

Chromosome Numbers in Animals

Sajiro Makino

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An Atlas of the

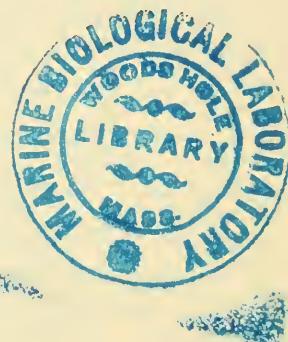
Chromosome Numbers In Animals

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Second Edition
(FIRST American Edition)

Revised and Enlarged from
the original Tokyo edition



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FOREWORD TO FIRST EDITION

During the last 50 years the volume of mounting cytological data has reached truly imposing proportions and particularly is this true of our knowledge of the number of chromosomes and their meiotic behavior in various species of animals and plants. Since such information is constantly being utilized in different biological fields -- especially by cytologists and geneticists -- it was recognized many years ago that some kind of systematic presentation of the accumulated information is urgently necessary. The excellent lists of animal chromosomes published by E. Browne Harvey in 1916 and 1920 were a response to this need and they at once became an accepted tool in the workshop of a great number of biologists.

But though new findings were added rapidly after 1920, no further dependable lists of animal chromosomes appeared until 1937. To be sure, several compilations were published during the intervening years, but they were either avowedly circumscribed in aim or else were incomplete and unreliable -- two faults that rendered them almost worse than useless. The splendid tabulation of vertebrate chromosomes published by Oguma and Makino in 1937 therefore received a warm welcome and has proved its usefulness again and again, but unfortunately no comparable treatment of invertebrate chromosomes has made its appearance.

The news that a complete listing of animal chromosomes has now been compiled is therefore most gratifying. All the more is this true since its author is Professor Sajiro Makino, whose participation in the earlier listing already mentioned would seem to promise an equal reliability in the present work. That it records data on some 2800 species, more than two and a half times as many as were included in the two Harvey lists, sufficiently indicates the urgent necessity for this new compilation. The exacting and extensive toil that must have been expended on it by its author will no doubt be rewarded by the appreciation of a very large audience of biologists.

FRANZ SCHRADER

March 23, 1948
Department of Zoology
Columbia University

FOREWORD TO THE SECOND EDITION

From my observations of Japanese agricultural science and related biological sciences in the post-war years of 1945-46 and 1948-49, I soon found that the work in both plant and animal cytology was one of the really bright spots in Japanese science today. While the progress in cytology in Japan during World War II was quite independent of that in most other countries, it had nevertheless kept apace with or even surpassed the contributions of other nations in many important aspects.

One of the really fine contributions of Japan to world knowledge has been the meticulous research work on animal chromosomes by Dr. Sajiro Makino and his staff in the Zoological Institute of Hokkaido University. Dr. Makino has devoted at least 20 years of his life to this specialized field of cytology. On many occasions during my sojourn in Japan, my colleagues had called attention to this excellent research.

All cytological research in post-war Japan has been seriously handicapped by a dearth of foreign cytological and closely related literature, shortages of chemicals, and inadequate research budgets. Dr. Makino has risen above these almost insurmountable obstacles to continue his research and publish what is perhaps the most complete list of chromosome numbers in animals that has appeared in the world to date. He has listed about 3200 species of the invertebrates and vertebrates. What is probably equally remarkable is the fact that Dr. Makino has personally investigated 144 species on this list. This experience has made him unusually well qualified to appraise the work of others in this field.

This chromosome list is one of several on which Dr. Makino has appeared as

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an author. Probably the best known publications outside of Japan are:

Oguma, K., and Makino, S. Check-list of chromosome numbers in Vertebrata, Zool. Mag. (Japan) 43:176-212. 1931.

Oguma, K., and Makino, S. A revised check-list of the chromosome numbers in Vertebrata, Jour. Genetics, 26:239-254. 1932.

Oguma, K., and Makino, S. A new list of the chromosome numbers in Vertebrata (March 1937), Jour. Fac. Sci. Hokkaido Imp. Univ., Series VI, Zoology, Vol. 5(4): 297-356. 1937.

Students of animal science will immediately recognize the importance of this chromosome list as a reference, particularly those in the fields of zoology, cytology, genetics, taxonomy, evolution, and animal breeding. It has a parallel in the "Chromosome Atlas of Cultivated Plants" published by C. D. Darlington and E. K. Janaki-Ammal in 1945.

This list of animal chromosome numbers represents the fulfillment of a request that I made of Dr. Makino to prepare an English Language edition for publication in the United States. At the time, I was on the staff of General Headquarters, Supreme Commander for the Allied Powers, as Chief of the Agriculture Division of the Natural Resources Section.

It is a privilege to recommend AN ATLAS OF THE CHROMOSOME NUMBERS IN ANIMALS, second edition, to biologists everywhere.

WARREN H. LEONARD

Colorado A. & M. College
Fort Collins, Colorado
November, 1950

PREFACE TO THE SECOND EDITION

During the period since "A New List of the Chromosome Numbers in Vertebrata" appeared in March, 1937, the publication of a complete tabulation of the chromosome numbers in all animals, both vertebrates and invertebrates, has been increasingly called for in the fields of cytology and genetics. In response to this need, and to incorporate new data, a first edition of "A Review of the Chromosome Numbers in Animals" was published in Tokyo (1949) with the support of the Fourth Special Committee for Researches of Genetics in the Nippon Gakuzyutsu-Shinkokai. This list was mainly based on data obtained up to 1944 from Japanese and foreign publications which had appeared up to 1941, but an appendix contained some new data, incompletely collected up to 1948. Furthermore at the request of Japanese investigators, the first edition was originally published in the Japanese language. Unfortunately, it contained many deficiencies and oversights which were mostly due to the unfavorable conditions in postwar Japan under which the list was prepared. Upon the advice of Professor Warren H. Leonard of the Colorado A. & M. College, who suggested that so important a list should be rendered more accessible to biologists in other parts of the world, I prepared the present edition. It represents a revised and enlarged list indexed with the chromosome numbers for 3317 species of animals, namely 2754 species of invertebrates and 563 species of vertebrates, together with the pertinent references. As contrasted with the 2800 species reviewed in the list of the first edition, the present volume obviously has been considerably expanded. The Table of Contents presents a convenient list of the animals included.

In the present list, the chromosome numbers are tabulated after the fashion of the lists "A Review of the Chromosome Numbers in the Metazoa" by E. B. Harvey(1920)^{1/}

^{1/} Part of this list appeared in 1916, while Part II appeared in the Journal of Morphology, Volume 34, pp. 1-67, 1920.

and "A New List of the Chromosome Numbers in Vertebrata" by K. Oguma and S. Makino (1937), with slight modifications. The author has accumulated data as completely as possible from the original papers published up to the end of 1948. This second edition of "An Atlas of the Chromosome Numbers in Animals" not only comprises the publications on chromosomes issued from the time of the pioneer researches until 1948, but also includes the available data of 1949. Even though the accounts conflict, all the authorities have been given for each species. As in the list previously issued, all the species are classified so far as possible under phyla, classes, orders, families, and genera. The arrangement of various phyla, classes, and orders follows current usage. For convenience of reference, the families, genera, and species are mostly put in alphabetical order. The accounts concerning the Protozoa are excluded.

The columns in the table are arranged in order of species name, chromosome number in the division of $2n$ (diploid) and n (haploid), remarks, observer and reference in the following order:

Species	Chrom.-number	Remarks	Observer	Reference
<u>Ovis aries</u> :	$2n$ s n	:	:	:
	54 s 27 ♂ (1,11)	X-Y ♂	Makino '43, '44	Cyt.13;Z.M.(Jap.)56

This example shows that the chromosome number of the sheep, Ovis aries, is 54 in the spermatogonial division and 27 in the first and second spermatocyte divisions, having the X-Y complex of the sex chromosomes in the male, and that the reference to this work may be found in an article by Makino, 1943, published in Cytologia, Volume 13 and in another article by the same author, 1944, published in the Zoological Magazine (Japan), Volume 56. The small letter of the alphabet indicates the order of appearance of the papers, where more than two papers were published by the same authors on one and the same subject in the same year.

Most of the important abbreviations used in the table and in the column of reference will be found in the accompanying tables.

Because of the extreme difficulty of doing bibliographical work in postwar Japan under the extremely unfavorable conditions for making contact with foreign investigators, probably even a great effort to make a complete and correct bibliography has been unsuccessful. I believe there are papers missing from my files that should be added. Since I do not doubt that this compilation is far from being complete, I sincerely hope that workers in various parts of the world will call oversights to my attention. These corrections can be added to a future revision of the list. I also would appreciate the correction of any errors of citation.

* * *

Acknowledgment: I have much pleasure in taking opportunity to express my sincere thanks to Professor Warren H. Leonard of the Colorado A. & M. College who was in Japan in 1945-46 and again in 1948-49, and who kindly advised me to publish the second edition of the chromosome list. Because the labor of the work has been greatly lessened by his constant encouragement, I wish to express my gratitude to Emeritus Professor K. Oguma. My warm acknowledgment also is due to Professor F. Schrader of the Columbia University, for the Foreword to the first edition, and for aid in accomplishing the work. Especially, I wish to express to the co-workers of my institute my sincere thanks for valuable assistance.

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July, 1950
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ZOOLOGISCHES INSTITUT
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Sapporo, Japan

Number of Species in which the Chromosome Number has been recorded

INVERTEBRATA 2754 spp.

	Number of species		Number of species
Mesozoa	3	Thysanoptera	1
Porifera	7	Homoptera	155
Coelenterata	23	Heteroptera	351
Plathelminthes	110	Neuroptera	54
Nemertini	7	Mecoptera	5
Trochelminthes	4	Trichoptera	25
Annelida	72	Lepidoptera	325
Mollusca	135	Coleoptera	180
Nemathelminthes	72	Strepsiptera	1
Molluscoidea	7	Hymenoptera	69
Echinodermata	~2942~	Diptera	240
Arthropoda	2165	Aphaniptera	2
Crustacea	156		
Acerata	158	Prochordata	7
Insecta	1820	VERTEBRATA 563 spp.	
Collembola	3	Cyclostomata	2
Thysanura	3	Fishes	95
Orthoptera	428	Amphibia	108
Dermoptera	9	Reptilia	99
Plecoptera	16	Aves	33
Isoptera	4	Mammalia	176
Embiptera	2		
Psocoptera	1		
Mallophaga	2		
Anoplura	6		
Ephemeroptera	2		
Odonata	62		

Abbreviations used in the table

chrom.	=chromosome
div.	=division
J ₁	=the largest J-shaped chromosome
m	= <u>somatic cell</u>
o	= <u>oogonium</u>
parth.	=parthenogenetic
post.	=post-reduction
pre.	=pre-reduction
R	=long rod-shaped chromosome
R ₁	=the longest rod-shaped chromosome
R ₂	=the second longest rod-shaped chromosome
r	=rod-shaped chromosome of medium size
sex-chrom.	=sex-chromosome
s	= <u>spermatocionum</u>
V	=large V-shaped chromosome
V ₁	=the largest V-shaped chromosome
V ₂	=the second largest V-shaped chromosome
v	=V-shaped chromosome of medium size
X	=X-chromosome
Y	=Y-chromosome
♂ (1)	= <u>primary spermatocyte</u>
♂ (II)	= <u>secondary spermatocyte</u>
♀ (1)	= <u>primary oocyte</u>
♀ (II)	= <u>secondary oocyte</u>

The list of abbreviations of the titles of journals
used in the column of reference

A.A.	Anatomischer Anzeiger.
A.A.M.	Archives d'Anatomie microscopique.
A.B.	Archives de Biologie.
A.Hf.	Anatomische Hefte.
A.I.A.E.	Archivio Italiano di Anatomia e di Embriologia (Firenze).
A.J.A.	American Journal of Anatomy.
A.M.A.	Archiv für mikroskopische Anatomie.
A.N.	American Naturalist.
A.R.	Anatomical Record.
Arch. Jul. Klaus-Stift. Vererb.	Archiv der Julius Klaus-Stiftung für Vererbungsforschung, Sozialanthropologie und Rassen-hygiene.
A. Zf.	Archiv für zellforschung.
A.Z.E.G.	Archives de Zoologie experimentale et générale.
Abstr. Sci. Res.	Abstracts of Scientific Researches, subsidized by the Ministry of Education, Tokyo.
B.B.	Biological Bulletin.
B.B. Fr. Bel.	Bulletin Biologique de la France et de la Belgique.
B.Z.	Biologisches Zentralblatt.
Bot. & Zool. (Tokyo)	Botany & Zoology (Tokyo) (In Japanese).
C.R.A.S.	Comptes Rendus de l'Academie des Sciences (Paris).
C.R.S.B.	Comptes Rendus des Seances de la Societe de Biologie(Paris).
Chrom.	Chromosoma.
Cyt.	Cytologia (Tokyo).
Genet.	Genetics.
Hered.	Hereditas.
Iden-Sogo-Kenkyu	(Papers from the Committee for Research in Genetics, Tokyo).
Igaku & Seibutsugaku	(Abstract journal on Medicine and Biology, Tokyo) (In Japanese).
Jap. J.G.	Japanese Journal of Genetics.
Jap. J.Z.	Japanese Journal of Zoology.
J.E.Z.	Journal of Experimental Zoology.
J.F.S. Hokkaido I.U.	Journal of the Faculty of Science, Hokkaido Imperial University.
J.G.	Journal of Genetics.
J.G.P.	Journal of General Physiology.
J.H.	Journal of Heredity.
J.M.	Journal of Morphology.
J.S. Hiroshima U.	Journal of Science of the Hiroshima University.
La Kromosome	(Journal of chromosomics, in Japanese, Tokyo).
L.C.	La Cellule.
Luiz de Queiroz	Anais da Escola Superior de Agricultura "Luiz de Queiroz" (Sao Paulo, Brasil).
M.Z. Ital.	Monitore Zoologico Italiano (Firenze).
Nippon Gakuzyutsu- Shinkokai	(Proceedings of Japanese Association of Advance of Science) (In Japanese).
P.I.A. (Tokyo)	Proceedings of the Imperial Academy (Tokyo).
P.R.S. Lon.	Proceedings of the Royal Society (London).

Q.J.M.S.	Quarterly Journal of Microscopical Science.
R. Suisse Z.	Revue Suisse de Zoologie.
Roux	Archiv für Entwicklungsmechanick.
Sci.	Science, New York.
S.R. Tokyo B.D.	Science Reports of the Tokyo Bunrika Daigaku.
Seibutu	(Journal of biology, published in Japanese, Sapporo).
Z.A.	Zoologischer Anzeiger.
Z.A.E.	Zeitschrift für Anatomy und Entwicklungsgeschichte.
Z.B. (Moskaw)	Zeitschrift für Biology (Moskaw).
Z.I.A.V.	Zeitschrift für induktive Abstammungs- und Vererbungslehre.
Z.M. (Jap.)	Zoological Magazine (Dobutsugaku Zasshi) (Japan).
Z.M.A.F.	Zeitschrift für mikros.-anatomische Forschung.
Z.W.Z.	Zeitschrift für wissenschaftliche Zoologie.
Z.Z.M.A.	Zeitschrift für Zellforschung und mikroskopische Anatomy.
Z. Jb.	Zoologischer Jahrbuch.

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An Atlas Of The
CHROMOSOME NUMBERS IN ANIMALS

MESOZOA

Species	Chromosome Number		Remarks	Observer	Reference
	2n*	n			
<u>Dicyemenna gracile</u>	---	Ca 30 ₂ (1)	---	Hartmann '07	Mem. Sci. Acad. Roy. Belg. 1.
<u>Haemozoön armatum</u>	100? m	—	---	Dogiel '08	Z.W.Z. 89.
<u>Phopalura ophiocomae</u>	6 m	3 ₂ (1,11)	---	Caullery & Lavellee '08	A.Z.E.G. 8.

PORIFERA

Species	Chromosome Number		Remarks	Observer	Reference
	2n	n			
<u>Clathria coriacea</u>	Ca 16 m	—	---	Robertson & Minchin '10	Q.J.M.S. 55.
<u>Grantia compressa</u>	8-10s 8-10o	8-10 ₂ (1)	---	Dendy '14	Q.J.M.S. 60.
<u>Grantia compressa</u> <u>pennigera</u>	26 m	130 ₁ (1) 130 ₂ (1)	---	Duboscq & Tuzet '33, '37	A.Z.E.G. 73,79.
<u>Reniera similans</u>	16 m	8 ₂ (1)	---	Tuzet '30	C.R.S.B. 103.
<u>Spongilla lacustria</u>	10-12 m	—	---	Müller '11	Roux 32.
<u>Sycandra raphanus</u>	16 m 8 o	8 ₂ (1,11)	---	Jörgensen '10	A.Z. 4.
"	32 m	—	---	Mass '99	A.A. 16.
<u>Sycon ciliatum</u>	26 m	130 ₁ (1)	---	Duboscq & Tuzet '37	A.Z.E.G. 79.

COELENTERATA
HYDROZOA
Hydroida

Species	Chromosome Number		Remarks	Observer	Reference
	2n	n			
<u>TUBULARIO-ANTHOMEDUSAE</u>					
<u>Clava leptostyla</u>	---	12 ₂ (1,11)	—	Hargitt '16	J.M. 27.
<u>Clava squamata</u>	---	Ca 16 ₂ (1)	—	Harm '02	Z.W.Z. 73.

* In the column of 2n, s, 2 and m denote spermatogonium, oogonium and somatic cell respectively.

COELENTERATA (continued)

Species		Chromosome Number		Remarks	Observer	Reference
	2n	n				
<u>Clavatella prolifera</u> (<i>Eleutheria dichotoma</i>)	---	6 _f (1)	---	Müller '08	Z.W.Z. 80.	
<u>Cordylophora lacustris</u>	---	10 12 _f (1)	---	Morgenstein '01 Z.W.Z. 70.		
<u>Eudendrium ramosum</u>	---	13 _f (1)?	---	Beckwith '14	J.M. 25.	
<u>Hydra circumcincta</u>	30 m	15 _f 6(1)	Sex chrom. unknown	Niiyama '43, '44	Jap. J.G. 19; Cyt. 13.	
<u>Hydra dicecia</u> (<i>H. fusca</i> , <i>H. viridis</i>)	12 s	6 _f (1,11) 12 _f (1); 6 _f (1)	---	Dowling '05, '09	Z.J.B. 21, 28.	
<u>Hydra grisea</u>	---	12-14 _f (1)	---	Brauer '91	Z.W.Z. 52.	
"	---	16 _f (1)	---	Wager '09	B.B. 18.	
<u>Hydra vulgaris attenuata</u>	32 s 32 o 32 m	16 _f 7(1)	Sex chrom. unknown	Niiyama '43, '44	Jap. J.G. 19; Cyt. 13.	
<u>Hydractinia echinata</u>	12-16 m	---	---	Smallwood '09	B.B. 17.	
"	---	14 _f (1)?	---	Beckwith '14	J.M. 25.	
<u>Pelmatohydra obligactis</u>	12 m	---	---	McConnell '32, '36	Z.M.A.F. 28; Roux 135.	
"	30 m	---	Sex chrom. unknown	Niiyama '43, '44	Jap. J.G. 19; Cyt. 13.	
"	12-14 m	---	---	Wermel '26	Z.Z.M.A. 4.	
<u>Pennaria tiarella</u>	---	10-14 _f (1)	---	Hargitt '09	Bull. Mus. Comp. Zool. Harvard, 53.	
"	14 m ?	---	---	Smallwood '09	B.B. 17.	
<u>Tiara</u> sp.?	28 m	14 _f (1,11)	---	Poveri '20	Jena Z. 17.	
<u>Tubularia mesembry-anthemum</u>	---	12 _f (1)	---	Brauer '91	Z.W.Z. 52.	
Campanulario- Leptomedusae						
<u>Acquorea forskalea</u>	12 m	6 _f (11)	---	Hacker '92	A.M.A. 40.	
<u>Campanularia fleurcuosa</u>	20 m	10 _f (1)	---	Hargitt '13	J.M. 24.	
<u>Obelia geniculata</u>	34 o	17 _f (1)	X-Y?	Faulkner '29	C.J.M.S. 73.	
<u>Gonothyrea leveni</u>	---	8 _f (1)	---	Wulfert '02	Z.W.Z. 71.	

COELENTERATA (continued)

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Limnomedusae</u>						
<u>Craspedacusta ryderi</u>	---	12 ^f (1)		---	White '30	R.B. 59.
<u>Gcnioenmus murbachii</u>	24 25 s Ca 24 ^o Ca 24 ^m	Ca 12 ^f (1,11) pronucleus	12 in ♀		Bigelow '07	Bull.Mus.Comp. Zool.Harvard, 48.

TRACHYLINA

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Tracomedusae</u>						
<u>Aglantha digitalis</u>	16 o	8 ^o (1,11) _f		---	Hargitt '17	J.M. 28.
<u>Narcomedusae</u>						
<u>Cunina proboscidea</u>	---	28 ^f (1) 30 ^o (1) _f		---	Stschelkanowzew '06	Mitt.Zool.St. Haapal, 17.

SCYPHOMEDUSAE

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Semaeostomae</u>						
<u>Aurelia flavedula</u>	18-20 ^m	9-10 ^o (1) _f		---	Hargitt '10	J.M. 21.

PLATYHELMINTHES
CESTODA*

Species	2n	n	Remarks	Observer	Reference
<u>Avitellina centripunctata</u>	---	4(?) _f (1)	---	Dough '11	Q.J.M.S. 56.
<u>Moniezia expansa</u>)12-14(?) ^m	6-9(?) ^d (1)	---	Child '07	B.P. 12
<u>M. planissima</u>)				
<u>Taenia serrata</u>	---	13-15 ^o (1) (6-16)	---	Von Janicki '07	Z.W.Z. 87.

TREMATODA
DIGENEA

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Brachycoelium salamandrae</u> (<u>B. crassicole</u>)						
	20 s,o	10 ^o (1)	---		Von Kermritz '13	A.Zf. 10.
	20 m	10 ^o (1)				
<u>Cryptocotyle lingua</u>	12 s, d ^m	6 ^d (1)	---		Cable '31,'34	Q.J.M.S. 74,76.
	12 o					
	12 m					

* Jones, A. W. 1945. Journ. Parasitol. 31, which concerns with cytology of 15 species of Cestoda, cannot be accessible.

TREMATODA (continued)

Species		Chromosome Number			Observer	Reference
	2n	n	Remarks		Goldschmidt '08	A.Zf. 1.
<u>Dicrocoelium (Distomum) lanceolatum</u>	20 s	10 $\frac{g}{2}$ (1,11)	---			
"	20 s	20 $\frac{g}{2}$ (1,11)	---	Dingler '10		A.Zf. b.
<u>Diplediscus temporatus</u>	16 m Parth.	16 $\frac{g}{2}$ (1)	---	Eary '09		Z.Jb. 28.
<u>Distomum hepaticum</u>	---	6-8 $\frac{g}{2}$ (1)	---	Hennegeuy '06		Arch. d'Anat. Micr. 2.
<u>D. turgidum</u>	16 m	9 $\frac{g}{2}$ (1,11)	---	Lewy '11		A.Zf. A. 35.
<u>Fasciola hepatica</u>	12 o,m	6 $\frac{g}{2}$ (1,11)	---	Schellenberg '11		A.Zf. 6.
<u>Fasciola hepatica</u>	10(pair)s,o	10(pair) $\frac{g}{2}$, 9(1) 5(pair) $\frac{g}{2}$ (11)	---	Dehorne '11		A.Z.E.G. 9.
<u>Lophotaspis cerciculae</u>	---	9 (1,11)	---	Moriya '14		J.S. Hiroshima U.Sec., 10
<u>Paragonimus kellicotti</u>	16 s	8 $\frac{g}{2}$ (1)	---	Chen '37		Trans. Am. Micr. Soc. 56.
<u>Parorchis acanthus</u>	22 s	11 $\frac{g}{2}$ (1) 11 $\frac{g}{2}$ (1,11)	---	Rees '39		Parasit. 31.
<u>Pneumonoces mediocephalus</u>	22 s,o 22 m	11 $\frac{g}{2}$ (1,11) 11 $\frac{g}{2}$ (1,11)	Sex chrom. unknown	Pennypacker '36		A.P. 47.
<u>P. similplexus</u>	22 s(20-22)	11 $\frac{g}{2}$ (1) 11 $\frac{g}{2}$ (1)	---	Pennypacker '40		J.V. 66.
<u>Schistosomum haematobium</u> (<u>Bilharzia haematozoa</u>)	14 s	8 $\frac{g}{2}$, $\frac{o}{2}$ (1) 6, $\frac{g}{2}$ (11)	X ₁ X ₂ -O $\frac{g}{2}$ '	Lindner '14		A.Zf. 12.
<u>Sch. japonicum</u>	---	8 $\frac{g}{2}$ (1) 7, $\frac{g}{2}$ (11)	X-O $\frac{g}{2}$ '	Faust & Helerey '24		Am.J.Hyg. Monogr. 3.
"	14 s	8 $\frac{g}{2}$ (1) 6, $\frac{g}{2}$ (11)	X ₁ X ₂ -O $\frac{g}{2}$	Severinghaus '28 Q.J.M.S. 71.		
"	16 s 16 c	8 $\frac{g}{2}$ (1,11)	Sex chrom. unknown	Ikeda & Makino '36		J.P.S. Okkaido I.U.Ser. Vi, 5
<u>Schistosomum (Bilharzia) mansoni</u>	16 s,o	---	Sex chrom. unknown	Niyomasena '40		Zeit. Parasit. 11.
<u>Zeogonus mirus</u>	10 s,o	10 $\frac{g}{2}$ (1,11)	Reduction in 2nd viv.	Goldschmidt '05, '08		Z.Jb. 21; A.Zf. 2.
"	22-26 m	11-13 $\frac{g}{2}$ (1,11)	---	Schreiner '08		Skr. Vidensk-Selsk. Christiana, Math.-Natur. 1.

TRICHOPODIA (continued)

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Zoogonus mirus</u>	12 s 12-14 m	6 _c (1) 6 _c (1,11)		---	Gregoire '09	L.C. 25.
"	11-14 s 11-14 m (12)	6-7 _c (1) 6 _c (11)		---	Wassermann '11, '12, '13	Sitz.Ges.Morph. Phys.München, 27; Verh.Anat. Ges.26;A.M.A. 83.

MONOCEREA

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Cyrodactylus elegans</u>	8 m	8(?) _c (11)		---	Von Janicki '03	Z.A. 26.
"	---	8 _c (1,11)		Reduction in 2nd div.	Kathariner '04	Z.Jb.Supp. 7.
"	12 s 12 m	6 _c (1,11)		---	Gille '14	A.Zf. 12.
<u>Polystomum integrerrimum</u>	Ca 20 m	10 _c (1,11)		---	Halkin '02	A.B. 18.
"	3 m	8 _c (1,11)		Reduction in 2nd div.	Goldschmidt '02	Z.W.Z. 71.
"	20 m	10 _c (1,11)		---	Minouchi '36	Z.Z.M.A. 24.

TURBELLARIA
ACELLA

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Aphanostoma diversicolor</u>	20-30	---		---	Ruebush '38	Z.A. 122.
<u>Convoluta</u> sp.	20-30	---		---	Ruebush '38	Z.A. 122.
<u>Polychoerus candatus</u>	Ca 31	---		---	Gardiner '98	J.M. 15.

RHARDOCOTELIDA

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
<u>Metandropora</u>						
<u>Catenula virginiana</u>	20-40	---		---	Ruebush '38	Z.A. 122.
<u>Fuhrmannia</u> sp.	16-30	---		---	Ruebush '38	Z.A. 122.
<u>Rhynchoscolex simplex</u>	20-30	---		---	Ruebush '38	Z.A. 122.
<u>Stenostomum grandi</u>	20-40	---		---	Ruebush '38	Z.A. 122.
<u>Stenostomum</u> sp.	20-40	---		---	Ruebush '38	Z.A. 122.

RHABDOCOELIDA (continued)

Species		Chromosome Number 2n	n	Remarks	Observer	Reference
<u>OPISTHANDROPORA</u>						
<u>Macrostomum beaufortensis</u>	6 s	36(1)	—	—	Ferguson '37	Z.A. 120.
<u>M. hustedi</u>	12 m	—	—	Polyplloid?	Jones '44	J.M. 75
<u>M. hystrix</u>	—	26(1)	—	—	Luther '05	Festschr. Palmen, 5.
<u>M. tuba</u>	6 s, o 66 m	36(1,11)	—	—	Phillips '36	Z.A. 114.
<u>M. virginianum</u>	6 s	36(1)	—	—	Ferguson '37	Z.A. 119.
<u>M. viride</u>	—	26(1)	—	—	Luther '05	Festschr. Palmen, 5.
<u>Microstomum bispiralis</u>	16 s	36(1)	—	—	Stirewalt '37	Z.A. 119.
LECITHOPHORA: <u>DALYELLIOIDEA</u>						
<u>Castrella truncata</u>	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>Dalyellia abursalis</u>	4 s	26(1)	—	—	Ruebush '37	Z.A. 119.
<u>D. armigera</u>	4 s	—	—	—	Meixner '15	Z.Jb. 38.
<u>D. rossi</u>	4 s	26(1)	—	—	Ruebush '37	Z.A. 119.
<u>D. triangulata</u>	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>D. virginiana</u>	4 s	26(1)	—	—	Ruebush '37	Z.A. 119.
<u>D. viridis</u> (<u>Vortex viridis</u>)	4 s, m	26(1,11)	—	—	Lepeschkin '10	Biol.Zeits Mos- cow, 1.
"	4 m	—	—	—	Hein '28	Z.W.Z. 130.
<u>Dalyellia</u> sp.	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>Dalyellia</u> sp.	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>Dalyellia</u> sp.	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>Dalyellia</u> sp.	4 s	26(1)	—	—	Ruebush '38	Z.A. 122.
<u>Paravortex cardii</u>	4 n	26(11)	—	—	Hallez '08 a, b	C.R.A.S. 147; A.Z.E.G. 9.
<u>P. gemellipara</u>	8 m	49(11)	—	—	Ball '16	J.M. 27.
—(<u>Graffilla gem.</u>)	8 m	49(1)	—	—	Patterson '12	E.B. 22.
<u>Provortex affinis</u>	6 s	36(1)	—	—	Ruebush '35	Z.A. 111.
<u>Provorticid</u>	6-8 m	—	—	—	Ruebush '38	Z.A. 122.

RHABDOCOSMIIDA (continued)

Species	Chromosome Number			Remarks	Observer	Reference			
	2n	n							
<u>LECITHOPHORA:</u>									
TYPHLOPLANOIDA									
<u>Amphibolleta virginiana</u>	4 s	26 ¹ (1)	---		Kepner & Ruebush '37	Z.A. 118.			
<u>Byrsophlebs</u> sp.	Ca 8 s	---	---		Ruebush '38	Z.A. 122.			
<u>Castrada virginiana</u>	6 s	36 ¹ (1)	---		Kepner, Ruebush & Ferguson '37	Z.A. 119.			
<u>Castrada</u> sp.	6 s	36 ¹ (1)	---		Ruebush '38	Z.A. 122.			
<u>Castrada</u> sp.	6 s	36 ¹ (1)	---		Ruebush '38	Z.A. 122.			
<u>Krumbachia minuta</u>	40 m	26 (1)	---		Ruebush '38	Z.A. 122.			
<u>Krumbachia (Olisthanella) virginiana</u>	4 s, 6 m	20(1,11)	---		Senn '35	Z.A. 111.			
<u>Mesostoma ehrenbergii</u>	Ca 7	---	---		Schneider '83	Ei u. Befruchtung Breslau, 1983.			
"	10 m	59(11)	---		Bresslau '04	Z.W.Z. 76.			
"	—	5	---		Luther '04	Z.W.Z. 77.			
"	10 o	59(1,11)	---		Von Voss '11	A.Zf. 12.			
"	10 m	59(1,11)	---		Valkanov '38	Jahrb. Univ. Sofia, Physico-Math. Fak. 34.			
<u>M. ehr. ehrenbergii</u>	10 s, 6 m	311 ¹ / ₄ 6(1)	---	(Husted '39 (Husted, Ferguson & Stiere- (walt '39 (Husted & Ruebush ('40		Genet. 24. A.N. 73. J.M. 67.			
<u>M. ehr. wardii</u>	86m	311 ¹ / ₂ , 6(1) 40(1)	---	Husted & Ruebush '40		J.M. 67.			
<u>M. lingua</u>	—	3	---	Luther '04		Z.W.Z. 77.			
<u>M. lingua</u>	8 m	—	—	Valkanov '38		Jahrb. Univ. Sofia, Physico-Math. Fak. 34.			

RHABDOCOELIDA (continued)

Species		Chromosome Number 2n	n	Remarks	Observer	Reference
<u>Mesostoma</u> sp.		6♂ m	36(1)	---	Ruebush '38	Z.A. 122.
<u>Opistomma</u> sp.		8 s	46(1)	---	Ruebush '38	Z.A. 122.
<u>Opistomm</u> sp.		8 s	46(1)	---	Ruebush '38	Z.A. 122.
<u>Phaenocora</u> <u>incunda</u>		12 s, ♂ m	66(1,11)	---	Martini '22	A.Zf. 16.
<u>Ph.</u> <u>kepneri</u>		4 s	26(1)	---	Ruebush '38	Z.A. 122
<u>Ph.</u> <u>lutheri</u>		4 s	26(1)	---		
<u>Ph.</u> <u>virginiana</u>		4 s	26(1)	---		
<u>Rhaenocora</u> sp.		4 s	26(1)	---		
<u>Promesostoma</u> <u>marmoratum</u>		12 s	66(1)	---	Ruebush '38	Z.A. 122.
<u>Protrhynchella</u> <u>minuta</u>		4 s	26(1)	---	Ruebush '38, 39	Z.A. 122, 127.
<u>Protoplanelloid</u> (<u>New Haven</u>)	6 s	36(1)	---	Ruebush '38	Z.A. 122.	
<u>Rhynchomesostoma</u> <u>rostratum</u>		4 s	26(1)	---	Ruebush '38	Z.A. 122.
<u>Solenopharynx</u> sp.		4 s	26(1)	---	Ruebush '38	Z.A. 122.
<u>Trigonostomum</u> <u>lillei</u>		6 s	36(1)	---	Ruebush '38	Z.A. 122.
<u>Typhloplana</u> <u>viridata</u>		6 s	36(1)	---	Ruebush '38	Z.A. 122.
LECITHOPHORA:						
KALYPTORHYNCHIA						
<u>Acrorhynchus</u> <u>reprobatus</u>		4 s	26(1)	---	Ruebush '38	Z.A. 122.
<u>Gyratrix</u> <u>hermaphroditus</u>		4 s	26(1)	---	Ruebush '38	"
<u>Microkalyptorhynchus</u> <u>virginianus</u>		6 s	36(1)	---	Ruebush '38	"
<u>Polycystis</u> <u>goettei</u>		16 s	86(1)	---	Ruebush '38	"

ALLOECOELIA

Species	Chromosome Number		Remarks	Observer	Reference
	2n	n			
<u>Bothrioplana semperi</u>	20-30	---	---	Ruebush '38	Z.A. 122.
"	20 δ m	10 δ (1)	Parthenogenetic, Reisinger 2n = 40 in cleavage	'40	Chrom. 1.
<u>Geocentrophora apolaniatus</u>	20-30	---	---	Ruebush '38	Z.A. 122.
<u>Monocelis fusca</u>	6 s	3 δ (1)	---	Ruebush '38	"
<u>Plagiostomum stellatum</u>	10 s	5 δ (1)	---	Ruebush '38	"
<u>Prohynchus stagnalis</u>	20-30	---	---	Ruebush '38	"
<u>Pseudostomum sp.</u>	10-12	---	---	Ruebush '38	"

TRICLADIDA

Species	Chromosome Number		Remarks	Observer	Reference
	2n	n			
<u>Bdelliora candida</u>	12 s,o	6 δ (1,11) 6 φ (1)	Sex chrom. unknown)	
<u>Curtisia foremanii</u>	12 s,o	6 δ (1,11) 6 φ (1)	") Pennypacker '38	J.M. 63.
<u>Dendrocoelum lacteum</u>	16 m	8 δ (1,11)	4 in egg nucleus	Mattiesen '04 a,b	Z.A. 27; Z.W.Z. 77;
"	---	8 δ (1,11)	---	Schleip '07	Z.Jb. 24.
" (<u>Planaria lactea</u>)	16 s,o	8 δ (1,11) 8 φ (1)	---	Arnold '09	A.Zf. 3.
"	14 s	7 φ (1)	---	Gelei '13	A.Zf. 11.
<u>Planaria alpina</u>	20-24 s	---	---	Rappeport '15	A.Zf. 14.
<u>P. gonocephala</u>	16 s,o	8 δ (1,11) 8 φ (1)	---	Schleip '06, '07	Z.Jb. 23, 24.
<u>P. polychroa</u>	16 m	8 δ (1,11)	4 in egg nucleus	Mattiesen '04 a,b	Z.A. 27; Z.W.Z. 77.
<u>P. simplissima</u>	8 s 6 m	3-4 δ (1,11) 3-6 φ (1,11)	---	Stevens '04	Proc. Acad. Nat. Sci. Phila. 56.
<u>P. torva</u>	16 m	8 δ (1,11)	4 in egg nucleus	Mattiesen '04 a,b	Z.A. 27; Z.W.Z. 77.
<u>Polycelis nigra</u>	---	8 δ (1,11)	---	Schleip '07	Z.Jb. 24.
<u>Procerodes gerlachei</u>	12 s,m	6 δ (1,11)	---	Röhmig '07	A.B. 23.

POLYCLADIDA

Species		Chromosome Number		Remarks	Observer	Reference
	2n	n				
<u>Cycloporus papillosus</u>	16m	8 ₊ (1,11)	---	Francotte '97, '98	Mem. Cour. Acad. Roy. Belg. 55; A.Z.E.G. 6.	
<u>Eustylochus ellipticus</u>	20m	10 ₊ (1,11)	---	Van Name '99	Trans. Conn. Acad. Sci. 10.	
<u>Leptoplana Tremellaris</u>	16m	8 ₊ (1,11)	---	Francotte '97	Mem. Cour. Acad. Roy. Belg. 55.	
<u>Notoplana humilis</u>	---	10 ₊ (1,11)	---	Kato '40	Jap. J.Z. 8.	
<u>Oligoclades auritus</u>	---	8 ₊ (1)	---	Francotte '97	Mem. Cour. Acad. Roy. Belg. 55.	
<u>Planocera inquilina</u>	---	9-10 ₊ (11)	---	Wheeler '94	J.M. 9.	
"	---	10 ₊ (1,11)	---	Patterson & Wiern '12	B. B. 23.	
<u>P. nebulosa</u>	20m	10 ₊ (1,11)	---	Van Name '99	Trans. Conn. Acad. Sci. 10.	
<u>Prostheceraeus vittatus</u>	12m	6 ₊ (1,11)	---	Klinckowstroem A.M.A. 48 '97		
<u>Prostheceraeus vittatus</u>	---	6 ₊ (1,11)	---	Francotte '97, '98	Mem. Cour. Acad. Roy. Belg. 55; A.Z.E.G. 6.	
"	---	6 ₊ (1)	---	Gerard '01	L.C. 18.	
<u>Prosthiostomum siphunculus</u>	16m	8 ₊ (1,11)	---	Francott '98	A.Z.E.G. 6.	
<u>Stylochus pelidium</u>	---	9 ₊ (1)	---	Gerard '01	L. C. 18.	
<u>Thysanozoon brocchi</u>	18s 18m	9 ₊ (1) 9 ₊ (1,11)	---	Van Der Stricht Verh. Anat. Ges. '97, '98 11; A.B. 15.		
"	18m	9 ₊ (1,11)	---	Schockaert '02; '05	L.C. 20, 22.	

NEMERTINI
DIMYARIA

Species	Chromosome Number			Observer	Reference
	2n	n	Remarks		
<u>Tetrastemma vermiculus</u>	---	40(1) 28(11)	—	Lebedinsky '97a,b	A.M.A. 49; B.Zbl. 17.

TRIMYARIA

Species	Chromosome Number			Observer	Reference
	2n	n	Remarks		
<u>Cerebratulus lacteus</u>	---	50(11)	—	Wilson, O.B. '00	Q.J.M.S. 43.
"	36-38m	18-19 $\frac{1}{2}$ (1)	—	Yatsu '97, '09	B.B. 13; J.M. 20.
<u>C. Marginatus</u>	32m	16 $\frac{1}{2}$ (1,11)	—	Coe '99	Z.Jb. 12.
"	—	16 $\frac{1}{2}$ (1) 16 $\frac{1}{2}$ (11)	—	Kostanecki '02	Bull. Int. Acad. Sci. Cracovie, 1902.
<u>Lineus gesserensis</u>	---	8 $\frac{1}{2}$ (11)	—	Arnold '99	Trav. Soc. Imp. Nat. St. Petersb. 9.
<u>L. lacteus</u>	32?m	16 $\frac{1}{2}$ 0(11)	—	Meek '13	Phil. Trans. Roy. Soc. London, B. 203.
<u>L. ruber</u>	16m	8 $\frac{1}{2}$ (1)	8 in sperm-and egg-nucleus	Nussbaum & Orner '13	Z.W.Z. 107.
<u>Micrura caeca</u>	32m	16 $\frac{1}{2}$ (1)	---	Coe '99	Z.Jb..12.

TROCHELMINTHES
ROTIFERA

Species	Chromosome Number			Observer	Reference
	2n	n	Remarks		
<u>Asplanchna amphora</u>	---	i) 26 $\frac{1}{2}$ (1), 1 polar parth. body, no ♀ egg. reduction		Whitney '29	J.M. 47.
		ii) 26 $\frac{1}{2}$ (1), 2 polar 13 $\frac{1}{2}$ (11), bodies and parth. ♂ reduction egg -11-			



TROCHELIMINTHES (continued)

Species	Chromosome Number			Remarks	Observer	Reference
	2n	n				
				i11)26 δ (1), As above 13 φ (11), bisexual egg		
				iv)13 δ (1,11) 13 in male meiosis δ soma		
<u>A. intermedia</u>				i)24 φ (1) 1 polar parth. body, no φ egg. reduction	Tauson '21, '24, '27	Bull. Inst. Biol. Exp. 1; Zeit. Wiss. Biol. 1; Z.Z.M.A. 4.
				ii)24 φ (1) 2 polar 12 φ (11), bodies and parth. reduction δ egg		
	24 δ m 24s	12 δ (1)		11 div. lacking		
<u>A. priodontata</u>	---	i)16 φ (1)	Parth. φ egg(2n)	Storch '24		Z.Jb. (Anat.) 45.
		ii)8 φ (11)	Parth. δ egg(n)			
<u>Hydatina senta</u>	---	i)10-12 φ (1), parth.	No polar body φ egg	Lenssen '98 a, b		L.C. 14; Z.A. 21
		ii)5 φ (1), parth. δ egg	1 polar body			
		iii)12 φ (1), winter egg	2 polar bodies			
<u>Hydatina senta</u>	---	i)22-25 φ (1), parth.	1 polar body φ egg	Whitney '09		J.E.Z. 6.
		ii)11-13 φ (1), parth.	2 polar bodies δ egg			
		iii)14 φ (1), winter egg	As above			
"	---	i)12 φ (1), parth. φ egg	Fertilized eggs pro- duce φ ,	Shull '21		B.B. 41.
		ii)6 φ (11), parth. δ egg	unfertilized eggs δ			

ANNELIDA
ARCHIANNELIDA

Species		Chromosome Number			References
	2n	n	Remarks	Observe	
<u>Dinophilus apatris</u>	20m	10♂(1,11) 10♀(1,11)	—	Nachtsheim '19	A.M.A. 93.
<u>D. gyrocoiliatus</u>	20m	20♀(1) 10♀(11)	---	Shearer '11, '12	J. Marine Biol. Ass. 9; Q.J.M.S. 57.
<u>Histiobdella homari</u>	—	8♀(1)	—	Shearer '10	Q.J.M.S. 55.
<u>Protodrilus purpureus</u>	—	4♀(1,11)	—	Pierantoni '08	Fl. Fau. Golfe Neapel, 31.

CHAETOPODA
OLIGOCHAETA

Species		Chromosome Number			References
	2n	n	Remarks	Observe	
<u>Allolobophora foetida</u>	22o	11♀(1,11)	—	Foot '98	J.M. 14.
"	22o	11♀(1,11)	---	Foot & Strobell '05, '10	A.J.A. 4; A.Zf. 5.
"	22m	11	—	Monne '25, '27	Bull. Int. Acad. Polonaise, Sci. Lett. Ser. B.
<u>A. chloratica</u>	32m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>A. icterica</u>	32m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>A. caliginosa</u>	36m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>A. nocturna</u>	36m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>A. ierestris</u>	36m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>Branchiobdella astaci</u>	16(?)s	8♂(1)	—	Wendrowski '28	Z.Z.M.A. 8.

CHAETOPODA (Continued)

Species	Chromosome Number				Observer	Reference
	2n	n	Remarks			
<u>Dendrobaena subrubicunda</u>	68m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>D. rubida</u>	34m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>Eiseniella tetraedra</u>	72m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>Eisenia faetida</u>	22m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>E. venata</u>	36m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>E. rosea</u>	56-58m	—	—		Muldal '49	John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>Enchytraeus adriaticus</u>	240	—	—		Vejdowsky '07	Kgl. Böhm. Ges. Wiss. Prag.
<u>E. humicoltor</u>	32s 32o	16 φ (1)	—		Vejdowsky '07	Kgl. Böhm. Ges. Wiss. Prag.
<u>Fridericia hegemon</u>	64s 64o	32 φ (1)	—		Vejdowsky '07	Kgl. Böhm. Ges. Wiss. Prag.
<u>Heterochaetera glandularis</u>	56s	—	—		Yamaguchi '46	Seibutu 1.
<u>Hydrilus coccineus</u>	—	16 φ (1)	—		Vejdowsky & Mrazek '03	A.M.A. 62.
<u>Ilyogenia santixavieri</u>	—	Cal00 δ (1,11) (macrocyte) 10 δ (1,11) (microcyte)	Function- al gametes develop from micro- cytes	Cernosvitov '30		Z.Z.M.A. 12.
		Cal20 φ (1,11) (macrocyte) 10 φ (1,11) (microcyte)				
<u>Lumbricus agricola</u>	—	16 δ (1,11)	—	Bagnion & Popoff '05		A.Z.E.G. 2.
<u>L. rubellus</u>	36m	—	—	Muldal '49		John Innes Hort. Inst. 39 Ann. Rep.(1948)
<u>L. terrestris</u>	36m	—	—	Muldal '49		John Innes Hort. Inst. 39 Ann. Rep.(1948)

CHAETOPODA (Continued)

Species	Chromosome Number			Observer	Reference
	2n	n	Remarks		
<u>L. terrestris</u>	32s	16 δ (1,11) —	—	Calkins '95	J.M. 11.
<u>Lumbricus sp.</u>	32s	16 δ (1,11) —	—	Meek '13	Phil. Trans. Roy. Soc. London, B. 203.
<u>Mesenchytraeus flavus</u>	—	16 δ (1) + —	—	Vejdowsky '07	Kgl. Böhm. Ges. Wiss. Prag.
<u>M. setosus</u>	32o	16 δ (1) + —	—	Vejdowsky '07	"
<u>Octolasmium cyanoum</u>	114m	—	—	Muldal '49	John Innes Hort. Inst. 39 Ann. Rep. (1948)
<u>Rhynchelmis limosella</u>	64m	32 δ (1,11) —	—	Vejdowsky '07 Vejdowsky & Mrazek '03	A.M.A. 62.
<u>Tubifex bavaricus</u>	20o 20m	—	—	Oschmann '14	A.Zf. 12.
<u>T. rivulorum</u>	Cal 100m	Cal 10 δ (1) —	—	Gathy '00	L.C. 17.

POLYCHAETA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Amphitrite sp.</u>	22m 11m (Parth)	11 δ (1,11) + —	—	Scott '06	J.E.Z. 3.
<u>Aricia sp.</u>	18m 9m (Parth)	9 δ (1,11) —	—	Kastanecki '09	Bull. Int. Acad. Sci. Cracovie
<u>Chaetopterus</u> <u>pergamentaceous</u>	18m	9 δ (1,11) —	—	Mead '98	J.M. 14.
"	—	9 δ (1,11) —	—	Lillie '06	J.E.Z. 3.
<u>Lanice conchylega</u>	6m	6 δ (1) 3 δ (11)	—	De'Horne '11	A.Z.E.G. 9.
<u>Nereis limbata</u>	20-30m	14 δ (1) + —	—	Bonnevie '07, '08	B.B. 13; A.Zf. 2.
<u>Ophryotrocha gracilis</u>	10s,o 10m	5 δ (1,11) 5 δ (1,11)	—	Huth '33	Z.Z.M.A. 20.
<u>O. hartmanni</u>	10s,o 10m	5 δ (1,11) 5 δ (1,11)	—	Huth '33	"
<u>O. Puerilis</u>	4s,m	4 δ (1) 2 δ (11)	—	De'Horne '10, '11	Z.A. 36; A.Z.E.G. 9.

POLYCHAETA (Continued)

<u>Species</u>		Chromosome Number			
	2n	n	Remarks	Observer	References
<u>O. puerilis</u>	8s, m	4♂(1,11)	—	Gregoire & Deton '06	L.C. 23.
"	4s, o 4m(8)	2♀(1,11)	—	Korschelt '95a,b.	Verh. deuts. Zool. Ges. 5; Z.W.Z. 60.
"	8s, o 8m	4♂(1,11) 4♀(1)	—	Schreiners '06	A.A. 29.
"	8s, o 8m	4♂(1,11) 4♀(1,11)	—	Huth '33	Z.Z.M.A. 20.
<u>Platynereis megalope</u>	—	14♀(1)	—	Just '15	J.M. 26.
<u>Sabellaria spinulosa</u>	8s 8m	8♂, ♫(1) 4♂, ♀(11)	—	De'Horne '10, '11	C.R.A.S. 150; A.Z.E.G. 9.
<u>Saccocirrus major</u>	8s	4♂(1,11) 4♀(1,11)	—	Hempelmann '13	Zoologica 26.
"	18s, o 18m	9♂(1,11) 9♀(1)	—	Von Baehr '13	Z.A. 43.
<u>S. papillocercus</u>	6m	—	—	Pierantoni '06	Mitt. Zool. St. Neapel, 18.
"	8s	4♂(1,11) 4♀(1,11)	—	Hempelmann '13	Zoologica 26.
<u>Serpula crater</u>	—	Cal 4♀(1)	? in ♂ and ♀ promuclei	Soulier '06	A.Z.E.G. 5.
<u>Tomopteris elegans</u>	10o	5♀(1)	—	Senna '11	A.I.A.E. 9.
"	—	4♀(1)	—	Wallace '04	Brit. Ass. Adv. Sci. 73.
<u>T. onisciformis</u>	18s	9♂(1)	—	Schreiners '06	A.B. 22.
<u>Myzostoma glabrum</u>	24m	12♀(1,11)	—	Wheeler '97	A.B. 15.

HIRUDINEA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Acanthobdella peledina</u>	---	8♂(1)	---	Wendrowski '28	Z.Z.M.A. 8.
<u>Clepsine complanata</u>	---	20♀(1)	---	Gathy '00	L.C. 17.
<u>Glossosiphonia complanata</u>	26s	13♂(1,11)	---	Wendrowski '28	Z.Z.M.A. 8.
<u>G. concolor</u>	28s,o	14♂(11)	---	Wendrowski '28	"
<u>G. heteroclitia</u>	16s,o 16m	8♂(1,11)	---	Wendrowski '28	"
<u>G. papillosa</u>	16s,o 16m	8♂(11)	---	Wendrowski '28	"
<u>Haemopis sanguisuga</u>	---	13♀(1)	---	Wendrowski '28	"
<u>Henridepsis marginata</u>	32s,m	16♂(11)	---	Wendrowski '28	"
<u>Herpobdella atomaria</u>	16(?)o	8♀(1)	---	Wendrowski '28	"
<u>H. bistrigata</u>	18s	9♂(11)	---	Wendrowski '28	"
<u>Nephelis vulgaris</u>	16o	8♀(1)	---	Jörgensen '08	A.Zf. 2.
<u>Pisciola sp.</u>	---	16♀(1)	---	Jörgensen '13	A.Zf. 10.
<u>Proctocepis tessellata</u>	16m	8(?)	---	Wendrowski '28	Z.Z.M.A. 8.

ECHIUROIDEA

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Thalassema mellita</u>	---	Cal 2g(1) 16-17g(11)	---	Bonnevie '08	A.Zf. 2.
"	24m	12g(1)	---	Griffen '99	J.M. 15.
"	12m (Parth.)	12g(1,11)	---	Lefevre '06, '07	Sci. 23; J.E.Z. 4.
<u>Urechis caupo</u>	36m	18g(1,11)	---	Tyler '32	B.B. 63.

SIPUNCULOIDEA

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Phascolosoma gouldii</u>	20m	10g(1,11)	---	Gerould '04, '06	A.Z.E.G. 2; Z.Jb. 32.
<u>P. vulgare</u>	20m	10g(1,11)	---	Gerould '04, '06	"
<u>Sipunculus nudus</u>	---	10g(1)	---	Gerould '06	Z.Jb. 23.

CHAETOGNATHA

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Sagitta bipunctata</u>	---	8♂(1,11)	---	Bolles-Lee '88	L.C. 4.
"	18♂	9♂(1,11)	---	Bordas '12, '14	L.C. 28; Mem. Real. Soc. Espan. Hist. Nat. 10.
"	18m	9♀(1,11)	9 in ♂ pronucleus	Boveri '90	Jena Z. 17.
"	18m	9♀(1)	---	Buchner '09, '10	A.A. 35; Fest. Hertwig, 1.
"	18m	9♀(1)	---	Elpatiewsky '10	Biol. Zeits. (Moskow) 1.

CHAETOGNATHA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Sagitta bipunctata</u>	18s	9♂(1,11)	—		Stevens	Z.Jb. 18; J.M.
	18m	9♀(1,11)	—		'03, '10	21
<u>S. elegans</u>	18m	9♂(1,11)	—		Stevens	Z.Jb. 21;
		9♀(1)	—		'05, '10	J.M. 21.
<u>S. inflata</u>	18m	9♀(1)	---		Buchner '10	Fest. Hertwig. 1.
"	---	9♂(1,11)	---		Stevens '10	J.M. 21.
<u>S. minima</u>	---	9♂(1,11)	---		Stevens '10	J.M. 21.

MOLLUSCA
PELECYPODA
EULAMELLIBRANCHIA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Cumnia tellinoides</u>	---	18♀(1,11)	---		Jordan '10	A.Zf.4.
	36m	18♀(1,11)	---		Morris '17, '18	J.E.Z.22; B.F.35.
	18m(Parth.)					
	50-60m(Parth.)					
<u>Cumnia</u> sp.	---	16♀	Polar body	Mackay '27	Trans.Nova Scot. Inst. Sci.'17.	
<u>Mactra</u> sp.	24m	12♀(1,11)	---	Kostanecki '04, '04, '11	A.M.A.64; Bull. Acad.Sci.Cracovie, 1904; A.M.A.78.	
<u>Unio</u> sp.	---	16♀(1,11)	---	Lillie '01	J.M.17.	

GASTROPODA
PROSOBRANCHIA*

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Bythini atentaculata</u> <i>(=Paludina impura)</i>	34s	17♂(1,11)	—		Ankel '24	Z.Z.M.A. 1.
<u>B. tentaculata</u>	34	17♂(1)	X-06		Tuzet '30	A.Z.E.G. 70.
"	22-28s	24-28♂(1)	—		Von Kemnitz '14	A.Zf. 12.

*In the following species the types of the sex chromosomes were only given:
Nassa mutabilis (X-Y), *Marsenia* sp. (X-Y), *Turitella terebra* (X-Y), *Cerithium vulgatum* (X-O),
Conus europeus (X-O), *Columbella rustica* (X-O), *Neritina fluviatilis* (X-O), *Vermetus gigas*
 (X-O) (Kuschakewitsch '24, Z.Z.M.A.). *Neritina fluviatilis* (X-O) (Aleksenko '27, Acad. Sci.
 Ukraine Mem. Cl. Sci. Phys. Math. 6).

MOLLUSCA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Compeloma decisum</u>		26-28♀m	—	—	Pollister & Pollister '40	A.R. 78. Suppl.
<u>C. ponderocum</u>		28♂m	14	—	Pollister & Pollister '40	A.R. 78. Suppl.
<u>C. rufum</u>		120	12♀(1,11)	—	Mattox '37	Z.Z.M.A. 27.
<u>C. subsolidum</u>		26-28♀m	—	—	Pollister & Pollister '40	A.R. 78. Suppl.
<u>Carinaria mediterranea</u>		32m	16♀(1,11) 16	—	Boveri '90	Jena Z. 17.
<u>Cerithium vulgatum</u>	Ca 30s	16♂(1)	X-0♂		Kuschakewitsch '21	A.Zf. 15.
"	---	16♂(1,11)	—		Tuzet '30	A.Z.E.G. 70.
<u>Cochlostoma septemspirale</u>	---	12-13	—		Ankel '25	Serckenberiana 7.
<u>Columbella rustica</u>	---	16+♂(1)	—		Schitz '17	A.Z.E.G. 56.
<u>Conus mediterranea</u>	---	14♂(1)	—		Kuschakewitsch '13	A.Zf. 10.
<u>C. mediterraneus</u>	---	15♂(1) 14,15♂(11)	X-0♂		Tuzet '30	A.Z.E.G. 70.
<u>Crepidula plana</u>	60m	30♀(1,11)	—		Conklin '02	Jour. Acad. Nat. Sc. Phila. 12.
<u>Enteroxenus oesterrense</u>	34o	17♀(1,11)	17 in ♂ pronucleus		Bonnevie '05	A.A. 26.
"	42m	21♂(1,11) 21♀(1,11)	—		Schreiner '07	Vidensk-Selsk. Skr. Math.-Nat. 1907.
<u>Fasciolaria tulipa</u>	---	31?♂	X-0♂		Hyman '23	J.M. 37.
<u>Fulsur carica</u>	---	Cal6♀(1)	—		McMurrich '96	A.A. 12.
<u>Goniobasis lacueata</u>	36s	18♂(1)	—		Woodard '35	J.M. 57.
<u>Hydrobia Jenkinsi</u>	20-22m	20-22(1)	—		Rhein '35	Naturwiss. 23.
<u>Liplax subcarinata</u>	26	13	—		Pollister & Pollister '40	A.R. 78. Suppl.
<u>Murex brandaris</u>	---	28♂(1)	—		Lams '34	Bull. Assoc. Anatomistes 1934.

MOLLUSCA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>M. trunculus</u>	---	11-12♂(1)	---	Schitz '20	A.Z.E.G. 59.
"	---	14♂(1)	X-0♂	Tuzet '30	A.Z.E.G. 70.
<u>Nassa nitida</u>	---	14♂(1)	X-0♂	Tuzet '30	A.Z.E.G. 70.
<u>Neritina fluviatilis</u>	19s 20o	10♀(1)	X-0♂	Alexenko '28	Z.Z.M.A. 8.
<u>Paludina vivipara</u>	16s	16♂(1) 8♂(11)	---	Auerbach '96	Jena Z. 23.
"	14s	7♂(1,11)	---	Meves '01,'03	Verh. Anat. Ges. 1901;A.M.A. 61.
"	14o 14m	7♀(1)	---	Popoff '07,'08	A.M.A. 70; B. Zb. 28.
<u>Pisania maculosa</u>	---	16♂(1)	X-0♂	Tuzet '27	A.Z.E.G. 67.
<u>Potamopyrus (Hydrobia) jenkinsi</u>	30-44m	---	---	Peacock '40	Nature 146
<u>Pterotrachea mutica</u>	32m	16♀(1,11)	16 in ♂ pronucleus	Boveri '90	Jena Z. 17.
<u>Theodoxia fluviatilis</u>	18s	9♂(11)	X-Y♂	Tuzet '30	A.Z.E.G. 70.
<u>Tulotoma magnifica</u>	24	---	---	Pollister & Pollister '40	A.R. 78. Suppl.
<u>Valvata piscinalis</u>	20s	---	---	Artom '33	Rend. Acad. Lincei (6) 17.
"	Ca20s	10♂(1)	---	Von Kemnitz '14	A. Zf. 12.
<u>V. tricarinata</u>	18s	9♂(1)	---	Furrow '35	Z.Z. M.A. 22.
<u>Vermetus gigas</u>	---	14♂(1)	---	Kuschakewitsch '13	A. Zf. 10.
<u>Vivipara sp. (malleatus)</u>	18s	9♂(1)	---	Pollister '39	Proc. Nat. Acad. Sci. 25.
<u>Viviparus contectoides</u>	26	13	---	Pollister & Pollister '40	A.R. 78. Suppl.
<u>V. georgianus</u>	24	12	---	Pollister & Pollister '40	A.R. 78. Suppl.
<u>V. intertextus</u>	26	13	---	Pollister & Pollister '40	A.R. 78. Suppl.

MOLLUSCA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>V. viviparus</u>	14s	---	---		Ankel '24	Z.Z.M.A. 1.
"	34s	17 \hat{o} (1)	---		Ankel '24	Z.Z.M.A. 1.

OPISTHOBRANCHIA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Aplysia depilans</u>	---	16 \hat{o} (1,11)	---		Bochenek '99	Bull. Kcad. Sc. Cracovie 1899.
<u>A. limacina</u>	24m	---	---		Carazzi '05	Arch. Ital. Anat. Emb. 4.
<u>A. punctata</u>	---	16 \hat{o} (1,11)	---		Janssens & Elrington '04	L.C. 21.
"	24m	---	---		Carazzi '05	Arch. Ital. Anat. Emb. 4.
<u>Cressey acicula</u>	20s 20o 20m 10m	10 \hat{o} (1,11) 10 \hat{o} (1,11)	---		Zarnik '11	Verh. deut. Zool. Ges. 21.
<u>Cymboulia peronii</u>	32m	16 \hat{o} (1)	---		Nekrassof '03, '09	A.A. 24; A.M.A. 73.
"	36	---	---		Zarnik '11	Verh. deut. Zool. Ges. 21
<u>Diaulula sandiegensis</u>	---	12 \hat{o} (1)	---		MacFarland '97	Z.Jb. 10.
<u>Doris bifida</u>	32m	16 \hat{o} (1,11)	---		Smallwood '05	Morph. Jahrb. 33.
<u>Hamina solitaria</u> (=Bulla solitaria)	---	16 \hat{o} (1,11)	---		Smallwood '04	Bull. Mus. Comp. Zool. Harvard 45.
<u>Hyalaea tridentata</u>	24	---	---		Zarnik '11	Verh. deutsch. Zool. Gesell. 21.
<u>Hyalocylis striata</u>	24	12 \hat{o} (1,11) 2X-0 \hat{o}			Zarnik '11	Verh. Deutsch. Zool. Gesell. 21.
<u>Limacina (Spiratella) retroversa</u>	24s 24m	12 \hat{o} (1,11)	---		Sidney '39	B.B. 76.

OPISTHOBRANCHIA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Montagua gouldii</u>	32m	16 φ (1,11)	---	---	Smallwood '05	Morph. Jahrb. 33.
<u>M. pilata</u>	32m	16 φ (1,11)	---	---	Smallwood '05	Morph. Jahrb. 33.
<u>Phyleir hoe bucephala</u>	32m	16 φ (1,11)	16 in δ pronucleus	---	Boveri '90	Jena Z. 17.
<u>Pleurophyllidia californica</u>	20-24m	10-12 φ (11)	---	---	MacFarland '97	Z. Jb. 10.
<u>Tiedemannia neopolitana</u>	28	---	---	---	Zarnik '11	Verh. Deut. Zool. Ges. 21.

PULMONATA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Basommatophora						
Amphibolidae						
<u>Melampus boholensis</u>	16s	8 δ (1)	---	---	Koslowsky '33	Jena. Z. Naturw. 68.
<u>Salinator takii</u>	---	18 δ (1)	---	---	Inaba '50	Jap. J.G. 25.
Lymnaeidae						
<u>Lymnaea (Radix) auricularia</u>	---	16 φ (1)	---	---	Laramberdue '29	C.R.A.S. 2, XII.
"	---	17 δ (1)	---	---	Perrot et Perrot '38	C.R. Sean. Soc. Phy. Hist. Nat. 55.
<u>L. elodes</u>	---	16 φ (1,11)	---	---	Linville '00	Bull. Mus. Comp. Zool. Harvard 35.
"	---	16 δ (1)	---	---	Perrot '38	R. Suisse Z. 45.
<u>L. (R.) japonica</u>	36s	18 δ (1)	---	---	Inaba '50	Jap. J.G. 25.
<u>L. (R.) ovata</u>	---	17 δ (1)	---	---	Perrot & Perrot '38	C.R. Sean. Soc. Phy. Hist. Nat. 55.
<u>L. (Stagnicola) palustris</u>	---	18 δ (1)	---	---	Perrot & Perrot '38	"

PULMONATA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>L. (Stagnicola) palustris</u>	---	16♀(1)	---	Larambergue '29	C.R.A.S. 2,XII
<u>L.(B.) peregra</u>	---	17♂(1)	---	Perrot & Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55.
<u>L.(L.) stagnalis rhodami</u>	---	18♂(1) 18♀(1)	---	Perrot '30, '34	R.Suisse Z 37, 41
<u>L. stagnalis</u>	---	16♀(1)	---	Larambergue '29	C.R.A.S. 2,XII.
<u>L. st. appressa</u>	---	10♀(11)	---	Crabb '27	B.B. 53.
Physidae					
<u>Physa gyrina</u>	---	6♂(1)	---	Mahoney '40	Univ. Colo. Stud. Gen. A, 26.
Stylommatophora					
Arionidae					
<u>Arion empiricorum</u>	---	16-20♀(1)	---	Platner '86	A.M.A. 27.
"	---	16-20♀(1)	---	Garnault '89	Z.A. 12.
"	32m	16♀(1)	---	Lams '10	Acad.Roy.Belg. Cl.Sc. Mem. Ser.2, 2.
"	---	16♂(1)	---	Perrot '38	R.Suisse Z. 45.
Bradybaenidae					
<u>Bradybaena</u> <u>(-Fruticicola,</u> <u>Ezohelix) gainesi</u>	58s	29♂(1,11)	---	Kawabe '47	La Kromosomo 3-4.
<u>B. similaris</u>	58s	29♂(1)	From cor- rection of 1950.	Inaba '50	Jap. J.G. 25.
<u>Euhadra amaliae</u>	—	28♂(1)	---	Inaba '45	Jap. J. Malac. 14.
<u>E. awensis</u>	58s	---	---	Inaba '50	Jap. J.G. 25.
<u>E. eoa gulicki</u>	56s	28♂(1)	---	Inaba '50	Jap. J.G. 25.
<u>E. hickonis</u>	---	28♂(1)	---	Inaba '45	Jap. J. Malac. 14.
<u>E. idzumonis</u>	---	29♂(1)	---	Inaba '45	Jap. J. Malac. 14.

PULMONATA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>E. sandai communis</u>	---	28 δ (1)	---	Inaba '50	Jap. J.G. 25.
<u>Fruticicola(Acusta) sieboldiana</u>	58s	29 δ (1,11)	---	Inaba '50	Jap. J.G. 25.
<u>F.(=Eulota) fruticum</u>	---	29 δ (1,11)	---	Perrot '38,P. & Perrot '38	R.Suisse Z. 45; C.R.Sean.Soc. Phy.Hist.Nat. 55.
Canaenidae					
<u>Satsuma myomphala</u>	---	29 δ (1)	---	Inaba '50	Jap. J.G. 25.
Helicidae					
<u>Cepaea (=Tachea, Helix) hortensis</u>	48s	24 δ (1,11)	---	Kleinert '09	Jena Z. 38.
"	44s	22 δ (1)	---	Baltzer '13	A. Zf. 11.
"	---	22 δ (1)	---	Perrot '38,P. & Perrot '38	R.Suisse Z. 45; C.R.Sean. Soc. Phy. Hist. Nat. 55.
<u>C. (=Tachea) austriaca</u>	---	25 δ (1)	---	Baltzer '13	A. Zf. 11.
<u>C. (=Tachea, Helix) nemoralis</u>	48s	24 δ (1)	---	Boveri '90	Jena Z. 24.
"	Ca48s	24 δ (1,11)	---	Kleinert '09	Jena Z. 38.
"	---	22 δ (1) 28-29 δ (1)	---	Baltzer '13	A. Zf. 11.
"	---	22 δ (1)	---	Perrot '38,P. & Perrot '38	R.Suisse Z. 45; C.R.Sean. Soc. Phy.Hist.Nat. 55.
<u>C. sylvatica</u>	---	25 δ (1)	---	"	"
<u>C. vindobonensis</u>	---	25 δ (1)	---	"	"
<u>Cochlicella acuta</u>	---	23 δ (1)	---	"	"
<u>Helicigona (=Arianta) arbustorum</u>	---	30 δ (1)	---	"	"
"	Ca48s	24 δ (1,11)	---	Soos '10	Ann.Mus. Nat. Hungarici 8.
"	Ca48s	24 δ (1,11)	---	Buresch '11	A. Zf. 12.

PULMONATA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>H. (Helicigona) lapicida</u>	—	29 δ (1)	—	—	Perrot '38, P. & Perrot '38	R.Suisse Z.45; C.R.Sean. Soc. Phy. Hist. Nat. 55.
<u>Hellicella obvia</u>	—	26 δ (1)	—	—	Perrot '38	R.Suisse Z.45.
<u>Helix (Cryptomphalus) aspersa</u>	—	16-20 δ (1)	—	—	Garnault '89	Z.A. 12.
"	54s	27 δ (1)	—	—	Perrot & Perrot '37, '38	R.Suisse Z.44; C.R.A.S. 207
<u>H. (Centareus) aperta</u>	54s	27 δ (1)	—	—	Perrot & Perrot '37, '38	R.Suisse Z.44; C.R.A.S. 207
<u>H. (Helicogena) cincta</u>	—	27 δ (1)	—	—	Perrot & Perrot '37, '38	R.Suisse Z.44; C.R.A.S. 207
<u>H. (H.) melanostoma</u>	—	27 δ (1)	—	—	Perrot & Perrot '37, '38	R.Suisse Z.44; C.R.A.S. 207
<u>H. (H.) pomatia</u>	54s	27(1) 27(1)	—	—	Perrot '27, P. & Perrot '37, '38	Z.Zf.27; R.Suisse Z.44, 45; C.R.A.S. 207.
<u>H. pomatia bivalens</u>	48s	24 δ (1,11)	—	—	Bolles-Lee '96, '97, '99, '11	L.C. 11, 13, 16, 27.
"	48s	24 δ (1,11)	—	—	Murray '98	Z. Jb. 11.
"	48s	24 δ (1,11)	—	—	Ancel '02	Bibl. Anat. 11.
"	30+m	24 δ (1,11)	—	—	Tschassownikow '05	Anat. Hf. 29.
"	48s	24 δ (1,11)	—	—	Kleinert '09	Jena Z. 38.
"	48s	24 δ (1) 23, 24 δ (11)	X-0?6	—	Demoll '11, '12 '12	Z.A. 38; Z.Jb. Suppl. 15-2; 33.
<u>H. pomatia univalens</u>	—	24 δ (11)	12 in δ pronucleus	—	Platner '85, '89	A.M.A. 26, 33.
"	24s	—	—	—	Zimmerman '91	Verh. Anat. Ges. 5.
"	24s	12 δ (1,11)	—	—	Vom Rath '92	A.M.A. 40.
"	24s	—	—	—	Goldewski '97	Bull. Acad. Sc. Cracovie 1897.
"	24s	12 δ (1,11)	—	—	Prowazek '02	Arb. Zoöl. Inst. Wien 13.

PULMONATA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Helix sp.</u>	16? s	---	---		Meek '13	Phil. Trans. Roy. Soc. London B. 203
<u>Hygromia cinctella</u>	---	21 \hat{o} (1)	---	Perrot & Perrot '38, Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>Iberus (=Massylea) soluta</u>	---	25 \hat{o} (1)	---	Perrot & Perrot '38, Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>Monacha (=Theba) cathusiana</u>	—	23 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>M. incarnata</u>	—	24 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>Otala (=Dupotetia, Archelix) dupotetiana</u>	—	26 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>O. (=Otala, Archelix) hieroglyphicula</u>	—	26 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>O. (=O. A.) punctata</u>	—	26 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>Pseudotachea coquandi</u>	—	22 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<u>P. litturata</u>	—	22 \hat{o} (1)	—	Perrot & Perrot '38 Perrot '38	C.R.Sean. Soc. Phy. Hist. Nat. 55; R.Suisse Z.45.	
<i>Limacidae</i>						
<u>Lehmannia marginata</u>	—	24 \hat{o} (1)	X-0 \hat{o}	Perrot '30, '38	R.Suisse Z.37,45.	
<u>Limax agrestis</u>	—	16 \hat{o} (1)	8 in \hat{o} pronucleus	Platner '89	A.M.A. 33.	
<u>Limax (Agrolimax) agrestis</u>	—	30 \hat{o} (1)	X-0 \hat{o}	Perrot '30	R.Suisse Z. 37.	
<u>L. cinereo-niger</u>	16s	8 \hat{o} (1)	---	V. Rath '92	A.M.A. 40.	
"	—	31 \hat{o} (1)	X-0 \hat{o}	Perrot '38	R.Suisse Z . 45.	

PULMONATA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Lymax maximus</u>	---	Ca16♂(1)	—		Linville '00	Bull. Mus. Comp. Zool. Harvard 35.
"	---	Ca20♀(1)	—		Washburn '94	A. N. 28.
"	---	31♂(1)	X-0♂		Perrot '30, '38	R. Suisse Z. 37. 45.
<u>L. tenellus</u>	---	24♂(1)	X-0♂		Perrot '30, '38	R. Suisse Z. 37. 45.
<i>Philomycidae</i>						
<u>Inciliaria fruhstorferi</u>	48s	24♂(1)	—		Inaba '50	Jap. J.G. 25.
<i>Polygyridae</i>						
<u>Mesodon thyroidus</u>	58s	29♂(1)	—		Husted & Burch '46	A.N. 80.
<u>M. mitschelleanus</u>	"	"	—		"	"
<u>M. andrewsae normalis</u>	"	"	—		"	"
<u>M. zaletus</u>	"	"	—		"	"
<u>M. appressus</u>	"	"	—		"	"
<u>M. rugeli</u>	"	"	—		"	"
<u>M. inflectus</u>	"	"	—		"	"
<u>Polygra appressa</u>	60-62s	31♂(1) 31♀(1)	—		Pennypacker '30	J.M. 49.
<u>Stenotrema hirsutum</u>	58s	29♂(1)	—		Husted & Burch '46	A.N. 80.
<u>S. monodon aliciae</u>	"	"	—		"	"
<u>S. spinosum</u>	"	"	—		"	"
<u>S. stenotrema</u>	"	"	—		"	"
<u>Triodopsis dentifera</u>	"	"	—		"	"
<u>T. albolabris</u>	"	"	—		"	"
<u>T. fraudulenta</u>	58s 59 60 62 61-62	29♂(1) 29-30 30 31	Presence of heteromor- phic bivalents in different strains		"	"

PULMONATA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>T. f. vulgata</u>	58s	29 \hat{o} (1)	3 strains	"	"
<u>T. tridentata</u>	"	"	---	"	"
<u>T. t. juxtidenta</u>	"	"	3 strains	"	"
<u>T. t. edentilabris</u>	"	"	2 strains	"	"
Succineidae					
<u>Succinea horticola</u>	34s	17 \hat{o} (1)	---	Inaba '45	Jap. J. Malac. 14.
<u>S. ovalis</u>	40s	20 \hat{o} (1,11)	---	Hickman '31	J.M. 51.
"	---	20 \hat{o} (1)	---	Perrot '38, P. & Perrot '38	R.Suisse Z.45; C.B.Sean. Soc. Phy. Hist. Nat. 55.
<u>S. putris</u>	---	22 \hat{o} (1)	---	"	"

CEPHALOPODA
DIBRANCHIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Sepia officinalis</u>	---	6 \hat{o} (1)	---	Loyez '06	Arch. Anat. Micr. 8.

NEMATHELMINTHES
ACANTHOCEPHALA
ECHINORHYNCHOIDEA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Echinorhynchidae</u>					
<u>Echinorhyncus acus</u>	---	8 \hat{o} (1,11)	---	Hamann '91	Jena Z. 18.
<u>E. gigas</u>	8m	4 \hat{o} (1,11)	---	Kaiser '93	Bib. Zoöl. 7.
<u>E. haeruca</u>	---	8 \hat{o} (1,11)	---	Hamann '91	Jena Z. 18.
<u>E. polymorphus</u>	---	8 \hat{o} (1,11)	---	Hamann '91	Jena Z. 18.
<u>E. proteus</u>	8m	4 \hat{o} (11)	---	Von Voss '10	A. Zf. 5.

NEMATHELMINTHES (Continued)

Species	Chromosome Number				Observer	References
	2n	n	Remarks			
Gigantorhynchidae						
<i>Gigantorhyncus gigas</i>	6s	3♂(1)	---	Noe '14		Arch. Ital. Biol. 53.
<i>G. naceus</i>	6s	3♂(1,11)	---	Noe '14		Mem. R. Acc. Lincei Ser. V, 10.

NEMATODA

Species	Chromosome Number				Observer	References		
	2n	n	Remarks					
HOLOGONIA								
Trichinellidae								
<i>Trichosomoides crassicauda</i>	8o 7-8m	4♂(1) 3,4♂(11) 4♀(1,11)	X-0♂		Walton '24	Z.Z.M.A. 1.		
THELOGONIA								
Acuariidae								
<i>Acuaria spiralis</i>	11-12m	6♂(1,11) 6♀(1,11)	X-0♂		Waltón '24	Z.Z.M.A. 1		
Ancyracanthidae								
<i>Ancyracanthus cystidicola</i>	11s 12o 11,12m	6♂(1) 5,6♂(11) 6♀(1,11)	X-0♂	Mulsow '11, '12	Z.A. 38; A.Zf. 9.			
Ascaridae								
<i>Angiostomum nigrovenosum</i> <i>(=Ascaris nigrovenosum)</i>	---	6♀(1,11)	Hermaphrodite. Occa- sionally 5 in ♀.	McDowell '06, '08	Proc. Camb. Phil. Soc. 13, 14			
<i>Ascaris canis</i> <i>(Ascaris of dog)</i>	---	4♀(1,11)	4 in ♂ pronucleus	Carnoy '86	L.C. 3.			
"	---	18♂(1) 12,18♂(11)	---	Jeffrey & Haertl '38	L.C. 47.			
" <i>(Ascaris D. Hundes)</i>	---	16♀(1) 8♀(11)	X ₁ ...X ₈ -0♂	Lukjanow '89	A.M.A. 34.			

NEMATODA (Continued)

Species	Chromosome Number				References
	2n	n	Remarks	Observer	
" <u>(Ascaris mystax)</u>	22s 22o 22m	11 \hat{o} (1,11) 11 \hat{o} (1,11) 11 \hat{o} (1,11)	Chrom. diminution in some	Marcus '05, '06	Sitz. Ber. Ges., Morph. Phys. München 21; A.M.A. 68.
"	30s 36o 30, 36m	18 \hat{o} (1) 12, 18 \hat{o} (11) 18 \hat{o} (1,11)	X ₁ ...X ₆ -O \hat{o} Fragmentation of chrom. into 6 or 7 in o. or 7 in ♀.	Walton '16 a, b, '18	J. Parasit. 3; B.B. 31; J.M. 30.
<u>A. clavata</u>	---	24 \hat{o} (1,11)	7 \hat{o} in ♀.	Carnoy '86	L.C. 3.
<u>A. felis</u>	---	9 \hat{o} (1,11)	X-Y \hat{o}	Edwards '12	A.Zf. 7.
"	---	9 \hat{o} (1,11)	X-Y \hat{o}	Walton '16	B.B. 31.
"	---	9 \hat{o} (1,11)	X-O \hat{o}	Walton '21	J.E.Z. 34.
" (Goeze)	---	9 \hat{o} (1,11)	X-O \hat{o}	Walton '21	J.E.Z. 34.
<u>A. incurva</u>	35s 42o	21 \hat{o} (1) 14, 21 \hat{o} (11) 21 \hat{o} (1,11)	X ₁ ...X ₈ -O \hat{o} chromatin diminution in cleavage	Goodrich '14, '16	B.B. 27; J.E.Z. 21.
<u>A. lumbricoides</u>	---	20-24 \hat{o} (1) 24 \hat{o} (11)	---	Carnoy '86	L.C. 3.
"	---	24 \hat{o} (1) 24 \hat{o} (11)	---	Boveri '87	Sitz. Ber. Ges., Morph. Phys. München. 2; Jena Z. 14.
"	48-50m	24 24	Chromatin diminution in cleavage	Bonnevie '02	Jena Z. 29.
"	43s	24 \hat{o} (1) 19, 24 \hat{o} (11) 24 \hat{o} (1,11)	X ₁ ...X ₅ -O \hat{o}	Edwards '10a,b.	Sci. 31; A.Zf. 5.
"	---	24 \hat{o} (1) 19, 24 \hat{o} (11)	---	Jeffrey & Haertl '38	L.C. 47.
"	43s 48o 43, 48m	24 \hat{o} (1) 19, 24 \hat{o} (11) 24 \hat{o} (1,11)	X ₁ ...X ₅ -O \hat{o}	Walton '24	Z.Z.M.A. 1.

NEMATODA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<i>Ascaris mystax</i> <i>(=A. canis)</i>	22s	11♂(1,11)	Chrom.	Marcus '05, '06	Sitz. Ber. Ges.	
	22o	11♀(1,11)	diminution		Morph. Phys.	
	22m		in soma.		München 21;	
					A.M.A. 68.	
<i>A. megalcephala</i>	5s	2♂(1) 2, 3♂(11)	Hermaphro-	Gonlliart	C.R.S.B. 110	
		5♀(1)	dite. X	'32		
			fused with			
			one of auto-			
			somes in 1st			
			div.			
"	4m	---	---	Hance '27	J.M. 44.	
<i>A. megalcephala</i> <i>bivalens</i>	4s	2♂(1,11)				
	4o, 4m	2♀(1,11)				
			---	Van Beneden	A.B. 4; A.A. 3.	
				'83, '88		
"	4s	2♂(1,11)	2 in ♂			
	4o	2♀(1,11)	and ♀	Van Beneden &	Bull. Acad. Roy.	
	4m		pronucleus	Julin '84	Sc. Belg. Ser. III.	
					7.	
<i>A. megalcephala</i> <i>bivalens</i>	4s	2♂(1,11)	2 in ♂			
	4o	2♀(1,11)	and ♀	Van Beneden &	Bull. Acad. Roy.	
	4m		pronucleus	Neyt '87	Sc. Belg. Ser. III.	
					14.	
"	5s	---	X-0♂?	Boring '09	A.Zf. 4.	
"	5m					
"	4m	2♀(1,11)	X-0♂? X	Boveri '87	Sitz. Ber. Ges.	
			probably a,b,c, '88,		Morph. Phys.	
			fused with	'04, '09 a,b,	München 3;	
			one autosome.	'10	A.A. 2; Jena	
					Z. 14; 15:	
			Diminution		"Ergeb. Konsti-	
			and fragmen-		tution d. Chrom.	
			tation of		Substanz d. Zell-	
			chrom. in		Kerne" Jena; A.	
			soma. 2 in ♂		Zf. 3,4; Fest. R.	
			and ♀ pro-		Hertwig, 3.	
			nucleus.			
"	4m	2♂(1,11)	---	Brauer '93	A.M.A. 42.	
"	4m	4♀(1)	2 in ♂ and	Carnoy '86a,b	L.C. 2,3.	
		2♀(11)	♀ pronucleus			
"	4m	4♀(1)	2 in ♂	Carnoy &	L.C. 13.	
		2♀(11)	and ♀	Lebrun '97		
			pronucleus			
"	4m	---	2 in ♂	Dostoiewsky	A.A. 3.	
			and ♀	'88		
			pronucleus			

NEMATODA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>A. megalcephala bivalens</u>	5s	3♂(1) 2,3♂(11)	X-0♂		Edwards '10a,b	Sci. 31: A.Zf. 5.
"	4s	2♂(1,11)	—		Faure, Fremist	A.A.M. 15.
"	4o	2♀(1,11)			'13	
"	4m					
"	4m	---	—		Fogg '30	J.M. 50.
"	4m	---	2m in abnormal case. Frag- mentation of chrom.		Zoja '96	A.M.A. 47.
"	5m(?) 4-6m(?)	2,3♀(1,11)	X-0♂. X fused with one auto- some. 2,3 in ♂ pro- nucleus.	X-0♂. X fused with one auto- some. 2,3 in ♂ pro- nucleus.	Frolowa '12	A.Zf. 9.
"	—	4♀(1) 2♀(11)	2 in ♂ pronucleus	2 in ♂ pronucleus	Van Gehuchten '87	A.A. 2.
"	2-7m	3-4♀(1) 2-4♀(11)	49-54 in ♂ embryo, 58-62 in ♀ embryo.	49-54 in ♂ embryo, 58-62 in ♀ embryo.	Geinitz '15	A.Zf. 13.
"	4s 4o	2♂(1,11) 2♀(1,11)	—	—	Hertwig '90	A.M.A. 36.
"	1-8m	—	1-2 in ♂ pronucleus. 27(♂) and 36(♀) embryos.	1-2 in ♂ pronucleus. 27(♂) and 36(♀) embryos.	Kautzsch '12	A.Entwick. 35.
"	4m	4♀(1) 2♀(11)	2 in ♂ pronucleus	2 in ♂ pronucleus	Kultschitzky '88a,b	Sitz. Akad. Wiss. Berlin. 88; A.M.A. 31.
<u>Ascaris megalcephala bivalens</u>	4o	2♀(11)	—		Meek '13	Phil. Trans. Roy. Soc. London. 203 B.
"	4m	2♀(1,11)	2 in ♂ and ♀ pronucleus	2 in ♂ and ♀ pronucleus	Montgomery '04, '08	B.B. 6; A.Zf. 2.
"	—	2♀(1,11)	—		Moszkowski '02	A.M.A. 59.

NEMATODA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u><i>Ascaris megalcephala bivalens</i></u>	4m	---	---		Nawaschin '36	B. Zhurn. (Moscow) 5.
"	4 4m	4♂(1) 4♀(1,11)	Fragmentation and diminution of chrom. in cleavage.		Nussbaum '84, '02	A.M.A. 23, 59.
"	4m 8-12m	---	Chrom. number varies due to fragmentation of chrom.		Vom Rath '94	E.Zbl. 14.
"	4m	2♂(1,11) 2♀(1)	2 in ♂ pronucleus		Retzius '11	Biol. Unters. 16.
"	4o	2♂(1,11) 2♀(1)	---		Sabaschnikoff '97	Bull. Soc. Imp. Nat. Moscow 9.
"	---	2♀(1)	---		De Saedeleer '13	L.C. 28.
"	---	2♀(1)	---		Schneider '83	"Ei u. Befruchtung." Breslau.
"	4m	2♂(1) 2♀(1)	---		Tretjakoff '05	A.M.A. 65.
"	4m	---	2 in ♂ and ♀ pronucleus		Vejdovsky '12	Konig. Böhm, Gesel. Wissen. Prag.
"	4 96-104m	2♂(1,11)	X ₁ ...X ₈ -O♂	Walton '24		Z.Z.M.A. 1.
"	4	---	---		Von Wasielewski '93	A.M.A. 41
"	4m	2♀(1) 2♀(11)	---		Zacharias '87a, b, '12 a, b	A.A. 2; A.M.A. 30; A.A. 42; Z.A. 40.
"	4m	---	---		Makino '49	La Kromosomo 5-6.
<u><i>Ascaris megalcephala trivalens</i></u>	3m	---	X-O♂♂. 1 in ♂ pronucleus, 2 in ♀ pronucleus.		Zacharias '12	E.Zbl. 32.
<u><i>Ascaris megalcephala univalens</i></u>	2o	1♂(1)	---		Blanckertz '10	A.Zf. 6.
"	---	1♀(1)	---		Bonnevie '08	A.Zf. 2.
"	3m	---	X-O♂(?)		Boring '09	A.Zf. 4.

NEMATODA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Ascaris megalcephala univalens</u>	2m	1 φ (1,11)	1 in ♂ pronucleus. Fragmentation and diminution of chrom.	Boveri '87, '88, '92, '99, '04, '09	Jena. Z. 14, 15; Sitz. Ges. Morph. Phys. München. 8; Fest. von Kupffer. P. 383; "Ergeb. Konst. d. Chr. Subst. d. Zellkerns.; A. Zf. 3.
"	2s	1 δ (1,11)	---	Brauer '93	A.M.A. 42.
"	2m	---	1 in ♂ and ♀ pronucleus.	Carnoy & Labrum '97	L.C. 13.
"	2m	---	1 in ♂ and ♀ pronucleus.	Dostoiewsky '88	A.A. 3.
"	3m	---	X-0 δ	Edward '10	A.Zf. 5.
"	2s 2o	1 φ (1)	---	Faure Fremit '13	A.A.M. 15.
"	2m	---	---	Fogg '30	J. M. 50.
"	2m	---	1 in ♂ and ♀ pronucleus.	Held '12	Verh. Anat. Ges. 26.
"	2m	4 φ (1) 2 δ (11)	1 in ♂ and ♀ pronucleus.	Herla '95	A.B. 13.
"	2s 2o	1 δ (1,11)	---	Hertwig '90	A.M.A. 36.
"	2m	---	---	King & Beams '38	J.E.Z. 77.
"	2m	---	---	Kultschitzky '88	A.M.A. 31.
"	2m	---	---	Nawaschin '36	B. Zhurn. 5.
"	2 2m	---	Fragmentation and diminution of chrom.	Nussbaum '02	A.M.A. 59.
"	2o	1 δ (1) 1 φ (1)	---	Retzius '14	Bid. Unters. 17.

NEMATODA (CONTINUED)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u><i>Ascaris megalcephala univalens</i></u>	2s 2o 2m	1 \hat{o} (1,11) 1 \hat{o} (1,11)	---	Schneider '91	Arb. Zool. Inst. Wien. 9.
"	2s	1 \hat{o} (1,11)	---	Tretjakoff '05	A.M.A. 65.
"	22	---	---	Walton '16	J. Parasit. 3.
"	2	1 \hat{o} (1,11) X ₁ ...X ₈ or X ₉₋₀₆ . 52-60 in soma, due to fragmentation of chrom.	Walton '24	Z.Z.M.A. 1.	
"	2	---	---	Von Wasielewski '93	A.M.A. 41.
"	---	---	1 in ♂ and ♀ pronucleus	Zacharias '12	A.A. 42.
"	2m	---	---	Makino '49	La Kromosomo 5-6.
<u><i>A.. nigrovenosa</i></u> <u>(=Angiostomum nigrovenosum)</u>	---	6 \hat{o} (1,11) Hermaphrodite	McDowall '06, '08	Proc. Camb. Phil. Soc. 13, 14.	
<u><i>Belascaris mystax</i></u>	18s 18-20o 18m	9 \hat{o} (1,11) X-06 9 \hat{o} (1,11)	Walton '24	Z.Z.M.A. 1.	
<u><i>Belascaris triquetra</i></u>	??s 2 \hat{o} 44-48m	12 \hat{o} (1) X ₁ X ₂ -06 10, 12 \hat{o} (11) 12 \hat{o} (1,11)	Walton '24	Z.Z.M.A. 1.	
<u><i>Contracaecum spiculigerum</i></u>	15s 16o 15-16m	8 \hat{o} (1) X-06 7, 8 \hat{o} (11) 8 \hat{o} (1,11)	Walton '24	Z.Z.M.A. 1.	
<u><i>Coronilla Scillicolla</i></u> <u>(robusta)</u>	8m	8 \hat{o} (1) 4 in ♂ 4 \hat{o} (11) pronucleus	Carnoy '86	L.C. 3.	
<u><i>Toxascaris canis</i></u>	30s 36o 60-72m	18 \hat{o} (1) X ₁ ...X ₆ -06 12, 18 \hat{o} (11) 18 \hat{o} (1,11)	Walton '24	Z.Z.M.A.	
Chromadoridae					
<u><i>Spirina parasitifera</i></u>	14s	14 \hat{o} (1) 7 \hat{o} (11)	---	Cobb '25, '28	J.H. 16; Jour. Washington Acad. Sci. 18.

NEMATODA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Cruziidae						
<u><i>Cruzia tentaculata</i></u>	12s 12o 22-24m	6♂(1) 5,6♂(11) 6♀(1,11)	X-0♂		Walton '24	Z.Z.M.A. 1.
Cucullanidae						
<u><i>Cucullanus elegans</i></u>	12m	---	---		Martini '03	Z.W.Z. 74.
Filariidae						
<u><i>Filaria papillosa</i></u>	11,12m	6♂(1,11)	---		Meves '15	A.M.A. 87.
<u><i>Filaroides mustelarum</i></u>	16m	8♂(1) 4♂(11)	4 in ♂ pronucleus		Carnoy '86	L.C. 3.
Heterakidae						
<u><i>Ganguleterakis spumosa</i></u>	10s 12o 20-24m	6♂(1) 4,6♂(11) 6♀(1,11)	X ₁ X ₂ -0♂		Walton '24	Z.Z.M.A. 1.
<u><i>Heterakis dispar</i></u>	9s 10o	5♂(1) 4,5♂(11) 5♀(1,11)	X-0♂		Gulick '11	A.Zf. 6.
<u><i>H. inflexa</i></u>	---	5♂(1) 4,6♂(11) 5♀(1)	X-0♂		Gulick '11	A.Zf. 6.
<u><i>H. Papillosa</i></u>	9s 10o 18-20m	5♂(1) 4,5♂(11) 5♀(1,11)	X-0♂		Walton '24	Z.Z.M.A. 1.
<u><i>Heterakis sp.</i></u>	9s	5♂(1) 4,5♂(11) 5♀(1,11)	X-0♂		Boveri '09	A.Zf. 4.
<u><i>H. vesicularis</i></u>	9s 10o	5♂(1) 4,5♂(11) 5♀(1,11)	X-0♂		Gulick '11	A.Zf. 6.
Oxyuridae						
<u><i>Oxyuris ambigua</i></u>	3-4(?)s	1-3♀(1,11)	---		Löwenthal '89, '90	Inter. Monats. Anat. Phis. 6,7.
<u><i>Syphacia obvelata</i></u>	15-16s 15-16o 15-16m	8♂(1) 7,8♂(11) 8♀(1)	X-0♂		Walton '24	Z.Z.M.A. 1.

NEMATODA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Physalopteridae						
<u>Physaleptera Turgida</u>	9(?)s 10o 18-2m	5♂(1) 4, 5♂(11) 5♀(1, 11)	X-0♂		Walton '24	Z.Z.M.A. 1.
Rhabdiasidae						
<u>Rhabdias fulleborni</u>	12o 11, 22m 12, 22m	7♂(1) 5, 6♂(11)	X ₁ X ₂ -0. Hermaphro- dite		Dreyfus '37	Bio. Gen. Sao Paulo. 1.
"	11s 12o 11, 22m	6♂(1) 5, 6♂(11)	X-0♂. Dioecious		Dreyfus '37	"
<u>Rhabditis aberrans</u>	24o	24♀(1, 11)	Parth.		Belar '23	B. Zbl. 43.
"	18m	10♂(1) 10♂(11) 18♀(1)	X-Y♂†		Kruger '12, '13	Z.A. 40; Z.W.Z. 105.
<u>R. aspera</u>	13s 14o 13-14m	7♂(1) 6, 7♂(11) 7♀(1, 11)	X-0♂		Krönig '23	A.Zf. 17.
<u>R. dolichura</u>	---	6♂(1, 11) 6♀(1, 11)	---		Honda '25	J.M. 40.
<u>R. elegans</u>	---	6♂(1, 11) 6♀(1, 11)	---		Honda '25	J.M. 40.
<u>R. gurneyi</u>	10o, 10m	5♀(1, 11)	---		Belar '23	B. Zbl. 43.
<u>R. monohystera</u>	20o 20m	10♀(1)	---		Belar '23, '24	B. Zbl. 43; Z.Z.M.A. 1.
"	---	10♀(1)	Partheno- genesis		Nigon '47	B.B. Fr. Belg. 81.
<u>R. nigrovenosa</u>	11, 12(?)m	6♂(1) 5, 6♂(11) 6♀(1, 11)	X-0♂. Dioecious		Boveri '11	Verh. Phys. med. Ges. Wurzburg. 41.
"	12o 12m	7♂(1, 11) 6♀(1, 11)	X ₁ X ₂ -0. Hermaphro- dite		Boveri '11	"
<u>Rhabditis pellio</u>	14o	7♀(1, 11)	---		Hertwig '20	A.M.A. 94.

NEMATODA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Rhabditis pellic</u>	14m	14 $\frac{1}{2}$ (1,11)	Mutant	Hertwig '20	A.M.A. 94.
" <u>(Bütschli)</u>	13s 14o 13,14m	7 $\frac{1}{2}$ (1) 6,7 $\frac{1}{2}$ (11) 7 $\frac{1}{2}$ (1,11)	X-0♂	Krönig '23	A.Zf. 17.
" <u>(Schneider)</u>	13s 14o 13,14m	7 $\frac{1}{2}$ (1) 6,7 $\frac{1}{2}$ (11) 7 $\frac{1}{2}$ (1,11)	X-0♂	Krönig '23	A.Zf. 17.
<u>Rhabditis sp.</u>	13s 14o 13,14m	7 $\frac{1}{2}$ (1) 6,7 $\frac{1}{2}$ (11) 7 $\frac{1}{2}$ (1,11)	X-0♂	Krönig '23	A.Zf. 17.
<u>Rhabdonema nigrovenosa</u>	11,22(?)m 12,24(?)m	---	Dioecious	Schleip 'lla,b	Ber. Nat. Ges. Freiburg. 19; A.Zf. 7.
"	12o	7 $\frac{1}{2}$ (1) 7 $\frac{1}{2}$ (11) 6 $\frac{1}{2}$ (1,11)	Hermaphro- dite	"	"
Seuratidae					
<u>Ophiostomum mucronatum</u>	12m	6 $\frac{1}{2}$ (1,11)	Ca4 in ♂ pronucleus	Carnoy '86	L.C. 3.
Spiruridae					
<u>Protospirura muris</u>	9s 10o 9-10m	5 $\frac{1}{2}$ (1) 4,5 $\frac{1}{2}$ (11) 5 $\frac{1}{2}$ (1,11)	X-0♂	Walton '24	Z.Z.M.A. 1.
<u>Spiroptera strumosa</u>	12m	8 $\frac{1}{2}$ (1) 4 $\frac{1}{2}$ (11)	4 in ♂ pronucleus	Carnoy '86	L.C. 3.
Strongylidae					
<u>Sclerostomum (=Strongylus) edentatum</u>	11s 12o	6 $\frac{1}{2}$ (1) 5,6 $\frac{1}{2}$ (11) 6 $\frac{1}{2}$ (1,11)	X-0♂	Kühtz '13	A.M.A. 83.
<u>Sc. equinum</u>	11s 12o	6 $\frac{1}{2}$ (1) 5,6 $\frac{1}{2}$ (11) 6 $\frac{1}{2}$ (1,11)	X-0♂	"	"
<u>Sc. vulgare</u>	11s 12o	6 $\frac{1}{2}$ (1) 5,6 $\frac{1}{2}$ (11) 6 $\frac{1}{2}$ (1,11)	X-0♂	"	"

NEMATODA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Strongylus filaria</u>	11s	6♂(1) 5,6♂(11) 6♀(1)	X-0♂	Kröning '23	A.Zf. 17.
"	12s	6♂(1,11)	---	Struckmann '06	Z.Jb. 22.
	12o	6♀(1)			
	12m				
<u>St. micrurus</u>	---	6♂(1) 5,6♂(11)	X-0♂	Kröning '23	A. Zf. 17.
<u>St. paradoxus</u>	11s	6♂(1)	X-0♂	"	"
	12o	5,6♂(11)			
	11,12m				
"	---	6♀(1)	---	Struckmann '06	Z.Jb. 22.
"	11s	6♂(1)	X-0♂	Gulick '11	A.Zf. 6.
	12o	5,6♂(11)			
	11,12m	6♀(1,11)			
<u>St. tenuis</u>	---	5,6♂(1,11)	X-0♂	"	"
<u>St. tetracanthus</u>	---	6♀(1)	---	Meyer '95	Jena. Z. 22.
Trichostrongylidae					
<u>Nematospira turbida</u>	11s	6♂(1)	X-0♂	Walton '24	Z.Z.M.A. 1.
	12o	5,6♂(11)			
	22-24m	6♀(1,11)			

NEMATOMORPHA
GORDIOIDEA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Chordodidae					
<u>Paragordius varius</u>	14m	7♀(1,11)	7 in ♂ pronucleus	Montgomery '04	Proc. Acad. Nat. Sc. Phila. 56.
Gordiidae					
<u>Gordius affinis</u>	40	1♀(1)	---	Svábenik '09	Sitz. Kon. Böhm. Ges. Wiss. Prague. Art. 7.
<u>G. aquaticus</u>	7-9m	---	---	Meyer '13	Z.W.Z. 105.

NEMATOMORPHA (Continued)

Species	Chromosomes Number		Remarks	Observer	References
	2n	n			
<u>G. aquaticus</u>	4m	—	—	Muhldorf '13, '14	Z.A. 42; Z.W.Z. 111.
<u>G. graittanopclensis</u>	—	8 _f (1)	—	Camerano '90	Mem. R. Acad. Sc. Torino. Ser. II. 40.
<u>G. montenigrinus</u>	40	10 _f (1)	—	Svábenik '09	Sitz. Kon. Böhm. Ges. Wiss. Prague. Art. 7.
<u>G. preslii</u>	40	10 _f (1)	—	"	"
"	48	—	—	Vejdovsky '94, '12	Z.W.Z. 57; Kon. Böhm, Gesel. Wissen. Prague.
<u>G. tolosanus</u>	—	8 _f (1)	—	Camerano '90	Mem. R. Acad. Sc. Torino. Ser. II. 40.
"	40	10 _f (1)	—	Svábenik '09	Sitz. Kon. Böhm. Ges. Wiss. Pra- gue. Art. 7.
"	48 40	20 _f (1)	—	Vejdovsky '12	Kon. Böhm. Ges. Wiss. Prague.
<u>G. villoti</u>	—	8 _f (1)	—	Camerano '90	Mem. R. Acad. Sc. Torino. Ser. II. 40.

MOLLUSCOIDEA
BRACHIOPODA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Lingula anatina</u>	—	—	8 in ♂ and ♀ pronucleus	Yatsu '02	J. Coll. Sc. I. U. Tokyo 17.

BRYOZOA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Membranipora pilosa</u>	—	11 _f (1)	—	Bonnevie '06, '07	Arch. Math. Nat. 27; Jena Z. 35.

BRYOZOA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Plumatella fungosa</u>	5m	6-7 \hat{o} (1)	---		Braem '97	Zoologica 10.

KAMPTOZOA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Pedicellina americana</u>	22s	11 \hat{o} (1,11)	---		Dublin '05	Ann. N.Y. Acad. Sc. 16.
	22o	11 \hat{o} (1,11)				
	22m					
<u>P. echinata</u>	---	8 \hat{o} (1)	---		Lebedinsky '05	B. Zbl. 25.

PHORONIDA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Phoronis australis</u>	---	12 \hat{o} (1)	---		Ikeda '03	Ann. Zool. Jap. 4.
		12 \hat{o} (1)				
<u>P. ijimai</u>	---	6 \hat{o} (1)	3 in ♂		Ikeda '01, '03	J. Coll. Sc. I.U. Tokyo 13; Ann. Zool. Jap. 4.
		6 \hat{o} (1)	and ♀ pronucleus			

ECHINODERMATA
ASTEROIDEA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Asterias amurensis</u>	30s	15 \hat{o} (1)	Sex-chrom. unknown		Niiyama & Makino '47	J.F.S. Hokkaido U. Ser. VI. 9
<u>Asterias forbesii</u>	36m	18 \hat{o} (1,11)	---		Jordan '07, '08	A.A. 31; Carnegie Inst. Pub. 102.
" (<u>A. vulgaris?</u>)	36m Cal8m (Parth.)	---	---		Tennent '07	B.B. 13.
"	18?m (Parth.)	18 \hat{o} (11)	---		Tennent & Hogue '06	J.E.Z. 3.
"	---	17?6(1,11)	---		Wilson & Mathews '95	J.M. 10.

ECHINODERMATA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>A. glacialis</u>	36m (Parth.)	18♀(1,11) ---	---	Buchner '11	A.Zf. 6.
"	18m 18m (Parth.)	---	---	Delage '01	A.Z.E.G. 9.
"	---	8-9	In ♂ pronucleus	Field '95	J.M. 11.
<u>A. vulgaris</u> <u>(A. forbesii??)</u>	18s 18m 18m (Parth.)	9♂(1,11) ---	---	Tennent '07	B.B. 13.
<u>Asterina pectinifera</u>	40x	20♂(1)	Sex-chrom. unknown	Niiyama & Makino '47	J.F.S. Hokkaido U. Ser. VI, 9.
<u>Aphelasterias japonica</u>	48x	24♂(1)	"	"	"
<u>Henricia nipponica</u>	54s	27♂(1)	"	"	"
<u>Cribrella</u> <u>sanguineolenta</u>	Ca36m	---	---	Jordon '10	A.Zf. 5.

CRINOIDEA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Antedon bifida</u>	8?o	---	---	Chubb '06	Phil. Trans. Roy. Soc. London, B. 198.

ECHINOIDEA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Arbacia punctulata</u>	Ca40m	---	--	Jordan '12	J.E.Z. 12.
"	38m	---	19 in ♂ pronucleus	Matsui '24	Jour. Coll. Agr. Tokyo, 7.
<u>A. pustulosa</u>	40m	---	---	Baltzer '10	A.Zf. 5.
<u>Chypeaster rosaceus</u>	44m	---	X-Y?	Gardiner '27	J.M. 43.

ECHINOIDEA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Echinarachius parma</u>	52m	---		26 in ♀ pronucleus	Matsui '24	Jour. Coll. Agr. Tokyo. 7.
<u>Echinocardium mediterraneum</u>	42m	21♀(1)	21♀(1)		Ubisch '23	A.Zf. 17.
<u>Echinocardium x Paracentrotus</u>	39m	---		2 or more chrome. diminish in course of development	"	"
<u>Echinocardium x Sphaerochinus</u>	24m	---		17 chroms. diminish in course of development.	"	"
<u>Echinus acutus</u>	38m	---	---		Doncaster & Gray '11, '13	Proc. Camb. Phil. Soc. 16; Q.J.M. S. 58.
<u>E. esculentus</u>	32m	16♀(1,11)	---		Bryce '03	Q.J.M.S. 46.
"	38m	---	---		Doncaster & Gray '11, '13	Proc. Camb. Phil. Soc. 16; Q.J.M. S. 58.
"	18m	---	---		Meek '13	Phil. Trans. Roy. Soc. London, B. 203
<u>E. microtuberculatus bivalens</u>	36m	---	X-Y♂.		Baltzer '09, '10	A.Zf. 2,5; Sitz Phy. Med. Ges. Wurzburg, 6.
	18m (Parth.)	---	18 in ♂ and ♀ pronucleus.	'13.		
<u>E. microtuberculatus bivalens</u>	---	18♀(1)	---		Boveri '90, '05	Jena Z. 17, 32.
"	30+m 16-18m (Parth.)	16-18♀(1)	Parthenogenetic eggs treated with strychnine		Hertwig '88, '95, '96	Sitz. Ges. Morph. Phys. München, 4,11; Fest. Gegenbaur, 2.
"	36m	18(1,11) 18(1,11)	---		Stevens '02	Roux 15.
<u>E. microtuberculatus univalens</u>	18m	9(1,11) 9(1,11)	---		Boveri '90, '05	Jena Z. 17, 32.
"	18m	---	---		Godlewski '06	Roux 20.

ECHINOIDEA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>E. microtuberculatus</u> <u>bivalens</u>		20+m	---	9-12 in ♂ pronucleus	Krahelska '05	Bull. Int. Acad. Sci. Cracovie, '05
"	"	18m	---	---	Stevens '02	Roux 15.
<u>E. miliaris</u>		30-34m	---	---	Doncaster & Gray '11, '13	Proc. Camb. Phil. Soc. 16; Q.J.M.S. 58.
"		22m 8-11m	---	10-12 in ♂ pronucleus	Morgan '95	Roux 2.
<u>E. sphaera</u>		18m	---	---	Delage '01	A.Z.E.G. 3.
<u>Hipponoe esculenta</u>		---	---	16-20 in ♀ pronucleus	Jordan '08	Carnegie Inst. Pub. 102.
"		32?m	---	---	Pinney '11	B.B. 21.
"		32-34m	---	X-0 or X-Y♂	Tennent '12	J.M. 23.
<u>Moira atropos</u>		46m	---	---	Pinney '11	B.B. 21.
<u>Parechinus miliaris</u>	(Parth.)	18m	---	---	Retzius '10	Biol. Unters. 15.
<u>Sphaerochinus granularis</u>	Ca40m	---	---	Baltzer '10	A.Zf. 5.	
"	18m (Parth.)	---	---	Godlewski '12	Roux 33.	
"	---	16-18o(1)	---	Hertwig '96	Fest. Gegenbaur, 2.	
<u>Strongylocentrotus</u> <u>intermedius</u>		50s	25♂(1)	Sex-chrom. unknown	Niiyama & Makino '47	J.F.S. Hokkaido U. Ser. VI, 9.
<u>Strongylocentrotus</u> <u>lividus</u>		36m	---	X-Y♂. 18 in ♂ and ♀ pronucleus	Baltzer '09, '10, '13	A.Zf. 2, 5; Sitz. Phy. Med. Ges. Wurzburg, 6.
"		36m	---	18 in ♂ and ♀ pronucleus	Boveri '02	Verh. Phys. med. Ges. Wurzburg. 3.
"	18m 18m (Parth.)	---	9 in ♀	Delage '99	A.Z.E.G. 3, 5.	
"	30+m 16-18m (Parth.)	16-18o(1)	Parth. eggs treat- ed with strychnine	Hertwig '96	Fest. Gegenbaur, 2.	

ECHINOIDEA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u><i>Strongylocentrotus lividus</i></u>	36m	---	---	Petrunkewitsch '04	Z. Jb. Suppl. 7.
"	36m	---	---	Schaxel '11	A.M.A. 76.
<u><i>S. purpuratus</i></u>	36m 18m (Parth.)	---	---	Hindle '11	Roux 31.
<u><i>Toxopneustes variegatus</i></u>	36m	---	X-Y?	Heffner '10	B.B. 19.
"	38?m	---	---	Pinney '11	B.B. 21.
"	14-24m	---	---	Selenka '78	"Befruchtung d. Eies von Tox. Leipzig.
"	36-38m 19m (Parth.)	---	X or X-Y♂. 18-19 in ♂ pronu- cleus	Tennent '12, '13	J.E.Z. 12; J.M. 23.
"	36m 18m (Parth.)	---	18 in ♂ pronucleus	Wilson '95, '01, '01	J.M. 11; Roux 12, 13.

HOLOTHUROIDEA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u><i>Stichopus regalis</i></u>	28-36s	16-18♂(1)	8-9 in ♂ pronucleus	Field '93, '95	A.A. 8; J.M. 11.

OPHIUROIDEA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u><i>Ophiocoma pumila</i></u>	---	Cal8o(1) +	---	Jordan '08	Carnegie Inst. Pub. 102.

ARTHROPODA
CRUSTACEA
PHYLLOPODA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Apus sp.</u>	10	---	---	Moore '93	Q.J.M.S. 35.
<u>Artemia salina</u>	420	---	---	Artom '29	Bull. Soc. Med. Chir. 43.
"	84m 168m (Parth.)	84 _f (1,11)	---	Brauer '93, '94	Z.A. 11; A.M.A. 43.
"	84?o 70-90m	84 _f (1)	---	Fries '09	A.Zf. 4.
"	---	21 _f (1) 84 _f (1) (Octoploid)	---	Gross '32, '35	Naturwiss. 20; Z.Z.M.A. 23.
"	---	84 _f (1)	---	Petrunkewitschi '02.	A.A. 21.
"	---	30-40 ⁶ (1)	---	Weismann & Ishikawa '88	Z. Jb. 3.
Artemia salina (var. univalens sessuata di Cagliari)	42m	21 _f (1,11)	Bisexual form.	Artom '08, '11, '11, '12, '28	Biologica 1; A.Zf. 7; B. Zbl. 31; A.Zf. 9; C.R.S. B. 99.
Artemia salina (var. bivalens partheogenetica di Capo d'Istria)	84m	84 _f (1)	Parthenogenetic. One polar body.	"	"
<u>Artemia salina</u>	42, 62, 84, 162	---	Geographi- cal poly- ploidy. Par- thenogenetic	Barigozzi '44, '46	Chrom. 2 =Arch. Jul. Klaus- Stift. Vererb. 21.
<u>Branchipus sp.</u>	---	10 ⁶ (1,11)	---	Moor '93	Q.J.M.S. 35.
<u>Branchipus grubii</u>	22-44o 24m	12 _f (1)	---	Fries '09	A.Zf. 4.
"	24o 24m	12 _f (1,11)	---	Brauer '92, '94	Abh. Akad. Wiss. Berlin Physik. ABt '92; A.M.A. 43.
<u>B. vernalis</u>	23s	12 ⁶ (1)	X-0?6	Baker & Rosof '27, '28	Ohio Jour. Sci. 27, 28.

ARTHROPODA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Chirocephalus sp.</u>	23s 21-23m	---	---		Selipova '30	Bull. Acad. Sci. USSR, 1930.
<u>C. hankinensis</u>	---	12 \hat{o} (1,11) 12 \hat{o} (1)	---		Hsu '35	L.C. 44.

CLADOCERA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Bythotrephes longimanus</u>	47m	---	2 \hat{o} in ♀ pronucleus		Weismann & Ishikawa '91	Z.Jb. 4.
<u>Daphnia magna</u>	20m 20s	10 \hat{o} (1)	---		Mortimer '35, '36	Naturwiss. 23; Z.Jb. 56.
<u>D. pulex</u>	24m (Parth.)	12 \hat{o} (1)	---		"	"
"	24m (Parth.)	---	---		Fanghaut '21	Jahrb. Dissert. Phil. Fakul. Berlin '21.
"	8o 8m	8 \hat{o} (1)	---		Kühn '08	A.Zf. 1.
"	8o 8m 9s	4,5 \hat{o} (11)	---		Rey '34	Bull. Soc. Zool. France, 59.
"	8-10s 8-10m	4-5 \hat{o} (1,11)	---		Taylor '15	Z.A. 45.
"	24o 24m	24 \hat{o} (1)	---		Schrader '26	Z.I.A.V. 40.
<u>Moina macrocopa</u>	22o	11 \hat{o} (1)	---		Allen & Banta '28, '29	Sci. 67; J.M. 48.
<u>Moina paradoxa</u>	---	4 \hat{o} (1,11)	---		Weismann & Ishikawa '89	Z.Jb. 4.
<u>M. rectirostria</u>	---	4 \hat{o} (1,11)	---		Weismann & Ishikawa '89	Z.Jb. 4.
"	30s, ♀m	15 \hat{o} , o(1,11) Parth.	Dehn Von '48			Chrom. 3.

CLADOCERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Polyphemus pediculus</u>	8s 8m	8♀(1) 8♂	---	Kühn '08	A.Zf. 1.
<u>Simocephalus vetulus</u>	---	8♂(1,11)	---	Chambers '13	B.B. 25.

OSTRACODA

Species	Chromosome Numbers		Remarks	Observer	References
	2n	n			
<u>Cyprinotus incongruens</u>	---	10♀(1) 5♂(1) 5,10♂(11)	X ₁₋₆ -Y or X ₁₋₅ -0♂	Bauer '34	Naturwiss. 22.
<u>Cypris fuscata</u>	24m	24♀(1)	---	Schleip '09	A.Zf. 2.
<u>C. incongruens</u>	12m (Parth.)	12♀(1)	---	Muller-Calé '13	Z.Jb. 36.
"	12m (Parth.)	12♀(1)	---	Woltereck '98	Z.W.Z. 64.
<u>C. reptans</u>	12m (Parth.)	12♀(1)	---	Woltereck '98	Z. W. Z. 64.
<u>Heterocypris incongruens</u>	20o 15s 20m	10♀(1,11) 5♂(1) 5,10♂(11)	X ₁₋₆ -Y or X ₁₋₅ -0♂	Bauer '40	Chrom. 1.
<u>Notodromas monacha</u>	16m	8♂(1,11)	---	Schmalz '11, '12	Z.A. 37; A.Zf.8.
<u>N. monacha</u> <u>Cyprois monacha</u>	13-16o 16m	8♀(1,11)	---	Schleip '09	A.Zf. 2.

COPEPODA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Gymnoplea (Calanoidae)					
<u>Anomalocera patersonii</u>	16o 32m	16♀(1,11)	---	Vom Rath '95	A.M.A. 46.
"	---	16♀(1)	---	Heberer '24	Z.W.Z. 123.

COPEPODA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Calanus finmarchicus</u>	34s	17 [♂] (1)	---		Heberer '32	Z.W.Z. 142.
"	34o	17 [♂] (1)	---		Hilton '31	Q.J.M.S. 74.
<u>C. gracilis</u>	---	16 _♀ o(1)	---		Kornhauser '15	A.Zf. 13.
<u>Centropagis typicus</u>	--	13, 14 [♂] (11) X-0 [♂]			Heberer '32	Z.W.Z. 142.
<u>Diaptomus castor</u>	34m	---	17 in ♂ and ♀ pronucleus		Amma '11	A.Zf. 6.
"	34s	17 [♂] (1) 17 _♀ o(1)	---		Heberer '24, '26, '32	Z.W.Z. 123; Naturwiss. 87; Z.W.Z. 142.
"	---	15 _♀ o(1) 17 _♀ o(11)	---		Häcker & Matscheck '08 Matscheck '09, '10	Verh. deutsch. Zool. Ges. 18; Z.A. 34; A.Zf. 5.
<u>D. coeruleus</u>	28m	---	14 in ♂ and ♀ pronucleus		Amma '11	A.Zf. 6.
"	28s 28o 28m	---	---		Krimmel '10	Z.A. 35.
"	---	14 _♀ o(1)	---		Häcker & Matscheck '08, Matscheck '09	Verh. deutsch. Zool. Ges. 18; Z.A. 34.
<u>D. denticornis</u>	32m	---	---		Häcker '03	Jena Z. 37.
"	---	17 _♀ o(1)	---		Matscheck '09, '10	Z.A. 34; A.Zf. 5.
<u>D. gracilis</u>	---	17 _♀ o(1)	---		Häcker & Matscheck '08, Matscheck '09	Verh. deutsch. Zool. Ges. 18, Z.A. 34.
"	32m	16 _♀ o(1)	---		Rückert '94	Anat. Hf. 4.
<u>D. laciniatus</u>	---	16 _♀ o(1)	---		Matscheck '09, '10	Z.A. 34; A.Zf. 5.
<u>D. salinus</u>	30	17 [♂]	---		Heberer '24	Z.W.Z. 123.
"	---	17 _♀ o(1)	---		Matscheck '09, '10	Z.A. 34; A.Zf. 5.

COPEPODA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Diaptomus</u> sp.		8s	8 ^f (1,11)	---	Ishikawa '91	Coll. Sci. Tokyo Imp. Univ. 5.
		8o	8 _r (1,11)			
		8m				
<u>Euchaeta marina</u>	---		17 _r (1)	---	Kornhauser '15	A.Zf. 13.
"	---		12 _r (1,11)	---	Vom Rath '95	A.M.A. 46.
<u>E. elongatus</u>	20-30o			---	Heberer '30	Z.W.Z. 136.
<u>Heterocope robusta</u>	---		16 _r (1)	---	Rückert '94	A.Hf. 4.
<u>H. saliens</u>	---		16 _r (1)	---	Matscheck '09, '10	Z.Z. 34; A.Zf. 5.
<u>H. weismanni</u>	---		16 _r (1)	---	Häcker & Matscheck '08, Matscheck '09, '10	Verh. deutsch. Zool. Ges. 18; Z.Z. 34; A.Zf. 5.
<u>H. weismanni</u> (<u>H. borealis</u>)	32s		16 ^f (1)	---	Heberer '24, '32, '38	Z.W.Z. 123, 142; B.Zbl. 58.
<u>Paracalanus parvus</u>	---		6 _r (1)	---	Moroff '09	A.Zf. 2.
<u>Pleuromamma abdominalis</u>	32-34s		---	---	Heberer '32	Z.W.Z. 142.
<u>P. gracilis</u>	32-34s		---	---	Heberer '32	Z.W.Z. 142.
<u>Podoplea</u>						
<u>Canthocamptus staphylinus</u>	24o		12 _r (1)	---	Häcker '92, '95	Z. Jb. 5; A.M.A. 45.
"	---		12 _r (1)	---	Krüger '11	A.Zf. 6.
"	---		12 _r (1,11)	---	Matscheck '09, '10	Z.A. 34; A.Zf. 5.
<u>C. trispinosus</u>	---		11 _r (1)	---	Krüger '11	A. Zf. 6.
<u>Copilia denticornis</u>	16s		---	---	Heberer '32	Z.W.Z. 142.
<u>Cyclops affinis</u>	---		7 _r (1)	6+X?	Matscheck '10	A.Z. 5.
<u>C. albidus</u>	14m		7 _r (11)	---	Braun '07, '09	Z.A. 32; A.Zf. 3.
"	14		---	---	Chambers '12	Univ. Toronto Stud. 14.
"	---		7 _r (1)	---	Matscheck '09, '10	Z.A. 34, A. Zf. 5.

COPEPODA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>C. bicuspidatus</u>	18m	9 ₊ (1)	—	Braun '09	A. Zf. 3.	
"	18	—	—	Chambers '12	Univ. Toronto Stud. 14.	
"	—	9 ₊ (1)	—	Matscheck '09, '10	Z.A. 34; A.Zf. 5. '10	
<u>C. bic. odessana</u>	18m	9 ₊ (1)	—	Braun '09	A.Zf. 3.	
"	—	9 ₊ (1)	—	Matscheck '10	A.Zf. 5.	
<u>C. diaphanus</u>	12m	6 ₊ (1)	—	Braun '09	A.Zf. 3.	
<u>C. dybowskii</u>	18m	9 ₊ (1)	—	Braun '09	A.Zf. 3.	
"	—	9 ₊ (1)	—	Matscheck '09, '10	Z.A. 34; A.Zf. 5. '10	
<u>C. fuscus</u>	14m	7 ₊ (1)	—	Braun '07, '09	Z.A. 32; A.Zf. 3.	
"	14	—	—	Chambers '12	Univ. Toronto Stud. 14.	
"	7o	7 ₊ (1)	—	Matscheck '10	A.Zf. 5.	
"	14o	7 ₊ (1)	—	Stella '30, '31	Bol. Soc. Ital. Biol. Sperm. 5; Int. Rev. Ges. Hyd. Hydrogra. 26.	
<u>C. fus. distinctus</u>	11m	6 ₊ (1)	F ₁ of fuscus x albidus	Braun '07, '09	Z.A. 32; A.Zf. 3.	
"	—	6, 7 ₊ (1)	(5-6)+X?	Matscheck '10	A.Zf. 5.	
"	11m	—	—	Amma '11	A.Zf. 6.	
"	14o	7 ₊ (1)	—	Stella '30, '31	Bol. Soc. Ital. Biol. Sperm. 5; Int. Rev. Ges. Hyd. Hydrogra. 26	
<u>C. gracilis</u>	6m	3 ₊ (1)	—	Braun '07, '09	Z.A. 32; A.Zf. 3.	
<u>Cyclops gracilis</u>	6m	3 ₊ (1,11)	—	Matscheck '09, '10	Z.A. 34; A.Zf. 5.	
<u>C. insignis</u>	22m	—	—	Amma '11	A.Zf. 6.	
"	22m	11 ₊ (1)	—	Braun '09	A.Zf. 3.	
"	—	11 ₊ (1)	—	Matscheck '10	A.Zf. 5.	

COPEPODA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>C. leuckarti</u>	14m	7 _f (1)	---	Braun '07, '09	Z.A. 32; A.Zf. 3.
"	---	7 _f (1)	---	Matscheck '10	A.Zf. 5.
<u>C. modestus</u>	8	---	---	Chambers '12	Univ. Toronto Stud. 14.
<u>C. phaleratus</u>	13m	7 _f (1)	6+X?	Braun '09	A.Zf. 3.
"	7m	7 _f (1) 6,7 _f (11)	6+X?	Matscheck '09, '10	Z.A. 32; A.Zf. 5.
<u>C. prasinus</u>	11m	6 _f (1)	5+X?	Braun '07, '09	Z.A. 32; A.Zf. 3.
"	---	6 _f (1)	5+X?	Matscheck '10	A.Zf. 5.
<u>C. serrulatus</u>	14m	7 _f (1)	6+m-chrom.	Braun '09	A.Zf. 3.
"	---	8 _f (1)	6+2X?	Matscheck '10	A.Zf. 5.
<u>C. signatus</u>	8o	8 _f (1)	---	Häcker '90, '92	Z.A. 13; Z.Jb. 5.
	8m	4 _f (11)			
<u>C. strenuus</u>	22m	---	---	Amma '11	A.Zf. 6.
"	---	11,14 _f (1)	---	Braun '07, '09	Z.A. 32; A.Zf. 3.
"	8o	8 _f (1)	---	Häcker '90, '92,	Z.A. 13; Z.Jb. 5;
"	8m	4 _f (11)		'93, '94	A.M.A. 41; 43.
"	20s	11 _f (1,11)	---	Lérat '05	L.C. 22.
"	---	11 _f (1)	---	Matscheck '10	A.Zf. 5.
"	22-24m	11-12 _f (1)	---	Rückert '94, '95	A.Hf. 4; A.M.A. 45.
<u>C. vernalis</u>	10m	5 _f (1)	---	Braun '09	A.Zf. 3.
"	---	5,6 _f (1)	5+X?	Matscheck '09, '10	Z.A. 34; A.Zf. 5.
<u>C. viridis</u>	12m	6 _f (1)	---	Amma '11	A.Zf. 6.
"	12	---	---	Chambers '12	Univ. Toronto Stud. 14.
"	12m	6 _f (1)	---	Braun '09	A.Zf. 3.
"	12m 12-15m	---	---	Heberer '26, '27	Naturwiss. 87; Z.M.A.F. 10.
"	12s 12o	---	---	Krimmel '10	Z.A. 35.

COPEPODA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<i>C. viridis</i>		---	6♀(1)	---	Matscheck '10	A.Zf. 5.
"		12m 14m	---	---	Schiller '08	Z.A. 32.
<i>Cyclops viridis</i>		12o	6♀(1)	---	Stella '31	Int. Rev. Ges. Hyd. Hydrogra. 21.
<i>C. viridis</i> <i>=C. brevicornis</i>		24m	12♀(1,11)	---	Häcker '95, '97, '03, '04	A.M.A. 46; B. Zbl. 17; Jena Z. 37; Z. Jb. Suppl. 7.
<i>C. vir. americanus</i>		10s 10o 10m	5♂(1,11) 5♀(1,11)	---	Chambers '12	Univ. Toronto Stud. 14.
<i>C. vir. brevispinosus</i>		4o	2o(1,11)	---	Chambers '12	Univ. Toronto Stud. 14.
<i>C. vir. parcus</i>		6o	3♀(1,11)	---	Chambers '12	Univ. Toronto Stud. 14.
<i>Hersilia apodiformis</i>		24s 24o 24m	12♂(1,11) 12♀(1)	2X-0♂†	Kornhauser '15	A.Zf. 13.
<i>Mytilicola intestinalis</i>		22o 22m	11♀(1)	---	Ahrens '37, '39, '39	Z.A. 120; Z.M.A. F. 46; Z.W.Z. 152.
<i>Nitocra hibernica</i>		---	8♀(1)	---	Krüger '11	A.Zf. 6.
<i>Orthagoriscicola</i> <i>nuricata</i>		16o	8♀(1)	---	McClendon '10	A.Zf. 5.
<i>Sapphirina</i> <i>ovatolancealata</i>		16s	8♂(1)	---	Heberer '32	Z.W.Z. 142.
<i>Sapphirina</i> sp.		16s	---	---	Kornhauser '15	A.Zf. 13.
Caligi						
<i>Laemargus muricatus</i>		16s 16o	8♂(1,11)	---	McClendon '06	B.B. 12.
<i>Pandarus sinuatus</i>		16s 16o	8♂(1,11) 8♀(1,11)	---	McClendon '06, '07, '10	B.B. 12, 13; A.Zf. 5.

CIRRIPIEDIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Lepas anatifera</u>	---	4-120(11)	---	Groom '94	Phil. Trans. Roy. Soc. B. 185.
"	26s	130(1)	---	Witschi '35	B.B. 68.
	26o	130(1)			
<u>Scalpellum scalpellum</u>	32s	160(1)	---	Krüger '20	Z.I.A.V. 24.
	32o	160(1)			
<u>Tetraclita squamosa</u> <u>japonica</u>	32s	160(1)	---	Iwasa '32	Z.M. (Jap.) 44.

ISOPODA

Species	Chromosome Numbers		Remarks	Observer	References
	2n	n			
<u>Oniscoidea</u>					
<u>Armadillidium opacum</u>	54s	270(1)	---	Radu '30	C.R.S.B. 105.
<u>A. vulgare</u>	54s	---	---	Radu '31	Mem. Sect. Sti. Acad. Romania, (3) 8.
"	54s	270(1,11)	---	Kato '49	Oguma Comm. Vol. Cyt. Genet. 2.
"	---	280(1)	---	Vandel '41, '47	Cyt. 12; B.B. Fr. Belg. 81.
<u>A. nasatum</u>	---	280(1)	---	"	"
<u>Chaetophiloscia elongata</u>	---	240(1)	---	"	"
<u>Ligia italica</u>	---	280(1)	---	Mir '39	C.R.A.S. 209.
<u>L. exotica</u>	72x	360(1,11)	---	Kato '49	Oguma Comm. Vol. cyt. Genet. 2.
<u>L. oceanica</u>	---	300(1)	---	Mir '39	C.R.A.S. 209.
<u>Ligidium Hypnorum</u>	---	310(1)	---	"	"
<u>Nagara modesta</u>	34-360,9m	340(1) 170(11)	Parth. 4n?	Hill '48	Chrom. 3.
<u>Oniscus asellus</u>	32s	160(1)	---	Nichols '01, '02, '09	A.N. 35; Amer. Phil. Soc. 41; J.M. 20.
<u>Philoscia muscorum</u>	---	240(1)	---	Vandel '41, '47	Cyt. 12; B.B. Fr. Belg. 81.

ISOPODA (Continued)

Species		Chromosome Number				
	2n	n	Remarks	Observer	References	
<u>Porellio gallicus</u>	---	28 _♀ (1)	---	Vandel '41, '47	Cyt. 12: B.B. Fr. Belg. 81.	
<u>P. loevis</u>	---	28 _♀ (1)	---	"	"	
<u>P. scaber</u>	56s	28 _♂ (1,11)	---	Imai & Makino '40	Jap. J.G. 16.	
"	---	28 _♀ (1)	---	Vandel '41, '47	Cyt. 12: B.B. Fr. Belg. 81.	
<u>Trichoniscus biformatus</u>	16s	8 _♂ (1)	---	Vandel '26, '28,'34,'47	C.R.A.S. 183; B.B. Fr. Belg. 62, 68, 81.	
<u>T. elisabethae</u>	16s 24s,m (Parth.)	8 _♂ (1) 24 _♂ (1)	2n, bisexual race. 3n, parth. race. No meiotic synapsis in 3n.	"	"	
<u>Trichoniscus provisorius</u>	16m 24m (Parth.)	8 _♂ (1)	As above	"	"	
<u>Tylos latreillei</u>	---	Ca60 _♂ (1)	---	Vandel '47	B.B. Fr. Belg. 81.	
<i>Asellota</i>						
<u>Asellus aquaticus</u>	20-30s	8-10 _♂ (1)	---	Carnoy '85	L.C. 1.	
"	17s	8,9 _♂ (1)	---	Dworak '35	Fol. Morph. 5.	
"	16s	8 _♂ (1) 8 _♀ (1)	---	Vandel '38, '47	C.R.A.S. 206: B.B. Fr. Belg. 81.	
<u>A. meridianus</u>	---	8 _♂ (1)	---	Vandel '47	B.B. Fr. Belg. 81.	
<u>A. nipponensis</u>	14s	7 _♂ (1,11)	---	Sugiyama '33	J.F.S. Tokyo I.U. IV, 3.	
<u>Proasellus meridianus</u>	16s	8 _♂ (1)	---	Vandel '38	C.R.A.S. 206.	
<u>Stenasellus virei</u>	---	24-26 _♂ (1)	---	Vandel '38	"	
<u>Stenasellus virea</u>	---	27 _♂ (1)	---	Vandel '41, '47	Cyt. 12: B.B. Fr. Belg. 81.	

ISOPODA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Valvifera					
<u><i>Idotea basteri</i></u>	---	29 ^Δ (1)	---	Vandel '47	B.B. Fr. Belg. 81.
<u><i>Irrorata</i></u>	---	28 ^Δ (1)	---	Nichols '09	J.M. 20.
Flabellifera					
<u><i>Anilocra mediterranea</i></u>	12 ^e 120	6 ^Δ (1)	---	Callan '40	Q.J.M.S. 82.
Epicaridea					
<u><i>Epipenaeon japonica</i></u>	14 ^m	---	8 in egg nucleus	Hiraiwa '36	J.S. Hiroshima U. Ser. B. 4.

AMPHIPODA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u><i>Anisogammarus annandalei</i></u>					
	54 ^s	27 ^Δ (1)	X-Y ♂. From cor- rection in 1950.	Niiyama '35, '50	Jap. J.G. 11; Ann. Zool. Jap. 23.
<u><i>Gammarus chevreuxi</i></u>	26 ^s	13 ^Δ (1)	X-Y ♂	Palmer '25, '26	Nat. 116; Q.J.M.S. 70.
<u><i>G. duebeni</i></u>	---	13 ^o (1)	---	Roux '33	B.B. Fr. Bel. Suppl. 16.
<u><i>G. locusta</i></u>	---	26 ^Δ (1)	---	Poisson & Calvez '48	C.R.A.S. 227.
<u><i>G. pulex</i></u>	52 ^s	"	---	"	"
<u><i>Orchestia gammarella</i></u>	---	25 ^Δ (1)	---	"	"
<u><i>Talitrus saltator</i></u>	---	"	---	"	"
<u><i>Talorchestia longicornis</i></u>	---	18 ^Δ (1)	---	Nichols '09	J.M. 20.

DECAPODA

Species	Chromosomes Number			Remarks	Observer	References
	2n	n				
Reptantia						
<u>Astacus fluviatilis</u>	---	Ca	58 \hat{o} (1)	---	Prowazek '02	Z.W.Z. 71
<u>Carcinus menas</u>	---		30-40 \hat{o} (1)	---	Carnoy '85	L.C. 1.
<u>Camaroides japonicus</u>	196s		98 \hat{o} (1,11)	---	Niiyama '34	J.F.S. Hokkaido I.U. Ser. VI, 3.
<u>Cambarus immunis?</u>	---		104 \hat{o} (1) 8X-0 \hat{o} ?	Fasten '14		J.M. 25.
<u>C. clarkii</u>	200s		100 \hat{o} (1,11) ---	Niiyama '41		Jap. J.G. 17.
<u>C. virilis</u>	200s		100 \hat{o} (1,11) ---	Fasten '14		J.M. 25.
<u>Cancer gracilis</u>	---		52 \hat{o} (1)	---	Fasten '24	J.M. 39.
<u>C. magister</u>	100+s		60 \hat{o} (1,11) ---	Fasten '18		B.B. 34.
<u>C. oregonensis</u>	---		56 \hat{o} (1)	---	Fasten '24	J.M. 39.
<u>C. productus</u>	---		58 \hat{o} (1)	---	"	"
<u>Clibanarius olivaceous</u>	116s		58 \hat{o} (1)	---	Rathnavathy '41	Proc. Indian Acad. Sci. B. 13.
<u>Eriocheir japonicus</u>	148s		74 \hat{o} (1,11) X-Y \hat{o}	Niiyama '37		J.F.S. Hokkaido I.U. Ser. VI, 5.
<u>Eupagurus prideauxii</u>	---		129 \hat{o} (1)	---	Weismann & Ishikawa '88	Z. Jb. 3.
<u>E. ochotensis</u>	254s		127 \hat{o} (1,11)	---	Niiyama '50	La Kromosomo 6.
<u>Euphasidae</u>	38m		---	sp. name not given	Taube '09	Z.W.Z. 92.
<u>Gebia major</u>	82s 82o		41 \hat{o} (1)	---	Oka '41	J.F.S.I.U. Tokyo Sec. IV. 5.
<u>Hemigrapsus sanguineus</u>	128s		64 \hat{o} (1,11) X-Y \hat{o}	Niiyama '38		Jap. J.G. 14.
<u>Hippa talpoides</u>	---		60 \hat{o} (1)	---	Nichols '09	J.M. 20.
<u>Homarus sp.</u>	---		18 \hat{o} (1)	---	Labbe '04	C.R.A.S. 138.
<u>Lophopanopeus bellus</u>	---		62 \hat{o} (1)	---	Fasten '26	B.B. 50.
<u>Macrocheira kamoferi</u>	106s		53 \hat{o} (1,11)	---	Niiyama '39	Jap. J.G. 15.

DECAPODA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Matuta lunaris</u>	94s	47 \hat{o} (1,11)	---	Niiyama '42	Z.M. (Jap.) 54.
<u>Menippe mercenaria</u>	51-80s	25-28 \hat{o} (11)	---	Binford '13	J.M. 25.
<u>Nephrops japonicus</u>	164s	82 \hat{o} (1,11)	---	Niiyama '39	Jap. J.G. 15.
<u>Nephropsis carpenteri</u>	152s	76 \hat{o} (1,11)	---	"	"
<u>Ovalipes punctatus</u>	103s	52 \hat{o} (1) 51,52 \hat{o} (11)	X-0 \hat{o}	Niiyama '40	Jap. J.G. 16.
<u>Panulirus japonicus</u>	140s	70 \hat{o} (1,11)	---	Niiyama '36a,b	J.F.S. Hokkaido I.U. Ser. VI, 5; Jap. J.G. 12.
<u>Paralithodes camtschatica</u>	208s	104 \hat{o} (1,11)	---	Niiyama '35a,b	J.F.S. Hokkaido I.U. Ser. VI, 4; Jap. J.G. 11.
<u>Penaeus japonicus</u>	92s	46 \hat{o} (1,11)	Sex-chrom. unknown	Niiyama '48	Oguma Comm. Vol. Cyt. Genet. 1.
<u>Plagusia dentipes</u>	106s	53 \hat{o} (1,11)	X-Y \hat{o}	Niiyama '37a,b	J.F.S. Hokkaido I.U. Ser. VI, 5; Jap. J.G. 13.
<u>Potamon dehani</u>	82s	41 \hat{o} (1,11)	---	Yanagita '44	S.R. Tokyo B.D. Sec. B, 6.
<u>Ranina ranina</u>	106s	53 \hat{o} (1,11)	---	Niiyama '42	Z.M. (Jap.) 54.
<u>Scylla serrata</u>	106s	53 \hat{o} (1,11)	---	"	"
<u>Telmessus cheiragonus</u>	124s	62 \hat{o} (1,11)	---	"	"
<u>Telphusa fluviatilis</u>	78s	39 \hat{o} (1)	2X-0 \hat{o}	Delpino '34a,b. Arch. Zool. Ital. 21; Atti. Acad. Mag. Lincei, 6.	
<i>Natantia</i>					
<u>Crangon cataphractus</u>	---	40-44 \hat{o} (1)	---	Carnoy '85	L.C. 1.
<u>Pandulus borealis</u>	---	34 \hat{o} (1)	2X-0 \hat{o} ?	Leopoldseder '34	Z.W.Z. 145.

STOMATOPODA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Scylla mantis</u>	---	20-24♂(1)	---	Carnoy '85	L.C. 1.
<u>S. oratoria</u>	48s	24♂(1,11)	---	Komai '20	J.M. 34.

ACERATA
ARACHNIDA
ACARIDA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Argas columbarum</u>	26s	13♂(1)	X-Y♂	Oppermann '35	Z.M.A.F. 37.
	26o		X-X♀		
<u>Gamasus brevicornis</u>	12s	6♂(1)	---	Sokolow '34	Z.Z.M.A. 21.
<u>G. krapelini</u>	12s	---	---	"	"
<u>G. magnus</u>	10s	Ca5♂(1)	---	"	"
<u>G. septentrionrlis</u>	12s	---	---	"	"
<u>Gamasus sp."5"</u>	10s	5♂(1)	---	"	"
<u>Gamasus sp."6"</u>	10-12s?	---	---	"	"
<u>Hyalomma aegyptium</u>	---	Ca12♂(1)	---	Tuzet & Millot '37	B.B. Fr. Bel. 71.
<u>Ixodes reduvius</u>	Ca28s	14♂(1)	---	Nordenskiöld '09	Z.A. 34.
<u>I. ricinus</u>	28s	---	---	Nordenskiöld '20	Parasit. 12.
<u>Pediculopsis gramineum</u>	3m (Parth. egg) 6m (Fertil. egg) 6o	3♀(1)	Haploid parth.	Cooper '37, '39	Proc. Nat. Acad. Sci. 23; Chrom. 1.
"	4m	---	2 in ♂ and ♀ pronucleus	Reuter '09	Acta. Soc. Sc. Fen. 37.

ACERATA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Pediculoides ventricosus</u>	3m (Parth. egg) 6m (Fertil. egg)	3♀(1,11) 3♂(1,11)	Haploid parth.	Patau '36	Z. Jb.(Phys.) 56.
<u>Rhipicephalus evertsii</u>	---	8(tid)	---	Warren '31	Nature 128.
<u>Tetranychus bimaculatus</u>	3s 6o 3m (Parth. egg) 6m (Fertil. egg)	3(tid) 3♀(1,11)	---	Schrader '23	A.M.A. 97.

ARANEIDA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Labidognatha</u> Agelenidae					
<u>Agalena naevia</u>	---	Cal 50 ¹ (1)	---	Painter '14	Z.Jb. 38.
"	52s(?)	25, 27(?) (tid)	X ₁ X ₂ -0?	Wallace '00, '05, '09	A.A. 18; B.B. 8; B.B. 17.
<u>A. coulenta</u>	44s	23 ¹ (1) 23, 21 ¹ (1)	X ₁ X ₂ -0 ¹	Suzuki '50	Z.M.(Jap.) 59.
<u>Hahnia nava</u>	---	18 ¹ (1) 18 ¹ ?	X ₁ X ₂ -0 ¹ X ₁ X ₁ X ₂ X ₂ ¹	Hackman '48	Acta Zool. Fenn. 54.
<u>Tegenaria atrica</u>	---	18-24 ¹ (1)	---	Carnoy '85	L.C. 1.
"	42s	22 ¹ (1)	X ₁ X ₂ -0 ¹	Revell '47	Heredity 1.
<u>T. derhami</u>	43s	23 ¹ (1)	X ₁ X ₂ X ₃ -0 ¹	"	"
"	---	19 ¹ (1) 16, 19 ¹ (11)	"	Hackman '48	Acta Zool. Fenn. 54.
<u>T. domestica</u> (=ferruginea)	43s	23 ¹ (1)	"	Revell '47	Heredity 1.
<u>Tegenaria sp.</u>	---	6-12 ¹ (1)	---	Carnoy '85	L.C. 1.

ARANEIDA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Amaurobiidae						
<u><i>Amaurobius sylvestris</i></u>	—	17 $\hat{4}$ (11)	X-0 \hat{o}		Painter '14	Z. Jb. 38.
Argiopidae						
<u><i>Aranea angulata</i></u>	---	13 $\hat{0}$ (1) 11, 13 $\hat{0}$ (11)	X ₁ X ₂ -0 \hat{o}		Hackman '48	Acta Zool. Fenn. 54.
<u><i>A. cucurbitina</i></u>	---	13 $\hat{0}$ (1)	"	"	"	"
<u><i>A. diademata</i></u>	---	13 $\hat{0}$ (1), 9(1) 11, 13 $\hat{0}$ (11)	"	"	"	"
<u><i>A. dumetorum</i></u>	14s	8 $\hat{4}$ (1) 6, 8 $\hat{0}$ (11)	"	"	"	"
<u><i>A. foliata</i></u>	24s	13 $\hat{0}$ (1)	"	"	"	"
<u><i>A. sexpunctata</i></u>	---	"	"	"	"	"
<u><i>A. reeumuri</i></u>	---	"	"	Pätau '48	Heredity 2.	
<u><i>Araneus</i> sp.</u>	24s	13 $\hat{0}$ (1) 11, 13 $\hat{0}$ (11)	"	Suzuki '50	Z.M.(Jap.) 59.	
<u><i>Argiope amoena</i></u>	"	"	"	"	"	"
<u><i>Cyclosa 8-tuberculata</i></u>	24s, 26o	13 $\hat{0}$ (1)	"	Suzuki '49, '50	Z.M.(Jap.) 58, 59.	
<u><i>Epeira scolopetaria</i></u>	23s	12 $\hat{0}$ (1) 11, 12 $\hat{0}$ (11)	X-0 \hat{o}	Berry '06	B.B. 11.	
<u><i>Meta reticulata</i></u>	---	13 $\hat{0}$ (1)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta Zool. Fenn. 54.	
<u><i>Nephila clavata</i></u>	---	13 $\hat{0}$ (1) 11, 13 $\hat{0}$ (11)	"	Suzuki '50	Z.M.(Jap.) 59.	
<u><i>Tetragnatha japonica</i></u>	24s	13 $\hat{0}$ (1)	"	Suzuki '49	Z.M.(Jap.) 58.	
<u><i>Zilla stroemi</i></u>	---	"	"	Hackman '48	Acta Zool. Fenn. 54.	
Anyphaenidae						
<u><i>Anyphaena accentuata</i></u>	---	14 $\hat{4}$ (1), 14 \hat{q} (1)	"	"	"	"
<u><i>Saltibunda</i></u>	---	10 \hat{o} (1)	X-0 \hat{o}	Painter '14	Z. Jb. 38.	
Argyronetidae						
<u><i>Argyroneta aquatica</i></u>	---	13 $\hat{7}$ o(1)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta Zool. Fenn. 54.	

ARANEIDA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Atypidae					
<u>Atypus karschi</u>	---	23 [♂] (1)	X ₁ X ₂ -0 [♂]	Suzuki '49	Z.M.(Jap.) 58.
Clubionidae					
<u>Clubiona holosericea</u>	---	120 [♂] (1)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta Zool. Fenn. 54.
<u>C. japonicola</u>	20s	116 [♂] (1) 11,96(11)	X ₁ X ₂ -0 [♂]	Suzuki '50	Z.M.(Jap.) 59.
<u>C. phragmitidis</u>	---	120 [♂] (1) 10,120(11)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta Zool. Fenn. 54.
<u>C. subsultans</u>	---	"	"	"	"
<u>Clubiona sp.</u>	---	22-26 [♂] (1)	---	Carnoy '35	L.C. 1.
<u>Micaria decorata</u>	---	120 [♂] (1) 10,120(1)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta. Zool. Fenn. 54.
Dictynidae					
<u>Dictyna arundinacea</u>	± 24s	136 [♂] (1) 11,120(11)	"	"	"
Drassidae					
<u>Callipes imbecilla</u>	---	116 [♂] (1)	X-0 [♂]	Painter '14	Z. Jb. 38.
<u>Callilepid nocturna</u>	---	120 [♂] (1) 10,120(11)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta Zool. Fenn. 54.
<u>Berlandina cinerea</u>	± 22s	"	"	"	"
<u>Drassodea lapidosus</u>	---	"	"	"	"
<u>Gnaphosa muscorum</u>	---	"	"	"	"
<u>Haplodrassus cognatus</u>	---	120 [♂] (1)	"	"	"
<u>Poecilochroa variana</u>	---	120 [♂] (1) 10,120(11)	"	"	"
<u>Zelotes subterraneus</u>	---	"	"	"	"
Linyphiidae					
<u>Drapetisca socialis</u>	24s	130 [♂] (1)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta Zool. Fenn. 54.



ARANEIIDA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Leptophanthanthes minutus</u>	---	13 \hat{o} (1)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta Zool. Fenn. 54.
<u>Linyphia marginata</u>	---	12? \hat{o} (1)	"	"	"
<u>L. resupina domestica</u>	---	13? \hat{o} (1)	"	"	"
<u>Linyphia sp.</u>	---	13 \hat{o} (1)	"	"	"
Liphistiidae					
<u>Heptathela kimurai</u>	80s	40 \hat{o} (1)	X ₁ X ₂ -0 \hat{o}	Suzuki '49	Z.M.(Jap.) 58.
Lycosidae					
<u>Arctosa leopardus</u>	---	14 \hat{o} (1) 12,15 \hat{o} (11)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta. Zool. Fenn. 54.
<u>A. alpigena</u>	---	14 \hat{o} (1)	"	"	"
<u>Lycosa communis</u>	---	11 \hat{o} (1)	X-0 \hat{o}	Painter '14	Z. Jb. 38.
<u>L. insopita</u>	28s	13 \hat{o} (1) 13(12-15) \hat{o} (11)	X-Y \hat{o} ?	Montgomery '05	Proc. Acad. Nat. Sci. Phila. 57.
<u>L. fluviatilis</u>	---	15 \hat{o} (1), \hat{o} (1) 13,15 \hat{o} (11)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta. Zool. Fenn. 54.
<u>L. monticola</u>	---	"	"	"	"
<u>L. paludicola</u>	---	"	"	"	"
<u>L. ullata</u>	---	15 \hat{o} (1)	"	"	"
<u>L. saccata</u>	±28	15 \hat{o} (1) 13,15 \hat{o} (11)	"	"	"
<u>L. T-insignita</u>	28s	15 \hat{o} (1) 13,15 \hat{o} (11)	"	Suzuki '50	Z.M.(Jap.) 59.
<u>Lycosa tarasalis</u>	---	15 \hat{o} (1)	X ₁ X ₂ -0 \hat{o}	Hackman '48	Acta Zool. Fenn. 54.
<u>Pirata piraticus</u>	---	14 \hat{o} (1) 12,14 \hat{o} (11)	"	"	"
<u>P. uliginosus</u>	---	13 \hat{o} (1)	"	"	"
<u>Schizocosa crassipes</u>	22s	12 \hat{o} (1) 10,12 \hat{o} (11)	X ₁ X ₂ -0 \hat{o}	Hard '39	J.M. 65.
<u>Tarentula pulverulenta</u>	---	15 \hat{o} (1) 13,15 \hat{o} (11)	"	Hackman '48	Acta. Zool. Fenn. 54.

ARANEIDA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>T. aculeata</u>	---	15 [♂] (1) 13,15 [♂] (11)	X ₁ X ₂ -0 [♂]	"	Hackman '48	Acta. Zool. Fenn. 54.
<u>Trochosa ruricola</u>	26 ^s 28 ^s	14 [♂] (1) 12,14 [♂] (11) 14 [♂] (1)	"	"	"	"
<u>T. spinipalpis</u>	---	14 [♂] (1)	"	"	"	"
<u>Xerolycosa nemoralis</u>	---	"	"	"	"	"
<u>X. miniata</u>	---	12 [♂] (1) 10,12 [♂] (11)	"	"	"	"
Micryphantidae						
<u>Gongylidium rufipes</u>	---	12 [♂] (1)	"	"	"	"
Oxyopidae						
<u>Oxvopes ramosus</u>	21 ^s	11 [♂] (1) 10,11 [♂] (11)	X-0 [♂]	"	"	"
<u>O. salticus</u>	---	11 [♂] (1)	X-0 [♂]	Painter '14	Z. Jb. 38.	
<u>O. sertatus</u>	21 ^s	11(1) 10,11(11)	"	Suzuki '50	Z.M.(Jap.) 59.	
Pisauridae						
<u>Dolomedes fontanus</u>	---	13 [♂] (1)	X ₁ X ₂ -0?	Painter '14	Z. Jb. 38.	
<u>D. fimbriatus</u>	---	13 [♂] (1) 11,13 [♂] (11)	X ₁ X ₂ -0 [♂]	Hackman '48	Acta Zool. Fenn. 54.	
<u>D. pallitarsus</u>	28 ^s	15 [♂] (1) 13,15 [♂] (11)	"	Suzuki '50	Z.M.(Jap.) 59.	
<u>Pisaura listeri</u>	---	15 [♂] (1) 13,15 [♂] (11)	"	Hackman '48	Acta Zool. Fenn. 54.	
Philodromidae						
<u>Philodromus aureolus</u>	---	15 [♂] (1) 13,15 [♂] (11)	"	"	"	"
<u>P. emarginatus</u>	---	"	"	"	"	"
<u>P. histrio</u>	---	15 [♂] (1)	"	"	"	"
<u>P. laevipes</u>	---	"	"	"	"	"
<u>P. roseus</u>	28 ^s	15 [♂] (1) 13,15 [♂] (11)	"	Suzuki '50	Z.M.(Jap.) 59.	

ARANEIDA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Thanatus formicinus</u>	---	150 ¹ (1) 13, 150(11)	X ₁ X ₂ -0 ⁰	Hackman '48	Acta Zool. Fenn. 54.	"
<u>Tibellus ablongus</u>	---	130 ¹ (1) 11, 130(11)	"	"	"	"
Pholcidae						
<u>Spermaphora meridionalis</u>	---	(Number not X ₁ X ₂ -0 ⁰ given.)		Painter '14	Z. Jb. 38.	
Salticidae						
<u>Dendryphanthes rudis</u>	---	150 ¹ (1)	X ₁ X ₂ -0 ⁰	Hackman '48	Acta. Zool. Fenn. 54.	"
<u>Evarcha falcata</u>	---	150 ¹ (1) 13, 150(11)	"	"	"	"
<u>Icius elongatus</u>	28s	150 ¹ (1) 13, 150(11)	"	Suzuki '50	Z.M.(Jap.) 59.	
<u>I. magister</u>	"	"	"	"	"	"
<u>Myrmarachne formicaria</u>	---	120 ¹ (1)	X-0 ⁰	Hackman '48	Acta Zool. Fenn. 54.	
<u>Maevia vittata</u>	28+s 29+o	150 ¹ (1)	X-0 ⁰	Painter '14	Z. Jb. 38.	
<u>Plexippus paykulli</u>	28s	150 ¹ (1) 13, 150(11)	X ₁ X ₂ -0 ⁰	Suzuki '50	Z.M.(Jap.) 59.	
<u>Plexippus sp.</u>	"	"	"	"	"	"
<u>Pseudicius encarpatus</u>	---	150 ¹ (1)	"	Hackman '48	Acta Zool. Fenn. 54.	
<u>Salticus scenicus</u>	---	"	"	"	"	"
<u>Sitticus terebratus</u>	---	150 ¹ (1) 13, 150(11)	"	"	"	"
Sparassidae						
<u>Heteropoda venatoria</u>	4ls	220 ¹ (1) 19, 220(11)	X ₁ X ₂ X ₃ -0 ⁰	Suzuki & Okada '50	J.S.Hiroshima U. Ser.B, 11.	
<u>Micrommata viridissima</u>	44o, ♀m ±35s	19?0 ¹ (1)	X ₁ X ₂ X ₃ -0 ⁰ ?	Hackman '48	Acta Zool. Fenn. 54.	
Tetragnathidae						
<u>Tetragnatha extensa</u>	±22s	120 ¹ (1) 10, 120(11)	X ₁ X ₂ -0 ⁰	"	"	"

ARANEIDA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>T. japonica</u>	24s	13 ⁰ (1) 11,13 ⁰ (11)	"	Suzuki '50	Z.M.(Jap.) 59.
<u>T. souamata</u>	22s	12 ⁰ (1) 10,12 ⁰ (11)	"	"	"
<u>Tetragnatha</u> sp. (<u>obtusa?</u>)	---	"	"	Hackman '48	Acta. Zool. Fenn. 54.
Theridiidae					
<u>Ariamnes cylindrogaster</u>	22s	12 ⁰ (1) 10,12 ⁰ (11)	"	Suzuki '50	Z.M.(Jap.) 59.
<u>Steatoda bipunctata</u>	---	12 ⁰ (1)	"	Hackman '48	Acta. Zool. Fenn. 54.
<u>Theridium tepidariorum</u>	---	"	"	"	"
"	24m	12 ⁰ (1,11)	---	Montgomery '07	Z. Jb. 25.
Thomisidae					
<u>Misumea tricuspidata</u>	24s	12 ⁰ (1)	"	Suzuki '49	Z.M.(Jap.) 58.
Xysticidae					
<u>Misumena vatia</u>	---	12 ⁰ (1)	X-0 ⁰	Hackman '48	Acta. Zool. Fenn. 54.
<u>M. tricuspidata</u>	23s	12 ⁰ (1) 11,12 ⁰ (11)	"	Suzuki '50	Z.M.(Jap.) 59.
<u>Xysticus echinopiatus</u>	"	"	"	"	"
<u>X. ulmi</u>	---	12 ⁰ (1), ⁰ (1) 11,12 ⁰ (11)	"	Hackman '48	Acta Zool. Fenn. 54.
<u>X. viaticus</u>	23	12 ⁰ (1)	"	"	"
<u>X. triguttatus</u>	---	11 ⁰ (1)	X-0 ⁰	Painter '14	Z. Jb. 38.
Orthognatha Aviculariidae					
<u>Dugesiella hentzi</u>	---	22 ⁰ (1)	X-0 ⁰	Painter '14	Z. Jb. 38.

PEDIPALPIDA

Species	Chromosome Numbers		Remarks	Observer	References
	2n	n			
<u>Thelyphonus sepiaris</u>	---	25 \hat{o} (1)	X-0 \hat{o}	Millot & Tuzet '34	B.B. Fr. Bel. 68.

OPILIONIDA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Gagrellopsis nodulifera</u>	16s	8 \hat{o} (1,11)	---	Tomohiro '40	J.S. Hiroshima U. Ser. B. Div. 1,7.
<u>Gagrellula ferruginea</u>	22s	11 \hat{o} (1,11)	---	Suzuki '41	Z.M.(Jap.) 53.
<u>Licobunum japonicum</u>	20s	10 \hat{o} (1,11)	---	"	"
<u>L. rupestre</u>	22s	11 \hat{o} (1,11)	---	Sokolow '29	Z.Z.M.A. 10.
<u>Melanopa</u> sp.	20s	10 \hat{o} (1,11)	---	Suzuki '41	Z.M.(Jap.) 53.
<u>Metagagrella</u> sp.	20s	10 \hat{o} (1,11)	---	"	"
<u>Mitopus morio</u>	32s	16 \hat{o} (1,11)	---	Sokolow '29	Z.Z.M.A. 10.
<u>Nemastoma lugubre</u>	16s	---	---	"	"
<u>Oligolophus aspersus</u>	20s	10 \hat{o} (1,11)	---	Suzuki '41	Z.M.(Jap.) 53.
<u>O. triens</u>	16s	8 \hat{o} (1,11)	---	Sokolow '29	Z.Z.M.A. 10.
<u>Opilio parietinum</u>	24s	12 \hat{o} (1,11)	---	"	"
<u>Phalangium opilio</u>	---	16 \hat{o} (1,11)	---	"	"
<u>Platybunus triangularis</u>	---	18 \hat{o} (1,11)	---	"	"

PSEUDOSCORPIONIDA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Chelanops cyrneus</u>	61-62x	31 \hat{o} (1)	X ₁ X ₂ -0 \hat{o}	Sokolow '26	Z.Z.M.A. 3.
<u>Obisium muscorum</u>	67-68s	34 \hat{o} (1)	"	"	"

SCORPIONIDA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Ananteris balzani</u>	12m	---	---	Piza '47	Luiz de Queiroz 4.
<u>Buthus eupeus</u>	Ca22s	---	---	Sokolow '13	A.Zf. 9.
<u>B. martensi</u>	24s	12 $\hat{\delta}$ (1,11)	---	Sato '36, '40	Z.M.(Jap.) 48; J. S. Hiroshima U. Ser. B. Div. 1, 8.
<u>Bothrirus sp.</u>	36s	---	---	Piza '47	Luiz de Queiroz 4.
<u>Isometrus maculatus</u>	12s	2 \hat{II}^1 +1VIII, $\delta(1)$ 6 δ (11)	Trans- location occurs.	"	"
<u>Centrurus exilicauda</u>	26s	13 $\hat{\delta}$ (1)	---	Wilson '16, '31	Proc. Nat. Acad. Sci. 2; J.M. 52.
<u>Euscorpius carpathicus</u>	70-84s	28-40 $\hat{\delta}$ (1,11)	---	Sokolow '13	A.Zf. 9.
<u>Hadrurus hirsutus</u>	Ca100s	Ca50 $\hat{\delta}$ (1)	---	Wilson '31	J.M. 52.
<u>Opisthacanthus elatus</u>	Ca60-62s	---	---	Wilson '16, '31	Proc. Nat. Acad. Sci. 2; J.M. 52.
<u>Scorpio occitanus</u>	--	22-28 $\hat{\delta}$ (1)	---	Carnoy '85	L.C. 1.
<u>Tityus bahiensis</u>	6s	3 $\hat{\delta}$ (1,11)	Normal indiv.	Piza '39, '41, '43, '44, '46, '47	Sci. Genetica 1: J.H. 32: Rev. de Agric. 18, 19; Luiz de Queiroz 3, 4.
"	9s, 10o	1 \hat{VI}^1 +1 \hat{II} , $\delta(1)$ 4, 5 δ (11)	Normal in phenotype	Piza '47, '48	Luiz de Queiroz 4; Rev. de Agric. 24.
"	7s	1 hepta- valent, $\delta(1)$ 3, 4 δ (11)	Normal in phenotype	Piza '48	Rev. de Agric. 24.
"	10s, om ₊	5 $\hat{\delta}$ (1) 5 δ (11)	"	"	"
"	20s, om ₊	10 $\hat{\delta}$ (11)	4n, germ cells	"	"
<u>T. matogrossensis</u>	20s	10 $\hat{\delta}$ (1,11)	---	Piza '47	Luiz de Queiroz 4.

SCORPIONIDA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>T. matogrossensis</u>	---	14, 9, 8 \hat{o} (11)	Abnormal	Piza '47	Luiz de Queiroz 4.
<u>T. serrulatus</u>	12s	---	---	"	"
<u>T. trivittatus</u>	14s, om _r	5 _{II} ^I 1 _{III} , 3 _A (1) 7 \hat{o} (11)	---	Piza '48	Rev. de Agric. 24.
<u>Vejovis boreus</u>	Cal00s	Ca50 \hat{o} (1)	---	Wilson '31	J.M. 52.

GIGANTOSTRACA
XIPHOSURA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Tachypleus tridentatus</u>	26s	13 \hat{o} (1,11)	sex chrom. unknown.	Okada '38	J. S. Hiroshima U. Ser. B. 6.

ONYCHOPHORA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Peripatus sp.</u>	28(23-34)s 28o,m	14 \hat{o} (1,11)	---	Montgomery '00	Z. Jb. 14.

LINGUATULIDA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Porocephalas armillatus</u>	20o	10 \hat{o} (1)	---	Haffner '22a,b	Z.A. 54, 54.

TARDIGRADA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Macrobiotus lacustris</u>	10m	5 \hat{o} (1,11)	---	Von Wenck '14	Z. Jb. (Anat.) 37.

OPISTHOGONEATA
CHILOPODA*

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Geophilus linearis</u>	---	8 \hat{o} (1,11)	---	Bouin & Collin '01, P. & K. Bouin '03	A.A. 20; C.R.S. B. 55.
<u>Lithobius forficatus</u>	---	16-24 \hat{o} (1)	---	Carnoy '85	L.C. 1.
"	---	22-24 \hat{o} (1)	---	P. & M. Bouin '02	C.R. Ass. Anat. 4.
<u>L. mordax</u> , <u>L. multidentatus</u> , <u>Lithobius sp.</u>	---	25 \hat{o} (1)	X-0 \hat{o} ?	Blackmann '07	Proc. Am. Acad. Arts. Sci. 42.
<u>Scolopendra cingulata</u>	28-32s	14-16 \hat{o} (1,11)	---	Bouin '20, '22, '25	C.R.S.B. 83; C.A. A.S. 174; L.C. 35.
<u>S. dalmatica</u>	---	20-24 \hat{o} (1)	---	Carnoy '85	L.C. 1.
<u>S. dammossa</u>	28s	14 \hat{o} (1,11)	Sex chrom. unknown	Makino & Niiyama '42	Jap. J. G. 18.
<u>S. heros</u>	33s	17 \hat{o} (1) 16,17 \hat{o} (11)	X-0 \hat{o}	Blackmann '03 '05, '10	B.B. 5; Bull. Mus. Comp. Zool. Harvard 48; B.B. 19.
<u>S. subspinipes japonica</u>	18s	9 \hat{o} (1,11)	Sex chrom. unknown	Ogawa '50	Z. M. (Jap.) 59.
<u>S. s. mutilans</u>	28s	14 \hat{o} (1,11)	"	"	"
<u>Scutiger coleoptrata</u>	---	17-18 \hat{o} (1)	X-0 \hat{o}	Bouin & Anciael '11, Bouin '34	C.R. Ass. Anat. 13; A.Z.E.G. 75.
<u>S. forceps</u>	37s	19 \hat{o} (1) 18,19 \hat{o} (11)	X-0 \hat{o}	Medes '05	B.B. 9.
<u>Thereuonema hilgendorfii</u>	36s	18 \hat{o} (1,11)	X-Y \hat{o} . X disjoins from Y in II-div.	Ogawa '50	Z.M.(Jap.) 59; Jap.J.G. 25.

*Nath, V. 1925. Spermatogenesis of *Lithobius forficarus*. Proc. Cambr. Phil. Soc. 1:270-277.
(Not accessible).

PROGONIATA
DIPLOPODA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Pachyiulus varius</u>	25s	13 \hat{o} (1) 12, 13 \hat{o} (11)	X-0 \hat{o}	Oettinger '08, '09	Z.A. 33; A.Zf. 3.	
<u>Polyxenus sp.</u>	Cal6s	8 \hat{o} (1, 11)	---	Sokoloff '14	Z.A. 44.	

INSECTA
APTERYgota
COLLEMBOLA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Anurida maritima</u>	8o 8(?)m	---	---	Claypole '98	J.M. 14.	
<u>Orchesella villosa</u>	---	6 \hat{o} (1)?	---	Lecaillon '01	Arch. d'Anat. Micr. 4.	
<u>Podura aquatica</u>	8o	---	---	Willem '00	Mem. Courouées Acad. Roy. Belg. 58.	

THYSANURA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Lepisma domestica</u>	34s	18 \hat{o} (1) 16, 18 \hat{o} (11)	X ₁ X ₂ -0 \hat{o}	Charlton '21	J.M. 35.	
<u>Lepisma (Thermobia) domestica</u>	34s 36o	18 \hat{o} (1) 16, 18 \hat{o} (11)	X ₁ X ₂ -0 \hat{o} X ₁ X ₁ -X ₂ X ₂ o	Perrot '33	Z.Z.M.A. 18.	
<u>L. saccharina</u> (?)	---	29 \hat{o} (1)	X-0	Itoh '33	Z.M.(Jap.) 45.	

PTERYgota
ORTHOPTERA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Acrididae</u>						
<u>Acrida exaltata</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	Asana, Makino & Jap. J.G. 15. Niyama '39		

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>A. turrita</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>Acolophitus sp.</u>	"	"	"	McClung '14	J.M. 25.	
<u>Acrotylus insubricus</u>	"	---	"	Kowalski '25	L.C. 36.	
<u>Aeoloplus sp.</u>	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	McClung '14	J.M. 25.	
<u>Aeropedellus clavatus</u>	"	---	---	Carlson '36	J.M. 59.	
<u>Aiolopus tamulus</u>	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	Asana, Makino & Niiyama '39	Jap. J.G. 15.	
"	"	"	"	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>Aleuas vitticollis</u>	19s	---	4 multi- ple chroms.	Saez '30, '31	Acta Cong. Int. Biol. Montevideo 7; Rev. Museo Plata 33.	
<u>Amphitornus sp.</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	McClung '14	J.M. 25.	
<u>Arphia pseudonietana</u>	"	---	---	Meek '13	P.R.S. London B 203.	
<u>A. simplex</u>	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	Carothers '13	J.M. 24.	
<u>Arphia sp.</u>	"	"	"	McClung '14	J.M. 25.	
<u>A. sulphurea</u>	---	12mo _r	---	Slifer & King '34	J.M. 56	
<u>A. tenebrosa</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	Davis '08	Bull. Mus. Comp. Zool. Harvard 53.	
"	24s	13 \hat{o} (1) 11, 12, 13 \hat{o} (11)	2X \hat{o}	"	"	
<u>Attractomorpha ambigua</u>	19s	10 \hat{o} (1) 9, 10 \hat{o} (11)	X-0 \hat{o}	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>A. bedeli</u>	"	"	"	Machida '17	Jour. Coll. Agri. Imp. Univ. Tokyo 6.	
<u>A. crenulata</u>	"	"	"	Ramachandra '37	J.M. 61.	

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Aularches miliaris</u>	19s	10 \hat{o} (1) 9,10 \hat{o} (11)	X-0 \hat{o}	Ramachandra '34, '37	Proc. Indian Acad. Sci. 1; J.M. 61.	
<u>Aulocara</u> sp.	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	"	McClung '14	J.M. 25.	
<u>Boopeden</u> sp.	"	"	"	"	"	"
<u>Brachystola magna</u>	"	"	"	Carothers '13	J.M. 24.	
"	23s 22o	"	"	Sutton '02	B.B. 4.	
<u>Brachystola</u> sp.	23s	"	"	McClung '14	J.M. 25.	
<u>Cannula pellucida</u>	23s (23-25)	"	X-0 \hat{o} 1-2 super- numeraries	Carroll '20	J.M. 34.	
<u>Cannula</u> sp.	"	"	X-0 \hat{o}	McClung '14	J.M. 25.	
<u>Chloealtis conspersa</u>	17s	9 \hat{o} (1)	X-0 \hat{o}	McClung '30	Acta Cong. Int. Biol. Montevideo 7.	
<u>Chloealtis</u> <u>genicularibus</u>	17s	8,9 \hat{o} (11)	X-0 \hat{o}	Shimakura, Fukuhara & Nakahara '49	Z.M. (Jap.) 58.	
<u>Chondracris rosea</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	"	Wu '38	Cyt. 9.	
<u>Chorthippus</u> <u>albomarginatus</u>	17s	9 \hat{o} (1)	"	McClung '30	Acta Cong. Int. Biol. Montevideo 7.	
<u>C. bicolor</u>	"	9 \hat{o} (1) 8,9 \hat{o} (11)	"	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>C. bicolor</u> x <u>C. biguttulus</u>	"	9 \hat{o} (1)	"	Klingstedt '39	J.G. 37.	
<u>C. curtipennis</u>	"	--	--	Carlson '36	J.M. 59.	
"	17s	9 \hat{o} (1)	X-0 \hat{o}	McClung '30	Acta Cong. Int. Biol. Montevideo 7.	
<u>C. (Stenobothrus)</u> <u>curtipennis</u>	--	8,9 \hat{o} (11)	"	Robertson '16	J.M. 27.	
"	--	9 \hat{o} (1)	"	Wenrich '17	J.M. 29.	

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>C.(S.) lineatus</u>	17s	9 \hat{o} (1)	X-0 \hat{o}	Belar '25	Roux 116.
<u>C. longicornis</u>	17s (Normal) 15s (Translocation)	— —	X-0 \hat{o} ; Recipr. translocation occurs.	Coleman '47	Genetics 32.
<u>C. parallelus</u>	17s	9 \hat{o} (1)	X-0 \hat{o}	Darlington '36	J.G. 33.
<u>Chortiopus pulvinatus</u>	"	"	"	McClung '30	Acta Cong. Int. Biol. Montevideo 7.
<u>Chortogonus sp.</u>	19s	10 \hat{o} (1) 9,10 \hat{o} (11)	"	Ramachandra '37	J.M. 61.
<u>Chortophaga viridifasciata</u>	23 \hat{o} m 24 \hat{o} m	— —	— —	Carlson '38, '40	Genetics 23; J.M. 66.
"	19s 23s	12 \hat{o} (1) 11,12 \hat{o} (11)	X-0 \hat{o} . X fused with 1 autosome. Number varies due to multiple chroms.	McClung '05, '14	B.B. 9; J.M. 25.
"	24o 24 \hat{o} m 23 \hat{o} m	12 \hat{o} (1) 12 \hat{o} (11) 12 \hat{o} (1) 11,12 \hat{o} (11)	X-0 \hat{o} X-X \hat{o}	McNabb '28	J.M. 25.
"	23s	— —	— —	White '40	J.G. 40.
"	23s	— —	X-0 \hat{o} : all atelomitic?	Coleman '43	Genetics 28.
<u>Chromacris miles</u>	"	12 \hat{o} (1)	X-0 \hat{o}	Saez '30, '30	Rev. Mus. Plata 32; Arch. Soc. Biol. Montevideo 2.
<u>Chrysochraon dispar</u>	17s	9 \hat{o} (1)	"	Klingstedt '37	Mem. Soc. Fa. Fl. Fennica 12.
<u>Chrysochraon japonicus</u>	17s	8,9 \hat{o} (11)	"	Shimakura, Fukuhara & Nakahara '49	Z.M. (Jap.) 58.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Circotettix coconino</u>	---	11♂(1) 8V's.	X-0♂.	White '49		Genet. 34.
<u>C. crotalum</u>	21s	"	"	"	"	"
<u>C. lobatus</u>	21s	11♂(1) 10,11♂(11)	X-0♂. Super- numeraries occur.	Carothers '17	J.M. 28.	
<u>C. rabula</u>	"	"	X-0♂. Super- numeraries occur.	"	"	"
<u>C. rabula altior</u>	"	11♂(1) 8V's.	X-0♂. 8V's.	White '49		Genet. 34.
<u>C. undulatus</u>	"	"	X-0♂. 10V's.	"	"	"
<u>C. verruculatus</u>	21s 21om	11♂(1) X-0♂	Carothers '21	J.M. 35.		
"	21s	"	"	Helwig '33, '38	J.M. 55; A.B. 49.	
"	---	11♂(1)	---	McNabb '28	J.M. 45.	
"	---	---	Transl. & inversion occur X- rayed indiv.	Bishop '42	J.M. 71.	
<u>Clinocephalus sp.</u>	23s	12♂(1) 11,12♂(11)	X-0♂	McClung '14	J.M. 25.	
<u>Colemania sphenerioides</u>	19s	10♂(1) 9,10♂(11)	"	Ramachandra '37	J.M. 61.	
<u>Coptacra foedata</u>	23s	12♂(1) 11,12♂(11)	"	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>Dactylotum sp.</u>	23s	12♂(1) 11,12♂(11)	X-0♂	McClung '14	J.M. 25.	
<u>Diedronotus discoideus</u>	"	"	"	Saez '30, '30	Rev. Mus. Plata 32; Arch. Soc. Biol. Montevideo 2.	
<u>Dissosteira carolina</u>	"	"	"	Davis '08	Bull. Mus. Comp. Zool. Harvard 53.	

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Dissosteira</u> sp.	23s	12 δ (1) 11,12 δ (11)	X-0 δ		McClung '14	J.M. 25.
<u>Eirenephilus</u> <u>longipennis</u>	"	"	"		Momma '43	J.F.S. Hokkaido I.U. 9.
<u>Elaeochlora viridicata</u>	"	"	"	Saez '30, '30		Rev. Mus. Plata 32; Arch. Soc. Biol. Montevideo 2.
<u>Encoptolophus</u> sp.	"	"	"		McClung '14	J.M. 25.
<u>Eremnus</u> sp.	"	"	"		"	"
<u>Euchorthippus pulvinatus</u>	17s	---	---		Carlson '36	J.M. 59.
<u>Gastrimarus transversus</u>	23s	12 δ (1) 11,12 δ (11)	X-0 δ		Momma '43	J.F.S. Hokkaido I.U. 9.
<u>Gesonia punctifrons</u>	"	"	"		"	"
<u>Gomphocerus maculatus</u>	17s 17 δ m 18 δ m	9 δ (1) 8,9 δ (11)	"		Eisentraut '26	Z.W.Z. 128.
<u>G. rufus</u>	17s	---	---		Carlson '36	J.M. 59.
<u>G. sibericus</u>	"	9 δ (1)	X-0 δ		McClung '30	Acta Cong. Int. Biol. Montevideo 7.
<u>Hadratettix</u> sp.	23s	12 δ (1) 11,12 δ (11)	"		McClung '14	J.M. 25.
<u>Hesoperotettix</u> <u>brevipennis</u>	"	---	---		McClung '17	J.M. 29.
<u>H. festivus</u>	---	12 δ (1)	---		"	"
<u>H. pratensis</u>	22s	12 δ (1) 11 δ (11)	X-0 δ . X fused with 1 autosome.		McClung '05, '14, '17.	B.B. 9; J.M. 25, 29.
<u>H. speciosus</u>	"	"	"		"	"
<u>H. viridis</u>	22s	"	"		"	"
<u>Hieroglyphus banian</u>	23s	12 δ (1) 11,12 δ (11)	X-0 δ		Asana, Makino & Niwayama '39	Jap. J.G. 15.
<u>Hippiscus</u> <u>phoenicopterus</u>	"	"	"		McClung '14	J.M. 25.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>H. tuberculatus</u>	23s 24o	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}		Davis '08	Bull. Mus. Comp. Zool. Harvard 53.
<u>Leptysma dorsalis</u>	---	"	"		Piza '45	Luiz de Queiroz 2.
<u>Locusta danica</u> <u>(=migratoria)</u>	23s (23-27)	"	X-0 \hat{o} . 1-4 super- numeraries.		Itoh '34, '38	Jap. J. G. 10; Tran. Sapporo Nat. Hist. Soc. 15.
<u>Locusta migratoria</u>	"	---	X-0 \hat{o}	Csik & Koller '39		Chrom. 1.
"	---	12 \hat{o} (1)	"		Mather '40	J.G. 39.
"	23s	"	"		White '34	J.G. 29.
"	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"		Wu '38	Cyt. 9.
<u>Locustana pardalina</u>	"	"	"	Malan & Malan '25		Trans. Roy. Soc. South Africa 13.
<u>Mecostethus gracilis</u>	---	12 \hat{o} (1)	---	Carothers '31		B.B. 61.
"	23s	"	X-0 \hat{o}	McClung '28		Z.Z.M.A. 7.
<u>M. grossus</u>	"	"	"	"	"	"
"	---	"	"	Morita '27, '41		B.B. Fr. Bel. 61; C.R.S.B. 96.
"	---	"	"	White '36		Z.Z.M.A. 24.
"	23s (Normal) 24-23+X (trisomic)	13 \hat{o} (1)	X-0 \hat{o} trisomic indiv.	Callan '41		J.H. 32.
<u>M. lineatus</u>	23s	12 \hat{o} (1)	X-0 \hat{o}	McClung '28		Z.Z.M.A. 7.
<u>Mecostethus sp.</u>	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	McClung '14, '27		J.M. 25, 43.
<u>Melanoplus angustipennis</u>	"	11, 12 \hat{o} (11)	"	Meek '13		P.R.S. London B. 203.
<u>M. atlantis</u>	"	"	"	"	"	"
"	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	Nowlin '08		Kansas Univ. Sci. Bull. 4.
<u>M. bivittatus</u>	"	---	---	Meek '13		P.R.S. London B. 203.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>M. bivittatus</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}		Nowlin '08	Kansas Univ. Sci. Bull. 4.
<u>M. dawsonii</u>	"	--	---		Meek '13	P.R.S. London B. 203
<u>M. differentialis</u>	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}		Nowlin '12	Kansas Univ. Sci. Bull. 6.
"	24 \hat{o} m +	12 \hat{o} (1) 12 \hat{o} (11)	Parth.	Slifer & King '34		J.M. 56.
<u>Melanoplus femoratus</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}		Davis '08	Bull. Mus. Comp. Zool. Harvard 53.
<u>M. femur-rubrum</u>	"	"	"		Hearne & Huskins '31, '35	Cyt. 3, 6.
"	23s 22 \hat{o}	"	"		Nowlin '12	Kansas Univ. Sci. Bull. 6.
"	23s	12 \hat{o} (1)	"		White '40	J.G. 40.
<u>M. femur-rubrum</u> <i>(=Caloptenus)</i>	12s	6 \hat{o} (1) = 24el. 6 \hat{o} (11) = 12el.	---		Wilcox '94, '95, '98	A.Z. 10; Bull. Mus. Comp. Zool. Harvard 27; A.Z. 14.
"	---	---	Poly-ploid germ cells		Gremillion '42	Proc. Louisiana Acad. Sci. 7.
<u>M. mexicanus</u>	23s	---	X-0 \hat{o} : all atelomitic?		Coleman '43	Genetics 28.
<u>M. packardii</u>	23s	11, 12 \hat{o} (11)	X-0 \hat{o}		Meek '13	P.R.S. London B 203.
"	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"		Nowlin '12	Kansas Univ. Sci. Bull. 6.
<u>Melanoplus sp.</u>	"	"	"		McClung '14	J.M. 25.
<u>Mermiria bivittata</u>	22s 22 \hat{o} m +	11 \hat{o} (1) 11 \hat{o} (11)	X-0 \hat{o} . X fused with 1 autosome		McClung '17	J.M. 29.

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Mermiria</u> sp.	23s	12 \hat{o} (1)	X-0 \hat{o}	"	McClung '17	J.M. 29.
<u>Mestobregma</u> sp.	"	12 \hat{o} (1) 11,12 \hat{o} (11)	"	"	McClung '14	J.M. 25.
<u>Miramella dairisama</u>	21s	11 \hat{o} (1) 10,11 \hat{o} (11)	"	"	Momma '42, '43	Bot. & Zool. 10; J.F.S. Hokkaido I.U. 9.
<u>M. mikado</u>	"	"	"	"	"	"
<u>Oedaleus abruptus</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	"	Asana, Makino & Niiyama '39	Jap. J.G. 15.	
<u>O. coeruleescens</u>	"	"	"	Eisentraut '26	Z.W.Z. 128.	
<u>Oedipoda</u> sp.	"	"	"	Buchner '09	A.Zf. 3.	
<u>Omocestus ventralis</u>	17s	---	---	Carlson '36	J.M. 59.	
<u>O. viridulus</u>	"	9 \hat{o} (1)	---	McClung '30	Acta Cong. Int. Biol. Montevideo 7.	
<u>Orphulella punctata</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	X-0 \hat{o}	Saez '30	"	
"	---	12 \hat{o} (1) 11,12 \hat{o} (11)	X-0 \hat{o}	Piza '45	Luiiz de Queiroz 2.	
<u>Orphulella</u> sp.	23s	"	"	McClung '14	J.M. 25.	
<u>Orthacris ruficornis</u>	19s	10 \hat{o} (1) 9,10 \hat{o} (11)	"	Banachandra '37	J.M. 61.	
<u>Osmilia violacea</u>	---	12 \hat{o} (1) 11,12 \hat{o} (1)	X-0 \hat{o}	Piza '45	Luiiz de Queiroz 2.	
<u>Oxya intricata</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	"	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>O. japonica</u>	---	12 \hat{o} (1)	"	Kitao '29	Jour. Coll. Agri. Imp. Univ. Tokyo 10.	
<u>O. jezoensis</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	"	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>O. universalis</u>	23s	12 \hat{o} (1) 11,12 \hat{o} (11)	X-0 \hat{o}	Momma '43	J.F.S. Hokkaido I.U. 9.	
<u>O. velox</u>	"	"	"	Oka '28	Z.M.(Jap.)40.	

PTERYGOTA (Continued)

Species		Chromosome Number				References
	2n	n	Remarks	Observer		
<u>O. velox</u>	23s	12 ^o (1) 11, 12 ^o (11)	X-0 ^o	Wu '38		Cyt. 9.
<u>Oxya</u> sp.	23s	12 ^o (1)	"	Ray-chandhuri & Dutt '47		Proc. Roy. Soc. Edinb. B. 62.
<u>Oxyblepta</u> sp.	23s	12 ^o (1) 11, 12 ^o (11)	"	Saez '30		Acta. Cong. Int. Biol. Montevideo 7.
<u>Parmahagus marmoratus</u>	19s 20 ^{om}	10 ^o (1)	"	Granata '10		A.Zf. 5.
"	19s	---	"	Jorelli '40		Arch. Zool. Ital. 28.
<u>Paraleurus alliacens fastigatus</u>	23s	12 ^o (1) 11, 12 ^o (11)	"	Momma '43		J.F.S. Hokkaido I.U. 9.
<u>Paratylotropidia brunneri</u>	19s 20 ^{om}	9 ^o (1) 9, 10 ^o (11)	X-0 ^o . X fused with 1 autosome. Number variable due to multiple chroms.	King & Beams		J. M. 63.
<u>Paroxya</u> sp.	23s	12 ^o (1) 11, 12 ^o (11)	X-0 ^o	McClung '14		J.M. 25.
<u>Philocleon anomalus</u>	12s	6 ^o (1,11)	X-0 ^o Multiple chroms. occur	Helwig '41		J.M. 69.
<u>Philostroma</u> sp.	23s	12 ^o (1) 11, 12 ^o (11)	X-0 ^o	McClung '14		J.M. 25.
<u>Phlaeoba formosana</u>	"	"	"	Momma '43		J.F.S. Hokkaido I. U. 9.
<u>P. infumata</u>	"	"	X-0 ^o :4n and 6n cytes occur.	Momma '42, '43		Bot. & Zool. 10; J.F.S. Hokkaido I. U. 9.
<u>Phlaeoba</u> sp.	"	12 ^o (1)	X-0 ^o	Ray-chandhuri & Dutt '47.		Proc. Roy. Soc. Edinb. B. 62.
<u>Phoetaliotes</u> sp.	"	12 ^o (1) 11, 12 ^o (11)	"	McClung '14		J.M. 25.
<u>Phrynotettix magnus</u>	"	"	"	Pinney '08		Kansas Univ. Sci. Bull. 4.

PTERYGOTA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Phrynotettix magnus</u>	---	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o} : 4n and 6n cytes occur.	Wenrich '16	Bull. Mus. Comp. Zool. Harvard 60.
<u>Phrynotettix sp.</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	McClung '14	J.M. 25.
<u>Podisma (=Miramella) mikado</u>	21s	11 \hat{o} (1)	X-0 \hat{o} : 4n cytes occur.	Makino '36, '39	J.F.S. Hokkaido I.U. 5; Jap. J.G. 15.
<u>P. sapporoense</u>	23s	---	X-0 \hat{o}	Makino '36	J.F.S. Hokkaido I.U. 5.
"	"	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	Natori '32	Trans. Sapporo Nat. Hist. Soc. 12.
"	"	"	"	Momma '42, '43	Bot. & Zool. 10; J.F.S. Hokkaido I. U. 9.
<u>Poecilocerus pictus</u>	19s	10 \hat{o} (1) 9, 10 \hat{o} (11)	"	Asana & Makino '34	Jour. Univ. Bombay 2.
"	19s	"	"	Ramachandra '37	J.M. 61.
<u>Proracorypha sp.</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	McClung '14	J.M. 25.
<u>Pseudopomala sp.</u>	"	"	"	"	"
<u>Pseudotrimerotropis coeruleipennis</u>	"	---	---	King '23	J.M. 38.
<u>P. cyaneipennis</u>	21s	---	---	"	"
<u>P. thallasica</u>	23s	---	---	"	"
<u>Psinidia sp.</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	X-0 \hat{o}	McClung '14	J.M. 25.
<u>Pyrgomorpha bispinosa</u>	19s	10 \hat{o} (1) 9, 10 \hat{o} (11)	"	Ramachandra '37	J.M. 61.
<u>Rhomaleum sp.</u>	23s	12 \hat{o} (1) 11, 12 \hat{o} (11)	"	McClung '14	J.M. 25.
<u>Romalea microptera</u>	"	"	X-0 \hat{o} : Polypliod '47 germ cells occur.	Mickey '42, '46	Proc. Louisiana Acad. Sci. 6: A.N. 80; Proc. Louis. Acad. Sci. 10.

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Romalea microptera</u>	24o	12o(1)	Parthenogenetic	Swann & Mickey '47	Proc. Louis. Acad. Sci. 10.
<u>Scirtetica</u> sp.	23s	12o(1) 11,12o(11)	X-0o	McClung '14	J.M. 25.
<u>Schistocerca alutacea</u>	"	12o(1)	---	Hartmann '13	B.B. 24.
<u>S. americana</u>	"	"	---	"	"
<u>S. gregaria</u>	"	12o(11)	X-0o	Csik & Koller '39	Chromosoma 1.
<u>S. paranensis</u>	"	12o(1)	"	"	"
"	"	12o(1) 11,12o(11)	"	Saez '30, '30	Rev. Mus. Plata 32; Arch. Soc. Biol Montevideo 2.
<u>Schistocerca</u> sp.	"	"	"	McClung '14	J.M. 25.
<u>Scyllina cyanipes</u>	"	12o(1)	"	Long '40	J.M. 67.
<u>Spathosternum prasiniferum</u>	"	12o(1) 11,12o(11)	"	Asana, Makino & Niyama '39	Jap. J.G. 15.
"	"	12o(1)	"	Ray-Chandhuri & Dutt '47	Proc. Roy. Soc. Edinb. B. 62.
<u>Spharagemon</u> sp.	"	12o(1) 11,12o(11)	"	McClung '14	J.M. 25.
<u>Sphenarium mexicanum</u>	17s	9o(1)	"	McClung '30	Acta Cong. Int. Biol. Montevideo 7.
<u>Stauroderus bicolor</u>	17s	9o(1)	X-0o	Darlington '36	J.G. 33.
<u>S. biguttulus</u>	"	---	---	Carlson '36	J.M. 59.
<u>S. mori</u>	"	9o(1)	X-0o	McClung '30	Acta Cong. Int. Biol. Montevideo 7.
<u>S. scalaris</u>	17s 19s	9o(1) 10o(1)	X-0o. Supernumeraries occur.	Corey '33	J.M. 55.
<u>Stauronotus macrocanus</u>	23s	12o(1) 11,12o(11)	X-0o	Artom '09	Biologica 2.
<u>Stenobothrus bicolor</u>	17s	9o(1) 8,9o(11)	X-0o	Meek '13	P.R.S. London B 203.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>S. biguttulus</u>	16-17s	9 $\hat{\alpha}$ (1) 8,9 $\hat{\alpha}$ (11)	X-0 $\hat{\alpha}$	Gérard '09, '14	Bull. Soc. Roy. Sci. Med. Nat. Bruxelles 67; A.B. 24.	
<u>S. curtipennis</u>	17s	"	"	Davis '08	Bull. Mus. Comp. Zoo . Harvard 53.	
"	"	"	"	Meek '12	Jour. Linnean Soc. 32.	
<u>S. lineatus</u>	"	--	--	Carlson '36	J.M. 59.	
<u>S. parallelus</u>	17s	9 $\hat{\alpha}$ (1) 8,9 $\hat{\alpha}$ (11)	X-0 $\hat{\alpha}$	Darlington & Meek '32	Cyt. 3.	
"	"	9 $\hat{\alpha}$ (1)	"	Janssens '24	L.C. 34.	
"	"	8,9 $\hat{\alpha}$ (11)	"	Meek '13	P.R.S. London. B 203	
<u>S. vagans</u>	23s	--	X-0	Kowalski '25	L.C. 36.	
<u>S. viridulus</u>	---	12-18 $\hat{\alpha}$ (1) 6-8 $\hat{\alpha}$ (11)	--	Carnoy '85	L.C. 1.	
"	17s	9 $\hat{\alpha}$ (1) 8,9 $\hat{\alpha}$ (11)	X-0 $\hat{\alpha}$	Meek '11, '13	Jour. Linnean Soc. 32; P.R.S. London B 203	
<u>S.(Chortippus) sp.</u>	21s	11 $\hat{\alpha}$ (1) 10,11 $\hat{\alpha}$ (11)	"	McClung '14	J.M. 25.	
<u>Stirapleura pallida</u>	23s	12 $\hat{\alpha}$ (1) 11,12 $\hat{\alpha}$ (11)	"	Saez '30	Acta Cong. Int. Biol. Montevideo 7.	
<u>Syrbula acuticornis</u>	20s	10 $\hat{\alpha}$ (1) 10 $\hat{\alpha}$ (11)	2X-0 $\hat{\alpha}$	Montgomery '05	Proc. Acad. Nat. Sci. Phila. 57.	
"	23s	12 $\hat{\alpha}$ (1) 11,12 $\hat{\alpha}$ (11)	X-0 $\hat{\alpha}$	Robertson '16	J.M. 27.	
<u>S. admirabilis</u>	"	"	"	Robertson '08	Kansas Univ. Sci. Bull. 4.	
<u>Syrbula sp.</u>	"	"	"	McClung '14	J.M. 25.	
<u>Telmatettix aztecus</u>	---	6,7 $\hat{\alpha}$ (11)	--	Mebours '28	Genet. 13.	
<u>Teratodes monticolis</u>	23s	12 $\hat{\alpha}$ (1) 11,12 $\hat{\alpha}$ (11)	X-0 $\hat{\alpha}$	Asana, Makino & Niiyama '39	Jap. J.G. 15.	

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Traulia ornata</u>	23s	12♂(1) 11, 12♂(11)	X-0♂		Momma '43	J.F.S. Hokkaido I.U. 9.
<u>Trigonophymus elongata</u>	---	"	"		Saez '30	Acta. Cong. Int. Biol. Montevideo, 7.
<u>Trimerotropis bilobata</u>	23s	12♂(1)	X-0♂. All rod. unequal pair occurs.		White '49	Genet. 34.
<u>T. citrina</u>	23s	12♂(1) 11, 12♂(11)	X-0♂	Carothers '31	B.B. 61.	
"	"	12♂(1)	X-0♂. All rod.	White '49	Genet. 34.	
<u>T. cyaneipennis</u>	21s	11♂(1)	X-0♂. 6V's.	"	"	"
<u>T. fallax</u>	23s 24m	12♂(1) 11, 12♂(11)	X-0♂	Carothers '17	J.M. 28.	
<u>T. fontana</u>	23s	"	X-0♂. All rod.	Coleman '48	Genet. 33.	
<u>T. gracilis sordida</u>	"	"	X-0♂. Some V's occur.	"	"	"
<u>T. latifasciata</u>	"	"	X-0♂. All rod. 1 super- numerary occurs.	White '49	Genet. 34.	
<u>T. maritima</u>	"	---	X-0♂. All rod.	"	"	"
<u>T. pallidipennie</u>	"	12♂(1)	X-0♂. 6V's.	Coleman '48	Genet. 33.	
"	"	"	"	White '49	Genet. 34.	
<u>T. praeclarra</u>	"	"	X-0♂. All rod.	Coleman '48	Genet. 33.	
<u>T. suffusa</u>	23s 24m	12♂(1) 11, 12♂(11)	X-0♂	Carothers '17	J.M. 28.	
"	---	12♂(1)	X-0♂. 8V's.	White '49	Genet. 34.	

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Trimerotropis suffusa</u>	---	12 $\hat{\delta}$ (1)	X-0 δ . Super- numeraries occur.	Wenrich '17	J.M. 29.
<u>Trimerotropis</u> sp.	23s	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	X-0 δ	McClung '14	J.M. 25.
<u>Trimerotropis</u> sp. <u>(=T. titus)</u>	"	"	X-0 $\hat{\delta}$. All rod. A pair of unequal size occurs.	White '49	Genet. 34.
<u>Tristria pulvinata</u>	21s	11 $\hat{\delta}$ (1)	X-0 δ	Dutt '48	Proc. Zool. Soc. Bengal 1.
<u>Trixalis nasuta</u>	23s	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	X-0 δ .	Minouchi '34	Z.Z.M.A. 20.
	(25s)	13,14,15 $\hat{\delta}$ (1) variable 11,12,13 $\hat{\delta}$ (11) due to super- numeraries.			
"	23s	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	X-0 δ	Minouchi & Kishimoto '31	Z.M.(Jap.) 43.
<u>Tropinotus discoideus</u>	---	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	"	Piza '47	Luiz de Querioz 2.
<u>Tropidolophus</u> sp.	23s	"	"	McClung '14	J.M. 25.
<u>Truxalis brevicornis</u>	"	"	"	Saez '30	Acta Cong. Int. Biol. Montevideo 7.
<u>Tryxalis nasuta</u>	21s	11 $\hat{\delta}$ (1)	"	Brunelli '10, '11	Mem. Soc. Ital. Sci. 16; Mem. R. Acad. Lincei 8.
<u>Tryxalis</u> sp.	23s	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	"	McClung '14	J.M. 25.
<u>Zarytes squalina</u>	19s	10 $\hat{\delta}$ (1) 9,10 $\hat{\delta}$ (11)	"	Ramachandra '37	J.M. 61.
<u>Zoniopoda tarsata</u>	23s	12 $\hat{\delta}$ (1) 11,12 $\hat{\delta}$ (11)	"	Saez '30	Acta Cong. Int. Biol. Montevideo 7.
<u>Zubovskya</u> (<u>Podisma</u>) <u>glacialis canadensis</u>	21s	11 $\hat{\delta}$ (1)	X-0 δ	Smith '44	Sci. Agric. 24.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Blattidae						
<u><i>Blabera fusca</i></u> <u>(Blaberidae)</u>	73s	37 [♂] (1) 36, 37 [♂] (11)	X-0 [♂]	Suomalainen '46	Ann. Acad. Sci. Fenn. A. IV, 10.	
<u><i>Blatta germanica</i></u>	---	12 [♂] (1)	---	Erlanger '96, '97	Z.A. 19; Z. Cbl. 4.	
"	23s 24o	12 [♂] (1) 11, 12 [♂] (11)	X-0 [♂]	Wassilief '07	A.M.A. 70.	
<u><i>Blatta orientalis</i></u> <u>(Blattidae)</u>	47s 48 [♀] 48 ^{♀m}	24 [♂] (1) 23, 24 [♂] (11)	"	Suomalainen '46	Ann. Acad. Sci. Fenn. A. IV, 10.	
<u><i>Blatella (Blatta)</i></u> <u><i>germanica</i></u>	23s 23 ^{♀m(?)}	12 [♂] (1) 11, 12 [♂] (11)	"	Stevens '05	Carnegie Inst. Pub. 36.	
<u><i>Leucophaea maderiae</i></u>	23s 24o	11, 12 [♂] (11)	"	Morse '09	A.Zf. 3.	
<u><i>Loboptera decipiens</i></u> <u>(Phyllodromiidae)</u>	33s	17 [♂] (1) 16, 17 [♂] (11)	"	Suomalainen '46	Ann. Acad. Sci. Fenn. A. IV, 10.	
<u><i>Periplaneta americana</i></u>	32s	16 [♂] (1, 11)	---	Farmer & Moore '04, Moore & Robinson '04, Moore & Arnold '05	Q.J.M.S. 48; P.R.S. London, 77.	
"	33s 34o	17 [♂] (1) 16, 17 [♂] (11)	X-0 [♂]	Morse '09	A.Zf. 3.	
"	---	17 [♂] (1)	"	Hogben '20	P.R.S. London 91.	
" <u>(Phyllodromiidae)</u>	33s 34 ^{♀m} 34 [♀]	17 [♂] (1) 16, 17 [♂] (11)	"	Suomalainen '46	Ann. Acad. Sci. Fenn. A. IV, 10.	
<u><i>P. australasiae</i></u> <u>(")</u>	27s 28 ^{♀m} 28 [♀]	14 [♂] (1) 13, 14 [♂] (11)	"	"	"	
<u><i>Phyllodromia germanica</i></u> <u>(")</u>	23s 24 ^{♀m} 24 [♀]	12 [♂] (1) 11, 12 [♂] (11)	X-0 [♂] : Association of X and an autosome occur.	"	"	
<u><i>Pycnoscelus surinamensis</i></u>	37s 38o	19 [♂] (1) 18, 19 [♂] (11)	X-0 [♂] ; Bisexual & parth. races occur.	Matthey '45, '48 Klaus-Stift. Vererb. 23.	R.Suisse Z. 52; Jul. Klaus-Stift. Vererb. 23.	

PTERYGOTA (Continued)

Species	Chromosome Number 2n	n	Remarks	Observer	References
<u>Stylopyga orientalis</u>	---	---	X-0♂	Morse '09	A.Zf. 3.
Gryllidae					
<u>Acheta bimaculata</u>	29s	---	"	Tateishi '32	Z.M.(Jap.) 44.
<u>Acheta campestris</u>	29s	---	X-0♂	Ohmachi '29, '35	P.I.A. (Tokyo) 5; Bull. Mie, 5*
" (<u>Gryllus campestris</u>)	29s	15♂(1) 14, 15♂(11)	--	Buchner '09, '10	A.Zf. 3,5.
<u>A. (Gryllus) mitratus</u> - <u>Manchuria</u> -	25s	13♂(1) 12, 13♂(11)	X-0♂	Honda '26; Honda & Iriki '32, '38	P.I.A. (Tokyo) 2; S.R. Tokyo B.D. 1; Ann. Zool. Jap. 17.
" - <u>Tokyo</u> -	27s	---	"	Ohmachi '27, '35	P.I.A. (Tokyo) 3; Bull. Mie, 5.
" - <u>Tokyo & Kyoto</u> -	"	14♂(1) 13, 14♂(11)	"	Honda & Iriki '32, '38	S.R. Tokyo B.D. 1; Ann. Zool. Jap. 17.
" - <u>Taiwan</u> -	"	---	"	Tateishi '32	Z.M. (Jap.) 44.
<u>Anarhipha pallidula</u>	19s	---	"	Ohmachi '27, '35	P.I.A. (Tokyo) 3; Bull. Mie 5.
<u>Aphononomorphus japonicus</u>	17s	---	"	Ohmachi '35	Z.M. (Jap.) 47.
<u>Apithes agitator</u>	13s	---	---	Baumgartner '17	A.R. 11.
<u>Brachytrupes portentosus</u>	13, 14, 15s	6, 7, 8♂(1) 6, 7, 8♂(11)	X-0♂. Number variable due to multiple chroms.	Tateishi '31, '32	J.Soc. Trop. Agr. Taihoku Imp. Univ. 3; Z.M. (Jap.) 44.
"	14, 15, 20s	---	"	Ohmachi '32, '35	P.I.A. (Tokyo) 8; Bull. Mie, 5.
"	15, 17s	---	"	Momma '42	Jap. J.G. 18.

*Bull. Mie. = Bulletin of the Mie Imperial College of Agriculture and Forestry.

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Cyrtotiphus ritsemiae</u>	15s	---		X-0. Supernumeraries occur.	Ohmachi '27, '35	P.I.A.(Tokyo) 3; Bull. Mie, 5.
<u>Eneoptera surinamensis</u>	9s 8om	6♂(1) 4,5♂(11)	X-Y ₁ Y ₂ ♂ X-X ₂ ♂		Piza '46	Luiz de Queiroz 3.
<u>Endecous cavernicola</u>	19s	10♂(1) 9,10♂(11)	X-0♂		Piza '45	Luiz de Queiroz 2.
<u>Euscyrtus formosanus</u>	---	10♂(1) 9,10♂(11)	X-0♂		Momma '41	Jap. J.G. 17.
<u>E. karymi</u>	19s	"	"	"	"	"
<u>Gryllodes berthellus</u>	23s	---	---		Honda '26	P.I.A. (Tokyo) 2.
"	21s	---	X-0♂		Ohmachi '27, '35	P.I.A. (Tokyo) 8; Bull. Mie, 5.
<u>G. sigillatus</u>	21s	---	"	"	"	"
"	"	---	"	Tateishi '32	Z.M.(Jap.) 44.	
<u>Gryllodes sp.</u>	19s	---	--		Honda '26	P.I.A. (Tokyo) 2.
<u>Gryllodes sp.</u>	21s	11♂(1) 10,11♂(11)	X-0♂		Piza '45	Luiz de Queiroz 2.
<u>Gryllomorpha dalmatina</u>	13s	---	X-0♂		Favrelle '36	Mém. Musée Roy. Hist. Nat. Belg. Ser. II, 3.
<u>Gryllus assimilis</u>	29s	15♂(1) 14,15♂(11)	X-0♂		Piza '45	Luiz de Queiroz 2.
<u>Gryllus assimilis lactuosus</u>	29s	15♂(1) 14,15♂(11)	X-0♂		Baumgartner '04	B.B. 8.
<u>Gryllus desertus</u>	21s	11♂(1)	X-0♂		Brunelli '09	Mem. R. Acad. Lincoi, Ser. 5a, 7.
<u>G. domesticus</u>	21s	11♂(1) 11,11♂(11)	"		Baumgartner '04	B.B.'8.
"	21s, 6m 220, 9m	11♂(1)	"		Gutherz '07, '08, '09	A.M.A. 69; Zentr. Phys. 22; Sitz. Ges. Nat. Fr. Berlin ('09).
"	21s	11♂(1) 10,11♂(11)	"		Meek '13	Phil. Trans. Roy. Soc. London B 203

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>G. minor</u>	11s	---	X-0♂	Ohmachi '29, '35	P.I.A. (Tokyo) 5; Bull. Mie, 5.
<u>Gryllus (Gryllulus) mitratus (Hokkaido)</u>	25s	13♂(1) 12,13♂(11)	♂	Momma '48	Oguma Comm. Vol. Cyt. Genet 1.
" (Niigata)	27s	14♂(1) 13,14♂(11)	"	"	"
<u>G. nipponensis</u>	19s	---	X-0♂	Ohmachi '29, '35	P.I.A. (Tokyo) 5; Bull. Mie, 5.
<u>Gryllus sp.</u>	21s	---	"	Ohmachi '35	Z.M. (Jap.) 47
<u>Homoeogryllus japonicus</u>	21s	---	X-0♂. Inter- sex occur.	Ohmachi '17, '35	P.I.A. (Tokyo) 3; Bull. Mie. 5.
"	21s 22o	---	X-0,X-X♀. Gynandro- morph.	Suzuki '34	P.I.A. (Tokyo) 10.
"	21s	---	X-0. Brown mutant due to X-ray.	Suzuki '37	Cyt. Fujii Jub.-Vol.
"	21s	11♂(1) 10,11♂(11)	X-0♂	Sinoto '44	Cyt. 13.
<u>Lebinthus sp.</u>	11s	---	X-0♂	Ohmachi '35	Z.M. (Jap.) 47.
<u>Lipophilus annulipedus</u>	14s	---	"	Tateishi '32	Z.M. (Jap.) 44.
<u>L. kanetataki</u>	19s	---	"	Ohmachi '27, '35	P.I.A. (Tokyo) 3; Bull. Mie, 5.
<u>Loxoblemmus arietulus</u> -Manchuria-	13,14,15s	7,8♂(1)	X-0♂. Number variable due to multiple chroms.	Honda '26	P.I.A. (Tokyo) 2.
" -Tokyo-	13s	---	X-0♂	Ohmachi '27	P.I.A. (Tokyo) 3.
"	13s (14-17)	---	X-0♂. Number varies by X-ray treatment.	Suzuki '32, '34	P.I.A. (Tokyo) 8, 10.

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u><i>Loxoblemmus arietulus</i></u>					
- <u>Tokyo</u> -	14,15s	---	F ₁ of normalo X X-rayed ♀	Suzuki '33	P.I.A.(Tokyo)9.
<u><i>L. frontalis</i></u>	12o	---	Partheno- genetic ♀	Ohmachi '29	P.I.A.(Tokyo)5.
<u><i>L. taicoun(doenitzi)</i></u>	11s	6♂(1)	X-0♂	Honda '26	P.I.A.(Tokyo)2.
"	"	---	"	Ohmachi '27, '35	P.I.A.(Tokyo)3; Bull. Mie, 5.
<u><i>Madasumma hibinonis</i></u>	15s	---	X-0♂	"	"
<u><i>M. marmorata</i></u>	11s	---	"	"	"
<u><i>Nemobius csikii</i></u>	17s	9♂(1)	X-0♂	Honda '26	P.I.A.(Tokyo)2.
<u><i>Nemobius fasciatus</i></u>	15s	---	X-0♂	Honda '26	P.I.A.(Tokyo)2.
"	"	---	"	Baumgartner'29	Z.Z.M.A. 9.
<u><i>N. flavoantennalis</i></u>	17s	---	"	Ohmachi'29,'35	P.I.A.(Tokyo)5; Bull. Mie, 5.
<u><i>N. furumagiensis</i></u>	19s	---	"	"	"
<u><i>N. mikado</i></u>	15s	---	"	Ohmachi'27,'35	P.I.A.(Tokyo)3; Bull. Mie, 5.
<u><i>N. nigrofasciatus</i></u>	17s	---	"	"	"
"	"	---	"	Tateishi '32	Z.M.(Jap.)44.
<u><i>N. ohmachi</i></u>	11s	---	"	Ohmachi'27, '35	P.I.A.(Tokyo)3; Bull. Mie, 5.
<u><i>N. yezoensis</i></u>	17s	---	"	"	"
<u><i>Nemobius sylvestris</i></u>	"	---	"	Favrelle '36	Mém. Musée Roy. Hist. Nat. Belg. Ser. II, 3.
<u><i>Nemobius</i> sp.</u>	"	---	"	Ohmachi '35	Z.M.(Jap.) 47.
<u><i>Oecanthus longicauda</i></u>	20s	---	X-Y♂	Ohmachi '27, '35	P.I.A.(Tokyo)3; Bull. Mie, 5.
"	"	10♂(1,11)	"	Makino '32	J.F.S. Hokkaido I.U.Ser. VI, 2.



PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Oe. nigricornis</u>	19s	---	X-0♂		Johnson '31	Z.W.Z. 140.
<u>Oe. indicus</u>	"	10♂(1) 9,10♂(11)	X-0♂	Nakamura & Kitada '49; Kitada '49	Jap. J.G. 24; La Kromosomo 5-6.	
<u>Paralandrevus coriaceus</u>	"	---	"	Ohmachi '32, '35	P.I.A.(Tokyo)8; Bull. Mie, 5.	
<u>P. coulonianus</u>	"	---	"	Tateishi '32	Z.M.(Jap.)44.	
<u>Paratrigonidium bifasciatum</u>	15s	---	"	Ohmachi '27, '35	P.I.A.(Tokyo)3; Bull. Mie, 5.	
<u>Scapsipedus mandibularis</u>	17s	---	"	Ohmachi '27, '35	"	
<u>Scapsipedus</u> sp.	21s	---	"	Ohmachi '44	Jap. J.G. 20.	
<u>Scleropterus coriaceus</u>	15s	---	"	Ohmachi '35	Z.M.(Jap.) 47.	
<u>Trigonidium cicindeloides</u>	11s	---	"	Ohmachi '32, '35	P.I.A. (Tokyo)8; Bull. Mie, 5.	
<u>Gryllacrididae</u>						
<u>Eremus testaceus</u>	17s	---	X-0♂	Ohmachi '35	Z.M.(Jap.) 47.	
<u>Gryllacris signifera</u>	11s	---	"	Heberer '37	Z.I.A.V. 73.	
<u>Troglophilus</u> sp.	20(?)o	---	---	Buchner '10	A.Zf. 5.	
<u>Grylloblattidae</u>						
<u>Galloisiana nipponensis</u>	30s	---	X-Y♂	Nakamura '44, '46	Jap. J.G. 20; La Kromosomo 1.	
<u>Gryllotalpidae</u>						
<u>Gryllotalpa africana</u>	23s	12♂(1)	X-0♂	Ohmachi '29, '35	P.I.A.(Tokyo)5; Bull. Mie, 5.	
"	23s 24,25s 24o	12♂(1) 11,12♂(11)	X-0♂. 24 and 25 due to 1 and 2 supernumeraries.	Asana, Makino & Niizuma '38, '40	Jap. J.G. 14; J.F. S. Hokkaido I.U. Sep. VI, 7.	
<u>Gryllotalpa borealis</u>	23s 24o	"	X-0♂	Payne '12,'16	A.Zf. 9; J.M. 28	
"	23s	12♂(1)	"	Baumgartner '11,'12	Sci. 33, 35.	

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Gryllotalpa gryllotalpa</u> (<i>G. vulgaris</i>)				Winiwarter '27, '37	A.B. 37; Cyt. Fujii Jub. -Vol.
'race septentrionale'	12s	6 [♂] (1,11)	X-Y [♂]		
'race meridionale'	15s	8 [♂] (1)	X-0 [♂]		
'race roumaine'	14-17s	---	Number variable due to fragmen- tation.		
<u>G. gryllotalpa</u> (<i>G. vulgaris</i>)				Barigozzi '33	Z.Z.M.A. 18.
'Nord. Stamm'	12s	---	X-Y [♂]		
'Sud. Stamm'	15-16s	---	X-0 [♂]		
<u>G. vulgaris 'Freiburg'</u>	12s	6 [♂] (1)	---	Rom Rath '91, '92, '95	Ber. Nat. Ges. Freiburg 6; A. M.A. 40, 46.
"	"	"	X-Y [♂]	Payne '16	J.M. 28.
<u>G. vulgaris 'Bucharest'</u>	14-17s	7 [♂] (1)	---	Voinov '12, '14, '16, '25	C.R.S.B. 72; A.Z. E.G. 54; C.R.S.B. 79; A.Z.E.G. 63.
<u>G. vulgaris 'Italy'</u>	17s	9 [♂] (1)	X-0 [♂]	Senna '11	Menit. Zool. Ital. 22.
<u>G. vulgaris 'Naples'</u>	15s	8 [♂] (1)	---	Payne '16	J.M. 28.
<u>G. vulgaris 'Roumania'</u>	14s(15)	---	X-Y [♂]	Steopoe '39	A.Z.E.G. 80.
<u>Locustidae</u> (<u>Tettigoniidae</u>)					
<u>Amblycorvoha</u> <u>oblongifolia</u>	33s	---	X-0 [♂]	Pearson '27, '29	A.N. 61; J.M. 47.
<u>A. rotundifolia</u>	33s	17 [♂] (1) 16, 17 [♂] (11)	"	"	"
<u>Anabrus sp.</u>	33s	"	---	McClung '02, '05 '14	Kansas Univ. Bull. 1; B.B. 9; J.M. 25.
<u>Anaulacomera sp. 1.</u>	31s	16 [♂] (1) 15, 16 [♂] (11)	X-0 [♂]	Piza '45	Luiz de Queiroz 2.
<u>Anaulacomera sp. 2.</u>	"	"	"	"	"
<u>Callimenus pancini</u>	25s 29s	---	X-0 [♂]	Georgevitch '34	Bull. Acad. Sci. Math. Nat. 1.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Conocephalus chinensis</u>	33s	17 [♂] (1) 16, 17 [♂] (11)	"		Momma '41	Jap. J.G. 17.
<u>Conocephalus nasutus</u>	21s	---	X-0 [♂]		Momma '41	Jap. J.G. 17.
<u>Conocephalus sp.</u>	33s	---	---		McClung '14	J.M. 25.
<u>Conocephalus sp.</u>	33s	17 [♂] (1) 16, 17 [♂] (11)	X-0 [♂]	Asana, Makino & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.	
<u>Conocephalus sp.</u>	33s	17 [♂] (1) 16, 17 [♂] (11)	"	Piza '45	Luiz de Queiroz 2.	
<u>Decticus albifrons</u>	31s	16 [♂] (1)	X-0 [♂]	Winiwarter '31	A.B. 42.	
<u>D. verrucivorus (?)</u>	23s	12 [♂] (1) 11, 12 [♂] (11)	X-0 [♂]	Vejdowsky '12	Böh. Ges. Wiss. Prag.	
"	31s	---	X-0 [♂]	Mohr '19	A.M.A. 92.	
<u>D. verrucoaus</u>	31s	---	"	Buchner '09	A.Zf. 3.	
<u>Dacetia japonica</u>	29s	15 [♂] (1) 14, 15 [♂] (11)	X-0 [♂] . From correction of 1941. Supernumer- aries occur.	Hareyama '37, '39, '41	Z.M.(Jap.) 49, 51; J.S. Hiroshima U. Ser. B, 9.	
"	"	"	X-0 [♂]	Asana, Makino & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.	
<u>Elimaea securigera</u>	27s	14 [♂] (1) 13, 14 [♂] (11)	"	"	"	"
<u>Elimaea sp.</u>	29s	15 [♂] (1) 14, 15 [♂] (11)	X-0. 1 supernu- merary occur.	Momma '41	Jap. J.G. 17.	
<u>Ephippiger vitium</u>	29s	15 [♂] (1)	X-0 [♂]	Matthey '47	Sci. Genetica 3.	
<u>Euconocephalus nasutus</u>	21s	11 [♂] (1) 11, 12 [♂] (1)	X-0 [♂] . Supernu- meraries occur.	Hareyama '37, '41	Z.M.(Jap.) 49; J.S. Hiroshima Univ. Ser. B. 9.	
<u>Euconocephalus varius</u>	21s	11 [♂] (1)	X-0 [♂]	Momma '41	Jap. J.G. 17.	
<u>Eugaster guyoni</u>	29s	---	X-0 [♂]	Favrelle '36	Mém. Musée Roy. Hist. Nat. Belg. Ser. II, 3.	

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>E. fernandezi</u>	29s	---	X-0♂		Matthey '48	Rev. Suisse Z. 55.
<u>E. spinulosus</u>	"	---	"		"	"
<u>Gampsocleis bürgeri</u>	31s	16♂(1) 15,16♂(11)	X-0♂. Supernumeraries occur.		Hareyama '32, '39, '41	Z.M.(Jap.) 44, 51; J.S. Hiroshima U.Ser. B, 9.
<u>Hexacentrus annulicornis</u>	---	16♂(1) 15,16♂(11)	X-0♂		Asana, Makino & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.
<u>H. japonica</u> jap.	31s	"	X-0♂. Supernumeraries occur.		Hareyama '41	J.S. Hiroshima U. Ser. B, 9.
<u>H. j. haryamai</u>	33s	17♂(1) 16,17♂(11)	"		Hareyama '37, '39, '41	Z.M.(Jap.) 49, 51; J.S. Hiroshima U. Ser. B, 9.
<u>H. mundus</u>	31s	16♂(1) 15,16♂(11)	X-0♂		Asana, Makino & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.
<u>Holochlora japonica</u>	31s	---	"		Ohmachi '35	Z.M.(Jap.) 47.
"	"	16♂(1) 15,16♂(11)	X-0♂. Supernumeraries occur.		Hareyama '41	J.S. Hiroshima U. Ser. B, 9.
<u>Holochlora</u> sp.	"	"	X-0♂		Asana, Makino, & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.
<u>Homoeocoryphus jezoensis</u>	---	10♂(1) 9,10♂(11)	"		Momma '41	Jap. J.G. 17.
<u>H. lineosus</u>	25s	13♂(1) 12,13♂(11)	X-0♂. Supernumeraries occur.		Hareyama '32, '41	Z.M.(Jap.) 44; J.S. Hiroshima U.Ser. B, 9.
"	"	---	X-0♂		Ohmachi '35	Z.M.(Jap.) 47.
<u>H. nitidulus</u>	21s	---	---		Torelli '40	Arch. Zool. Ital. 28.
<u>Isotima japonica</u>	27s	14♂(1) 13,14♂(11)	X-0♂. Supernumeraries occur.		Hareyama '37, '39, '41	Z.M.(Jap.) 49, 51; J.S. Hiroshima U. Ser. B, 9.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Jamaicana flava</u>	35s	18♂(1) 17, 18♂(11)	X-0♂. Supernumeraries occur.		Woolsey '15	B.B. 28.
<u>J. subguttata</u>	34s	"	X-0♂. Number reduced by formation of multiple chroma.		Woolsey '15	B.B. 28.
<u>J. unicolor</u>	33s	18♂(1)	"	"	"	"
<u>Kuwayamaea sapporensis</u>	27s	14♂(1) 13, 14♂(11)	X-0♂. Supernumeraries occur.	Hareyama '37, '39, '41	Z.M.(Jap.) 49, 51; J.S. Hiroshima U. Ser. B, 9.	
<u>Leptophyes punctatissima</u>	31s 32o	---	X-0♂	Mohr '15	A.Zf. 14.	
"	32om	---	Parth. ♀	Cappe De Baillon '39	C.R.A.S. 208.	
<u>Locusta(Tettigonia) viridissima</u>	33s	17♂(1) 16, 17♂(11)	X-0♂	Otte '06, '07	Z.A. 30; Z.Jb. 24.	
"	29s 30e	15♂(1) 14, 15♂(11)	X-0♂	Mohr '15, '16	A.Zf. 14; A.B. 29.	
<u>Meconema albicornis</u>	31s	---	"	Ohmachi '43	Z.M.(Jap.) 55.	
<u>Mecopoda elongata</u>	27s	14♂(1) 13, 14♂(11)	"	Asana, Makino & Niijima '38	J.F.S. Hokkaido I.U. Ser. VI, 6.	
<u>M. nipponensis</u>	"	"	X-0♂. Supernumeraries occur.	Hareyama '32, '39, '41	Z.M.(Jap.) 44, 51; J.S. Hiroshima U. Ser. B, 9.	
<u>Metrioptera bonneti</u>	33s	17♂(1) 16, 17♂(11)	"	Hareyama '39, '41	Z.M.(Jap.) 51; J.S. Hiroshima U. Ser. B, 9.	
<u>M. brachyptera</u>	31s	16♂(1)	X-0♂	White '36, '40	Z.Z.M.A. 24; J.H. 31.	
<u>M. japonica</u>	"	16♂(1) 15, 16♂(11)	X-0♂. Supernumeraries occur.	Hareyama '32, '39, '41	Z.M.(Jap.) 44, 51; J.S. Hiroshima U. Ser. B, 9.	

PTERYGOTA (Continued)

<u>Species</u>	<u>Chromosome Number</u>		<u>Remarks</u>	<u>Observer</u>	<u>References</u>
	<u>2n</u>	<u>n</u>			
<u>M. japonica</u>	31s	16♂(1) Polyplloid spermato- gonia occur.	X-0♂.	Kichijo '34. Csik & Koller '39	Z.M.(Jap.) 46. Chrom. 1.
<u>M. tesellata</u>	"	"	X-0♂	McClung '02	Kansas Univ. Sci. Bull. 1.
<u>Microcentrum sp.</u>	33s	17♂(1) 16,17♂(11)	"	Matthey '48	R.Suisse Z. 55.
<u>Odontura maraccana</u>	27s	--	X-0♂	King '24	Sci. 60.
<u>Orchelimum concinnum</u>	33s 34o	---	"		
<u>O. vulgare</u>	"	---	"	"	"
<u>Orchesticus sp.</u>	33s	17♂(1) 16,17♂(11)	"	McClung '02, '14	Kansas Univ. Sci. Bull. 1; J.M. 25.
<u>Phaneroptera falcata</u> <u>(nigroantennata)</u>	27s	14♂(1) 13,14♂(11)	X-0♂. Supernumeraries occur.	Hareyama '37, '39, '41	Z.M.(Jap.) 49, 51; J.S. Hiro- shima U.Ser. B, 9.
"	"	"	X-0♂	Momma '41	Jap. J.G. 17.
<u>Ph. nakanoensis</u>	25s	---	"	Ohmachi '43	Z.M.(Jap.) 55.
"	27s	14♂(1) 13,14♂(11)	X-0♂; Heteroploidy occurs.	Hareyama '48	Oguma Comm. Vol. Cyt. Genet. 1.
<u>Polysarcus (Orphania)</u> <u>denticauda</u>	31s	16♂(1) 15,16♂(11)	X-0♂	De Sinety '01	L.C. 19.
"	--	"	"	Heberer '37	Z.I.A.V. 73.
<u>Posidippus citrifolius</u>	25s	13♂(1) 12,13♂(11)	X-0♂	Piza '45	Luiz de Queiroz 2.
<u>Saga cappadocica</u>	31s	16♂(1) 15,16♂(11)	X-0♂	Matthey '50	Jul.Klaus-Stift. Vererb. 25.
<u>S. ephippigera</u>	33s	---	X-0♂	Matthey '48	R.Suisse Z. 55.
<u>S. gracilipes</u>	31s	---	"	"	"
<u>S. pedo</u>	68♀m	---	Parthenogenesis	Matthey '41, '48	R.Suisse Z. 48; 55.
<u>Sathrophyllia sp.</u> <u>(rugosa?)</u>	35s	18♂(1) 17,18♂(11)	X-0♂	Asana, Makino & Niiyama '38	J.F.S. Hokkaido I.U. Ser. VI, 6.

PTERYGOTA (Continued)

Species	Chromosome Numbers			Remark	Observer	References
	2n	n				
<u>Scudderia sp.</u>	33s	17♂(1) 16,17♂(11)	X-0♂		McClung '02, '14	Kansas Univ. Sci. Bull. 1; J.M. 25.
<u>Scudderia sp.</u>	31s	16♂(1) 15,16♂(11)	"		Piza '45	Luiz de Queiroz 2.
<u>Steiroxys trilineata</u>	29s	15♂(1) 14,15♂(11)	"		Davis '08	Bull. Mus. Comp. Zool. Harvard, 53.
"	"	"	"		Meek '13	Phil. Trans. Roy. Soc. London B 203.
<u>Steropleurus cockerelli</u>	29s	---	X-0♂		Matthey '48	R. Suisse Z. 55.
<u>Stilpnochlora marginella</u>	31s	16♂(1) 15,16♂(1)	"		Piza '45	Luiz de Queiroz 2.
<u>Tettigonia (Locusta) orientalis orientalis</u>	33s	17♂(1) 16,17♂(11)	X-0♂. Supernumeraries occur.		Hareyama '32, '39, '41	Z.M.(Jap.) 44, 51; J.S. Hiroshima U. Ser. B, 9.
<u>T. orientalis ibuki</u>	35s	18♂(1) 17,18♂(11)	"		Hareyama '32, '39, '41	"
"	"	---	X-0♂		Ohmachi '35	Z.M.(Jap.) 47.
<u>T. orientalis subsp.?</u>	"	18♂(1)	X-0♂. Supernumeraries occur.		Hareyama '41	J.S. Hiroshima U. Ser. B, 9.
<u>Typhophtera donovani</u>	---	18♂(1) 17,18♂(11)	"		Asana '40	Proc. Indian Acad. Sci. B, 12.
<u>Xiphidiopsis suzukii</u>	31s	---	X-0♂		Ohmachi '43	Z.M.(Jap.) 55.
<u>Xiphidion chinensis</u>	33s	17♂(1) 16,17♂(11)	X-0♂. Supernumeraries occur.		Hareyama '39, '41	Z.M.(Jap.) 51; J.S. Hiroshima U. Ser. B, 9.
<u>X. gladiatum</u>	"	---	"		Ohmachi & Sokame '35	Jap. J.G. 11.
"	33s	17♂(1) 16,17♂(11)	X-0♂. Supernumeraries occur.		Hareyama '39, '41	Z.M.(Jap.) 51; J.S. Hiroshima U. Ser. B, 9.

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>X. japonicum</u>	33s	---		X-0♂	Ohmachi '39	Jap. J.G. 15.
<u>X. longipennis</u>	"	---		"	"	"
<u>X. maculatum</u>	21s	---		"	Ohmachi & Sokame '35	Jap. J.G. 11.
<u>Xiphidion maculatum</u>	21s	11♂(1) 10,11♂(11)		X-0♂. Supernumeraries occur.	Hareyama '39, '41	Z.M.(Jap.) 51; J.S. Hirosime U. Ser. B, 9.
<u>X. melanum</u>	33s	---		X-0♂	Ohmachi '39	Jap. J.G. 15.
"	33s	17♂(1) 16,17♂(11)		X-0♂. Supernumeraries occur.	Hareyama '32, '41	Z.M.(Jap.) 44; J.S. Hirosina U. Ser. B, 9.
<u>Xiphidium fasciatum</u>	33s	---		X-0♂	McClung '99, '08	Zool. Bull. 2; Kansas Univ. Sci. Bull. 4.
<u>Xiphidium sp.</u>	33s	17♂(1) 16,17♂(11)		"	McClung '99, '02, '08, '14	Zool. Bull. 2; Kansas Univ. Sci. Bull. 1,4; J.M. 25.
Mantidae						
<u>Aethalochloa ashmoliana</u>	29s	---		X-0♂	Oguma '46	La Kromosomo 1.
<u>Angela guianensis</u>	--	10♂(1)		X-0♂	Hughes-Schrader '43	B.B. 85.
<u>Apteromantis bolivari</u>	29s	15♂(1) 14,15♂(11)		X-0♂	Matthey '49	Jul.Klaus-Stift Vererb.24.
<u>Brunneria borealis</u>	28♀	---		Partheno- genetic	White '48	Evolution 2.
<u>Callimantis antillarum</u>	17s	9♂(1) 8,9♂(11)		X-0♂	White '38	P.R.S. London B 125.
"	17s	---		X-0♂; 4n spermato- cytes occur.	Hughes-Schrader '43	J.M. 73.
<u>Choeradodis rhombicollis</u>	27s(?)	---	---	---	Williams '38	Trans. Am. Mic. Soc. 57.
"	31s	15♂(1) 15,16♂(11)		X ₁ X ₂ -Y♂	Hughes-Schrader '43	B.B. 85.

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Creobroter laevicollis</u>	27s	14♂(1)	X-0♂	Oguma '46	La Kromosomo 1.	
<u>Didymocorypha lanceolata</u>	15s	8♂(1) 7,8♂(11)	"	"	"	"
<u>Empusa pennicornis</u>	28s	14♂(1)	X ₁ X ₂ -0♂?	Erazi '40	Rev. Fac. Sci. Univ. Istanbul, B 5.	
<u>Gongylus gonylodes</u>	27s	14♂(1)	X-0♂	Oguma '46	La Kromosomo 1.	
<u>Hierodula patellifera</u>	27s	13♂(1) 13,14♂(11)	X ₁ X ₂ -Y♂	"	"	"
<u>H. tenuidentata</u>	"	"	"	Asana '34	Current Sci. 2.	
<u>H. venosa</u>	"	"	"	Oguma '46	La Kromosomo 1.	
<u>H. ventralis</u>	"	"	"	"	"	"
<u>Humbertiella indica</u>	39s	20♂(1) 19,20♂(11)	X-0♂	"	"	"
"	39s	20♂(1)	"	Hughes-Schrader '48	Chrom. 3.	
<u>Iris oratoria</u>	25s	---	X-0♂	Matthey '49	Jul. Klaus-Stift. Vererb. 24.	
<u>Liturgousa annulipes</u>	23s	12♂(1) 11,12♂(11)	X-0♂	Hughes-Schrader '43	B.B. 85.	
<u>Mantis religiosa</u>	14s	14♂(1) 7♂(11)	---	Giardina '97	Monit. Zool. Ital. 8.	
"	27s	13♂(1) 13,14♂(11)	X ₁ X ₂ -Y♂	King '31	J.M. 52.	
"	"	"	"	Erazi '40	Rev. Fac. Sci. Univ. Istanbul, B 5.	
<u>Paratenodera sinensis</u>	27s	13♂(1) 13,14♂(11)	"	Hughes-Schrader '43	B.B. 85.	
<u>Schizocephalus bicornis</u>	27s	14♂(1)	X-0♂	Oguma '46	La Kromosomo 1.	
<u>Stagmomantis carolina</u>	27s	13♂(1) 13,14♂(11)	X ₁ X ₂ -Y♂	King '31	J.M. 52.	
"	"	"	"	Hughes-Schrader '43	B.B. 85.	
<u>Statilia maculosa</u>	"	"	"	Oguma '46	La Kromosomo 1.	
<u>Tenodera (Paratenodera) aridifolia</u>	"	"	"	Oguma '21	J.Coll. Agr. Hokkaido Imp. Univ. 10.	

PTERYGOTA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Tenodera sinensis</u>	27s	13♂(1) 13,14♂(11)	X ₁ X ₂ -Y♂	"	King '31	J.M. 52.
<u>Tenodera superstitionis</u>	27s	13♂(1) 13,14♂(11)	"	"	Oguma '21	J. Coll. Agr. Hok- kaido Imp. Univ. 10.
<u>Toxotantis sinensis</u>	27s	14♂(1)	X-0♂	"	Oguma '46	La Kromosomo 1.
Phasmidae						
<u>Apolopus mayeri</u>	35s 36o	18♂(1) 17,18♂(11)	X-0♂	"	Jordan '08a,b	A.A. 32; Carnegie Inst. Publ. 102.
<u>Bacillus linearis</u>	---	8-10♂(1)	---	"	Carnoy '35	L.C. 1.
<u>Bacillus rossii</u>	20o 20m	18-20♀(1) 20♀(11)	Partheno- genetic.	Von Baehr '07, '12	Z. Jb. 24; L.C. 27.	
"	61-63s	---	X-0♂	Castelnova '37	Arch. Zool. Ital. 24.	
"	36o _m _f	---	Partheno- genetic	Cappe De Bail- lon, Favrelle et De Vichet '37	B.B. Fr. Bel. 71	
<u>Bacillus sp.</u>	36o _m _f	---	"	"	"	"
<u>Baculum artemis</u>	72o _m (68-76)	---	"	Cappe De Bail- lon, Favrelle et De Vichet '34, '38	B.B. Fr. Bel. 68, 72.	
<u>Bosstra sp.</u>	35s	18♂(1) 17,18♂(11)	X-0♂	Hughes- Schrader '47a,b	Chrom. 3.	
<u>Carausius furcillatus</u>	64, 67, 88o _m _f	---	Partheno- genetic	Cappe De Bail- lon, Favrelle et De Vichet '35, '38	B.B. Fr. Bel. 69, 72.	
<u>C. juvenilis</u>	41s	20,21♂(11)	X-0♂. Partheno- genesis	Cappe De Bail- lon, Favrelle et De Vichet '38	B.B. Fr. Bel. 72.	
<u>C. (Grelnia) rotundato- lobatus</u>	21s 22o _m (Parth)	---	X-0♂, X-X ₀ _f	Cappe De Bail- lon, Favrelle et De Vichet '37	B.B. Fr. Bel. 71.	
<u>C. theiseni</u>	40,42, 44o _m _f	---	Partheno- genetic	Cappe De Bail- lon, Favrelle et De Vichet '34	B.B. Fr. Bel. 68.	

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Carausius sp.</u>	42s	---		X-0♂	Cappe De Baillon, Favrelle et De Vichet '38	B.B.Fr. Bel. 72.
<u>Dixippus (Carausius) morosus</u>	60o 62-64qm ^f	---		---	Pehani '25	Z.W.Z. 125.
<u>Dubreulia lineata</u>	26o ^f	---		Parthenogenetic	Cappe De Baillon, Favrelle et De Vichet '38	E.B. Fr. Bel. 72.
<u>Entria okinawaensis</u>	35s	18o ^Y (1) 17, 18o ^Y (11)		X-0o ^Y	Niiyama '44	Jap. J.G. 20.
<u>Isagoras subacuillus</u>	27s	14o ^Y (1) 13, 14o ^Y (11)		X-0o ^Y	Hughes-Schrader '47 a, b	Chrom. 3.
<u>Isagoras schraderi</u>	34s	17o ^Y (1, 11)		X-Yo ^Y	"	"
<u>Isagoras sp.</u>	47s	24o ^Y (1) 23, 24o ^Y (11)		X-0o ^Y	"	"
<u>Leptynia attenuata</u>	36s, 36o	18o ^Y (1) 18, 19o ^Y (11)		X-0o ^Y ; X fused with 1 autosome.	De Sinéty '01	L.C. 19.
<u>Leptynia attenuata</u>	36s, 36o	18o ^Y (1) 18, 19o ^Y (11)		X-0o ^Y	Cappe De Baillon et De Vichet '40	B.B. Fr. Bel. 74.
<u>Menexenus semiarmatus</u>	45s 46qm ^f	22, 23o ^Y (11) 22-23m occur in some parth. indiv.		X-0o ^Y	Cappe De Baillon, Favrelle et De Vichet '35 De Sinety '01 L.C. 19.	B.B.Fr. Bel. 69.
<u>Oncotophasma sp.</u>	41s	21o ^Y (1) 20, 21o ^Y (11)		X-0o ^Y	Hughes-Schrader '47 a, b	Chrom. 3.
<u>Parasosilia parva</u>	53s 54qm ^f	---		X-0o ^Y . 53qm and 56qm occur in parth. indiv.	Cappe De Baillon, Favrelle et Vichet '37	B.B. Fr. Bel. 71.

PTERYGOTA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Phalces longiscaphus</u>	35s 36m ^f	17,18 ^o (11)	X-0 ^o	Favrelle '35 Cappe De Bail- lon, Favrelle, et Vichet '38	L.C. 44; B.B. Fr. Bel. 72.
<u>Phyllium bioculatum</u>	33s	---	X-0 ^o	Favrelle '34	Press. Univ. France, Ser. A, No. 1472.
<u>Phobaeticus sinetyi</u>	51s 52om ^f	---	X-0 ^o . 53qm occurs in parth. indiv.	Cappe De Bail- lon, Favrelle et De Vichet '37	B.B. Fr. Bel. 71.
<u>Pseudophasma menius</u>	23s	12 ^o (1) 11,12 ^o (11)	X-0 ^o	Hughes- Schrader '47a,b	Chrom. 3.
<u>Sipyloidea panaetius</u>	21s 22om ^f	---	Partheno- genetic	Cappe De Bail- lon, Favrelle et De Vichet '34, '38	B.B. Fr. Bel. 68, 72.
Schizodactylidae					
<u>Schizodactylus monstrosus</u>	14s	7 ^o (1,11)	X-Y ^o	Asana '32; McClung & Asana '33	19th Indian Sci. Cong. (1932); J. M. 55.
Stenopelmatidae					
<u>Ceuthophilus sp.</u>	37s(?)	19 or 21 ^o (1)	X-0 ^o	Stevens '12	B.B. 22.
<u>Ceuthophilus lactebricola</u>	37-39s	---	"	Thompson '11	Ann. Rep. Michigan Acad. Sci. 13.
<u>Diestrammena japonica</u>	57s 58o	29 ^o (1) 28,29 ^o (11)	X-0 ^o , X-X ^o	Makino '31	Z.M.(Jap.) 43..
"	n, 2n, 4n (♀, ♂ m)	---	Multipolar divs. & multinucleated cells occur in follicle epith. of testis & ovary.	Omura '50	Z.M.(Jap.) 59.
<u>Diestrammena marmorata</u> (= <u>Tachycines asynamorus</u>)	57s	29 ^o (1) 28,29 ^o (11)	X-0 ^o	Schellenberg '13	Z.Zf. 11.
<u>Lutosa brasiliensis</u>	15s	8 ^o (1)	"	Piza '47	Luiz de Queiroz 4.
<u>Stenopelmatus sp.</u>	47s	23,24 ^o (11)	"	Stevens '05, '09	Carnegie Inst. Publ. 36; J.E.Z. 6.
<u>Tachycines asynamorus</u>	57s	---	X-0 ^o , X-X ^o	Mohr & Eker '34	Cyt. 5.

PTERYGOTA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	Zn	n				
Tettigidae						
<u><i>Acridium granulatus</i></u>	13s, \hat{o} m 14o $\frac{1}{2}$ m	7 \hat{o} (1) 6, 7 \hat{o} (11)	X-0 \hat{o}	Robertson '08, '15, '16, '31	Kansas Univ. Sci. Bull. 4; J.M. 26, 27, 51.	
<u><i>A. incurvatum</i></u>	13m	7 \hat{o} (1)	"	Robertson '16, '31	J.M. 27, 51.	
<u><i>A. linolea</i></u>	---	10-16 \hat{o} (1)	---	Carnoy '85	L.C. 1.	
<u><i>A. obscurum</i></u>	13s	7 \hat{o} (1)	X-0 \hat{o}	Robertson '16, '31	J.M. 27, 51.	
<u><i>A. ornatum</i></u>	---	"	"	"	"	
<u><i>Acridium japonicum</i></u>	13s	7 \hat{o} (1) 6, 7 \hat{o} (11)	"	Misra '37	Jap. J.G. 13.	
<u><i>Apotettix eurycephalus</i></u>	13s, \hat{o} m 14o, $\frac{1}{2}$ m	7 \hat{o} (1)	"	Robertson '30	J.M. 50.	
<u><i>Nomotettix cristatus</i></u>	13s	7 \hat{o} (1) 6, 7 \hat{o} (11)	"	Robertson '17	Kansas Univ. Sci. Bull. 10.	
<u><i>Nomotettix sp.</i></u>	"	---	"	Rayburn '17	"	
<u><i>Paratettix cucullatus</i></u>	"	7 \hat{o} (1)	"	Robertson '16	J.M. 27.	
<u><i>P. leuconotus-leucothorax</i></u>	"	7 \hat{o} (1) 7, 7 \hat{o} (11)	"	Harman '15	B.B. 24.	
<u><i>P. texanus</i></u>	"	"	"	Robertson '16, '30, '31 a,b	J.M. 27, 50; Genet. 16; J.M. 51.	
<u><i>Paratettix sp.</i></u>	13s 14o	7 \hat{o} (1)	X-0 \hat{o}	Robertson '08, '15	Kansas Univ. Sci. Bull. 4; J.M. 26.	
"	13s	7 \hat{o} (1) 6, 7 \hat{o} (11)	"	Harman '20	B.B. 38.	
<u><i>Tettigidea parvipennis</i></u>	13s, \hat{o} m 14o	7 \hat{o} (1) 6, 7 \hat{o} (11)	"	Robertson '08, '15, '16, '17, '31	Kansas Univ. Sci. Bull. 4; J.M. 26, 27; Kansas Univ. Bull. 10; J.M. 51.	
Tridactylidae						
<u><i>Tridactylus japonicus</i></u>	13s	7 \hat{o} (1)	X-0 \hat{o}	Ohmachi '29, '35	P.I.A.(Tokyo) 5; Bull. Mie, 5.	

DERMAPTERA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Forficulidae						
<u>Anisolabis annulipes</u>	25s	12 \hat{o} (1) 12,13 \hat{o} (11)	X ₁ X ₂ -Y \hat{o}	Morgan '22, '28	Proc. Indiana Acad. Sci. 32; J.M. 46.	
<u>A. marginalis</u>	"	"	"	Sugiyama '33	J.F.S. Tokyo I.U. Sec. IV, 3.	
<u>A. maritima</u>	24s 24o, ♀m "	12 \hat{o} (1,11) 12,13 \hat{o} (11)	X-Y \hat{o} , X-X \hat{o}	Randolf '08	B.B. 15.	
"	25s 26o	11 \hat{o} (1) 12,13 \hat{o} (11)	X ₁ X ₂ -Y \hat{o}	Kornhauser '21, '22	Denison Univ. Bull. 29; A.R. 23.	
"	25s	12 \hat{o} (1) 12,13 \hat{o} (11)	"	Morgan '28	J.M. 46.	
"	---	"	"	Schrader '41	J.M. 68.	
<u>Forficula auricularia</u>	---	10-14 \hat{o} (1)	---	Carnoy '95	L.C. 1.	
"	---	12 \hat{o} (1) 12-14 \hat{o} (11)	---	St. George '87	Festschr. Kölliker	
"	24s	12 \hat{o} (1,11)	---	De Sinsty '01	L.C. 19.	
"	24, 26s	12-14 \hat{o} (1,11)	---	Zweiger '06a,b	Z.A. 30; Jena Z. 35.	
"	24s	12 \hat{o} (1,11) X-Y \hat{o}	---	Stevens '10	J.E.Z. 8.	
"	24s	12 \hat{o} (1,11) X-Y \hat{o}	---	Meek '13a,b, '15	Phil. Trans. R. Soc. London B 203; Q.J.M.S. 59, 61.	
<u>Forficula auricularia(?)</u>	24-27s	12-14 \hat{o} (1) 11-14 \hat{o} (11)	Variation of number due to irregular meiosis(?)	Payne '14	J.M. 25.	
"	25s	12,13 \hat{o} (1) 12,13 \hat{o} (11)	X ₁ X ₂ -Y \hat{o}	Morgan '28	J.M. 46.	
"	24s	12 \hat{o} (1,11)	2X-Y \hat{o} . 2X's always in fusion.	"	"	
"	24s 25s	---	X-Y \hat{o} X ₁ X ₂ -Y \hat{o}	Callan '41	J.G. 61.	

DERMOPTERA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>F. scudder</u>	24s	12 [♂] (1,11)	X-Y [♂]	Misra '37	Jap. J.G. 13.
<u>Labia minor</u>	14s 14o	7 [♂] (1,11) X-X [♀]	X-Y [♂] , X-X [♀]	Morgan '28	J.M. 46.
<u>Labidura bidens</u>	12s 12o	6 [♂] (1,11)	"	"	"
<u>L. riparia</u>	---	6 [♂] (1)	---	De Sinety '01	L.C. 19.
"	14s 14 [♀] m	7 [♂] (1,11) X-X [♀]	X-Y [♂] , X-X [♀]	Asana & Makino '34	J.M. 56.

PLECOPTERA

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
Chloroperlidae					
<u>Isoperla grammatica</u>	26s	12,14 [♂] (11)	X ₁ X ₂ -0 [♂]	Matthey & Aubert '43, '47	Arch. Jul. Klaus-Stift. Vererb. 18: B.B. Fr. Belg. 81.
<u>I. rivulorum</u>	---	13 [♂] (1)	"	"	"
Perlidae					
<u>Acroneuria jezoensis</u>	25s 26 [♀] m	13 [♂] (11) 12,13 [♂] (11)	X-0 [♂]	Itoh '33	Cyt. 4.
<u>Perla abdominalis</u>	26s	---	X ₁ X ₂ -0 [♂]	Matthey '47, Matthey & Aubert '43, '47	Rev. Suisse Z. 54. Arch. Jul. Klaus-Stift. Vererb. 18: B.B. Fr. Belg. 81.
<u>P. baetica</u>	26s	13 [♂] (1) 12,14 [♂] (11)	"	"	"
<u>P. bipunctata</u>	21s	11,10 [♂] (11)	X-0 [♂]	"	"
<u>P. cephalotes</u>	26s	13 [♂] (1) 12,14 [♂] (11)	X ₁ X ₂ -0 [♂]	Matthey '46, '47, Matthey & Aubert '43, '47	Arch. Jul. Klaus-Stift. Vererb. 21. 22, 18: B.B. Fr. Belg. 81.
<u>Perla immarginata</u>	10s	5 [♂] (1,11)	X-Y [♂]	Nakahara '19	J.M. 32.
<u>P. maxima</u>	19s	9,10 [♂] (11)	X-0 [♂]	Matthey '46, '47, Matthey & Aubert '43, '47	Arch. Jul. Klaus-Stift. Vererb. 21, 22, 18: B.B. Fr. Belg. 81.

PLECOPTERA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>P. marginata</u>	22s 24o 22om	12 \hat{o} (1) 10,12 \hat{o} (11)	X ₁ X ₂ -0 \hat{o} ; X ₁ X ₂ -0 \hat{o}	Junker '23 Matthey & Aubert '47	A.Zf. 17. B.B. Fr. Belg. 81.
"	22s	---	X ₁ X ₂ -0 \hat{o}	Matthey & Aubert '47	B.B. Fr. Belg. 81.
Perlodidae					
<u>Isogenus alpinus</u>	---	13 \hat{o} (1)	X ₁ X ₂ -0 \hat{o}	Matthey '46, Matthey & Aubert '47	Experienta 2: B.B. Fr. Belg. 81.
<u>I. imhoffi</u>	45s	---	?	"	"
<u>I. fontium</u>	26s	13 \hat{o} (1) 12,14 \hat{o} (11)	X ₁ X ₂ -0 \hat{o}	"	"
<u>Perlodes intricata</u>	33s	---	?	"	"
<u>P. jurassica</u>	31s	15 \hat{o} (1) 14,17 \hat{o} (11)	X ₁ X ₂ X ₃ -0 \hat{o}	"	"
<u>P. microcephala</u>	27s	13 \hat{o} (1) 12,15 \hat{o} (11)	"	"	"

ISOPTERA

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Reticulitermes flavipes</u>	---	21 \hat{o} (1)	---	Benkert '30*	Proc. Penn. Acad. Sci. 4.
<u>Termopsis angusticollis</u>	52s	26 \hat{o} (1,11)	---	Stevens '05	Carnegie Inst. Publ. 36.
<u>Zootermopsis angusticollis</u>	52om ₊	---	---	Light '38	A.R. 72, No. 4. Suppl.
<u>Z. nevadensis</u>	52om ₊	---	---	"	"

*Benkert, J.M. 1933: Comparison of the chromosomes of the soldier and the king of *Reticulitermes flavipes* Kollar. Proc. Penn. Acad. Sci. 7. (Not accessible).

EMBIOPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Oligotoma japonica</u>	19s 20o	---	X-0♂	Kichijo '42a,b	Nagasaki Med. Jour. 20; Jap. J.G. 18.
<u>O. sandwersi</u>	21s 22om _r	---	"	Hirai '48	Jap. J.G. 23.

PSOCOPTERA (Corrodentia)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Cerastipsocus venosus</u>	17s	9 [♂] (1) 8, 9 [♂] (11)	X-0♂	Boring '13	B.B. 24.

MALLOPHAGA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Coniodes sylifer</u>	24o 12s	---	No reduction in o	Perrot '34	Q.J.M.S. 76.
<u>Lipeurus baculus</u>	12om _r	---	---	Ries '32	Z.Z.M.A. 16.

ANOPLURA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Haemotopinidae					
<u>Hematopinus asini</u>	9s	---	---	Cannon '22	Q.J.M.S. 66.
<u>H. consobrinus</u>	7s	---	---	"	"
<u>Linocephalus temnostris</u>	14o, om _r	---	---	Ries '32	Z.Z.M.A. 16.
Pediculidae					
<u>Pediculus capitis</u>	12m	---	---	Doncaster & Cannon '20	Q.J.M.S. 64.
<u>P. corporis</u>	"	---	---	"	"
<u>P. vestimenti</u>	---	5 [♂] (1)	X-Yo [♂]	Foot '19	B.B. 37.

EPHEMEROPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Ameletus costalis</u>	18s 18o, ♀m	9 ^o (1,11)	X-Y ^o	Katayama '39a,b	Jap. J.G. 15; Z.M. (Jap.) 51.
"	18s	---	X-Y ^o	Wolf '46	Z. Naturf. 1.
<u>Ephemerata danica</u>	11s	---	X-0 ^o	"	"

ODONATA*

Species	Chromosome Number		Remarks	Observer	References			
	2n	n						
Anisoptera								
Aeschnidae								
<u>Aeschna coerulea</u>	25s 26o	13 ^o (1) 13 ^o (11)	X-0 ^o , post. reduct- ional.	Oksala '43	Ann. Acad. Sci. Fenn. A, IV, 4.			
<u>A. crenata</u>	27s, 28o	14 ^o (1) 14 ^o (11)	X-0 ^o , post re- ductional. Un in tissue cells.	Oksala '39, '43	Hered. 25; Ann. Acad. Sci. Fenn. A, IV, 4.			
<u>A. cyanea</u>	"	"	X-0 ^o , post- reduct- ional.	Oksala '43	Ann. Acad. Sci. Fenn. A, IV, 4.			
<u>A. grandis</u>	"	14 ^o (1) 14 ^o (11) 13 ^o (1)	"	Oksala '43, '45	Ann. Acad. Sci. Fenn. A, IV, 4, 9.			
<u>A. juncea</u>	"	14 ^o (1) 14 ^o (11)	"	Oksala '43	Ann. Acad. Sci. Fenn. A, IV, 4.			
<u>A. osiliensis fenica</u>	27s, 28o	14 ^o (1) 14 ^o (11)	X-0 ^o , post.- reduct.	Oksala '43	Ann. Acad. Sci. Fenn. A, IV, 4.			
<u>A. subarctica</u> <u>elisabethae</u>	"	"	"	"	"			
<u>A. viridis</u>	"	"	"	"	"			

*In the Odonata the X divides equatorially in the 1st division, and runs undivided to one pole in the 2nd division.

ODONATA (Continued)

Species		Chromosome Number			Observer	References
	2n	n	Remarks			
<u>Anax junius</u>	27s 28sm +	14 δ (1,11)	X-0 δ , post.- reduct.	McGill '04	Univ. Missouri Std. 2.	
"	27s	---	---	Smith '16	B.B. 31.	
"	"	14 δ (1,11)	X-0 δ post.- reduct.	Lefevre & McGill '08	Am. J. Anat. 7.	
<u>Anotoaster sieboldii</u>	---	13 δ (1,11)	"	Oguma '30	J.F.S. Hokkaido I.U. Ser. VI, 1.	
<u>Cordulegaster annulatus</u>	26om +	13 δ (1)	4n in tissue cells	Oksala '39	Hered. 25.	
<u>Gomphus hakiensis</u>	---	12 δ (1,11)	X-0 δ , post- reduct.	Kichijo '39	Jap. J.G. 15.	
<u>G. melampns</u>	---	10 δ (1,11)	"	Oguma '30	J.F.S. Hokkaido I.U. Ser. VI, 1.	
<u>G. suzukii</u>	---	12 δ (1,11)	"	"	"	
<u>G. unifasciatus</u>	---	11 δ (1,11)	"	"	"	
<u>Ictinus rapax</u>	23s	12 δ (1,11)	"	Asana & Makino '35	J.F.S. Hokkaido I.U. Ser. VI, 4.	
"	"	12 δ (1)	End-to- end assoc. occurs in chroms.	Omura '49	Jap. J.G. 24.	
<u>Ophiogomphus serpentinus</u>	---	12 δ (1)	---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.	
<u>Tachopteryx pryeri</u>	17s	9 δ (1,11)	X-0 δ , post- reduct.	Kichijo '39	Jap. J.G. 15.	
<i>Libellulidae</i>						
<u>Brachythemis contaminata</u>	25s	13 δ (1,11)	"	Asana & Makino '35	J.F.S. Hokkaido I. U. Ser. VI, 4.	
<u>Crocothemis servilia</u>	25s	13 δ (1,11)	"	"	"	
<u>Diplacodes trivialis</u>	"	"	"	"	"	
<u>Libellula angelina</u>	---	"	"	Oguma '15, '30	Z.M. (Jap.) 27; J.F.S. Hokkaido I. U. Ser. VI, 1.	

ODONATA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>L. basalis</u>	25s	13 δ (1,11)	X-0 δ , post- reduct.		Smith '16	B.B. 31.
<u>L. quadrimaculata</u>	---	"	"	Oguma '15, '30	Z.M.(Jap.) 27; J.F.S. Hokkaido I.U. Ser. VI, 1.	
<u>Leucorrhinia dubia</u>	---	13 δ (11)	---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.	
<u>L. pectoralis</u>	---	13 δ (1)	---	"	"	"
<u>Orthetrum albistylum</u>	25s	13 δ (1,11)	X-0 δ , post- reduct.	Oguma '17, '30	Nawa Mem. Vol. J.F. S. Hokkaido I.U. Ser. VI, 1.	
<u>O. japonicum</u>	---	"	"	"	"	"
<u>O. sabina</u>	25s	"	"	Asana & Makino '35	J.F.S. Hokkaido I. U. Ser. VI, 4.	
<u>Pantala flavescens</u>	25s	13 δ (1,11)	X-0 δ , post- reduct.	Asana & Makino '35	J.F.S. Hokkaido I.U. Ser. VI, 4.	
<u>Potamarcha obscura</u>	"	"	"	"	"	"
<u>Somatochlora uchidai</u>	---	"	"	Oguma '15, '30	Z.M.(Jap.) 27; J.F.S. Hokkaido I.U. Ser. VI, 1.	
<u>S. viridinea</u>	---	"	"	"	"	"
<u>S. metallica</u>	---	13 δ (1)	---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.	
<u>Sympetrum danae</u>	---	13 δ (1,11)	---	"	"	"
<u>S. eroticum</u>	---	11 δ (1,11)	X-0 δ , post- reduct.	Kichijo '42	Jap. J.G. 18.	
<u>S. frequense</u>	---	12 δ (1,11)	"	Oguma '17, '30	Nawa Mem. Vol.; J.F.S. Hokkaido I.U. Ser. VI, 1.	
<u>S. pedemontanum</u>	25s	13 δ (1,11)	"	"	"	"
<u>S. semicinctum</u>	"	"	"	Smith '16	B.B. 31.	
<u>Tramea chinensis</u>	"	13 δ (1)	"	Oguma & Asana '32	J.F.S. Hokkaido I.U. Ser. VI, 1.	

ODONATA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>T. limbata</u>	25s	13♂(1,11)		X-0♂, post- reduct.	Asana & Makino '35	J.F.S. Hokkaido I.U. Ser. VI, 4.
<u>Trithemis aurora</u>	"	13♂(1)		"	Oguma & Asana '32	J.F.S. Hokkaido I.U. Ser. VI, 1.
<u>T. pallidinervis</u>	"	13♂(1,11)		"	Asana & Makino '35	J.F.S. Hokkaido I.U. Ser. VI, 4.
Zygoptera						
Calopterygidae						
<u>Caloptera atrata</u>	---	13♂(1,11)		"	Oguma '30	J.F.S. Hokkaido I.U. Ser. VI, 1.
<u>C. cornelia</u>	---	"		"	"	"
<u>C. splendens</u>	---	13♂(1)		---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.
<u>C. virgo</u>	---	8-14♂(1) 5-7♂(11)		---	Carnoy '85	L.C. 1.
"	---	13♂(1,11)		X-0♂, post- reduct.	Kichijo '42	Nagasaki Med. Jour. 20.
<u>Mnais costalis</u>	---	"		"	Oguma '30	J.F.S. Hokkaido I.U. Ser. VI, 1.
<u>M. strigata</u>	---	"		"	"	"
Coenagrionidae						
<u>Azriocnemis selenion</u>	---	14♂(1,11)		"	Kichijo '41, '42	Nagasaki Med. Jour. 19; Jap. J.G. 18.
<u>Azriion(Coenagrion) hieroglyphicum</u>	---	"		"	"	"
<u>Azriion(Coenagrion)sp.</u>	---	"		"	"	"
<u>Ceriaagrion rubiae</u>	27s	"		"	Asana & Makino '35	J.F.S. Hokkaido I.U. Ser. VI, 4.
<u>Copera annulata</u>	---	13♂(1,11)		"	Kichijo '41, '42	Nagasaki Med. Jour. 19; Jap. J.G. 18.

ODONATA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Enallagma cyathigerum</u>	---	14 $\frac{1}{2}$ (1)	---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.
<u>Ischnura elegans</u>	---	"	---	"	"
<u>I. senegalensis</u>	---	14 $\frac{1}{2}$ (1,11)	X-0 $\frac{1}{2}$ post-reduct.	Kichijo '41, '42	Nagasaki Med. Jour. 19; Jap. J.G. 18.
<u>Nehalennia speciosa</u>	---	14 $\frac{1}{2}$ (1)	---	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.
<u>Platycnemis pennipes</u>	---	13 $\frac{1}{2}$ (1)	---	"	"
<u>Pyrrhosoma nymphula</u>	---	14 $\frac{1}{2}$ (1)	---	"	"
Lestidae					
<u>Lestes sponsa</u>	25 $\frac{1}{2}$	13 $\frac{1}{2}$ (1,11)	X-0 $\frac{1}{2}$, post-reduct.	Kichijo '41, '42	Nagasaki Med. Jour. 19; Jap. J.G. 18.
<u>Sympycna fusca</u>	---	"	"	Oksala '45	Ann. Acad. Sci. Fenn. A, IV, 9.

THYSANOPTERA*

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Heliothrips haemorrhoidalis</u>	---	16 $\frac{1}{2}$ (1)	---	Pomeyrol '28	B.B. Fr. Bel. 62.

HOMOPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Aphidae					
<u>Acanthus itadori</u>	---	6 $\frac{1}{2}$ (1)	X-0 $\frac{1}{2}$	Shinji '31	J.M. 51.
<u>Akaia polygoni</u>	---	"	"	"	"
<u>Amphorophora magnoliae</u>	---	"	"	"	"

*Radulesco, E.P. 1931: Recherches biologiques et cytologiques sur quelques Thysanopteres. Ann. Epiphyties, Paris 10: 103-188. (Not accessible).

HOMOPTERA (Continued)

Species		Chromosome Number 2n n	Remarks	Observer	References
<u>A. ribicola</u> <u>(Nectarosiphum)</u>	---	6♂(1) X-0♂		Shinji '31	J.M. 51.
<u>Aphid, bearberry</u> <u>(Phyllaphis coweni)</u>	5s 6o	3♂(1) 2,3♂(11)	X-0♂. 2X's in a cyst.	Morgan '15	J.E.Z. 19.
<u>Aphid, beech(woolly)</u>	---	8♂(1) 7,8♂(11)	X-0♂	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, birch(paper)</u>	---	9♂(1)	---	Stevens '06	Carnegie Inst. Publ. 51.
<u>Aphid, clover</u>	---	8♂(1)	---	"	"
<u>Aphid, goldenrod,</u> <u>beach</u>	12m parth.	6♂(1) 5,6♂(11)	X-0♂	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, goldenrod, tall</u> <u>(solidago altissima)</u>	---	"	"	"	"
<u>Aphid, goumi</u>	10m (Winter egg)	5♀(1)	5 in ♂ and ♀ pronou- cleus.	Stevens '06	Carnegie Inst. Publ. 51.
<u>Aphid, maple</u>	---	16♂(1) 15,16♂(11)	X-0♂	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, milkweed(black)</u>	8s 8m (Parth)	4♂(1) 3,4♂(11)	X-0♂. 1 polar body in parth. egg.	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, milkweed</u> <u>(orange)</u>	8m	7,8♀(1)	Parth.	"	"
<u>Aphid, milkweed(pale)</u>	---	7♂(1,11)	1 indiv. had 9 ♂ (1), dif- ferent species?	Stevens '06	Carnegie Inst. Publ. 51.
<u>Aphid, nasturtium</u>	---	4♂(1) 3,4♂(11)	May be black milkweed	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, oak, red I</u>	---	7,8♂(1,11)	---	Stevens '06	Carnegie Inst Publ. 51.
" red II	---	8♂(1)	---	"	"

HOMOPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Aphid, oak, white</u>	---	7♂(1)	---		Stevens '06	Carnegie Inst. Publ. 51.
<u>Aphid, oenothera I (Aphis oenotherae)</u>	10s, 9♂m 10m parth.	5♂(1) 4, 5♂(11) 5♀(1)	X-0♂, 9(1) in ♂ pro- ducing egg. 10. (1) in parth. egg.	'06, '09, '10	Stevens '05a, b, '06, '09, '10	Carnegie Inst. Publ. 36; J.E.Z. 2; car- negie Inst. Publ. 51; J.E.Z. 6; B.B. 18.
<u>Aphid, oenothera II</u>	---	4♂(1,11)	8 in parth. egg.		Stevens '06	Carnegie Inst. Publ. 51.
<u>Aphid, pea</u>	8m	8♀(1)	Parth.	"	"	"
<u>Aphis rosae</u>	8+6m	14♀(1)	Chroms. unre- duced.	Stschelkanov- zew '04		B. Zbl. 24.
"	---	10♀(1,11)	"	Hewitt '06		Mem. Proc. Man- chester Lit. Phil. Soc. 50.
" (brown)	10s 10m	5♂(1,11) 5♂(1,11) 10♀(1)	Chroms. unre- duced in parth. ♀.	Stevens '05, '06		J.E.Z. 2; Carnegie Inst. Publ. 51.
"	10m	10♀(1)	"	Von Baehr '09		A.Zf. 3.
<u>Aphid, rose(green)</u>	14m	7♂(1) 6, 7♂(11) 14♀(1)	"	Stevens '06, '09		Carnegie Inst. Publ. 51; J.E.Z. 6.
<u>Aphid, rose (migratory)</u>	18m	9♀(1)	Winter egg.	Stevens '06		Carnegie Inst. Publ. 51.
<u>Aphis saliceti</u>	5s, ♂m 6♀m 6♂m (Parth.)	3♂(1) 2, 3♂(11) 6♀(1)	Chroms. unre- duced in parth. egg.	Morgan '09		J.E.Z. 7.
<u>A. saliceti (Harpswell willow)</u>	5s 6m	"	X-0♂. Chroms. unre- duced in Parth. egg.	Stevens '06, '09		Carnegie Inst. Publ. 51; J.E.Z. 6.

HOMOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Aphid, star cucumber</u>	---	5♂(1) 4, 5♂(11)	X-0♂	Stevens '06, '09	Carnegie Inst. Publ. 51; J.E.Z. 6.	"
<u>Aphid, willow(Saranac)</u>	---	"	"	"	"	"
<u>Aphid</u>	13s, ♂m 26m(4n)	13♀(1)	X-X♀	Suomalainen '37	Hered. 23.	"
<u>Aphis sambuci</u>	---	6♂(1)	X-0♂	Shinji '31	J.M. 51.	"
<u>Calaphis betulaecolens</u>	---	9♂(1)	"	"	"	"
<u>C. magnolicolens</u>	---	10♂(1)	"	"	"	"
<u>Callipteris kuricola</u> (<u>Nippocallisia</u>)	---	7♂(1)	X-0♂	Shinji '31	J.M. 51.	"
<u>Carolinaia tade</u>	---	5♂(1) 4, 5♂(11)	"	"	"	"
<u>Cavariella oenauthi</u> (<u>Hydronaphis</u>)	---	4♂(1)	"	"	"	"
<u>Chaitophorus</u> <u>sali-apterus</u>	---	7♂(1)	"	"	"	"
<u>Ch. sali-niger</u>	---	7♂(1)	"	"	"	"
<u>Ch. viminalis</u>	---	10♂(1)	---	Morgan '09	J.E.Z. 7.	"
<u>Chermes pectinata</u>	20♀m	10♂(1, 11) 10♀(1)	---	Frolowa '24	Z.Z.M.A. 1.	"
<u>Ch. strobilobius</u>	18-19♂m Ca22♀m	10-11♂(1, 11)	22(1) in part. egg, 20 (1) in ♂ producing egg.	"	"	"
<u>Chromaphis magnoliae</u>	---	4♂(1)	X-0♂	Shinji '31	J.M. 51.	"
<u>Dilochrus laricis</u>	---	5♂(1) 4, 5♂(11)	"	"	"	"
<u>D. pinidensiflorae</u>	---	11♂(1) 10, 11♂(11)	"	"	"	"
<u>Drepanaphis</u> <u>acerifolii</u>	---	19♂(1)	XXX-0♂	Shinji '23, '31	Z.M. (Jap.) 35; J.M. 51.	"
<u>Drepanosiphum</u> <u>plaianooides</u>	---	15♂(1) 8♂(11)	"	"	"	"

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Euceraphis betulae</u>	8s, ♂m 8o, ♀m	8♂(1) 6♂(11) 8♀(1) 6♀(11)		XXXX-0♂	Shinji '23, '28, Z.M.(Jap.) 35; '31 Saito-Hoonkai 3; J.M. 51.	
<u>Eulachnus piniflorosanus</u>	—	7♂(1)	X-0♂		Shinji '31	J.M. 51.
<u>Hyalopterus purni</u>	9s 10om (Parth.)	5♂(1,11)	"		Shibata '41	Oyo-Dobutsugaku-Z. 13.
<u>Macrosiphum cornifoliae</u>	—	7♂(1)	"		Shinji '31	J.M. 51.
<u>M. gobonis</u>	—	7♂(1)	X-0♂	"	"	"
<u>M. ibotum</u>	—	"	"	"	"	"
<u>M. pisi</u>	7s 8o +	4♂(1) 4♂(11) 4♀(1,11) +	X-0♂. No re- duction in parth. eggs.		Suomalainen '33	Z.Z.M.A. 19.
<u>M. solanifolii</u>	9s, ♂m 10om	5♂(1) 4, 5♂(11) 10♀(1)	X-0♂. Chroms. unre- duced in parth. egg.		Lawson '36	B.B. 70.
<u>M. sonchi</u>	—	6♂(1)	X-0♂		Shinji '31	J.M. 51.
<u>Melanoxantherium salijaponica</u>	—	4♂(1)	"	"	"	"
<u>Melahoxanthus salicicola</u>	6s 6om	6♂(1) 3♂(11)	No re- duction		Tannreuther '07	Z.Jb.(Anat.) 24.
<u>M. solicis</u>	6o, ♀m	6♀(1) 3♀(1,11)	in parth. egg.			
<u>Microtarsus pteridifoliae</u>	—	6♂(1) 5, 6♂(11)	X-0♂		Shinji '41	Oyo-Dobutsugaku-Z. 13.
<u>Myzocallis castanea</u>	—	7♂(1)	"		Shinji '23, '31	Z.M.(Jap.) 35; J.M. 51.
<u>M. querei</u>	—	9♂(1)	"		Shinji '23	Z.M.(Jap.) 35.

HOMOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Myzus linderae</u>		11s 12o	6♂(1) 5, 6♂(11)	X-0♂	Shinji '41	Oyo-Dobutsugaku-Z. 13.
<u>M. persicae</u>	---		"	"	"	"
<u>M. sansho</u>	---		"	"	"	"
<u>M. sugrui</u>	---		6♂(1)	"	Shinji '31	J.M. 51.
<u>M. ribis</u>	---		8♂(1) 5♂(11)	XX-0♂	Shinji '23	Z.M. (Jap.) 35.
<u>Necterosiphum ribicola</u>	8s 12o, ♀m		8♂(1) 6♂(11)	XXXX-0♂	"	"
<u>Neo-Calphis</u>	6+3X		---	---	Shinji '28	Saito-Hoonkai 3.
<u>Pemphigus pyriformis</u>	20o _m P. spirotheca	20o _f	20o _f (1)	Chroms. unre- duced in parth. egg.	Von Baehr '08, '09	Z.A. 33; A.Zf. 3.
<u>Periphyllus aceris</u>	---		10♂(1)	---	Shinji '31	J.M. 51.
<u>P. koebreuteriae</u>	---		"	---	"	"
<u>Phylaphis fagi</u>	---		13♂(1)	X-0♂	"	"
<u>Phylloxera caryaecaulis</u>	5(=6)s 6(=8)o		3(=4)♂(1, 11) 3(=4)♀(1, 11) 6(=8)♀(1)	2X-0♂(?). Morgan '08, '09a, b, '12, '15 5(1) in parth. ♂ egg, 6(1) in parth. ♀ egg, chroms. unreduced in parth. egg.	Proc. Soc. Exp. Biol. Med. 5; Sci. 29; J.E.Z. 7, 12, 19.	
<u>P. caryaefoliae</u>	8o _m ♀		---	Migrant	Morgan '09	J.E.Z. 7.
<u>P. caryaeglobuli</u>	22o _m 22o _f		---	---	Morgan '06, '09	B.B. 10; J.E.Z. 7.
<u>P. depressa</u>	6o _m ♀		---	Stem mother	Morgan '09	J.E.Z. 7.
<u>P. fallax</u>	10s 10o, ♀m		6♂(1) 4, 6♂(11) 6♀(1, 11)	2X-0♂(?). Morgan '06, '12(1) in '09a, b, '12, parth. ♀ '15 egg, 10 (1) in parth. ♂ egg.	B.B. 10; Sci. 29; J.E.Z. 7, 12, 19.	

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References	
	2n	n					
<u>P. globosum</u>	6 ^{om} 6 ^m	---	---	Morgan '06, '09	Morgan	B.B. 10; J.E.Z. 7.	
<u>P. subelliptica</u>	6 ^{om}	---	Migrant	Morgan '09		J.E.Z. 7.	
<u>Pterochlorus tropicalis</u>	---	8♂(1) 8♂(11)	XXXX-0♂?	Shinji '31		J.M. 51.	
<u>Schizoneura subelliptica</u>	12 ^{om}	12♀(1)	Parth.	Von Baehr '08, '09		Z.A. 33; A.Zf. 3.	
<u>Sch. ulmi</u>							
<u>Shivaphis celti</u>	---	3♂(1)	X-0♂	Shinji '31		J.M. 51.	
<u>Stomaphis yanois</u>	---	10♂(1) 8, 10♂(11)	2X-0♂(?)	Honda '21		B.B. 40.	
<u>Symydobius kabae</u>	---	13♂(1)	---	Shinji '31		J.M. 51.	
<u>Tetraneura ulmi</u>	13 ^s 14 ^o	13♂(1) 7♂(11)	X-0♂. NO re- duction in parth. eggs. Eggs show- ing 13 chroms.(1) develops into ♂, those of 14(1) in- to ♀.		Hermann '32		Z.Z.M.A. 15.
<u>Therioaphis shinal</u>	---	7♂(1)	X-0♂	Shinji '31		J.M. 51.	
<u>Tuberculatus kashiwae</u>	---	"	"	"		"	
<u>T. quercicola</u>	---	"	"	"		"	
<u>Tuberolachnus</u> <u>viminalis</u>	---	4♂(1,11)	---	"		"	
Cercopidae							
<u>Aphrophora coctalis</u>	30 ^s	15♂(1,11)	X-Y♂	Misra '37		J.F.S. Hokkaido I.U. Ser. VI, 5.	
<u>A. intermedia</u>	"	"	"	"		"	
<u>A. parallela</u>	---	15♂(1) 14, 15♂(11)	X-0♂	Boring & Fogler '15		B.B. 29.	

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>A. quadrangularis</u> =(<u>Lepronia quad.</u>)	21s	11,12♂(1) 10,11 or 11, 12♂(11)	X-0♂. 2	'13	Boring '07,	J.E.Z. 4; B.B. 24.
				different species ?.		
<u>A. quadriotata</u>	---	14♂(1) 13,14♂(11)	X-0♂		Boring '07	J.E.Z. 4.
<u>A. spumaria</u>	---	6-12♂(1)	---		Carnoy '85	L.C. 1.
"	---	12♂(1)	X-0♂		Boring '13	B.B. 24.
<u>Clastoptera obtusa</u>	15s	8♂(1) 7,8♂(11)	"		Boring '07	J.E.Z. 4.
<u>C. proteus</u>	---	7♂(1)	"		Boring & Fogler'15	B.B. 29.
<u>Philaenus lineatus</u>	29s	15♂(1) 14,15♂(11)	"		Boring & Fogler'15	"
<u>P. spumarius</u>	23s, ♂m 24o, ♀m	12♂(1) 11,12♂(11)	"		Boring '13	B.B. 24.
Cicadidae						
<u>Cicada septemdecim</u>	19s 20o	10♂(1) 9,10♂(11)	X-0♂		Shaffer '20	B.B. 38.
<u>C. tibicen</u>	12s	6♂(1)	---		Wilcox '95	Bull. Mus. Comp. Zool. Harvard 27.
Coccidae						
<u>Aleurodes proletella</u>	13♂m 26-28♀m	13♀(1,11)	Partheno- genesis.		Thomsen '27	Z.Z.M.A. 5.
<u>Aleurotus nephro-</u> <u>tepidis</u>	---	13♀(1)	"	"	"	"
<u>Aonidiella auranti</u>	8♀m	---	---	Dickson '32	Hilgardia 13.	
<u>Aspidiotus hederae</u>	"	---	Diploid parth- enogenesis	Schrader '29	Psche, Cambr. 36.	
<u>Dactylopius</u> sp.	10♀m 10♂s	---	---	Hughes- Schrader '48	Adv. in Genet. 2.	

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
		2n	n			
<i>Crypticerya rosae</i>)	2s, ♂m	---	♂ develops from unfertilized (parth.) eggs.	Hughes-Schrader '30 a,b.	J.M. 50; Ann. Entom. Soc. Am.
<i>Echinocerya anomola</i>)	4o, ♀m				
<i>Icerya littralis</i>)					
<i>I. monotserratensis</i>)					
				Chrome. un-reduced in ♂, while reduced in ♀ by 2 meiotic divs.		
<i>Icerya purchasi</i>		4s	2♂(1,11)	---	Pierantoni '12, '14	Arctivio Zool. 5,7.
"		4o, m	2♀(1,11)			
		4s, o, m	2♂(1)	Fertilized eggs give rise to hermaphro-	Hughes-Schrader '25, '26, '27;	Z.Z.M.A. 2; Sci. 63; Z.Z.M.A. 6.
	(In herm-	2o(1,11)		dites. Males al-	Hughes-Schrader & Schrader '26; Hughes-Schrader '48	Z.W.Z. 128: Adv. in Genetics, Vol. 2.
	aphr.)		(In Herm-	ways hap-		
		2s, m	aphr.)	loid, de-		
	(In true ♂)			velop from unfert.		
				(parth.)		
				eggs of hermaphr.		
				chroms.		
				reduced		
				in ovary		
				of hermaphr.		
				by 2 meiotic		
				divs., while		
				a single		
				equational		
				div. occurs		
				in testes		
				of both		
				hermaphr.		
				and true		
				male. From		
				correction		
				of '26 and		
				'27.		
<i>I. similis</i>		2s, ♂m	2o(1)	♂ dev. from parth. eggs,	Hughes-Schrader '48	Adv. in Genet. 2.
		4o, ♀m	♀	haploid.		
<i>Gossyparia spuria</i>		28s, ♂m	14+7♂(1)	7 chroms.	Schrader '29	Z.W.Z. 134.
		28♀m	14♀(1,11)	behave as a group in ♂ I-		
				div.		

HOMOPTERA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Lecanium hesperidum</u>	14♂m 14♀m	14♂(1) (Parth. ♀ egg) 7♀(1,11) (Parth. bisexual egg)	Chroms. un-Thomsen '27 reduced (1 meiot. div.) in parth. ♀ eggs, while 2 meiot. divs. and chroms. reduction occur in parth. bisexual eggs.		Z.Z.M.A. 5.
<u>L. hemisphaericum</u>	16s, ♂m 16♀m	16♂(1,11) 16♀(1) (Parth. ♀ egg) 8♀(1,11) (Parth. bisexual egg)	Chroms. reduced in II- div. into 8 (tid). a single meiot. div. in parth. ♀ eggs, and 2 meiot. divs. in parth. bisexual eggs.	"	"
"	16s 16♀m	16♂(1,11) 16♀(1) (Parth. ♀ egg) 8♀(1,11) (Parth. bisexual egg)	"	Suomalainen '40	Ann. Acad. Sci. Fenn. Ser. A, 57.
<u>L. corni</u>	16♀	---	---	Thomsen '29	Trans. 4th Int. Congr. Ent. Ithaca.
<u>L. coryli</u>	18♀	---	---	"	"
<u>Llaveia bouvari</u>	5s, ♂m 60, ♀m	3♂(1,11)	X-C♂, X undiv. to 1 pole in II.	Hughes- Schrader '31	Z.Z.M.A. 13.

HOMOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>L. oaxacoensis</u>	5s, ♂ 6o, ♀	3♂(1,11) -	X-0♂, X undiv. to 1 pole in II.	Hughes- Schrader '48	Adv. in Genet. 2.
<u>Llaveiella taenechina</u>	#	"	"	Hughes- Schrader '40	B.B. 78.
<u>Marchalina hellenica</u>	18o +	---	---	Hovasse '30	C.R. Acad. Sci. Paris 190.
<u>Matsucoccus gallicola</u>	34s 40o -	14,20♂(11)	6X-0♂, 6X undiv. to 1 pole in I.	Hughes- Schrader '48	Adv. in Genet. 2.
<u>Nautococcus schraderae</u>	5♂m 6♀m	3♂(1,11)	X undiv. to 1 pole in II. 1- 2 super- numeraries.	Hughes- Schrader '42	J.M. 70.
<u>Phenacoccus gossypii</u>	12o 12o	---	---	Hughes- Schrader '48	Adv. in Genet. 2.
<u>Protortonia primitiva</u>	5s 6o -	3♂(1,11)	X-0♂, X undiv. to 1 pole in II.	Schrader '31	Z.W.Z. 138.
<u>Pseudococeus acericola</u>	12s 12o	12♂(1,11) 6o(1,11)	In ♂ chroms. reduced in II div. showing 6 in tid.	Hughes- Schrader '35	B.B. 69.
<u>P. citri</u> <u>P. maritimus</u> <u>P. nipae</u>) 10s, ♂ 10o, ♀)	10♂(1,11) 5♀(1,11)	5X-5Y♂ In ♂ chroms. reduced in II div. showing 5 in tid.	Schrader '21, B.B. 70; A.Zf. 7; '23, '26 Sci. 63.	
<u>Puto sp.</u>	13s 14o +	7♂(1) 6,7♂(11)	X-0♂, X undiv. to 1 pole in I.	Hughes- Schrader '44	B.B. 87.

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Steatococcus tuberculatus</u>	2s 4m +	---		♂ develops from unfert. (parth.) eggs.	Hughes-Schrader & Ris '41	J.E.Z. 87.
<u>Trialeurodes vaporaricrum</u>	22o, qm	11o(1,11)	+	Parth.	Thomsen '27	Z.Z.M.A. 5.
Delphacidae						
<u>Delphacodes striatellus</u>	---	17♂(1) 17, 16♂(11)	X-0♂		Hirai '48	Oguma Comm. Vol. Cyt. Genet.
Fulgoridae						
<u>Amphiscea bivittata</u>	25s	13♂(1) 12, 13♂(11)	X-0♂		Boring '07	J.E.Z. 4.
<u>Poeciloptera bivittata</u>	---	"	"		"	"
<u>P. pruinosa</u>	27s	14♂(1)	"		"	"
<u>P. septentrionalis</u>) 28qm	13, 14♂(11)				
Jassidae						
<u>Agallia sanguinolenta</u>	---	11♂(1) 10, 11♂(11)	X-0♂		Boring '07	J.E.Z. 4.
<u>Chlorotettix unicolor</u>	21s	9, 11♂(1)	X-0♂. 2		"	"
<u>C. vividus</u>)	8, 9 & 10, 11♂(11)	differ-ent species?			
<u>Diedrocephala coccinea</u>	23s	12♂(1) 11, 12♂(11)	X-0♂		"	"
<u>D. mollipes</u>)					
<u>Phleosius irroratus</u>	15s	8♂(1) 7, 8♂(11)	"		"	"
Membracidae						
<u>Atymna castanea</u>	---	11♂(1) 10, 11♂(11)	X-0♂		Boring '07	J.E.Z. 4.
<u>Camptolenchia curvata</u>	19s	10♂(1) 9, 10♂(11)	"		"	"
<u>Ceresa bubalus</u>	---	11♂(1)	"		"	"
<u>C. diceros</u>)					
<u>C. taurina</u>)	10, 11♂(11)				

HOMOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Enchenopa binotata</u>	19s	10 $\hat{\delta}$ (1) 9,10 δ (11)	X-0 $\hat{\delta}$	Boring '07	J.E.Z. 4.	
"	20s	10 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$	Kornhauser '14	A.Zf. 12.	
<u>E. curvata (Campy- lenchia curvata)</u>	19s 20o	10 $\hat{\delta}$ (1) 9,10 δ (11)	X-0 $\hat{\delta}$	"	"	
<u>Entilia sinuata</u>	21s	11 $\hat{\delta}$ (1) 10,11 δ (11)	X-0 $\hat{\delta}$	Boring '07	J.E.Z. 4.	
<u>Thelia bimaculata</u>	21s 22o	11 $\hat{\delta}$ (1)	---	Kornhauser '14	A.Zf. 12.	
<u>Vanduzea arcuata</u>	17s	9 $\hat{\delta}$ (1) 8,9 δ (11)	X-0 $\hat{\delta}$	Boring '07	J.E.Z. 4.	

HETEROPTERA* *** ***

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Belostomatidae</u>						
<u>Belostoma flumineum</u>	24s	13 $\hat{\delta}$ (1) 12 δ (11)	X-Y $\hat{\delta}$	Chickering '27	J.M. 44.	
<u>Berracus griseus</u>	28s	15 $\hat{\delta}$ (1) 14 δ (11)	---	Chickering '27	J.M. 44.	
<u>Lethocerus americanus</u>	8s	5 $\hat{\delta}$ (1) 4 δ (11)	X-Y $\hat{\delta}$	Chickering '27 a, b, '32	J.M. 44; A.R. 37; Pap. Michigan Acad. Sci. 15.	
"	"	---	---	Chickering & Bacorn '33	Pap. Michigan Acad. Sci. 17.	
<u>L. uhler</u>	30s	---	---	"	"	

*In the Heteroptera the sex chromosomes segregate post-reductionally in the 2nd division in the most cases.

**Cunha Marques, Alberto Xavier da. 1945: Cariologia comparada de alguns Hemipteros heteropteros (Pentatomideos e Coreideos). Mem. Estud. Mus. Zool. Univ. Coimbra 163; 1-105. (Not accessible).

***Ekblom, T. 1941. Chromosomenuntersuchungen bei Salda littoralis L., Callocoris chenopodii Fall., und Mesovelia furcata Muls. & Rey. etc. Chromosoma 2; 12-35. (Not accessible).

HETEROPTERA (Continued)

Species	Chromosomes Number			Remarks	Observer	References
	2n	n				
<u>Lethocerus sp.</u>	4s	---		Fusion of sex-elements with autosomes?	Chickering '27	A.R. 37.
<u>Lethocerus sp. (south. Michigan & Ann Arbor)</u>	"	---	"	"	Chickering '32	Pap. Michigan Acad. Sci. 15.
<u>Lethocerus sp. (New Orleans)</u>	28(30)s	16♂(1) 15♂(11)	---	"	"	"
<u>Zaitha sp. (flumineum or aurantiacum)</u>	24s	13♂(1) 12♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
Capsidae (Miridae)						
<u>Adelphocoris lineolatus</u>	17s	8♂(1)	X-0♂	Schacow '32	A.A. 75.	
<u>Calocoris rapidus</u>	30s	16♂(1) 15, 16♂(11)	2X-0♂, 1 of X to 1 pole in I, other in II.(?)	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>C. chenopodii</u>	32s	---	X-Y♂	Ekblom '41	Chrom. 2.	
<u>Leptoterna dolabrata</u>	---	17♂(1)	---	Montgomery '01	Trans. Am. Phil. Soc. 20.	
<u>Lygus innotatus</u>	---	17♂(1) 16♂(11)	---	Geitler '39	Chrom. 1.	
<u>L. pratensis</u>	Ca35s	19♂(1) 17, 18♂(11)	---	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
"	---	16-17♂(1)	X-0♂(?)	Schachow '32	A.A. 75.	
"	---	17♂(1) 16♂(11)	---	Geitler '39	Chrom. 1.	
<u>Macrotylus quadrilineatus</u>	---	"	---	"	"	
<u>Notostira erratica</u>	17s	8♂(1)	---	Schachow '32	A.A. 75.	
<u>Poecilocapsus goniphorus</u>	---	18♂(1) 17♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21	
<u>P. lineatus</u>	---	18♂(1)	---	Montgomery '01	Trans. Am. Phil. Soc. 20.	
Cimicidae						
<u>Cimex columbarius</u>	29s 30(?)o	16♂(1)	---	Darlington '39	J.G. 39.	

HETEROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>C. lectularius</u>	30)	18)	4X...7X-Y♂	Darlington	J.G. 39.
	(31))	19)	♂(1)	'39	
	(32)) s	20)			
	33)	21)			
	34)				
	33)				
	36)				
	37) o	---			
	39) o				
	40)				
	41)				
<u>C. columb. x</u> <u>C. lectul.</u>	29s	16♂(1)	2X-Y♂	"	"
	34o				
<u>C. lectul. x</u> <u>C. columb.</u>	---	16♂(1)	2X-Y, 7X-Y,♂	"	"
		21♂(1)			
<u>C. rotundatus</u>	---	17♂(1)	2X-Y♂	"	"
"	---	16♂(1)	X-Y♂	Slack '39	Chrom. 1.
<u>C. stadleri</u>	31s	---	---	Darlington '39	J.G. 39.
Coreidae					
<u>Acanthocoris sordidus</u>	---	13♂(1)	XX-0♂. Some super- numer- aries occur?	Toshioka '35	Bot. & Zool. (Tokyo), 3.
"	24s	12♂(1,11)	XX-0♂. 1-3 nu- cleoli.	Yosida '44, '46, '47	Igaku & Seibutsugaku 5; La Kromosomo 2-3; J.F.S. Hokkaido Univ. Ser. VI, 9.
<u>Alydus calcaratus</u>	13s	7♂(1)	X-0♂	Reuter '30	Acta. Zool. Fenn. 9.
<u>A. eurinus</u>	"	7♂(1,11)	"	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.
<u>A. pilosulus</u>	"	"	"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"	13s	"	"	Wilson '05	J.E.Z. 2.
	14o				

HETEROPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Anacanthocoris concoloratus</u>	21s	11 \hat{o} (1,11)	---		Toshioka '34	Oyo-Dobutsugaku-Z. 6.
<u>Anasa armigera</u>	"	11 \hat{o} (1)	X-0 δ	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
"	22o	---	X-X φ	Wilson '09	J.E.Z. 6.	
<u>A. tristis</u>	22s	11 \hat{o} (1,11)	---	Paulmier '98, '99	A.A. 14; J.M. 15.	
"	21s 22o	" X-0 δ	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.		
"	"	"	X-0 δ	Wilson '05, '06, '07, '11	J.E.Z. 2,3; Sci. 25; J.M. 22.	
"	22s	"	---	Foot & Strobell '07a,b	B.B. 12; A.J.A. 7.	
"	21s	10, 11 \hat{o} (tid)	---	Lefevre & McGill '08	A.J.A. 7.	
"	21s, δ 22o, φ	11 \hat{o} (1,11)	X-0 δ , X-X φ	Morrill '10	B.B. 19.	
"	21s 22o	"	---	McClung & Pinney '10	Kansas Univ. Sci. Pull. 5.	
"	21, 22 δ , φ 21s, 22o	---	---	Hoy '14, '16	B.B. 27, 31.	
<u>Anasa sp.</u>	21s 22o	11 \hat{o} (1)	---	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.	
<u>Anasa sp.</u>	21s	11 \hat{o} (1,11)	X-0 δ	Piza '46	Luiz de Queiroz 3.	
<u>Anisocelis faliacea</u>	27s	14 δ (1,11)	"	Piza '45	Luiz de Queiroz 2.	
<u>Archimerus alternatus</u> <u>(calcarior?)</u>	15s, δ 16o, φ	8 δ (1) 7, 8 δ (11)	X-0 δ , X-X φ . X undiv. to pole in I.	Morrill '10	B.B. 19.	
<u>A. alternatus</u>	15s	8 δ (1)	---	Wilson '32	J.M. 53.	

HETEROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>A. calcarator</u>		15 ^s 16 ^o	8 ^{♂(1)} 7,8 ^{♂(11)}	X-0 [♂] . X undiv. to pole in I.	Wilson '05, '09	J.E.Z. 2,6.
<u>Camptopus lateralis</u>	13 ^s	8 ^{♂(1)}		X-0 [♂]	Schachow '32	A.A. 75.
<u>Catorinthia sp.</u>	25 ^s	—		"	Wilson '07	Sci. 25.
<u>Centrocoris spinger</u>	22 ^s	12 ^{♂(1)}		X-0 [♂]	Schachow '32	A.A. 75.
<u>Chariesterus antennator</u>	---	13 ^{♂(1,11)}		"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
<u>Ch. antennator (?)</u>	21 ^s	—	—	—	Wilson '05	J.E.Z. 2.
<u>Ch. antennator</u>	25 ^s 26 ^o	—	X-0 [♂] , X-X [♀]	—	Wilson '09	J.E.Z. 6.
<u>Chelinidea vittigera</u>	21 ^s	—	X-0 [♂]	—	Wilson '07	Sci. 25.
"	21 ^{s, ♂m} 22 ^{o, ♀m}	—	X-0 [♂] , X-X [♀]	—	Morrill '10	B.B. 19.
"	—	11 ^{♂(1)}	—	—	Bowen '22	B.B. 43.
<u>Chorosoma schillingi</u>	—	5,6 ^{♂(11)}	—	—	Meijere '30	Z.A. 88.
<u>Cletus hoplomachus</u>	18 ^s	9 ^{♂(1)}	2X-0 [♂]	—	Toshioka '35	Z.M.(Jap.) 47.
<u>C. rusticus</u>	"	"	"	"	"	"
<u>C. trigonus</u>	"	"	"	"	"	"
<u>Coriomeris denticulatus</u>	22 ^s	12 ^{♂(1)}	X-0 [♂]	—	Schachow '32	A.A. 75.
<u>Coriscus calcaratus</u>	13 ^s	8 ^{♂(1)}	"	—	"	"
<u>Corizus alternatus</u>	"	7 ^{♂(1,11)}	"	Montgomery '01, '04, '06	Proc. Acad. Nat. Sci. Phil. 53; B.B. 6; Trans. Am. Phil. Soc. 21.	
<u>C. hyosciami</u>	"	8 ^{♂(1)}	X-0 [♂]	—	Schachow '32	A.A. 75.
<u>C. lateralis</u>	—	7 ^{♂(1,11)}	"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>Corizus sp.</u>	13 ^s	7 ^{♂(1,11)}	"	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.	

HETEROPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Corynocoris distinctus</u>	25 _s 26 _o	---	X-0♂, X-X♀		Wilson '09	J.E.Z. 6.
<u>Diactor bilineatus</u>	21 _s	11♂(1,11)	X-0♂	Piza '45	Luiz de Queiroz 2.	
<u>Euthoccha galeator</u>	21 _s 22 _o	---	"	Wilson '07, '09	Sci. 25; J.E.Z. 6.	
<u>Gonocerus acuteangulatus</u>	20 _s	10♂(1)	X-0♂	Schachow '32	A.A. 75.	
<u>Harmostes reflexulus</u>	13 _s 14 _o	---	X-0♂, X-X♀	Wilson '06	J.E.Z. 3.	
<u>Holopterma alata</u>	20 _s	10♂(1)	---	Stark '29	Trans. Roy. Soc. S. Africa, '17.	
<u>Homoeocerus dilatus</u>	21 _s	12♂(1) 11♂(11)	X-0♂	Toshioka '34	Z.M.(Jap.) 46.	
<u>H. unipunctatus</u>	19 _s	10♂(1,11)	"	"	"	
<u>Leptoglossus phyllopus</u>	21 _s 22 _o	11♂(1)	"	Wilson '07, '09, '11	Sci. 25; J.E.Z. 6; J.M. 22.	
<u>L. gonagra</u>	21 _s	11♂(1,11)	"	Piza '45	Luiz de Queiroz 2.	
<u>L. stigma</u>	"	"	"	Piza '46	Luiz de Queiroz 3.	
<u>Maccevettus lineola</u>	13 _s	8♂(1)	"	Schachow '32	A.A. 75.	
<u>Margus inconspicuus</u>	23 _s 24 _o	---	X-0♂, X-X♀	Wilson '07, '09	Sci. 25; J.E.Z. 6.	
<u>Mesocerus marginatus</u>	22 _s	12♂(1)	X-0♂	Schachow '32	A.A. 75.	
<u>M. marg. orientalis</u>	"	11♂(1,11)	XX-0♂	Yosida '44	Igaku & Seibutsugaku, 5; La Kromosomo 2-3.	
<u>Metapodius femoratus</u>	22 _s	11♂(1) 11,12♂(11)	X-0♂			
	22 _s 22 _o	12♂(1) 11♂(11)	X-Y♂	Wilson '07, '09, B.B. 12; J.E.Z. '10	6,9.	
	23 _s 23 _o	13♂(1) 11,12♂(11)	X-Y♂. 1 Supernumerary.			
	24 _s 24 _o	14♂(1) 11,12♂(11)	X-Y♂. 2 Supernumeraries.			

HETEROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
	26s	16 δ (1)	X-Y δ . 4		
	26o	11-15 δ (11)	Supernumeraries.		
	28o	---	6 supernumeraries occur.		
<u>M. granulosus</u>	22s	12 δ (1)	X-Y δ ; X		
	22o	11 δ (11)	disjoins from Y in I-div.		
	23s	13 δ (1)	X-Y δ . 1	Wilson '07, '09	B.B. 12; J.E.Z. 6.
	23o	11,12 δ (11)	Supernumerary.		
	24s	14 δ (1)	X-Y δ . 2		
	24o	11,12 δ (11)	Supernumeraries.		
<u>M. granulosus</u>	25s	15 δ (1)	X-Y δ . 3	Wilson '07,	B.B. 12; J.E.Z. 6.
	25o	11 δ (11)	Supernumeraries.	'09	
	26s	16 δ (1)	X-Y δ . 4		
	26o	11-15 δ (11)	Supernumeraries.		
<u>M. trenunalis</u>	21s	11 δ (1)	X-0 δ	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"	"	11 δ (1,11)	"		
	22s	12 δ (1)	X-Y δ	Wilson '07,	B.B. 12; J.E.Z. 6.
	22o	11 δ (11)		'09	
	23s	13 δ (1)	X-Y δ . 1		
	23o	11,12 δ (11)	Supernumerary.		
	24s	14 δ (1)	X-Y δ . 2		
	24o	11,12 δ (11)	Supernumeraries.		
	25s	15 δ (1)	X-Y δ . 3		
	25o	11 δ (11)	Supernumeraries.		
	26s	16 δ (1)	X-Y δ . 4		
	26o	11-15 δ (11)	Supernumeraries.		

HETEROPTERA (Continued)

Species	Chromosome Number 2n	n	Remarks	Observer	References
<u>Myrmus miriformis</u>	13s	7♂(1,11)	---	Meijere '30	Z.A. 88.
"	13s 14o	---	X-0♂, X-X♀	Ekbom '34	Z.Z.M.A. 21, 24.
<u>Narnia sp.</u>	21s	--	---	Wilson '07	Sci. 25.
<u>Pachycephalus sp.</u>	22s	11♂(1,11)	2X-0♂	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.
<u>Pachylis gigas</u>	15s	8♂(1)	X-0♂,	Wilson '07, '09, '11	Sci. 25; J.E.Z. 6; J.M. 22.
"	16o	---	X-X♀	Schrader '32	Z.W.Z. 142.
<u>P. laticornis</u>	15s	8♂(1)	X-0♂	Piza '46	Luiz de Queiroz 3.
"	7,8♂(11)	---	---	"	"
<u>P. pharaonis</u>	17s	9♂(1)	"	"	"
<u>Phthia picta</u>	21s	11♂(1,11)	"	Piza '45	Luiz de Queiroz 2.
<u>Protenor belfragei</u>	13s	7♂(1,11)	X-0♂	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.
"	13s 14o	"	"	Wilson '05, '06, '11	J.E.Z. 2,3; J.M. 22.
"	13s, ♂m 14o, ♀m	7♀(1)	X-0♂, X-X♀	Morrill '10	B.B. 19.
"	---	7♂(1)	---	Schrader '35	Cyt. 6.
<u>Rhomalus parumpunctatus</u>	13s	8♂(1)	X-0♂	Schachow '32	A.A. 75.
<u>Riptorutus clavatus</u>	"	7♂(1)	"	Yosida '44, '46	Igaku & Seibutsugaku, 5; La Kromosomo 2-3.
<u>Syromastes marginatus</u>	22s	11♂(1)	2X-0♂	Gross '04 a, b, '12	Verh. Deuts. Zool. Ges. 9; Z. Jb. 20,32.
"	22s 24o	10♂(11)	---	Wilson 'C9a,b	J.E.Z. 6; B.B. 16.
"	21s	---	X-0♂	Geitler '39	Chrom. 1.
<u>S. rhombaeus quadratus</u>	22s	12♂(1)	"	Schachow '32	A.A. 75.

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Corixidae						
<u><i>Callicorixa caledonica</i></u>	24s	---	X-Y♂↑	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u><i>C. concinna</i></u>	"	---	"	"	"	"
<u><i>C. praeusta</i></u>	---	13♂(1) 12♂(11)	"	Prokofieva '33	Z.Z.M.A. 19.	
"	24s	---	"	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u><i>C. wollastoni</i></u>	---	13♂(1)	"	Prokofieva '33	Z.Z.M.A. 19.	
"	24s	---	"	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u><i>Corixa (Macrocorixa) dentipes</i></u>	"	---	"	Slack '38	"	
"	"	13♂(1) 12♂(11)	---	Prokofieva '33	Z.Z.M.A. 19.	
<u><i>C. distincta</i></u>	"	"	---	Prokofieva '31	Russ. Arch. Anat. 17.	
<u><i>C. (Sigara) distincta</i></u>	"	"	---	Prokofieva '33	Z.Z.M.A. 19.	
<u><i>C. fabrici</i></u>	22(24?)s	13♂(1)	X-Y♂	"	"	
<u><i>C. falleni</i></u>	---	13♂(1) 12♂(11)	"	"	"	
<u><i>C. fossarum</i></u>	---	"	"	"	"	
<u><i>C. linnei</i></u>	24s	"	"	"	"	
<u><i>C. punctata</i></u>	---	13♂(1)	---	Poisson '36	A.Z.E.G. 78.	
"	24s	---	X-Y♂↑	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u><i>C. sahlbergi</i></u>	---	13♂(1)	"	Prokofieva '33	Z.Z.M.A. 19.	
<u><i>C. semistriata</i></u>	---	13♂(1) 12♂(11)	X-Y♂	Prokofieva '33	Z.Z.M.A. 19.	
<u><i>C. striata</i></u>	---	"	"	"	"	
<u><i>C. verticalis</i></u>	---	12♂(1)	---	Montgomery '01	Proc. Acad. Nat. Sci. 53.	

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Cynatia bonsdorffi</u>	26s	---	X-Y♂↑	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u>Glaenocorisa cavifrons</u>	24s	---	"	"	"	
<u>Meralotomus pallescens</u>	---	8♂(1,11)	X-0♂↑	Piza '46	Luiz de Queiroz 3.	
<u>Sigara(Callicorixa) carinata</u>	---	12♂(1,11)	X-Y♂↑. X dis-joins from Y in I-div.	Geitler '33	Chrom. 1.	
"	24s	---	X-Y♂↑	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u>S. castanea</u>	"	---	"	"	"	
<u>S. distincta</u>	"	---	"	"	"	
<u>S. fabricii</u>	24s	---	X-Y♂↑	Slack '38	Proc. Roy. Soc. Edimb. 58.	
<u>S. fassarum</u>	"	---	"	"	"	
<u>S. fallenii</u>	"	---	"	"	"	
<u>S. germari</u>	"	---	"	"	"	
<u>S. linnaei</u>	"	---	"	"	"	
<u>S. scotti</u>	"	---	"	"	"	
<u>S. semistriata</u>	"	---	"	"	"	
<u>S. striata</u>	"	---	"	"	"	
Corizidae						
<u>Corizus hyalinus</u>	---	8♂(1,11)	X-0♂↑	Piza '46	Luiz de Queiroz 3.	
<u>Jadera sanguinolenta</u>	13s	7♂(1)	"	"	"	
<u>Leptocoris haemataloma</u>	13s	7♂(1,11)	"	Porter '17	B.B. 33.	
<u>L. trivittatus</u>	13s 14o	---	X-0♂↑. X-X♂	Wilson '07, '09, '11	Sci. 25; J.E.Z. 6; J.M. 22.	
"	13s	7♂(1)	X-0♂↑	Yocom '22, '23	A.R. 23; J.M. 37.	

HETEROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Dysodiidae					
<u>Dysodius lunatus</u>	31s	17♂(1,11)	2X-Y♂	Schrader '47	Evoluition 1.
Galgulidae (Gelastocoridae; Nerthridae)					
<u>Galgulus oculatus</u> <u>(Gelastocoris)</u>	35s, ♂m 38o	20♂(1,11) 16,19 (tid)	XOXX-Y♂	Payne '09	B.B. 16.
Gerridae					
<u>Gerris asper</u>	21s	11♂(1,11)	---	Ekblom '39	A.Z.E.G. 81.
<u>G. gibbifer</u>	"	"	X-0♂	Poisson '36	A.Z.E.G. 78.
<u>G. gracilicornis</u>	19s	10♂(1,11)	"	Yosida '44, '46	Igaku & Seibutsugaku, 5; La Kromosomo 2-3.
<u>G. lacustris</u>	21s	11♂(1,11)	X-0♂	Poisson '36	A.Z.E.G. 78.
"	---	"	---	Geitler '37	Z.Z.M.A. 26.
<u>G. lateralis</u>	21s	11♂(1)	X-0♂	Poisson '36	A.Z.E.G. 78.
"	21s 22o	"	"	Geitler '37	Z.Z.M.A. 26.
"	"	---	Poly- ploidy occurs in tis- sue cells.	Geitler '39	Chrom. 1.
<u>G. najas</u>	21s	11♂(1,11)	X-0♂	Poisson '36	A.Z.E.G. 78.
Hydrometridae					
<u>Hydronetra lacustris</u>	11s	12♂(1,11)	Large chrom. of gonia di- vides into 2 in cyte. (?)	Wilke '07, '13	Jena Z. 35; A. Zf. 10.
<u>H. paludum</u>	10-15(12)s	12(13,14) ♂(1) 12♂(11)	X-0♂(?)	Wilke '12, '13	Z.A. 40; A.Zf. 10.
<u>Hygotrechus sp.</u>	21s	11♂(1,11)	X-0♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.

HETEROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Limnotrechus marginatus</u>	---	11♂(1,11)		X-0♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
Lygaeidae						
<u>Acompus rufipes</u>	14s(?)	9♂(1) 8♂(11)		X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>Aphanus japonicus</u>	17s	11♂(1) 7(11)		XXXX-Y♂	Yosida '44, '46	Igaku & seibutsugaku, 5; La Kromosome 2-3.
<u>A. phoeniceus</u>	14o	8♂(1) 7♂(11) 7♀(1)		X-Y♂. 1 Supernumerary.	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>A. pini</u>	"	"		X-Y♂	"	"
<u>Cymus angustatus</u>	---	14♂(11)		"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20; 21.
<u>C. claviculus</u>	---	15♂(1) 14♀(1)		"	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>C. glandicolor</u>	28s 28o	15♂(1) 14♂(11) 14♀(1)		"	"	"
<u>C. luridus</u>	---	15♂(1)		---	Montgomery '01	Proc. Acad. Nat. Sci. Phila. 53.
<u>Drymus brunneus</u>	20s 20n	11♂(1) 19♂(11) 10♀(1)		X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>D. pilicornis</u>	---	11♂(1) 10♂(11)		"	"	"
<u>D. silvaticus</u>	20(?)o	"		"	"	"
<u>Eremocoris erraticus</u>	20s	10(11)♂(1) 9(10)♂(11)		X-Y♂.	"	"
<u>E. plebejus</u>	"	11♂(1) 10♂(11) 10♀(1)		X-Y♂	"	"
<u>Gastrodes ferrugineus</u>	"	11♂(1) 10♂(11)		"	"	"
<u>Geocoris ater</u>	"	11♂(1) 10♂(11)		"	"	"

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>G. laponicus</u>	20s 20o	11♂(1) 10♂(11) 10♀(1)	X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.	
<u>Ischnocoris hemipterus</u>	16o	9♂(1) 8♂(11) 8♀(1)	"	"	"	"
<u>Ischnodermus falciculus</u>	16s	9♂(1) 8♂(11)	"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>I. sabuleti</u>	16s 16o	9♂(1) 8♂(11) 8♀(1)	"	Pfaler-Collander '41	Acta. Zool. Fenn. 30.	
<u>Ischnorhynchus resedae</u>	14s 14o	8♂(1) 7♂(11) 7♀(1)	"	"	"	"
<u>Ligyrocoris silvestris</u>	16s 16o	9♂(1) 8♂(11) 8♀(1,11)	"	"	"	"
<u>Lygaeus bircrucis</u>	14s 14o	8♂(1) 7♂(11)	X-Y♂	Wilson '09, '12	J.E.Z. 6, 13.	
<u>L.(Spilostethus) equestris</u>	14s	8♂(1) 7♂(11)	---	Schachow '32	A.A. 75.	
"	14(15)s	8(9)♂(1) 7(8)♂(11)	X-Y♂. Some-times Y=2 elements.	Pfaler-Collander '41	Acta. Zool. Fenn. 30.	
"	14s	8♂(1) 7♂(11)	X-Y♂	Yosida '44, '46	Igaku & seibutsugaku, 5; La Kromosomo 2-3.	
<u>L. saxatilis</u>	---	"	"	Geitler '39	Chrom. 1.	
<u>L. turcius</u>	14s 14o	"	"	Wilson '05, '06	J.E.Z. 2, 3.	
<u>Macrodema micropterum</u>	18o	10♂(1) 9♂(11) 9♀(1)	"	Pfaler-Collander '41	Acta. Zool. Fenn. 30.	
<u>Melanocoryphus albomaculatus</u>	14s	7♂(1) 7♂(11)	X-Y♂. X disjoins from Y in I-div.	Schachow '32	A.A. 75.	

HETEROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Nysius jacobaeae</u>		14s 14o	8♂(1) 7♂(11) 7♀(1)	X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>N. lineatus</u>		"	"	"	"	"
<u>N. punctipennis</u>		14s	8♂(1) 7♂(11) 7♀(1,11)	"	"	"
<u>N. thymi</u>		14s 14o	8♂(1) 7♂(11) 7♀(1)	"	"	"
<u>Oedancala dorsalis</u>		13s	7♂(1,11)	X-0♂	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.
<u>Oncopeltus fasciatus</u>		16s	9♂(1) 8♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"		16s 16o	9♂(1) 8♂(11)	X-Y♂. X & Y similar in size.	Wilson '09, '12	J.E.Z. 6, 13.
<u>Pameria fraticollis</u>		16o	9♂(1) 8♂(11) 8♀(1)	X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>Peliopelta abbreviata</u>		14s	8♂(1) 7♂(11)	X-Y♂. X & Y similar in size.	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
<u>Pelitrechus angusticollis</u> ---		---	"	X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn. 30.
<u>P. peniculatus</u>		14s	8♂(1) 7♀(1)	"	"	"
<u>P. nubilus</u>		14o	8♂(1) 7♂(11) 7♀(1)	"	"	"
<u>Philomyrmex insignis</u>		16s	9♂(1) 8♂(11)	"	/	"

HEPTEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Pinosomus varius</u>	18o	10♂(1) 9♂(11) 9♀(1)	X-Y♂	Pfaler- Collander '41	Acta. Zool. Fenn.	
	"	9♂(1) 9♂(11) 9(1)♀(11)	---	"	"	"
<u>Pterotmetus staphylinoides</u>	18s 18o	10♂(1) 9♂(11) 9♀(1)	X-Y♂. 1 supernumerary occurs.	"	"	"
<u>Rhyparochromus antennatus</u>	---	8♂(1) 7♂(11) 7♀(1)	X-Y♂	"	"	"
<u>Rh. chiragra</u>	14s	"	XX-Y♂	"	"	"
<u>Scoloposiethus affinis</u>	20o	11♂(1) 10♂(11)	X-Y♂	"	"	"
<u>S. decoratus</u>	---	11♂(1) 10♂(11) 10♀(1)	"	"	"	"
<u>S. pictus</u>	---	"	"	"	"	"
<u>Stigonocoris fuligineus</u>	16s 16o	9♂(1) 8♂(11) 8♀(1)	"	"	"	"
<u>S. pedestris</u>	"	"	"	"	"	"
<u>S. pygmaeus</u>	16o	"	"	"	"	"
<u>S. rusticus</u>	18o	10♂(1) 9♂(11) 9♀(1)	"	"	"	"
<u>Trapezonus anorus</u>	16o	9♂(1) 8♂(11)	"	"	"	"
<u>T. arenarius</u>	16s 16o	9♂(1) 8♂(11) 8♀(1)	"	"	"	"
<u>T. distinguendus</u>	14o	8♂(1) 7♂(11) 7♀(1)	"	"	"	"



HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>T.(Suhragisticus)</u> <u>nebulosus</u>	140	10♂(1) 9♂(11) 9♀(1)	3X-X♂	Pfaler-Collander '41	Acta. Zool. Fenn.	30.
<u>Tropidothorax leucopterus</u>	1(15)s	7♂(1) 7,8♂(11)	X-2Y♂. X disjoins from 2Y in I-div.	Schachow '32	A.A. 75.	
<u>Tropistethus</u> <u>holosericeus</u>	---	8♂(1) 7♂(11)	X-Y♂	Pfaler-Collander '41	Acta. Zool. Fenn.	30.
Mesovelidae						
<u>Mesovelia furcata</u>	35s	---	4X-Y♂	Ekblom '41	Chrom. 2.	
Nabidae						
<u>Coriscus ferus</u>	---	10♂(1)	---	Montgomery '01	Trans. Am. Phil. Soc. 20.	
<u>Nabis annulatus</u>	---	10♂(1) 8(9)♂(11)	X-Y♂	Montgomery '01, '06	Proc. Acad. Nat. Sci. Phila. 53; Trans. Am. Phil. Soc. 21.	
<u>N. apterus</u>	---	10♂(1,11)	---	Meijere '30	Z.A. 88.	
"	---	20♂(1,11)	"	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.	
<u>Reduviolus(Aptus)</u> <u>apterus</u>	---	20♂(1,11)	"	Schachow '32	A.A. 75.	
<u>R. ferus</u>	---	10♂(1,11)	"	"	"	
<u>R. rufosus</u>	---	"	"	"	"	
Naucoridae						
<u>Naucoris cimicoides</u>	51s	26♂(1,11)	X-0♂	Steopoe '29	C.R.S.B. 102.	
<u>N. conspersus</u>	---	17♂(1)	"	Poisson '36	A.Z.E.G. 78.	
<u>N. maculatus</u>	---	16♂(1) 16♂(11)	---	Poisson '21	C.R.A.S. 172.	
<u>Pelocoris femorata</u>	20(?)s	---	---	Montgomery '01	Trans. Am. Phil. Soc. 20.	

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Nepidae						
<u>Nepa cinerea</u>	35s 36o	18♂(1) 17,18♂(11)	X-0♂. X undiv. to pole in I-div.	Spaul '22	Jour. Roy. Micr. Soc. 3.	
"	33s	19♂(1,11) 15,18(tid)	XXXX-Y♂	Steopoe '25, '30,'32	C.R.S.B. 92; Ann. Soc. Univ. Jassy 16; A.Z.E.G. 72.	
<u>Ranatra linearis</u>	43s	24♂(1) 20,23(tid)	5 ele- ments run to 1 pole in II- div.	Steopoe '27	C.R.S.B. 96.	
<u>R. chinensis</u>	46s	24♂(1) 23♂(11)	X-Y♂	Shikato '49	Jap. J.G. 22.	
<u>Ranatra sp.</u>	40s	21♂(1) 20♂(11)	X-Y♂. 8-10 supernu- meraries occur.	Chickering '18	Trans. Am. Micr. Soc. 37.	
Notonectidae						
<u>Notonecta glauca</u>	---	12-13♂(1) 12♂(11)	---	Pantel & Sinety '06	L.C. 23.	
"	24s 24o	13♂(1) 12♂(11)	X-Y♂	Browne '16	J.M. 27.	
<u>N. insulata</u>	---	13,14♂(1) 12♂(11)	"	Browne '10	B.B. 20.	
<u>N. irrorata</u>	24s	13♂(1) 12♂(11)	"	Browne '10, '13, '16	B.B. 20; J.E.Z. 14; J.M. 27.	
<u>N. maculata</u>	"	"	"	Poisson '27	A.Z.E.G. 66.	
<u>N. undulata</u>	26s	14♂(1) 13♂(11)	"	Browne '10, '13	B.B. 20; J.E.Z. 14.	
<u>N. indica</u> <u>N. shooteri</u> <u>N. undulata</u>)	26s 26o	14♂(1) 13♂(11)	X-Y♂	Browne '16	J.M. 27.

HETEROPTERA (CONTINUED)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Pentatomidae						
<u>Acanthosoma denticauda (?)</u>	12s	7♂(1)	---		Toshioka '35	Bot. & Zool. (Tokyo), 3.
<u>A. denticauda</u>	"	7♂(1) 6♂(11)	X-Y♂. X & Y sim- ilar in size.	Yosida '44, '47	Igaku & seibutsugaku, 5; La Kromosomo 2, 3, 4.	
<u>A. labiduroides</u>	"	"	X-Y♂	"	"	"
<u>Aelia accuminata</u>	14s	8♂(1) 7♂(11)	"	Schachow '32	A.A. 75.	
<u>A. fieberi (lewisi?)</u>	"	"	"	Nishimura '27	Z.M. (Jap.) 39.	
<u>A. fieberi</u>	"	"	"	Yosida '49a, b	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.	
<u>Ancyrosoma albilineatus</u>	---	"	"	Schachow '32	A.A. 75.	
<u>Arma custus</u>	14s	"	"	"	"	"
<u>Banasa calva</u>	26s 26o	14♂(1) 13♂(11)	"	Wilson '05	J.E.Z. 2.	
"	---	15♂(1) 13, 14♂(11)	X-Y♂. supernu- meraries occur.	Wilson '07	B.B. 12.	
<u>B. dimidiata</u>	16s 16o	9♂(1) 8♂(11)	X-Y♂	"	"	"
<u>Brachystethus subromaculatus</u>	14s	8♂(1) 7♂(11)	X-Y♂, aberrant meiosis occurs.	Schrader '46	B.B. 90.	
<u>Brochymena sp.</u>	"	"	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>Brochymene sp.</u>	"	8♂(1) 7♂(11)	"	Wilson '05	J.E.Z. 2.	
<u>Caloptenus sp.</u>	12s	12♂(1) 6♂(11)	---	Montgomery '98	Z. Jb. 12.	
<u>Carpocoris fuscispinus</u>	---	8♂(1) 7♂(11)	X-Y♂	Schachow '32	A.A. 75.	

HETEROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>C. fuscispina</u>	---	8♂(1) 7♂(11)		X-Y♂	Geitler '39	Chrom. 1.
<u>C. melanocerus</u>	---	"	"	"	"	"
<u>C. purpureipennis</u>	---	"	"	"	Oksala '47	Hered. 33.
"	14s	"	"	"	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.
<u>C. pudicus</u>	"	"	"	"	Schachow '32	A.A. 75.
<u>Codophila varia</u>	"	"	"	"	"	"
<u>Coenus delius</u>	"	"	"	"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"	14s 14o	8(9)♂(1) 7♂(11)		"	Wilson '05, '06	J.E.Z. 2, 3.
<u>Coptosoma biguttula</u>	12s	7♂(1) 6♂(11)		"	Toshioka '34	Z.M.(Jap.) 46.
"	14s	8♂(1) 7♂(11)		"	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.
<u>C. punctissimum</u>	12s	7♂(1) 6♂(11)		"	Toshioka '34	Z.M.(Jap.) 46.
"	"	"	"	"	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosomo 2, 3, 4.
<u>Corbula abbreviata</u>	14s	8♂(1) 7♂(11)		X-Y♂	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.
<u>Cosmopepla carnifex</u>	16s	9♂(1) 8♂(11)		"	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
<u>Dinidor rufocinctus</u>	21s 22o	11♂(1) 10♂(11)		2X-Y♂	Schrader '47	Evolution 1.
<u>Dolycoris baccarum</u>	14s	8♂(1) 7♂(11)		X-Y♂	Schachow '32	A.A. 75.
"	"	"	"	"	Nishimura '35	Manshu Seibutsu.- Kaiho, (1925).
<u>Dolycoris baccarum</u>	---	8♂(1) 7♂(11)		---	Geitler '39	Chrom. 1.

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Dolycoris baccarum</u>	14o	---	---	---	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosome 2,3,4.
"	---	8♂(1) 7♂(11)	X-Y♂	Oksala '47	Hered. 33.	
<u>Edessa irrorata</u>	14s	"	X-Y♂	Non-homologous association occurs.	Schrader '41	J.M. 69.
<u>Elasmostethus humeralis</u>	12s	7♂(1) 6♂(11)	X-Y♂	---	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosome 2,3,4.
<u>Eurydema dominulus</u>	---	8♂(1) 7♂(11)	---	Geitler '39	Chrom. 1.	
<u>E. festiva</u>	14s	"	X-Y♂	Schachow '32	A.A. 75.	
<u>E. oleaceae</u>	"	"	"	"	"	"
<u>E. oleaceum</u>	---	"	---	Geitler '39	Chrom. 1.	
<u>E. ornata pectoralis</u>	14s	"	X-Y♂	Schachow '32	A.A. 75.	
<u>E. pulchrum</u>	"	"	"	Nishimura '35	Manshu Hakubutsu.- Kaiho, (1935)	
<u>E. rugosum</u>	"	"	---	Nishimura '27	Z.M.(Jap.) 39.	
<u>E. rugosa</u>	"	"	X-Y♂	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosome 2,3,4,	
<u>E. ventrale</u>	---	"	---	Geitler '39	Chrom. 1.	
<u>Eurygaster alternatus</u>	---	7♂(1) 6♂(11)	X-Y♂	Montgomery 'C1, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>E. austriacus</u>	12s	"	"	Schachow '32	A.A. 75.	
<u>E. maura</u>	"	"	"	"	"	"
<u>E. maurus</u>	---	8♂(1) 7♂(11)	"	Geitler '39	Chrom. 1.	
<u>Eusarcoris aeneus</u>	16s	9♂(1) 8♂(11)	"	Schachow '32	A.A. 75.	
<u>E. venustissimus</u>	"	"	"	"	"	"
<u>E. guttigera</u>	14s	8♂(1) 7♂(11)	"	Toshioka '37	Cyt. Fujii Jub.-Vol.	

HETEROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>E. lewisi</u>	14s	8♂(1) 7♂(11)	X-Y♂	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosomo 2,3,4.
<u>E. parvus</u>	"	"	"	Toshioka '37	Cyt. Fujii Jub. -Vol.
<u>E. ventralis</u>	"	"	"	"	"
<u>Eusarcoris sp.</u>	"	"	"	"	"
<u>Euschistus erassus</u>	12s 12o	7♂(1) 6♂(11)	"	Foot & Strobell A.Zf. 9. '12	
<u>E. fissilis</u>	14s 14o	8♂(1) 7♂(11)	"	Wilson '05, '06	J.E.Z. 2,3.
<u>E. ictericus</u>	"	---	"	Wilson '06	J.E.Z. 3.
<u>E. servus</u>	14s 14o	---	"	Wilson '06	"
"	14m	8♂(1) 7♂(11)	"	Foot & Strobell '14	A. Zf. 12.
<u>Euschistus tristigmus</u>	14s	8♂(1) 7♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"	14s 14o	---	"	Wilson '06	J.E.Z. 3.
<u>E. variolarius</u> <u>(Pentatoma?)</u>	14s	8♂(1) 7♂(11)	"	Montgomery '97, '98, '01, '06, '10, '11	Z.A. 20; Z.Jb. 12; Trans. Am. Phil. Soc. 20, 21; A.Zf. 5; J.M. 22.
"	14s 14o	---	"	Wilson '06	J.E.Z. 3.
"	14m	8♂(1) 7♂(11)	"	Foot & Strobell '14	A.Zf. 12.
<u>Euschistus sp.</u>	13,14,15s	8,9,10,11 ♂(1) 6,7,8,9 ♂ (11)	---	Montgomery '10, '11	A.Z.M.A. 5; J.M. 22.
<u>E. variolarius x</u> <u>E. servus</u>	14s	8-5♂(11)	---	Foot & Strobell '14	A.Zf. 12.
<u>Graphosoma italicum</u>	---	8♂(1) 7♂(11)	X-Y♂	Geitler '39	Chrom. 1.
<u>G. rubrolineatum</u>	14s	"	"	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.

HETEROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>G. semipunctata</u>		14s	8♂(1) 7♂(11)	X-Y♂	Schachow '32	A.A. 75.
<u>Halyomorpha picus</u>	"	"	"	"	Nishimura '35	Manshu Hakubotsu.- Kaiho (1935)
"	"	"	"	"	Yosida '44, '47	Igaku & Seibutsugaku, 5; La Kromosomo 2-3, 4
<u>Lelia decempunctata</u>	"	"	"	"	"	"
<u>Loxa flavidollis</u>	"	"	"	X-Y♂. Hetero- ploidy occurs.	Schrader '45 a,b	B.B. 88; J.M. 76.
<u>L. florida</u>	---	16-30♂(1)	---	---	Bowen '22	B.B. 43.
"	14s	8♂(1) 7♂(11)	X-Y Hetero- ploidy occurs.	Schrader '45	B.B. 88.	
<u>L. picticornis</u>	"	"	"	Schrader '45 a,b	B.B. 88; J.M. 76.	
<u>Mayrinia variegata</u>	"	"	"	Schrader '45	B.B. 88.	
<u>Megymenum gracilicorne</u>	20s	11♂(1) 10♂(11)	X-Y♂	Toshioka '35	Konchu 9.	
<u>Mecistorhinus melanoleucus</u>	14s	8♂(1) 7♂(11)	X-Y♂, aberrant meiosis occurs.	Schrader '46	B.B. 90.	
<u>M. sepulcralis</u>	"	"	"	"	"	
<u>M. tripterus</u>	"	"	"	"	"	
<u>Menide violacea</u>	"	"	X-Y♂	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.	
<u>Mineus bioculatus</u>	---	7♂(tid)	X-Y♂, X & Y sim- ilar in size.	Wilson '06	J.E.Z. 3.	
<u>Mormidea lugens</u>	14s	8♂(1) 7♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	

HETEROPTERA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Murgantia histrionica</u>	---	7♂(11)	---	Bowen '22	J.M. 37.
<u>Neodine macraspis</u>	14s	8♂(1) 7♂(11)	Aberrant meiosis occurs.	Schrader '46	B.B. 90.
<u>Nezara antennata</u>	14s	8♂(1) 7♂(11)	---	Nishimura '27	Z.M.(Jap.) 39.
"	14o	---	---	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.
<u>N. hilaris</u>	14s	---	---	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
"	14s 14o	8♂(1) 7♂(11)	X-Y♂, X & Y similar in size.	Wilson '05, '06	J.E.Z. 2, 3.
<u>N. viridula</u>	"	"	X-Y♂	Wilson '05, '11	J.E.Z. 2, 22.
<u>Oebalus pugnax</u>	10s 10o	---	"	Wilson '09	J.E.Z. 6.
<u>Ophryatrocha sp.</u>	4o	4♂(1) 2-4♂(11)	---	Montgomery '98	Z.Jb. 12.
<u>Odontotarsus purpureolineatus</u>	12s	7♂(1) 6♂(11)	X-Y♂	Schachow '32	A.A. 75.
<u>Odontotarsus robustus</u>	12s	7♂(1) 6♂(11)	X-Y♂	Schachow '32	A.A. 75.
<u>Palomena angulosa</u>	16s 16o	9♂(1) 8♂(11)	"	Yosida '44, '47	Igaku & Seibutsugaku 5; La Kromosomo 2,3,4.
<u>P. prasina</u>	16s	"	---	Geitler '39	Chrom. 1.
<u>Pentatom juniperina</u> (<u>Chlorochroa</u>)	14s	---	---	Wilson '13	B.B. 24
<u>P. senilis</u> (<u>Phytodolomia</u>)	6s	4♂(1) 3♂(11)	X-Y♂	"	"
<u>P. rufipes</u>	---	8♂(1) 7♂(11)	---	Geitler '39	Chrom. 1.
"	14s	"	X-Y♂	Yosida '49, '50	Abstr. Sci. Res. 2; Iden-Sogo-Kenkyu 1.

HETEROPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Pentatoma</u> sp.	14s	8(8-11)♂(1) 7(6-9)♂(11)	X-Y♂	Montgomery '97, '98, '01, '06, '10, '11	Z.A. 20; Z. Jb. 12; Trans. Am. Phil. Soc. 20, 21; A. Zf. 5; J.M. 22.	
<u>Pentatoma</u> sp.	14o	---	---	Yosida '44, '47	Igaku & Seibutsugaku 5; La Kromosomo 2, 3, 4.	
<u>Perillus confluens</u>	14s	8♂(1) 7♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
<u>Peromatus notatus</u>	"	"	"	Schrader '41	B.B. 81.	
<u>Picromerus bidens</u>	---	"	"	Geitler '39	Chrom. 1.	
"	12s	7♂(1) 6♂(11)	"	Yosida '44, '47	Igaku & Seibutsugaku 5; La Kromosomo 2, 3, 4.	
<u>Piezodorus lituratus</u>	14s	8♂(1) 7♂(11)	"	Schachow '32	A.A. 75.	
<u>Platycarneus notulatus</u>	"	"	X-Y♂, Aberrant Meiosis occurs.	Schrader '46	B.B. 90.	
<u>Podisus bracteatus</u>	14s	---	---	Wilson '09	Proc. 7th Int. Zool. Cong. Boston, 1907.	
<u>P. crocatus</u>	"	---	---	"	"	
<u>P. modestus</u>	16s	---	---	"	"	
<u>P. placidus</u>	"	---	---	"	"	
<u>P. spinosus</u> <u>(maculiventris)</u>	16s	9♂(1) 8♂(11)	X-Y♂	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	
"	16s 16o	"	"	Wilson '05, '06	J.E.Z. 2, 3.	
<u>Polomena prasina</u> <u>(palomena?)</u>	16s	"	"	Schachow '32	A.A. 75.	
<u>P. venustissimus</u>	"	"	"	"	"	
<u>Rhytidolomia sancia</u>	14o	---	---	Schrader '40	J.M. 67.	
<u>Rh. (Pentatoma) senilis</u>	6s 6o	3♂(1, 11)	X-Y♂, X & Y sim- ilar in size.	"	"	

HETEROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Scotinophora horvathi</u>	14s	8♂(1) 7♂(11)	X-Y♂	Toshioka '34	Oyo-Dobutsugaku-Z.
<u>Stiretrus anchorago</u>	14s 14o	--	"	Wilson '09	J.E.Z. 6.
<u>Thyanta calceata</u>	27s 28o	15♂(1) 7♂(11)	X _I X _{II} -Y♂	Wilson '09, '11	Proc. 7th Int. Zool. Cong. Boston, 1909; J.M. 22.
<u>T. custator</u>	16s 16o	--	X-Y♂	Wilson '11	J.M. 22.
<u>Trichopepla semivittata</u>	16s	8♂(1) 7♂(11)	"	Montgomery '01, '04, '06	Trans. Am. Phil. Soc. 20; B.B. 6; Trans. Am. Phil. Soc. 21.
"	--	8-9♂(1) 7♂(11)	X-Y♂. Small chroms. of gonia usually lacking in cytes.	Wilson '05	J.E.Z. 2.
<u>Tropicoris japonicum</u>	14s	8♂(1) 7♂(11)	X-Y♂	Nishimura '35	Manshu Hakubutsu.- Kaiho (1935).
Phymatidae					
<u>Phymata wolffi (?)</u>	29? s	15♂(1)	X-0♂(?)	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.
Pyrrochoridae					
<u>Dysdercus ruficollis</u>	13s	7♂(1,11)	X-0♂	Piza '47	Leiz de Queirez 4.
<u>Euryopthalmus rufinennis</u>	"	"	"	Piza '46	Leiz de Queirez 3.
<u>Largus cinctus</u>	11s 12o	--	X-0♂	Wilson '07, '09	Sci. 25; J.E.Z. 6.
<u>L. succintus</u>	13s 14o	--	"	"	"
<u>Pyrrochoris apterus</u>	24s, ♂m 24o, ♀m	12♂(1) 11-12♂(11) 12♂(1,11)	"	Henking '90, '91, '92	Int. Monata. Anat. Phys. 7; Z.W.Z. 51, 54.

HETEROPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Pyrrochoris apterus</u>	24s, m 24o	12 δ (1,11) 11,12(tid)	XX- $\delta\delta$	Gross '06, '12	Z.Jb. 23, 32.	
"	23s 24o	"	X- $\delta\delta$	Wilson '09a,b	J.E.Z. 6; B.B. 16.	
Reduviidae						
<u>Acholla ampliata</u> (<u>multispinosa</u>)	32s	16 δ (1,11)	--	Montgomery '01, '06, '10	Trans. Am. Phil. Soc. 20, 21; A. Zf. 5.	
"	---	16 δ (1)	---	Payne '10	B.B. 18.	
<u>A. multispinosa</u> (<u>Sinea diadema</u>)	---	16 δ (1,11)	3 elements associated in I-div.	Montgomery '01, '66, '16	Trans. Am. Phil. Soc. 20, 21; A. Zf. 5.	
"	26s 30o	16 δ (1,11) 11,15(tid)	5X-Y δ	Payne '10	B.B. 18.	
<u>Aniomeris crassipes</u>	24s	13 δ (1) 12 δ (11)	X-Y δ	Payne '12	J.M. 23.	
<u>Conorhinus</u> <u>sanguisugus</u>	23s	13 δ (1,11) 11,12(tid)	XX-Y δ	Payne '09, '12	B.B. 16; J.M. 23.	
<u>Diplacodus exsanguis</u>	26 δ m 26 δ f m	14 δ (1) 13 δ (11)	X-Y δ	Payne '09	B.B. 16.	
<u>Fitchia spinosula</u>	27s 28o	15 δ (1,11) 13,14(tid)	XX-Y δ	Payne '09	B.B. 16.	
<u>Macrothylacia rubi</u>	---	14 δ (1)	---	Meijere '30	Z.A. 88.	
<u>Pniontis modesta</u>	25s	15 δ (1,11) 11,14(tid)	XXXX-Y δ	Payne '12	J.M. 23.	
<u>Polididus armatissimus</u>	12s	7 δ (1) 6 δ (11)	X-Y δ , X & Y similar in size.	Toshioka '36	Konchu 10.	
<u>Prionidus cristatus</u>	26s	---	---	Montgomery '01, '06	Trans. Am. Phil. Soc. 20, 21.	

HETEROPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Prionidus cristatus</u>	26s 28o	15 \hat{o} (1,11) 12,14(tid)	XXX-Y \hat{o}	"	Payne '09	B.B. 16.
<u>Pselliodes cinctus</u>	28s 30o	16 \hat{o} (1,11) 13,15(tid)	"	"	Payne '12	J.M. 23.
<u>P. cinctus (milyas)</u>	"	16 \hat{o} (1,11)	"	"	Goldsmith '16	B.B. 31.
<u>Reduvius personatus</u>	---	12 \hat{o} (1) 11 \hat{o} (11)	X-Y \hat{o}	"	Payne '12	J.M. 23.
<u>Rocconata annulicornis</u>	27s	15 \hat{o} (1,11) 13,14(tid)	XX-Y \hat{o}	"	Payne '09	B.B. 16.
<u>Sinea complexa</u>)	28s	16 \hat{o} (1,11)	XXX-Y \hat{o}	"	Payne '09,	B.B. 16; J.M. 23.
<u>S. confusa</u>)	30s	13,15(tid)	"	"	'12	
<u>S. diadema</u>)						
<u>S. spinipes</u>)						
<u>S. rileyi</u>	---	18 \hat{o} (1,11) 13,17(tid)	5X-Y \hat{o}	"	Payne '12	J.M. 23.
<u>Velinus nodipes</u> .	28s 30o	16 \hat{o} (1) 13 \hat{o} (11) 13,15(tid)	XXX-Y \hat{o}	"	Toshioka '33	Oyo-Dobutsugaku-Z. 5.
"	28s	16 \hat{o} (1) 13 \hat{o} (11) 13,15(tid)	"	"	Yosida '44, '47	Igaku & Seibutsugaku 5; La Kromosomo 2,3,4.
Tingitidae						
<u>Stephanitis nashi</u>	14s	7 \hat{o} (1,11)	X-Y \hat{o} . X disjoins from Y in I-div.	"	Toshioka '34	Oyo-Dobutsugaku-Z. 5.
<u>Tingis clavata</u>	---	7 \hat{o} (1,11)	"	Montgomery '01, '06	Proc. Acad. Nat. Sci. Phila. 53; Trans. Am. Phil. Soc. 21.	
Velliidae						
<u>Velia currens</u>	25s	13 \hat{o} (1)	X-0 \hat{o}	"	Poisson '36	A.Z.E.G. 78.

NEUROPTERA

Species		Chromosome Number		Remarks	Observer	References
		2n	n			
MEGALOPTERA						
Raphidiidae						
<u>Raphidia nigricollis</u>	24s 24om ₊	12 ^o (1)	X-Y ^o	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.	
<u>R. xanthostigma</u>	26s	---	X-Y ^o	Klingstedt '37	Nat. 139.	
Sialidae						
<u>Chauliodes japonicus</u>	20s 20o	---	X-Y ^o	Itoh '33	Z.M. (Jap.) 45.	
<u>Protohermes grandis</u>	23s	---	X-Y ^o ?	"	"	
PLANIPENNIA						
Ascalaphidae						
<u>Ascalaphus ictericus corsicus</u>	20o	10 ^o (1)	X-Y ^o	Naville & Beaumont '36	Arch. d'Anat. Micr. 29.	
<u>A. libelluloides</u>	22o, pm ₊	11 ^o (1,11)	"	"	"	
<u>A. longicornis</u>	22o	---	X-X ^o ₊	"	"	
<u>Glyptobasis dentifera</u>	22s	---	X-Y ^o	Asana & Kichijo '36	J.F.S. Hokkaido I.U. Ser. VI, 5.	
<u>Hybris subjacens</u>	"	11 ^o (1,11)	"	Katayama '39	Jap. J.G. 15.	
<u>Ogcogaster segmentator</u>	"	---	"	Asana & Kichijo '36	J.F.S. Hokkaido I.U. Ser. VI, 5.	
Chrysopidae						
<u>Chrysopa aspersa</u> (Ch. <u>prasina</u>)	12s,o	6 ^o (1)	X-Y ^o	Naville & Beaumont '33, '36	Arch. d'Anat. Micr. 29, 32.	
<u>Ch. (Chrysotropia) alba</u>	"	6 ^o (1,11)	"	"	"	
<u>Ch. carnea</u>	---	7 ^o ₊ (1)	---	Klingstedt '33	Mem. Soc. F. Fl. Fenn. 10.	
<u>Ch. cognatella</u>	12s 12om ₊	6 ^o (1,11)	X-Y ^o	Kichijo '43	Nagasaki Med. Jour. 21.	

NEUROPTERA (Continued)

Species	Chromosome Number 2n	n	Remarks	Observer	References
<u>Ch. (Nineta) flava</u>	14s	7♂(1)	X-Y♂	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.
<u>Ch. flavifrons</u>	12o	---	X-Xo	"	"
<u>Ch. formosa</u>	12s	6♂(1)	X-Y♂	"	"
<u>Ch. intima</u>	"	"	"	Kichijo '34	J.F.S. Hokkaido I.U. Ser. VI. 3.
<u>Ch. japonica</u>	"	"	"	"	"
<u>Ch. kurisakiana</u>	---	"	"	"	"
<u>Ch. parabola</u>	---	6♂(1,11)	"	Kichijo '43	Nagasaki Med. Jour. 21.
<u>Chrysopa perla</u>	12s,o	6♂(1,11)	X-Y♂	Naville & Beaumont '32, '33	C.R. Soc. Phy. Hist. Nat. Geneve 49; Arch. d'Anat. Micr. 29.
<u>Ch. sapporensis</u>	12s	6♂(1)	"	Kichijo '34	J.F.S. Hokkaido I.U. Ser. VI, 3.
<u>Ch. septempunctata</u>	10s	5♂(11)	"	Naville & Beaumont '32, '33	C.R. Soc. Phy. Hist. Nat. Geneve 49; Arch. d'Anat. Micr. 29.
<u>Ch. sept. cognata</u>	10s,o	5♂(1,11)	"	Kichijo '35	Z.M.(Jap.) 47.
<u>Ch. venosa</u>	---	6♂(1)	"	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.
<u>Ch. ventralis</u>	12o	---	X-Xo	"	"
<u>Ch. viridana</u>	---	6♂(1)	X-Y♂	"	"
<u>Ch. vulgaris</u>	12s 12o, o ^m "	"	"	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.
"	16s	---	"	Brückner '35	Jena Z. 69.
<u>Chrysopa sp.</u>	10s	5♂(1)	"	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.
<u>Chrysotropia japonica</u>	12s	6♂(1)	"	Kichijo '34	J.F.S. Hokkaido I.U. Ser. VI, 3.

NEUROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
Coniopterygidae						
<u>Semidalis albata</u>		180	---	—	Kichijo '43	Nagasaki Med. Jour. 21.
<u>S. aleurodiformis</u>		180, ♀m	---	—	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.
Hemerobiidae						
<u>Hemerobius humuli</u>		14s	7♂(1)	X-Y♂	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.
<u>H. humulinus</u>		"	---	"	Klingstedt '33	Mem. Soc. F. Fl. Fenn. 10.
<u>H. limbatus</u> <i>(H. stigma)</i>		140, ♀m	---	X-Xo	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.
<u>H. pini</u> (<u>H. atrifrons</u>)	14s, 140, ♀m		7♂(1,11)	X-Y♂	"	"
<u>H. stigma</u>	14s		7♂(1,11)	"	Klingstedt '33	Mem. Soc. F. Fl. Fenn. 10.
Mantispidae						
<u>Mantispa styriaca</u>	18s	9♂(1,11)	X-Y♂	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.	
Myrmeleonidae						
<u>Acanthaclisis japonica</u>	---	7♂(1)	X-Y♂	Ikeda & Kichijo '35	Z.M.(Jap.) 47.	
<u>Creagris plumbea</u>	18s	9♂(1,11)	"	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.	
<u>Macronemurus appendiculatus</u>	16s	8♂(1,11) 8♀(1)	X-Y♂	Naville & Beaumont '33	Arch. d'Anat. Micr. 29.	
<u>Macronemurus sp.</u>	"	8♂(1,11)	"	Asana & Kichijo '36	J.F.S. Hokkaido I.U. Ser. VI, 5.	
<u>Morter hyalinus</u>	14s	7♂(1,11)	"	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.	
<u>Myrmecaelurus acerbus</u> (?)	"	"	"	Asana & Kichijo '36	J.F.S. Hokkaido I.U. Ser. VI, 5.	
<u>Myrmeleon europaeus</u>	14s, ♂m 140, ♀m	"	"	Naville & Beaumont '32, '33	C.R. Soc. Phy. Hist. Nat. Geneve 49; Arch. d'Anat. Micr. 29.	

NEUROPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>M. formicarius</u>	---	7 δ (1,11)	X-Y δ	Ikeda & Kichijo '35	Z.M.(Jap.) 47.
<u>M. sagax (?)</u>	14s	"	"	Asana & Kichijo '36	J.F.S. Hokkaido I.U. Ser. VI, 5.
<u>Neuroleon sp.</u>	16s	8 δ (1,11)	"	"	"
<u>Palnares libelluloides</u>	26s	13 δ (1,11)	"	Naville & Beaumont '36	Arch. d'Anat. Micr. 32.
<u>P. vardus asanai</u>	---	12 δ (1)	"	Oguma & Asana '32	J.F.S. Hokkaido I.U. Ser. VI, 1.
"	26s	13 δ (1)	X-Y. Secondary association in I.	Makino '38, '48	Kagaku 8; Oguma Comm. Vol. Cyt. Genet 1.
Osmylidae					
<u>Eososmylus harmelinus</u>	14s	7 δ (1,11)	X-Y δ	Kichijo '43	Nagasaki Med. Jour. 2.
<u>Osmylus chrysops</u>	14s 14o	"	"	Naville & Beaumont '32, '33	C.R. Soc. Phy Hist. Nat. Geneve, 49; Arch. d'Anat. Micr. 29.
Sisyridae					
<u>Sisyra fuscata</u>	14s	---	X-Y δ	Klingstedt '37	Nat. 139.

MECOPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Panorpidae					
<u>Panopha alpina</u>	---	23 δ (1)	X-0 δ	Naville & Beaumont '34	B.B. Fr. Bel. 68
<u>P. cognata</u>	---	22 δ (1) 21,22 δ (11)	"	"	"
<u>P. communis</u>	---	14-18 δ (1)	---	Carnoy '85	L.C. 1.

MECOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>P. communis</u>	---	23 [♂] (1) 22, 23 [♂] (11)	X-0 [♂]		Naville & Beaumont '34	B.B. Fr. Bel. 68.
<u>Panorpa germanica</u>	---	21 [♂] (1) 20, 21 [♂] (11)	X-0 [♂]		Naville & Beaumont '34	B.B. Fr. Bel. 68.
<u>P. japonica</u>	460	---	X-X _♀		Kichijo '43	Nagasaki Med. Jour. 21.

TRICHOPTERA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
ANNUCIPALPIA						
Hydropsychidae						
<u>Hydropsyche pellucidula</u>	30s	15 [♂] (1)	---		Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.
Polycentropidae						
<u>Plectrocnemia conspersa</u>	26s	13 [♂] (1, 11)	---		Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.
Rhyacophilidae						
<u>Rhyacophila nubila</u>	---	23 [♂] (1, 11)	---		Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.
Stenopsychidae						
<u>Stenopsyche griseipennis</u>	26s 25 _m	13 [♂] (1, 11)	X-X _♂ X-0 _♀		Makino & Kichijo '34	J.F.S. Hokkaido I.U. Ser. VI, 3.
INTEGRIPALPIA						
Leptoceridae						
<u>Lentocerus aterrimus</u>	---	25 [♂] (1, 11)	---		Pchakadze '36	Arch. Russ. Anat. Hist. Embr. 9.
<u>L. excisus</u>	---	"	--	"	"	"
Limnophilidae						
<u>Anabolia sororcula</u>	---	30 [♂] (1)	---		Pchakadze '28, 30	Arch. Russ. Anat. Hist. Embr. 7, 9.

TRICHOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Chaetopteryx villosa</u>	60 _s	30 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<u>Glyphotaelius pellucidus</u>	---	30 [♂] (1,11)	---	"	"	
<u>Halesus tesselatus</u>	42 _s	21 [♂] (1,11)	---	"	"	
<u>Limnophilus affinis</u>	12 _s	6 [♂] (1)	---	"	"	
<u>L. centralis</u>	---	13 [♂] (1,11)	---	"	"	
<u>L. decipiens</u>	20 _s 19 _o , _{om} +	10 [♂] (1,11) 10 [♀] (1) 9,10 [♀] (11)	X-X [♂] ; X-0 [♀]	Klingstedt '28, '31	Mem. Soc. F. Fl. Fenn. 4; Act. Zool. Fenn. 10.	
<u>L. flavicornis</u>	---	30 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<u>Limnophilus lunatus</u>	26 _s 25 _o	13 [♂] (1,11)	X-X [♂] , X-0 [♀]	Klingstedt '28	Mem. Soc. F. Fl. Fenn. 4.	
<u>L. nigriceps</u>	32 _s	16 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<u>L. politus</u>	---	30 [♂] (1,11)	---	"	"	
<u>L. rhombicus</u>	---	"	---	Pchakadze '28, '30	Arch. Russ. Anat. Hist. Embr. 7, 9.	
<u>L. stigma</u>	60 _s	"	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<u>Platyphylax designatus</u>	55-60 _o	30 [♂] (1,11)	---	Lutman '10	B.B. 19.	
<u>Stenophylax infumatus</u>	---	"	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<u>S. stellatus</u>	---	29 [♂] (1,11)	---	"	"	
"	60 _s	30 [♀] (1)	---	Gresson '33, '35	Proc. Roy. Soc. Edinburgh 53; Q.J.M.S. 78.	
<i>Molannidae</i>						
<u>Molanna angustata</u>	---	27 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	
<i>Phryganidae</i>						
<u>Phryganea striata</u>	---	28 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.	

TRICHOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Sericostomidae					
<u>Geera pilosa</u>	---	22 [♂] (1,11)	---	Pchakadze '30	Arch. Russ. Anat. Hist. Embr. 9.

LEPIDOPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Arctiidae					
<u>Arctia caja</u>	---	31 [♂] (1,11)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	---	"	---	Beliajeff '30	Z.I.A.V. 54.
<u>A. hebe</u>	---	30-33 [♂] (1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<u>Chelonia caja</u>	---	24-28 [♂] (1)	---	Carnoy '25	L.C. 1.
<u>Hypocrita jacobaea</u>	---	31 [♂] (1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<u>Miltochrista zuiniata</u>	---	"	---	Beliajeff '30	Z.I.A.V. 54.
Phragmatobia fuliginosa					
(I. Rasse	(56s	28 [♂] (1,11)	Z-W ₁ W ₂ ♀)		
((57,58o	28 [♂] (1))		
(28 [♀] ,29 [♀] (11))		
()		
{ II. Rasse	(56s	28 [♂] (1,11))	Seiler '25a,b	A.Zf. 13; Arch. Klaustiftung Vererbungsforsch.
{	(56o	28 [♀] (1,11))		l.
{ III. Rasse	(58s	29 [♂] (1,11))		
{	(58o	29 [♀] (1,11))		
II. Rasse x III. Rasse	---	28(?)	---	Seiler '25	Arch. Klaustiftung Vererbungsforsch. l.
<u>Spilosoma lubricipeda</u>	---	31 [♂] (11)	---	Beliajeff '30	Z.I.A.V. 54.
<u>S. mendica</u>	---	31 [♂] (1,11)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.

LEPIDOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>S. menthastris</u>	---	30♂(1)	---	Beliajeff '30	Z.I.A.V. 54.
Bombycidae					
<u>Bombyx mori</u>	---	12♀(1)	---	Henking '92	Z.W.Z. 54.
"	26-28s	28♂(1,11) 14♂(tid)	14 chroms. go to each pole in II-div.	Toyama '94, '94	Z.A. 17; Imp. Univ. Tokyo. Coll. Agr. Bull. II.
"	50-60s 50-60o	28♂(1,11)	---	Yatsu '11	Ann. Zool. Jap. 8.
"	28s	28♂(1,11) 14♂(tid)	14 chroms. go to each pole in II-div.	Katsuki '18	Bull. Imp. Seric. Exp. St. 1.
"	56s	"	---	Oguma '19	Z.M.(Jap.) 31.
"	---	28♂(1,11) 28♀(1,11)	---	Kawaguchi '28	Z.Z.M.A. 7.
"	60-79s 63-71o	+28o(1,11)	Normal (P') X plain(P).	Sato '29	Oyo Dobutsugaku-Z. 1.
"	---	35-42♂(1)	High tem- perature treatment; 4n.	Hashimoto '33	Bull. Imp. Seric. Exp. St. 8.
"	---	4n	Gynandro- morph ♀ X normal ♂	Hashimoto '34	"
"	---	30-33) 31-33)♀(1) 28(?)♀(11)	Meiosis in unfer- tilized eggs.	Sato '34	Oyo Dobutsugaku-Z. 6.
"	43-62(56)s 37-49o 52om	28♂(1,11)	In indivs. developed from un- fert. eggs.	"	"

LEPIDOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Bombyx mori</u>		28-56-79m	28 ^o (1) 23-35 ^o (1) 34-46 ^o (11)	Artificial parth.	Kawaguchi '34	Sanshi-Z. 5.
"		28-56m	28 ^o (1)	Artif. parth. by iodine.	Frolova '35	Zeit. Biol. 1.
"		---	30-48 ^o (1)	Heteroploid.	Sato & Chino '34	Sanshi-Z. 7.
"		---	28 ^o (1,11)	---	Naville '37	L.C. 66.
"	56s	28 ^o (1,11)	Diploidy	Tanaka &		Jap. J.G. 7.
"	56o	28 ^o (1,11)	(2n)	Kawaguchi '81		
---	84s	30-49 ^o (1)	3n pro-	Kawaguchi '38	Cyt. 9.	
---	84o	37-50 ^o (1)	duced by			
		44-56 ^o (1)	centrifuge.			
		Ca 39 ^o (1)	gal force.			
---	---	49-56 ^o (1)	4n, as			
"	---	56o(1)	above.			
"	---	28+1 ^o (11)	Inter-	Morohoshi '38	Jap. J.G. 14.	
"	---	28+2 ^o (11)	racial			
"	---	28-42o(1)	hybrids.			
"	---	28-42o(1)	4n pro-	Hirobe '39	Jap. J.G. 15.	
"	28m	---	duced by col-			
"	---		chicine			
"	28m	---	Artif. parth.	Frolova '40	C.R.A.S. URSS.	
"	---		by high tempera-		27.	
"	---	28 ^o (1)	Transl. between	Kawaguchi &	Seibutu 1.	
			II-and	Suzuki '46		
		27 ^o (nurse cell)	W-chroms.			
"	---	28 ^o (1)	non-dis-	Tsujita '49	Abstr. Sci. Res.	
			junction		2.	
<u>B. mori x B. mandarina</u>	---	27 ^o (1)	Occasion-	Kawaguchi '28	Z.Z.M.A. 7.	
		27-28 ^o (11)	ally			
			26-28(1)			

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Bombyx (Theophila) mandarina</u>	---	27 [♂] (1,11)	---		Yatsu '13	Ann. Zool. Jap. 8.
"	---	27 [♂] (1,11) 27 [♀] (1)	---		Kawaguchi '28	Z.Z.M.A. 7.
<u>Poecilocampa populi</u>	---	36 [♂] (11) 72,67 [♂] (11)	4n due to Binucle- (4n)	ate cells.	Federley '45	Soc. Sci. Fenn. Comm. Biol. 9.
Cymatophoridae						
<u>Thyatira batis</u>	---	31 [♂] (1,11)	---		Beliajeff '30	Z.I.A.V. 54.
Drepanidae						
<u>Drepana curvatula</u>	---	31 [♂] (1)	---		Federley '49	Hered. 35.
<u>D. falcataria</u>	---	"	---		"	"
<u>D. cur. X D. fall.</u>	---	31, 37, 46, 53, etc. δ(1)	---		"	"
<u>D. fal. X D. cur.</u>	---	32, 36, 48, 50, 52, 55, etc. δ(1)	Inter- sex occurs		"	"
<u>F₂ of (fal. X cur.)</u>	---	54, 56, 57, 59, 60, δ (1)	---		"	"
Gelechiidae						
<u>Tachypitilla populella</u>	---	29 [♂] (1)	---		Beliajeff '30	Z.I.A.V. 54.
Geometridae						
<u>Abraxas grossulariata</u>) 56s	28 [♂] (1,11)	X-X [♂] ,		Doncaster '10,	Proc. Camb. Phil.
<u>A. laticolor</u>) 56o) (56o)	28 [♀] (1,11) (27, 28 [♀] , 11)	X-O [♀]		'11, '12, '13, '14	Soc. 16; J.G. 1, 2, 3, 4,
<u>Biston hirtaria</u>	28s 28o	14 [♂] (1)	---		Harrison & Doncaster '14	J.G. 3.
<u>B. pomonaria</u>	---	51 [♂] (1)	---		Malan '18	Inaug. Diss. Zurich.
<u>B. monaria</u>	---	56 [♂] (1)	---		Harrison & Doncaster '14	J.G. 3.

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>B. num.</u> ♀ X <u>B. hist.</u> ♂	---	45-55	♂(1)	---	Malan '18	Mitt. Entomol. Zurich, 4.
<u>B. son.</u> ♀ X <u>B. hist.</u> ♂	---	55-65	♂(1)	---	Harrison & Doncaster '14	J.G. 3.
<u>Boarmia consonaria</u>	---	31	♂(1,11)	---	Beliajeff '30	Z.I.A.V. 54.
<u>B. punctularia</u>	---	32	♂(1,11)	---	"	"
<u>Geometridae</u> sp.?	---	32	♂(1,11)	---	"	"
<u>Hydrochroa syringaria</u>	---	29(?)	♂(1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.
"	---	20	♂(1,11)	---	Harrison '33	J.G. 27.
<u>Larentia autumnalis</u>	---	30	♂(1,11)	---	Beliajeff '30	Z.I.A.V. 54.
<u>L. autumnata</u>	---	38	♂(1,11)	---	Harrison '20	J.G. 9.
<u>L. dilutata</u>	---	30	♂(1,11)	---	"	"
<u>L. filigrammaria</u>	---	37	♂(1,11)	---	"	"
<u>L. filig.</u> ♀ X <u>L. autumnata</u> ♂	---	38(37 11+	11) ♂	Number varies 39-40.	"	"
<u>L. dilutata</u> ♀ X <u>L. autum.</u> ♂	68 ♀	68	♂(1,11)	Reduct- ion div. lacking.	"	"
<u>Metrocampa</u> <u>mercurialis</u>	---	31	♂(1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.
<u>Nyssia zonaria</u>	Call 2s	56	♂(1,11)	---	Doncaster '14	J.G. 4.
"		50-60	♀(1)			
<u>Phialia nedaria</u>	---	112	♂(1)	---	Regnart '30	Proc. Univ. Durham Phil. Soc. 9.
<u>Ourapteryx sambucaria</u>	---	31	♂(1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<u>Selenia bilunaria</u>	---	30	♂(1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Selenia bilunaria</u>	---	30 δ (1)	---	Harrison '33	J.G. 27.	
<u>S. lunaria</u>	---	31 δ (1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.	
"	---	31 δ (1)	---	Harrison '33	J.G. 27.	
<u>S. tetralunaria</u>	---	29 δ (1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.	
<u>Zonosoma pendularia</u>	---	31 δ (1,11)	---	Beliajeff '30	Z.I.A.V. 54.	
<u>Zonosoma</u> sp.?	---	"	---	"	"	
Gracilariidæ						
<u>Gracilaria elongella</u>	---	29 δ (1)	---	"	Z.I.A.V. 54.	
Hesperiidae						
<u>Adopaea lineola</u>	---	29 δ (1) 29 φ (1)	---	Federley '38	Hered. 24.	
<u>Auciades sylvanus</u>	---	29 δ (1,11) 29 φ (1) 28,29 φ (11)	---	Federley '38	Hered. 24.	
"	---	29 δ (1)	---	Lorković '41	Chrom. 2.	
<u>Carcharodus</u> <u>alceae</u>	---	31 δ (1,11)	---	"	"	
<u>Hesperia alveus</u>	---	24 δ (1) 24 φ (1)	---	Federley '38	Hered. 24.	
"	---	24 φ (1,11)	---	Lorković '41	Chrom. 2.	
<u>H. malvae</u>	---	31 φ (1)	---	Federley '38	Hered. 24.	
<u>H. onopordi</u>	---	30 δ (1,11)	---	Lorković '41	Chrom. 2.	
<u>H. orbifer</u>	---	30 δ (11)	---	"	"	
<u>H. sao</u>	---	31 δ (11)	---	"	"	
<u>H. serratulae</u>	---	30 δ (1)	---	"	"	
<u>Thanaos tages</u>	---	31 δ (1,11)	---	"	"	

LEPIDOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Hyponomeutidae					
<u>Hypoomeuta evonymella</u>	—	31 \hat{o} (1)	---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.
Japonomeutidae					
<u>Japonomeuta evonymella</u>	—	31 \hat{o} (1,11)	---	Beliajeff '30	Z.I.A.V. 54.
Lasiocampidae					
<u>Cosmotriche potatoria</u>	—	31 \hat{o} (1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	—	31 \hat{o} (1,11)	—	Beliajeff '30	Z.I.A.V. 54.
<u>Dendrolimus jessoensis</u>	60s	30 \hat{o} (1,11)	—	Makino '33	P.I.A. (Tokyo)9.
<u>D. pini</u>	—	30 \hat{o} (1,11)	—	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<u>D. spectabilis</u>	60s	"	—	Makino '33	P.I.A. (Tokyo)9.
<u>Maracosoma castrense</u>	—	31 \hat{o} (1)	—	Kernewitz '14 '15	Z.A. 45; Arch. Naturges. 81.
<u>M. neustria</u>	—	"	—	Beliajeff '30	Z.I.A.V. 54.
<u>Trichiura Crataegi</u>	—	28 \hat{o} (1,11)	Occasion- ally 29, due to non-dis- junction.	Federley '45	Soc. Sci. Fenn. Comm. Biol. 9.
Libytheidae					
<u>Libythea celtis</u>	—	31 \hat{o} (1,11)	—	Lorković '41	Chrom. 2.
Lycaenidae					
<u>Callophrys rubi</u>	—	23 \hat{o} (1)	—	Federley '38	Hered. 24.
<u>Celastrina argiolus</u>	—	25 \hat{o} (1,11)	—	Lorković '41	Chrom. 2.
<u>Chrysophanus hippothoe</u>	—	24 \hat{o} (1)	—	Federley '38	Hered. 24.

LEPIDOPTERA (Continued)

Species		Chromosome Number			
	2n	n	Remarks	Observer	References
<u>C. phlaeas</u>	—	24♂(1,11) 24♀(1)	—	Federley '38	Hered. 24.
<u>C. virgaureae</u>	—	24♂(1,11) 24♀(1)	—	"	"
<u>Cupido alcetas</u>	—	26♂(1,11)	—	Lorković '41	Chrom. 2.
<u>C. arsiades</u>	—	24♂(1,11)	—	"	"
<u>C. decolorata</u>	—	25♂(1,11)	—	"	"
<u>C. minimus</u>	—	24♂(1,11)	—	"	"
<u>C. sebrus</u>	—	24♂(1)	—	"	"
<u>Cyaniris argiolus</u>	—	25♀(1)	—	Federley '38	Hered. 24.
<u>Glauconyche arion</u>	—	23♂(1)	—	Lorković '41	Chrom. 2.
<u>G. cyllarus</u>	—	23♂(1)	—	"	"
<u>Lamprodes boeticus</u>	—	24♀(1)	—	Federley '42	Hered. 28.
<u>Lycaena agyrognomon</u>	—	24♂(1,11) 24♀(1)	—	Federley '38	Hered. 24.
<u>L. amandus</u>	—	23♂(1) 23♀(1)	—	"	"
<u>L. argus</u>	—	"	—	"	"
<u>L. arion</u>	—	23♀(1)	—	"	"
<u>L. astrarche</u>	—	23♂(1,11) 24♀(1)	—	"	"
<u>L. eumedon</u>	—	24♀(1)	—	"	"
<u>L. dorilis</u>	—	24♂(1,11)	—	Lorković '41	Chrom. 2.
<u>Lycaena icarus</u>	—	23♂(1) 22-23♀(1)	—	Federley '38	Hered. 24.
<u>L. optilete</u>	—	24♂(1) 24♀(1)	—	"	"

LEPIDOPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>L. phlaeas</u>	---	24δ(1,11)	---		Lorković '41	Chrom. 2.
<u>L. semiargus</u>	---	24δ(1)	---		Federley '38	Hered. 24.
<u>Lycaeides idas</u>	19-24s	9-13δ(1)	Number variable		Valle '48	Experientia 4.
<u>Philotes vicrama</u>	---	24δ(1)	---		Lorković '41	Chrom. 2.
<u>Polyommatus amandus</u>	---	24δ(1,11)	---		"	"
<u>P. argyrogynomon euergetes</u>	---	"	---		"	"
<u>P. arcus</u>	---	23δ(1,11)	---		"	"
<u>P. bellarmus</u>	---	45δ(1,11)	---		"	"
<u>P. coridon</u>	---	90δ(1,11)	---		"	"
<u>P. eros</u>	---	23δ(1,11)	---		"	"
<u>P. eumedon</u>	---	24δ(1,11)	---		"	"
<u>P. hylas</u>	---	"	---		"	"
<u>P. icarus</u>	---	23δ(1,11)	---		"	"
<u>P. idas armoricana</u>	---	24δ(1,11)	---		"	"
<u>P. idas croatica</u>	---	24δ(1)	---		"	"
<u>P. medon</u>	---	24δ(1,11)	---		"	"
<u>P. meleager</u>	---	"	---		"	"
<u>P. semiargus</u>	---	"	---		"	"
<u>P. thersites</u>	---	"	---		"	"
<u>Scolitantides orion</u>	---	23δ(1,11)	---		"	"
<u>Syntarucus telicanus</u>	---	24δ(1)	---		"	"
<u>Thecla pruni</u>	---	23δ(1)	---		Beliajeff '30	Z.I.A.V. 54.

LEPIDOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Zephyrus betulae</u>	—	16(?)♀(1)	—	Federley '38	Hered. 24.
Lymantriidae					
<u>Dasychira pudibunda</u>	—	87 ^Δ (1,11)	—	Beliajeff '30	Z.I.A.V. 54.
<u>D. selenitica</u>	—	22 ^Δ (1) 44 ^Δ (1) (4n)	4n due to bi- nucle- ate cells?	Federley '45	Soc. Sci. Fenn. Comm. Biol. 9.
<u>Lymantria dispar</u>	62s 62o	31 ^Δ (1,11) 31 ^Δ (1)	---	Seiler '14	A.Zf. 13.
"	---	31 ^Δ (1,11)	Size of chroms. differs by geo- graphi- cal races.	Goldschmidt '17,'20,'32	J.E.Z. 22; Z.I.A. V. 23; Roux. 126.
"	62s	"	Size of chroms. similar in dif- ferent races.	Yoshida & Makino '45	Cyt. 14.
<u>L. japonica</u>	62s 62o	31 ^Δ (1,11) 31 ^Δ (1)	Seiler '14		A.Zf. 13.
<u>L. monacha</u>	"	"	---	Seiler & Haniel '21	Z.I.A.V. 27.
<u>Orgyia antiqua</u>	—	14 ^Δ (1,11)	---	Seiler '14	A.Zf. 13.
"	—	14 ^Δ (1,11)	---	Cretschmar '28	Z.Z.M.A. 7.
<u>O. ericae</u>	—	30 ^Δ (1,11)	---	Cretschmar '28	Z.Z.M.A. 7.
<u>O. gonostigma</u>	—	30 ^Δ (1,11)	---	Seiler '14	A.Zf. 13.
"	—	30 ^Δ (1,11)	---	Cretschmar '28	Z.Z.M.A. 7.

LEPIDOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<i>O. leucostigma</i>	---	28 δ (1,11)	---		Cretschmar '28	Z.Z.M.A. 7.
<i>O. thyellina</i>	22s	11 δ (1,11)	---		"	"
<i>O. antica</i> ♀	25s	15 δ (1,11)	Varia-		"	"
<i>O. thyellina</i> ♂			tion of chrom. number occurs in I- & II-div.			
<i>Porthesia similis</i>	---	23 δ (1,11)	---		Beliajeff '30	Z.I.A.V. 54.
 Noctuidae						
<i>Acronycta psi</i> .	---	31 δ (1)	---		Beliajeff '30	Z.I.A.V. 54.
"	---	"	---		Regnart '30	Proc. Univ. Dur- ham. Phil. Soc. 9.
<i>Aerotis triangulum</i>	---	29 δ (1,11)	---		Kernowitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<i>Euplexia lucipara</i>	---	31 δ (11)	---		Beliajeff '30	Z.I.A.V. 54.
<i>Halias prasinana</i>	---	32 δ (1)	---		"	"
<i>Hypena proboscidalis</i>	---	31 δ (1)	---		"	"
<i>Leucania impura</i>	---	31 δ (1,11)	---		Kernowitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<i>Mamestra perciseariae</i>	---	31 δ (1)	---		Beliajeff '30	Z.I.A.V. 54.
<i>Ochriss ochracea</i>	---	31 δ (1)	---		Regnart '30	Proc. Univ. Dur- ham. Phil. Soc. 9.
<i>Orthosia circellaris</i>	---	30 δ (1,11)	---		Beliajeff '30	Z.I.A.V. 54.
<i>Xylina ingrica</i>	---	31 δ (1,11)	---		"	"
<i>Zale</i> sp.	---	31 δ (1)	---		Smith '44	Sci.Agric. 24.

LEPIDOPTERA (Continued)

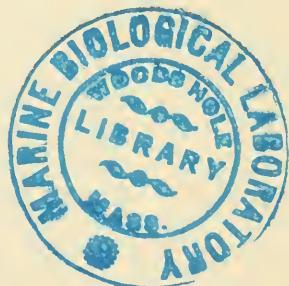
Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Notodontidae						
<u>Cerura bifida</u>	---	49♂(1,11)	---	Federley '28	Z.I.A.V. Sup. 1.	
<u>C. furcula</u>	---	29♂(1,11)	---	"	"	
<u>Dicranura erminea</u>	56s	28♂(1,11)	---	Federley '15, '43	Ofr. Finsk. Vetensk. Soc. Förhand 56; Hered. 29.	
<u>D. vinula</u>	---	21♂(1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.	
"	---	21♂(1,11)	---	Federley '15	Ofr. Finsk. Vetensk. Soc. Förhand 56.	
<u>D. vinula germanica</u>	---	21♂(1,11) 21♀(1)	Parth. race occurs.	Federley '43	Hered. 29.	
<u>D. vin. fennica</u>	42m	21♂(1,11) 21♀(1,11)	20, 22 ♂ (1) occur.	"	"	
<u>D. vin. albanica</u>	---	20♂(1,11) 20♀(1)	19, 21, 22 (1) occur.	"	"	
<u>D. vin. delavociei</u>	62m	31♀(1)	---	"	"	
<u>D. erminea x</u> <u>D. vinula</u>	---	27, 29-46, 49-52, 56- 59, 64♂(1) 33-40♂(11)	---	"	"	
<u>D. erm. x</u> <u>(erm. x vin.)</u>	---	32, 34-47 ♂(1) 37-46 ♂(1,11)	---	"	"	
<u>D. vin. delav. x</u> <u>D. vin. fen.</u>	52s	20-34♂(1) 21-26, 28 ♂(11) 19-24, 26 ♀(1)	21♂(1), 23♂(11) most common	"	"	
<u>D. vin. arctica</u> <u>x D. vin. germ.</u>	---	21♀(1)	n, 21 prob. in arctica	"	"	
<u>D. vin. fen. x</u> <u>D. vin. germ.</u>	40, 41, 42m	19, 20, 21, 22 ♂(1,11) 20♀(11)	n, 20, 21 common. 42♂(1,11) occur.	Federley '43, '45	Hered. 29; Soc. Sci. Fenn. Comm. Biol. 9.	

LEPIDOPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>D. vin. germ. x</u>	42m	21♂(1) 20, 21♀(11)		20♀(11) common	Federley '43	Hered. 29.
<u>D. vin. fen.</u>					"	"
<u>D. vin. alb. x</u>	40m	19♂(1,11)		---	"	"
<u>D. vin. germ.</u>						
<u>Lophopteryx camelina</u>	---	31♂(1)		---	Beliajeff '30	Z.I.A.V. 54.
<u>Odontosia camelina</u>	---	"		---	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.
<u>Phalera bucephala</u>	---	30♂(1) 12-14♂(11)		---	Platner '86	Inter. Monat. Anat. Phis. 3.
"	Ca 60	---		---	Kernewitz '15	Arch. Naturges. 81.
"	---	31♂(1)		---	Rengart '30	Proc. Univ. Durham. Phil. Soc. 9.
<u>Pygaera anachoreta</u>	---	30(31)♂(1) 30♂(11)		---	Federley '13	Z.I.A.V. 9.
<u>P. curtula</u>	48m	29♂(1,11) 29♀(1)		---	Federley '13, '30	Z.I.A.V. 9; Z.Z.M.A. 12.
<u>P. nigra</u>	46s, m	23♂(1,11) 23♀(1)		---	"	"
"	42, 46s	23♂(1,11) 46♂(1,11) 47♂(11)	Number varies from 22 to 39 in (1), due to non-disjunction.	Federley '42	Act. Zool. Fenn. 35.	
<u>P. nigra x</u> <u>P. curtula</u>	58m	38-52 ♂ (1,11) 26-30 ♀ (1)	F ₁ = picu '45	Federley '30, '45	Z.Z.M.A. 12; Arch. Jul. Klaus-Stif. Vererb. 20.	
<u>P. curtula x</u> <u>P. nigra</u>	---	44-52 ♂ (1,11) 29♀(1,11)	F ₁ = cupi	Federley '30	Z.Z.M.A. 12.	
<u>P. nigra x</u> <u>picu</u>	64-65(69?)m	45-57♂(1) 45-52♂(11) 39-47♀(1)	---	"	"	"
<u>P. curtula x picu</u>	---	45-52(47-48) ♂(1) 44-49♀(1)	---	"	"	"

LEPIDOPTERA (Continued.)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u><i>Pyraera curtula</i> x <i>cupi</i></u>	---	43-51(46-47) ♂(1)	—	—	Federley '30	Z.Z.M.A. 12.
<u><i>cupi</i> x <i>P. curtula</i></u>	55m	41-43♂(1) 32-47(40) ♂(11) 27-30(29) ♀(1)	—	—	"	"
<u><i>cupi</i> x <i>P. pigra</i></u>	47-51(52)m	29-35♂(1) 29-34♂(11)	—	—	"	"
<u><i>P. pigra</i> ♀ x (<i>P. pigra</i> x <i>picu</i>) ♂</u>	---	50-73(52) ♂(1)	—	—	"	"
<u>(<i>cupi</i> x <i>P. pigra</i>) ♀ x <i>P. pigra</i> ♂</u>	—	23-26(26) ♂(1,11)	—	—	"	"
<u>[<i>cupi</i> x <i>P. pigra</i>] ♀ x <i>P. pigra</i> ♂]</u>	—	23♂(1)	—	—	"	"
<u>(<i>picu</i> x <i>P. pigra</i>) ♀ x <i>P. pigra</i> ♂</u>	—	24-28♂(1)	—	—	"	"
<u><i>cupi</i> ♀ x <i>cupi</i> ♂</u>	77-81(81)m	—	—	—	"	"
<u><i>picu</i> ♀ x <i>cupi</i> ♂</u>	29m	—	—	—	"	"
<u>(<i>curtula</i> x <i>picu</i>) ♀ x <i>cupi</i> ♂</u>	—	48-53♂(1)	—	—	"	"
<u><i>picu</i> x <i>P. curtula</i></u>	—	24-44♂(1)	—	—	Federley '45	Arch. Jul. Klaus- Stif. Vererb. 20.
<u><i>P. curtula</i> x <i>picu</i></u>	—	41-52♂(1) 29,57,59 ♀(1)	—	—	"	"
<u><i>picu</i> x <i>P. curtula</i>²</u>	—	29-37♂(1) 43-49♀(1)	—	—	"	"
<u><i>P. curtula</i> x (<i>picu</i> x <i>P. curt.</i>)</u>	—	40-53♂(1) 48-49♀(1)	—	—	"	"
<u><i>P. curtula</i> ♀ x <i>P.</i> <i>anachoreta</i> ♂</u>	59(?)m	56-59(59) ♀(1,11)	—	—	Federley '13	Z.I.A.V. 9.
<u>(<i>curtula</i> x <i>anach.</i>) ♂ x <i>anachoreta</i> ♀</u>	89(?)m	50-54♂(1) 3n hybrid	—	—	"	"



LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Nymphalidae						
<u><i>Argynnis adippe</i></u>	---	29♂(1,11) 29♀(1)	---	Federley '38	Hered. 24.	
"	---	29♂(1,11)	---	Lorkovic '41	Chrom. 2.	
<u><i>A. aglaja</i></u>	---	29♂(1,11) 29♀(1)	---	Federley '38	Hered. 24.	
<u><i>A. aphirape ossianus</i></u>	---	28♀(1)	---	"	"	
<u><i>A. emphrosyne</i></u>	---	31♂(1,11) 31♀(1)	---	"	"	
"	---	31♂(1,11)	---	Lorkovic '41	Chrom. 2.	
<u><i>A. freija</i></u>	---	31♂(1) 31♀(11)	---	Federley '38	Hered. 24.	
<u><i>A. frigga</i></u>	---	31♀(1)	---	"	"	
<u><i>A. ino</i></u>	---	12-13♂(1,11) 13-14♀(1)	---	"	"	
<u><i>A. lathonia</i></u>	---	30♂(1,11) 30♀(1)	---	"	"	
<u><i>A. niobe</i></u>	---	29♂(1,11) 28-29♀(1)	---	"	"	
<u><i>A. pales arsilache</i></u>	---	30♂(11) 29-30♀(1)	---	"	"	
<u><i>A. paphia</i></u>	---	29♂(1,11) 28♀(1)	---	"	"	
<u><i>A. selene</i></u>	---	30♂(1,11) 30♀(1)	---	"	"	
<u><i>A. thore scandinavica</i></u>	---	30♀(1)	---	"	"	
<u><i>Araschnia levana</i></u>	---	31♂(1,11)	---	Lorkovic '41	Chrom. 2.	
<u><i>Limenitis camilla</i></u>	---	30♂(1,11)	---	Beliajeff '30	Z.I.A.V. 54.	
<u><i>L. populi</i></u>	---	30♂(1) 30♀(1)	---	Federley '38	Hered. 24.	

LEPIDOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Melitaea athalia</u>	---	31δ(1,11) 31♀(1)	---		Federley '38	Hered. 24.
<u>M. aurinia</u>	---	30δ(1,11)	---		Lorkovic '41	Chrom. 2.
<u>M. cinxia</u>	---	31♀(1)	---		Federley '38	Hered. 24.
<u>M. iduna</u>	---	"	---		"	"
<u>M. maturna</u>	---	31δ(1,11)	---		Beliajeff '30	Z.I.A.V. 54.
"	---	31♀(1)	---		Federley '38	Hered. 24.
<u>Neptis aceris</u>	---	30δ(1,11)	---		Lorković '41	Chrom. 2.
<u>Polygonia c-album</u>	---	31δ(11)	---		Kernowitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	---	31δ(1,11)	---		Beliajeff '30	Z.I.A.V. 54.
"	---	31δ(1,11) 31♀(1)	---		Federley '38	Hered. 24.
<u>Pyrameis atalanta</u>	---	31δ(1,11) 31♀(1)	---		Federley '38, '42	Hered. 24, 28.
<u>P. cardui</u>	---	31δ(1,11)	---		Lorković '41	Chrom. 2.
<u>Vanessa antiopa</u>	---	30δ(1)	---		Stevens '06	Publ. Carnegie Inst. Washington 36.
"	---	31δ(1,11) 31♀(1)	---		Federley '38	Hered. 24.
<u>V. polychloros</u>	---	31δ(1,11)	---		Lorković '41	Chrom. 2.
<u>V. ulticae</u>	---	31δ(1,11)	---		Beliajeff '30	Z.I.A.V. 54.
"	---	"	---		Federley '38	Hered. 24.
<u>V. xanthomelas</u>	---	"	---		Lorković '41	Chrom. 2.
Oecophoridae						
<u>Depressaria nervosa</u>	---	30δ(1)	---		Regnart '30	Proc. Univ. Dur- ham. Phil. Soc. 9.

LEPIDOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
Papilionidae						
<u>Ophisthograptis luteolata</u>	—	31δ(1)	—	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.	
<u>Papilio machaon</u>	---	"	—	"	"	
"	---	30-33δ(1,11)	—	Federley '38	Hered. 24.	
"	---	30δ(1,11)	—	Lorkovic '41	Chrom. 2.	
<u>P. alexenor</u>	---	"	—	"	"	
<u>P. feisthameli</u>	---	"	—	"	"	
<u>P. podalirius</u>	54-58s	—	—	Kernewitz '15	Arch. Naturges. 81.	
"	---	30δ(1)	—	Regnart '30	Proc. Univ. Durham. Phil. Soc. 9.	
"	---	30δ(1,11)	—	Lorkovic '41	Chrom. 2.	
<u>P. rutulus</u>	28s	28δ(1,11)	14(tid)	Munson '07	Proc. Boston Soc. Nat. Hist. 33.	
<u>Parnassius apollo</u>	---	30δ(1,11) 30φ(1)	—	Federley '38	Hered. 24.	
"	---	30δ(1,11)	—	Lorkovic '41	Chrom. 2.	
<u>P. mnemosyne</u>	---	29φ(1)	—	Federley '38	Hered. 24.	
<u>Zerynthia polyxena</u>	---	31δ(1,11)	—	Lorkovic '41	Chrom. 2.	
Pieridae						
<u>Aporia crataegi</u>	---	25δ(11)	—	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.	
"	---	"	—	Beliajeff '30	Z.I.A.V. 54.	
"	---	25-26δ(1) 25δ(11) 25-26φ(1)	—	Federley '38	Hered. 24.	
"	---	26δ(1,11)	—	Lorkovic '41	Chrom. 2.	

LEPIDOPTERA (Continued)

Species		Chromosome Number	Remarks	Observer	References
	2n	n			
<u>Colias croceus</u>	---	31δ(1,11)	---	Lorković '41	Chrom. 2.
<u>C. edusa</u>	---	31φ(1)	---	Federley '42	Hered. 28.
<u>C. palaeno</u>	---	31-32δ(1,11) 31φ(1)	A large element occurs in φ(1).	Federley '38, '42	Hered. 24, 28.
<u>C. hecla sulitelma</u>	---	31φ(1)	---	"	"
<u>C. hyale</u>	---	31δ(1) 31,32φ(1)	4 elements fused in φ(1).	Federley '42	Hered. 28.
"	---	31δ(1,11)	---	Lorković '41	Chrom. 2.
<u>C. nastes B.v. Werdandi</u>	---	31φ(1)	---	Federley '42	Hered. 28.
<u>Euchloe cardamines</u>	---	31δ(1,11) 30-32φ(1)	---	Federley '38	Hered. 24.
"	---	31δ(1,11)	---	Lorković '41	Chrom. 2.
<u>E. crameri romana</u>	---	"	---	"	"
<u>E. crameri occidentalis</u>	---	"	---	"	"
<u>Gonepteryx rhamni</u>	---	31δ(1,11)	---	Beliajeff '30	Z.I.A.V. 54.
"	---	31-32δ(1,11) 31(?)φ(1)	---	Federley '38	Hered. 24.
"	---	31,32δ(1,11)	---	Lorković '41	Chrom. 2.
<u>Leptidia duponcheli</u>	---	104δ(1)	---	Lorković '41	Chrom. 2.
<u>L. morsei</u>	---	54δ(1)	---	"	"
<u>L. sinapis</u>	---	26-41δ(1)	---	"	"
"	---	26-27δ(1) 28δ(11) 30-31(?)φ(1)	---	Federley '38	Hered. 24.

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Pieris brassicae</u>	28s 28o	14-15♂(1) 14♀(1,11)		---	Henking '90, '91, '92	Monats. Anat. Phys. 7; Z.W.Z. 51, 54.
"	30s 30o	15♂(1,11) 15♀(1)		---	Doncaster '12	Proc. Camb. Phil. Soc. 16.
"	---	15♂(1,11)		---	Beliajeff '30	Z.I.A.V. 54.
"	---	15♂(1,11) 15♀(1)		---	Federley '38	Hered. 24.
"	---	15♂(1,11)		---	Lorković '41	Chrom. 2.
<u>P. brassicae azorensis</u>	---	15♀(1)		---	Federley '42	Hered. 28.
<u>P. daplidiceae</u>	---	26♂(1,11)		---	Lorković '41	Chrom. 2.
<u>P. ergane</u>	---	"	---		"	"
<u>P. manni</u>	---	25♂(1,11)		---	"	"
<u>P. napi</u>	50(?)s	25♂(1)		---	Henking '90	Z.W.Z. 49.
"	---	25♂(1,11) 23♀(1)		---	Federley '38	Hered. 24.
"	---	25♂(1,11)		---	Lorković '41	Chrom. 2.
<u>P. napi bryoniae</u>	---	"	---		"	"
<u>P. rapae</u>	---	25♂(1)		---	Beliajeff '30	Z.I.A.V. 54.
"	---	26♂(1,11) 26♀(1)		---	Federley '38	Hered. 24.
"	---	25♂(1,11)		---	Lorković '41	Chrom. 2.
Plutellidae						
<u>Cerostoma nemorellum</u>	---	34♂(1,11)		---	Beliajeff '30	Z.I.A.V. 54.
Psychidae						
<u>Fumea casta</u>	62s 61o	31♂(1,11) 30,31♀	X-X♂, X-O♀	Seiler '17 '21, '23	Z.I.A.V. 18; A.Zf. 16; Z.I.A.V. 31.	
Pyralidae						
<u>Chiro simplex</u>	58s	29♂(1,11)	---	Kurihara '29	Jour. Coll. Agri. Imp. Univ. Tokyo 10.	

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Epeorus kuehniella</u>	—	29 δ (1,11)	—	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.	
"	---	30 δ _f (1,11)	—	Fogg '30	J.M. 50.	
"	---	30 δ (1,11) 30 δ _f (1) 29,30 δ _f (11)	X-0 δ _f	Wagner '30	Z.Z.M.A. 12.	
<u>Galleria melonella</u>	Ca 60	30 δ (1)	—	Kernewitz '14	A.Zf. 12.	
<u>Sylepta ruralis</u>	---	31 δ (1)	—	Beliajeff '30	Z.I.A.V. 54.	
Saturnidae						
<u>Antherea pernyi</u>	---	33(34) δ (11)	—	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.	
"	---	49 δ (1,11)	—	Kawaguchi '33, '34	Z.M.(Jap.) 45; Jap. J.G. 10.	
"	---	49 δ (1)	—	Kadota '21	Z.M. (Jap.) 33.	
<u>A. yamamai</u>	---	31 δ (1,11)	—	Kawaguchi '33, '34	Z.M. (Jap.) 45; Jap. J.G. 10.	
<u>A. pernyi ♀ x A. yamamai</u>	---	68-69 δ (1,11) (60-63-80)	Sterile in F ₁ , due to irregular meiosis.	"	"	
<u>Automeris io</u>	—	31 δ (1,11)	—	Cook '10	Proc. Nat. Acad. Philadel. 62.	
<u>Callosamia promethea</u>	38s	19 δ (1,11)	—	"	"	
<u>Dictyoploca japonica</u>	---	31 δ (1,11)	—	Oba '42	Bot. & Zool. (Tokyo) 10.	
<u>Philosamia cynthia</u>	26s 26o, ♀m	13 δ (1,11) 13 δ _f (1,11)	Number varies 12-14(n). In cytes (n, 28) occur.	Dederer '07, '15, '28	B.B. 13; J.M. 26, 45.	
<u>P. cynthia walkeri</u>	26s	13 δ (1,11)	—	Kawaguchi '37	Cyt. Fujii-Jub. Vol.	

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>P. cynthia pryeri</u>	23s	14δ(1,11)	---		Kawaguchi '37	Cyt. Fujii-Jub. Vol.
<u>P. cynthia ricini</u>	---	14δ(1,11)	---		Koga '39	Bot. & Zool. (Tokyo) 7.
"	---	14δ(1)	---		Yamashita '39	Rep. Agr. Exp. St. Taiwan.
<u>P. cynthia</u>	---	13δ(1,11)	---		Dederer '40	J.M. 67.
<u>P. cynthia pryeri</u>	---	14δ(1,11)	4n cytes occur.		Oba '42	Bot. & Zool. (Tokyo) 10.
<u>P. cynthia walkeri</u> <u>x P.c. pryeri</u>	---	12δ(1) 12,13,14δ(11)	2 chrom. chains occur.		Kawaguchi '37	Cyt. Fujii-Jub. Vol.
<u>Samia cecropia</u>	---	30δ(1,11)	---		Cook '10	Proc. Nat. Acad. Philadel. 62.
<u>Saturnia pavonia</u>	---	29δ(1,11)	---		Kernowitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	---	29δ(1)	---		Pariser '27	Z.Z.M.A. 5.
<u>S. pyri</u>	---	30δ(1)	---		"	"
<u>S. pyri x S. pavonia</u>	---	45-51δ(1)	---		"	"
<u>(Saturnia pyri x S. pavonia) ♀ x S. pavonia ♂</u>	88(?)m	Ca 45δ(11)	3n hybrid, intersex.		"	"
<u>Telea polyphemus</u>	60s	30δ(1,11)	---		Cook '10	Proc. Nat. Acad. Philadel. 62.
Satyridae						
<u>Aphantopus hyperauthus</u>	---	29♀(1)	---		Federley '38	Hered. 24.
<u>Coenonympha arcana</u>	---	32δ(1,11)	---		Lorkovic '41	Chrom. 2.
<u>C. iphis</u>	---	29♀(1)	---		Federley '38	Hered. 24.
<u>C. pamphilus</u>	---	29♂(1) 28,29♀(1)	---		"	"
<u>C. tiphon</u>	---	29♀(1)	---		"	"
<u>C. tiphon occupata</u>	---	29δ(1,11)	---		Lorkovic '41	Chrom. 2.

LEPIDOPTERA (Continued)

Species		Chromosome Number				
	2n	n	Remarks	Observer		References
<u>Epinephele jurtina</u>	---	29♂(1) 29♀(1)	---	Federley '38	Hered.	24.
"	---	29♂(1,11)	---	Lorković '41	Chrom.	2.
<u>Erebia aethiops</u>	---	21♂(1)	---	"	"	"
<u>E. disa</u>	---	29♀(1)	---	Federley '38	Hered.	24.
<u>E. eniphron cassiope</u>	---	17♂(1)	---	Lorković '41	Chrom.	2.
<u>E. glacialis</u>	---	19♂(1)	---	"	"	"
<u>E. gorge</u>	---	21♂(1)	---	"	"	"
<u>E. lappona</u>	---	28♀(1)	---	Feierley '38	Hered.	24.
<u>E. ligea</u>	---	29♀(1)	---	"	"	"
<u>E. medusa polaris</u>	---	11♀(1)	---	"	"	"
<u>E. medusa</u>	---	11♂(1)	---	Lorković '41	Chrom.	2.
<u>E. melas</u>	---	21♂(1)	---	"	"	"
<u>E. nerine</u>	---	22♂(1)	---	"	"	"
<u>E. oëme</u>	---	14♂(1)	---	"	"	"
<u>E. ottomana</u>	---	40♂(1)	---	"	"	"
<u>E. pharte</u>	---	19♂(1)	---	"	"	"
<u>E. pronoë</u>	---	19♂(1)	---	"	"	"
<u>Melanargia galathea</u>	---	24♂(1)	---	"	"	"
<u>M. lachesis</u>	---	24♂(11)	---	"	"	"
<u>Oeneis jutta</u>	---	32♀(1)	---	Federley '38	Hered.	24.
<u>Pararge aegeria</u> <u>aegerides</u>	---	28♂(1) 28♀(1)	---	"	"	"
<u>P. hiera</u>	---	29♂(11) 29♀(1)	---	"	"	"
<u>P. maera</u>	---	28♂(1,11) 28♀(1,11)	---	"	"	"

LEPIDOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>P. maera adrasta</u>	—	28♂(1,11)	—		Lorković '41	Chrom. 2.
<u>P. maera pannonica</u>	—	"	—		"	"
<u>P. megaera</u>	—	29♂(1,11)	—		"	"
<u>P. megaera lyssa</u>	—	"	—		"	"
<u>Satyrus hermione</u>	—	"	—		"	"
<u>S. semele</u>	—	29♂(1,11) 29♀(1)	—		Federley '33	Hered. 24. "
<i>Sphingidae</i>						
<u>Chaerocampa elpenor</u>	—	29♂(1,11)	—		Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	—	29♂(1,11) 29♀(1)	—		Federley '16	Ofv. Finsk. Vetensk. Soc. Förhand 58.
<u>C. porcellus</u>	—	"	—		"	"
<u>Deilephila euphorbiae</u>	—	28-29♂(1)	—		Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
"	28s	28♂(1,11) 14♂(tid)	—		Buder '17	A.Zf. 14
<u>D. gallii</u>	—	28♂(1,11)	—		Federley '28	Z.I.A.V. Sup. 1.
<u>Dilina tiliiae</u>	—	29♂(1)	—		Federley '14	Ofv. Finsk. Vetensk. Soc. Förhand 56.
"	—	"	—		Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
<u>Smerinthus ocellata</u>	—	27♂(1,11)	—		Federley '14	Ofv. Finsk. Vetensk. Soc. Förhand 56.
"	—	28♂(1,11)	—		Kernewitz '15	Arch. Naturges. 81.
"	—	27♂(1,11)	—		Beliajeff '30	Z.I.A.V. 54.
<u>S. populi</u>	—	28♂(1,11)	—		Federley '14, '15	Ofv. Finsk. Vetensk. Soc. Förhand. 56, 57.

LEPIDOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>S. populi</u>	---	28♂(1,11)	---	Beliajeff '30	Z.I.A.V. 54.
<u>S. populi austauti ♀</u> <u>x S. populi populi ♂</u>	---	28-33♂(1) (29)	2-10 univalents	Federley '14, '15	Ofv. Finsk. Vetensk. Soc. Forhand 57.
<u>S. ocellata ocel. ♀</u> <u>x S. oc. planus ♂</u>	---	36-49♂(1)	---	Federley '13, '14	Ofv. Finsk. Vetensk. Soc. Forhand 56.
<u>S. populi ♀ x S. ocellata ♂</u>	---	50-52♂(1)	---	"	"
<u>S. ocellata ♀ x</u> <u>Dilina tiliæ ♂</u>	---	---	Pairing of chroms. lacking in F ₁ .	"	"
<u>Sphinx ligustris</u>	---	27-29♂(1)	---	Kernewitz '14, '15	Z.A. 45; Arch. Naturges. 81.
Talaeporiidae					
<u>Solenobia aloicolella</u>	60-62	---	2n race	Seiler '45	Arch. Jul. Klaus.- Stift. Vererb. 20.
	ca 93	31	3n, (trivalent) intersex		
<u>S. lichenella (?)</u>	---	120♀(11)	4n? (Parth.)	Nabel '48	Arch. Jul. Klaus.- Stift. Vererb. 23.
<u>S. pineti</u>	61, 62, 63s 61, 62, 63o	30, 31, 32♂(1) 30, 31, 32♀(1)	---	Seiler '22	A.Zf. 16.
<u>S. pieni</u>	120♀ (Parth.)	30♀(1) 60♀(11)	60 in anaphase, ♀(1).	Seiler '24	Z.I.A.V. 31.
<u>S. triquetrella</u>	62♂m 62♀m 124♀m	62♂(1) 31♀(1) 62♀(1)	2n; bi- sexual race 2n; parth. race 4n; parth. race	Seiler '27 a, b, '29, '38, '42, Seiler & Schaeffer '41.	Z.I.A.V. 31; B. Zbl. 47; Roux 119; R. Suisse Z. 45; Arch. Jul. Klaus.-Stift. Vererb. 17; R. Suisse Z. 48.
<u>Bisex. ♂ x Parth. ♀.</u>	90, 120, 240m	---	intersex.) From cor-) rection) of '41) & '42.)		

LEPIDOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Taleporia tubulosa</u>	60♂ 59♀ ^m	30♂(1,11) 30♀(1) 29,30♀(11)	X-X♂, X-0♀	Seiler '17, '21,'24	Z.I.A.V. 18; A. Zf. 16; Z.I.A.V. 31.
Tischeriidae					
<u>Tischeria angusticolella</u>	42s 42o	21♂(1,11) 21♀(1)	---	Knaben '34	Z.Z.M.A. 21.
Tortricidae					
<u>Cacoecia cerasivorana</u>	---	30♂(1,11)	---	Stevens '06	Publ. Carnegie Inst. Washington 36.
<u>Cacoecia cerasivorana</u> <u>(Archips cerasiv.)</u>	---	30♂(1)	---	Smith '44	Sci. Agric. 24.
<u>C. (A.) fumiferana</u>	---	"	---	"	"
<u>Homona menciana</u>	---	30♂(1,11) (27-29)	---	Shibata '30	Trans. Nat. Hist. Soc. Taiwan 20.

COLEOPTERA

Species	Chromosome Number		Remarks	Observer	References			
	2n	n						
ADEPHAGA								
Carabidae								
<u>Anomoglossus emarginatus</u>	---	19♂(1) 18,19♂(11)	X-0♂	Stevens '06	Carnegie Inst. Publ. 36.			
<u>Anthia sexzuttata</u>	35s	18♂(1) 17,18♂(11)	"	Asana, Makino & Niiyama '42	Cyt. 12.			
<u>Chalenius aestivus</u>	---	17♂(1)	X-Y♂	Stevens '06	Carnegie Inst. Publ. 36.			
<u>Ch. pennsylvanicus</u>	---	10♂(1)	"	"	"			
<u>Ch. pallipes</u>	37s	19♂(1) 18,19♂(11)	X-0♂	Yosida '51	La Kromosomo 9.			
<u>Feronia anthracina</u>	---	8♂(1)	---	Carnoy '85	L.C. 1.			
<u>F. nigerrima</u>	---	---	---	"	"			
<u>Galerita bicolor</u>	30s	---	X-Y♂	Stevens '06	Carnegie Inst. Publ. 36.			
<u>Harpalus griseus</u>	8s	---	---	Carnoy '85	L.C. 1.			

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Palatinus</u> sp.	37s	19♂(1) 18,19♂(11)	X-0♂	Yosida '51	La Kromosomo 9.
<u>Procrustes cariacens</u>	---	11,12♂(11)	X-Y♂	Carnoy '85	L.C. 1.
<u>Silpha perforata</u>	---	20♂(1)	X-0♂	Yosida '51	La Kromosomo 9.
<u>Steroporus madidae</u>	---	---	---	Carnoy '85	L.C. 1.
Cicindellidae					
<u>Cicindela</u> <u>ancocisconensis</u> }	22s	11♂(1)	X ₁ X ₂ -0♂	Goldsmith '19	J.M. 32.
<u>C. purpurea</u>)	24o	10,12♂(11)	X ₁ X ₂ -X ₁		
<u>C. reganda</u>)	24♀m		X ₂ ?		
<u>C. sexguttata</u>)					
<u>C. vurgaris</u>)					
<u>C. orimeriana</u>	20s	10♂(1,11)	X-Y♂	Stevens '06	Carnegie Inst. Publ. 36.
<u>C. vulgaris</u>	22s	---	X ₁ X ₂ -Y♂	Stevens '09	J.E.Z. 6.
Dytiscidae					
<u>Colymbetes fuscus</u>	35-37o	---	---	Gunthert '10	Z. Jb. 30.
<u>Cybister roeselii</u>	Ca 22s	11-15♂(1) 12♂(11)	6(tid)	Voinov '03	A.Z.E.G. 1.
<u>Dytiscus circumcinctus</u>	38s	19♂(1,11)	X-Y♂	Schäfer '07	Z. Jb. 23.
<u>D. marginalis</u>	Ca 40 (36-41)s	---	---	Henderson '07	Z.W.Z. 87.
"	38s	19♂(1,11)	2X♂(?)	Schäfer '07	Z. Jb. 23.
"	"	"	---	Debaissieux '09	L.C. 25.
<u>Dytiscus</u> sp.	Ca 40o, 20m	---	---	Giardina '01	Int. Monat. Anat. Phys. 18.
POLYPHAGA					
Bruchidae					
<u>Bruchus</u> <u>quadrimaculatus</u>	19s 19,20♂m 20♀m	10♂(1) 2,10♂(11)	X-0♂	Brauer '28	J.M. 46.

COLEOPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Zabrotes Subfasciatus</u>	26s	13,14 \hat{o} (1) 12,13,14 \hat{o} (11) 13,14 \hat{o} (11) 13 \hat{o} (11)		X-0 \hat{o} , X-X \hat{o} . 1 supernumerary occurs.	Minouchi '35	Z.Z.M.A. 23.
Buprestidae						
<u>Agrilus anxius</u>	22 s,o	11 \hat{o} (1,11)	X-Y \hat{o} , X-X \hat{q}		Smith '49	Evolution 3.
<u>Euchroma gigantea</u>	---	13 \hat{o} (1)	X-Y \hat{o}		Nichols '10	B.B. 19.
<u>Julodis whithilli</u>	24s	12 \hat{o} (1,11)	X-0 \hat{o} . X fused with 1 autosome.		Asana, Makino & Niiyama '42	Cyt. 12.
<u>Spruce-borer I</u>	---	10 \hat{o} (1,11)	X-Y \hat{o} . sp. name un- known.		Stevens '06	Carnegie Inst. Publ. 36.
<u>Spruce-borer II</u>	---	11 \hat{o} (1)	"	"	"	"
<u>Sternocera laevifata</u>	26s	13 \hat{o} (1,11)	X-0 \hat{o} . X fused with 1 autosome.		Asana, Makino & Niiyama '42	Cyt. 12.
<u>S. nitidicolis</u>	"	"	"	"	"	"
Cantharidae (-Lampyridae)						
<u>Ellychnia corrusca</u>	19s	---	X-0 \hat{o}		Stevens '06, '09	Carnegie. Inst. Publ. 36; J.E.Z. 6.
<u>Lampyrum splendidula</u>	---	6-8 \hat{q} (1,11)	---		Henking '92	Z.W.Z. 54.
<u>Photinus censanguineus</u>	19s, \hat{o} m 20 \hat{o} , \hat{q} m	10 \hat{o} (1,11)	X-0 \hat{o}		Stevens '09	J.E.Z. 6.
<u>P. pennsylvanicus</u>	19s, \hat{o} m 20 \hat{o}	"	"	"	"	"
Cerambycidae						
<u>Cylene robinia</u>	20s	10 \hat{o} (1)	X-Y \hat{o}		Stevens '09	J.E.Z. 6.
<u>Obera tripunctata</u>	---	---	X-Y \hat{o}		"	"
<u>Pterolophia caudata</u>	20s	10 \hat{o} (1,11)	X-Y \hat{o}		Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Tetraopes femoratus</u>	20s	10 \hat{o} (1,11)	X-Y \hat{o}	Snyder '34	Proc. Penn. Acad. Sci. 8.
<u>T. tetraphthalmus</u>	"	"	"	Stevens '09	J.E.Z. 6.
"	"	"	"	Snyder '34	Proc. Penn. Acad. Sci. 8.
Chrysomelidae					
<u>Adimonia tanaceti</u>	—	Ca 12 \hat{o} (1)	—	Henking '92	Z.W.Z. 54.
<u>Agelastica alni</u>	24-25s 24-30m	Ca 12 \hat{o} (1,11)	—	"	"
<u>A. caerulea</u>	24s	12 \hat{o} (1,11)	X-Y \hat{o}	Yosida '44	Jap. J.G. 20.
<u>Aragous orientalis</u>	—	25 \hat{o} (1,11)	"	Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Blepharida rhois</u>	—	16 \hat{o} (1,11)	X-Y \hat{o}	Stevens '06	Carnegie Inst. Publ. 36.
<u>Chelymorphus argus</u>	22s 22 \hat{o} m	11 \hat{o} (1,11)	X-Y \hat{o} X-X \hat{o}	"	"
<u>Chrysochus auratus</u>	—	13 \hat{o} (1)	X-Y \hat{o}	Stevens '09	J.E.Z. 6.
<u>Chrysomela similis</u>	—	12 \hat{o} (1) 11,12 \hat{o} (11)	X-O \hat{o}	"	"
<u>Ch. exanthematica</u>	23s	12 \hat{o} (1)	X-O \hat{o}	Yosida '44	Jap. J.G. 20.
<u>Coptocycla aurichalcea</u>	22s	11 \hat{o} (1,11)	X-Y \hat{o}	Nowlin '06	J.E.Z. 3.
<u>C. elevata</u>	18s	—	"	Stevens '09	J.E.Z. 6.
<u>C. guttata</u>	"	9 \hat{o} (1,11)	"	Nowlin '06	J.E.Z. 3.
<u>Crioceris asparagi</u>	—	8 \hat{o} (1,11)	—	Henking '92	Z.W.Z. 54.
<u>Dishotrica 12-punctata</u>	19s	(10 \hat{o} (1) (9,10 \hat{o} (11)	X-O \hat{o} . Number	Stevens '08	J.E.Z. 5.
<u>D. soror</u>) 20s 21s	(11, \hat{o} (1) (9,10,11 \hat{o} (11) (12 \hat{o} (1) (9-12 \hat{o} (11)	varies due to 1-4 supernumeraries.		
		13 \hat{o} (1) 9-13 \hat{o} (11) 9-14 \hat{o} (11)			

COLEOPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>D. vittata</u>		21s	11 \hat{o} (1) 10, 11 \hat{o} (11)	X-Y \hat{o}	Stevens '08	J.E.Z. 5.
"		21, 22m	---	---	Hoy '14	B.R. 27.
<u>Donacia sp. (Sericeal)</u>		---	15 \hat{o} (1)	—	Henking '92	Z.W.Z. 54.
<u>Doryphora clivicolis</u>		---	17 \hat{o} (1, 11)	X-Y \hat{o}	Stevens '09	J.E.Z. 6.
<u>D. decemlineata</u>		36s	18 \hat{o} (1, 11)	---	Stevens '06	Carnegie Inst. Publ. 36.
<u>Haltica chalybea</u>		22s	11 \hat{o} (1)	X-Y \hat{o}	Stevens '09	J.E.Z. 6.
<u>Lemis trilineata</u>		32s	16 \hat{o} (11)	X-Y \hat{o}	"	"
<u>Leptinotarsa</u> <u>siginaticolus</u>		34s	17 \hat{o} (1) 16, 17 \hat{o} (11)	2X-Y \hat{o} (?)	Wieman '10	J.M. 21.
<u>Lina laponica</u>		---	17 \hat{o} (1)	X-Y \hat{o}	Stevens '09	J.E.Z. 6.
<u>Limeroides praeustus</u>		32s	16 \hat{o} (1)	X-Y \hat{o} ;	Yosida '44,	Jap. J.G. 20;
		32o		Multiple- X	'49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Melasoma aenea</u>		---	17 \hat{o} (1, 11)	X-Y \hat{o}	Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>M. populi</u>		32s	16 \hat{o} (1, 11)	"	"	"
<u>Odontota dorsalis</u>		16s, 6m	8 \hat{o} (1, 11)	X-Y \hat{o} . Y=2 elements?	Stevens '06	Carnegie Inst. Publ. 36.
<u>Rhaphidopolpa</u> <u>femoralis</u>		---	29 \hat{o} (1, 11)	X-Y \hat{o}	Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Trirhabda canadense</u>		30s 30om	15 \hat{o} (1, 11)	X-Y \hat{o} X-X \hat{o}	Stevens '06	Carnegie Inst. Publ. 36.
<u>T. virgata</u>		28s, 6m 28om	14 \hat{o} (1, 11)	X-Y \hat{o} X-X \hat{o}	"	"
<i>Coccinellidae</i>						
<u>Adalia bipunctata</u>		20s	10 \hat{o} (1, 11)	X-Y \hat{o}	Stevens '06	Carnegie Inst. Publ. 36.
<u>Calvia 14-guttata</u>		20s	10 \hat{o} (1, 11)	X-Y \hat{o}	Yosida '44	Jap. J.G. 20.
<u>Coccinella bruckii</u>		---	10 \hat{o} (1, 11)	---	Toshoika & Yamamoto '37	Bot. & Zool. (Tokyo) 5.

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Coccinella bruckii</u>	18s	9 δ (1,11)	X-Y δ	Yosida '44	Jap. J.G. 20.
<u>C. crotchi</u>	20s	10 δ (1,11)	X-Y δ	Yosida '44	Jap. J.G. 20.
<u>Coelomphala inrequalis</u>	"	"	"	Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Coccinellidae</u>	20s	10 δ (1,11)	X-Y δ , name unknown.	Stevens '09	J.E.Z. 6.
<u>Epilachna borealis</u>	18s	9 δ (1,11)	X-Y δ	Stevens '06	Carnegie Inst. Publ. 36.
"	18m	---	"	Hoy '18	B.B. 35.
<u>E. chrysomelina x E. capensis</u>	18-	---	---	Strasburger '36	Z.I.A.V. 71.
<u>E. pustulosa</u>	20s	10 δ (1,11)	X-Y δ	Yosida '48	Matsumushi 2.
<u>E. vigintioctomaculata</u> =(<u>niponica</u>)	"	"	"	Yosida '44, '48	Jap. J.G. 20; Matsumushi 2.
<u>E. vigintioctomaculata</u>	---	9 δ (1)	---	Toshioka & Yamamoto '37	Bot. & Zool. (Tokyo) 5.
<u>E. vigintioctopunctata</u>	20s	10 δ (1,11)	X-Y δ	Yosida '48	Matsumushi 2.
<u>Harmonia axyridis</u>	16s	8 δ (1,11)	X-Y δ	Li '40	Peking Nat. Hist. Bull. 15.
"	"	"	"	Yosida '44	Jap. J.G. 20.
<u>Hippodamia tredecimpunctata</u>	20s,o, cm	10 δ (1,11)	"	Yosida '44, '49, '51	Jap. J.G. 20; Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Ithona mirabilis</u>	17s	9 δ (1)	---	Toshioka & Yamamoto '37	Bot. & Zool. (Tokyo) 5.
"	20o	---	---	Yosida '49, '51	Abstr. Sci. Res. 2; La Kromosomo 9.
<u>Propylaea japonica</u>	---	10 δ (1,11)	X-Y δ	"	"
<u>Synonycha grandis</u>	20s,o	"	X-Y δ ; 20 Univa- lents without synapsis occur in I-M.	Yosida '44, '46	Jap. J.G. 20; Seibutu 1.

COLEOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Cucujidae						
<u>Oryzaephilus surinamensis</u>	Cal 3-14s	7 \hat{o} (1,11)	---		McMullen '28	A.N. 62.
Curculionidae*						
<u>Acanthoscelides obtectus</u>	20 φ m	10 \hat{o} (1)	—		Bushnell '36	J.M. 60.
<u>Calandra oryzae</u>	120, φ m	—	—	Tiegs & Murray '38	Q.J.M.S. 80.	
<u>Episomus turritus</u>	—	9 \hat{o} (1)	—	Toshioka & Yamamoto '37	Bot. & Zool. 5.	
<u>Phytonomous punctata</u>	—	—	X-Y \hat{o}	Stevens '09	J.E.Z. 6.	
<u>Hylobius abietis</u>	—	11 \hat{o} (1)	X-O \hat{o} . 2n bi- sexual sp.	Suomalainen '40a,b.	Hered. 26; Ann. Acad. Sci. Fenn. Ser. A. 5.	
<u>Otiorrhynchus arcticus</u>	22s	11 \hat{o} (1,11) 11 \hat{o} (1) +	X-Y \hat{o} . 2n bi- sexual sp.	"	"	
<u>O. armadillo</u>	22s, o	11 \hat{o} (1,11) 11 \hat{o} (1)	X-Y \hat{o} , X-X φ . 2n bi- sexual sp.	Suomalainen '47, '49	Hered. 33; Ann. Ent. Fenn. 14.	
<u>O. austriacus</u>	22o	—	"	"	"	
<u>O. bisulcatus</u>	22s, o	11 \hat{o} (1,11) 11 \hat{o} (1)	"	"	"	
<u>Otiorrhynchus chrysops</u>	22o	—	"	"	"	
<u>O. equestris</u>	22s	11 \hat{o} (1,11)	"	"	"	
<u>O. fuscipes</u>	"	"	"	"	"	
<u>O. gemmatus</u>	22s, o	11 \hat{o} (1,11) 11 \hat{o} (1)	"	"	"	

*Parthenogenetic, polyplloid species of Curculionidae were arranged in the order of the chromosome number.

COLEOPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<i>O. geniculatus</i>	22s,o	11o [†] (1,11) 11o [†] (1)	X-Y [†] , X-X [†] . 2n bi- sexual sp.		Suomalainen '47, '49	Hered. 33; Ann. Ent. Fenn. 14.
<i>O. inflatus</i>	22s	11o [†] (1,11)	"	"	"	"
<i>O. morio</i>	22s,o	11o [†] (1,11) 11o [†] (1)	"	"	"	"
<i>O. niger</i>	"	"	"	"	"	"
<i>O. salicis</i>	"	"	"	"	"	"
<i>O. sensitivus</i>	"	"	"	"	"	"
<i>Polydrosus pilosus</i>	"	11o [†] (1,11)	"	Suomalainen '40a,b.	Hered. 26; Ann. Acad. Sci. Fenn. Ser. A, 5.	
<i>P. undatus</i>	--	11o [†] (1)	2n bi- sexual sp.	"	"	"
<i>Strophosmus capitatus</i> <i>(S. rufipes capitatus)</i>	21s 22o [†]	11o [†] (1) 10,11o [†] (11) 11o [†] (1,11)	X-Oo [†] . 2n bi- sexual sp.	"	"	"
<i>Polydrosus mollis</i>	22o	22o [†] (1)	2n parth. species. 1 meiotic div. and chroms. unreduced. in eggs.	Suomalainen '40a,b,'49.	Hered. 26; Ann. Acad. Sci. Fenn. Ser. A, 5; Ann. Ent. Fenn. 14.	
<i>Otiorrhynchus ovatus</i>	---	30-34o [†] (1)	3n parth. species. 1 meiotic div. and chroms. unreduced in eggs.	"	"	"
<i>O. ligustici</i>	--	31-35o [†] (1)	"	"	"	"
<i>O. gemmatus</i>	33o [†] m	33o [†] (1)	(Austrian Alps)	Suomalainen '45, '47, '49	Sitz. Finn. Akad. Wiss. 1944; Hered. 33; Ann. Ent. Fenn. 14.	

COLEOPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>O. niger</u>	33♀m	33♀(1)	"	(Austrian Alps)	Suomalainen '45, '47, '49	Sitz. Finn. Akad. Wiss. 1944; Hered. 33; Ann. Ent. Fenn. 14.
<u>O. salicis</u>	"	"	"	(")	"	"
<u>O. scaber</u>	"	"	"	(")	"	"
<u>O. singularis</u>	"	"	"	(Helsinki)	"	"
<u>O. sulcatus</u>	"	"	"	(")	"	"
"	"	"	"		Seiler '47	Chrom. 3.
<u>Scaphilus asperatus</u>	"	"	"		Suomalainen '40, '47, '49	Hered. 26, 33; Ann. Ent. Fenn. 14.
<u>Strophosoma</u> <u>melanogrammus</u>	"	"	"	"	"	"
<u>Trachypeltis</u> <u>bifoveolatus</u>	---	32-33♀(1)	"		Suomalainen '40a, b, '49	Hered. 26; Ann. Acad. Sci. Fenn. Ser. A, 5; Ann. Ent. Fenn. 14.
<u>Barynotus obscurus</u>	---	44♀(1)	4n parth. Species. 1 meiotic div. and chroms. unreduced in eggs.		"	"
<u>Otiorrhynchus dubius</u>	---	44♀(1)	"	"	"	"
<u>O. scaber</u>	44♀m	42-44♀(1)	"	"	"	"
<u>Otiorrhynchus</u> <u>pupillatus</u>	44♀m	---	"	(Austr. Alps)	Suomalainen '47, '49	Hered. 33; Ann. Ent. Fenn. 14.
<u>Barynotus moerens</u>	55♀m	---	5n parth. sp.	(")	"	"

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	♀n	n			
Elateridae					
<u>Elater</u> sp. (I)	19s 20o	10♂(1) X-0♂		Stevens '06	Carnegie Inst. Publ. 36.
<u>Elater</u> sp. (II)	19s	" "	"	"	"
<u>Linoneus griseus</u>	17s	9♂(1) 8,9♂(11)	"	"	"
Hydrophilidae					
<u>Hydrophilus piceus</u>	---	10-12♂(1) 5-6♂(11)	---	Carnoy '35	L.C. 1.
"	16s	14♂(1) 8♂(11)	---	Vom Rath '92	A.M.A. 40.
"	30s, 0m	15♂(1,11)	---	Arnold '08	A. Zf. 2. *
<u>Hydrous acuminatus</u>	30s	" X-Y♂		Asana, Makino & Niiyama '42	Cyt. 12.
Lucanidae					
<u>Pasilidoremus</u> <u>inclinatus</u>	19s	10♂(1) 9,10♂(11)	X-0♂	Toshioka & Yamamoto '37	Bot. & Zool. 5.
Melandryidae					
<u>Penthe obliquata</u>	16s	8♂(11)	X-Y♂	Stevens '09	J.E.Z. 6.
Meloidae					
<u>Epicauta cinerea</u>	20s	10♂(1,11)	X-Y♂	Stevens '09	J.E.Z. 6.
<u>Epicauta</u> <u>permisylvanica</u>	20s	10♂(1,11)	X-Y♂	Stevens '09	J.E.Z. 6.
<u>E. permogloanaica</u>	"	"	"	"	"
<u>Meloe</u> sp.	"	"	"	Asana, Makino & Niiyama '42	Cyt. 12.
<u>Mylabiris pustulata</u>	22s	11♂(1,11)	"	"	"
Micromalthidae					
<u>Micromalthus debilis</u>	10s 20o (Parth.)	10♂(1,11)	Mono- polar in ♂ I, dipolar in II.	Scott '36	J.M. 59.

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Passalidae					
<u>Passalus cornutus</u>	Ca 26s	13 \hat{o} (1)	X-Y \hat{o}	Shaffer '17	B.B. 32.
Scarabaeidae					
<u>Anomala rufocuprea</u>	18s	9 \hat{o} (1,11)	X-Y \hat{o}	Yosida '49	Trans. Sapporo Nat. Hist. Soc. 18.
<u>A. corpulenta</u>	"	"	"	"	"
<u>Cotalpa lanigera</u>	20s	10 \hat{o} (1,11)	"	Shaffer '20	B.B. 38.
<u>Euphoria inda</u>	"	"	"	Stevens '06	Carnegie Inst. Publ. 36.
<u>Glycyphana fulvistemma</u>	"	"	"	Yosida '49	Trans. Sapporo Nat. Hist. Soc. 18.
<u>Lachnosterna delata</u>	"	"	"	Shaffer '20	B.B. 38.
<u>L. fusca</u>	"	"	"	"	"
<u>L. gracilis</u>	"	"	"	"	"
<u>L. tristis</u>	"	"	"	"	"
<u>Oryctes nasicornis</u>	12s	6 \hat{o} (1,11)	"	Prowazek '02	Arb. Zool. Inst. Wien. 13.
<u>Pelidonata punctata</u>	20s	10 \hat{o} (1,11)	"	Shaffer '20	B.B. 38.
<u>Phanacis carnifex</u>	12s	6 \hat{o} (1)	---	Hayden '25	J.M. 40.
<u>P. igneus</u>	"	"	---	"	"
<u>Popillia japonica</u>	18s	9 \hat{o} (1,11)	X-Y \hat{o}	Yosida '49	Trans. Sapporo Nat. Hist. Soc. 18.
<u>Trichius fasciatus</u>	20s	10 \hat{o} (1,11)	"	"	"
Silphidae					
<u>Silpha americana</u>	40s	20 \hat{o} (1,11)	X-Y \hat{o}	Stevens '06	Carnegie Inst. Publ. 36.
<u>S. carinata</u>	32s	16 \hat{o} (1,11)	---	Holmgren '02	A.A. 22.
<u>Necrophorus sayi</u>	13s	7 \hat{o} (1) 6,7 \hat{o} (11)	X-0 \hat{o}	Stevens '09	J.E.Z. 6.

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
STAPHYLINIDAE					
<u>Listotrophus cingulatus</u>	26 s	13 δ (1,11)	X-Y δ ¹	Stevens '09	J.E.Z. 6.
Rove-beetle (<u>Staphylinus</u> <u>sp.?</u>)	28 s	14 δ (1,11)	--	"	"
<u>Staphylinus sp.</u>	---	---	Digamety in ♂	Holmgren '01	A.A. 19.
<u>S. violacens</u>	---	22 δ (1,11)	X-Y δ ¹	Stevens '09	J.E.Z. 6.
TENEBRIONIDAE					
<u>Akis bacarozzo</u>	16 s	---	X-Y δ ¹	Guénin '50	Arch. Jul. Klaus- Stift. Vererb. 25.
<u>Blaps gigas</u>	35 s 38 o	---	XX-Y δ ¹	Guénin '49	Rev. Suisse Z. 56.
<u>B. lusitanica</u>	35(33)s 17, 18 δ (11)	17 δ (1)	X-Oo ¹	Nonidez '14	Trans. Mus. Nat. Nat. Madrid, Zool. 18.
"	35 s 16, 19 δ (11)	15 δ X δ Y δ (1)	XXXX-Y δ ¹	Nonidez '20	J.M. 34.
"	35 s 16, 19 δ (11)	16 δ (1)	"	Wilson '25	The cell, 1925.
"	19 s 20 o	---	XX-Y δ ¹	Guénin '49	Rev. Suisse Z. 56.
<u>B. lethifera</u>	37 s 38 o	---	"	"	"
<u>B. mortisaga</u>	36 s 37 o	17 δ (1) 17, 19 δ (11)	XXX-Y δ ¹	Guénin '48, '49	Experientia 4: Rev. Suisse Z. 56.
<u>B. mucronata</u>	36 s 38 o	---	XX-Y δ ¹	Guénin '49	Rev. Suisse Z. 56.
<u>B. walshi</u>	34 s 16, 18 δ (11)	19 δ (1)	X ₁ X ₂ -Oo ¹ (?)	Nonidez '15	Mem. Soc. Espan. Hist. Nat. 10.
<u>Diaperis boleti</u>	14 s	---	X-Y δ ¹	Guénin '50	Arch. Jul. Klaus- Stift. Vererb. 25.
<u>Elenorhorus collaris</u>	26 s	---	"	"	"

COLEOPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Pimelia bipunctata</u>	18 s	---	X-Y♂↑	Guénin '50	Arch. Jul. Klaus-Stift. Vererb. 25.
<u>Tenebrio molitor</u>	20 s 20 o, ♀m	10♂(1,11) X-X♀	X-Y♂↑ X-X♀	Stevens '06	Carnegie Inst. Publ. 36.
"	20 s	---	X-Y♂↑	Guénin '50	Arch. Jul. Klaus-Stift. Vererb. 25.*
<u>T. obscurus</u>	"	---	"	"	"
<u>Tentyria mucronata</u>	"	---	"	"	"

STREPSIPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Acroschismus wheeleri</u>	16 s 16 o, m	8♂(1,11)	X-Y♂↑	Hughes-Schrader '24	J.M. 39.

HYMENOPTERA*

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
APIDAE					
<u>Anis mellifica</u> (Biene)	16 m	16♀(1) 8♀(11)	---	Petrunkewitsch '01, '03	Z. Jb. 14, 17.
<u>Anis mellifica</u> (Biene)	16 s	16♂(1,11)	---	Neves '03, '07	A.A. 24; A.M.A. 70.
" (Honey-bee)	---	"	---	Mark & Copeland '06	Proc. Am. Acad. Arts. Sci. 42.
"	16 o	16♂(1,11)	---	Doncaster '06, '07	A.A. 29, 31.
"	16 s, ♂m 32 o, ♀m	16♂(1,11) 16♀(1,11)	---	Nachtsheim '12, '13	Sitz. Ges. Morph. Phys. München, 12; A.Zf. 11.
"	16 o	32♀(1) 16♀(11)	---	Jegen '20	Zeits. Zscholte, Basel
<u>Osmia cornuta</u>	16 s 32, 64 m	16♂(1) 38(tid)	---	Armbruster '13, a, b	Ber. Mat. Ges. Freiburg, 20: A. Zf. 11.

*Greenshields (Nat. 137; 662, 1936.) (Not accessible.)

HYMENOPTERA* (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Xylocoena violacea</u> v	16 s	16♂(1,11)	---	Granata '09, '13	Biologica 2; Monit. Zool. Ital. 24.
BRACONIDAE					
<u>Anarteles glomeratus</u>	---	12♀(1)	---	Hegner '15	J.M. 26.
<u>Habrobracon juglandis</u> (<u>H. brevicornis</u>)	11♂m 22♀m	---	---	Whiting, A.R. '27	B.B. 53.
"	10s 20o 20s (2no)	10♂(1,11) 20♂(11)	---	Magnhild '35	B.B. 68.
"	---	10♀(1,11)	---	Speicher '36	J.M. 59.
"	20o	10♀(1)	---	Speicher & Speicher '38	B.B. 74.
"	20 s (2n♂) 20♂(1)	20♂(1)	---	Speicher & Speicher '40	A.N. 74.
<u>Habrobracon pectinophorae</u>	10s(n♂) 20s(2n♂) 20o(2no) 30o(3n♂)	---	2n♂ occur.	Inaba '39, '44	Cyt. 9; Jap. J.G. 20.
"	20s(2n♂) 40s(4n♂) 40o(4no) +	---	Colchicine treatment	Inaba '39, '40, Jap. J.G. 15, 16; '41	Cyt. 12.
CHALCIDIDAE					
<u>Ageniaspis fuscicollis</u>	---	Ca 10♀(1)	---	Silvestri '08	Bol. R. Scuola Sup. Portici, 3.
"	---	8-12♀(1) 4♀(11)	---	Martin '14	Z.W.Z. 110.
<u>Conidosoma buyssoni</u>	---	12♀(1) 10-12♀(11)	---	Silvestri '14	A.A. 47.
<u>Conidosoma gelechiae</u>	---	12♀(1)	---	Hegner '14, '15	A.A. 46; J.M. 26.
<u>Paraconidosomopsis floridens</u>	8s, ♂m 16n, ♀m	8♂(1)	---	Patterson & Porter '17, Patterson '17, '21	B.B. 33; J.M. 36.

HYMENOPTERA* (Continued)

Species		Chromosome Number		Remarks	Observer	References
		2n	n			
CYANIPIDAE						
<u><i>Andricus collaris</i></u>		20 _m 10 _s	---	---	Dodds '38	Genetica 20.
<u><i>A. Fecundatrix</i></u>		20 _m +	---	---	"	"
<u><i>A. punctatus</i></u>		---	6 _o (1) +	---	Hegner '15	J.M. 26.
<u><i>Aulacidea hieracii</i></u>		20 _m 10 _s	---	---	Dodds '33	Genetica 20.
<u><i>Biorrhiza pallida</i></u>		20 _m 10 _s	10 _o (11)	---	Dodds '38	Genetica 20.
<u><i>Cynips collaris</i></u>		20 _m 20 _s	10 _o (1) +	---	Hogben '20	P.R.S. London B 91.
<u><i>Diastrophus nebulosus</i></u>		20 _m +	---	---	Hegner '15	J. M. 26.
<u><i>Dryophanta erinacea</i></u>		12 _m 13-14 _m +	12 _o (11)	---	Wieman '15	B.B. 23.
<u><i>Neuroterus lenticularis</i></u> (<u><i>Spathegaster baccarum</i></u>)		10 _m 20 _m 10 _s 20 _s (13-20 _m)	10 _o (1,11) 10 _o (11)	Partheno- genetic. 2 types of eggs, one with polar bodies may be ♀; other lacking p.b.s.♂.	Doncaster '09, '11, '16	P.R.S. London B 82, B 83, B 89;
<u><i>N. baccarum lenticularis</i></u>		20 _m +	10 _o (1)	Polypliody (4 _n) occurs in tissue cells.	Dodds '35, '38	A.R. 64; Genetica 20.
<u><i>N. baccarum</i></u>		20 _m 10 _m 10 _s	10 _o (1) 10 _o (11)	Partheno- genetic. 2 types of eggs, one with polar bodies may be ♀; other lacking p.b.s.♂.	Dodds '38, '39	Genetica 20, 21.
<u><i>N. numismalis</i></u>		20 _m +	---	---	Dodds '38	Genetica 20.
<u><i>Rhodites rosae</i></u>		18-20 _m +	9 _o (1,11)	---	Henking '02	Z.W.Z. 54.
"		12 _o 12 _m +	10-12 _o (1, 11)	---	Schleip '09	Z.A. 35.

HYMENOPTERA* (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Rhodites rosae</u>		18 ^{om} ₊	9 ^q (1)	---	Hogben '20	P.R.S. London B 91.
<u>Trigonaspis megaptera</u>	10s	10 ^s (11)		---	Dodds '38	Genetica 20.
<u>Xestophanes potentillae</u>	"	"		---	"	"
DIPRIONIDAE						
<u>Diprion abisticicolor</u>	7 ^{om} 14 ^{om} ₊	7 ^o (11) 7 ^o (1)		---	Smith '41	Sci. Agric. 21.
<u>D. pallidum</u>	"	7 ^o (11)		---	"	"
<u>D. polystomum</u>	12 ^{om} 6 ^s	---		Czechoslov- akia	Smith '38	Nat. 141.
"	12 ^o , ^{om} 6 ^s , ^{6^m}	6 ^o (1,11) 6 ^o (11)	Europa		Smith '41	Sci. Agric. 21.
"	14 ^{om} 7 ^s	---	Canada		Smith '38	Nat. 141.
"	14 ^o , ^{om} 7 ^s , ^{7^m}	7 ^o (1,11) 7 ^o (11)	"		Smith '41	Sci. Agric. 21.
<u>D. nemorum</u>	7 ^{om} 14 ^{om} ₊	7 ^o (11) 7 ^o (1)		---	"	"
<u>D. simile</u>	14s 28o	14 ^o (11) 14 ^o (1)		---	Smith '41	Sci. Agric. 21.
<u>Neodiprion dubiosus</u>	14 o	---	---		Smith '44	Canadian J. Res. 20.
<u>N. lecontei</u>	"	---	---		"	"
<u>N. swainei</u>	"	---	---		"	"
<u>N. sertifer</u>	7 ^{om} 14 ^{om} ₊	7 ^o (11)	---		Smith '41	Sci. Agric. 21.
EULOPHIDAE						
<u>Melittobia chalybii</u>	5 ^{om} 10 ^{om} ₊	5 ^o (1) 5 ^o (1,11) ₊		---	Schmieder '38	B.B. 74.
FORMICIDAE						
<u>Camponotus herculeanus</u>	---	16 ^o (1) 8 ^o (11)	---		Lams '08	A.Zf. 1.

HYMENOPTERA* (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Formica sanguinea</u>	Ca 40m Ca 24m (Parth.)	24 _f (1,11)	---		Schleip '08	Z.Jb. 26.
<u>Lasius flava</u>	24 _m	11 _f (1)	---		Hogben '20	P.R.S. London B 91.
<u>L. niger</u>	20m 10-17m (Parth.)	10 _f (1,11)	---		Henking '92	Z.W.Z. 54.
ICHNEUMONIDAE						
<u>Aenoplex smithii</u>	13s 26o	---	---		Koonz '36	B.B. 71.
<u>Nemeritis canescens</u>	22o	11 _f (1,11)	---		Speicher '37	J.M. 61.
<u>Orthocelma luteolator</u>	22om +	11 _f (1)	---		Hogben '20	P.R.S. London B 91.
PTEROMALIDAE						
<u>Pteromalus pubarum</u>	5om 10om	---	---		Guhl & Dozor- cewa '34; Dozorcewa '36	C.R. Acad. Sci. Leningrad 3; C.R.A.S. URSS, 3.
TENTHREDINIDAE						
<u>Allantus calceatus</u>	160 8s	---	---		Sanderson '32	Genetica 14.
<u>A. cinctus</u>	8om	---		Polyploidy occurs in tissue cells	"	"
<u>Cimbex femorata</u> (?)	8om	---	---		Sanderson '32	Genetica 14.
<u>Cladius pectinicornis</u>	6s 6-8om	6 _f (11)	---		"	"
<u>Cladius sp.</u>	6s?	---	---		Sanderson '32	Genetica 14.
"	"	8 _f (1)?	---		"	"
<u>Crossus varus</u>	---	7-8 _f (11)	---		Doncaster '06	Q.J.M.S. 49.
"	---	8 _f (11)	---		Sanderson '32	Genetica 14.
<u>Hemichroa rufa</u>	---	"	---		"	"

HYMENOPTERA* (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Nematus lacteus</u>	---	8 ₊ (11)?		---	Doncaster '06	Q.J.M.S. 49.
<u>Nematus ribesii</u>	Ca 16s	Ca 8 _o (1) Ca 8 _o (1) +		---	Doncaster '04, '06, '07, '08, '09, '10	Proc. Cambr. Phil. Soc. 12; Q.J.M.S. 49, 51; Proc. Cambr. Phil. Soc. 14; Nat. 82; Sci. 31.
<u>N. pavidus</u>	---	8 _o (11)		---	Doncaster '06	J.M.S. 49.
<u>Pteronidea (Nematus) ribesii</u>	8s 16o	8 _o (1,11) +		16n, 32n, 120n occur in tissue cells.	Sanderson '32	Genetica 14.
<u>Pteronidea leucotrocha</u>	8s 16o	---		---	"	"
<u>P. melanaspis</u>	8s	8 _o (1,11)		---	Peacock '25	Nat. 116.
<u>Pteronidea melanaspis</u>	---	8 _o (11)		---	Sanderson '32	Genetica 14.
<u>Poecilosoma luteolum</u>	8m	8 _o (1) +		Partheno- genetic	Doncaster '06, a,b	Proc. Cambr. Phil. Soc. 13; Q.J.M.S. 49.
"	---	8 _o (11) +		"	Sanderson '32	Genetica 14.
<u>Priophorus brullei</u>	120m +	---		---	Comrie '38	Nat. 142.
<u>Pristiphora erichsoni</u>	140m +	---		---	Smith '41	Sci. Agric. 21.
<u>Pristiphora pallipes</u>	160m +	---		---	Comrie '38	Nat. 142.
<u>Thrinax macula</u>	7s 14o, qm +	7 _o (11) 14 _o (1) +		Chroms. un- reduced in eggs.	Peacock & Sanderson '39	Trans. Roy. Soc. Edinburgh 59.
<u>T. mixta</u>	8om	8 _o (11)		---	Sanderson '32	Genetica 14.
<u>Sirex-cyanus</u>	160m +	"		---	Peacock & Gresson '31	Proc. Roy. Soc. Edinburgh, 51.
"	8s	---		Polypliody occurs in tissue cells.	Sanderson '32	Genetica 14.

HYMENOPTERA* (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
TRICHOGRAMMIDAE					
<u>Trichogramma chilonis</u> (?)	5s 10s 10s(2no)	---	---	Fukada & Takemura '43	Jap. J.G. 19.
VESPIDAE					
<u>Polistes fadigae</u>	9s 18s, om ⁺	9o ¹ (11)	---	Machida '34	P.I.A. (Tokyo) 10.
<u>P. iokohamae</u>	6s 120	6o ¹ (11)	---	"	"
<u>P. snelleni</u>	13s 26o	13o ¹ (11)	---	"	"
<u>Vespa crabro</u>	---	ca 16o ¹ (1)	---	Meves & Duesberg '08	A.M.A. 71.
<u>V. maculata</u>	---	16o ¹ (1)?	---	Mark & Copeland '07	Proc. Am. Acad. Arts. Sci. 43.

DIPTERA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
ANTHOMYIIDAE					
<u>Fucellia marina</u>	12m	---	---	Metz '16	J.E.Z. 21.
<u>Homalomya sp.</u>	"	6o ¹ (11)	---	"	"
<u>Ophrya leucostoma</u>	12s	6o ¹ (1)	---	"	"
<u>Pegomyia geniculata</u>	12pm ⁺	---	4n in tissue cells	Jrolowa '29	Z.Z.M.A. 8.
<u>Phorbia brassica</u>	---	6o ¹ (1)	X-Yo ¹	Stevens '00	J.E.Z. 5.
ASILIDAE					
<u>Asilus lecythus</u>	14s	7o ¹ (11)	X-Yo ¹	Metz '16	J.E.Z. 21.
<u>A. notatus</u>	"	7o ¹ (1,11)	"	Metz '16; Metz & Nonidez '23	J.E.Z. 21; A.Zf. 17.
<u>A. sericeus</u>	10s	5o ¹ (1,11)	"	Metz '16; Metz & '21	J.E.Z. 21, 32.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Dasyllis grossa</u>	9 ^s 10 ^e	5 ^o (1) 4,5 ^o (11)	X-Y ^o ¹	Metz '22	B.B. 43.
<u>D. thoracica</u>	10 ^s	5 ^o (1,11)	X-Y ^o ¹	Metz '16	J.E.Z. 21.
<u>Deromyia winthemi</u>	12 ^s	6 ^o (1,11)	"	"	"
<u>Erat rufibarbis</u>	10 ^e	5 ^o (11)	---	"	"
<u>Hemotogaster badius</u>	"	"	X-Y ^o ¹	"	"
BIBIONIDAE					
<u>Bibio bortulanus</u>	10 ^m	5(Salivary chrom.)	---	Heitz & Bauer '33	Z.Z.M.A. 17.
BOMBYLIIDAE					
<u>Anthrax lateralis</u>	12 ^s	---	---	Metz '16	J.E.Z. 21.
<u>A. sinuosa</u>	18 ^s	9 ^o (11)	X-Y ^o ¹	"	"
<u>Spogostylum simson</u>	12 ^o	---	---	"	"
CALLIPHORIDAE					
<u>Calliphora erythrocephala</u>	12 ^o 12 ^m	6 ^o (1)	---	Metz '16	J.E.Z. 21.
"	12 ^{s,o}	6 ^o (1,11)	X-Y ^o ¹	Keunecke '24	Z.Z.M.A. 1.
"	12 ^o	---	Polypliody in tissue cells	Frolowa '29	Z.Z.M.A. 8.
"	12 ^s 12 ^o	6 ^o (1,11)	X-Y ^o ¹	Naville '32	Z.Z.M.A. 16.
"	12 ^o	6 ^o (1)	---	Strasburger '33	Z.Z.M.A. 17.
<u>Calliphora vomitoria</u>	12 ^{s,o}	6 ^o (1,11)	X-Y ^o ¹	Stevens '08	J.E.Z. 5.
<u>Lucilia caesar</u>	---	6 ^o (1,11)	"	"	"
"	12 ^s	"	"	Keunecke '24	Z.Z.M.A. 1.
<u>Phormia regina</u>	"	"	"	Metz '16	J.E.Z. 21.
<u>Phormia terrae-novae</u>	12 ^o	---	---	Naville '32	Z.Z.M.A. 16.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
CECIDOMYIDAE					
<u>Asphondylia monacha</u>	---	4 (Salivary)	Saliv. chroms. are polytene	White '48	J.M. 82.
<u>Asteromyia rubra</u>	---	"	"	"	"
<u>Caryomyia sp.</u>	---	"	"	"	"
<u>Cecidomyia vicola</u>	---	"	"	"	"
<u>C. serotinae</u>	---	"	"	"	"
<u>Cecidomyia sp.</u>	---	"	"	"	"
<u>Contarinia canadensis</u>	---	"	"	"	"
<u>Dasyneura affinis</u>	---	"	"	"	"
<u>Lestodiplosis sp.</u>	---	4 (Salivary)	32-ploid occurs in saliv. cells.	White '46, '48	J.M. 78, 82.
<u>Lasioptera asterspinosae</u>	<u>8_{pm}</u> <u>6_{dm}</u>	---	In germ line White '50 of ♂ 8 pyc- notic chroms. and diffused ones occur.		Univ. Texas Publ. 5007.
<u>Monarthropalpus buxi</u>	<u>8_{pm}</u> <u>6_{dm}</u> <u>50_s</u> <u>50_o</u>	28+22 ♂(1,11) (4 in sali- vary)	In ♂ germ line, 2 groups of 28 & 22 chroms. occur. 22 chroms. degenerate. 4 of 28 chroms. enter the sperm. In ♀ diakinesis 4 bivalents and re- maining obscure chroms. appear.	"	"
<u>Miaster americana</u>	---	20-24 _f (1)	Paedogenetic. Hegner '14 1 meiotic div. in eggs.		J.M. 25.

DIPTERA (Continued)

Species	Chromosome Numbers		Remarks	Observer	References
	2n	h			
<u>Miasstor americana</u>	48 _{s,o} 12 _{om} +	---	Octoploid in germ- line of paedog. embryo, diploid in soma. From correction of 1934.	Huettnner '33, '34	A.R. 58, Suppl., 60, Suppl.
<u>Miasstor metraloas</u>	20-24 _o 20-24 _m (Early clea- vage) 10-11 _m (Late cl.)	20-24 _o (1) +	Paedogenetic. Elimination of chroms. in early cleavage.	Kahle '08	Zoologica 21.
"	48 _{s,o} 7 _{om} 12 _{om} +	---	Paedogenetic. Kracykiewicz Elimination '35, '37, '38 of chroms. in early cleavage. In meiotic div. of ♂, 2 kind of cells with 7 and 41 chroms. prod- uced.	Kracykiewicz '35, '37, '38	C.R.S.B. 119; L.C. 56; C.R.S.B. 127.
<u>Miasstor sp.</u>	48 _m (Parth.) (4 in 12 _m sali- (Paedog.) vary) 12 _{om} , 48 _o 60 _m , 48 _g		At 3rd and 4th cleavage of parth. eggs, 36 chroms. eliminate. Octoploid number is retained in germ-line. Paedog. larvae develop with diploid, 12. ♀ sexual larvae Have diploid soma & octoploid germ- line. ♂ larvae have haploid soma and octoploid g.m. In ♂ meiosis octo- ploid spermato- cyte gives rise to 2 haploid sperms and a 7-ploid cell which degenerate. No sex chromosomes observed.	White '46, '48	J.M. 79, 82.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Oligotrophus</u> <u>pattersoni</u>	8 om 6 om 34 s 34 o	10+24 ♂(1) 4 x +26 ♀(1)	In ♂ meiosis 2 groups of 10 & 24 chroms. occur. 10 chroms. degenerate. 8 of 24 chroms. enter the sperm. In ♀ meiosis 4 bivalent and 26 univ. ap- pear, and enter germ line.	White '50	Univ. Texas Publ. 5007.
<u>Phytophaga</u> <u>celtiphyllia</u>	12 om 36 s 36 o	20+16 ♂(1) 6 x +24 ♀(1)	In ♂ meiosis 2 grs. of 20 & 16 chroms. oc- cur. 16 chrom. degenerate. 6 of 20 chroms. enter the sperm. In ♀ meiosis 6 biv. & 24 univ. appear, and enter germ line.	"	"
<u>Rhopalomyia</u> <u>sabinae</u>	8 om 6 om	—	In ♀ & ♂ germ line 25 chroms. are ob- servable. In ♀ meiosis 4 bivalents & 17 univalents occur, and enter germ line.	"	"
<u>Taxomyia taxi</u>	8 om 6 om 40 s 40 o	8+32 ♂(1) (4 in salivary)	In ♂ meiosis 2 grs. of 8 & 32 chroms. occur. 32 chroms. degener- ate. 4 of 8 chroms. enter the sperm.	White '47, '48, '50	J.M. 80, 82; Univ. Texas Publ. 5007.
<u>Trishormomyia</u> <u>helianthi</u>	8 om 6 om 24 s 24 o	8+16 ♂(1) 4 x +16 ♀(1)	In ♂ meiosis 2 grs. of 8 & 16 chroms. occur. 16 chroms. degener- ate. 4 of 8 chroms. enter the sperm. In ♀ meiosis 4 bival- ents and 16 univ. appear, and enter germ line.	White '50	Univ. Texas Publ. 5007.
<u>Walshomyia texana</u>	8 om 6 om	---	---	"	"

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Oligarces paradoxus</u>	66m,o = 55+ 11 10-11m,o	---	During paedog. develop., 55 chroms. elimi- nate: 2n con- sists of 10-11 chroms.	Reitberger, '34, '40	Schweiz Nat. Ges. Zurich (1934); Chrom. l.
<u>Phytophaga destructor</u>	86, om	---	---	Metcalf '35	Q.J.M.S. 77.
CHIRONOMIDAE (TENDEPEDIDAE)					
<u>Chironomus alpestris</u>	---	4 (Salivary)	---	Bauer '36	Z. Jb. 56.
<u>Ch. bathophilus</u>	---	"	---	"	"
<u>Ch. confinis</u>	---	4-8o(1)	---	Hasper '11	Z. Jb. 31.
<u>Ch. dorsalis</u>	---	4 (Salivary)	---	Bauer '36	Z. Jb. 56.
"	---	"	---	Morita '43	Cyt. 12.
<u>Ch. plumosus</u>	---	"	---	Bauer '36	Z. Jb. 56.
<u>Ch. riparius</u>	---	4 8o(1)	---	Hasper '11	Z. Jb. 31.
<u>Ch. thummi</u>	---	4 (Salivary)	---	Bauer '35 a,b	Naturwiss 23; Z.Z.M.A 23.
<u>Chironomus sp.</u> I & II	---	"	---	King & Beams '34	J.M. 56.
"	---	"	---	Bauer '36	Z. Jb. 56.
"	---	"	---	Poulson & Metz '38	J.M. 63.
<u>Chironomus sp.</u>	---	"	---	Kumagai '39	Vol. Jub. Prof. S. Yoshida, 1939.
<u>Chironomus sp.</u>	---	4 (Salivary)	---	Morita '42	Cyt. 12.
<u>Chironomus sp.</u>	8s	4(Salivary)	Various soma	Sengun '48: Sengun & Kosswig '48	Commun. Univ. Ankara 1: Chrom. 3.
<u>Cryptochironomus</u> <u>defectus</u>	---	3 (Salivary)	---	Bauer '36	Z. Jb. 56.

DIPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Endochironomus sp.</u> I & II	---	4	(Salivary)	---	Bauer '36	Z. JB. 56.
<u>Glyptotendipes</u> <u>polytomus</u>	---	"		---	"	"
<u>Glyptotendipes sp.</u> I	---	"		---	"	"
<u>Gly. sp.</u> II	---	3	(Salivary)	---	"	"
<u>Microtendipes pedellus</u>	---	4	(Salivary)	---	"	"
<u>Micropsectra braecox</u>	---	"		---	"	"
<u>Micropsectra praecox</u>	---	"		---	"	"
<u>Sargentia profundorum</u>	---	3	(Salivary)	---	"	"
<u>Stictochironomus histrion</u>	---	4	(Salivary)	---	"	"
CORDYLURIDAE						
<u>Scatophaga pallida</u>	12s,o	6 ¹ _o (1,11)	X-Y ¹		Stevens '08	J.E.Z. 5.
<u>S. stercoraria</u>	12s	"	"		Keunecke '24	Z.Z.M.A. I.
CULICIDAE						
<u>Aedes albopictus</u>	6s,o	---	Somatic synapsis in mid-gut cells. 84 chroms. found in the same.		Suzuki '39; Sinoto & Suzuki '43	Jap. J.G. 15; Igaku & Seibutsugaku 3.
<u>A. canadensis</u>	6m	---	Epithelial cells of mid-gut are poly-ploid. Somatic synapsis occurs.		Berger '38	J.H. 29.
<u>A. japonicus</u>	"	---	---		Sinoto & Suzuki '43	Igaku & Seibutsugaku 3.
<u>A. koreicus</u>	"	---	---		"	"

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>A. togoi</u>	6s,o	---	---	Suzuki '39; Sinoto & Suzuki '43	Jap. J.G. 15; Igaku & Seibutsugaku 3.
<u>A. triseriatus</u>	6m	---	Epithelial cells of mid-gut are polyploid. Somatic syna- psis occurs.	Berger '38	J.H. 29.
<u>Anopheles punctipennis</u>	6s,o	36 ¹ (1,11)	X-Yo ¹	Stevens '11	B.B. 20.
<u>Anopheles</u> sp.	---	66 ¹ (1,11)	"	"	"
<u>Armigeres obturbans</u>	6m	---	---	Sinoto & Suzuki '43	Igaku & Seibutsugaku 3.
<u>Chaoborus plumicornis</u>	8s,om ⁺ 8om ⁺	40 ¹ (1,11)	X-Yo ¹ . Occasionally 2 small chroms. assoc- iated with 2 large elements.	Frolowa '29 a,b	Z.Z.M.A. 8, 9.
<u>Corethra (Chaoborus) plumicornis</u>	3m	---	3 pairs	Dehorne '15, '19	C.R. Ass. Franc. l'Avanc. Sci. '43; A.Z.E.G. 58.
<u>Corethra (Mochlonyx) sp.</u>	8o,om ⁺	---	X-Yo ¹	Frolowa '29	Z.Z.M.A. 9.
<u>Culex apicalis</u>	6m	---	Epithelial cells of mid-gut are polyploid. Somatic synap- sis occurs.	Berger '38	J.H. 29.
<u>C. hayashii</u>	"	---	---	Sinoto & Suzuki '48	Igaku & Seibutsugaku 3.
<u>C. pipiens</u>	6s,o	30 ¹ (1,11)	---	Stevens '10, '11	J.E.Z. 8; B.B. 20.
"	6s	"	---	Lomen '14	Jena Z. 45.
"	3s,m 6o	"	---	Taylor '14	Q.J.M.S. 60.
"	6s,o	---	---	Metz '16	J.E.Z. 21.

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>C. pipiens</u>		6s, o 6m	36(1,11)	X fused with 1 autosome?	Whiting '17	J.M. 28.
"		6m	---	---	Hance '17	J.M. 28.
"	"	6m	---	Epithelial cells of mid-gut are polyploid. Somatic synap- sis occurs.	Holt '17	J.M. 29.
"	"	6m	---	---	Taylor '17	Q.J.M.S. 62.
"		6s, o 6m	36(1)	---	Moffett '36	Cyt. 7.
"		6m	---	Epithelial cells of mid-gut are poly- ploid. Somatic synap- sis occurs.	Berger '38 a,b	J.H. 29; Carnegie Inst. Publ. 49.
"		6m (4n-64n)	---	4n-64n arise by repeated reprod. of chrom. Somatic pairing occurs.	Grell '45	Genet. 31.
<u>Culex pipiens</u> <u>pallens</u>		6s, o	---	---	Suzuki '39; Sinoto & Suzuki '43	Jap. J.G. 15; Igaku & Seibutsugaku 3.
<u>C. tarsalis</u>		6s, o	36(1,11)	---	Stevens '11	B.B. 20.
<u>C. territans</u>		6m	---	Epithelial cells of mid- gut are poly- ploid. Somatic synapsis occurs.	Berger '38	J.H. 29.
<u>C. tritaeniorhynchus</u>	"	6s, o	---	---	Sinoto & Suzuki '43	Igaku & Seibutsugaku 3.
<u>Lutzia fuscana vorax</u>		6s, o	---	---	Suzuki '39; Sinoto & Suzuki '43	Jap. J.G. 15; Igaku & Seibutsugaku 3.

DIPTERA (Continued)

<u>Species</u>		Chromosome Number 2n	n	Remarks	Observer	References
<u>Theobaldia incidentes</u>	6 _{s,o}	36(1,11)	—	—	Stevens '11	B.B. 20.
DROSOPHILIDAE*						
TYPE A				4 V's+2 R's+2 S's (♀)**		
<u>Drosophila auraria</u>	8	---	---	—	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. bromeliae</u>	8 _s	---	---	—	Metz '16	A.N. 50.
<u>D. busckii</u>	8 _o	46(1)	—	—	Metz '16 a,b	J.E.Z. 21; A.N. 50.
"	8	---	---	—	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>Drosophila coracina</u>	8	---	---	—	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. ficusphila</u>	"	---	---	—	"	"
<u>D. florae</u>	8 _o	---	---	—	Metz '16	A.N. 50.
<u>D. lutea</u>	8	---	---	—	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. ampelophila</u> <i>(melanogaster)</i>	8 _{s,o} 8 _m	46(1,11)	X-Y ¹	—	Stevens '08	J.E.Z. 5.
<u>D. melanogaster</u> <i>(ampelophila)</i>	8 _o 8 _m	"	"	—	Metz '14, '16 a,b, '26	J.E.Z. 17; A.N. 50; Z.Z.M.A. 4.
"	8 _{s,o}	---	"	—	Bridges '16	Genet. 1.
"	8 _o	46(1,11) 46(1) +	X-Y ¹ 4 _m & 8 _m in soma.	—	Frolova '26, '31	Z.Z.M.A. 3; Z. Biol. Exp. (Moskow) 7.
"	8 _{s,o}	"	X-Y ¹	—	Guyenot & Maville '29	L.C. 39.
<u>D. melanogaster</u>	---	46(1,11)	"	—	Wosskressensky & Scheremetjewa '20	Z.Z.M.A. 10.

*The karyotypes were subdivided into 17 types (from A to Q) according to Metz and Moses (J.H. 14, 1923) and to Kikkawa and Peng (Jap. Jour. Zool. 7, 1938).

** V=V-shaped chromosome. v=small V-shaped chrom. R=rod-shaped chrom.

r=small rod-shaped chrom. J=J-shaped chrom. S=spheroidal chrom.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>D. melanogaster</u>	8s	4 δ (1,11)	No crossing-over in ♂.	Huettnner '30	Z.Z.M.A. 11.
"	8 δ , om $^+$	---	X-Y δ	Debzansky '30, '32	Genet. 15; B. Zbl. 52.
"	---	4 δ (1)	X-0 or X-Y δ . Meiosis irregular and sterile in ♂ with Y, partly deficient. The same with ♂ having irregular or extra X. Meiosis irregular in F1 between <u>simulans</u> ♀, and ♂ with irregular sex chrome. of <u>melanogaster</u> .	Shen, T.H. '32	Z.Z.M.A. 15.
"	8 δ , om $^+$	---	X-Y δ . 1/2 of X and total of Y, heterochromotic.	Heitz '33	Z.Z.M.A. 20.
"	8o	---	6 in salivary.	Painter '33, '34 a,b	Sci. 78; Genet. 19; J.H. 25.
"	8 δ , om $^+$	---	X-Y δ	Kaufmann '34	J.M. 56.
"	8m	---	Artificial variation of number arises by translocation.	Dubinin '34, '36	B. Zhurn. (Moskaw) 3,5.
<u>Drosophila melanogaster</u> 8 δ , om $^+$	---	---	---	Prokofieva '35	Z.Z.M.A. 22.
"	8o	---	6 in salivary.	Emmens '37	Z.Z.M.A. 26.
"	8	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
"	---	4 δ (1,11)	Cleavage irregular in eggs treated with radium.	Sonnenblick, '40	Proc. Nat. Acad. Sci. 26.

DIPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Drosophila melanogaster</u>	8s(9,10)	46(1)		Meiosis in XY, Cooper '49 XXX and XXXX males		J.M. 84.
<u>D. nebulosa (limbata)</u>	8o	---	---	Metz '16, a,b		J.E.Z. 21; A.N. 50.
<u>D. putrida</u> (I)	8 m	---	---	Ward '49		Univ. Texas Publ. 4920.
<u>D. quinaria</u>	8 o	---	X-Y $\frac{1}{2}$	Metz '14		J.E.Z. 17.
<u>D. robusta</u>	8s	---	---	Metz '16		J.E.Z. 21; A.N. 50.
"	86, om $\frac{1}{2}$	---	6 in salivary	Frolova '38		Biol. Zhurn. (Moskow) 7.
<u>D. rufa</u>	8	---	---	Kikkawa & Peng '38		Jap. J.Z. 7.
<u>D. saltans</u>	"	---	---	Metz '16		A.N. 50.
<u>D. simulans</u>	"	---	---	Metz '23		J.H. 14.
"	8m	---	X-Y $\frac{1}{2}$	Sturtevant '29		Z.W.Z. 135.
"	"	---	Rudimentary gonade in F1 with <u>melano-</u> <u>gaster</u> .	Kerkis '33, '36		J.E.Z. 66; A.N. 70.
"	86, om $\frac{1}{2}$	---	X-Y $\frac{1}{2}$; 1/2 of X and total of Y, heterochromatic.	Heitz '33		Z.Z.M.A. 20.
"	8	---	---	Kikkawa & Peng '38		Jap. J.Z. 7.
<u>D. suzukii</u>	"	---	---	"		"
<u>D. takahashii</u>	"	---	---	"		"
" (I)	8o $\frac{1}{2}$	---	X-Y $\frac{1}{2}$, Y=r	Ward '49		Univ. Texas Publ. 4920.
<u>D. vibrissina</u>	8o	---				
	86, om	---	4n, 8n in tissue cells.	Frolova '26		Z.Z.M.A. 3.

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>D. virilis americana</u>		9 ^{♂m} 8 ^{♀m}	---	* \uparrow 3V's+4r's +2s's $\varphi=4V's+$ 2r's+2s's	(Spencer '38 (Hughes '39a,b (Stelker '40	Genet. 23. Genet. 24. Proc. Nat. Acad. Sci. 26.
<u>Chymomyza (Drosophila) amoena</u>		8s 8o	4 \uparrow (11)	X-Y \uparrow	Metz '14, 16a,b	J.E.Z. 17, 21; A.N. 50.
<u>Ch. (Drosophila) procnemis</u>		8o	---	---	"	J.E.Z. 21; A.N. 50.
<u>Mycodrosophila (Drosophila) dimidiata</u>		"	---	---	"	"
<u>Scaptomyza graminum</u>		8s,o	4 \uparrow (11)	X-Y \uparrow	Metz '16a,b	J.E.Z. 21; A.N. 50.
Type B				4 V's+2 R's (φ)		
<u>Drosophila earlei</u>		6o	---	---	Metz '16	A.N. 50.
<u>D. prosaltans</u>		6 φ , $\hat{\delta}m$	---	5 in sali- vary. Geo- graph. var- iation of chroms.	Cavalcanti '48	Genet. 33.
<u>D. willistoni</u>		6 \hat{o} , $\hat{q}m$ 6s	3 $\hat{\delta}$ (1)	X-Y \uparrow	Lancefield & Metz '21, Metz '26	Proc. Nat. Acad. Sci. 7; Z.Z.M.A. 4.
Type C				2 V's+6 R's+2 S's (φ)		
<u>Drosophila calloptera</u> (<u>D. ornatipennis</u>)		10o	---	X-Y \uparrow . 1 supernu- merary in some case.	Metz '16a,b	J.E.Z. 21; A.N. 50.
<u>D. virilis texana</u>		"	---	X-Y \uparrow	"	"
<u>Scaptomyza adusta</u>		10 \hat{o} , $\hat{q}m$	---	$\hat{\delta}, \varphi=2V's$ +6r's+2s's	Patterson, Stone & Griffen '40	Genet. 25.
Type D				2 V's+6 R's (φ)		
<u>Drosophila immigrans</u> (<u>tripunctata</u>)		8o	---	X-X φ	Metz '14, '16	J.E.Z. 17; A.N. 50.

*V=V-shaped chrom., r=rod-shaped one and s=spheroidal one.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Drosophila immigrans</u> <u>(tripunctata)</u>	8o	---	5 in salivary.	Emmens '37	Z.Z.M.A. 26.
" (I)	8δm	---	X-Y♂, Y=v	Ward '49	Univ. Texas Publ. 4920.
<u>D. komaii</u>	8	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
Type E			4 V's+4 R's+2 S's (♀)		
<u>Drosophila melanica</u>	10s,o	5♂(11)	---	Metz '16a,b	J.E.Z. 21; A.M. 50.
" (I)	10δm	---	X-Y♂, Y=J	Ward '49	Univ. Texas Publ. 4920.
<u>D. melamissima</u>	10	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. melanura</u> (II)	10δm	---	Y=v	Ward '49	Univ. Texas Publ. 4920.
<u>D. micromelanica</u> (II)	"	---	---	"	"
<u>D. sordidula</u>	10	---	---	Kikkawa & Penz '38	Jap. J.Z. 7.
<u>D. trivittata</u>	10o	---	4n,8n in tissue cells.	Frolova '26	Z.Z.M.A. 3.
Type F			10 R's+2 S's (♀)		
<u>D. aldrichi</u>	12o	---	---	Metz '16	A.M. 50.
<u>D. cardini</u>	12δm	---	X-Y♂, Y=R	Ward '49	Univ. Texas Publ. 4920.
<u>D. cardinalis</u>	12δ♀	---	X-Y♂	Patterson & Crow '40	Univ. Texas Publ. 4032.
<u>D. mullei mullei</u>	"	---	"	"	"
<u>D. m. mojavensis</u>	"	---	"	"	"
<u>D. phalerata</u>	"	---	4n,8n in tissue cells.	Frolova '26, '29	Z.Z.M.A. 3, 10.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>D. ramsdeni</u>	120	---	X-Y \ddagger	Metz '14, '16 a, b.	J.E.Z. 17, 21; A.N. 50.
<u>D. similis</u>	"	---	---	Metz '16	A.N. 50.
<u>D. subobscura</u>	"	---	6 in salivary.	Fimmens '37	Z.Z.M.A. 26.
<u>D. transversa</u>	120, ♀m	---	4n, 8n in tissue cells.	Frolowa '26	Z.Z.M.A. 3.
<u>Drosophila transversa</u>	12	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. tripunctata</u> <u>(modesta)</u>	"	---	---	Metz '16	A.N. 50.
<u>D. virilis</u>	120 12s	5 \ddagger (1,11)	X-Y \ddagger	Metz '14, '16a,b, '26	J.E.Z. 17, 21; A.N. 50; Z.Z.M.A. 4.
"	120	---	Cytological observ. of crossing-over.	Chino & Kikkawa '33	Cyt. 4.
"	120 \ddagger , ♀m	---	X-Y \ddagger . 1/2 of X and total of Y, heterochromatic.	Heitz '33	Z.Z.M.A. 20.
"	"	---	X-Y \ddagger	Hughes '39a,b	Genet. 24.
"	120 \ddagger m	---	---	Stalker '40	Proc. Nat. Acad. Sci. 26.
"	12s, o	---	6 in salivary. Various translocation observed.	Fujii '36, '42	Cyt. 7, 12.
"	120 \ddagger , ♀m	---	X-Y \ddagger . Some meiosis '42 artific. arisen.	Makino '40, '42	Cyt. 10. 12.
Type G			2 R's+8 r's+2 S's (♀)		
<u>Drosophila funebris</u>	12s, o	6(1,11)	X-Y \ddagger	Metz '14, '16a,b, '26	J.E.Z. 17, 21; A.N. 50; Z.Z.M.A. 4.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Drosophila funebris</u>	120, ♀m	---	4n, 8n in tissue cells X-Y♂	Frolova '26	Z.Z.M.A. 3.
"	120, ♀m	---	1/2 of X and total of Y, heterochromatic.	Heitz '33a,b	Z.Z.M.A. 19, 20.
"	120	---	6 in salivary.	Emmene '37	Z.Z.M.A. 26.
"	12	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. fulvamacula</u>	120m	---	---	Ward '49	Univ. Texas Publ. 4920.
<u>D. histrio</u>	120m	---	4n, 8n in tissue cells.	Frolova '26	Z.Z.M.A. 3.
"	12	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>D. micromelanica</u>	120m	---	Y=R	Ward '49	Univ. Texas Publ. 4920
Type H			6 V's+2 S's (♀)		
<u>Drosophila bizonata</u>	8	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
<u>Cladochaeta nebulosa</u>	8o	---	---	Metz '16	A.N. 50.
Type I			2 V's+8 R's+2 S's (♀)		
<u>Drosophila hydei</u>	120, ♀m	---	X-Y♂. 1/2 of X and total of Y, heterochromatic.	Heitz '33	Z.Z.M.A. 20.
"	12	---	6 in salivary	Kikkawa '35	P.I.A. (Tokyo) 11.
<u>Drosophila hydei yucatanensis</u>	--	---	6 in salivary	Spencer '40	A.N. 74.
<u>D. micromelanica</u> (III)	120m	---	Y=R	Ward '49	Univ. Texas Publ. 4920.
" (IV)	"	---	Larger S's	"	"

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>D. repleta</u>		12s, o	---	X-Y \hat{o}	Metz '14, '16a,b	J.E.Z. 17, 21; A.N. 50.
"		12o \hat{m}	---	6 in salivary	Frolowa '38	Biol. Zhurn.(Mos- kow)7.
"		12	---	6 in salivary	Kikkawa '35, Kikkawa & Peng '38	P.I.A. (Tokyo) 11; Jap. J.Z. 7.
Type J				2 V's+6 R's+2 S's (♀)		
<u>Drosophila miranda</u>		9s, $\hat{o}m$ 10o	4 \hat{o} (1) 4, 5 \hat{o} (11)	X ₁ X ₂ -Y \hat{o} ; X ₁ X ₁ -X ₂ X ₂ \hat{o} . Complex of ♀ similar to ♀ that of pseudoobscura ♀.	Dobzhansky '35a,b Dobzhansky & Tan '36	A.N. 69; Genet. 20. A.N. 70.
"		9s, $\hat{o}m$	4 \hat{o} (1)	X ₁ X ₂ -Y \hat{o} . 2 strains with Y of differ- ent size. Univalents appear in F ₁ of 2 str. 6 in sali- vary.	Koller '39	J.G. 38.
"		9 $\hat{o}m$ 10 $\hat{o}m$		X ₁ X ₂ -Y \hat{o} . Early death of ♀ of F ₁ between pseudoobscura.	Kaufmann '40	J.M. 66.
"		9s	---	XX-Yo: Be- havior of XX-Y in meiosis.	Cooper '46	Genet. 31.
<u>D. pseudoobscura</u>		10s, $\hat{o}m$ 10o, $\hat{o}m$	5 \hat{o} (1)	X-Y \hat{o} . 2 strains with Y of differ- ent sizes. 7 types of Y distinguish- able in its size. Meiosis irregular in F ₁ between diff. strains.	Dobzhansky & Boche '33 Dobzhansky '34 '35, '36, '37, '39 Dobzhansky & Tan '36	B.Z. 54. Z.Z.M.A. 21; Genet. 20; J.E.Z. 74; Gene. 22; 24. A.N. 70.

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>D. pseudoobscura</u>		10s	5♂(1,11)	X-Y♂. Size of Y differs according to strains. Meiosis irregular in F_1 between strns.	Darlington '34	Genet. 19.
"		—	—	6 in salivary vary in 2 strains.	Tan '35	Genet. 20.
"		10s	5♂(1,11)	Y degenerates in II-div. in 'Sex-ratio' ♂.	Sturtevant & Dobzhansky '36	Genet. 21.
"		10♂ 10♀	—	X-Y♂	Koller '36	J.G. 32.
"		10♂ 10♀	—	X-Y♂	Kaufmann '40	J.M. 66.
"		8s	—	—	Cooper '44	Proc. Nat. Acad. Sci. 30.
<u>D. miranda x D. pseudoobscura</u>		10♀	—	F_1 not develop.	Kaufmann '40	J.M. 66.
Type K				4 V's+2 J's+2 R's+2 S's (♀)		
<u>Drosophila affinis</u>		10s,o	—	—	Metz '16a,b	J.E.Z. 21; A.N. 50.
"		10♂,o ^m	—	X-Y♂	Sturtevant & Dobzhansky '36	A.N. 70.
<u>D. algonquin</u>	"	—	—	"	"	"
<u>D. athabasca</u>	"	—	—	"	"	"
<u>D. azteca</u>	"	—	—	"	"	"
"		10m	—	7 in salivary	Dobzhansky & Sokolow '39	J.H. 30.
Type L				6 V's+2 v's (♀)		
<u>Drosophila ananassae</u> (<u>D. caribbea</u>)		8s,o	—	X-Y♂	Metz '16	A.N. 50.

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Drosophila ananassae</u> <u>(D. caribaea)</u>		$3\delta, \text{♀}$	---	X-Y♂, X-X♀. 6 in salivary	Kaufmann '36 a, b, '37	Sci. 83; Proc. Nat. Acad. Sci. 22; Cyt. Fujii Jub.- Vol.
"		$8s, o$ $8\delta, \text{♀m}$	---	X-Y♂. Y. different in size by strains. 6 in salivary	Kikkawa '35, '36, '37, '38	P.I.A. (Tokyo) 11; Jap. J.G. 12; Cyt. Fujii Jub.-Vol.; Genetica 20.
<u>D. bipectinata</u>		8	---	---	Kikkawa & Peng '38	Jap. J.Z. 7.
Type M				4 V's+2 v's+2 R's (♀)		
<u>D. lebanonensis</u>		$8\delta_m$	---	Y=R	Ward '49	Univ. Texas Publ. 4920.
<u>D. montium</u> (Race A)		$8o$ $8\delta_m$	---	---	Kikkawa '36	Jap. J.G. 12.
"		8s, o	---	X-Y♂. 6 in salivary	Osima '39, '40	Jap. J.G. 15; Cyt. 10.
"		8 ♀, ♂m	---	---	Freire-Maia '47	Bol. Fac. Fil. Cien. Letr. Univ. S. Paulo 86-Biol. Geral, 7.
" (A)		$8\delta_m$	---	Y=v	Ward '49	Univ. Texas Publ. 4920.
Type N				4 V's+2 R's (♀)		
<u>Drosophila montium</u> (Race B)		$8o$ $8\delta_m$	---	4V's+4r's	Kikkawa '36	Jap. J.G. 12.
"		8s, o	---	4V's+4r's; X-Y♂. 6 in salivary	Osima '39, '40	Jap. J.G. 15; Cyt. 10.
" (B)		$8\delta_m$	---	Y=v	Ward '49	Univ. Texas Publ. 4920.
" (C)		"	---	Y=R	"	"
Type O				4 J's+2 v's+4 R's (♀)		
<u>Drosophila subtilis</u>		10	---	6V's+4r's	Kikkawa & Peng '38	Jap. J.Z. 7.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Type P					
<u>Drosophila sulcata</u>	8 [♂] 8o	---	X-Y [♂] ; 6V's +2s's	Frolova '36	Bull. Biol. Med. Exp. 2.
Type Q					
<u>Drosophila obscura</u>	10s,o	5 [♂] (1)	X-Y [♂]	Metz '16a,b, '26	J.E.Z. 21; A.N. 50; Z.Z.M.A. 4.
"	10s,o 10 [♂] m	---	Chrom. com- plex diff- erent be- tween strains from U.S.A. and U.S.S.R. 4n, 8n occur in tissue cells.	Frolova '26 Frolova & Astaurow '29	Z.Z.M.A. 3. Z.Z.M.A. 10.
Type R*					
<u>D. takahashii</u>	6 [♂] <u>m</u>	---	Y=r	Ward '49	Univ. Texas Publ. 4920.
Type S					
<u>D. putrida</u> (II)	10 [♂] <u>m</u>	---	Y=r	"	"
Type T					
<u>D. acanthroptera</u>	10 [♂] <u>m</u>	---	Y=J	"	"
Type U					
<u>D. nannoptera</u>	10 [♂] <u>m</u>	---	Y=R	"	"
Type V					
<u>D. trispida</u>	14 [♂] <u>m</u>	---	Y=R	"	"
Type W					
<u>D. carbonaria</u>	12 [♂] <u>m</u>	---	---	"	"
Type X					
<u>D. castanea</u>	8 [♂] <u>m</u>	---	Y=V	"	"

*Types from R to DD are those newly established in recent years.

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
Type Y				2 V's+4 R's+2 S's (♀)		
<u>D. testacea</u>		8 \hat{m}	---	---	Ward '49	Univ. Texas Publ. 4920.
Type Z				2 V's+2 v's+6 r's (♀)		
<u>D. melanica</u> (II)		10 \hat{m}	---	Y=J	"	"
<u>D. nigromelanica</u> (II)		"	---	---	"	"
Type AA				2 V's+4 v's+4 r's (♀)		
<u>D. melanura</u> (I)		10 \hat{m}	---	Y=J	"	"
<u>D. nigromelanica</u> (I)		"	---	---	"	"
Type BB				2 V's+4 J's+2 R's+2 S's (♀)		
<u>D. narragansett</u>		10 \hat{m}	---	Y=J	"	"
Type CC				2 V's+2 J's+4 R's (♀)		
<u>D. immigrans</u> (II)		8 \hat{m}	---	---	"	"
Type DD				2 V's+2 v's+2 R's+4 r's (♀)		
<u>D. mercatorum</u>		10 \hat{m}	---	Y=J	"	"
Dryomyzidae						
<u>Neuroctena analis</u>		12s	6 $\hat{\delta}$ (11)	---	Metz '16	J.E.Z. 21.
Ephydriidae						
<u>Scatophila unicornis</u>		13 \hat{m} 14 \hat{m}	7 $\hat{\delta}$ (1) 6,7 δ (11)	X-Y $\hat{\delta}$	Heitz '33	Z.Z.M.A. 20.
Hippoboscidae						
<u>Melophagus ovinus</u>		16m	8	---	Lassman '36	Ann. Ent. Soc. Am. 29.
"		18s	9 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$	Cooper '41	Proc. Nat. Acad. Sci. 27.
<u>Olfersia bisulcata</u>		8s	4 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$	Cooper '44a,b	Genet. 29; Proc. Nat. Acad. Sci. 30.

DIPTERA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Leptoceratidae					
<u>Leptocera fontinalis</u>	6-8m	---	---	Turner '31	J.H. 22.
Limoniidae					
<u>Dicranomyia trinotata</u>	6s	3♂(1)	---	Wolf '41	Chrom. 2.
<u>Thaumastoptera calceata</u>	"	"	---	"	"
Liriopidae (Ptychopteridae)					
<u>Liponeura cinerasceus</u>	10s	---	X-Y♂↑	Wolf '46	Z. Naturf. 1.
<u>Liriope sp.</u>	"	---	"	"	"
Muscidae					
<u>Musca domestica</u>	12s 12o	6♂(1,11)	X-Y♂↑	Stevens '08	J.E.Z. 5.
"	12o	---	---	Metz '16	J.E.Z. 21.
"	12s	6♂(1,11)	X-Y♂↑	Keunecke '24	Z.Z.M.A. 1.
"	12s	---	X-Y♂↑	Perje '48	Hered. 34.
Mycetophilidae					
<u>Brachypeza radiata</u>	12♂, ♀m	6♂(1)	X-Y♂↑	Calvez '48	Chrom. 3.
<u>Exechia indecisa</u>	14♀m	7♂(1,11)	X-Y♂↑. 4n, 8n in tissue cells	Frolowa '29	Z.Z.M.A. 8.
<u>E. speciosa</u>	12♂, ♀m	6♂(1)	X-Y♂↑	Calvez '48	Chrom. 3.
<u>Fungivora blanda</u>	8o, ♀m	4♂(1,11)	X-Y♂↑. 4n, 8n in tissue cells.	Frolowa '29	Z.Z.M.A. 8.
<u>F. guttata</u>	8♀m	4♂(1)	"	"	"
"	8s, ♀m	4♂(1,11)	X-Y♂↑	Calvez '48	Chrom. 3.
<u>F. fungorum</u>	14♂, ♀m	7♂(1,11)	"	"	"
<u>F. lineola</u>	"	"	"	"	"
<u>F. unipunctata</u>	"	"	"	"	"



DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Mycetophila punctata</u>		14 _o _f	7 ^Δ (1,11)	X-Y ^Δ . 4n, 8n in tissue cells.	Frolowa '29	Z.Z.M.A. 8.
<u>Rhymosia fenestralis</u>		8 ^Δ , _o _m	4 ^Δ (1,11)	X-Y ^Δ	Calvez '48	Chrom. 3.
<u>R. domestica</u>		14 ^Δ , _o _m	7 ^Δ (1,11)	"	"	"
Crtalidae						
<u>Campitoneura picta</u>		12 _s	6 ^Δ (1)	---	Metz '16	J.E.Z. 21.
Piophilidae						
<u>Piophila casei</u>		12	---	---	"	"
Phoridae						
<u>Aphioceta</u> sp.		6 _f , _o _m	---	---	Tokunaga '49	Jap. J.G. Suppl. 2.
<u>Phora</u> sp.		8 ^Δ _m	---	4n, 8n in tissue cells	Frolowa '29	Z.Z.M.A. 8.
Rhagionidae						
<u>Leptis</u> sp.		---	5 ^Δ (1)	---	Heitz '33	Z.Z.M.A. 20.
Sapromyzidae						
<u>Physegenia vittata</u>		12 _s	---	---	Metz '16	J.E.Z. 21.
Sarcophagidae						
<u>Ravinia peniculata</u>		12 _o	---	---	"	"
<u>Sarcophaga carnaria</u>		12 _s	6 ^Δ (1,11)	X-Y ^Δ	Keunecke '24	Z.Z.M.A. 1.
<u>S. sarracinia</u>		12 _s 12 _o _f	"	"	Stevens '08	J.E.Z. 5.
<u>S. tuberosa sarracinia</u>		12 _{s,o} 12 _m	"	X-Y ^Δ . 4n, 8n in tissue cells.	Metz '16	J.E.Z. 21.
<u>Sarcophaga</u> sp.		12 _m	---	4n in egg fol- licle cells.	Metz '16, '22	J.E.Z. 21; B.B. 43.

DIPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Sciaridae						
<u>Sciara agarica</u>	8m 10s	---		1 pair of V= limited chrom.	McCarthy '45	A.N. 79.
<u>S. fenestralis, I</u>	"	---	"	"	"	"
<u>S. fenestralis, II</u>	8m 9s	---	1 large V=limit. chrom.	"	"	"
<u>S. nacta</u>	8m 10s	---	All rods.	"	"	"
<u>Sciara coprophila</u>	10s 10o 76m 89m	6♂(1,11) 5♀(1,11)	10 chroms. div. into 6 and 4 in I meiotic div. of ♂, without pairing of chroms. 4 chroms. de- generate. In II-div. 5 of 6 chroms. div. equa- tionally, but one element runs undiv. to 1 pole. Cells of 5 fl give rise to sperms. Behavior of chroms. in eggs is reg- ular. During early cleav- age, elimin- ation of chroms. occurs and chrom. num- bers, 7 in ♂ and 8 in ♀, are pro- duced.	(Metz '31, '33, ('34, '36, '38 (a, b ((((Metz & (Schmuck '29, ('31, '32 (Du Bois '33 (Smith-Stocking ('36	B.Z. 51; B.B. 64; Proc. Nat. Acad. Sci. 20; Cyt. 7; A.N. 72; Carnegie Inst. Publ. 501. Proc. Nat. Acad. Sci. 15, 17, 18. Z.Z.M.A. 19. Genet. 21.	

DIPTERA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Sciara ocellaris</u>	8m	5♂(11) 4♀(11)	The same as above. 2 strains with different chrom. com- plexes occur. 4 in salivary.	(Metz '35, '38 (Metz & (Lawrence '38 (Poulsen & (Metz '38 (Metz & (Crouse '39 (Crouse '39 (Berry '39, '41	J.H. 26; A.N. 72. J.H. 29. J.M. 63. Genet. 24. A.N. 73. Proc. Nat. Acad. Sci. 25; J.M. 68.	
<u>Sciara pauciseta</u>	10s 7♂m 8♀m +	6♂(1,11)	The same as <u>coprophila</u> .	(Metz '25, '26, ('36, '38 (Metz & Moses ('26 (Metz, Moses (& Hoppe '26 (Schmuck '34	Sci. 61; A.N. 60; Cyt. 7; A.N. 72. A.R. 34. Z.I.A.V. 42. B.B. 66.	
<u>Sciara prolificata</u>	10s 7♂m 8♀m +	6♂(1,11)	The same as <u>coprophila</u> .	(Metz '25, '26a, (b, '38 ('39 (Metz & Moses ('26 (Metz, Moses (& Hoppe '26	Sci. 61; A.N. 60; Z.Z.M.A. 4; A.N. 72. A.R. 34. Z.I.A.V. 42.	
"	8m 9s	---	---	McCarthy '45	A.N. 79.	
<u>Sciara reynoldsi</u>	8m	---	---	(Metz & (Lawrence '38 (Metz & Crouse ('39 (Crouse '39 (Metz '38	J.H. 29. Genet. 24. A.N. 73. A.N. 72.	
<u>Sciara similans</u>	10s 8♀m +	6♂(1,11)	The same as <u>coprophila</u> .	(Metz '25, '26a, (b, '38 ('39 (Metz & Moses ('26 (Metz, Moses (& Hoppe '26	Sci. 61; A.N. 60; Z.Z.M.A. 4; A.N. 72. A.R. 34. Z.I.A.V. 42.	
<u>Sciara sp. VII</u>	8m 10s	---	1 pairs of rods, =limited chrom.	McCarthy '45	A.N. 79.	
<u>Sciara sp. XXIII</u>	8m 10s	---	2 large un- equal rods. =limited chrom.	"	"	

DIPTERA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Sciara sp. XXV</u>	8m,s	---		No limited chrom.	McCarthy '45	A.N. 79.
Simuliidae						
<u>Simulium sp.</u>	6m	3		---	Geitler '34	Z. Jb. 54.
"	"	"		---	Painter & Griffen '37	Genet. 22.
Stratiomyidae						
<u>Psectricus trivittatus</u>	16	---	X-Y♂↑	Metz '16	J.E.Z. 21.	
Syrphidae						
<u>Eristalis bastardi</u>	12s	6♂(1)	"	"	"	"
<u>E. tenax</u>	12s 12♂,♀ ^m	6♂(1,11)	"	Stevens '08	J.E.Z. 5.	
<u>Mesogramma marginata</u>	12s	6♂(1)	"	Metz '16	J.E.Z. 21.	
<u>Sphaerophoria scripta</u>	8s	4♂(1,11)	---	Keunecke '24	Z.Z.M.A. 1.	
<u>Tubifera sp.</u>	14 ^m	---	4n in tissue cells.	Frolowa '29	Z.Z.M.A. 8.	
<u>Volucella obesa</u>	12s	6♂(1)	X-Y♂	Metz '16	J.E.Z. 21.	
Tachinidae						
<u>Phorocera hamata</u>	12 ^m	6♂(1)	X-Y♂	Smith '44	Sci. Agric. 24.	
Tetanoceratidae						
<u>Tetanocera sparsa</u>	12s 12o	6♂(1,11)	"	Stevens '08	J.E.Z. 5.	
Tipulidae						
<u>Tipula paludosa</u>	8s 8o	---	Due to irregular div. of 2 small chroms., number varies from 9 to 12.	Bauer '31	Z.Z.M.A. 14.	
<u>Tipula sp.</u>	8m	---	---	Heitz '33	Z.Z.M.A. 20.	
Trypetidae						
<u>Anastrepha ludens</u>	10s	5♂(1)	---	Emmart '35	Proc. Entom. Soc. Washing. 37.	

DIPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Euaresta melanogaster</u>		12	---	---	Metz '16	J.E.Z. 21.
<u>Tephritis arnicae</u>		11s	6♂(1) 5,6♂(11)	X-0♂	Keunecke '24	Z.Z.M.A. 1.
Uliidiidae						
<u>Chaetopsis fulvifrons</u>		8s	4♂(1)	---	Metz '16	J.E.Z. 21.

APHYANOPTERA
(SIPHONAPTERA)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Ctenocephalus canis</u>		14♂m	---	X-Y♂	Kichijo '41	Bot. & Zool. (Tokyo) 9; Jap. J.G. 17.
<u>Lentopsylla musculi</u>		22s	11♂(1)	X-Y♂(?)	Karnkowska '32a,b	C.R.S.B. 110; Bull. Soc. Vandoise Sci. Nat. 57.

PROCHORDATA

TUNICATA

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Ascidia mentula</u>		---	9♀()	---	Boveri '90	Jena Z. 24.
<u>Cionia intestinalis</u>		18m	---	♀ in ♂ and ♀ pronucleus.	"	"
<u>Distalpia occidentalis</u>		---	12♀(11)	---	Bancroft '99	Bull. Mus. Comp. Zool. Harvard 35.
<u>Phallusia mammillata</u>		13-16m (16)	8♀(1,11)	---	Hill '95	Q.J.M.S. 38.
<u>Styelopsis grossularia</u>		4s 4o	4♂(1), 2♂(11) 8♀(1) 4♀(11)	---	Julin '93	B.B. Fr. Bel. 25.
<u>Tethyum plicatum</u>		---	16♂(1,11)	---	Minouchi '36	Z.Z.M.A. 23.

ACRANIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Amphioxus lanceolatus</u>	---	10?♀(11)	---	Van Der Stricht '95, '96	Bull. Acad. Roy. Belg. Ser. 3, 30; A.B. 14.
<u>Amphioxus lanceolatus</u>	24m	12?♀(1,11)	---	Sobotta '97	A.M.A. 50.

" 24o 12o(1,11) — Cerfontaine 'C5a,b Acad. Roy. Belg. Sci. 1905; A.P. 22.

VERTEBRATA

CYCLOSTOMATA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Bdellostoma burgeri</u>	48?8	—	—	Schreiner '08	A.Z.F. 1.
<u>Myxine glutinosa</u>	ca. 50m	—	—	Retzius '90	Biol. Fören. Stockholm 2.
"	ca. 52e ca. 52m	26? (1,11)	—	Schreiner '04a, '04b	A.A. 24; A.F. 21.

PISCES

DIPNOI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Lepidosirenidae</u>					
<u>Epiceratodus forsteri</u>	32-38m	—	—	Wickbom '45	Hered. 31.
<u>Lepidosiren paradoxa</u>	36?m	—	—	Murry '66	A.A. 29.
"	38m	19? (1)	—	Agar '11, '12	Q.J.M.S. 57, 58.
<u>Protopterus annectens</u>	34e	17? (1)	—	Wickbom '45	Hered. 31.

ELASMOBRANCHII

Species		Chromosome Number 2n	n	Remarks	Observer	References
Catulidae						
<u>Pristiurus melanostomus</u>	---	30-50♀(1)	—		Kastschenko '90	Z.W.Z. 50.
(<u>Pristiurus</u> sp.)	ca. 36s 30-36o 30-36m	ca. 18♀(1,11)	—		Rückert '92	A.A. 7.
"	24s	12♂(1,11)	—		Moore '95; Farmer & Moore '04	Q.J.M.S. 38, 48.
<u>Scyllium canicula</u>	---	30-50♀(1)	—		Kastschenko '90	Z.W.Z. 50.
"	24s	12♂(1,11)	—		Moore '94, '95; Farmer & Moore '04	A.A. 9; Q.J.M.S. 38, 48.
<u>Scyllium canicula</u>	---	20-24♂(1) 14-16♂(11)	—		Rawitz '99	A.M.A. 53.
"	---	17-19♀(1)	—		Cerruti '08	Atti Acad. Sci. (Napoli), IIa, 13.
Rajidae						
<u>Raja macrorhynchus</u>	24s	12♂(1,11)	—		Moore '95 Farmer & Moore '04	Q.J.M.S. 38, 48.
<u>Raja maculata</u>	"	"	—		"	"
<u>Raja meerdervoortii</u>	104s	52♂(1,11)	Sex. Chrom. unknown	Makino '37	Cyt. Fujii Jub.- Vol.	
Squalidae						
<u>Scyliorhinus catula</u>	---	31♂(1,11)	—		Matthey '37, '47	C.R.S.B. 126; Sci. Genetica 3.
<u>Spinax niger</u>	60-70s	—	—		Schreiner '07	A.B. 22.
<u>Squalus suckleyi</u>	62s	31♂(1,11)	Sex Chrom. unknown.	Makino '37	Cyt. Fujii Jub.- Vol.	
Torpedidae						
<u>Torpedo ocellata</u>	---	30-50♀(1)	—		Kastschenko '90	Z.W.Z. 50.

ELASMOBRANCHII (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>(Torpedo sp.)</u>	24s	*	12 δ (1,11)	---	Moore '95 Farmer & Moore 'C4

TELEOSTOMI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Anabantidae					
<u>Betta splendens</u>	42s	21 δ (1,11)	X-X δ ?, X= largest rod.	Bennington '36	J.M. 60.
"	"	21 δ (1)	---	Svärdson & Wickbom '42	Hered. 28.
<u>Macropodus opercularis</u>	---	"	---	"	"
Anguillidae					
<u>Anguilla vulgaris</u>	36?s, 36?o	---	---	Rodolico '33	Publ. Staz. Zool. Napoli 8.
Atherinidae					
<u>Menidia notata</u>	36m	---	---	Moenkhaus '04	A.J.A. 3.
Esocidae					
<u>Esox lucius</u>	18m	---	---	Svärdson & Wickbom '39	Hered. 25.
<u>Umbra limi</u>	22s, 20?m	11 δ (1,11)	X-X δ ?	Foley '26	B.B. 50.
Cobitidae					
<u>Barbatula oreas</u>	48s	24 δ (1,11)	---	Makiko '41	Cyt. 12.
<u>Misgurnus anguillicaudatus</u>	52s	24 δ (1,11)	Sex chrom. unknown	Makino '37, '41	Z.M. (Jap.), 49; Cyt. 12.
Cottidae					
<u>Cottus bairdii</u>	36-38s	18 δ (1)	---	Hann '27	J.M. 43.

TELEOSTOMI (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Cyprinidae						
<u>Acheilognathus lanceolatus</u>	50s	25 δ (1,11)	---		Makino '39	Cyt. 9.
<u>Carassius auratus</u>	94s	47 δ (1,11)	In 13 varieties, n=48 ~51(1) due to occurrence of univalents.	Makino '34, '40, '41 Jap. J.G. 9; Z.M. (Jap.) 52; Cyt. 12.		
<u>Carassius carassius</u>	"	"	Various varieties of Funai, Hibuna and Iron-fish.	Makino '34, '41	Jap. J.G. 9; Cyt. 9.	
<u>Cyprinus carpio</u>	104s	52 δ (1,11)	---		Makino '34, '39	"
<u>C. carpio specularis</u>	19s	---	---		Barigozzi '37	Soc. Ital. Sci. Nat. Mus. Milano 76.
<u>C. carassius x C. auratus</u>	---	47 δ (1)	Univalents occur.	Makino '41	Cyt. 12.	
<u>Cyprinus carpio x carassius carassius</u>	99s	---	Male sterile.	Matsui & Makino '33	Jap. J.G. 19.	
<u>Phoxinus percnurus sachalinensis</u>	---	27 δ (1,11)	---	Nogusa '43	"	
<u>Pseudorasbora parva</u>	50s	25 δ (1,11)	---	Makino '39	Cyt. 9.	
<u>Pungtungia hilgendorffi</u>	"	---	---	Nogusa '43	Jap. J.G. 19.	
<u>Tribolodon hakuenensis</u>	"	25 δ (1,11)	---	Makino '39	Cyt. 9.	
<u>Zacco platycephalus</u>	"	---	---	Nogusa '43	Jap. J.G. 19.	
<u>Z. temminckii</u>	"	---	---	"	"	
Cyprinodontidae						
<u>Fundulus heteroclitus</u>	36m	---	---	Moenkhaus '04	A.J.A. 3.	
"	45m	---	---	Pinney '18	J.M. 31.	
<u>Gambusia holbrooki</u>	36s	18 δ (1,11)	---	Geiser '24	B.B. 47.	
<u>Heterandria formosa</u>	46s	23 δ (1)	---	Wickbom '43	Hered. 29.	
<u>Lebiasina reticulata</u>	46s	23 δ (1,11)	X-Y δ !	Winge '22, '23	J.G. 12; 13.	
	46o	23 δ (1)				

TELEOSTOMI (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Lebiasina reticulatus</u>	---	23♂(1,11)	X-Y♂	Vaupel '29	J.M. 47.	
"	46s	"	Sex chrom. unknown.	Iriki '32a,b	Z.M. (Jap.) 44; P.I.A. (Tokyo) 8.	
"	"	23♂(1)	---	Wickbom '43	Hered. 29.	
<u>Limi vittata</u>	"	"	---	"	"	
<u>L. cando fasciata</u> <u>tricolor</u>	"	"	---	"	"	
<u>Mollisentia sphenops</u>	36s	---	---	Meyer '38	J.G. 36.	
"	46s	23♂(1)	---	Wickbom '43	Hered. 29.	
<u>M. sph. melanistica</u>	38s	19♂(1)	---	"	"	
<u>M. velifera</u>	46s	23♂(1)	---	"	"	
<u>M. sph. mel. x M. sph.</u>	42s	21♂(1)	19 _{II} 1 _{II} 1 _I	"	"	
<u>M. sph. x M. vel.</u>	46s	23♂(1)	---	"	"	
<u>Oryzias latipes</u>	---	22-24♂(1)	---	Goodrich '27	J.E.Z. 49.	
<u>Oryzias (Aplocheilus)</u> <u>latipes</u>	48s	24♂(1)	Sex chrom. unknown.	Iriki '32	Z.M. (Jap.) 44; P.I.A. (Tokyo) 8; S.R. Tokyo B.D. Sec. B, 1.	
"	"	"	---	Katayama '37	Bull. Jap. Soc. Sci. Fish. 5.	
<u>Phallichthys pittieri</u>	46s	23♂(1)	---	Wickbom '43	Hered. 29.	
<u>Phalloceros caudimaculatus reticulatus</u>	"	"	---	"	"	
<u>Platypoecili couchiana</u>	---	24♂(1)	X-X♂?	Ralston '34a,b	Sci. 78; J.M. 56.	
"	---	"	---	Friedman & Gordon '34	A.N. 68.	
<u>Platypoecilus maculatus</u>	---	"	X-X♂?	Ralston '34a,b	Sci. 78; J.M. 56.	
"	---	"	---	Friedman & Gordon '34	A.N. 68.	
"	48s	24(1)	---	Wickbom '43	Hered. 29.	

TELEOSTOMI (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Platypoecilus ziphidium</u>	---	24 [♂] (1)	---	Friedman & Gordon '34	A.N. 68.
<u>Platypoecilus variatus</u>	---	25 [♂] (1)	---	"	"
"	---	"	---	Wickbom '43	Hered. 29.
<u>Platypoecilus couch. x</u> <u>P. maculatus</u>	---	24 [♂] (1)	---	Friedman & Gordon '34	A.N. 68.
<u>Platypoecilus xiph. x</u> <u>P. maculatus</u>	---	"	---	"	"
<u>Platypoecilus variat. x</u> <u>P. maculatus</u>	---	24, 25 [♂] (1)	---	"	"
<u>Rivulus santensis</u>	48s	24 [♂] (1)	---	Wickbom '43	Hered. 29.
<u>Xiphophorus hellerii</u>	---	24 [♂] (1)	---	Friedman & Gordon '34	A.N. 68.
"	48s	24 [♂] (1)	---	Wickbom '43	Hered. 29.
<u>X. notezumae</u>	---	"	---	Friedman & Gordon '34	A.N. 68.
<u>Xiphophorus sp.</u>	---	"	X-X [♂] ?	Ralston '34a, b	Sci. 78; J.M. 56.
<u>Xiphophorus x</u> <u>Platypoecilus</u>	---	"	---	"	"
<u>Xiphophorus hell. x</u> <u>Platypoecilus mac.</u>	---	"	---	Friedman & Gordon '34	A.N. 68.
Gasterosteidae					
<u>Pungitius tenuis</u>	42s	21 [♂] (1, 11)	Sex Chrom. unknown.	Makino '34a, b	Cyt. 5; Jap. J.G. 9.
<u>Pungitius pungitius</u>	---	"	"	"	"
Gobiidae					
<u>Tridentiger obscurus</u>	44s	22 [♂] (1)	---	Nogusa '50	Jap. J.G. 25.
Hexagrammidae					
<u>Hexagrammos</u> <u>oceanorum</u>	---	24 [♂] (1, 11)	---	Makino '37	Z.M. (Jap.) 49.

TELEOSTOMI (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Labridae					
<u>Ctenolabrus adspersus</u>	38-48m	---	---	Pinney '18	J.M. 31.
Percidae					
<u>Lucioperca lucioperca</u>	24m	---	---	Svärdson & Wickbom '39	Hered. 25.
<u>Perca fluviatilis</u> <u>(Perch)</u>	27s	---	---	Turner '19	J.M. 32.
"	28m	---	---	Svärdson & Wickbom '39	Hered. 25.
Pholidae					
<u>Pholis pictus</u>	46s	---	---	Makino '37	Z.M. (Jap.) 49.
Salmomidae					
<u>Coregonus albula</u>	80m	---	16V's	Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt-fisk. 23.
<u>C. asperi maraenoides</u>	36m	---	---	Kupka '48	R. Suisse Z. 55.
<u>C. exiguum altellus</u>	70+2m	---	---	"	"
<u>C. lavaretus</u>	80m	---	16V's	Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt-fisk. 23.
<u>C. l. baeri</u>	"	---	---	Prokofieva '34	Cyt. 5.
<u>C. Schinzi duplex</u>	72m	---	---	Kupka '48	R. Suisse Z. 55.
<u>C. wartmanni</u> <u>coeruleus</u>	70+2m	---	---	"	"
<u>Coreg. l. baeri x</u> <u>Salv. font.</u>	80m	---	---	Prokofieva '34	Cyt. 5.
<u>Oncorhynchus keta</u>	74	---	Primordial germ cell	Makino '37	Z.M. (Jap.) 49.
<u>Osmerus eperlanus</u>	58m	---	10V's	Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt-fisk. 23.
<u>Salmo alpinus</u>	80m	---	16V's	"	"

TELEOSTOMI (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>S. carpio</u>	96s	---	---		Pomini '39	Sci. Genet. 1 (Italia).
<u>S. fario</u>	---	12 $\frac{1}{2}$ (1,11)	---		Böhm '91	Sitz. Ges. Morph. Phys. Munchen, 7.
" (<u>Trutta fario</u>)	24m	"	---		Behrens '98	A.Hf. 10.
" ('Forelle')	ca. 12?m	---	Sperm by radium		Oppermann '13	A.M.A. 83.
" "	84m	---	---		Prokofieva '34	Cyt. 5.
" "	"	---	---		Pomini '39	Sci. Genet. 1 (Italia).
<u>S. fontinalis</u>	84m	---	16V's		Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt.-fisk. 23.
<u>S. irideus</u>	12?s	---	---		Mrsic '23	A.M.A. 98.
<u>S. (Trutta) lacustris</u>	---	24 $\frac{1}{2}$ (1,11)	---		Blanc '94	Ber. Nat. Ges. Freiburg, 8.
"	70m	---	---		Pomini '39	Sci. Genet. 1 (Italia).
<u>S. marmoratus</u>	84s	---	---		"	"
<u>S. salar</u>	60m	---	---		Prokofieva '34	Cyt. 5.
"	"	30 $\frac{1}{2}$ (1)	12V's		Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt.-fisk. 23.
<u>S. salar x Salvelinus fontinalis</u>	70m	---	---		Prokofieva '34	Cyt. 5.
<u>S. trutta</u>	80m	40 $\frac{1}{2}$ (1)	16V's		Svärdson '45	Medd. Stat. Und. Försöksanst. Sötvatt.-fisk. 23.
<u>S. salar x S. trutta</u>	70m	30 $\frac{1}{2}$ (1) (32-38)	---		"	"
<u>S. trutta x S. salar</u>	---	20-30 $\frac{1}{2}$ (1)	Sterile	"	"	"
<u>Thymallus thymallus</u>	102m	---	28V's	"	"	"

AMPHIBIA

APODA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Coeciliidae					
<u>Ichthyophis glutinosus</u>	42s, 42δm	21δ(1,11)	---	Seshachar '36, '37a,b, '39	Z.Z.M.A. 24, 27; Cyt. 8, 10.
<u>Uraeotyphlus narayani</u>	36s	18δ(1,11)	---	Seshachar '39	L.C. 48.

URODELA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Amphiumidae					
<u>Amphiuma (means)</u>	---	12δ(1,11)	---	McGregor '99	J.M. 15, Suppl.
Cryptobranchidae					
<u>Cryptobranchus allegheniensis</u>	ca. 56m	---	---	Smith '29	J.M. 47.
"	62s	31δ(1,11)	---	Makino '34, '35	Z.M. (Jap.) 46; J.M. 58.
<u>Megalobatrachus japonicus</u>	56-58m	---	---	Suzuki '26	Z.M. (Jap.) 38.
"	64s	32δ(1,11)	Sex chrom. unknown.	Iriki '31, '32	P.I.A. (Tokyo) 7; S. R. Tokyo B.D. Sec. B, 1.
Chioglossidae					
<u>Chioglossa lusitanica</u>	—	12δ(1)	---	Mateus '42a,b	Inst. Zool. "Augusto Nobre" 12, 13.
Hynobiidae					
<u>Hynobius dunni</u>	56s	---	---	Makino '35	Jap. J.G. 10.
"	"	---	---	Sato '35, '36	Z.M. (Jap.) 47; J.S. Hiroshima U. Ser. B, 4.
<u>Hynobius kimurai</u>	56s	28δ(1,11)	20V's+36r's	Makino '35, '39	Jap. J.G. 10; Z.M. (Jap.) 51.

URODELA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Hynobius kirurai</u>	60s	---	16V's + 44r's	Sato '35, '36	Z.M. (Jap.) 47; J.S. Hiroshima U. Ser. B, 4.
<u>Hynobius naevius</u>	56s	28♂(1,11)	---	Makino '39	Z.M. (Jap.) 51.
<u>Hynobius nebulosus</u>	"	---	---	Makino '34a,b	Trans. Sapporo Nat. Hist. Soc. 13; Z.M. (Jap.) 46.
"	"	28♂(11)	---	Sato '35, '36	Z.M. (Jap.) 47; J.S. Hiroshima U. Ser. B, 4.
<u>Hynobius nigrescens</u>	"	---	---	Makino '32	J.F.S. Hokkaido I.U. Ser. VI, 2.
<u>Hynobius leechii</u>	"	28♂(1,11)	---	Makino '34a,b	Trans. Sapporo Nat. Hist. Soc. 13; Z.M. (Jap.) 46.
<u>Hynobius lichenatus</u>	58s	---	---	Makino '32	J.F.S. Hokkaido I.U. Ser. VI, 2.
<u>Hynobius retardatus</u>	40s	20♂(1,11) 20♀(1,11)	Sex chrom. unknown.	Makino '32, '33 '34, '47	J.F.S. Hokkaido I.U. Ser. VI, 2; Jap. J.G. 8; J.F. S. Hokkaido I.U. Ser. VI, 3, 9.
<u>Hynobius okiensis</u>	56s	---	---	Sato '40	Z.M. (Jap.) 52.
<u>Hynobius sadoensis</u>	"	---	---	Sato '43	
<u>Hynobius stejnegeri</u>	"	---	---	Makino '32	Z.M. (Jap.) 51.
<u>Hynobius tsuensis</u>	"	---	---	Sato '35, '36	Z.M. (Jap.) 47; J.S. Hiroshima U. Ser. B, 4.
<u>Hynobius tokyoensis</u>	56s	---	---	Makino '32	J.F.S. Hokkaido I.U. Ser. VI, 2.
<u>Pachypalaminus bouleengeri</u>	"	---	---	Sato '34, '35, '36	Z.M. (Jap.) 46, 47; J.S. Hiroshima U. Ser. B, 4.
<u>Salamandrella keyserlingii</u>	62s	---	---	Makino '32	J.F.S. Hokkaido I.U. Ser. VI, 2.

URODELA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Proteidae						
<u>Proteus anguineus</u>	18s	9♂(1,11)	---	---	Stieve '18, '20	A.A. 51; A.M.A. 93.
<u>Necturus maculosus</u>	---	12♂(1)	X or XY associates with an autosome?	---	King '12	A.R. 6.
Salamandridae						
<u>Ambystoma mexicanum</u>	28s	---	---	---	Wickbom '45	Hered. 31.
"	2n(28), 3n, n & mosaics	---	Refriger- ated eggs. Oocytes de- generate.	Fankhauser & Humphrey '42, '46	---	B.B. 33; J.M. 79.
<u>A. tigrinum('Siredon')</u>	12m	---	---	---	Kölliker '89	Gewebelehre d. Menschen.
" ('Axolotl')	ca. 16m	4-10♀(1), 8♀(11)	---	---	Fick '93	Z.W.Z. 56.
" ("")	ca. 30m	14-16♀(1,11)	---	---	Jenkinson '04	Q.J.M.S. 48.
" ('Siredon')	24m	---	---	---	Muckermann '13	L.C. 28.
" "	---	---	---	---	Mack '14	Kansas Univ. Sci. Bull. 9.
"	28m	---	---	---	Parmenter '19	J.M. 33.
"	28s	14♂(1)	Sex chrom. unknown.	Galgano '33, '38	---	A.I.A.E. 32; Atti Soc. Ital. Anat. 7.
" "	"	"	X-0♂; X+autosome?	Carrick '34	Trans. Roy. Soc. Edinb. 58.	
"	24, 28m	---	---	---	Prokofieva '35	Cyt. 6.
<u>Anaides(=Autodax) lugubris</u>	28(23-30)s	14♂(1)	---	Snook & Long '14	Univ. Calif. Publ. 11.	
<u>Batrachoseps attenuatus</u>	24s	12♂(1,11)	---	Eisen '30	J.M. 17.	
"	24m	"	---	Janssens & Dumez '03; Janssens '05	L.C. 20; L.C. 22.	

URODELA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Desmognathus fuscus</u>	---	12♂(1,11)	---		Kingsbury '99, '02	Zool. Bull. 2; A.J.A. 1.
"	24s	12♂(1)	---		Montgomery '03	B.B. 4.
<u>Eurycea bislineata</u>	28m(2n) 42m(3n) 56m(4n)	---	3n & 4n in 10%, natur- ally occurred.		Fankhauser '39	J.H. 30.
<u>Gekkotriton (=Spelerpes) fuscus</u>	24s	12♂(1,11)	---		Terni '10, '14	A.Zf. 12.
<u>Plethodon cinereus</u>	"	12♂(1)	---		Montgomery '03	B.B. 4.
<u>Pleurodeles waltlili</u>	---	12♂(1)	Sex chrom. unknown.		Galgano '33	A.I.A.E. 32.
"	24s	12♂(1)	---		Wickbom '45	Hered. 31.
<u>Salamandra atra</u>	16♀s	---	---		Champy '13	A.Z.E.G. 52.
<u>S. maculosa</u>	24s	12♂(1,11)	---		Flemming '82, '87	A.M.A. 20, 29.
"	"	---	---		Rabl '85, '89	Morph. Jb. 10; A.A. 14.
"	24s, 24o, 24m	12♂(1,11)	---		Vom Rath '93, '94	Z.W.Z. 57; B.Z. 14.
"	"	"	---		Meves '95, '97, '11	A.A. 10; A.M.A. 48. 77.
"	24s	12♂(1,11) 12♀(1,11)	---		Janssens '00, '01, '02, '04	A.A. 17; L.C. 19; A.A. 21, 24.
"	"	12♂(1,11)	---		Schreiner '07	A.E. 22.
"	4-43m(a) 19-21m(b)	---	(a) blood cell (b) soma	Della Valle '09, '11		Arch. Zool. Ital. 4, 5.
"	24s, 24m	---	---		DeHorne '10, '11	C.R.A.S. 150; A.Z. 6.
"	16♀s	---	---		Champy '13	A.Z.E.G. 52.
"	24s, 24m	---	---		Mückermann '13	L.C. 28.
"('Salamander')	24m	---	---		von Erlanger '96	Z.A. 19.

URODELA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>S. salamandra</u>	24s	12 \hat{o} (1)	---	Wickbom '49	Hered. 35.
<u>Salamandrina persicullata</u>	—	12 \hat{o} (1)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.
<u>Triton alpestris</u>	—	12 \hat{o} (1,11)	---	Carnoy & Lebrun '99; Lebrun '01	L.C. 16, 19.
"	24s	12 \hat{o} (1,11)	---	Janssens '00, '01, '02, '04	A.A. 17; L.C. 19; A.A. 21; 24.
"	18-24s	—	—	Champy '13	A.Z.E.G. 52.
"	n, 2n, 3n	—	Ovary de- generates.	Fischberg '45, '47	R. Suissez. 52, 54.
<u>(Triturus alpestris)</u>	24s	12 \hat{o} (1)	---	Wickbom '49	Hered. 35.
<u>T. cristatus</u>	—	12 \hat{o} (1,11)	---	Carnoy & Lebrun '99	L.C. 16.
"	24s	12 \hat{o} (1,11)	---	Janssens '00, '01, '02, '04	A.A. 17; L.C. 19; A.A. 21, 24.
"	24m	—	—	Jolly '04	A.A.M. 6.
"	18-24s	—	—	Champy '13	A.Z.E.G. 52
"	24s	12 \hat{o} (1,11)	—	Meek '13	Phil. Trans. Roy. Soc. London 23B.
"	"	"	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.
<u>(Triturus cristatus)</u>	24s	12 \hat{o} (1)	---	Wickbom '45	Hered. 31.
(" ")	—	"	---	White '46	J.E.Z. 102.
<u>T. crist. ♂ x</u> <u>T. marmoratus ♀</u>	—	(2-20) II + (6-20) I \hat{o} (1) 7-24 \hat{o} (11)	Sterile; no sperm- formation.	"	"
<u>(Double back-cross)</u>	—	(2-11) II + (2-20) I \hat{o} (1) 6-7 \hat{o} (11)	"	"	"

URODELA (Continued)

Series		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>T. palmatus</u>	18-24s	---	---		Champy '13	A.Z.E.G. 52.
"	12-16m	---	---		Retzius '81	Biol. Unters.
"	7-24m 8-19m	---	Merogony	Fankhauser '34, '37	J.E.G. 68, 75.	
"	n, 3n, 4n	---	Ovary de- generates.	Fischberg '45, '47	R. Suisse Z. 52, 54.	
<u>T. punctatus</u>	24s	12 ^o (1,11)	---		Janssens '00, '01, '02, '04	A.A. 17; L.C. 19; A.A. 21, 24.
<u>Triton (Molge) pyrrhogaster</u>	"	---	---		Muckerman '13	L.C. 28.
<u>Triton taeniatus</u>	---	12-14 _o (1)	---		Born '94	A.M.A. 43.
"	---	12 _o (1,11)	---		Carnoy & Lebrun '99	L.C. 16.
"	24m	---	---		Prokofieva '35	Cyt. 6.
"	12m(n)	---	Merogonic individual(n)	Baltzer '22; Fankhauser '38a,b	Verh. Schweiz Nat. Ges. Bern; J.M. 62; J.E.Z. 79.	
"	36s(3n)	---	3n adult:Uni- trivalents ap- pear.	Böök '40	Hered. 26.	
<u>T. vulgaris</u>	18-24s	---	---		Champy '13	A.Z.E.G. 52.
"	12m	---	With sperms treated with radium.	Hertwig '13	A.M.A. 82.	
"	24s	12 ^o (1,11)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.	
" <u>(Triturus vulgaris)</u>	24s	12 (1)	---	Wickbom '45	Hered. 31.	
<u>(Triton sp.)</u>	24m	---	---	Rebl '85	A.A. 14.	
"	24s	12 ^o (1)	---	Moore & Emble- ton '05; Moore & Arnold '05	P.R.S. Lond. 77, 77.	
<u>T. palmatus x Salamandra</u>	24m	---	Early death in develop.	Schönmann '38	Roux' Arch. 138.	

URODELA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Triton x Salamandra</u>	12m(n)	---	Merogonic hybrid; early death.	Boehringer	Roux! Arch. 138.
<u>Triturus ensicauda</u>	24s	12 \hat{o} (1,11)	Sex chrom. unknown.	Sato '34	J.S. Hiroshima U. Ser. B, 3.
<u>Triturus (Diemyctilus) pyrrhogaster</u>	"	"	"	Iriki '31, '32a,b	P.I.A. (Tokyo) 7; Z.M. (Jap.) 44; S.R. Tokyo B.D. Ser. B, 1.
"	"	"	"	Sato '32	J.S. Hiroshima U. Ser. B, 2.
"	12m(n)	---	Merogonic; early death.	Fankhauser '37	J.H. 28.
"	"	---	Androgenic; 3n appear.	Kaylor '39, '40a, '40b	B.B. 77, 79, 79.
"	12m(n) 36(3n) 36s(") 36-37o(")	---	3n from refrigerated eggs. Ovaries rudimentary in 3ng. Meiosis irregular in 3nn \hat{o} .	Kawamura '41, K. & Sanada '43, '49	Z.M. (Jap.) 53; Hyogoken Nat. Hist. Soc. 8-9; Jikken-Keitai-gaku 5.
"	12m(n)	---	n in connective tissue	Ishizawa '37	C.R.S.B. 125.
"	2n, 3n, n	---	Spontaneous & cold-induced eggs.	Fankhauser, Crotta & Perrot '42	J.E.Z. 89.
"	24s 24o	12 \hat{o} (1,11)	No sex element.	Maki '49	Seibutu. 4.
<u>Triturus similans</u>	2n, 3n, n	---	Refrigerated eggs.	Castello '42	A.R. 84.
<u>Triturus (Diemyctilus) torosus</u>	---	10-12 \hat{o} (1,11)	---	Lebrun '02a,b	B.B. 3; L.C. 20.
<u>Triturus viridescens</u>	22m(2n) 33m(3n)	---	Spontaneous 3n in 1.6%	Fankhauser '38a,b; '39, '40, '41	Proc. Am. Phil. Soc. 79; A.R. 72; Genet. 24; A.R. 77; J.M. 68.
"	3-40m	---	Merogonic; Chrom. number variable	Fankhauser '32	A.R. 54.

URODELA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Triturus viridescens</u>	11m(n) 7-20m	---	Androgenic; Chrom. num- ber variable	Kaylor '35, '39	A.R. 64; B.B. 77.
"	33m(3n)	---	From refri- gerated eggs; 3n in 80%	Fankhauser & Griffiths '39; Griffiths '41	Proc. Nat. Acad. Sci. 25; Genet. 26.
"	54m(5n)	---	5n naturally appeared.	Fankhauser '41	Genet. 26.
"	2n, 3n, n	---	From eggs treated with cold & heat.	Fankhauser '42, F. & Watson '42 a, b, F. '45, F. & Godwin '48	Biol. Symp. 6: Proc. Nat. Acad. Sci. 28: A.R. 84: Q. Rev. Biol. 20: Proc. Nat. Acad. Sci. 34.
<u>Tylototriton andersoni</u>	24s	12 \hat{o} (1,11)	---	Sato '41	Kagaku 11.
"	24s	---	---	Makino '50	La Kromosomo 6.

ANURA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Bufoidae					
<u>Bufo americanus</u>	---	11 \hat{o} (1,11)	X-Y?	Witschi '43	Cyt. 4.
<u>B. arenarium</u>	22s	"	Sex chrom. unknown.	Saez, Rojas & Robertis '34a, '34b, '36a,b	C.R.S.B. 117; Rev. Soc. Argen- tina Biol. 10; Inst. Mus. Nac. Plata, 2; Z.Z. M.A. 24.
<u>B. bufo japonicus</u>	"	"	X-X?	Iriki '29; Minouchi & Iriki '31	Z.M. (Jap.) 41; M.C.S. Kyoto I. U. Ser. B, 6.
<u>B. bufo</u>	22s	11 \hat{o} (1)	22 V's	Wickbom '45, '49	Hered. 31, 35.
<u>B. calamita</u>	---	12 \hat{o} (1)	---	Bataillon '10	A.Z.E.G. Ser. V, 6.
"	22s	11 \hat{o} (1,11)	---	Stohler '27a, '27b, '28	B.Z. 47; Verh., Schweiz Nat. Ges. 108; Z.Z.M.A. 7.

ANURA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>B. calamita</u>	22s	11♂(1)	22 V's	Wickbom '45, '49	Hered. 31, 35.
<u>B. canorus</u>	---	"	X-Y?	Witschi '33	Cyt. 4.
<u>B. fowleri</u>	---	"	"	"	"
<u>B. lentiginosus</u>	24s 24o	12♂(1,11) 12♀(1,11)	---	King '01, '02, '05, '07, '08	J.M. 17; A.A. 21; B.B. 9; A.J.A. 7; J.M. 19.
"	---	11♂(1,11)	X-Y?	Witschi '33	Cyt. 4.
<u>B. quercicus</u>	---	"	"	"	"
<u>Bufo raddei</u>	22s	11♂(1,11)	---	Sato '36	Z.M. (Jap.) 48.
<u>B. regularis</u>	---	"	---	Wickbom '49	Hered. 35.
<u>B. sachalinensis</u>	22s	"	---	Makino '30, '32	Z.M. (Jap.) 42; P.I.A. (Tokyo) 8.
<u>B. viridis</u>	22s, 22o	"	---	Stohler '26, '27a, '27b, '28	B.Z. 16; 47; Verh. Schweiz Nat. Ges. 108; Z.Z.M.A. 7.
"	22s	11♂(1)	---	Beccari '26a,b	C.R. Assoc. Anat. (Liege) 21; Ann. Anat. Path. Mem.- Chir. 3.
"	"	11♂(1,11)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.
"	"	11♂(1)	22 V's	Wickbom '45	Hered. 31.
<u>B. vulgaris</u>	---	8-10♂(1), 8♀(11)	---	Carnoy & Lebrun '00, Lebrun '01	L.C. 17, 19.
"	18-24o	---	---	Della Valle '07	Atti R.Acad. Sci. Napoli, Ser. IIa, 13.
"	---	8-9♂(1)	---	Bataillon '10	A.Z.E.G. Ser. V, 6.
"	22s, 22o	11♂(1,11)	---	Stohler '27a, '27b, '28	B.Z. 47; Verh. Schweiz Nat. Ges. 108; Z.Z.M.A. 7.
"	22s	"	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.

ANURA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>B. vulgaris</u>	22s, 24m	---	---	Poska-Teiss '33	Z.Z.M.A. 17.
"	22s	11 \hat{o} (1)	22 V's	Wickbom '45	Hered. 31.
Discoglossidae					
<u>Alytes obstetricans</u>	32s	16 \hat{o} (1)	---	Janssens & Willemse '09	L.C. 25.
"	36s	18 \hat{o} (1)	12 V's	Wickbom '49	Hered. 35.
<u>Bombinator igneus</u>	---	6-7 \hat{o} (11)	---	Lebrun '01	L.C. 19.
<u>Bombinator pachypus</u>	24s	12 \hat{o} (1,11)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.
<u>Bombina orientalis</u>	"	"	---	Sato '35, '38	Z.M. (Jap.) 47; J.S. Hiroshima U. Ser. B, 6.
<u>B. bombina</u>	24s	12 \hat{o} (1)	24 V's	Wickbom '49	Hered. 35.
<u>B. variegata</u>	"	"	"	"	"
<u>Dyscoglossus pictus</u>	28s	---	20 V's	Wickbom '45, '49	Hered. 31, 35.
Engystomidae					
<u>Cacopoides tornieri</u>	28s	14 \hat{o} (1,11)	---	Sato '36	Z.M. (Jap.) 48.
Hylidae					
<u>Acrits crepitans</u>	22s	11 \hat{o} (1)	22 V's	Bushnell, Bushnell & Parker '39	Jour. Tennessee Acad. Sci. 14.
<u>A. gryllus</u>	"	"	"	"	"
<u>Hyla arborea</u>	24s	12 \hat{o} (1,11)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 32.
"	"	"	24 V's	Wickbom '45	Hered. 31.
<u>H. arborea japonica</u>	"	"	X-X \hat{o} ?	Iriki '30, '32a,b	M.C.S. Kyoto I.U. Ser. B, 5; S.R. Tokyo B.D. Ser. B, 1.
<u>H. avivoca</u>	24s	12 \hat{o} (1)	24 V's	Bushnell, Bushnell & Parker '39	J. Tennessee Acad. Sci. 14.

ANURA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>H. cinerea</u>	24s	12 \hat{o} (1)	24	V's	Bushnell, Bushnell & Parker '39	J. Tennessee Acad. Sci. 14.
<u>H. versicolor</u>	"	"	"	"	"	"
Pelobatidae						
<u>Pelodytes punctatus</u>	—	6 \hat{o} (1)	—		Etaillon '10	A.Z.E.G. Ser. V, 6.
<u>Pelobates fuscus</u>	26s	13 (1)	26	V's	Wickbom '45, '49	Hered. 31, 35.
Pipidae						
<u>Xenopus laevis</u>	36s	18 (1)	12	V's	"	"
Ranidae						
<u>Polypedates buergeri</u>	26s	13 \hat{o} (1,11)	—		Sato '34	Z.M. (Jap.) 46.
<u>Rana agilis</u>	26s	—	—		Matthey '47	Sci. Genetica 3.
<u>R. arvalis</u>	24s	12 \hat{o} (1)	24	V's	Wickbom '45	Hered. 31.
"	26s	13 \hat{o} (1)	26	V's	Cei '46	Monit. Zool. Ital. 55.
<u>R. catesbeiana</u>	26s	—	—		Swingle '17	B.B. 33.
"	28s	14 \hat{o} (1)	Larval testes		Swingle '21	J.E.Z. 32.
"	26s	13 \hat{o} (1,11)	26	V's	Makino '47	La Kromosomo 3-4.
<u>R. dalmatina</u>	26s	13 \hat{o} (1)	26	V's	Cei '46	Monit. Zool. Ital. 55.
<u>R. esculenta</u> ^S	24m	—	—		Schottländer '38	A.M.A. 31.
"	"	—	—		vom Rath '95	A.M.A. 46.
"	16s	—	—		Champy '13	A.Z.E.G. 52.
"	ca. 25s	13 \hat{o} (1) 12,13 \hat{o} (11)	X-0 \hat{o} ↑		Levy '15	A.M.A. 86.
"	12-28m	—	R. escul. ♀ x Hertwig G. Bufo viridis u.P. '20			A.M.A. 94.
"	30-38m	—	Pseudohy- brid	"	"	"

ANURA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>R. esculenta</u>		13-39m	---	Geno- and androgenic	Dalcq '30, '32	Ann. Bull. Soc. Roy. Sci. Med. Nat. Bruxelles; A.B. 43.
"		26s	13 \hat{o} (1,11)	Sex chrom. unknown.	Galgano '31a, '31b, '31c, '33a, '33b, '34, '35	M.Z. Italiano, 41, 42; A.I.A.E. 31, 32; M.Z. Italiano, 45; A.I.A.E. 34.
"		26s	13 \hat{o} (1)	26 V's	Wickham '45	Hered. 31.
"	"	"	"	"	Cei '46	Monit. Zool. Ital. 55.
<u>R. graeca</u>	"	"	"	"	"	"
<u>R. japonica</u>		26s	---	---	Kawamura '39, '43	Z.M. (Jap.) 51, 55.
"		39m(3n)	---	Artif. parthenogenesis	Kawamura '39a, '39b, '40	J.S. Hiroshima U. Ser. B, 7; Z.M. (Jap.) 51; J.S. Hiroshima U. Ser. B, 8.
"		26s	13 \hat{o} (1,11)	---	Kobayashi '46	Shizen-Kenkyu Nov. '46.
<u>R. japonica ♀ x R. temporaria ♂</u>		25s	---	Meiosis irregular in ♂ I. Allotetraploids produced by refrigeration of F ₁ eggs.	Kawamura '42, '43a, b	Jap. J.G. 18; Z.M. (Jap.) 55, 55.
<u>R. limnocharies</u>		26s	13 \hat{o} (1,11)	---	Sato '33, '34	P.I.A. Tokyo 9; Z.M. (Jap.) 46.
<u>R. nisromaculata</u>	"	"	X-X \hat{o} ?		Iriki '28, '32	Z.M. (Jap.) 40; S.R. Tokyo B.D. Sec. B, 1.
"	"		13 \hat{o} (1)	---	Ting '36	Peking Nat. Hist. Bull. 13.
"		13m(n) 26m(2n) 39m(3n) 52m(4n) 78m(6n) etc.	---	In larvae of artif. parth. n, 2n, 3n, 4n, 6n & myxoploids occur.	Kawamura '37, '39a, b, '40, '41	Nippon Gakuzyutsu Kyokai 12; J.S. Hiroshima U. Ser. B, 6, 7, 8; Z.M. (Jap.) 53.

ANURA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Rana nigromaculata</u>	39s(3n) 39o(")	---	From refrigerated eggs	Kawamura '41a, '41b, '43	P.I.A. (Tokyo) 17; Z.M. (Jap.) 53; Jap. J.G. 19.
<u>R. nigromaculata x R. planctyi</u>	26s	13 \hat{o} (1)	Meiosis regular	Ting '39	Peking Nat. Hist. Bull. 13.
<u>R. palustris</u>	13m(n) 26m(2n) 39m(3n)	---	Parth. larva. n, 2n, 3n & mixoploids	Parmenter '32, '33	A.R. 54; J.E.Z. 66.
<u>R. pipiens</u>	25s, 26o	13 \hat{o} (1) 12, 13 \hat{o} (11)	X-X \hat{o} ?	Swingle '17	B.B. 33.
" ('Leopard frog')	20s	—	Parth. larva	Loeb '18	Proc. Nat. Acad. Sci. Wash. 4.
"	26s, 26o	13 \hat{o} (1)	"	Parmenter '20, '25	J.G.P. 2, 8.
"	13(n), 26(2n), 39(3n)m	---	Parth. Larva. n, 2n, 3n & mixoploid	Parmenter '26, '32, '33	A.R. 34, 54; J.E.Z. 66.
"	13(n), 26(2n), 36-39(3n)m	---	Androgenic larva.	Porter '38, '39, '41	A.R. 72; B.B. 77, 80.
<u>R. planctyi</u>	26s	13 \hat{o} (1)	—	Ting '39	Peking Nat. Hist. Bull. 13.
<u>R. rugosa</u>	"	13 \hat{o} (1, 11)	X-X \hat{o} ?	Iriki '28, '32	Z.M. (Jap.) 40; S.R. Tokyo B.D. Sec. B, 1.
<u>R. tigrina</u>	"	13 \hat{o} (1)	---	Asana	Unpublished.
<u>R. temporaria</u>	---	8 \hat{o} (1)	---	Bertacchini '96	Int. Monats. Anat. Phys. 13.
"	—	8-10 \hat{o} (1) 10 \hat{o} (11)	---	Carnoy & Lebrun '00; Lebrun '01	L.C. 17, 19.
" (<u>R. fusca</u>)	24s	12 \hat{o} (1, 11)	—	vom Rath '95	A.M.A. 46.
" ("")	12m	12 \hat{o} (1)	Parth. Larva.	Bataillon '10	A.Z.E.G. Ser. V, 6.
" ("")	ca. 20m	---	"	Brachet '11	A.B. 26.
" ("")	8-24m	---	"	Levy '13, '20	A.M.A. 82; Sitz. Preuss. Akad. Wiss.

ANURA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>R. temporaria</u> <u>(R. fusca)</u>		13-27m	---	Parth. larva	Hovasse '20, '22a, '22b	C.R.A.S. 170; 174; B.B. Fr. Pel. 56.
"		26s	13♂(1,11)	X-Y?	Witschi '22, '24	Z.I.A.V. 27; Z.Z.M.A. 1.
"		"	"	---	Makino '32, '46	P.I.A. (Tokyo) 8; La Kromosomo 2.
<u>Rana temporaria</u>		26s	13♂(1,11)	Sex chrom. unknown.	Galgano '33	A.I.A.E. 31.
"		26m	---	---	Prokofieva '35	Cyt. 6.
<u>('Frosch')</u>		16m	---	Blood cell	Dekhuyzen '91	A.A. 6.
<u>('Grenouille')</u>		24m	---	Parth. larvae	Dehorne '10	C.R.A.S. 150.
"		13m(n) 26m(2n), 39m(3n)	---	Parth. larvae	Parmenter '37, '40	A.R. 70; J.M. 66.
"		24s	---	---	Kawamura '43	Z.M. (Jap.) 55.
"		26s	13♂(1)	26 V's	Wickbom '45	Hered. 31.
"		24s	---	---	Kobayashi '46	Shizen-Kenkyu Nov. '46.
<u>R. t. ornati-ventris</u>	"	12♂(1,11)	---	"	"	"
<u>(Rana sp.)</u>		26s	13♂(1)	---	Goldschmidt '20	A.Zf. 15.
<u>Rhacophorus schlegelii</u> <u>schlegelii</u>		26s	13♂(1,11)	---	Makino '32	P.I.A. (Tokyo) 8.

REPTILIA

CROCODILIA

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Alligator mississippiensis</u>		32s	16♂(1)	---	Risley '42	A.R. 84.
"	"	---		10 V's occur.	Matthey '47	Sci. Genetica 3.

CHELONIA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Chelonidae						
<u>Caretta caretta</u>	58s	—	X-X♂, X0♀	Nakamura '37, '49	Jap. J.G. 13; La Kromosomo 5-6.	
<u>olivacea</u>	57o					
<u>Chelonia japonica</u>	56s	—	XX♂, X0♀	Oguma '42	Kaibogaku-Zassi 20.	
	55o					
Cincosternidae						
<u>Sternotherus odoratus</u>	50s	25♂(1,11)	—	Risley '36	Cyt. 7.	
Testudinidae						
<u>Chrysemys cinerea</u>	—	25♂(1)	—	Glascock '14	Thesis Univ. Wisconsin (1914).	
<u>Chrysemys marginata</u>	—	17♂(1)	X-0♂	Jordon '14	Sci. 39.	
<u>Cistudo carolina</u>	—	16♂(1)	"	"	"	
<u>Clemmys japonica</u>	52s	26♂(1)	X-X♂	Nakamura '35	M.S.C. Kyoto I.U. Ser. B, 10.	
<u>Clemmys mutica</u>	52s	26♂(1)	"	Nakamura '37, '49	Jap. J.G. 13; La Kromosomo 5-6.	
<u>Cyclemys flavomarginata</u>	52s	26♂(1,11)	"	"	"	
<u>Emyd orbicularis</u> <u>(= E. euromaea)</u>	50s	25♂(1)	"	Matthey '30, '31	Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	
"	"	"	—	Wickbom '45	Hered. 31.	
<u>Geoemyda spengleri</u> <u>japonica</u>	52s	26♂(1)	X-X♂; 4n spermato- cytes appear	Nakamura '37, '49	Jap. J.G. 13; La Kromosomo 5-6.	
<u>Ocadia sinensis</u>	52s	26♂(1)	X-X♂	Nakamura '49	La Kromosomo 5-6.	
<u>Testudo graeca</u>	54-60s	—	—	Matthey '31	R. Suisse Z. 38.	
Trionychidae						
<u>Amyda japonica</u>	64s	32♂(1,11)	X-X♂, X-0♀	Oguma '36, '37	Jap. J.G. 12; J.G. 34.	
	63o	31+X, ♀(1)				

RHYNCHOCEPHALIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Sphenodon punctatum</u>	36s	18 \hat{o} (1,11)	---	Keenan '32	J. Anat. 67.

LACERTILIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Agamidae					
<u>Agama stellio</u>	36s	18 \hat{o} (1,11)	X-X \hat{o}	Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.
<u>Calotes versicolor</u>	34s 33o	17 \hat{o} (1) X-X \hat{o} , X-0 \hat{o}		Makino & Asana '48	Chrom. 3.
<u>Janarula polygonata</u>	46s	23 \hat{o} (1,11)	---	Momma '48, Momma & Makino '49	Z.M. (Jap.) 58; Cyt. 15.
<u>J. swinhonis</u>	46s	23 \hat{o} (1,11)	X-X \hat{o}	Nakamura '31, '35	P.I.A. (Tokyo) 7; M.C.S. Kyoto I. U. Ser. B, 10.
<u>Sitana ponticeriana</u>	46s 45o	23 \hat{o} (1) X-X \hat{o} , X-0 \hat{o}		Makino & Asana '48	Chrom. 3.
<u>Uromastix hardwicki</u>	36s	18 \hat{o} (1,11)	X-X \hat{o}	Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.
"	34s	---	"	Makino & Asana '48, '50	Chrom. 3; Iden- Sogo-Kenkyu 1.
Amphisbaenidae					
<u>Rhineura floridana</u>	46s	23 \hat{o} (1,11)	"	Matthey '32, '33	C.R.S.B. 110; R. Suisse Z. 40.
<u>Tropidonophis wiegmanni</u>	36s	18 \hat{o} (1,11)	"	Matthey '31, '32	Bull. Soc. Vaud. Sci. Nat. 57; A.Z.E.G. 74.
Anguidae					
<u>Anguis fragilis</u>	—	12 \hat{o} (1)	—	Loyez '05	A.A.M. 8.
"	36?m	18?o(1)	—	Trinci '08	Mem. R. Acad. Sci. Bologna, Ser. VI, 5.

LAGERTILIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u><i>Anguis fragilis</i></u>	ca. 43s	22 \hat{o} (1)	X- $\hat{X}\delta$?	Dalcq '20a, b, '21	C.R.S.B. 83; A.B. 31.	
"	43s	22 \hat{o} (1,11)	X-X \hat{o} ; 1 V- chrom. in 2n.	Matthey '29, '31a,b	C.R.Soc. Phys. Geneve 46; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	
"	44s 44o	22 \hat{o} (1)	X-Y δ ? Sex chrom. un- known.	Margot '46	R. Suisse Z. 53.	
<u><i>Gerrhonotus kingi</i></u>	45s	---	X-X \hat{o} ; 1V chrom. in 2n	Matthey '29, '31,a,b	C.R. Soc. Phys. Geneve 46; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	
<u><i>Gerrhonotus scincicauda</i></u> <u>(=G. caeruleus)</u>	44, 45s	22 \hat{o} (1)	X-X \hat{o} ; 1V chrom. in 2n	Matthey '29, '31a,b,'32,'33	C.R. Soc. Phys. Geneve 46; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38; C.R.S.B. 110; R. Suisse Z. 40.	
<u><i>Ophisaurus ventralis</i></u>	30s	15 \hat{o} (1)	X-X \hat{o}	Matthey '29, '31a,b	C.R. Soc. Phys. Geneve 46; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	
<u><i>Pseudopus apus</i></u>	44s	22 \hat{o} (1,11)	"	"	"	"
Aniellidae						
<u><i>Aniella pulchra</i></u>	24s	---	"	Matthey '31a,b	Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	
Chamaeleontidae						
<u><i>Chamaeleon vulgaris</i></u>	24s	12 \hat{o} (1,11)	"	Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.	
"	24o, 24s	---	X-V δ ? Sex chrom. unknown.	Matthey '43	Arch. Jul. Klaus- Stift. Vererb. 18.	

LACERTILIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
Eublepharidae						
<u>Eublepharis variegatus</u>	32s	16 \hat{o} (1,11)	X-Y? Sex chrom. unknown.	Matthey '32a, '32b, '33	C.R.S.B. 110; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 40.	
Geckonidae						
<u>Gehyla variegata</u> <u>opasawarasiæ</u>	63o	---	X-0 δ	Makino & Momma '49	Cyt. 15.	
<u>Gekko japonicus</u>	38s	19 \hat{o} (1,11)	"	Nakamura '31, '32	P.J.A. (Tokyo) 7; Cyt. 3.	
"	---	207 \hat{o} (1)	XY-0 δ ?	Su-Huen '33	J.M. 54.	
<u>Gymnodactylus</u> <u>milliusi</u>	38s	19 \hat{o} (1,11)	X-X δ	Matthey 32a, 32b, 33	C.R.S.B. 110; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 40.	
<u>Hemidactylus</u> <u>bowringii</u>	46s	23 \hat{o} (1,11)	"	Nakamura '31, '32	P.I.A. (Tokyo) 7; Cyt. 3.	
<u>H. flaviviridis</u>	46s	23 \hat{o} (1)	---	Asana & Mahabale '41	Current Sci. 10.	
"	"	"	---	Makino & Asana '50	Iden-Sogo-Kenkyn 1.	
<u>H. frenatus</u>	46s	23 \hat{o} (1)	---	Momma '48, Makino & Momma '49	Z.M. (Jap.) 58; Cyt. 15.	
<u>Tarentola mauretanica</u>	42s	21 \hat{o} (1,11)	X-X δ	Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.	
Gerrhosauridae						
<u>Gerrhosaurus</u> <u>flavicularis</u>	36s	18 \hat{o} (1,11)	"	Matthey '32, '33	C.R.S.B. 110; R. Suisse Z. 40.	
Helodermatidae						
<u>Heloderma suspectum</u>	38s	19 \hat{o} (1,11)	"	Matthey '31a, b	Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.	

LACERTILIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Iguanidae						
<u>Anolis carolinensis</u>	34s	17 δ (1) 16, 17 δ (11)	XX-0 δ ?		Painter '21	J.E.Z. 34.
"	36s	18 δ (1, 11)	X-X δ		Matthey '29, '31 C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.	
<u>Crotaphytus collaris</u>	36-38s	18 δ (1)	XX-0 δ ?		Painter '21	J.E.Z. 34.
<u>Holbrookia texana</u>	34? s	18-19 δ (1)	X-0?		"	"
<u>Sceloporus spinosus</u>	22s	11 δ (1)	XX-0 δ ?		"	"
<u>Sceloporus undulatus consobrinus</u>	30? s	14-17 δ (1)	"		"	"
<u>Uta ornata</u>	"	14-15 δ (1)	"		"	"
Lacertidae						
<u>Lacerta agilis</u>	20-28s	10-15 δ (1)	---		Tellyesniezky '97	Math. Natwiss. Ber. Hungarn 13.
"	38s	19 δ (1, 11)	X-X δ		Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.
<u>Lacerta muralis</u>	"	"	"		"	"
<u>Lacerta stirpium</u>	240	8-12 δ (1)	---		Loyez '05	A.A.M. 8.
<u>Lacerta viridis</u>	38s	19 δ (1, 11)	X-X δ		Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38
<u>Lacerta vivipara</u>	38s	---	"		Matthey '31	R. Suisse Z. 38.
"	36s, 350, ?	18 δ (1, 11)	X-X δ , X-0?		Oguma '34a, b	Z.M. (Jap.) 46; A.B. 45.
"	---	18 δ (1)	Early accounts ('31) corrected		Matthey '34	C.R.S.B. 117.
"	36s	---	---		Nogusa '44	Jap. J.G. 20.
"	36s 360	---	X-Y? Sex chrom. un- known		Margot '46	R. Suisse Z. 53.

LACERTILIA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Lacerta ocellata</u>	36s	18 \hat{o} (1,11)		---	Matthey '38, '39	C.R.S.P. 127; Cyt. 10.
<u>Psammodromus hispanicus</u>	38s	19 \hat{o}		---	Matthey '39	Cyt. 10.
<u>Takydromus tachydromoides</u>	"	19 \hat{o} (1,11)	X-X \hat{o}		Nakamura '28, '35	M.C.S. Kyoto I.U. Ser. B, 4, 10.
"	"	---	---		Nogusa '44	Jap. J.G. 20.
<u>Takydromus formosanus</u>	"	19 \hat{o} (1,11)	X-X \hat{o}		Nakamura '31	P.I.A. (Tokyo) 7; M.C.S. Kyoto I.U. Ser. B, 10.
<u>Takydromus septentrionalis</u>	"	"	"		"	"
<u>Takydromus smaragdinus</u>	"	"	---		Nogusa '44	Jap. J.G. 20.
<u>Tropidosaurus elisirius</u>	"	"	X-X \hat{o}		Matthey '31b	R. Suisse Z. 38.
Scincidae						
<u>Chalcides tridactylus</u>	---	14 \hat{o} (1)	X-X \hat{o}		Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.
<u>Cryptoblephalus nigropunctatus</u>	28s	14 \hat{o} (1,11)	---		Makino & Momma '49	Cyt. 15.
<u>Eumeces latiscutatus</u>	26s	13 \hat{o} (1,11)	X-X \hat{o}		Nakamura '31a, '31b	P.I.A. (Tokyo) 7; Cyt. 2.
<u>E. elegans</u>	26s	---	---		Momma '48; Makino & Momma '49	Z.M. (Jap.) 58; Cyt. 15.
<u>E. marginatus</u>	"	---	---		"	"
<u>Mabuya macularia</u>	26s	---	---		Asana & Mahabale '41	Current Sci. 10.
"	32s	16 \hat{o} (1)	---		Makino & Asana '50	Iden-Sogo-Kenkyu 1.
<u>Scincus officinalis</u>	32s	16 \hat{o} (1,11)	X-X \hat{o}		Matthey '29, '31	C.R. Soc. Phys. Geneve 46; R. Suisse Z. 38.
<u>Sphenomorphus indicus</u>	28s	14 \hat{o} (1,11)	---		Momma '48, Makino & Momma '49	Z.M. (Jap.) 58; Cyt. 15

LACERTILIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Teiidae						
<u>Ameiva surinamensis</u>	50s	25 \hat{o} (1)	X-X \hat{o}		Matthey '33a,b	C.R.S.B. 112; R. Suisse Z. 40.
<u>Cnemidophorus fularis</u>	---	20 \hat{o} (1)	XX-0 \hat{o} ?		Painter '21	J.E.Z. 34.
<u>Cnemidophorus sexlineatus</u>	46s	23 \hat{o} (1,11)	X-X \hat{o}		Matthey '32a,b, '33	C.R.S.B. 110; Bull. Soc. Phys. Geneve 46; R. Suisse Z. 40.
<u>Tupinambis teguixin</u>	36s	18 \hat{o} (1,11)	"		Matthey '32, '33a,b	C.R.S.B. 110, 112; R. Suisse Z. 38.
Varanidae						
<u>Varanus gouldi</u>	40s	20 \hat{o} (1,11)	"		Matthey '31a,b	Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.
Xantusiidae						
<u>Xantusia henschawi</u>	42s	21 \hat{o} (1)	"	"	"	"
Zonuridae						
<u>Zonurus cataphractus</u>	46s	23 \hat{o} (1,11)	"		Matthey '29, '31a,b	C.R. Soc. Phys. Geneve 46; Bull. Soc. Vaud. Sci. Nat. 57; R. Suisse Z. 38.

OPHIDIA

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Colubridae						
<u>Coelopeltis lacertina</u>	42s	21 \hat{o} (1)	X-X \hat{o}		Matthey '31	R. Suisse Z. 38.
<u>Coronella austriaca</u>	36s	18 \hat{o} (1)	"		"	"
<u>Dinodon rufozonatum</u>	46s	23 \hat{o} (1,11)	"		Nakamura '35	M.C.S. Kyoto I.U. Ser. B, 10.



OPHIDIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Elaphe quadrivirgata</u>		36s	18 \hat{o} (1,11)	X-X \hat{o}	Nakamura '27, '29, '35	P.I.A. (Tokyo) 3; Z.M. (Jap.) 41; M.C.S. Kyoto I. U. Ser. B, 10.
<u>E. climacophora</u>	"		18 \hat{o} (1)	"	Nakamura '29, '35	Z.M. (Jap.) 41; M.C.S. Kyoto I. U. Ser. B, 10.
<u>Holarchus formosanus</u>	"		"	"	Nakamura '35	M.C.S. Kyoto I.U. Ser. B, 10.
<u>Macropistodon rudis carinatus</u>	46s		23 \hat{o} (1)	"	"	"
<u>Natrix tigrina</u>	40s		20 \hat{o} (1,11)	"	Nakamura '27, '28	P.I.A. (Tokyo) 3; M.C.S. Kyoto I. U. Ser. B, 4.
<u>Taraphis fallax</u>	36s		18 \hat{o} (1)	"	Matthey '31	R. Suisse Z. 38.
<u>Thamnophis butleri</u>	37s		"	XX-Y \hat{o}	Thatsher '22	Sci. 56.
<u>Tropidonotus natrix</u>	36s		"	X-X \hat{o}	Matthey '31	R. Suisse Z. 38.
<u>T. viperinus</u>	"		---	"	"	"
<u>Zamenis genonensis</u>	"		---	"	"	"
<u>Zoacys nigroarginatus oshimei</u>	"		---	"	Nakamura '35	M.C.S. Kyoto I.U. Ser. B, 10.
Elapidae						
<u>Bungarus multicinctus</u>	36s		18 \hat{o} (1,11)	"	"	"
<u>Naja naja atra</u>	38s		19 \hat{o} (1,11)	X-X \hat{o} ; 4n spermatocytes appear.	"	"
Hydridae						
<u>Laticauda semifasciata</u>	"		"	X-X \hat{o}	"	"
Crotalidae						
<u>Agkistrodon acutus</u>	36s		13 \hat{o} (1)	"	"	"
<u>A. halys blomhoffii</u>	"		18 \hat{o} (1,11)	"	Nakamura '27, '35	P.I.A. (Tokyo) 3; M.C.S. Kyoto I. U. Ser. B, 10.

OPHIDIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Trimeresurus</u> <u>mucrosquamatus</u>		36s	18 [†] (1,11)	X-Xo [†]	Nakamura '35	M.C.S. Kyoto I.U. Ser. B, 10.
<u>T. gramineus</u> <u>stejnegeri</u>	"	"	"	"	"	"
<u>T. flavoviridis</u>	36s	---	---		Momma '48, Makino & Momma '49	Z.M. (Jap.) 58; Cyt. 15.
<u>T. okinavensis</u>	"	---	---		"	"
Viperidae						
<u>vipera aspis</u>	42s	21 [†] (1)	X-Xo [†]	Matthey '28, '29, '31, '33	C.R. Soc. Phys. Geneve 45; B.Z. 49; R. Suisse Z. 38, 40.	
<u>V. berus sachaliensis</u>	36s	18 [†] (1,11)	---	Makino & Momma '49		Cyt. 15.

AVES
RATIMAE
STRUTHIONES

Species		Chromosome Number 2n	n	Remarks	Observer	References
Dromiceiidae						
<u>Dromiceius novaehol-</u> <u>lendice ('Emu')</u>	40-76m	---		Number var- ible in embryos	Shiwago & Peschkowskaja '36	Genetica 18.
Rheidae					"	"
<u>Rhea americana</u> (<u>'Nandu'</u>)	42-68m	---	"	"	"	"

CARINATAE
PASSERES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Corvidae					
<u>Coloeus monedula</u>	56-67♀, ♂m	---	X-X♂, X-Y♀; X=J ₂ or J ₃ *	Pogossianz '37	Biol. Zhurn. 6.
<u>Pica pica sericea</u>	82s, 81o	---	X-Y♀	Suzuki '49	Jap. J.G. 24.
Fringillidae					
<u>Linota cannabina</u>	64-85o, ♂m	---	X-X♂, X-Y♀; X=v ₅ *	Unger '36	Z.Z.M.A. 25.
<u>Passer domesticus</u>	40-48♀, ♂m	---	---	Pogossianz '37	Biol. Zhurn. 6.
"	54-60s, ♀, ♂m	23♂(1)?	X-X♂, X-Y♀; X=v ₄ *	Riley '38	Cyt. 9.
Turdidae					
<u>Turdus merula</u>	60-85s, o ♀, ♂m	---	"	Unger '36	Z.Z.M.A. 25.
<u>Turdus pilaris</u>	74-81m	---	"	Pogossianz '37	Biol. Zhurn. 6.

CUCULI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Cuculus canorus</u>	72s	36♂(1)	---	Yamashina '46	La Kromosomo 1.

PSITTACI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Psittacidae					
<u>Melopsittacus undulatus</u>	50-60m	---	♀ hetero, X=v ₁	Crew & Lamy '35	J.G. 30.
"	42s 42♀, ♂m	21♂(1)	X-X♂, X-Y♀; X=R ₂ , Y=r	Jentsch '35	Z.Z.M.A. 23.
"	58s	29♂(1)	---	Yamashina '46	La Kromosomo 1.

*J₂=the 2nd largest J-shaped chromosome. v₄=the largest V-shaped chromosome, etc. X=v₄ indicates that the X chromosome is represented by the fourth largest V-shaped element.

ACCIPITRES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Falconidae					
<u>Cerchneis tinnunculus</u>	37 ^m	---	---	Sokolovskaja '40	Trudy Inst. Genet. 13.

GRESSORES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Ardea cinerea</u>	76 ^s	38 ^{♂(1)}	---	Yamashina '50	Ia Kromosomo 6.
<u>Egretta garzetta</u>	"	"	---	"	"
<u>Nycticorax nycticorax</u>	"	"	---	"	"

ANSERES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Anatidae					
<u>Aix sponsa</u>	80 ^s	40 ^{♂(1)}	---	Yamashina '50, '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu 2.
<u>Anas boschas</u>	ca. 16 ^s	8 ^{♂(1,11)}	---	Schöneberg '13	A.M.A. 83.
"	43-49 [♀] , 3 ^m	---	X-X [♂] , X-0 [♀] ; X=R ₁ *	Alichanian '36	Zool. Jour. (Moskow) 15.
<u>Anas platyrhyncha</u> <u>domestica</u> (<u>'Indian runner</u> <u>duck'</u>)	76 ^{♂m} 77 ^{♀m}	38 ^{♂(1)}	Z-Z [♂] , W-W [♀] ; W=J ₁ , Z=V ₁ *	Werner '25, '27	A.R. 31; B.B. 52.
" (<u>'Khaki campbell'</u>)	34-62 [♀] , 3 ^m	---	X-X [♂] , X-0 [♀] ; X=V ₁	Sokolowskaya '35	Z.B. (Moskaw) 4.
" (<u>'Aylesbury'</u>)	48-69 [♀] , 3 ^m	---	X-X [♂] , X-0 [♀] ; X=V ₁	Crew & Koller '36	Proc. Roy. Soc. Edinb. 56.

*R₁=the 1st largest rod-shaped chrom. V₁=the first largest V-shaped chrom. r₅=the 5th largest rod-shaped chrom.

ANSERES (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Anas platyrhyncha</u>	80s, 79o	40♂(1)	X-X♂, X-O♀; X=r ₅ *	Oguma '38	Ann. Zool. Jap. 17.	
<u>domestica</u> (<u>'Domestic duck'</u>)	"	"	---	Suzuki '39	Jap. J.G. 15.	
"	"	"	---	Yamashina '41, '42, '43	Jap. J.G. 17; Cyt. 12; Jap. J.G. 19.	
<u>Anas platyrhyncha</u>	80s	40♂(1)	---	Yamashina '50, '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu 2.	
<u>A. acuta</u>	"	---	---	"	"	
<u>A. crecca</u>	"	---	---	"	"	
<u>A. falcata</u>	"	---	---	"	"	
<u>A. penelope</u>	"	---	---	"	"	
<u>A. strepera</u>	"	---	---	"	"	
<u>Anser albifrons</u>	82s	41♂(1)	---	"	"	
<u>Aythya fuligula</u>	80s	---	---	"	"	
<u>A. marila</u>	"	---	---	"	"	
<u>A. ferina</u>	ca. 16s	8♂(1, 11)	---	Schöneberg '13	A.M.A. 83.	
<u>Branta bernicla</u>	84s	42♂(1)	---	Yamashina '50, '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu.	
<u>Bucephala clangula</u>	80s	---	---	"	"	
<u>Cairina moschata</u>	ca. 16s	8♂(1, 11)	---	Schöneberg '13	A.M.A. 83.	
<u>Cairina moschata</u>	34-62 _f , 6m	---	X-X♂, X-O♀; X=R ₁	Sokolowskaya '35	Z.B. (Moskaw) 4.	
" (<u>'Muscovy'</u>)	-72 _f , 6m	---	X-X♂, X-O♀; X=V ₁	Crew & Koller '36	Proc. Roy. Soc. Edinb. 56.	
" (<u>'Muscovy</u> <u>duck'</u>)	80s, 79o	40♂(1)	X-X♂, X-O♀; X=r ₅	Yamashina '41, '42, '43	Jap. J.G. 17; Cyt. 12; Jap. J.G. 19.	

*r₅=the 5th largest rod-shaped chrom.

ANSERES (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u><i>Carina moschata</i> x</u>	34-62♀, ♂m	---		X-X♂, X-0♀; Similar in reciprocal.	Sokolowskaja '35	Z.B. (Moskaw) 4.
<u><i>Anas platyrhyncha</i></u>						
"	54-70♀, ♂m	---		X-X♂, X-0♀; X=V ₁ ; 1st div. irreg- ular in F ₁	Crew & Koller '36	Proc. Roy. Soc. Edinb. 56.
"	80s, 79o	---		X-X♂, X-0♂; X=r ₅ . 1st div. irreg- ular in F ₁ . Similar in reciprocal.	Yamashina '41, '42, '43	Jap. J.G. 17; Cyt. 12; Jap. J.G. 19.
<u><i>Chenopis atra</i></u>	80s	40♂(1)	---		Yamashina '50, '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu 2.
<u><i>Clangula hyemalis</i></u>	"	---	---		"	"
<u><i>Cygnosis cygnoid</i></u> var. <u><i>orientalis</i></u>	82s, 81o	---		X-X♂, X-0♀; X=v ₃	Oguma '42	Kaibogaku Zassi 20.
"	"	41♂(1)	"		Yamashina '50, '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu 2.
<u><i>Cygnus cygnus</i></u>	80s	---	---		"	"
<u><i>Dendronetta</i></u> <u><i>galericulata</i></u>	84s	42♂(1)	---		"	"
<u><i>Histrionicus histrionicus</i></u>	80s	---	---		"	"
<u><i>Lampronessa sponsa</i></u>	ca. 16s	8♂(1,11)	---		Schöneberg '13	A.M.A. 83.
<u><i>Mareca penelope</i></u>	"	"	---		"	"
<u><i>Melanitta fusca</i></u>	80s	---	---		Yamashina '50 '51	Auk (Bull. Am. Ornith. Union), 1950; Iden-Sogo-Kenkyu 2.
<u><i>M. nigra</i></u>	"	---	---		"	"
<u><i>Mergus serrator</i></u>	"	---	---		"	"

ANSERES (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Spatula clypeata</u>	80s	---	---	Yamashina '50	Auk (Bull. Am. Ornith. Union), July, '50.
<u>Tadorna rutila</u>	44-46m	---	---	Sokolowskaja '40	Trudy Inst. Genet. 13.

STEGANOPODES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Phalacrocoracidae					
<u>Phalacrocorax carbo hanedae</u>	70s	35 \hat{a} (1)	---	Oguma '37	J.F.S. Hokkaido I. U. Ser. VI, 5.

TUBINARES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Procellariidae					
<u>Oceanodroma leucorrhoa leucorrhoa</u>	74s, 73o	37 \hat{a} (1) X-X \hat{o} , X-0 \hat{o} ; X=r ₃		Oguma '37, '42	J.F.S. Hokkaido I.U. Ser. VI, 5; Kaibogaku Zassi 20.

PYGOPODES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Podiceps ruficollis</u>	80s 79o	---	X-0 \hat{o}	Yamashina '50	La Kromosomo 6.

COLUMBÆ

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Columbidae						
<u><i>Columba livia</i></u> <u><i>domestica</i></u>	16s	8♂(1), 4♂(11)	—		Guyer '02	Bull. Univ. Cincinnati, Ser. II, 2.
"	16m	8♀(1,11)	---		Haper '04	A.J.A. 3.
"	ca. 16s	8♂(1), 4♂(11)	---		Smith '27	Q.J.M.S. 58.
"	62s, 6m 61om	31♂(1,11)	X-X♂, X-0♀; X=v ₁		Oguma '27	J. Coll. Agr. Hokkaido Imp. Univ. 16.
" ('Pigeon')	50+♀, 6m	---	X-X♂, X-0♀;	Hance '32	A.R. 54.	
"	31-62m	---	Number variable in soma	Shiwago '39	B.R. Fr. Bel. 73.	
"	80s, 79o	40♂(1)	X-X♂, X-0♀; X=v ₄	Yamashina & Makino '46	Seibutu 1.	
<u><i>Streptopelia risoria</i></u> <u>(<i>Turtur risorius</i>)</u>	16s	8♂(1), 4♂(11)	---		Guyer '02	Bull. Univ. Cincinnati, Ser. II, 2.
" ('Dove')	50+♀, 6m	---	X-X♂, X-0♀	Hance '32	A.R. 54.	
"	66s	33♂(1)	—	Tenge & Nakahara '39	Folia Anat. Jap. 17.	
<u><i>S. decaocto</i></u> var. <u><i>risoria</i></u>	76s, 75o	38♂(1)	X-X♂, X-0♀; X=v ₄	Yamashina & Makino '46	Seibutu 1.	
<u><i>S. orientalis</i></u>	75o	—	X-0♀; X=v ₄	"	"	
<u><i>S. dec. risoria</i></u> x <u><i>S. orient.</i></u>	---	38♂(1)	---	"	"	

LIMICOLAE

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u><i>Charadrius dubius</i></u>	78s	39♂(1)	---		Yamashina '46	La Kromosomo 1.

LARI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Laridae					
<u>Sternula albifrons sinensis</u>	66s	33 \hat{o} (1)	---	Oguma '37	J.F.S. Hokkaido I. U. Ser. VI, 5.
<u>Larus argentatus vegae</u>	66s	33 \hat{o} (1)	---	Oguma '37	J.F.S. Hokkaido I. U. Ser. VI, 5.

ALCAE

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Alcidae					
<u>Brachyramphus marmorata perdit</u>	50s	25 \hat{o} (1)	---	Oguma '37	J.F.S. Hokkaido I. U. Ser. VI, 5.
<u>Lunda cirrhata</u>	"	"	---	"	"

ALECTORIDES

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Fulica atra</u>	86s 85o	---	X-0 \hat{o}	Yamashina '50	La Kromosomo 6.

GALLI

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Phasianidae					
<u>Bambusicola thoracica</u>	78s	---	---	Yamashina '46	La Kromosomo 1.
<u>Chrysolophus amherstiae</u>	50-60m	---	---	Scaccini '39	A.I.A.E. 42.
"	82s	41 \hat{o} (1)	X-X \hat{o} , X-0 \hat{o} ; X=v ₅	Yamashina '41, '43	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser: VI, 8.

GALLI (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Ch. pictus</u>		50-60m	---	---	Scaccini '39	A.I.A.E. 42.
"		82s	41♂(1)	X-X♂, X-O♀, X=V ₅	Yamashina '41, '43	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 8.
<u>Ch. pictus x Ch. amherstiae</u>	"	"	"	Meiosis regular in F_1	"	"
<u>Coturnix coturnix japonica</u>		44s	22♂(1,11)	---	Kobayashi '37	Z.M. (Jap.) 49.
"		78s	39♂(1)	---	Oguma '38	Ann. Zool. Jap. 17.
<u>Gallus gallus domesticus</u>	---		6?♀(1)	---	Leyez '06	A.A.M. 8.
" (<u>'Huhn'</u>)		---	12-16♀(1)	---	Sonnenbrodt '06	A.M.A. 72.
"		12m	---	---	Lecaillon '10	A.A.M. 12.
"		17-19s	9♂(1), 4,5♂(11)	X-O♂	Guyer '09	A.A. 34.
"		18s, ♂m	"	X-X♂, X-O♀	Guyer '16	B.B. 31.
" (<u>'Gold cam- pine fowl'</u>)		18-20s	8-10♂(1)	---	Cutler '18	J.G. 7.
" (<u>'Chicken'</u>)	ca. 32s		---	Miss Stevens Boring '23 figure		Sci. 58.
"		32♀, ♂m	---	X-X♂, X-Y♀; X=R ₁ , Y=S	Shiwago '24	Sci. 60.
"		35-34♀, ♂m	---	X-O♀; X=V ₁	Hance '23, '24, '25	A.R. 26; Sci. 59; A.R. 31.
"		35-36s 35-36♀, ♂m	---	X-X♂, X-O♀; X=V ₁	Hance '26	J.M. 43.
"		60-70m(pro) 35-40m(meta)	---	X-O♀	Hance '26a,b	B.B. 50,51.
" (<u>'Huhn'</u>)		32s 30-44♀, ♂m	---	X-X♂; Number var- iable in racial hy- brids.	Akkeringa '27	Z.M.A.F. 8.

GALLI (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Gallus gallus</u> <u>domesticus</u> (<u>'Huhn'</u>)		---	---	2V's in ♂, 1V in ♀	Goldsmith '28	J.M. 46.
" (<u>'Huhn'</u>)		36-38m	---	Tissue culture	Kemp '30	Z.Z.M.A. 11.
" (<u>'Huhn'</u>)		29-39m	---	"	Saguchi '30	Zyt. Studien, III (Kanasawa).
" (<u>'Chicken'</u>)		66 \pm 2 $\hat{\delta}$ m 65 \pm 2 $\hat{\delta}$ m	33 $\hat{\delta}$ (1)	X-X $\hat{\delta}$, X-0 φ ; X=V ₁	White '32	J.G. 26.
" (<u>'Haushuhn'</u>)		69-70 $\hat{\delta}$, 6m (pro) 30-45 $\hat{\delta}$, 6m (meta)	---	X-X $\hat{\delta}$, X-0 φ ; X=V ₁	Popoff '33	Z.Z.M.A. 17.
"		32-71s, o, ♀, 6m	---	X-X $\hat{\delta}$, X-0 φ ; X=v ₅ . Microchr. in-constant in number	Sokolow & Trofimow '33; Sokolow, Tinialew & Trofimow '36a,b	Z.I.A.V. 65; Z. B. (Moskaw) 5; Cyt. 7.
"		44-61s, o, ♀, 6m	---	"	Unger '36	Z.Z.M.A. 25.
"		50-70m	---	X-X $\hat{\delta}$, X-0 φ ; X=V ₁	Saccini '37	Rivist. Biol. 22.
"		78s, 77o	---	X-X $\hat{\delta}$, X-0 φ ; X=v ₅	Oguma '38, '42	Ann. Zool. Jap. 17; Kaibogaku-Zassi 20.
"		51-60s, o	38-40 $\hat{\delta}$ (1)	X-X $\hat{\delta}$, X-0 φ ; X=v ₅ . Spermatogenesis in sex reversed ♀	Miller '38	A.R. 70.
"		78s, 77o	39 $\hat{\delta}$ (1, 11)	X-X $\hat{\delta}$, X-0 φ ; X=v ₅ . Accounts of 1930 corrected	Suzuki '30, '39	Z.M. (Jap.) 46; Jap. J.G. 15.

GALLI (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Gallus gallus</u> <u>domesticus</u> ('Haushuhn')	78s, 77o	39♂(1)	X-X♂, X-0♀; X=v ₅ . Num- ber constant by races.	Yamashina '41, '43, '44	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 8; Cyt. 13.
<u>Gallus gallus x</u> <u>Phasianus colchicus</u>	80s, 79o	---	Germ cells degenerate early in meiosis.	Yamashina '41, '43	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 8.
<u>Gennaeus beli</u>	50-60m	---	---	Scaccini '39	A.I.A.E. 42.
<u>G. nyctemerus</u>	"	---	---	"	"
<u>G. swinhonis</u>	81o(82s)	41♂(1)	X-X♂, X-0♀; X=v ₅	Yamashina '46	Seibutu 1.
<u>Hierophasis</u> <u>swinhonis</u>	50-60m	---	---	Scaccini '39	A.I.A.E. 42.
<u>Meleagris gallopavo</u> ('Truthennen')	46m 46m _f	---	X-X♂, X-Y♀; X=v ₁ , Y=v ₈	Shiwago '29	Z.Z.M.K. 9.
" ('Domestic turkey')	76♂m 77♀m	38♂(1)	Z-2♂, W _w -Z _o ; W=J ₁ , Z=v ₁	Werner '31	B.B. 61.
"	Number not given	---	X-X♂, X-0♀; X=v ₅ . Num- ber of micro-chroms. inconstant.	Sokolow, Tiniakow & Trofimow '34, '36a, '36b	Z.B. (Moskaw) 3, 5; Cyt. 7.
"	50-55m	---	---	Scaccini '39	A.I.A.E. 42.
"	82s, 81o	41♂(1)	X-X♂, X-0♀; X=v ₅	Yamashina '46	Seibutu 1.
<u>Numida meleagris</u> <u>domestica</u> ('Domestic guinea')	17s	9♂(1), 8, 9♂(11)	X-0♂	Guyer '09	A.A. 34.
"	—	—	X-X♂, X-0♀; X=v ₆ . Num- ber of micro- chroms. in- constant.	Sokolow, Tiniakow & Trofimow '36a, '36b	B.Z. (Moskaw) 5; Cyt. 7.
"	78s, 77o	39♂(1, 11)	X-X♂, X-0♀; X=v ₅	Suzuki '39	Jap. J.G. 15.

GALLI (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Numida meleagris</u> <u>domestica</u> (<i>'Domestic minea'</i>)	50m	---	---		Scaccini '39, '42	A.I.A.E. 42, 47.
"	76s, 75o	38 \hat{o} (1)	X-X \hat{o} ; X=v ₅		Yamashina '46	Seibutu 1.
<u>Numida mel.</u> ♀ x <u>Gallus g. dom.</u> ♂	76o	---	X-0♀; X=v ₅		"	"
<u>Nycthemerus argentatus</u>	Number not given	---	X-X \hat{o} , X-0♀; X=v ₄ . Num- ber of micro-chroms. inconstant.	Sokolow, Tiniakow & Trofimow '36a, '36b	B.Z. (Moskaw) Cyt. 7.	
<u>Pavo cristatus</u>	"	---	X-X \hat{o} , X-0♀; X=v ₅ . Num- ber of micro-chroms. inconstant.	Tiniakow '34; Sokolow, Tiniakow & Trofimow '36a, '36b	"	
<u>Phasianus colchicus</u>	40-63s, o ♀, 6m	---	X-X \hat{o} , X-0♀; X=v ₄ . Num- ber of micro-chroms. inconstant.	Trofimow & Tiniakow '33; Sokolow, Tiniakow & Trofimow '36a, '36b	Z.I.A.V. 65; Z.B. (Moskaw) Cyt. 7.	
"	78s, 77o	39 \hat{o} (1, 11)	X-X \hat{o} , X-0♀; X=v ₅	Suzuki '39	Jap. J.G. 15.	
<u>Phasianus colchicus</u> <u>karpowi</u>	82s, 81o	41 \hat{o} (1)	"	Yamashina '41, '43	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 8.	
<u>Ph. col. versicolor</u>	"	---	"	"	"	"
"	"	---	"	Oguma '42	Kaihogaku-Zassi 20.	
<u>Phasianus torquatus</u>	52-61s, o	---	X-X \hat{o} , X-0♀; X=v ₄ . Num- ber of micro-chroms. inconstant.	Unger '36	Z.Z.M.A. 25.	
(<i>'Pheasant'</i>)	20-22s	10-11 \hat{o} (1), 8 \hat{o} (1)	---	Cutler '18	J.G. 7.	
<u>Phasianus x Gallus</u>	18-20s	---	---	Cutler '18	J.G. 7.	

GALLI (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Syrmaticus reevesi</u>	50-60m	---	---	Scaccini '39	A.I.A.E. 42.
<u>Sy. soemmerringii</u>	82s	41 $\hat{1}$ (1) X-X $\hat{1}$, X-0 \varnothing ; X=v $\bar{5}$		Yamashina '41, '43	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 8.
<u>Sy. soemmerringii</u> <u>x Chrysolophus pictus</u>	"	"	Meiosis in F_1 partially regular.	"	"
Tetraonidae					
<u>Lyrurus tetrix</u> <u>(Tetrao tetrix)</u>	---	---	X-X $\hat{1}$, X-0 \varnothing , X=v $\bar{5}$. Num- ber of micro-chroms. inconstant.	Sokolow, Tinia- kow & Trofimow '36a, '36b	Z.B. (Moskow) 5; Cyt. 7.

MAMMALIA*
PROTOTHERIA
MONOTREMATA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u>Echidna aculeata</u>	---	8-12 $\hat{1}$ (1)	—	Benda '06	(Semon Zool. (Forsch. Austra- (lia u. Malay (Archipel. Livrai- son, 27.
<u>Ornithorhynchus</u> <u>anatinus</u>	---	"	---	"	
"	70 \pm 10s	---	Close to chroms of Sauropsida	White	From Matthey- Chroms. des Bertebrates(1948).

*The X and Y chromosomes of mammals are separated pre-reductionally in the 1st division generally, but post-reductionally in the 2nd division in some instances, as occurred in certain species of murine rodents. Further, in some species, they separate in both these ways. For the sake of convenience, notes have been given in the column of remarks. The formula of sex chromosomes without remarks, denotes the usual case where pre-reduction occurs.

EUTHERIA-DIDELPHIA
MARSUPIALIA

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Didelphyidae					
<u>Didelphys aurita</u>	---	12 \hat{q} (1,11)	---	Hill '18	Q.J.M.S. 63.
"	22s	11 \hat{o} (1)	X-Y \hat{o}	Dreyfus '39 Dreyfus & Souza '41	Biologia General 3; Univ. Sao Paulo Bol. Fac. Phil. Sc. Letr. III. Biol. gen. 17.
<u>Didelphys paraguavensis</u>	"	---	"	Saez '30, '31	Con. Inter. Biol. Montevideo 7- 12; ▲ N. 65.
<u>Didelphys virginiana</u>	17s, \hat{o} m	9 \hat{o} (1), 4,5 \hat{o} (11)	X-0 \hat{o}	Jordan '11	A.Zf. 7.
"	---	11 \hat{o} (1)	---	Hartman '19	J.M. 32.
"	22s, \hat{o} m 22 \hat{o} m	11 \hat{o} (1,11)	X-Y \hat{o}	Painter '21, '22, '24	Sci. 53; J.E.Z. 35, 39.
"	22 \hat{o} , \hat{o} m	—	X-Y \hat{o} , X-X \hat{o}	Roy & George '29	J.M. 47.
<u>Lutreolina crassicaudata</u>	22s	---	X-Y \hat{o}	Saez '38	Roy. Soc. Argen- tina Biol. 14.
Dasyuridae					
<u>Dasyurus maculatus</u>	14s	—	X-Y \hat{o}	Greenwood '23	Q.J.M.S. 67.
"	"	7 \hat{o} (1,11)	"	Koller '36a,b	Cyt. 7; J.G. 32.
<u>Dasyurus viverrinus</u>	"	7 \hat{o} (1)	"	Drummond '38	Cyt. 8.
<u>Sarcophilus ursinus</u>	14s, \hat{o} m	—	X-Y \hat{o} , X-X \hat{o}	Greenwood '23	Q.J.M.S. 67.
"	14s	7 \hat{o} (1,11)	X-Y \hat{o}	Koller '36a,b	Cyt. 7; J.G. 32.
Macropodidae					
<u>Bettongia lesueuri</u>	22s	11 \hat{o} (1)	"	Drummond '33	Q.J.M.S. 76.
<u>Bettongia pericillata</u>	28s	—	"	"	"
<u>Macropus ualabatus</u>	12s, \hat{o} m	6 \hat{o} (1,11)	X-Y \hat{o} ; X-X \hat{o} ; X associates with an auto- some	Agar '23	Q.J.M.S. 67.

MARSUPIALIA (Continued)

Species	Chromosome Number			Observer	References
	2n	n	Remarks		
<u>Macropus giganteus</u>	22s	11 δ (1)	X-Y δ	Binder '27	Z.Z.M.A. 5.
<u>Macropus parryi</u>	16s	8 δ (1,11)	"	Matthey '34, '36	C.R.S.B. 117; A.B. 47.
<u>Potorous tridactyla</u>	12s, ♀m	6 δ (1,11)	X-Y δ , X-X δ	Altmann & Ellery '25	Q.J.M.S. 69.
<u>Setonyx brachyurus</u>	22s	---	X-Y δ . 4n gonia occur.	Drummond '33	Q.J.M.S. 76.
Peramelidae					
<u>Isoodon obesulus</u>	14s	7 δ (1)	X-Y δ	Drummond '33	Q.J.M.S. 76.
<u>Perameles sp.</u>	—	8 δ (1)	---	Benda '06	Semon Zool. For- sch. Australia u. Malay Archipel. Livraison 7.
Phalangeridae					
<u>Petauroidei volans</u>	22s	---	X-Y δ	Agar '23	Q.J.M.S. 67.
<u>Petaurus breviceps</u>	"	—	"	Drummond '33	Q.J.M.S. 76.
<u>Phascolarctus cinereus</u>	16s, ♀m	8 δ (1,11)	X-Y δ , X-X δ	Greenwood '23	Q.J.M.S. 67.
"	16s	8 δ (11)	X-Y δ	Koller '36	J.G. 32.
<u>Phalangista sp.</u>	—	8 δ (1)	—	Benda '06	Semon Zool. For- sch. Australia u. Malay Archipel. Livraison 7.
<u>Pseudochirurus peregrinus</u>	20s, ♀m	10 δ (1,11)	X-Y δ , X-X δ	Altmann & Ellery '25	Q.J.M.S. 69.
"	20s	10 δ (1)	X-Y δ	Koller '36	J.G. 32.
<u>Trichosurus vulpecula</u>	20s, ♀m	10 δ (1,11)	X-Y δ , X-X δ	Altmann & Ellery '25	Q.J.M.S. 69.
"	20s	"	X-Y δ	Koller '36	J.G. 32.
Phascolomyidae					
<u>Phascolomys mitchelli</u>	—	7 δ (1)	X-Y δ	Altmann & Ellery '25	Q.J.M.S. 69.

EUTHERIA-MONodelphia
CHIROPTERA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Megachiroptera						
Pteropodidae						
<u>Pteropus dasymallus</u> <u>inopinatus</u>	38s	19 δ (1,11)	X-Y δ		Makino '48	B.B. 94.
Microchiroptera						
Molossidae						
<u>Nyctinomus mexicanus</u>	48m	—		Prob. X-Y δ	Painter '25a,b	Sci. 61; A.N. 59.
Nycteridae						
<u>Nycterus sp.</u>	42s	—	X-Y δ		Bovey '49	R. Suisse Z. 56.
Rhinolophidae						
<u>Rhinolophus euryale</u>	58s	29 δ (1)	X-Y δ		Bovey '49	R. Suisse Z. 56.
<u>R. ferrum-equinum</u>	"	"	"		"	"
<u>R. ferrum-equinum</u> <u>nippon</u>	—	"	"		Makino '48	B.B. 94.
<u>R. hipposideros</u>	—	16 δ (1)	—		Athias '12	Arch. Inst. Bact. Gam. Pest. Lisbonne, 3.
"	54s	27 δ (1)	X-Y δ	Matthey et Bovey '48 Bovey '49		Experientia 4; R. Suisse Z. 56.
Vespertilionidae						
<u>Barbastella barbastellus</u>	32s	16 δ (1)	X-Y δ		Bovey '49	R. Suisse Z. 56.
<u>Myotis daubentonii</u>	42s	21 δ (1)	"		"	"
<u>Myotis mystacinus</u>	44s	—	X-Y δ		"	"
<u>M. emarginatus</u>	"	—	"		"	"
<u>M. myotis</u>	44s	22 δ (1)	"		"	"
<u>Miniopterus schreibersii</u>	46s	23 δ (1)	"		"	"

CHIROPTERA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Pipistrellus</u> <u>pipistrella</u>		---	21♂(1)	X-Y♂	Matthey & Bovey '48, Bovey '49	Experientia 4; R. Suisse Z. 56.
"	42s	---	"		Muldal '48	From Matthey-Chrom. des Vertebres, 1948.
<u>P. nathusii</u>	—	22♂(1)	"		Bovey '49	R. Suisse Z. 56.
<u>Plecotus auritus</u>	32s	16♂(1)	"	"	"	"
<u>Vesperugo noctula</u>	—	9-10♀(1,11)	---		Van der Stricht '10	Mem. Acad. Roy. Belgique, Ser. 2,2.
<u>Vesperugo serotinus</u>	—	15-22♀(1) 18-24♀(11)	---		Athias '12	Arch. Inst. Bact. Cam. Pest. Lis- bonne 3.
('Bat') Species <u>unknown</u>	24+s	---	X-0♂		Jordan '12	A.A. 40.
"	40? s	---	♂ hetero.?		Hance '17	A.R. 12.

INSECTIVORA

Species		Chromosome Number 2n	n	Remarks	Observer	References
Erinaceidae						
<u>Erinaceus europeaeus</u> (<u>'European hedgehog'</u>)	48s	---	X-Y♂		Painter '25a,b	Sci. 61; A.N. 59.
"	48s	---	---		Muldal '48	From Matthey-Chrom. des Vertebres, 1948.
"	"	24♂(1)	X-Y♂		Bovey '49a,b	R. Suisse Z. 56; Experientia 5.
Macroscelididae						
<u>Elephantulus myurus</u> <u>jamersoni</u>	14s	7♂(1) 7♀(1)	X-Y♂, X-X♀		Brenner '46	South Afr. J. Med. Sci. 11 (Biol. Suppl.).
Soricidae						
<u>Crocidura murina</u>	40s	20♂(1,11)	"		Tateishi '37, '38	Jap. J.G. 13; Ann. Zool. Jap. 17.

INSECTIVORA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>C. russula</u>	42s	21♂(1)	X-Y	Bovey '49a,b	R. Suisse Z. 56; Experientia 5.	
<u>Neomys fodiens</u>	52s	26♂(1)	"	"	"	"
<u>Sorex araneus</u>	23s	11♂(1) 11,12♂(11)	X ₁ X ₂ -Y♂	Bovey '48, '49a,b	Arch. Jul. Klaus- Stift. Vererb. 23; Experientia 5; R. Suisse Z. 56.	
Talpidae						
<u>Mogera insularis</u>	32s	16♂(1,11)	"	"	"	"
<u>Talpa europaea</u>	38s	19♂(1)	"	Koller '36	P.R.S. London 121.	
"	34s	17♂(1)	X-Y♂	Bovey '49a,b	R. Suisse Z. 56; Experientia 5.	

EDENTATA—XENARTHRA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Dasypodidae						
<u>Tatusia novemcinctum</u> (<u>'9-banded armadillo'</u>)	31?s, 32o	14-10♀(1)	X-O♂↑	Newman & Pat- terson '10; Newman '12	J.M. 21; B.B. 23.	
<u>Tatusia novemcinctum</u> (<u>'Armadillo'</u>)	60♀, 6m	—	"	Painter '25a,b	Sci. 61; A.N. 59.	

RODENTIA

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Duplicidentata						
Leporidae						
<u>Lepus cuniculus</u> (<u>'Kaninchen'</u>)	24?m	---	---	Flemming '98	A.A. 14.	
" (<u>'Lapin'</u>)	41-43o 36-46(42)m	---	---	Winiwarter '99, '00	A.B. 16, 17.	

RODENTIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Lepus cuniculus</u> (!Rabbit!)	28-36s	1 ^h -18 ^h (1)		---	Barrett '07	P.R.S. London, B. 79.
" "	22s	11-12 ^h (1) 11 ^h (11)	X-Y ^h		Bachhuber '16	B.F. 30.
" "	44-54s	20+ ^h (1)	X-0 ^h		Masui '23	J. Coll. Agr. I.U. Tokyo, 8.
" "	44s 44 ^h , 6m	22 ^h (1)	X-Y ^h , X-X ^h		Painter '25a, '25b, '25c, '26a, '26b	Sci. 61; A.N. 59; A.R. 31; Sci. 64; J.M. 43.
"	—	22 ^h (1)	X-Y ^h		Minouchi & Ohta '32	Z.M. (Jap.) 44.
"	44s	22 ^h (1, 11)	"		Tateishi '36	Z.M. (Jap.) 48.
"	ca. 71m	—	Colchicine treated egg, 4n?		Pincus '39a, b	J.E.Z. 82; J.H. 30.
"	44s	22 ^h (1)	X-Y ^h		Makino '44	Z.M. (Jap.) 56.
"	44s, 6m	—	—		McMillion '42	Bull. Pittsb. Univ. 38.
"	4n ? m	—	Polytene chroms. in cancer		Bieseile '45	Cancer Res. 6.
"	---	22 ^h (1)	—		Vara & Pesonen '47	Acta Abstr. Gyn. Scand. 27.
"	44s	—	—		Muldal '48	<u>From Matthey-Chrom.</u> <u>des Vertebres, 1948.</u>
<u>Lepus formosus</u>	48s	24 ^h (1, 11)	"		Tateishi '35	Z.M. (Jap.) 48.
<u>Lepus sibiricus ainu</u>	—	24 ^h (1)	"		Makino '44	Z.M. (Jap.) 56.
Simplidentata						
Capromyidae						
<u>Myocastor coypus</u>	42s	21 ^h (1, 11)	X-Y ^h		Makino '47	J.F.S. Hokkaido I.U. Ser. VI, 9.

RODENTIA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
Caviidae						
<u><i>Cavia cobaya</i></u> ("Meerschweinchen")	16s	8♂(1)	—	Von Bardeleben '92	Verh. Anat. Ges. Wien 6.	
" ("Meerschweinchen")	24±m	—	—	Flemming '98	A.A. 14.	
<u><i>Cavia cobaya</i></u> ("Guinea-pig")	32s	16♂(1,11)	—	Moore & Walker '06	Liverpool Univ. Rep. (1906)	
" "	56±s	28♂(1)	X-Y♂	Stevens'lla,b	B.B. 20,21.	
" "	16m	8♀(1,11)	—	Lams '13	A.B. 28.	
" "	38s	19♂(1,11)	X-Y♂	Harman & Root '26	B.B. 51.	
" "	60-64m	—	"	Painter '26	Sci. 64.	
"	65s 44, 55, 66m	33♂(1) 32, 33♂(11)	X-0♂	Mols '28	A.B. 38.	
" ("Guinea-pig")	62±2s	31♂(1) 30+♂(11)	X-Y♂	League '28	J.M. 46.	
"	64s	32♂(1,11)	"	Makino '44, '47	Z.M. (Jap.) 56; J.F.S. Hokkaido I.U. VI, 9,	
<u><i>Cavia porcellus</i></u>	—	24-23♀(1) ca. 24♀(11)	---	Athias '12	Arch. Inst. Bact. Cam. Pest. Lis- bonne 3.	
Geomyidae						
<u><i>Geomys breviceps</i></u> <u><i>breviceps</i></u>	84?s	—	X-Y♂	Gross '31	J.M. 52.	
Heteromyidae						
<u><i>Dipodomys merriami</i></u> <u><i>merriami</i></u>	86?s	—	X-Y♂	"	"	
<u><i>Perognathus fallax</i></u> <u><i>fallax</i></u>	44s	—	"	"	"	
Hystricidae						
<u><i>Hystrix cristata</i></u>	48s	—	—	Muldal '48	From Matthey-Chron. des Vertebres, 1948.	

RODENTIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Muridae-Cricetinae						
<u>Cricetus auratus</u>	38s	190 [♂] (1)	X-Y [♂] ; pre. or post. (18.4%).	Zoller '38, '46	J.G. 36; Proc. Roy. Soc. London, B, 133.	
"	44om	21-229(1)	X-X [♀]	Husted, Hop- kins & Moore '45	J.H. 36.	
"	38s	---	---	Muldal '48	From Matthey-Chrom. des Vertebres, 1948.	
<u>Cricetulus griseus</u>	14s	---	X-Y [♂]	Pontecorvo '43	Proc. Roy. Soc. Edinb. B, 62.	
<u>Peromyscus boylei</u> <u>attwateri</u>	48s	---	X-Y [♂]	Cross '31, '38	J.M. 52; Cyt. 8.	
<u>P. californicus</u> <u>insignis</u>	"	---	"	Cross '31a, b '38.	A.R. 51; J.M. 52; Cyt. 8.	
<u>P. calif. californicus</u>	"	---	"	Cross '38	Cyt. 8.	
<u>P. eremicus eremicus</u>	ca. 58s	---	"	Cross '31, '38	A.R. 51; Cyt. 8.	
<u>P. er. fraterculus</u>	58s	---	"	Cross '38	Cyt. 8.	
<u>P. gossypinus palmarius</u>	48s	---	"	"	"	
<u>P. leucopus texanus</u>	"	---	"	"	"	
<u>P. l. noveboracensis</u>	"	---	"	"	"	
<u>P. maniculatus gambeli</u>	"	---	"	Cross '31a, '31b, A.R. 51; J.M. '38 52; Cyt. 8.		
<u>P.m. hollesteri</u>	52s	---	"	Cross '31, '38	J.M. 52; Cyt. 8.	
<u>P.m. bairdii</u>	48s	---	"	Cross '38	Cyt. 8.	
<u>P.m. blandus</u>	"	---	"	"	"	
<u>P.m. sonoriensis</u>	"	---	"	"	"	
<u>P.m. artemisiae</u>	48s	---	X-Y [♂]	Cross '38	Cyt. 8.	
<u>P.m. osaoodi</u>	"	---	"	"	"	
<u>P. polionotus</u> <u>polionotus</u>	"	---	"	"	"	

RODENTIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>P. truei truei</u>		48s	---	X-Y↑	Cross '38	Cyt. 8.
<u>Neotoma floridanus</u> <u>attwateri</u>		52s	---	"	Cross '31	J.M. 52.
<u>Spermophilus hispidus</u> <u>texianus</u>		54s	---	"	"	"
<u>Tscherskia triton</u>		30 ♀	15♀(1)	X-Y↑	Makino '49	Cyt. 15.
Muridae-Microtinae						
<u>Arvicola scherman</u> <u>exitus (Arvicola</u> <u>scherman terrestris)</u>		36s	18♂(1)	X-Y↑ X, Y pre. or post. in ratio 50: 100*	Matthey & Renaud '35; Renaud '38; Matthey '38	C.R.S.B. 120; R. Suisse Z. 45; J.G. 36.
<u>Eothenomys</u> <u>melanogaster</u>		---	28♂(1)	X-Y↑	Tateishi '37	Z.M. (Jap.) 49.
<u>Evotomys</u> <u>(Clethrionomys)</u> <u>bedfordiae</u>		55s	28♂(1) 27, 28♂(11)	X-0♂	Oguma '35a, b	Nippon Gakuzyutsu- Kyokai 10; J.F.S. Hokkaido I.U. Ser. VI, 4.
"		---	28♀(1,11)	X-X♀	Makino & Shigemoro '43	Igaku & Seibutsugaku 4.
<u>Evotomys glareolus</u>		56s	28♂(1,11)	X-Y↑; pre	Matthey & Renaud '35; Renaud '38	C.R.S.B. 120; R. Suisse Z. 45. •
<u>Glethrionomys</u> <u>(Evotomys) rutilus</u> <u>mikado</u>		---	28♂(1)	---	Makino '49	Cyt. 15.
<u>Microtus agrestis</u>		50s	25♂(I,II) 25♀(1)	X-Y♂; pre; X-X♀	Matthey '50	L.C. 53.
<u>M. ag. orcadensis</u>		42s	---	---	Muldal '48	From Matthey-Chrom- des Vertebres, 1948.
<u>M. arvalis</u>		46s	23♂(1,11)	X-Y↑; pre. or post.	Renaud '38	R. Suisse Z. 45.
<u>M. incertus</u>		---	28-34♀(1,11)	---	Athias '12	Arch. Inst. Bact. Camp. Pest. Lis- bonne 3.

*Pre.=pre-reductional separation of X and Y, namely X disjoins from Y in I division.

Post.=post-reductional separation of X and Y, namely X disjoins from Y in II division.

RODENTIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>M. kikuchii</u>	28s	14 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$		Tateishi '37	Z.M. (Jap.) 49.
"	30s	15 $\hat{\delta}$ (1,11)	"		Makino '49a,b	Cyt. 15; Ann. Zool. Jap. 23.
<u>M. montebelli</u>	31s	16 $\hat{\delta}$ (1)	X-0 $\hat{\delta}$		Oguma '37	Cyt. Fujii Jub.-Vol.
<u>M. rivalis</u>	56s	28 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$		Matthey '47	Sci. Genetica 3.
<u>M. ratticeps</u>	30s	15 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$		Makino '49a,b	Cyt. 15; Ann. Zool. Jap. 23.
"	46s	--	"		Muldal '49	John Innes Hortic. Inst. 39 Ann. Rep. (1948).
<u>M. townsendii</u>	50s	--	X-Y $\hat{\delta}$		Cross '31	J.M. 52.
Muridae-Murinae						
<u>Apodemus agrarius</u>	--	24 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$; post: or pre.	Matthey '36, '38, '47		Z.Z.M.A. 25; J.G. 36; Arch. Jul. Klaus-Stift. Vererb. 22.
"	48s	"	X-Y $\hat{\delta}$; post.	Makino '49, '50		Cyt. 15; Iden-Sogo-Kenkyu 1.
<u>A. agrarius</u> <u>ningpoensis</u>	50s	25 $\hat{\delta}$ (1,11)	"	Tateishi '34, '35		Trans. Nat. Hist. Soc. Formosa 24; Nippon Gakuzyutsu-Kyokai 10.
" (<u>A. ag. insulaemus</u>)	48s	24 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$; post.	Makino '49, '50		Cyt. 15; Iden-Sogo-Kenkyu 1.
<u>A. flavicollis</u>	---	24 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$; pre. or post.	Matthey '36, '47		Z.Z.M.A. 25; Arch. Jul. Klaus-Stift. Vererb. 22.
<u>A. geisha</u>	46s	23 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$; pre.	Makino '49, '50		Cyt. 15; Iden-Sogo-Kenkyu 1.
<u>A. hebridensis</u>	48s	24 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$; post.	Koller '39, '41		J.G. 37, 41.
<u>A. semotus</u>	48s	24 $\hat{\delta}$ (1)	X-Y $\hat{\delta}$; post.	Tateishi '34, '35		Trans. Nat. Hist. Soc. Formosa 24; Nippon Gakuzyutsu-Kyokai 10.

RODENTIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>A. semotus</u>		48s	24 $\hat{6}$ (1,11)	X-Y \hat{o} ; post.	Makino '49, '50	Cyt. 15; Iden-Sogo-Kenkyu 1.
<u>A. speciosus speciosus</u>		46s	23 $\hat{6}$ (1)	X-Y \hat{o} ; post.	Tateishi '34, '35	Trans. Nat. Hist. Soc. Formosa 24; Nippon Gakuzyutsu-Kyokai 10.
"		50s	25 $\hat{6}$ (1,11)	"	Makino '49, '50	Cyt. 15; Iden-Sogo-Kenkyu 1.
<u>A. spesiosus ainu</u>		47s	24 $\hat{6}$ (1,11) 23,24(tid)	X-0 \hat{o} ; post.	Oguma '34a, '34b, '37	Jap. J.G. 9; Cyt. 5; Cyt. Fujii Jub.-Vol.
<u>A. sylvaticus</u> (<u>Mus sylvaticus</u>)		---	---	X-0 \hat{o} ?	Federley '19	Act. Soc. Sci. Fenn. 48.
"		48s	24 $\hat{6}$ (1,11)	X-Y \hat{o} ; pre. or post.	Matthey '36a, '36b, '38, '47	A.B. 47; Z.Z.M.A. 25; J.G. 36; Arch. Jul. Klaus-Stift. Vererb. 22.
"		48s	"	"	Raynaud '36	C.R.A.S. 202.
"		48s	24 $\hat{6}$ (1)	X-Y \hat{o} ; post-reductional in 92%	Koller '39, '41	J.G. 37, 41.
<u>Micromys minutus</u> <u>takasagoensis</u>		68s	34 $\hat{6}$ (1)	X-Y \hat{o}	Makino '34	Cyt. 13.
<u>M. minutus</u>		62s	---	---	Muldal '48	From Matthey-Chrom. des Vertebres, 1948.
<u>Mus caroli</u> (<u>M. formosanus</u>)		40s	20 $\hat{6}$ (1)	X-Y \hat{o}	Tateishi '35	Nippon Gakuzyutsu-Kyokai 10.
"		"	20 $\hat{6}$ (1,11)	"	Makino '41	J.F.S. Hokkaido I.U. Ser. VI, 7.
<u>M. molossinus</u>		"	"	"	Oguma '35a,b	Nippon Gakuzyutsu-Kyokai 10; J.F.S. Hokkaido I.U. Ser. VI, 4.
"		"	"	"	Makino '40, '41	Jap. J.G. 16; J.F.S. Hokkaido I.U. Ser. VI, 7.

RODENTIA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>M. molossinus</u>	---	20♀(1,11)	X-X♀	Makino '41a,b	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 7.	
<u>M. musculus</u>	20?m	"	---	Tafani '89	Arch. Anat. Norm. Pathol. 5.	
" ('Maus')	---	16♂(1)	---	Hermann '89	A.M.A. 34.	
" ('Grau Maus')	24?o	---	---	Holl '93a,b	Verh. Anat. Ges. 7, Vers. 1893; S.B. Wien Akad. Wiss. 102.	
" ('Weiss, grau, Tanz')	30m	16♀(1,11)	---	Sobotta '95, '07	A.M.A. 45; A. Hf. 35.	
" ('Souris blanche')	10-12s	12-16♂(1,11)	---	Lukianow '98	Arch. Sci. Biol. St. Petersburg, 6.	
" ('Mouse')	24s	---	---	Moore & Arnold '05	P.R.S. London, B 77.	
"	---	12♀(1,11)	---	Gerlach '06	Bild. d. Richtungs- körper bei mus. (Wiesbaden).	
"	---	"	---	Lems & Doorme '07	A.B. 23.	
" ('Albino')	---	8♀(1,11)	---	Melissinos '07	A.M.A. 70.	
<u>Mus musculus</u> ("White mouse")	---	12-24♂(1) 12♀(11)	---	Coe & Kirkham '07; Kirkham '07, '08	Sci. 25; B.B. 12; Trans. Connecticut Acad. 13.	
" ('White, black, hybrid')	---	20♀(1,11)	---	Long '08; Long & Mark '11	Sci. 27; Carnegie Inst. Publ. 142.	
" ('White mouse')	---	12-24♂(1) 12-30♀(11)	---	Kingery '14, '17	B.B. 27; J.M. 30.	
" ('House mouse')	---	20♂(1,11)	X in post- reductional?	Yocom '17	Univ. California Publ. 16.	
" ('Domestic, wild')	40s	"	X-Y♂	Cox '26	J.M. 43.	
" ('Weiss Maus')	24o	12♀(1)	---	Zdenko '26	Biol. General 2.	
"	40s	20♂(1)	X-Y♂	Painter '28a,b	Genet. 13; A.N. 62.	

RODENTIA (Continued)

Species		Chromosome Number 2n m	n	Remarks	Observer	References
<u><i>Mus musculus</i></u> ("Maus")		32-36(ca. 40) m	---	Karzinome	Goldschmidt & Fischer '29	Zeits. Krebsf. 30.
" ("")		21-44(40)m	---	Tissue culture	Kemp '30	Z.Z.M.A. 11.
"		21-175(36-40) m	---	Karzinome	Winge '30	Z.Z.M.A. 10.
"		ca. 360	18 ₂ (1)	---	Schachow '30	A.A. 69.
"		32-36, 40-44, 80,m	---	Tumor	Ludford '30	9th Sci. Rep. Imp. Canc. Res. Fund.
"		15-17m	---	Karzinome	Isibasi, Sino- hara & Okada '31	Trans. Jap. Path. Soc. 21.
" ('Albino')		40s	20 [♂] (1,11)	X-Y [♂]	Cutright '32	J.M. 54.
" ("")		40 _♀ , [♂] m	---	X-Y [♂] , X-X _♀	Crew & Koller '32	J.G. 26.
"		40s	---	---	Butarin '35	Bull. Inst. Genet. (Moskaw) 10.
"	"	20 [♂] (1)	X-Y [♂]	Tateishi '35	Nippon Gakuzyutsu- Kyokai 10.	
"	"	20 [♂] (1,11)	"	Matthey '36	A.R. 47.	
" ('Albino')		40s	20 [♂] (1,11)	X-X [♂]	Makino '40, '41	Jap. J.G. 16; J.F.S. Hokkaido I.U. Ser. VI, 7.
"	—	—	---	Break of chroms. in X-rayed animals	Koller & Auerbach '41	Nature 148.
"	±40, 4n, 16n, etc.	—	---	Cancer	Biesele, Poy- ner & Painter '42	Univ. Texas Publ. 4243.
" ('Albino')	—	20 _♀ (1,11)	X-X _♀	Makino '41a,b	Jap. J.G. 17; J.F.S. Hokkaido I. U. Ser. VI, 7.	
"	—	20 _♀ (1,11)	2-3 chias- mata in each bival- ents.	Guénin '46, '48	Arch. Jul. Klaus.- Stift. Vererb. 21; J.G. 49.	
"	—	20 [♂] (1)	Pachytene chrom. map.	Slizynski '49	J.G. 49.	

RODENTIA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
" ('Albino')	40,60,80, & hetero- ploids.	---	In eggs un- treated, and those of cold-& hot- treatments	Beatty & Fischberg '49	Nature 163.
"	38-47(2n) 77-83(4n)	---	In liver cells	Sato '49	Jap. J.G. 24.
<u>M. musculus x</u> <u>M. molossinus</u>	40s	20♂(1,11)	X-Y♂; Meiosis normal in F ₁	Makino '41a,b	Jap. J.G. 17; J.F.S. Hokkaido I.U. Ser. VI, 7.
<u>Mus wageneri</u>	"	"	X-Y♂	Masui '23	J.Coll. Agr. I.U. Tokyo, 8.
"	"	"	X-Y♂; Gates(v,o)	Painter '27	Genet. 12.
" ('Albino')	"	"	X-Y♂	Minouchi '28	Jap. J.Z. 1.
<u>Nesokus (Bandicota)</u> <u>nemorivaga taiwanus</u>	44s	22♂(1)	"	Tateishi '35	Nippon Gakuzyutsu- Kyokai 10.
"	46s	23♂(1,11)	"	Makino '44	Cyt. 13.
<u>Rattus confucianus</u> <u>culturatus</u>	46s	23♂(1)	"	Tateishi '35	Nippon Gakuzyutsu- Kyokai, 10.
<u>Rattus confucianus</u> <u>culturatus</u>	46s	23♂(1,11)	X-Y♂	Makino '42, '43	Jap. J.G. 18; J.F.S. Hokkaido I.U. Ser. VI, 9.
<u>R. fulvescens</u> <u>coimbra</u>	42s 46s	21♂(1) 23♂(1)	"	Tateishi '35	Nippon Gakuzyutsu- Kyokai 10.
"	46s	23♂(1,11)	"	Makino '42, '43	Jap. J.G. 18; J.F.S. Hokkaido I.U. Ser. VI, 9.
<u>R. losea</u>	42s	21♂(1,11)	"	Tateishi '33, '35	Z.M. (Jap.) 45; Nippon Gakuzyutsu- Kyokai 10.
"	"	"	"	Makino '42, '43	Jap. J.G. 18; J.F.S. Hokkaido I.U. Ser. VI, 9.

RODENTIA (Continued)

RODENTIA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>R. norvegicus</u> ("Wild")	62s	21 $\hat{\delta}$ (1) 21,31 $\hat{\delta}$ (11)	---		Swezy '26, '28	Sci. 66; J.E.Z. 51.
" ("Albino")	42s	21 $\hat{\delta}$ (1,11)	---		"	"
"	±4n	—	Walker rat sarcoma	Lewis & Lock- wood '29	Bull. John Hopk. Hosp. 44.	
"	n, 2n	—	Sarcoma	Hirschfeld & Klee-Rawi- dowicz '30	Z. Krebsf. 30.	
"	22-26, 65-70, 100-105	—	Cancer	Levine '31	Am. J. Canc. 15.	
"	12-15- 37	—	Sarcoma	Isibasi, Sino- hara & Okada '31	Trans. Jap. Path. Soc. 21.	
"	20-25, 80-90	—	"	Alexenko & Natansohn '32	Z. Krebsf. 38.	
<u>Rattus norvegicus</u> ("Albino")	42s	21 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$		Minouchi '28 a,b	Jap. J.Z. 1.
" ("Albino")	"	21 $\hat{\delta}$ (1)	"		Bryden '32, '33, J.C. 26, 27; '35	Cyt. 6.
" (" ")	"	"	X-Y $\hat{\delta}$; post- red. in 10%	Koller & Darlington '34	J.G. 29.	
" ("Wild")	"	21 $\hat{\delta}$ (1,11)	X-Y $\hat{\delta}$	Oguma '35a,b	Nippon Gakuzyutsu- Kyokai 10; J.F.S. Hokkaido I.U. Ser. VI, 4.	
" (" ")	"	21 $\hat{\delta}$ (1)	"	Tateishi '35	Nippon Gakuzyutsu- Kyokai 10.	
<u>(Epimys</u> <u>norvegicus)</u>	—	21 $\hat{\delta}$ (1)	"	Matthey '36, '38	A.B. 47; J.G. 36.	
"	—	"	X-Y $\hat{\delta}$; Correction of 1918	Allen '40	J.M. 66.	

RODENTIA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Rattus norvegicus</u> <u>(Epinys norvegicus)</u>		23-26-31, 35-44-52, 55-65- 88-134	---	Azo-liver- cancer	Amano & Ando '40	Gann 34.
"		2n, 4n	---	In regener- ation of liver	Beams & King '42	A.R. 83.
"		42s	21♂(1,11)	X-Y♂; Chrom. Iden- tical in wild and albino.	Makino '42a,b, '43	Jap. J.G. 18; J.F.S. Hokkaido I.U. Ser. VI, 8,2.
"		---	21♀(1,11)	X-X♀	Makino & Sigemoro '43	Igaku & Seibut- sugaku 4.
"		42s	21♂(1) 21♀(1)	X-Y♂, X-X♀	Guénin '45, '48	Arch. Jul. Klaus- Stift. Vererb. 20; J.G. 49.
"		2n, 4n	---	Benzopirene tumor. Fusion and frag. of chroms.	Casabona '48	Biol. Latina 1.
"		26-85	---	Yoshida- Ascites sarcoma	Yosida '48, Makino & Yosida '49	Oguma Comm. Vol. Cyt. Genet. (1); Jap. J.G. Suppl. 2.
"		42s	21♂(1)	In strain of albino x wild. Meiosis regular, & fertile in F_1, F_2 & F_3 .	Makino '51	La Kromosomo 8.
<u>R. rattus ('Albino')</u>		---	8♀(1,11)	---	Melissinos '07	A.M.A. 70.
" ('Albino')		24+s	16♂(1,11)	---	van Heuf '11	L.C. 27.
<u>R. rattus</u>		40s	20♂(1,11)	X-Y♂	Pincus '27	J.M. 44.
" ('Wild!')		42s	21♂(1)	--"	Oguma '28, '35a,b	Z.M. (Jap.) 40; Nippon Gakuzyutsu- Kyokai 10; J.F.S. Hokkaido I.U. Ser VI, 4.

RODENTIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>R. r. rattus ('Wild')</u>	42s	21♂(1,11)	X-Y♂	Makino '42, '43	Jap. J.G. 18; J.F.S. Hokkaido I.U. Ser. VI,9.	
<u>R. rattus alexandrinus</u>	40s	—	"	Cross '31	J.M. 52.	
<u>R. rattus rufescens</u>	42s	21♂(1)	"	Tateishi '35	Nippon Gomuzyutsu- Kyokai 10.	
Muscardinidae						
<u>Dyromys nitedula</u> <u>uncinarius</u>	48s	24♂(1)	"	Matthey & Renaud '36; Renaud '38	C.R.S.B. 121; R. Suisse Z. 45.	
<u>Eliomys quercinus</u>	—	16♀(1,11)	—	Athias '09, '12	A.A. 34; Arch. Inst. Bact. Cam. Pest. Lisbonne 3.	
"	52s	26♂(1,11)	X-Y♂	Renaud '39	R. Suisse Z. 45.	
<u>Glis glis glis</u>	62s	31♂(1)	X-Y♂; post- reductional?	Matthey & Renaud '36; Renaud '38	C.R.S.B. 121; R. Suisse Z. 45.	
<u>Muscardinus</u> <u>avellanarius</u>	48s	24♂(1)	X-Y♂	"	"	
Sciuridae						
<u>Citellus columbianus</u> <u>columbianus</u>	32s	—	X-Y♂	Wodsedalek '29	A.R. 44.	
<u>Citellus tridecemlineatus</u> <u>arenicola</u>	50-54s	—	—	Cross '31	J.M. 52.	
<u>Glaucomys volans</u> <u>volans</u>	52s	—	X-Y♂	"	"	
<u>Sciurus carolinensis</u> <u>carolinensis</u>	48s	—	"	"	"	
<u>S. carolinensis</u> <u>leucotis</u>	28s	14♂(1)	"	Koller '36	Proc. Roy. Soc. Edinburgh 56.	
<u>S. niger rufiventer</u>	62s	—	"	Cross '31	J.M. 52.	
<u>S. niger limitis</u>	"	—	"	"	"	



RODENTIA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>S. vulgaris</u>	40s	---		X-Y♂	Muldal '49	John Innes Hortic. Inst. 39 Ann. Rep. (1948).
<u>Tamiasciurus</u> <u>hudsonius</u>	28s	---		"	Muldal '48	From Matthey-Chrom. des Vertébrés, 1948.
(<u>'Ecureuil'</u>) <u>Species unknown</u>	24s	ca. 16 [♂] (1)	---		van Molle '06, '07	L.C. 23, 24.

CARNIVORA

Species	Chromosome Number			Remarks	Observer	References			
	2n	n							
Fissipedia									
Canidae									
<u>Alopex-Vulpes</u>	43 s	---		F ₁ between <u>Alopex</u> and <u>Vulpes</u> .	Wipe & Shackel- ford '49	Proc. Nat. Acad. Sci. 35.			
<u>Canis familiaris</u>	64?m	---		—	vom Rath '94	B.Z. 14.			
"	21s 22 ^m	11 [♂] (1) 10, 11 [♂] (11)	X-0 [♂]		Malone '18	Trans. Am. Micr. Soc. 37.			
" (<u>'Dog'</u>)	50+s	---	Prob. X-Y [♂]		Painter '25	A.N. 59.			
"	78s, o	39 [♂] (1, 11)	X-Y [♂] , X-X [♀]		Minouchi '28a, b	Jap. J.Z. 1.			
"	78s	—	X-Y [♂] . 3 breeds.		Ahmed '40	Proc. Roy. Sci. Edinb. 61.			
"	78s	39 [♂] (1)	X-Y [♂]		Makino '49	Jap. J. Zootech. Sci. 19.			
<u>Nyctereutes viverrinus</u>	42s	21 [♂] (1, 11)	X-Y [♂]		Minouchi '28, '29	Z.M. (Jap.) 40; Cyt. 1.			
<u>Vulpes fulvus</u>	"	21 [♂] (1)	"		Wodsedalek '31	A.R. 51.			
<u>Vulpes lasopus</u>	—	26 [♂] (1)	X-Y ^{♂?}		Andres '38	Cyt. 9.			
<u>Vulpes vulpes</u>	—	17 [♂] (1)	"		"	"			
"	34s	17 [♂] (1)	X-Y [♂]		Wipe & Shackel- ford '42.	Proc. Nat. Acad. Sci. 28.			
"	32s	---	X-Y [♂]		Bishop '42	A.R. 84.			

CARNIVORA (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
<u>Vulpes vulpes</u>	38s	19♂(1)	X-Y♂; silver fox	Makino '44, '47	Z.M. (Jap.) 56; J.F.S. Hokkaido I.U. VI, 9.	
Felidae						
<u>Felis domestica</u> ("Variete belge")	35s	18♂(1)	X-Y♂	Winiwarter & Sainmont '09; Winwarter '14, '19, '22, '34, '38	A.B. 24; Bull. Acad. Roy. Belgique 4; A.B. 30; C.R. Ass. Anat. Dixsept. reunion; Bull. Acad. Roy. Belgique 20; A.B. 49.	
<u>Felis domestica</u> ("Variete monnaise")	38s	19♂(1, 11)	X-Y♂	Winiwarter '34, '38	Bull. Acad. Roy. Belgique 20; A.B. 49.	
" ("Chat")	--	12♀(1)	--	van der Stricht '11	Mem. Acad. Roy. Belgique 2.	
"	--	14-17♀(1, 11)	--	Longley '11	A.J.A. 12.	
" ("Hauskatze")	38s	--	--	Gutherz '18, '20	Sitz. Ges. Nat. Fr. Berlin 8; A.M.A. 94.	
"	38s, o	19♂(1, 11) X-Y♂, X-X♀		Minouchi '28a, '28b; Minouchi & Ohta '32, '34	P.I.A. (Tokyo) 1; Z.M. (Jap.) 40, 44; Cyt. 5.	
"	"	19♂(1)	X-Y♂	Matthey '34, '36	C.R.S.B. 117; A.B. 47.	
"	38s	19♂(1)	X-Y♂; pre. or post.	Koller '41	Proc. Roy. Soc. Edint. B, 61.	
"	--	19♀(1)	--	Vara & Pesonen '47	Acta Abstr. Gyn. Scand. 27.	
"	38s	--	--	Muldal '48	From Matthey-Chrom. des Vertebres, 1948.	
"	"	19♂(1)	X-Y♂	Makino '49	Jap. J. Zootech. Sci. 19.	
<u>Felis bengalensis</u>	"	"	"	Tateishi '41	Kagaku-Taiwan 9.	
Mustelidæ						
<u>Martes foina</u>	38s	19♂(1)	--	Ehrlich '49	R. Suisse Z. 56.	

CARNIVORA (Continued)

Species		Chromosome Number 2n	n	Remarks	Observer	References
<u>Mustela itatsi</u> <u>itatsi</u>		38s	19 δ (1,11)	X-Y δ	Makino '47	J.F.S. Hokkaido I.U. Ser. VI, 9.
<u>M. vison</u>		ca. 28s	ca. 14 δ (1)	—	Shackelford & Wipe '47	Proc. Nat. Acad. Sci. 33.
<u>Putorius furo</u>		34s	—	X-Y δ	Koller '36	Proc. Roy. Soc. London, B 121.
Viverridae						
<u>Mungos ichneumon</u> (<u>mongoose!</u>)		---	ca. 24 δ (1) Prob.	X-0 δ	Jordan '14	Carnegie Inst. Publ. 182.
Pinnipedia						
Otaridae						
<u>Callorhinus alascanus</u>		30s	15 δ (1,11)	X-Y δ	Starks '28	A.J.A. 10.

CETACEA

Species		Chromosome Number 2n	n	Remarks	Observer	References
Delphinidae						
<u>Phocoenoides dalli</u>		44s	22 δ (1,11)	X-Y δ	Makino '48	Chrom. 3.

UNGULATA

Species		Chromosome Number 2n	n	Remarks	Observer	References
Artiodactyla						
Bovidae						
<u>Bos indicus</u>		60s	30 δ (1)	X-Y δ	Makino '44a,b	Z.M. (Jap.) 56; Cyt. 13.
<u>Bos taurus</u> ('Stier!')		16s	—	—	von Bardeleben '92	Verh. Anat. Ges. Wien 6.
" ('Taureau!')		20-25s	12 δ (1,11)	—	Schoenfeld '02	A.B. 18.

UNGULATA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u><i>Bos taurus</i> ('Taureau')</u>	20-24s	12♂(1)	---		von Hoof '13	L.C. 30.
"	33s	17♂(1) 16,17♂(11)	X-0♂		Masui '19	J. Coll. Agr. Imp. Univ. Tokyo 3.
" ('Cattle')	37s, ♂m 38o, ♀m	19♂(1) 18,19♂(11) ca. 10♂(1)	X-0♂, X-X♂		Wodsedalek '20	B.B. 38.
<u><i>Bos taurus</i> ('Rind')</u>	60s	30♂(1,11)	X-Y♂		Krallinger '27, Verh. Anat. Ges. '28, '31	1927; Art. Dtsch. Ges. Zuchtgskde 40; Arch. Tierernähr.-zucht. B 5.
"	"	"	X-Y♂: No racial difference		Makino '43, '44a,b	Bot. & Zool. 11; Z.M. (Jap.) 56; Cyt. 13.
<u><i>Bubalus buffelus</i></u>	56s	---	X-Y♂?		Pkokadze '39	C.R. Acad. Sci. U.R.S.S. 24.
"	48s	24♂(1,11)	X-Y♂		Makino '43, '44a,b	Bot. & Zool. 11; Z.M. (Jap.) 56; Cyt. 13.
<u><i>Capra hircus</i></u>	60s	30♂(1,11)	"		Sokolov '30	Bull. Bureau Genet. Acad. Sci. U.S.S. R. 8.
" ('Ziege!')	60♂m	---	"		Shiwago '30, '31	J. Biol. Exp. 6; Z.Z.M.A. 13.
" ("")	60s	30♂(1)	"		Krallinger '31	Arch. Tierernähr.-zucht B 5.
" ('Goat!')	60m	---	Ammion		Berry '38	J.H. 29.
"	60s	30♂(1,11)	X-Y♂		Makino '43a,b, c, '44	Jap. J.G. 19; Bot. & Zool. 11; Cyt. 13; Z.M. (Jap.) 56.
"	60s	---	X-Y♂. ♂ intersex.		Makino '49	Iden-Sogo-Kenkyu 1.
<u><i>Ovis aries</i> ('Sheep!')</u>	33s, 34o	17♂(1), 17♀(1)	X-0♂, X-X♂		Wodsedalek '22	A.R. 23.
" ('Schaf, Hammel!')	48-53(54) ♂m	---	X-Y♂		Shiwago '30, '31	J. Biol. Exp. 6; Z.Z.M.A. 13.

UNGULATA (Continued)

Species		Chromosome Number		Remarks	Observer	References
	2n	n				
<u>Ovis aries ('Schaf')</u>	60s	30 δ (1) ca. 30 δ (11)	X-Y δ		Krallinger '31	Arch. Tierernahr.-zucht B 5.
" (<u>Interracial hybrid</u>)	"	30 δ (1)	---		Novikov '35	C.R. Acad. Sci. U.S.S.R. 4.
" ('Sheep')	"	"	X-Y δ		Bruce '35	Ph. D. Thesis, Univ. Pittsburgh.
" ("")	—	"	---		Pchakadze '36	C.R. Acad. Sci. U.R.S.S. 3.
" ("")	54s, m	27 δ (1)	X-Y δ		Berry '38, '41	J.H. 29, 32.
"	54s	"	"		Ahmed '40	Proc. Roy. Soc. Edinburgh 60.
"	54s	27 δ (1,11)	X-Y δ : No racial difference		Makino '43a, b,c, '44	Jap. J.G. 19; Bot. & Zool. 11; Cyt. 13; Z.M. (Jap.) 56.
<u>Ovis dallii karelini</u>	60s	30 δ (11)	---		Butarin '35a, '35b	C.R. Acad. Sci. U.R.S.S. 4; Verlag. Akad. Wiss. U.S.S.R.
<u>Ovis steato pyge</u>	---	30 δ (1)	---		"	"
<u>Ovis pol. kar.</u> <u>x Ov. st. py.</u>	60s	30 δ (1)	---		Butarin '35a	C.R. Acad. Sci. U.R.S.S. 4.
<u>Poephagus grunniens</u> (Yak!)	62±2s	31±1 δ (1)	Prob. X-Y δ		Zuitin '35	C.R. Acad. Sci. U.S.S.R. 4.
<i>Camelidae</i>						
<u>Camelus bacterianus</u>	---	35 δ (1)	---		Novikov '40	Bull. Trudy Inst. Genet. 13.
<u>C. dromedarius</u>	---	"	---		"	"
<u>C. bact. C. drom.</u>	---	"	Fertile		"	"
<i>Cervidae</i>						
<u>Ranifer phylarchus</u>	72s	36(1,11)	X-Y δ		Makino '44, '49	Z.M. (Jap.) 56; Jap. J. Zootech. Sci. 19.

UNGULATA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Suidae					
<u>Pecari tajacu</u>	30s	15 δ (1,11)	Sex chrom. unknown	Krallinger '36	Z.Z.M.A. 24.
<u>Sus scrofa ('Pig')</u>	18s, 20 δ 20 φ	10 δ (1) 8, 10 δ (11)	XX-0 δ	Wodsedalek '13a,b	Sci. 38; B.B. 25.
"	40s, 40-74m	20 δ (1)	Numbers variable by frag- mentation	Hance '17, '18	J.M. 30; B.B. 35.
" ('Schwein')	38s	19 δ (1)	Prob. X-Y δ	Krallinger '31	Arch. Tierernähr.- zucht B 5.
" ('Pig')	"	"	X-Y δ	Bryden '33	Cyt. 5.
"	"	"	"	Hillebrand '36	Diss. Phil. Breslau, 1936.
"	40s	20 δ (1,11)	X-Y δ : No racial difference	Makino '44a,b	Cyt. 13; Z.M. (Jap.) 56.
<u>Sus vittatus</u> <u>leucomystax</u>	40s	---	X-Y δ	Makino '46	La Kromosomo 1.
Perissodactyla					
Equidae					
<u>Equus asinus</u>	60s	30 δ (1)	---	Meladze '37	Bull. Biol. Med. Exp. 3.
"	64s?	32 δ ?(1,11) (29-33)	X-Y δ	Sokolov '37	C.R. Acad. Sci. U.R.S.S. 15.
"	66s	33(1)	"	Makino '44, '49	Z.M. (Jap.) 56; Jap. J. Zootech. Sci. 19.
<u>Equus caballus</u> <u>('Pferd')</u>	---	10-16 δ (1)	---	Kirillow '12	A.M.A. 79.
" ('Horse')	37s	19 δ (1) 9, 10 δ (11)	X-0 δ	Wodsedalek '14	B.B. 27.
"	33-38s	19 δ (1) 18, 19 δ (11)	"	Masui '19	J.Coll. Agr. Imp. Univ. Tokyo 3.
" ('Horse')	57-60s	30 δ (1)	X-Y δ	Painter '24, '25	J.E.Z. 39; A.N. 59.
"	60s	---	"	Ranquinini '34	Trab. Inst. Biol. Anim. 2.

UNGULATA (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
<u><i>Equis caballus</i></u> ("Horse")	66s	33 [♂] (1,11)	X-Y [♂] ; No racial difference	Makino '43, '44	Cyt. 13; Z.M. (Jap.) 56.
"Mule" (<u><i>Eq. cab.</i></u> X <u><i>Ea. asinus</i></u>)	51s	34-49 [♂] (1)	Meiosis irregular in F ₁	Wodsedalek '16	B.B. 30.
"	38 s	---	---	Leon '38	Ann. Gembloux 44.
"	66s	---	Meiosis irregular in F.	Makino	Unpubl.

PRIMATES

Species	Chromosome Number		Remarks	Observer	References			
	2n	n						
<u>Simiae-Platyrrhina</u>								
Cebidae								
<u><i>Cebus</i> sp. ("Brown Cebus")</u>	54s	27 [♂] (1)	X-Y [♂]	Painter '22, '24	Sci. 56; J.E.Z. 39.			

Simiae-Catarrhina

Anthropoidea

<u><i>Anthropopithecus</i></u> ("Chimpanzee")	---	24 [♂] (1)?	X-Y [♂] ?	Yeager, Painter & Yerkes '40	Sci. 91.
<u><i>Cercopithecidae</i></u>					
<u><i>Rhesus macacus</i></u>	48s 48♀, 5m	24 [♂] (1)	"	Painter '24	J.E.Z. 39.

Hominidae

Homo sapiens

(a) Somatic cells

<u>"</u> ("Mensch")	22-28m	---	Cornea	Flemming '82, '98	A.M.A. 20; A.A. 14.
" ("")	18-40m	---	Normal tissue	Hansmann '91	Virch. Arch. Anat. 123.
" ("Man")	33-38m	---	Embryo	Wieman '13	A.J.A. 14.
" ("Mensch")	30-50(47-48)m	---	Amnion	Grosser '21, '27	A.A. 54; Frauen- heilk. 5.
" ("")	32-48m	---	Amnion, pleura	Rappeport '22	A.Zf. 16.

PRIMATES (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Somatic cells						
" ('Homme')	20+m	---	---		Molas '26	Trav. Lab. Biol. Univ. Madrid 24.
" ('Mensch')	24 & 48m	---	Decidual tissue	Schachow '26	A.A. 62.	
" ('Human')	24+m	---	Embryo	Adamstone '29	A.R. 44.	
" ('Mensch')	30-64n	---	Pleura, peritoneum	Karplus '29	Z.Z.M.A. 10.	
" ("")	47-50(48?) ♀, ♂m	---	Tissue culture: Number variable in pathol. soma	Kemp '28, '29, '30	C.R.S.B. 99; Z.M.A.F. 16; Z.Z.M.A. 11.	
" ("")	30-85(45-50)m	---	"	Caffier '32	Zeits. Geburt. Gynäk. 101.	
" ('Human')	52m	---	Blood cells	Chrutschoff & Berlin '35	J.G. 31.	
" ('Mensch')	32-73m	---	Embryo	Andres & Shiw (Jiv) '35, '36	Z.B. (Moskaw) 4; Cyt. 7.	
"	48♀m	---	Mucose uterine	Barigozzi '47	Jul. Klaus-Stift. Vererb. 22.	
(b) Pathologic cells						
" ('Mensch')	6-60m	---	Cancer	Galeotti '93; Galeotti & Lustig	Beitr. Path. Anat. 14.	
" ('Human')	40-50(48?) ♀m	---	Tumor, cancer	Belling '27	J. Am. Med. Assoc. 88.	
" ("")	±n, 2n, 4n	---	Karsinom	Heiberg & Kemp '29	Virch. Arch. 273.	
" ("")	±47-48 ±96-100 ±300	---	Epithelioma	Levine '30	Am. J. Cancer 15.	
" ("")	±16-40	---	Malignant tumors	Isibasi, Sino-Hara & Okada '31	Trans. Jap. Path. Soc. 21.	
" ("")	±n, 2n, 3n, 4n	---	Cancer of uterus	Ohta '33	Kin-i-Fujinka-Z. 16.	

PRIMATES (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Pathologic cells					
" ('Homme')	50-55m	---	Evans' preparation (Liver cancer)	Winiwarter & Oguma '30	A.B. 40.
" ('Human')	23-140m	---	Cancer	Picon '30	Arch. Espanoles Oncol. 1.
" ('Mensch')	24-136 31-583	---	Tumor, cancer	Andres '32	Z.Z.M.A. 16.
" ("")	96-98s	48 ^Δ (1,11) 4n of germ cells		Andres '33	Z.Z.M.A. 18.
"	2n(\pm 48) 3n(\pm 72)	---	Megaloblast	Polli '46	Arch. Sci. Med. (Trino) 82.
"	24, 32, 36, 44, \pm 2n	---	Leucemie	Polli '47	Ann. Biol. Norm. Patol. 1.
"	\pm 24, \pm 48	---	Tumori maligni	Barigozzi & Dellepiane '47	Arch. Ital. Anat. Istol. Patol. 20.
"	\pm 48	---	Anémie pernicieuse)	
	28-34	---	Leukémie) Barigozzi '47	Jul. Klaus-Stift. Vererb. 22.
"	\pm 24	---	Cancer de l'utérus)		
"	16, 24, 32, 36, 48, etc.	---	Carcinome	Koller '47	Brit. J. Canc. 1.
(c) Germ cells*					
" ('Mensch' W)	8s	8 ^Δ (1), 4 ^Δ (11) ---		von Bardeleben '92, '97, '98	Verh. Anat. Ges. Wien 6; Arch. Anat. Phys. Suppl.; Jena Zeits. Naturw. 24.
" ('Man' W)	---	15-19(18) ^Δ (1) ---		Wilcox '00	A.A. 17.
" ('Mensch' W)	32?	---	---	Fick '05	Arch. Anat. Phys. Suppl. (1905).
" ('Man' W)	32s	16 ^Δ (1) ---		Moore & Arnold '05; Moore & Walker '06	P.R.S. London B 77; Liverpool Univ. Rep. 1906.

* W = (White); N = (Negro); J = (Japanese).

PRIMATES (Continued)

Species	Chromosome Number			Remarks	Observer	References
	2n	n				
Germ cells						
" ('Homme' W)	ca. 24s	12 \hat{o} (1)	---		Duesberg '06	A.A. 28.
" ('Man' W)	22s	12 \hat{o} (1) 5,7 \hat{o} (11)	XX-0 \hat{o}		Guyer '10, '14	B.B. 19; Sci. 39.
" ('Homme' W)	24s, m	ca. 12 \hat{o} (1) ca. 18 \hat{o} (11)	---		Branca '10a, b '12, '24	C.R. Ass. Anat. 12; Bibl. Anat. 21; C.R. Ass. Anat. 13; A.Z. E.G. 62.
" ('Mensch')	---	ca. 12 \hat{o} (1)	---		Gutherz '12, '22	A.M.A. 79; Z.I. A.V. 27.
" ('Man' W, N)	---	12 \hat{o} (1) 10, 11 or 12 \hat{o} (11)	XX-0?		Montgomery '11, '12	B.B. 21; J.Acad. Nat. Sci. Phila. 15.
" ('Man' W)	24s	12 \hat{o} (1, 11)	X-Y \hat{o}		Wieman '17	A.J.A. 21.
" ("")	---	12 \hat{o} (1)	2X?		Jordan '14	Carnegie Inst. Publ. 182.
" ('Mensch' W)	24s	"	---		Friedenthal '21	Arch. Rass. Ges. Biol. 13.
" ('Homme' W)	47s 48o	24 \hat{o} (1) 23, 24 \hat{o} (11)	X-0 \hat{o} , X-X \hat{o}		Winiwarter '12, '21a, b, '23	A.B. 27; C.R.S.B. 85; Rev. Anthrop. (1921); C.R. Ass. Anat. Dixsept. reunion.
" ('Man' J)	47s	24 \hat{o} (1)	X-0 \hat{o}		Oguma & Kihara '22, '23	Z.M. (Jap.) 34; A.B. 33.
" ('Man' W, N)	48s	24 \hat{o} (1, 11)	X-Y \hat{o}		Painter '23a, b, '24	J.E.Z. 37; Sci. 58; A.N. 58.
" ('Homme' W)	47s	24 \hat{o} (1) 23, 24 \hat{o} (11)	X-0 \hat{o}		Winiwarter & Oguma '25, '26	C.R. Ass. Anat. Turin (1925); A.B. 36.
" ('Human' W, N)	48s 48 \hat{o} , 6m	24 \hat{o} (1, 11)	X-Y \hat{o}		Evans & Swezy '28, '29	Genet. 13; Mem. Univ. California 9.
" ('Man' J)	48s	"	"		Minouchi & Ohta '32, '34	Z.M. (Jap.) 44; Cyt. 5.
" ('Mensch' W)	"	"	"		Shivago & Andres '32a, b	Z.B. (Moskaw) 1; Z.Z.M.A. 16.

PRIMATES (Continued)

Species	Chromosome Number		Remarks	Observer	References
	2n	n			
Germ cells					
" (<u>Man¹ W</u>)	---	---	X-Y♂	Gatenby & Beams	Q.J.M.S. 78. '35
" (")	---	246(1)	X-Y♂	King & Beams	'36 A.R. 65.
" (<u>Man¹ J</u>)	---	"	"	Iriki '36	Z.M. (Jap.) 48.
" (<u>Mensch¹ W</u>)	47-48m	---	10 pairs of autosomes identified	Andres & Nava- schin '36	Z.Z.M.A. 24.
" (<u>Human¹ J,M</u>)	47s	246(1)	X-0♂	Oguma '30, '36, '37, '39	A.B. 40; Nippon Gakujyutsu-Kyokai 11; J.M. 61; Bot. & Zool. 7.
" (<u>Human¹ W</u>)	48o	---	X-X♀	Swezy & Evans '30	J.M. 49.
" (")	---	16-18(24) ♀(1)	---	Hoadley & Simons '28	A.J.A. 41.
" (")	---	23♀(1)?	---	Allen Pratt & Newell '30	A.J.A. 46.
" (<u>Hensch¹ M</u>)	48o	---	X-X♀, Abnor. mitoses in oog.	Andres & Vogel '36	Z.Z.M.A. 24.
" (")	48o (43-53)	---	Culture of embr. ovary	Shiw '38	Biol. Zhurn. (Moskow) 7.
" (<u>Human¹ W</u>)	---	23♀(11)	EGC in vitro	Pincus & Saunders '39	A.R. 75.



