elles restent possibles dans des éléments détachés expérimentalement des parois du tube nerveux et flottant à l'intérieur de son canal central; dans ces conditions, la polarité et l'orientation normale de ces neurones primitifs sont conservées, comme s'ils étaient restés à leur place. Leurs fibres étant sollicitées aussi bien par des tropismes que par la pesanteur, il serait possible d'évaluer ces forces, d'après la déviation de ces prolongements à travers le liquide cérébro-spinal. La même technique permet d'aborder la question si controversée de l'action précoce des territoires périphériques sur les régions correspondantes des centres nerveux, ou bien aussi, celle de la nature et de la spécificité des neurotropismes. On sait que les bourgeons des membres constituent un centre attractif particulièrement actif et non spécifique, car dans certains cas ils appellent à eux des nerfs crâniens, comme le vague. Par contre lorsque les tropismes sont faibles, les fibres nerveuses efférentes se dirigent uniquement vers les myoblastes, dont le myotome correspond à leur segment médullaire. Ce fait paraît expliquer pourquoi il n'a jamais été possible de réaliser de véritables synapses dans les cultures combinées de tissus embryonnaires *in vitro*; il faudrait prendre la précaution de placer dans le coagulum, près du fragment de tube nerveux, le myotome que les fibres médullaires efférentes doivent normalement innerver.

S. Toivonen, Helsinki: *Über die Induktion der selbständigen Linsen* (mit Demonstration).

Der Vortrager zeigte mikroskopische Präparate mit in den Triton-Keimen von den heterogenen Induktoren hervorgerufenen selbständigen Linsen. Die Entstehung der übergrossen selbständigen Linsen, die weit von

der eigentlichen Linsenregion induziert worden waren, möchte er nach der Qualitativhypothese so erklären, dass dies eine Leistung von einem besonderen leistungsspezifischen Induktionsstoff wäre, der in einigen abnormen Induktoren reichlicher vorhanden war als in dem normalen Augenbecher. Doch rechnete er auch mit der Möglichkeit, dass eine übergrosse Linse so entstehen könnte, dass der Induktor mit dem Reaktionsmaterial eine grössere Kontaktfläche oder mehrere Kontaktflächen nahe aneinander gehabt hatte. Als ein Beweis dafür hielt er den Umstand, dass in einigen Fällen die übergrossen Linsen mehrere Faserkerne hatten, und in anderen Fällen mehrere, bis vier, selbständige Linsen in demselben Keim induziert worden waren.

S. Ranzi, Milano: *Le rôle des protéines de structure dans le développement de l'embryon*.

Chr. P. Raven, Utrecht: *On maturation in the egg of Limnaea stagnalis* (with demonstration).

A detailed study of the maturation divisions in the eggs of *Limnaea* has shown that the second maturation spindle arises by a direct transformation of the inner central body of the first maturation spindle. The spermaster fuses temporarily with the deep end of the second maturation spindle, forming the inner aster of the maturation amphiaster. The observations have been published in: *Bijdragen tot de Dierkunde* (Leiden), Vol. 28, 1949.

J. Pasteels, Bruxelles: *Mouvements localisés et rythmiques de la membrane de fécondation chez Chetopterus, Mactra et Nereis* (avec démonstration).

Des oeufs fécondés de *Chetopterus* montrent, en relation avec l'expulsion des globules polaires ainsi qu'avec les déformations de l'oeuf qui précèdent et accompagnent le premier clivage des ondulations rythmiques et localisées de la membrane de fécondation.

Des oeufs activés de *Chetopterus* montrent également des ondulations rythmiques et localisées de la membrane vitelline; ils surviennent à la période télophasique de la mitose monastérienne et correspondent à la partie du cortex qui sera ultérieurement déformée par des lobulations.

Des constatations analogues ont pu être faites sur des oeufs fécondés de *Mactra*, qui à la suite du vieillissement, étaient engagés dans une évolution monastérienne; de plus, dans ce cas, les lobulations apparaissaient exclusivement aux pôles animal et végétatif et présentaient, aux différents cycles monastériens, une localisation rappelant le type de clivage normal.

Ces déformations de la membrane sont conservées par la fixation au Bouin, ce qui a permis, dans le cas des oeufs activés du Chétopère d'établir une corrélation entre l'activité de la membrane et la localisation des granules de Lillie.

Il est conclu que cette activité de la membrane ne peut être expliquée que par l'expulsion rythmique et localisée d'une substance à partir du cortex ovulaire; ce qui prouve l'existence de perméabilités locales et rythmiques en rapport avec le cycle mitotique et le devenir morphogénétique de l'oeuf.

A. Giroud, Paris: *Répercussions sur le fœtus des avitaminoses maternelles* (avec démonstration).

Les avitaminoses maternelles entraînent des répercussions diverses suivant leur degré d'intensité. A un degré intense il y a stérilité, à un degré moindre la fécondation est possible, mais l'embryon meurt, enfin à un degré encore moins marqué l'embryon présente des anomalies.

Outre cet intérêt général, cette étude permet de réaliser des expériences de mécanique du développement irréalisables autrement chez les mammifères.

Par exemple: on voit que la chorde induit la morphogénèse du névraxe, que l'ébauche oculaire n'est pas le déterminant des organes paraculaires, que l'ébauche optique induit la formation du cristallin: faits qui prouvent le mécanisme du développement est le même chez les mammifères que chez les vertébrés inférieurs.

Ch. H. Heuser, Baltimore: *Sections and photographs of human embryos of the 2nd and 3rd weeks of development* (with demonstration).

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The secretary, Chr. P. Raven.

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