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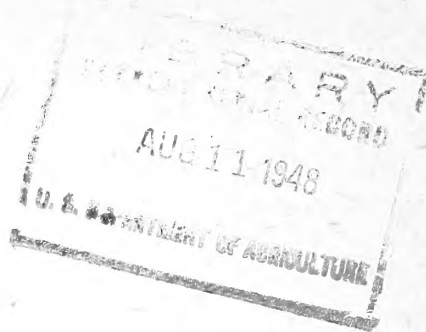


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JAPANESE ORNITHOLOGY AND MAMMALOLOGY DURING WORLD WAR II

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NATURAL RESOURCES SECTION
REPORT NUMBER 102
30 January 1948

JAPANESE ORNITHOLOGY AND MAMMALOLOGY DURING WORLD WAR II
(An Annotated Bibliography)

TABLE OF CONTENTS

	Page
Introduction	3
Plan of the Bibliography	4
Birds.	5
Mammals.	27
Periodicals.	40
List of Natural Resources Section Reports	
Distribution	

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INTRODUCTION

Despite restrictions on all activities not contributing directly to the war effort, Japanese naturalists made signal contributions during the war years to their most unwarlike of sciences. Between late 1941, when censorship clamped down and communications with the rest of the world ceased, and 1944, when the war finally reached Tokyo, much work on the birds and mammals was accomplished. However, even two years after the Japanese surrender, few of the wartime publications have reached the outside world, and perhaps many of them never will in their original form. The fire raids of 1944 and 1945 not only destroyed some of the most valuable collections and libraries in Japan but also eliminated the reserve stocks of recent periodicals and private publications.

Naturalists in wartime Japan were hampered by many difficulties. From the China Incident in 1931 onward, as the military faction gained power, government funds for research in natural history were progressively curtailed. The official attitude became one of extreme exploitation of all natural resources for the war effort, without regard for the future. Accordingly, the Bird and Mammal Section of the Ministry of Agriculture and Forestry, perhaps the most outstanding of the Japanese conservation agencies, was one of the first to be restricted. As the war effort intensified, appropriations for this department were cut consecutively, and as its young staff members went off to war, their positions were eliminated.

At the same time, with the full approval and backing of the military, a new institution was founded in Tokyo in 1941, the Research Institute for Natural Resources (Shigenkagaku Kenkyujo) under the direction of Dr K. Shibata, the botanist. Its higher vertebrate staff, nominally at least, consisted of Okada, Taka-Tsukasa, Kuroda, Hachisuka, Kiyosu, and Yamashina. One of the institute's functions was to act as a repository and clearinghouse for all the scientific material sent to Japan from the invaded territories, and many specimens filtered through its hands as the Japanese advanced through the South Pacific. In 1943 it sent an expedition to northern China which, with help from the army of occupation, obtained from the Asiatic mainland an excellent collection of representative species long needed for comparative work in Japan. In 1943 and early 1944 it published a series of technical treatises, covering such varied topics as the geography of the Greater East-Asia Co-Prosperity Sphere, the food value of seaweeds, and the calcium content of marine shells. Its publications on vertebrates include Tokuda's studies on Manchurian mice and on biogeographical distribution in Inner Mongolia, and Kiyosu's compilation on birds as food resources. The institute's wartime work came to a sudden end 25 May 1945 when its building was destroyed by fire. The organization has been revived and is now contributing to the reconstruction of Japanese natural science.

During the early part of World War II, the Japanese people at home showed increasing curiosity about the res naturae of the newly conquered lands to the south. Several authors who had previous field experience there, notably Hachisuka, Taka-Tsukasa, and Yamashina, wrote popular, fast-selling works on the subject for lay consumption. Publication was

This report was compiled by Dr O. L. Austin, Jr, scientific consultant, Wildlife Branch, Fisheries Division, assisted by Dr Masauji Hachisuka on the avian section, Dr Haruo Takashima on the mammalian section, and Mr Nagahisa Kuroda on the periodicals.

begun on a beautiful folio of plates entitled Monograph of the Birds of Greater East Asia, compiled by Taka-Tsukasa, Uchida, Kuroda, and Yamashina and illustrated by the best artists in Japan, but only four parts were issued before the printing plant was destroyed in 1944.

During the first three years of the war, university and privately financed projects such as Yamashina's and Makino's cytological studies, Taka-Tsukasa's monumental Birds of Nippon, Kuroda's work on ducks, and Hachisuka's studies of Philippine birds were continued despite increasing difficulties. The Ornithological Society of Japan held regular meetings and published its organ, Tori, more or less on schedule. Chief among its wartime works was the publication of the third and revised edition of A Hand-List of Japanese Birds, issued in the autumn of 1942 and listing all the species known to occur in the former Japanese empire including Sakhalin, the Kurils, Korea, the Ryukyus, Formosa, and Micronesia. However, the fire raids of 1944-45 ended the society's activities, and its last publication was number 55, volume 11 of Tori, dated September 1944. The last meetings of the society were held that autumn. With the encouragement of Natural Resources Section, the society was re-established in November 1946, and meetings were resumed.

The average Japanese scientist did not realize how imminent and devastating the bombing raids would be; consequently, efforts to save books and specimens came too late. Before the coming destruction was generally apparent, transportation was paralyzed, and neither trucks nor carts were available to take treasures away from the vulnerable cities. The worst losses were sustained by Prince Taka-Tsukasa and Marquis Kuroda whose homes, aviaries, libraries, and collections were demolished in May 1945. Kuroda's collections alone contained the types (about 125) of more valid Japanese birds and mammals than all other Japanese collections combined. Fortunately Kuroda had placed a few of his choicest items in a small concrete building which resisted the conflagration. Among the 20 specimens saved are his two Pseudotadorna and the unique types of Astrapia recondita and Erythrura trichroa pelewensis.

The Hachisuka and Tokyo Imperial University collections had been combined with the Yamashina collection in the latter's museum before World War II. These specimens and Yamashina's excellent library were evacuated to the mountains for safety. Though Yamashina's home, aviaries, and out-buildings were destroyed, the museum building adjoining them was not damaged. The library and collections have been returned to the museum, and it now houses the most complete and valuable bird and mammal material in postwar Japan.

The collections and the main library of the Bird and Mammal Laboratory in Tokyo were likewise saved, but the stock of its own publications was not. These publications, those of the new Research Institute, the last number of Tori, and some privately printed works such as Taka-Tsukasa's Study of the Galli of Nippon, published just before the fire raids, are exceedingly rare.

The Kobayashi egg collection in Kobe, the University collections at Kyoto and Sendai, and the historic Blackiston collection in Sapporo are still intact, though deteriorating rapidly from lack of proper care and storage.

The accompanying annotated bibliography provides a detailed resume of Japanese war-time ornithological and mammalogical work.

PLAN OF THE BIBLIOGRAPHY

This bibliography includes all known technical works in ornithology and mammalogy published in Japan from January 1941 to November 1947. The more important popular and semi-popular works issued during the same period are included. Popular magazine articles of a general nature, of too little value scientifically to justify abstracting, have been omitted.

All works cited, unless otherwise stated, were published in Japanese. The titles of all papers published in well-known journals such as Tori and the Zoological Magazine

are given in translation alone, as volume and page references should suffice to locate them. To facilitate locating books and other separately published items, their titles are given in the modified Hepburn system of Romaji as well as its English translation.

In quoting the names of authors, journals, books, and titles in Japanese, the original Kanji or Chinese characters have been discarded as unpronounceable and meaningless to most occidental scientists, and replaced by Romanized spelling. When such a name or title is given in Romaji in the original, that original spelling is used. Otherwise, the modified Hepburn system of Romanization is followed in all transcriptions.

All journals from which articles have been abstracted are listed separately, with the abbreviations used for them, alphabetically. The Japanese have not been uniform in translating the names of their periodicals into English. Usually "Iho" is rendered as "bulletin", "Kaiho" as "transactions", "Hokoku" as "reports", "Kiji" as "proceedings", "Kiyo" as "journal", "Nempo" as "annual reports", and "Zasshi" as "magazine". But any and all of these may be rendered arbitrarily by the Japanese as "bulletin" or "journal" or "proceedings". When, as frequently happens, a periodical prints an English or other foreign language title in addition to its Japanese title, that foreign title is used in this bibliography, regardless of its literal meaning, and quoted first, followed by the Romanized title in Japanese in parentheses. When no foreign title appears on the original, the Romanized Japanese title is given first and followed by an English translation in parentheses.

The regrettable Japanese habit of pre-dating periodicals was intensified during the war. To establish priorities of publication, the actual publishing dates are given if known, in addition to the date printed on the issue.

The order of each citation is as follows:

a. For articles published in periodicals: name of author underlined, year of publication, English translation of title of article in quotes, name of periodical underlined, volume in Roman numerals, number (where available) in parentheses, pagination, illustrations, complete date by western calendar.

b. For books and other separately published articles: name of author underlined, year of publication, title in English underlined, title in Romaji in parentheses underlined, size, place of publication, pagination, illustrations, date of publication by western calendar.

c. For periodicals: abbreviation (if used), complete name underlined (foreign title first if available on the original, followed by the Romanized Japanese title in parentheses, otherwise Romanized Japanese title first followed by an English translation in parentheses), volume, numbers, months, year.

BIRDS

Abe, Koroku

1941 "Birds of Mt Wakasugi, Fukuoka Prefecture": Tori, XI (51,52), p 151, Oct 1941.

This mountain, eight km east of Fukuoka city and covered with thick forest, is an ideal resort for birds. Thirty species were observed 23 June and nine species 3 November.

1942 "An Occurrence of the Pelican": Tori, XI (53,54), p 483. Dec 1942.

A wounded specimen of Pelecanus crispus was captured in Fukuoka Prefecture, Kyushu, 17 November 1941.

1942 "List of the Bamboo Partridges Introduced into Fukuoka Prefecture": Tori, XI (53,54), p 484, Dec 1942.

Between 1933-36, 304 Bambusicola thoracica were propagated and released in Fukuoka Prefecture. The species has established itself successfully.

Anon

1941-44 "A List of Foreign Birds Preserved in the Collections of Taka-Tsukasa, Yamashina, Hachisuka, and Kuroda": pt 1 Tori, XI (51,52), pp 140-141, Oct 1941; pt 2 Tori, XI (53,54), pp 449-462, Dec 1942; pt 3, Tori, XI (55), pp 651-667, Sep 1944.

A nominal list giving only localities, published serially in three sections. The first section lists the Tubinares, Steganopodes, Anseres, and Gressores; the second the Accipitres and Striges; the third the Psittaci.

Enomoto, Yoshiki

1942 Reminiscences of Wild Birds (No no Tori no Omoide), demy 8vo, Tokyo, pp 1-416, many sketches by the author, 31 Dec 1942.

The author, a veteran field naturalist, mourns the increasing scarcity of birds. Geese and hooded cranes were formerly numerous, and people paid less attention to them than to the less common and larger Japanese and white-necked cranes. In the city of Tokushima storks perched on the roofs in the fishmongers' street and caught in mid-air the fish offal the shopkeepers threw to them. Crane, storks, ibises, and spoonbills, once abundant, are almost unknown in Japan today. The author last saw ibises in 1897. In 1902 he observed and collected many albatrosses on the Pescadores Island near Formosa, where they are now scarce. Dusky and pale thrushes, a rare sight today, were common and used to sing around the houses all winter until early May. The author describes entertainingly his field experiences with birds in Formosa, Korea, and southern Manchuria as well as in many parts of the Home Islands.

Fukui, Mitsutsugu

1942 "On Two or Three Manchurian Birds": Tori, XI (53,54), pp 485-486, 3 photo, Dec 1942.

Urocissa erythrorhynchos brevivexilla, Pyrhocorax brachypus, and Phalacrocorax carbo sinensis are recorded.

Gen, Konkiu

1941 "An Observation on the Breeding of Sturnia sturnina": Tori, XI (51,52), pp 90-99, Oct 1941.

A nest of this starling was discovered 30 May in P'yongan-namdo, the first breeding record from Korea. The nesting was observed carefully, and the eggs and parents were collected.

Hachisuka, Masauji

1941 "Description of a New Species of Bird from the Philippine Islands" (in English): Bull Bioge Soc Jap, XI (1), pp 1-4, Feb 1941.

Dicaeum isag sp. nov. is described from Mt Apo, with detailed comments on the faunal affinities between the Philippine Islands and Celebes and Molucca.

1941 "Description of a New Genus and Species of Sunbird from the Philippine Islands" (in English): Bull Bioge Soc Jap, XI (2), pp 5-8, Mar 1941.

Proposes Philippinia gen. nov. as intermediate between Aethopyga and Cinnyris and describes P. primigenius sp. nov. from four specimens collected by the author at Mt Apo.

- 1941 "Further Contribution to the Ornithology of the Philippine Islands" (in English): Tori, XI (51,52), pp 61-89, Oct 1941.

The first section lists the 128 species in the Hirazawa collection from the eastern side of the Davao Gulf, Mindanao. Worthy of special mention are Pithecophaga jeffreyi, four specimens; Aviceda jerdoni leucopsis, six specimens; Mimizuku gerneyi, adult and young; Asio f. flammeus, one of the most southerly records. The second section comments on new or rare records noticed since the publication of the author's The Birds of the Philippine Islands; describes Antigone a. luzonica, Dicaeum dorsale hanadori, Pyrrhula leucogenys apo, Passer m. manillensis, Oriolus anthonotus palawanus; and proposes Kurodornis gen. nov. for Turdus luzoniensis.

- 1942 "Birds Described by Japanese Authors" (in English); Tori, XI (53,54), pp 270-352, Dec 1942.

A detailed catalogue and criticism of the systematic work of the 12 Japanese authors who have named birds. It is based largely on the forms considered valid by the third edition (1942) of A Hand-List of Japanese Birds.

- 1942-44 "Contributions to the Ornithology of South China" (in English): pt 1 Tori, XI (53,54), pp 352-369, Dec 1942; pt 2 Tori, XI (55), pp 529-573, Sep 1944.

Part 1 notes the conditions in Canton in 1940. The Chinese ornithologist, Mr Yen, and his famous collection of Yaoshan birds had disappeared without trace. The best bird collection in Canton was at Sun Yat Sen University. An American naturalist, Mr Gressitt, was still in charge of the smaller Lingnan University collection. A list is appended of the 194 species removed from two of the smaller Canton institutions, the Educational Museum and the Science Museum, and exhibited at the Japanese consulate. Part 2 describes the bird collections of the Kwangsi Provincial Museum of Natural History, which were on orderly exhibition in May 1940, though the museum and the city were deserted by all except Japanese troops. Notes are appended on 100 of the most significant and interesting species.

- 1942 "A Record of Hybrid Between Goose and Swan": Tori, XI (53-54), pp 463-464, 1 photo, Dec 1942.

Describes hybrid between Emden goose and mute swan kept in Munich zoo and lists the three other known records of this hybrid, the so-called "Swoose".

- 1942 "A New Name for the Japanese Blue Magpie": Zool Mag, LIV (12), p 505, Dec 1942.

The author suggests uniting Cyanopica with Pica, as sufficiently diagnostic generic differences are lacking. If this is done, Cyanopica cyanus japonicus Parrot (1905) is preoccupied by Pica pica japonica Temminck and Schlegel (1848) and cannot be used. Pica cyana onaga is proposed for Cyanopica cyanus japonicus Parrot.

- 1943 "The Keeping of Screamers": Sai Shi, V (4), pp 88-93, 2 pl, Apr 1943.

Gives general habits of the birds in nature in South America and in captivity elsewhere. The first screamers in Japan were four imported by the author and kept by him in Atami for several years.

- 1943 Expedition to the South (Minami no Tanken), demy 8vo, Tokyo, pp 1-437, 1 col pl, num photo and line drawings, 1 map, 5 May 1943.

A narrative in popular style of the author's ornithological expedition to the Philippine Islands in 1929, the book also describes interesting experiences with

birds in Hawaii, China, Borneo, Celebes, and New Guinea. Illustrations include a colored plate of new Philippine endemic birds and numerous photographs.

- 1943 "The Ornithological History of South China": Trans Nat Hist Soc Taiwan, XXXIII (Special No 1), pp 1-38, Aug 1943.

A brief historical sketch of the development of ornithology south of the Yangtze Valley is given, including Tonkin but excluding Formosa and Hainan. Because of political disturbances no research work has been done in this vast territory since 1936. The names of workers, their chief collecting grounds, and the museums where their collections are preserved are listed.

- 1944 "Avifaunal Distribution of Hainan" (with English resume): Trans Nat Hist Soc Taiwan, XXXIV (246-247), pp 139-158, Apr 1944.

Excluding migrants and doubtful records, more than 31 percent of the Hainan birds are endemic. A few of these are species, but most are of subspecific rank. More than 74 percent of the Hainan species (not counting subspecies) are common to southern China and Annam as well. The Annamese element is over twice as strong as the southern Chinese element, while two monotypic genera of Corvidae, Temnura and Cissopica, are known only from Annam and Hainan. More than two-thirds of the resident Hainan birds came from India and Burma, and less than one-third traveled by the Burma, Yunnan, and Kwangsi route. A few Hainan species not represented in southern China and Indo-China reappear in India, Burma, Siam, and Yunnan. The entire island is tropical, and even the Five-Finger Ranges are covered with thick forest. Therefore altitude has little effect on avifaunal distribution, which is ruled within the island by other ecological factors.

- 1944 "Description of a New Tailor-Bird from the Philippine Islands" (in English): Tori, XI (55), pp 525-528, 1 fig; Sep 1944.

Original description of Orthotomus nigrogularis.

Horikawa, Yasuichi

- 1942 "Two Species of Cranes Captured in Formosa": Tori, XI (53,54), pp 481-482, 2 photo, Dec 1942.

One specimen each of Grus japonica and G. vipio from Taihokushiu constitute the first Formosa records.

Ichikawa, Masatoku

- 1944 "Broad-Billed Roller around Chimneys": Tori, XI (55), pp 685-687, 1 pl, Sep 1944.

Eurystomus orientalis has been observed in May and early June flying around tall factory chimneys in Saitama, Kofu, Akita, and other widely separated places, sometimes in pairs, occasionally in groups of seven or eight. No explanation is offered for this curious behavior. The birds sometimes perch on the chimneys, and once two fell through and were captured. The species is known to breed only in hollow trees in deep forests.

Inoue, Motonori

- 1947 "The Birds of Ishikari Plain, Hokkaido": Seibutu, Suppl (1), pp 137-145, Jan 1947.

A briefly annotated list of the 132 species found in the plainslands of southwestern Hokkaido. The author excludes rare stragglers and the high mountain, salt water, and coastal forms and divides the remainder into three convenient ecological habitats. For villages and scrub growth areas he lists 25 species, for grassy plains and marshes 46, and for forest lands 61 species.

Ishizawa, Jicho and Shimomura, Kenshi

- 1945 Birds of Outdoors (Yagai no Tori), 16mo, Tokyo, pp 1-134, index, pp 1-13, 44 col pl, Jan 1945.

This useful little pocket book with colored plates gives short descriptions, ranges, habitats, and feeding habits of 146 common species of Japanese birds. To facilitate lay identifications, the species are grouped by habitats, those found in or near villages, grassy plains, brush country, forests, sub-alpine and alpine zones, and along the shore.

Kameyama, Motoichi

- 1941 "Black Variety of the Japanese Skylark": Tori, XI (51,52), p 152, 1 pl, Oct 1941.

A captive skylark started darkening in spring and by summer was completely melanistic.

- 1944 "Species of Worms Contained in the Stomach of a Dove": Tori, XI (55), p 709, 1 photo, Sep 1944.

A dove obtained in Motosu, Gifu Prefecture, 26 October 1941 had eaten 174 leaf-roller worms.

Kawamura, Tamiji

- 1947 The Science of Bird Song (Tori no Uta no Kagaku) crown 8vo, Kyoto, pp 1-388, 5 Aug 1947.

This excellent study of bird song is the work of Professor Kawamura of Kyoto University, one of the leading Japanese authorities on the subject. He describes the structure and development of the mechanisms by which bird song is produced and traces the evolution of song from simple call-notes to the complex nuptial melodies of the finest songsters. He attempts to classify each song by its syllables and their length, order, phrasing, and modulation and writes his conception of them in kata-kana, which lends itself to the purpose admirably. He notes individual and geographical differences of song within the species and shows the effect on song of climate, season, and time of day. He describes the songs of all the native song birds of Japan in detail and adds a final chapter on the songs of cage birds.

Kiyosu, Yukiyasu (see also Yamashina, Y. and Kiyosu, Y.)

- 1943 "On the Birds as Food Resources": Shi Ken Iho (4), pp 1-119, 4 pl, Nov 1943.

This was compiled as part of Japan's "exploitation of natural resources" program to ease the food shortage during the war. It lists all the species of birds, from the Kurils and Sakhalin south to the Ryukyu Islands, which may legally be eaten: 15 sparrows, 1 bulbul, 3 thrushes, 13 ducks, 3 doves, 27 shorebirds, 3 rails, and 6 gallinaceous species. Short descriptions of each "game" species include habitat, voice, nesting, food, migration, general distribution, and the totals reported captured, with their market prices for the past 16 years.

Kobayashi, Keisuke

- 1944 "Random Notes on the Purple Heron": Tori, XI (55), p 688, Sep 1944.

A young female captured in Chiburi 26 November 1942 constitutes the first record from Hokkaido. The writer saw a single bird in Takao, Formosa, and later obtained four eggs.

1944 "Eggs of Cuculus saturatus and Prinia flaviventris sonitans": Tori, XI (55), pp 689-691, 2 photo, Sep 1944.

In Formosa C. saturatus commonly lays its eggs in the nest of P. flaviventris. The color of the eggs is similar, but the cuckoo's eggs are much larger and lack the glossiness.

Kumageya, Saburo

1944 Oystercatcher's Miscellany (Miyakodori Shinko), 12mo, Tokyo, pp 1-138, 7 fig, 1944.

This book is a more poetic than scientific treatment of the gulls which have been known since early feudal times as "Kamome" in Japanese. The Japanese name of the less common oystercatcher is of uncertain derivation, "Miyakodori", literally "town bird". Literary men of former days, unversed in native bird names, wrote poems in admiration of the gulls, the "white birds floating on the rivers", in Kyoto and Tokyo and called them "town birds" in error.

Kuno, Kentaro

1942 "The Avifauna of Mt Echigo Koma After the Breeding Season": Tori, XI (53,54), pp 388-405, 1 map, Dec 1942.

The author visited Echigo mountain three times during June and July and observed and heard 344 individuals of 53 species. The population was greater at lower altitudes.

Kuroda, Nagahisa

1941 "A Hybrid Between the Silver and Black-Tailed Gulls": Tori, XI (51,52), pp 146-150, 3 pl, Oct 1941.

A male Larus novaehollandiae and a female L. crassirostris bred two successive years in the Kyoto zoo. In 1939 two of their three eggs hatched, but the chicks died the same day. In 1940 one of three chicks hatched reached maturity. The incubation and care of young are done mostly by the male. The immature birds resemble the female.

Kuroda, Nagamichi (see also Taka-Tsukasa, N., and Kuroda, N.)

1941-42 "A Study of the Marianas Duck, Anas oustaleti": pt 1 Tori, XI (51,52), pp 99-119, 6 pl, Oct 1941; pt 2 Tori, XI (53,54), pp 443-448, 3 photo, Dec 1942.

This duck is known only from the islands of Saipan, Tinian, and Guam in the Marianas. About 40 specimens are preserved. The author obtained and brought to Tokyo four live specimens from Hagoi Lake on Tinian Island. Adults exhibit both nuptial and eclipse plumage at the same time, suggesting that they breed at all times of the year. The post-nuptial plumage and the color of the legs of the drake resemble those of mallard and are quite different from Anas superciliosa. The view that A. oustaleti may be hybrid between A. platyrhynchos and A. superciliosa is not thought tenable because these two species have never been obtained from the Marianas. The author considers A. oustaleti a valid species which probably developed from northern mallard stock and places it systematically next to A. platyrhynchos. The species breeds in July on Challankanoa Lake, Saipan, and lays from 7 to 12 eggs per clutch. On Hagoi Lake in Tinian two flocks of more than 50 ducks were observed. Photographs of the nest and eggs and the incubating parent are believed to be the first ever taken. Ducklings and incubated eggs have been found in June and July, but their breeding season is believed to be longer. Color of the duckling resembles that of the mallard, but general color of the back is more brownish.

- 1941 "Rare Birds Obtained in the Last Season": Tori, XI (51,52), pp 141-142, 1 pl, Oct 1941.

Second record of Erythrura erythrura grebnitskii from Honshu. Two mallards, one in buff phase and the other with the white neck ring interrupted in the front, and a hybrid between mallard and pintail are described.

- 1942 A Bibliography of the Duck Tribe (in English), 8vo, Tokyo, pp 1-352, Oct 1942.

A most useful compilation of the world literature on the ducks, geese, swans, domestic waterfowl, and screamers. Brief resumes of many articles are given, with emphasis on all titles not included in Phillip's similar compilation in 1926. The number of titles totals 6,539.

- 1945 "An Apparently New Species of Bird of Paradise of the Genus Astrapia" (in English): Bull Bioge Soc Jap, XIII (4), pp 33-37, 1 col pl, Feb 1943.

Astrapia recondita sp. nov. is closer to A. mayeri than to A. stephaniae. Two male specimens from Morobe district, southeastern New Guinea, are in Kuroda collection.

- 1943 "On the Birds of Paradise": Kag Nan, XII, pp 20-35, 24 photo, 1943.

Birds of paradise appeared for the first time in Japanese literature in 1803. The author recognizes 141 species and sub-species and 20 hybrids of Paradisaeidae and Ptilonorhynchidae, explains their morphological and nest building peculiarities, and lists the specimens preserved in Japanese collections and aviaries.

- 1944 "Proposal of Genus Garrulax for Genus Trochalopteron": Zool Mag, LVI (8), pp 13-14, Aug 1944 (actual date of publication, 25 Apr 1946).

The author suggests that Trochalopteron used in A Hand-List of the Japanese Birds, 1942, should be united with Garrulax, as not sufficiently distinct from it morphologically.

- 1944 "A List of the Birds of Paradise and the Bower Birds" (in English): Tori, XI (55), pp 615-650, Sep 1944.

This nominal list of the recognized forms of these two closely related families contains 30 genera, 9 subgenera, 57 species, 119 subspecies, 141 species and subspecies, and 20 hybrids.

- 1944 "Observations of Birds in Inubo Peninsula, Choshi, and Its Environs": Tori, XI (55), pp 707-708, Sep 1944.

Observations on 29 species of birds made during six short trips to Choshi.

Kuwata, Tetsuya

- 1942 "A Study on the Breeding Birds at Sumiyoshi-ura": Tori, XI (53,54), pp 406-433, 26 photo, 1 map, Oct 1942.

Notes on breeding near Osaka of the house sparrow, skylark, great reed-warbler, fantail warbler, little bittern, spot-billed duck, little grebe, Kentish plover, little ringed-plover, little tern, and moorhen.

Makino, Sajiro

- 1946 "A Simple Method of Making Specimens of Small Birds", Seibutu, I (3), pp 188-189, Jun 1946.

A short description of how to preserve small birds by injecting the viscera with formalin with a pipette, and replacing the brains and eyes with formalin-impregnated cotton. The author has kept such specimens successfully for two years.

Ministry of Agriculture and Forestry, Forestry Bureau, Tokyo

- 1941 Bird Banding Statistics for 1940-41 (Hyoshiki cho kaishu ichiran), mimeographed booklet, 8" by 10", pp 1-14, 2 charts, Aug 1941.
- 1942 Bird Banding Statistics for 1941-42 (Hyoshiki cho kaishu ichiran), mimeographed booklet, 8" by 10", pp 1-20, 2 charts, Aug 1942.
- 1943 Bird Banding Statistics for 1942-43 (Hyoshiki cho kaishu ichiran), mimeographed booklet, 8" by 10", pp 1-15, 2 charts, Aug 1943.
- 1944 Bird Banding Statistics for 1943-44 (Hyoshiki cho kaishu ichiran), mimeographed booklet, 8" by 10", pp 1-16, 2 charts, Aug 1944.

These booklets, published annually, contain all available Japanese banding data. No distinction is made between "returns" and "recoveries". Species are listed by their Japanese common names in kata-kana, the dates in Arabic numerals, the localities in Kanji. The only banding in Japan is done by employees of the Bird and Mammal Laboratory of the Bureau of Forestry. Most of the birds banded are bought from the licensed bird netters at prevailing market prices. The three percent returns for small song and insectivorous birds, mostly thrushes and sparrows, are extraordinarily high by American standards. The annual banding average is 10,000 birds of 30 species; the returns average 300 birds of 20 species.

- 1942 Hunting Statistics for 1939 (Shuryo tokei), royal 8vo, Tokyo, pp 1-68, 2 charts, 28 Feb 1942.
- 1942 Hunting Statistics for 1940 (Shuryo tokei), pp 1-66, 2 charts, 29 Feb 1942.
- 1943 Hunting Statistics for 1941 (Shuryo tokei) pp 1-64, 2 charts, 30 Mar 1943.
- 1944 Hunting Statistics for 1942 (Shuryo tokei) pp 1-58, 1 chart, 30 Mar 1944.

These statistics, published annually, are based on the returns all licensed hunters are required to make at the end of each hunting season. Included are such useful data as the numbers of licenses issued, both for shooting and netting, the amount of revenue received, the kill of birds and mammals listed by species for each prefecture, the activities of government agents, the numbers of violations and hunting accidents, and the number of sanctuaries and licensed hunting grounds. While faulty and careless collection of the data renders many of them useless for statistical study, they are the only ones available. The figures for 1943 were destroyed during collection in 1944. None were gathered for the 1944-45 season, but partial figures for 1945-46 are available, though not published. Those for the 1946-47 season are being collected.

Miyoshi, Hoju

- 1942 Animals of the South Seas (Nanyo Dobutsu Shi), 8vo, Tokyo, pp 1-339, 1942.

This popular book deals with animals of the South Pacific in folk lore, folk art, and etymology. In the few chapters on birds the influences on native culture of the cassowary, ostrich, hawk, eagle, parrot, and birds of paradise are discussed at length.

Mori, Hideshi -- See Takewaki, Kiyoshi and Mori, H.

Nakamura, Yukio

- 1942 "An Albino Feather-Toed Scops Owl": Tori, XI (53,54), pp 482-483, 1 photo, Dec 1942.

A partial albino was captured at Kichisawa village, Yamanashi Prefecture.

Nakanishi, Godo

- 1941 "Birds of Musashino", in Miscellany on the Plains of Musashi Province (Musashino) edited by Tamura, G., and Hande, M., 8vo, Tokyo, pp 1-529, 25 May 1941.

The avian section, pp 284-351, with six plates, contains a detailed summary of the birds of the area, based on published records and Nakanishi's own censuses in the area (roughly Tokyo and vicinity). It describes the various habitats, the major rookeries and sanctuaries, and the best "birding spots". The author tabulates 223 species, of which he considers 47 as permanent residents, 43 summer residents, 34 transients, 66 winter visitors, 25 vagrants, and 8 stragglers.

- 1941 Among the Wild Birds (Yakin no naka ni), 8vo, Tokyo, pp 1-418, num photo, 20 May 1941.

A popular collection of the author's observations, mostly on song and nesting habits, with a chapter on vertical distribution in the mountain areas and another on the origin of Japanese local names for birds. A diary of his birding trip through the Izu Islands is included.

- 1943 Talks on Wild Birds (Yacho no Hanashi), 8vo, Tokyo, pp 1-164, 14 pl, 1943.

This book for children on the habits of common Japanese birds is written in a simple, popular style.

- 1947 Talks on Birds (Tori o Kataru), crown 8vo, Tokyo, pp 1-275, frontpiece, 15 Jun 1947.

Another collection of Nakanishi's writings in popular vein, mainly on general avian behavior and bird song. He quotes extensively from ancient Japanese literature, gives a number of examples of the popular Japanese stylized 31-syllable poems on bird subjects, and tells the story of the founding of the "Yacho" society and magazine.

Nibe, Tominosuke

- 1943 Life Histories of Wild Birds (No no Tori no Seitai), 8vo, Tokyo, vol 1, pp 1-278, 34 photo, (4th ed) 1943; vol 2, pp 1-323, 21 photo, (2nd ed) 1942; vol 3, pp 1-325, 20 photo, (1st ed), 1943.

Volume 1 gives life histories of the swallow, grey-headed lapwing, sparrow, kingfisher, cuckoo, little ringed-plover, crow, and bullfinch. Volume 2 treats the crow, swan, greenfinch, bulbul, rosefinch, spot-billed duck, sandpiper, swallow, kite, grebe, cuckoo, kingfisher, russet sparrow, and tern. Volume 3 covers the ringed-plover, common sandpiper, cuckoo, copper pheasant, little bittern, spot-billed duck, house sparrow, skylark, swallow, crow, and grey starling.

Ornithological Society of Japan

- 1942 A Hand-List of the Japanese Birds, Third and revised edition (in English) by a special committee of the Ornithological Society of Japan: 8vo, Tokyo, pp i-viii, 1-238, 30 Jun 1942.

This revision of the 1932 edition was issued to commemorate the 30th anniversary of the Ornithological Society of Japan. It recognizes nothing new from the main islands since the previous edition except a lark, Alauda arvensis kagoshima Yamashina, from southern Kyushu. The 13 other additions are all from outlying parts of the old empire, Korea, Manchuria, Formosa, Micronesia. A useful improvement is the inclusion of all the known locations of type specimens. This edition recognizes 291 genera and 893 species and subspecies from Japan, Korea, and Formosa, and 36 genera and 194 species and subspecies from Micronesia.

- 1944 "Japanese Generic and Subgeneric Names for the Japanese Birds": Tori, XI (55), pp 674-684, Sep 1944.

This paper was compiled by a special committee of the Ornithological Society of Japan, but it is published without indicated authorship. The increasing amateur interest in birds demands easier, more facile names for the Latin generic names of Japanese birds. The Japanese names, herewith adopted as standard, are based on the accepted Japanese names for the dominant species in each genus.

Saito, Gensaburo

- 1941 "Nesting of the Striated Swallow in Chiba": Tori, XI (51,52), pp 143-146, Oct 1941.

Lists two records of the nesting of Hirundo daurica.

- 1941 "On the Migration of the White-Rumped Swift in Chiba": Tori, XI (51,52), pp 143-146, Oct 1941.

Gives number, height, and direction of flight of migrant flocks observed over the city of Chiba between 13 June and 20 October 1940

- 1942 "Nest of the Great Tit": Tori, XI (53,54), pp 465-471, Dec 1942.

Observations made in April and May of a great tit's nest near Chiba. The male never incubates, and the female leaves the nest only in search of food.

- 1942 "Movements of the Japanese Greenfinch during the Breeding Season": Tori, XI (53,54), pp 471-474, Dec 1942.

The selection of the nesting place, gathering of material, and building of the nest are done only by the females. They sometimes peel the bark of standing trees, but most materials are gathered on the ground. Five to eight days are required to complete the nest. The males feed the incubating females and always sleep near the nest. The eggs are seldom uncovered. After the 12th night the females stay out of the nest.

- 1942-44 "Migrating Jays over Chiba City": pt 3, Tori, XI (53,54), pp 475-480, Dec 1942; pt 4 Tori, XI (55), pp 694-698, Sep 1944; pt 5 Tori, XI (55), pp 698-703, Sep 1944.

Jays fly over Chiba city during autumn and spring, sometimes in flocks of 200 or more birds. Daily records of observations in 1939 and 1941 include direction of flight, number of individuals, and weather conditions.

- 1944 "Migration Periods of Birds in Chiba City": Tori, XI (55), pp 703-706, Sep 1944.

The list contains arrival and departure dates of 29 species of birds from 1940-42.

Saito, Haruo

- 1946 "The Story of the Ring-Necked Pheasant": Hop Fub, I (6), pp 16-17, Jun 1946.

In 1930 a small stock of Korean ring-necked pheasants was turned loose in Hidaka Province, Hokkaido. Three hundred birds had been released by 1933 when they suddenly started increasing. By 1940 their range extended to neighboring provinces. In 1944, when hunting was allowed for the first time, the population stopped increasing, and after 1945 the number of birds suddenly decreased. The author, an avid hunter as well as head game warden of Hokkaido, suggests that when pheasants were shot their enemies, such as hawks and foxes, became comparatively more numerous and have put stronger pressure on the remaining stock.

Shishido, K., Koga, S., and Takahashi, I.

1947 "The Constitution of Japanese Bird Lime": Saiensu, I (1), pp 1-4, May 1947.

A chemical analysis of bird lime, made for centuries by the Japanese from the bark Ilex integra.

Takahashi, Tazo

1942-44 "On the Birds Breeding near Lake Taraika, S. Sakhalin": pt 1, Tori, XI (53-54), pp 370-388, 1 map, 8 photo, Dec 1942; pt 2 Tori, XI (55), pp 574-584, 3 photo, Sep 1944.

Taraika, the largest lake in Sakhalin, is separated from the sea only by a low sand bank through which flow two narrow channels. The other three sides are surrounded by extensive marshes which provide ideal breeding grounds for ducks and other waterfowl. The following species were studied: Anas platyrhynchos, A. strepera, Querquedula crecca, Q. falcata, Dafila acuta, Spatula clypeata, Nyroca ferina, N. marila, Mergus serrator, Podiceps griseigena, Limosa lapponica, Sterna hirundo, S. aleutica, Gallinula chloropus, Fulica atra, Ixobrychus sinensis, Motacilla flava. Photographs of eggs and nesting sites are included.

Taka-Tsukasa, Nobusuke

1943 The Birds of Nippon (in English), vol 1, pt 8, med 4to, Tokyo, preface v-vii, list of contents ix-x, bibliography cxlix-clxxiv, list of pls xi-xiii, text and index pp 359-456, 1 col pl, 28 Feb 1943.

This completes the first volume of Prince Taka-Tsukasa's monumental work which has been in preparation more than 10 years. It is a beautiful example of the best bookmakers' art, but the major portion of this section is taken up by addenda and corrigenda to the earlier numbers. The only bird described in full is Perdix barbata castaneothrax Hachisuka and Taka-Tsukasa from southern Manchuria, which completes the systematic treatment of the Japanese Galli. The excellent and useful bibliography is painstakingly compiled.

1943 Stay with the Birds (Tori to Kurashite), 8vo, Tokyo, pp 1-233, 14 pl, 1943.

These memoirs of the author's association with birds are written in an easy, readable style. Several chapters are devoted to his aviary activities. His ornithological rambles cover the Boso and Izu peninsulas, Lake Biwa, and Formosa. Other chapters deal with his visits to New York and London museums and with such well-known bird phenomena as nest building and migration, birds of good omen in Japan and China, evolution, and adaptability.

1943 Studies on the Galli of Nippon (in English), royal 8vo, Tokyo, pp 1-67, 5 col pl, 1943 (date of publ 31 Jan 1944).

In this pamphlet the author gives a short historical sketch and the classification, description, and distribution of all the gallinaceous birds of the former Japanese Empire. The descriptions and ranges are largely copied from the author's earlier Birds of Nippon, but the classification is revised considerably and unfortunately is not in accordance with sound systematic practice. The main changes are the recognition of two species (and no subspecies) of the copper pheasant and the rearranging of the names of the two races he recognizes of the green pheasant. Having determined that the type of P. versicolor came from southern Japan instead of from the north as formerly assigned, he renames the northern form, for which two other names are already available. Hence his P. v. kigis only adds to the overcluttered synonymy of Japanese birds. However, the colored plates are excellent. Unfortunately, fewer than 10 copies of the book were distributed before the entire edition was destroyed.

Taka-Tsukasa, Nobusuke, Uchida, S., Kuroda, N., and Yamashina, Y.

1943-44 Monograph of the Birds of Greater East Asia (Dai Toa Chorui Zufu), demy folio, Tokyo; pt 1, 6 pl; pt 2, 6 pl; pt 3, 6 pl; pt 4, 6 pl; 1943, 1944.

That this handsomely illustrated folio, started 18 months before the surrender, would ever be completed was doubted even by the collaborators themselves. The printing plant, the only one in Japan capable of handling so ambitious a project, was completely destroyed after the fourth part appeared. The value of the work lies essentially in its color plates. The text is of secondary importance, only a page or a page and a half at most being given to each plate. The original paintings were executed by S. Kobayashi, K. Sakamoto, M. Deguchi, and M. Mizuno.

Takewaki, Kiyoshi and Mori, Hideshi

1944 "Mechanism of Molting in the Canary" (in English): Jour Fac Sci Imp Univ Tokyo, Sect IV, vol VI (5), pp 547-575, 2 pl, 1 Aug 1944 (actual publication Aug 1947).

A series of experiments on the molting of canaries is described, and the observation recorded. (1) The canary normally molts once yearly at the close of the breeding season. (2) If gonadal development is accelerated by lengthening the daily light periods, the inception of molting is also accelerated. Here also the canary begins to molt as the gonad undergoes regression. If the onset of sexual activity is suppressed by shortening the daylight periods, molting is also inhibited. (3) Change of temperature exerts no remarkable effect on the inception of molting, although lower temperatures seem to accelerate the rate of feather renewal. (4) The molting of the canary is not much affected by gonadectomy. (5) Injection of thyroxin produces severe molting at any season of the year. (6) Thyroidectomy just before or at the beginning of natural molting permits almost normal molting, but the same performed several months prior to the molting season inhibits molting. (7) Administration of hypophyseal substance can induce molting prior to the normal season in canaries with thyroids but not in those deprived of glands. (8) Androgen or estrogen can inhibit natural or thyroxin-induced molting. (9) Histological examination reveals activity in the thyroids of molting canaries. (10) The thyroid is important for the inception of molting in the canary, and light through its stimulation of the thyrotropic function of the anterior hypophysis is one of the most important factors controlling thyroid activity.

Torii, Hajime -- See Yamashina, Y. and Torii, H.

Tsuchiya, Kyoichi

1944 "Habits and Distribution of the Pheasant-Tailed Jacana and the Bungalow Swallow in Formosa": Tori, XI (55), pp 588-594, 3 photo, Sep 1944.

Hydrophasianus chirurgus sinensis breeds only in Tainan, Takao, and Taito prefectures, all within the Tropic of Cancer, from April to September. Only one brood is raised annually. Several new nesting localities of Hirundo tahitica namiyei in Formosa are recorded. The swallow is known to breed only south of Amami Oshima.

Uchida, Seinosuke (see also Taka-Tsukasa, Nobusuke, Uchida, S., Kuroda, N., and Yamashina, Y.)

1942 The Bird (Tori), 12mo, Tokyo, p 296, 49 text fig, 5 Feb 1942.

This textbook, written for non-specialists, should not be confused with the journal of the same name published by the Ornithological Society of Japan. It has chapters on the ancestry of birds, the origin of domestic fowl, extinct birds, eggs and nests, migration, song, territory, feeding habits, and birds in literature. It also contains a short resume of the birds of Japan and a popular account of species representative of major bird faunas of the rest of the world.

1946 The Goose Bath (Zuihitsu Ganburo), 12mo, Tokyo, pp 1-193, 10 Oct 1946.

A collection of the author's miscellaneous articles previously published in popular magazines, this popular work gives records of banded birds recovered from Siberia, China, and the Philippines. The title of the book, "goose bath", comes from a charming folktale. Along the shores of Toyama and Niigata prefectures on the Japan Sea one finds broken twigs and pieces of wood washed ashore from Amurland. The old inhabitants believe these are carried by the migrating, geese which breed in Siberia and winter in Japan. When the birds feel tired over the ocean they rest upon the wood until they regain their strength. Then they pick up the wood and continue the journey. When the Japanese coast is reached the wood is no longer needed so it is left along the shore to await the return journey. So many geese are killed by hunters in Japan during the winter that the wood has no owner. The inhabitants are sorry for the geese but collect the wood to heat their baths.

Udagawa, Tatsuo

1944. "The Avifauna of Canton City, S. China": Tori, XI (55), pp 595-614, 10 photo, Sep 1944.

The author stayed in Canton from June 1939 to May 1941 and observed bird life near the town. Sixty-five species are recorded, comprising 27 residents, 12 migrants, 19 winter visitors, and 1 vagrant. The more common species are Passer montanus, Pycnonotus sinensis, Aethiopsar cristatella, Streptopelia orientalis, Copsychus saularis, and Prinia flaviventris.

Utinomi, Huzio

1945 Bibliographia Micronesica (sic) (Nanyo Gunto Kagaku Bunkenshu), royal 8vo, Hokuryukan, Tokyo, pp 1-208, 1945.

The Aves section, pp 27-36, lists 175 titles of works on Micronesian birds. While the listing of Japanese references seems complete, many important works from English, American, and other sources are omitted.

Yamada, Nobuo

1942 "On the Artificial Breeding of Some Wild Birds": Tori, XI (53,54), pp 433-438, 2 photo, Dec 1942.

Eggs of Lanius bucephala, Cuculus canorus, Streptopelia orientalis, Acrocephalus arundinaceus, Locustella fasciolata, and Porzana fusca were taken from their nests and placed in an incubator. It was ascertained that the most favorable temperature is 37.5°C with a one degree margin of safety either way; 40°C is fatal to the embryo. Eggs subjected to 30°C for a few days before the start of incubation suffered no damage, but when they were approaching the hatching stage, two hours' exposure to outside air was fatal.

1942 "On the Nesting and Young of Gray's Grasshopper Warbler, Locustella fasciolata": Tori, XI (53,54), pp 438-442, 3 photo, Dec 1942.

The breeding of L. fasciolata in Hokkaido was known previously from a single record. The author describes three nests discovered in June and July in tall bushes by the side of the Toyohira River near Sapporo, Hokkaido.

Yamagata, Miyuki

1942 Wild Birds of Manchuria (Manshu no Yasei Cho), demy 8vo, Tokyo, pp 1-118, 2 photo, 1942.

Most of the book is in diary and letter form. Yamagata's observations on wild birds, flowers, animals, and hunting are entertainingly and vividly written. Of special

interest are his observations on Emberiza jankowskii, one of the rarest birds of eastern Asia, whose nests and eggs he was the first to discover.

Yamashina, Yoshimaro (see also Taka-Tsukasa, Nobusuke, Uchida, S., Kuroda, N., and Yamashina, Y.)

- 1940 "Study on Sterility in Hybrid Birds I, Histological Researches on the Reproductive Organs of Hybrid Birds from the Family Ploceidae" (with English resume): Jap Jour Gen, XVI (3), pp 97-105, 17 fig, 1 pl, Jun 1940.

The reproductive organs of four hybrids, Padda oryzivora X Lonchura striata var. domestica, Lonchura atricapilla X L. striata var. domestica, Erythrura trichroa X E. psittacea, and Aidemosyne modesta X A. malabarica were studied. These hybrids were considered in life to be sterile, and on microscopic examination their incomplete gonads proved them so histologically.

- 1941 "Studies on the Sterility in Hybrid Birds II, Histological Studies of the Reproductive Organs in Species Hybrids of the Family Columbidae" (with English resume): Jap Jour Gen, XVII (1), pp 1-12, 1 col pl, Feb 1941.

The reproductive organs of the hybrids Streptopelia orientalis X S. decaocto, S. chinensis X S. decaocto, and Geopelia cuneata X G. striata were subjected to histological study. The male hybrids derived from these crosses have large testes, but part of the germ cells degenerates following failure of normal synopsis of the chromosomes; thus they are not fecund. The females of the first two crosses have normal ovaries and oviducts and lay many eggs, but these rarely hatch, probably owing to failure of the maturation division. The female of the last cross has no gonad-like body, and only a rudimentary oviduct is observable.

- 1941 "Studies on the Sterility in Hybrid Birds III, Cytological Investigations of the Intergeneric Hybrid of the Male Muscovy Duck, Cairina moschata, and the Female Domestic Duck, Anas platyrhynchos var. domestica" (with English resume): Jap Jour Gen, XVII (5), pp 207-227, 2 uncol pl, 1 col pl, Oct 1941.

The chromosome numbers of the Muscovy duck and domestic duck and their hybrids were determined to be 80 in the male and 79 in the female. The karyotypes of Muscovy and domestic ducks are similar except for remarkable differences in the largest V-shaped and the sixth largest rod-shaped chromosomes. The diploid chromosome complement of the hybrid consists of the sum of the haploid sets of the parental species. The proliferic divisions of both spermatogonial and oogonial cells of the hybrid proceed quite regularly, but the meiotic processes in the adult testis of the hybrid are abnormal, owing to a failure of pairing between chromosomes of the parental species, so the first meiotic division does not advance beyond the metaphase.

- 1941 "Cytological Investigation on Bird Hybrids": Jap Jour Gen, XVII (5), pp 245-246, 3 fig, Oct 1941.

The diploid chromosome complex of a hybrid consists of the haploid chromosome complex of its parents.

- 1941 "An Examination of the Food Habits of the Japanese Birds": Tori, XI (51,52), pp 1-46, Oct 1941.

The author and two assistants collected birds and their stomach contents on the Seven Islands of Izu between December 1933 and May 1934. Identification of the contents of 445 stomachs from 42 species is listed, and the following birds are recorded for the first time from the area: Anthus h. hodgei, Synthlibornaphus antiquus, Forzana fusca erythrothorax.

- 1941 "22 New Records of Birds from the Japanese Islands": Tori, XI (51,52), pp 46-52, Oct 1941.

The following species are added to the avifauna of the Japanese Empire: from Sakhalin, Pinicola e. kamschatkensis, Asio o. otus, Aythya f. ferina; from the Kuril Islands, Calcarius l. coloratus, Jynx t. chinensis, Glareola p. (maldivarum); from Shikoku, Larus schistisagus, L. h. pallidissimus, L. ridibundus; from Tsushima, Egretta i. intermedia; from the Bonin Islands, Turdus n. eunomus, Ninox s. scutulata, Ixobrychus eurhythmus, Anser f. fabalis, A. f. serrirostris, Anas penelope, Fregata m. palmerstonei, podiceps n. nigricollis, P. ruficollis japonicus, Sphenocercus s. sieboldii, Vanellus vanellus, Himantopus h. himantopus; from Volcano Island, Turdus n. eunomus.

- 1941 "Breeding of Emberiza schoeniclus pyrrhulinus at Nopporo, Hokkaido": Tori, XI (51,52), pp 52-61, 5 pl, Oct 1941.

Formerly only two breeding records of this bunting existed in Japan. The author gives detailed observations of the southernmost breeding record, made at Nopporo, near Ishikari, Hokkaido, where the bird is fairly common, living in tall Pampas grass in the moist plains suitable for pasture. The colony arrives in April and leaves in October. The first brood of young birds leaves the nest the end of June or early July, and the second the end of July or early August. The nest is composed of coarse grass lined with horsehair. As the species keeps down pests in the pastureland, it is beneficial to agriculture.

- 1941 "On the Three Endemic Birds in the Riu Kiu Islands; their Systematic Position and Zoogeographical Meaning" (with English summary): Bioge, III (3), pp 320-328, Dec 1941.

Three distinct species, Garrulus lidthi, Sylvia komadori, and Picus niguchii, are endemic to Ryukyu Islands. The Lidth jay was formerly placed under the monotypic genus of Lalcitta but is most nearly related to G. lanceolatus of the Himalayas. S. komadori is a modified insular type of S. akahige, Picus niguchii shows characteristics intermediate between those of Picus and Dryobates, perhaps somewhat nearer to the former. As the closest relatives of the Ryukyu endemics are found either in the Himalayas, in Japan, or widely distributed over the Palaearctic region, the Ryukyu Islands may be considered fundamentally to belong to the Palaearctic region. The southern elements of its fauna are considered of recent intrusion.

- 1942 "A New Subspecies of Conopoderas luscinia from the Mariana Islands": Bull Bioge Soc Jap, XII (3), pp 81-82, 1 fig, Jan 1942.

The Saipan race is named C. l. hiwae. The author recognizes only the single species of Conopoderas and the following races, yamashinae, hiwae, nijoi, luscinia, syrinx.

- 1942 "On a New Subspecies of Micropus pacificus Residing in Formosa and Botel Tobago": Bull Bioge Soc Jap, XII (2), pp 79-80, Feb 1942.

A new race, M. p. kanoi, is described from Botel Tobago (Kotosho) and Formosa.

- 1942 "Reversal of Feathering of a Peahen into the Complete Male Condition" (with English resume): Jap Jour Gen, XVIII (1), pp 41-44, 4 fig, Feb 1942.

A peahen reared in the Kishikawa Botanic Garden, Tokyo, as a normal female with an egg-laying record, began to assume male plumage while molting in 1938. The bird was killed in the spring of 1941 for histological study. There were no sex glands on the right side, and the oviduct was rudimentary. The ovary was present but showed marked atrophy of follicles, with strong degeneration in the ovarian tissue.

- 1942 "A Revised Study of the Chromosome of the Muscovy Duck, the Domestic Duck, and their Hybrid" (in English): Cytologia, XII (2,3), pp 163-169, 14 fig, May 1942.

This resume of the study previously reported in Jap Jour Gen, 1941, stresses the cytological aspects of the work rather than the genetic.

1942 "Birds of India and Australia": Yacho, IX (8), pp 494-502, text figs, Sep 1942.

A general account in popular vein of some 50 of the commoner tropical and sub-tropical Indonesian species, stressing those migrant forms common to both Australia and Japan such as the swifts, cuckoos, shearwaters, and Latham's snipe

1942 "On the Hybrid between the Domestic Fowl, Gallus gallus var. domesticus, and the Common Pheasant, Phasianus colchicus" (with English resume): Jap Jour Gen, XVIII (5), pp 231-235, Oct 1942.

This study of hybridization experiments between the domestic fowl and the common pheasant during 1939 and 1940 includes the record of breeding, morphology, and plumage of the hybrid birds and the results of histological examinations of their gonads. From various combinations of parents, 164 hybrid eggs were obtained, of which 46 proved fertile. Nine unhatched embryos, 12 chicks, and 9 adult birds resulted. The most successful cross produced 37 percent fertile eggs, while other combinations averaged only 13 percent fertile. In the 46 fertile eggs obtained, the sex of unhatched embryos, as well as of those which matured, was determined, giving a sex ratio of approximately one to one. The mortality of female hybrids is very high during incubation and the early stages after hatching. The unusual excess of males reported by previous authors in similar crosses is believed the result of observing only those which matured. The feather patterns of the hybrid chicks between the red-hackled domestic fowl and the pheasant are intermediate between those of the chicks of each. In the cross between the male black shamo and the female pheasant the feather color is nearly black in both the chicks and the adult, indicating the gene of black shamo to be the dominant. Sex hormone injections were given to F_1 males 24 months old, 0.5cc of puberogen and testosterone applied subcutaneously every other day and six times in all. After this injection the bare parts of the face looked young and fresh, but no influence upon the activity of the germ cells was apparent.

1942 "Birds of the Seven Islands of Izu": Tori, XI (53,54), pp 191-270, Dec 1942.

The paper deals with a collection of 224 species made at seven-year intervals on nine islands in the Izu group. Only 18 percent of the total species are resident, 66 percent are regular migrants, and 16 percent are considered vagrants. All the 21 resident species except Turdus celaenops were derived from the Japanese mainland.

Turdus celaenops is confined to the Seven Islands and to Yakushima, south of Kyushu, and has two close relatives, T. dissimilis of Burma and Yunnan and T. seebohmi of Kina Balu, Borneo. These three species probably developed from a common ancestor. The Yakushima form of T. celaenops is considered as ancestral to the Seven Islands race, because the geological formation of the Izu Islands is more recent.

Torishima was famous for its unique breeding colony of Diomedea albatrus. In 1889 about 40 immigrants settled there to gather feathers, and a small railroad was constructed to ship them from the interior of the island to the coast. Each hunter killed from 100 to 200 albatrosses daily, and during one season from October to May 100,000 were destroyed. By 1898 the downhunters had increased to 300, but a great volcanic eruption in August 1902 killed the human inhabitants and disturbed the breeding ground of the albatrosses. At least 5,000,000 birds had been slaughtered in the preceding 12 years.

In 1906 Steller's albatross was placed in the list of protected birds, but as the law could not be enforced on such a remote island, poaching went on openly. Yamashina visited the island in February 1929 and found a small colony of about 2,000 birds. In April 1932, N. Yamada, Yamashina's collector, found only a few hundred individuals and in April 1933 less than 100, the sudden decrease probably

following systematic slaughter after December 1932, during which about 3,000 birds were destroyed. In 1932 cattle were introduced and browsed on the albatross breeding area. In August 1933 Torishima was made a bird sanctuary, but the islanders heard of the government decision and slaughtered the birds before the law could become effective. In August 1939 the island erupted again, and the terrain became even more unfavorable for the albatrosses.

At Yamashina's request, fishing schooners searched in the mid-Pacific for this albatross during 1933-36 but collected only one specimen, near Morell Island in the Hawaiian group, 28 February 1936. In 1938 Mr Greenway of Harvard wrote Yamashina that as Diomedea albatrus had become rare along the California coast, probably some accident had occurred to their breeding ground in Japan. Thus with the wiping out of the Torishima colony, the species simultaneously became scarce on the eastern coast of the Pacific ocean, indicating that the albatrosses migrated east to west and vice versa. Breeding colonies of two other albatrosses, D. nigripes and D. immutabilis, were also destroyed at Torishima, but, having large breeding colonies elsewhere, they are still seen frequently on the open sea.

- 1943 "A New Subspecies of Picoides tridactylus Discovered in Hokkaido": Bull Bioge Soc Jap, XIII (6), pp 43-45, Feb 1943.

Three-toed woodpeckers were found for the first time in Hokkaido in 1942, and a new race, Picoides tridactylus inouyei, is described and named for the collector of the three known specimens.

- 1943 "Study on Sterility in Hybrid Birds, IV, Cytological Researches on Hybrids in the Family Phasianidae" (in English): Jour Fac Sci Hok Imp Univ. VIII (4), pp 307-386, 3 tab, 87 text fig, 15 pl, April 1943.

The chromosome number in several breeds of domestic fowl is defined, the diploid number of the males being 78 and that of the female 77. The diploid chromosomes of two subspecies of common pheasant (Phasianus colchicus karpowi and P. c. versicolor) were found to be 82 in the male and 81 in the female, while the haploid number in the primary spermatocyte is 41 (male, n) without exception. Many F₁ hybrids were produced from various combinations of these parents and were found to possess the chromosome complex of the two parents, 80 in the male hybrid and 79 in the female. The male germ cells of this hybrid do not advance beyond the pachytene stage of the primary spermatocyte and thereafter degenerate, failing to form the metaphase spindle of the first division. Degeneration of the oocyte seems to take place during the leptotene stage. Thus, complete sterility of this hybrid is proved cytologically.

The chromosome numbers in the males of the Japanese copper pheasant, Syrnaticus soemmerringii scintillans, the common pheasant, Phasianus colchicus, and the golden pheasant, Chrysolophus pictus, are identical, 82 in diploid and 41 in haploid. The morphological characteristics differ only in the length of the b-chromosomes, which is longest in Syrnaticus and shortest in Chrysolophus.

In the testes of the hybrid between the copper pheasant and the golden pheasant the majority of the germ cells form the metaphase spindle of the first meiotic division, while some degenerate and fail to complete the second meiotic division. A few pass through the second division, most of them forming abnormally shaped spermatozoa. Only a few develop into normal spermatozoa, thus indicating the partial fertility of the male.

In the male hybrid between the Lady Amherst pheasant, Chrysolophus amherstiae, and the golden pheasant, C. pictus, no abnormality is found. The chromosomes pass through two meiotic divisions normally and develop into functional spermatozoa, so the male hybrid is completely fertile.

Sterility in the hybrids Gallus X Phasianus and Syrnaticus X Chrysolophus is of the chromosomal type. Another factor leading to sterility is the antago-

nistic relationship between the nuclear element coming from the male parent and the cytoplasm of the female parent. In cases where the chromosomal dissimilarity between the parent species is very large and the nuclear elements are not harmonious, the degeneration of the hybrid germ cells occurs very early in meiosis, as in Gallus X Phasianus. If the chromosomal dissimilarity between the parents is small and the nuclear cytoplasmic relation is quite harmonious, the degeneration of the hybrid germ cells takes place in the latter stage of meiosis, as in Syrmaticus X Chrysolophus.

- 1943 "Studies on Sterility in Hybrid Birds, VI, Cytological Studies on the Anterior Lobe of the Hypophysis in some Hybrid Birds" (with English summary): Jour Fac Sci Hok Imp Univ, IX (1), pp 77-84, 2 pl, Jun 1943.

The cytology of the anterior lobe of the hypophysis in three forms of generic hybrids, Callus X Phasianus, Anas X Cairina, and Chrysolophus X Phasianus, was studied to determine the morphological correlation between the hypophysical changes and development of the gonads. (1) The anterior hypophysis of the male of the Gallus X Phasianus cross is intermediate in cytological structure between the mixture and the castration types. The male of Anas X Cairina belongs to the intersex type, while the female possesses a hypophysis intermediate between the normal and intersex types. In Chrysolophus X Phasianus the anterior hypophysis may be either of the castration type or intermediate between the intersex and castration types. (2) Cytologically the secretion of the gonad-stimulating hormones in the anterior hypophysis of these hybrids seem functionally similar to that of pure line birds. Thus the inactive growth of germ cells or their aberrant behavior in hybrids is not caused by the inactivity of the hormone secretion from the anterior hypophysis but by characteristics in the germ cells themselves. (3) The male of the hybrid, Anas X Cairina, possesses well-developed testes and healthy seminal tubules, with spermatogonia in active division and normal anoxocytes. The hypophysis belongs in structure to the intersex type. This suggests that the hormones which act to control the castration change of the anterior hypophysis may be secreted from the germ tissue at a considerably later stage of spermatogenesis.

- 1943 "A Proposed New Systematics in Birds Based on Studies of Hybrid Sterility": pt 1 Kagaku, XIII (6), pp 202-207, 234-239, 17 fig, June 1943; pt 2 Kagaku, XIII (7), pp 234-239, Jul 1943.

The classification of birds based on morphological characters alone is not justifiable. Certain species closely resembling one another are often quite distantly related. Others, such as domestic fowl, although diverse in appearance are in reality quite close. Systematists classify their birds into families, genera, species, and subspecies without conclusive definitions of the amount or nature of the differences characteristic of each rank. The author's studies of the germ plasm of hybrids to determine the cytological cause of consequent sterility assist in establishing definitive criteria between the various ranks. The fertility of hybrid offspring varies with the relative closeness of the systematic position of its parents. Strangely, the F_1 male hybrids show this point more clearly than either the females or the F_2 s. The three reasons for hybrid sterility are: (1) failure of meiotic division owing to asymmetry of the corresponding chromosomes or other abnormalities; (2) disharmony between female cytoplasm and the male chromosome; (3) an "intersex" condition owing to lack of balance between the sex-determining factor of both parents. Hybrid sterility caused by (1) and (2) is similar, shown by both sexes, and indicative of systematic affinities, while that resulting from (3) is limited to females in the F_1 generation, appears in both sexes in the F_2 , and has no connection with systematic affinity.

In determining the systematic relationship of the parents, only F_1 male hybrids are of value. If the F_1 male hybrid is completely fertile, the writer considers both parents conspecific. If the F_1 male shows a slight degree of fertility, the parents are considered specifically distinct but generically alike. If the

hybrid shows total sterility, parents may be considered as belonging to different genera. If none of such hybrids is able to grow to a healthy adult stage, the parents may be considered as belonging to different families.

- 1943 "Studies on Sterility in Hybrid Birds, V, A Cytological Study of the Reciprocal Hybrids between the Domestic Duck and the Muscovy Duck, with Special Reference to Sterility and the Valency of the Sex Factor in the Intergeneric Hybrid" (with English resume): Jap Jour Gen, XIX (5), pp 20-218, 4 fig, 14 photo, Oct 1943.

The development of the genital organs differs noticeably between the reciprocal hybrids, both of which are totally sterile. In Muscovy male X domestic female the male has large testes, but the female has a rudimentary ovary, while in domestic male X Muscovy female both male and female have large gonads. Hybrids of both matings show the following cytological results: (1) In morphological features the chromosomes of both crosses are essentially alike. (2) The first meiotic division of the spermatogonia and the primary spermatocyte cells in both hybrids does not advance beyond the metaphase. (3) The F₁ female of domestic male X Muscovy female, differs from the female of the reciprocal hybrid in having an apparently normal ovary which produces eggs, but the chromosomes fail to pair. The author suggests that species of ducks may differ from each other in their valences (M and F) as in the geographical races of Lymantria. The Muscovy is regarded as a "strong" species in Goldschmidt's sense, the domestic duck as a "weak" one. If the numerical values of the sex-determining factors of the Muscovy are given as Mm=50 and Fm=35 respectively, and those of the domestic duck as Md=40 and Fd=25, the male offspring of both crosses become Mm Md Fm Fd=30, are sexually regular, and have normal size testes, but their germ cells degenerate through failure of the meiotic process. The female hybrid, domestic male X Muscovy female, becomes Md Fd Fm=20; thus, though sexually regular, the germ cells fail meiotically, and consequently her eggs do not hatch. Female offspring from Muscovy male X domestic female are Md Fm Fd=10 and, as in Lymantria, become an intersex with only a rudimentary ovary.

- 1943 "An Account of the Crows": Yacho, X (10), unpagged reprint, Nov-Dec 1943.

A general popular account of the crow family, tracing its origin, relationships, world-wide distribution, and habits.

- 1944 "On a New Subspecies of Crowned Pigeon from South New Guinea": Bull Bioge Soc Jap, XIV (1), pp 1-2, Jan 1944.

Goura scheepmakeri wadai is based on a unique specimen from Bian River, southern New Guinea.

- 1944 "Two New Subspecies of Birds from Formosa and Yunnan": Bull Bioge Soc Jap, XIV (2), pp 3-4, Jan 1944.

Aegithaliscus concinus taiwanensis is confined to the Formosan mountains.
Lanius nigriceps yunnanensis is described from Yunnan.

- 1944 Ten Stories of Birds (Tori Ju Wa), 8vo, Tokyo, pp 1-237, 48 fig, 30 Jan 1944.

This nicely written little book on general ornithology was prepared for non-scientific readers, with chapters on breeding, nests and eggs, food, environments, migration, domestic birds, and hybrids. The chapter on hybrids explains the Mendelian theory, chromosomes, and other technical points in simple terms and tries to clarify the much discussed question, "What is a species?"

- 1945 "Comparative Study of the Chromosomes of Seventeen Varieties of Domestic Fowl": Hok Imp Univ Short Reports, (1), pp 14-15, Aug 1945.

According to Shiwaga and Akkeringa differences are found in the shape and number of the chromosomes of varieties of domestic fowl. Yamashina found no dif-

ferences among the 17 varieties with which he experimented, including Shamo, Silky, Plymouth Rock, and others.

- 1945 "A Chromosome Study of Anatidae": Hokk Teik Daig Shoho, (2), pp 18-22, 9 fig, Nov 1945.

The author gives the first description of the chromosomes of the following species: Anser albifrons, Branta bernicla, Dendrocygna galericulata, Aix sponsa, Anas crecca, A. falcata, A. strepera, A. acuta, A. penelope, Spatula clypeata, Aythya fuligula, A. marila, Bucephala clangula, Clangula hyemalis, Melanitta fusca, M. nigra, Histrionicus histrionicus, and Mergus serrator.

- 1945 "Two Examples of Sex-Abnormal Mallards": Hokk Teik Daig Shoho (2), pp 31-32, 4 fig, Nov 1945

A female mallard, six years after capture, assumed drake's plumage. On dissection the ovaries were found to have become rudimentary. A second specimen, though of female plumage, was as large as the male. When after nine years this duck started assuming almost complete male plumage, it was dissected. Testes were found on the top of the paired ovaries, and microscopic examination showed sperms being formed.

- 1945 "Karyotype Studies in Birds, I, Comparative Morphology of Chromosomes in Seventeen Races of Domestic Fowl" (in English): Cytologia, XIII (3,4), pp 270-296, 47 fig, Dec 1944 (actual date of publication autumn, 1945).

The chromosomes in 17 races of domestic fowl were examined morphologically to determine what, if any, cytological differences exist between them. (1) In their general characteristics the chromosomes of the races studied are fairly identical, both in number and in other morphological features. The male has 78 chromosomes in the diploid and 39 in the haploid stage, while the female has 77 in the diploid. (2) The constitution of the diploid complement is divided into two distinct size groups, macro-chromosomes and micro-chromosomes. There are 16 macro-chromosomes in the male and 15 in the female, consisting of two homologous pairs of extremely large V-shaped elements, a pair of long rod-shaped ones, a pair of J-shaped ones having subterminal attachments, a medium-sized distinct V-shaped element which is paired in the male cell and unpaired in the female cells and is obviously the sex-chromosome, and three pairs of short rod-shaped ones. The micro-chromosomes, 62 in number, all appear to be telomitic in structure and vary in shape from short rods to minute grain-like bodies in a graded series. (3) A close comparison of the ratio between the length of the long and short arms of the a- and b- chromosomes shows the ratio is always higher in the b- element than in the a- element. (4) The behavior of the germ cells in the testes of three inter-racial hybrids shows the chromosomes to be identical not only in external visible features but also in their inner constitution.

- 1946 "On the Cuckoos": Hop Fub, I (6), pp 3-4, Jun 1946.

The cuckoo's germ cell is bigger than that of the host species; therefore the cuckoo eggs hatch within a shorter time.

- 1946 "The Chromosomes of Three Species of Phasianidae (Galli)": Seibutu, I (1), pp 42-45, 1 fig, Feb 1946.

The chromosome number of Gennaeus swinhoii and Meleagris gallapavo is 82 in the male and 81 in the female, and both show a striking morphological similarity to those of Phasianus colchicus. The chromosomes of Numida meleagris, 76 in the male and 75 in the female, are distinguishable from those of the common fowl in possessing two more V-shaped elements and four less rod-shaped ones. The numerical relationship between them is perhaps the result of the fusion of four rod-

shaped chromosomes, two by two, into two V-shaped multiples. The chromosomes of the hybrid Numida meleagris X Gallus gallus consist of the sum of the haploid set from each parent.

- 1946 "The Chromosomes of the Cuckoo, the Budgeriger, the Little Ringed-Plover, and the Chinese Bamboo Pheasant" (with English resume): La Krom, I, pp 18-23, 3 fig, Sep 1946.

The constitutions of macro-chromosomes of Cuculus, Melopsittacus, Charadrius, and Bambusicola are formulated. The ratio obtained between long and short arms of the atelomitic chromosomes and relative lengths measured in the macro-chromosomes are tabulated.

- 1947 "A New Classification of Anatidae": Zool Mag, LVII (1,2), p 12, 5 Feb 1947.

Abstract and conclusions of a lecture delivered before the society October 1946. The author rearranges the Anatidae, based on his study of their chromosomes and the results of interfertility of hybrids. His results:

Family Anatidae
Sub-family Anserinae
Supergenus Anser

Sub-family Anatinae
Supergenus Cygnus
Supergenus Anas
Supergenus Mergus
Supergenus Dendronessa

- 1947 "A Little Sanctuary": Trans Orn Soc Jap, II (2), pp 1-2, Mar 1947.

A short account of the author's efforts to attract wild birds to his Tokyo house by feeding them and by planting the birds' favorite trees. During the past 20 years 12 species have nested on his grounds.

- 1947 "Species and Races in Higher Animals Considered from the Cytological Standpoint": Jap Jour Gen, XX (4,5,6), pp 116-126, Dec 1944 (actual date of publication, Aug 1947)

The author distinguishes two types of mutations: first, qualitative changes in the nucleic acid of the gene, which he terms "simple gene mutation", and second, qualitative changes in the carrier-protein of the gene, which he calls "carrier-protein mutation". He believes subspecies (considered synonymous with "geographical race") are formed by a combination of natural selection and geographical isolation, operating through simple gene mutation, while species are formed not by an accumulation of these simple gene mutations but by chromosome aberration and carrier-protein mutation.

Thus species and subspecies are basically totally different categories and not a matter of degree of morphological differences. Many domestic races of pigeons and fowls vary widely in phenotypical characteristics from their wild ancestors, but they are still the same species, possess identical chromosome complexes in the carrier-protein of the gene, and show complete interfertility. The mutant gene that determines racial differences within the species does not affect fertility, but changes in the carrier-protein which determine specific differences do affect it. Hence, in spite of their clear-cut phenotypical differences, since Phasianus versicolor and Phasianus colchicus are completely interfertile they are considered as only racially, not specifically, distinct. Hybrids between species show varying degrees of sterility, from partial to complete, depending on the degree of difference between the chromosome complexes received from each parent. If the hybrid shows only partial sterility, the author considers the parent species to be congeneric. If the hybrid shows complete sterility, the parents are con-

sidered generically different. Nor do forms specifically distinct cytologically necessarily show marked phenotypical differences, since demonstrable mutational changes in the carrier protein may not entail a marked mutational change in the nucleic acid of the gene, a situation well illustrated by Parus palustris versus Parus atricapillus.

The author proposes the name "occulto-species" for the unique situation known in Drosophila, where, while differences between the chromosome complex of two groups of individuals can be demonstrated histologically, the difference is too slight to cause any hybrid sterility. In introducing these definitions of race, occulto-species, species, and genus, the author emphasizes his belief that accurate classification of higher animals can be based only on cyto-genetic criteria.

- 1947 "Histological Observations on the Reproductive Organ of a Hybrid Ardeid (Nycticorax caledonicus manillensis male X Egretta alba modesta female) (with English resume): Seibutu, I (5,6) pp 288-290, 1946 (Oct 1947).

The testes of a hybrid between a Philippine night heron and an egret reared in the Ueno Zoo, Tokyo, were found on dissection to be normal in size and structure. But histological examination showed the presence of some degenerate spermatids, together with both normal and abnormal spermatozoa, indicating that this hybrid probably possesses partial fertility.

Yamashina, Yoshimaro and Kiyosu, Y.

- 1943 "A New Race of a Sparrow from Shansi, China": Bull Bioge Soc Jap, XIII (5), pp 39-41, Feb 1943.

Passer montanus shansiensis is described from Shansi Province, northern China.

Yamashina, Y. and Makino, S.

- 1946 "A Study on the Chromosomes of Pigeons and Doves" (with English resume): Seibutu, I (2), pp 92-100, 14 fig, Apr 1946.

The chromosomes of Streptopelia orientalis are described for the first time. Those of Columba livia and Streptopelia decaocto var. risoria are re-examined, and former errors are corrected.

Yamashina, Yoshimaro and Torii, Hajime

- 1944 "Nidification of Formosan Birds" III (in English): Tori, XI (55), pp 502-524, 12 fig, Sep 1944.

Detailed descriptions of the breeding habits, nests, and eggs of 16 common Formosan species, based on specimens collected and observations made by the junior author on the west coast between Keelung and Takao in May, June, July, and August, 1939.

Yamaya, Shuncho

- 1943 Almanac of Wild Birds (Yacho Saijiki), 12mo, Tokyo, pp 1-286, 10 col pl, 2 Jul 1943.

Few people are as sensitive to the monthly change of weather as the Japanese, especially the poets who compose odes of 17 kana words. They are born nature lovers, and bird life is a popular writing subject with them. This pocket book gives short descriptions of the birds most common and typical to each season of the year and examples of model poems for each species. It skillfully links field observation with the indoor or garden pastime of poem making, and its depiction of 85 species of birds in its 10 color plates is an excellent aid to identification.

MAMMALS

Abe, Yoshio

- 1941 "On the Mammary and Inguinal Glands of Rodents": Zool Mag, LIII (2), pp 98-99, Feb 1941.

The author examined 55 Lepus brachyurus from central Japan. Of the 22 females, only six had visible mammae, two of which had four pairs, and four three pairs.

- 1944 "On Tadarida Captured near Okinoshima": Zool Mag, LVI (1,2,3), p 59, Mar 1944.

A bat captured on a fishing boat near Okinoshima, Fukuoka Prefecture, is identified as Tadarida teniotis insignis, a new addition to the Japanese fauna.

- 1944 A Synopsis of Chinese Mammals (Shina Hon'yudobutsu Shi), 8vo, Tokyo, p 1-312, 77 fig, May 1943.

A descriptive list of the mammals of China and Mongolia, largely based on G. M. Allen's Mammals of China and Mongolia, which is seldom available to Japanese students.

Aoki, Bun-ichiro

- 1941 "A Lecture on Rats and Mice": Records of Lectures at the Anniversary of Taihoku Imperial University, 9th series, pp 1-36, 36 fig, Sep 1941.

Summary of a general account of the group, based on the author's 30 years of study, with special emphasis on his specialty, the Formosan species.

- 1941 "Studies on Feeding Habits of Formosan Rats and Mice (II)": Jour Soc Trop Agr, XIII (2), pp 126-147, Sep 1941.

The continuation of a study of the feeding habits of Formosan rodents, based on the examination of the contents of 185 stomachs. Under normal conditions rats and mice eat a wide variety of plants, 35 families and about 90 species being identified. No essential difference in choice of food between different animals is noted, other than that resulting from differences in habitat, and little seasonal variation in food habits occurs. Fairly large amounts of insect remains were found in the stomach contents, but no identification or relative percentages are given.

Aoki, Bun-ichiro and Tanaka, Ryo

- 1941 "The Rats and Mice of Formosa, Illustrated" (in English): Mem Fac Sci Agr Taihoku Imp Univ, XXIII (4), pp 121-191, 26 fig, 13 pl, May 1941.

A Japanese edition of this article was published under the title Taiwansen Nezumirui no Zusetau, 4to, Taihoku, pp 1-65, 13 pl, Jul 1941. Brief, accurate descriptions are given of 13 species of Formosan rats and mice, illustrated with a colored plate of each species by B. Sakuma.

Habe, Yoshitaka and Uesaka, Shoji

- 1943 "The Embryological Study of Hairs of Rabbits": Bot Zool, XI (5), pp 375-378, 10 fig, May 1943.

On comparing the development of the hairs of Angora and native white rabbits, the author found differences in 22- to 23-day-old embryos. The hair follicles of the Angora are further advanced at that age than those of the native white, thus demonstrating the Angora's more rapid growth of fur.

Hachisuka, Masuji

- 1941 "Notes on Hainan Mammals" (in English): Bull Bioge Soc Jap, XI (3), pp 9-14, Mar 1941.

The author gives descriptions of the chief mammals of Hainan, based on his own observations and collections during his Hainan expedition of 1940, and a list of native animal names given him by Mr Y. Katsumata, who had lived in Hainan 30 years.

Hazama, Nanosuke

- 1943 "The Reaction of the Cat Family to Actinidia polygama": pt 1, Bot Zool XI (3), pp 239-243, 12 fig, Mar 1943; pt 2, Bot Zool XI (4), pp 331-335, 23 fig, Apr 1943.

The plant Actinidia polygama ("matatabi" in Japanese), of which domestic cats are very fond, has a similar attraction for lions, tigers, and leopards. The author experimented with them at the Kyoto Zoological Gardens and took photographs of their reactions.

Hiraiwa, Yonekichi

- 1942 Dog and Wolf (Inu to Okami), 8vo, Tokyo, pp 1-299, 4 pl, Jul 1942.

A semi-popular account of wolves and dogs in Japan, with much historical as well as scientific data. Notes are added on Japanese bears and other carnivorous animals the author has kept in captivity.

- 1946 "The Relation between Dog and Wolf": Dob Bung, XIII (1), pp 1-3, Jun 1946.

Points of similarity and difference between wolves and dogs are delineated and an explanation offered of the origin of the dog's barking.

- 1946 "Concerning the Japanese Wolf (Canis lupus hodophylax Temminck)": Dob Bung, XIII (2), pp 1-13, Dec 1946.

Wolves were common in Honshu, Shikoku, and Kyushu until the Meiji Era, when they were completely extirpated. Their recurrence is reported occasionally, but reports are never verified. The causes of their extirpation are given as loss of habitat following human cultivation, and distemper spread by domestic dogs.

Hiraiwa Yoshikuni, Fukuda, Masajiro, and Inouye, Nikizo

- 1941 The Albino Rat - Its Breeding, Development, and Dissection (Shironezumi), 4to, Tokyo, pp 1-95, 74 fig, 10 Aug 1941.

A guide to the study of the white rat Rattus norvegicus var. albus for use in the classroom and laboratory.

Horikawa, Yasuichi

- 1943 "On the Specific Name of the Formosan Pangolin": Trans Nat Hist Soc Formosa, XXXIII (234), pp 67-70, Mar 1943.

The correct specific name of the Formosan pangolin is Manis pentadactyla Linné and not Manis aurita Hodgson. The type locality was given by Linné as "Taioan", obviously Taiwan or Formosa.

Hoshi, Daikichi

- 1941 "Wonderful Efficacy of Bear's Gall Bladder as Medicine": Nat Sci Mus XIII (10), pp 4-6, Oct 1942.

Bear's gall is a medieval nostrum, the efficacy of which has, like that of ginseng, been largely discredited by modern science. Recent studies by Dr. Sato of Tohoku Imperial University show bear's bile to have certain beneficial therapeutic effects, notably in infant cholera, against which he found it 90 percent effective. The author claims it to be of value against all diseases except lumbago and reports curing with it cases of influenza, pneumonia, anemia indigestion, and eye infections. He also postulates that if bear's bile is administered to a dying person just before his last breath, the body will remain warm for 24 hours after death; given to a horse before a race, it will give the horse marvelous powers of endurance; applied to the back of the hand, it can be tasted immediately in the palm; thrown into water it will spin of its own accord; put on an old coin, it will make the metal so brittle it can easily be powdered. Bile from the brown bear of Hokkaido is less effective than bile from the black bear of Honshu and has only one-third the market value.

Ichikawa, Osamu

1943 Camel and Elephant (Rakuda to Zo), 8vo, Tokyo, pp 1-335, 3 pl, 20 Jan 1943.

A morphological and pathological study of camels and elephants.

Inukai, Tetsuo

1942 "Seals Found in Northern Japan": pt 1, Bot Zool X (10), pp 927-932, 5 fig, Oct 1943; pt 2, Bot Zool X (11). pp 1,022-1,030. 2 fig, Nov 1943

Describes status, breeding, food, habits, and hunting and utilization of the several hair seals which occur near the coasts of Hokkaido, the Kurils, and Sakhalin.

Kanematsu, Mitsuzo

1943 Asses and Mules (Ro to Ra), 12mo, Tokyo, pp 1-113, 46 fig, 30 Sep 1943.

The chapter topics are: (1) biological consideration of ass and mule, (2) wild form of ass, (3) distribution of ass and mule, (4) protection and improvement of ass and mule, and (5) value in use of ass and mule.

Kawabe, Masata

1947 "On Some Attempts to Control Sex-Ratio in Mammals. A Review": Seibutu, Suppl (1), pp 129-136, Jan 1947.

The more important experimental efforts to control mammalian sex ratios are described briefly. The work has been done mostly in Europe and America, between 1907 and 1936. The bibliography of 21 titles on which the paper is based contains only one paper in Japanese, and nothing more recent than 1936.

Kishida, Kyukichi

1941 "Mammals of Musashi Plains" in Miscellany on the Plains of Musashi Province (Musashino), edited by Tamura, G. and Honda, M., 8vo, Tokyo, pp 1-529, 49 pl, 25 May 1941.

The mammal section, on pp 352-393, with six text figures, is a list with short descriptions in popular form of the 22 species of mammals found in the Musashino section of the Kanto Plain.

1941 "On Murina hilgendorffi (Peters)" Zool Mag, LIII (12), pp 585-586, Dec 1941.

An adult male specimen of the Japanese tube-nosed bat was collected alive 28 September 1941 at Kanazawamura, Nagano Prefecture.

Komai, Toku

- 1946 "On the Inheritance of Black, Yellow, and Tortoise-Shell Color in Cats, with Special Reference to the Problem of the Tortoise-Shell Male": Seibutu, I (1), pp 1-7, Feb 1946.

Formerly the yellow and black color in cats was considered sex-linked, so when the gene of these two colors became heterozygous, the tri-color tortoise-shell appeared. According to the author, yellow alone is sex-linked and black is caused by an autosomal gene. The sex ratio of yellow cats to black ones supports his theory.

Kuroda, Nagamichi

- 1942 "The Outline of a History of Japanese Mammalogy": Zool Mag, LIV (11), pp 442-453, Nov 1942.

Brief summaries of the literature on classification, distribution, and ecology of Japanese mammals are given chronologically from 1868-1940. The author limits his scope to the main islands of Japan.

- 1943 "The Occurrence of the Spinous Rat in Okinawa Island in the Central Riu Kiu Islands" (with English resume): Bull Bioge Soc Jan, XIII (9), pp 59-64, 1 pl, Apr 1943.

Tokudaia, nom. amend., is proposed for Acanthomys Tokuda, pre-occupied, so the Okinawa spinous rat becomes Tokudaia osimensis (Abi).

- 1943 "On the Specimens of Mammals Brought from Philippine Islands and Celebes": Bot Zool, XI (1), pp 7-12, 4 fig, Jan 1943.

Identification and description of 21 specimens recently acquired from these localities by the Yamashina Museum.

Makino, Sajiro

- 1941 "Studies on the Murine Chromosomes, I Cytological Investigations of Mice, Included in the Genus Mus" (in English): Jour Fac Sci Hok Imp Univ, VII (4), pp 305-380, Mar 1941.

The chromosomes of Mus musculus, Mus molossinus, and Mus caroli, are described in detail, and analyzed and compared morphologically. In all three species the diploid number is 40, the haploid 20. The development of the sex chromosomes followed from its first appearance to the metaphase of the first maturation division. In the primary and secondary oocytes of Mus musculus and Mus molossinus the chromosomes are not essentially different morphologically, and no sex difference in chiasma formation exists. Crosses between these two forms gives a completely fertile hybrid, whose courses of spermatogenesis and oogenesis proceed quite regularly.

- 1942 "Studies on the Murine Chromosomes II, Morphological Comparison of the Chromosomes between the Wild Form and the Domesticated Variety of Rattus norvegicus Berkenhout" (in English): Jour Fac Sci Hok Imp Univ, VIII (1), pp 31-43, Jan 1942.

The chromosomes of wild rats from Hokkaido, Formosa, and Okinawa were compared with those of two strains of domesticated albino rats. No visible differences were found.

- 1943 "Studies on the Murine Chromosomes III, A Comparative Study of the Chromosomes in Five Species of Rattus" (in English): Jour Fac Sci Hok Imp Univ, IX (1), pp 19-57, Jun 1943.

R. norvegicus, R. rattus, and R. losea, all lowland dwellers, are closely related taxonomically and ecologically. All possess 42 diploid chromosomes. R. fulvescens coxinga and R. confucianus culturatus, closely allied mountain forms, show 46 diploid chromosomes. While distinctive morphological differences were found between the chromosomes of three lowland forms, only a slight difference in length of the largest chromosomes could be found between the two highland species. The sex chromosomes of all five species are of the XY type without exception, and both X and Y factors possess distinctive morphological characteristics in each species. The Y chromosome shows a gradual reduction by species during its development.

- 1943 "Karyotype of Cattle, Bos taurus, and Buffalo, Bubalus buffelus": Bot Zool, XI (10), pp 797-799, 11 fig, Oct 1943.

Contrary to Pchakadze's report (1939), the chromosome number of Bubalus buffelus is $2n=48$, $n=24$.

- 1943 "The Karyological Relation Between the Goat, Capra hircus, and Sheep, Ovis aries": Bot Zool, XI (11), pp 904-906, 16 fig, Nov 1943.

The goat and sheep are believed, because of their karyological similarity, to have been derived from a common ancestor.

- 1943 "The Chromosomes of the Horse (Equus caballus) (Chromosome Studies in Domestic Mammals I)" (in English): Cytologia, XIII (1), pp 26-38, 30 Nov 1943.

Chromosomes of two distinct breeds of horses were investigated, the Percheron and the Ryukyu pony. In number and general morphological characters, no significant differences were found between the two. The spermatogonium contains 66 chromosomes, 33 in the haploid stage.

- 1943 "The Chromosome Complexes in Goat (Capra hircus) and Sheep (Ovis aries) and Their Relationship (Chromosome Studies in Domestic Mammals II)" (in English): Cytologia, XIII (1), pp 39-54, 30 Nov 1943.

Chromosomes of the male germ cells in two breeds of goats and three breeds of sheep were studied, and no visible appreciable difference in number or other external morphological features of the chromosomes was found. The number of chromosomes in the goat was determined to be 60 in diploid and 30 in haploid, in the sheep 54 in diploid and 27 in haploid. Evidence indicates a close karyological relationship between the sheep and goat, suggesting that both originated from a common ancestor.

- 1943 "Karyotype of Nesokia nemorivaga and Micromys minutus takasagoensis": Zool Mag, LV (11,12), p 373, Dec 1943.

The author reports peculiar and complex karyotypes of the above species from Formosa.

- 1944 "A Contribution to the Study of the Chromosomes of Domestic Mammals": Zool Mag, LVI (1,2,3), pp 8-15, Mar 1944.

A preliminary report of a karyological study of Japanese domestic mammals, including the horse, ass, pig, sheep, goat, cattle, south China cattle, buffalo, reindeer, fox, and rabbit. "Detailed accounts on the chromosomes of these forms will appear serially later in Cytologia."

- 1944 "Studies on the Murine Chromosomes IV, The Karyotypes of the Mole-Rat and the Harvest Mouse" (in English): Cytologia, XIII (2), pp 237-245, 10 Apr 1944.

In the Formosan mole rat, Nesokia nemorivaga taiwanus, the number of chromosomes is 46 in diploid and 23 in haploid. In the harvest mouse, Micromys minutus takasagoensis, it is 68 in diploid and 34 in haploid. The chromosome composition

and constitution are described in detail and are correlated with the taxonomic peculiarities of the two forms.

- 1944 "The Chromosome Complex of the Pig (*Sus scrofa*) (Chromosome Studies in Domestic Mammals III)" (in English): Cytologia, XIII (2), pp 170-178, 10 Apr 1944.

The chromosome complexes of two breeds of pig were investigated. The chromosome number was found to be 40 in diploid and 20 in haploid. No visible difference was found between the chromosomes of the two breeds. The low count of chromosome numbers given by previous authors is accounted for as a result of faulty preservation of material. The sex chromosomes of the pig are of the typical XY type. The X element is represented by one of the larger chromosomes of rod type, while the Y is very small, comparable to the smallest autosomes in size.

- 1944 "Karyotypes of Domestic Cattle, Zebu, and Domestic Water- Buffalo (Chromosome Studies in Domestic Mammals IV)" (in English): Cytologia, XIII (3,4), pp 247-264, 30 Dec 1944.

The chromosomes of the Zebu, *Bos indicus*, show no visible difference from those of domestic cattle, *Bos taurus*, in number (60 in diploid, 30 in haploid), form, or other morphological features. The karyotype of the water buffalo, *Bubalus buffalus*, is markedly dissimilar, having 48 chromosomes in the diploid and 24 in haploid. The numerical and morphological differences between them are too great to be accounted for by either chromosome fragmentation or chromosome linkage. All these species are identical in the morphological nature of the X and Y elements of the sex chromosomes. The mode of conjugation between the X and Y is peculiar and characteristic in all these bovine animals studied.

- 1945 "Notes on the Chromosomes of the Okinawa Fruit Bat": Hokk Teik Daig Shoho, (1), p 13, 1 text fig, Aug 1945.

Pteropus dasymallus inopinatus Kuroda has 38 chromosomes in the diploid spermatogonia and 19 in the haploid spermatocytes. The nuclear type is highly complex, consisting of V- and J-type chromosomes and one pair of large club-shaped chromosomes. The smallest pair appear at first to be of the club type also, but close observation shows them of the V type. The sex chromosomes are of the XY type. The X chromosome is J shaped, and its larger arm has a narrow stricture. The Y chromosomes are minute granules, which seem to conjugate with the long arm of the X chromosome at the first division. This is much more complex than the condition found in the Japanese Horse-Shoe Bat, *Rhinolophus ferrum-equinum nippon*, which has 29 chromosomes in the haploid, of a comparatively simple nuclear type, the X chromosome being club shaped, and the Y in minute granules.

- 1945 "Notes on the Chromosomes of the Nutria": Hokk Teik Daig Shoho, (1), p 14, 1 text fig, Aug 1945.

Myocastor coypus has 42 chromosomes in the diploid and 41 in haploid. The sex chromosomes are of the XY type. The X chromosome is V shaped, but the length of the arms is unequal. The Y element consists of three granular chromosomes, distinguished from two other homologous chromosomes by their larger size. At the first maturation division the Y element joins the end of the long arm of the X chromosome.

- 1946 Studies on Chromosomes of Domestic Birds and Animals (Kachiku to Kakin no Sensehokutai Kenkyu), 12mo, Sapporo, pp 1-96, 89 fig, 10 Nov 1946.

Chromosomes of 31 Japanese domestic mammals and birds are described. Appendices contain a description of the investigative methods and a list of the known chromosome numbers of 82 wild mammals and 45 wild birds.

Matsui, Yoshiichi and Uchihashi, Kiyoshi

- 1943 "On Dall's Porpoise Captured near Tajima (Preliminary Note)": Hyogo Chu Hak Zas. (8,9). pp 35-39. 2 fig, Jan 1943.

This porpoise migrates off coastal Tanba, Hyogo Prefecture, during late March and late May and is not so rare as reported. It is usually found about 10 miles off the coast and is easily captured. Its meat and hide are used commercially.

Matsui, Yoshiichi and Noguchi, Eisaburo

- 1946 "On the Body Length, Reproduction, and Migration of Dall's Porpoise (Phocoenoides dallii) Captured off the Coasts of Tajima, Hyogo Prefecture (Preliminary Report)": Ig to Sei, IX (4), pp 216-218, 1 fig, Oct 1946.

The contents are well described by the title. It is largely a restatement of material in the previous paper.

Matsaura, Yoshio

- 1942 "On the Northern Porpoise Whale, Berardius bairdii Stejneger, in Waters near Bosyu Zool Mag, LIV (12), pp 466-473, 7 fig, Dec 1942.

Northern porpoise whales visit the coastal waters off Shirahama, Chiba Prefecture, from June to October, and many are caught by small whale boats. Males and females show no significant difference in length, but unlike most other toothed whales the females grow heavier than the males, as do most whalebone and sperm whales. This species leaves a permanent record of all ovulations in the form of a corpus luteum in the ovaries. The females become sexually mature when about 10 meters long.

- 1943 "Miscellaneous Notes on Whales and Dolphins": Bot Zool, XI (10), pp 833-836; (11), pp 907-910; (12), pp 1,001-1,003, Oct, Nov, Dec 1943.

A general account of such varied topics as an example of an aberrant white (no albino) sperm whale, the teeth of the sperm whale, a stranding of dolphins, ambergris, and strange substances found in the milk gland of the humpback whale.

- 1943 "Berardius bairdii Stejneger Ranges the Sea of Okhotsk": Zool Mag, LV (6), p 237, Jun 1943.

The author observed a group of these sperm-whale porpoises, usually limited to the vicinity of Tokyo Bay, off the eastern coast of Ketoi Island, central Kurils.

- 1943 Marine Mammals (Kaiju), 8vo, Tokyo, pp 1-298, 51 fig, 8 pl, 10 Jul 1943.

This book is the first general work on Japanese marine mammals. Chapters are: (1) marine mammals from the zoological point of view, (2) whales, (3) porpoises and dolphins, (4) the fur seal and the sea lion, (5) the walrus, (6) hair seals, (7) the sea otter, (8) the dugong, (9) the polar bear, (10) migration of marine mammals, (11) capture of marine mammals, and (12) utilization of marine mammals and their protection.

Mishima, Yasuichi

- 1942 The Breeding of the Fresh Water Mammal 'Nutria' (Tansuiju Nutria no Yoshoku), 8vo, Tokyo, pp 1-98, 12 fig, 2 pl, 15 May 1942.

A general account of nutria breeding, including history, anatomy and fur, equipment needed, methods of feeding, breeding, handling, and cooking its meat. A short account of the American muskrat is included.

Naora, Nobuo

- 1941 Miscellaneous Notes on Japanese Mammals (Nipponzan Zurui Zatsuwā), 8vo, Tokyo, pp 1-408, 31 fig, 2 pl, Feb 1941.

A popular account of various living and fossil mammals, chiefly historical and descriptive. A chapter on scatology describes the feces of 10 wild forms.

- 1942-43 "History of Japanese Mammals": Nat Sci Mus, pt 1, XIII (12), pp 5-7, 1942; pt 2, XIV (1), pp 24-30, 1943; pt 3, XIV (2), pp 4-7, 1943; pt 4, XIV (3), pp 15-20, 1943; pt 5, XIV (4), pp 6-11, 1943.

A summary of the mammalian paleontology of Japan, with short descriptions of the known fossils, and the author's conclusions on their origin and development. The earliest known Japanese mammal fossil is the lower mandible of Brachyodus japonicus, an artiodactyl found in Oligocene coal deposits near Nagasaki, and the only mammal known from that epoch. Sixteen fossil mammals are known from the Miocene, 13 from the Pliocene, and 15 from the Pleistocene, two of which, the Japanese deer and serow, are still extant. The earlier species, those of the Oligocene and Miocene, belong to south Asiatic stock, and the northern European element did not appear in Japan until the Pliocene and Pleistocene.

- 1943 My Diary on Pipistrelle (Komori Nikki), 8vo, Kyoto, pp 1-473, 41 fig, 1 pl, Dec 1943.

A detailed record of daily observations on the Indian pipistrelle in the Tokyo area from the species appearance 6 March 1942 to its disappearance 6 December 1942. Included are miscellaneous notes on other species of bats.

- 1944 A History of Japanese Mammals (Nippon Hon'yudobutsu Shi), 8vo, Nara, 9 pl, pp 1-265, 20 Jul 1944.

This textbook on Japanese ancient and modern mammals traces the paleontological development of both land and marine types.

Noguchi, Eisaburo

- 1943 "On the Utility of the Common Dolphin and Dall's Porpoise": Hyogo Chu Hak Zas, (8,9), pp 17-22, 8 fig, Jan 1943.

Author reports the body length, body color, the weight of various internal organs, and the utilization of skin and meat of two species of porpoise, Delphinus delphis and Phocoenoides dallii, which are obtained near coastal Hyogo Prefecture.

Ogata, Toji

- 1943 "On the Pelew Sheath-Tailed Bat, Emballonura semi-caudata palauensis Yamashina": Bot Zool, XI (2), pp 175-177, Feb 1943.

A description and tables of measurements of this bat from Palau Islands.

Omura, Hideo, Matsuura, Yoshio, and Miyazaki, Ichiro

- 1942 Whales and Whaling (Kujira - Sono Kwagaku to Hoge no Jissai), 8vo, Tokyo, pp 1-319, 88 fig, 8 pl, Jun 1942.

This is the most complete modern account of Japanese whaling. Mr Matsuura discusses whales from the biological standpoint, the species of whales, their characteristics, and whaling methods. Mr Miyazaki contributes chapters on the utilization of the whale's body and the geography of the Antarctic seas. Mr Omura tells of the historical development of whaling and international whaling regulations.

Shikama, Tokio

- 1942 "On the Deer of Ponape Island, Caroline Group": Bull Bioge Soc Jap, XII (6), pp 97-103, 6 fig, Aug 1942.

Deer were introduced to Ponape Island from the Philippines soon after the island was first settled in 1885, and still survive in its thick jungles. The author gives detailed descriptions of two Ponape deer skulls, which he assigns to Cervus (Rusa) unicolor. In the absence of comparative material, he is unable to determine the subspecies accurately. While the two skulls show minor variations, they are not sufficiently distinct to warrant further separation and are closest to C. u. mariannus.

Shimizu, Mitsuo

- 1942 "On the Relative Growth of Bones in Rats of the Genus Rattus Collected in the Same High Plateaus" (with English resume): Zool Mag, LIV (3), pp 100-107, 3 fig, Mar 1942.

The relative growth rates of the bones of the head, extremities, and girdles were investigated on two species of rats, Rattus norvegicus and Rattus rattus rattus, caught at Sugadaira, on a plateau 1,300-1,400 meters above sea level. Very little difference was found.

- 1942 "On the Relative Growth of Bones in Adult Voles (Microtus montebelli)" (with English resume): Zool Mag, LIV (4), pp 135-143, 2 fig, 2 tbl, Mar 1942.

Investigations were made on the relative growth of bones of Microtus as was done with Rattus in the preceding paper. In both Rattus and Microtus the growth of the skull is less pronounced than that of the bones of other parts, that of the sternum being most pronounced, followed by the hind and fore limbs.

Shimoizumi, Jukichi, Shimizu, Mitsuo, and Nagura, Otohiko

- 1942 "Studies on the Development of Bat (I) Relative Growth of Bones of Japanese Long-winged Bat (Miniopterus schreibersii japoniae Thomas): Zool Mag, LIV (12), pp 483-488, 4 fig, Dec 1942.

The authors studied the proportional growth of bones in adult Japanese long-winged bats and determined the relation between the mechanism and growth, comparing it with those in rats from Shimizu (Rattus and Microtus) and the house wren of Huggings. The head develops very fast, and the weak development of the extremities resembles that of the house wrens and not of rats.

Siota, Gizo

- 1946 "On the Platinum Fox (a Mutant of Silver Fox) Imported to Hokkaido": Seibutu, I (3), pp 157-159, 1 fig, Jun 1946.

In 1941, 15 breeding animals (6 males and 9 females) were imported from America where they had been kept one year after importation from Norway. The stock has multiplied, and as yet none have been killed.

Sonon, Jinhaku

- 1941 "Food Habits of the Formosan Pangolin": Jour Taiwan Mus Assoc, IX (3), pp 9-10, 2 fig, Jun 1941.

The author examined stomachs of 11 pangolins to determine their food habits. The ants were mostly Polyrhachis dives with a few Pheidologeton yanoi. Among the termites eaten are Odeontotermes formosanus and Leucotermes speratus, but none were found in the stomachs examined.

Takahima, Haruo

- 1942 "Supplementary Note on Japanese Tube-Nosed Bat from Nagano Prefecture": Zool Mag, LIV (5), pp 191-192, May 1942.

A brief note of a specimen of Murina hilgendorfi hilgendorfi captured in Nagano Prefecture, June 1941.

Tanaka, Ryo

- 1942 "A Biostatistical Analysis of Apodemus agrarius (Pallas) from Formosa with Special Reference to its Systematic Characters" (in English): Mem Fac Sci Agr Taihoku Imp Univ, XXIII (6), pp 211-285, 27 fig, Sep 1942.

A large series of specimens of Apodemus agrarius from the Taikoku Basin in northern Formosa was studied biostatistically and compared with Rattus losea. (1) The richness of the reddish dorsal color and the markedness of the dorsal stripe are correlated and vary according to both ecological and genetic factors. (2) The approximate coincident periodicity in pelages and status of molts between Apodemus and Rattus losea indicates they are referable to geographic rather than specific agents. (3) The breaks in relative growth of external measurements occur in harmony with the start of sexual maturity. (4) Features of growth variation in skull measurements are similar in both species. (5) Sexual dimorphism in relative growth is not so marked in the mouse as in the rat. (6) The outer row cusps of molars of Apodemus are in process of reduction. (7) From statistical analysis of the synthetic variations in adult measurements, A. agrarius seems of a relatively homogenous genotype. (8) In adult measurements the male mouse generally exceeds the female mouse more frequently than in the rat, but the coefficients of variability in measurements are similar in both, except that the tooth dimensions are lower in the mouse. (9) The tail is not only always shorter than the head and body length during growth but is markedly so in adult mean value of both sexes. (10) The adult mean value of the incisor index is smaller in the mouse, but its coefficient of variability is larger than in the rat, which is probably attributable to its grown variation.

- 1944 "A Study of Muridae of Hainan Island": Report of the 2nd Scientific Expedition to Hainan Island carried out by the Taihoku Imperial University in 1942, pp 129-147, Mar 1944.

The report includes: (1) historical sketches to the study of rats and mice in Hainan Island, (2) synopsis of the species of Muridae hitherto known from Hainan (11 species, only one of which, Rattus confucianus latipes, is endemic), and (3) comparative analysis of Rattus losea from Hainan and Formosa from the standpoint of variation-statistics.

- 1944 "Comparative Analysis of Two Species of Mus from Formosa from the Standpoint of Variation-Statistics" (in English): Mem Fac Sci Taihoku Imp Univ, I (1), pp 1-64, Apr 1944.

The results of this detailed study on the comparative measurements of Mus musculus and Mus formosanus are summarized. (1) The differentiation between summer and winter pelages is greater in the field mouse than in the house mouse. (2) In the house mouse the tail is longer than the head and body length at all stages of development; in the field mouse the tail is longer at birth, but soon becomes equal to, and in the adult is shorter than, the head and body. (3) The enamel patterns of the molar cusps are more progressively reduced in the field mouse. (4) The field mouse tends to surpass the house mouse in size range of external dimensions. (5) While the variation range of the incisor index is larger in the adult house mouse, its relative growth rate during post-natal development is greater in the field mouse. (6) No sex difference is recognizable in any attributive or quantitative character. (7) A determination of the true systematic status of the two forms is impossible until an extensive and profound investigation of the variation in both

species throughout the world has been made. On the basis of the present evidence, the Formosan house mouse is a form of Mus musculus, and the field mouse is genetically highly differentiated from it.

- 1944 "A Comparative Study on Formosan Rats and Mice of Four Species Belonging to the Genera Rattus, Apodemus, and Mus from the Standpoint of Variation-Statistics" (with English resume): Mem Fac Sci Taihoku Imp Univ, I (2), pp 65-118, Jul 1944.

Biostatistical studies were performed on common Formosan rats and mice, namely, Rattus losea, Apodemus agrarius, Mus formosanus, and Mus musculus. From the standpoint of adult mean values in extreme dimensions (the lower limit of the adult size range is theoretically determined), the two species of Mus are closely related, and each genus has its own particularities in the relation of the head and body length to the tail length; a sexual diversity is apparent in Rattus, quite lacking in Mus; the ear length is noticeably small in Apodemus. The order of the amount of variability in their adult values is roughly the same in every species, being generally parallel to that of the amount of their equilibrium coefficients in the adult stage, except for the head and body length

Tanaka, Ryo and Udo, Tadashi

- 1942 "On Muridae Collected at Southern Part of Hainan Island with Notes on Birds and Reptiles in the Same District": Rpt of the 1st Scientific Expedition to Hainan Island carried out by Taihoku Imperial University in 1940, pp 131-137, Apr 1942.

The author, who made a trip to Hainan in November 1940, briefly describes the seven species of rats of southern Hainan. Included is a list of the birds and reptiles he collected.

Tanimoto, Kentaro and Tanimoto, Kenjiro

- 1942 "On Allactaga sibirica sibirica (Forster): Zool Mag, LIII (10), pp 501-503, 4 fig, Oct 1941.

Allactaga is common in the alkaline districts of western Manchuria. The authors give a brief account of this interesting kangaroo rat and notes on its habits.

Tanimoto, Kentaro

- 1942-43 "Studies on Mammals in Relation to Bubonic Plague in Manchuria": pt 1 Zool Mag, LIV (7), pp 268-278, 12 fig, 1 pl, Jul 1942; pt 2 Zool Mag, LIV (10), pp 405-420, 12 fig, 1 pl, Oct 1942; pt 3 Zool Mag, LV (3), pp 117-127, 7 fig, 1 pl, Mar 1943.

Morphological descriptions are given of the Manchurian kangaroo rat, Dipus sagitta sowerbyi Thomas (Dipodidae). Its habitat and food habits are reported in detail. The habits of Citellus dauricus ramosus Thomas (Scincidae), which occurs in great numbers in western Manchuria, a permanent pest zone, are reported. A detailed description of its hibernating habits is added. In the third report the author deals similarly with Meriones unguiculatus (Milne-Edwards) (Gerbillinae-Muridae).

- 1943 "On the Distribution of Some Species of Rodents in Western Manchuria": Zool Mag, LV (11,12), pp 371-372, Dec 1943.

Different species of rats show marked preferences in habitats, some occupying human dwellings, others choosing cultivated fields, grassy plains, or swamp areas. Their habitat preferences are delineated, and their respective effects on agriculture are evaluated.

Tateishi, Shinkichi

- 1941 "Is Hybrid between the Domestic Cat and the Chinese Tiger-Cat Possible?": Jour Taiwan Mus Assoc, IX (12), pp 1-7, 2 pl, April 1941.

A detailed study of the chromosomes of the domestic cat and the Chinese tiger-cat, Felis bengalensis Kerr, showed such marked similarities between the two that the author concludes hybridizing them is possible.

- 1942 "Advice to Rat Catchers": Jour Taiwan Mus Assoc, X (2,4), pp 1-6, 1 pl, 1 text fig, Sep 1942.

A delineation of methods of catching rodents for scientific study. Various types of traps are described and pictured.

- 1944 "A Synopsis of the Study of Murine Sex-Chromosomes": Trans Nat Hist Soc Formosa, XXXIV (251), pp 316-319, Oct 1944.

The author shows in tabular form the construction and the number of the chromosomes of 27 species of 11 genera of rats, chiefly Formosan. Their chromosomes were all of XY type, only those of Apodemus and Micromys being of the post-reduction type.

Tokoro, Toshikazu

- 1943 "Some Examples of Excess Teeth Discovered in Rattus": Zool Mag, LV (2), p 72, Feb 1943.

Literature on excess teeth in the genus Rattus is scarce. Single examples of excess incisors in Rattus rattus alexandrinus and Rattus norvegicus var. albus and an example of excess molars in Rattus norvegicus var. albus are described.

Tokuda, Mitosi

- 1941 "A Synopsis of Taxonomy and Distribution of Rats and Mice in East Asia": Nip Gak Kyo Hok, XVI (1), pp 82-85, Mar 1941.

The author discusses briefly the various elements that determine the distributional limit of rats and mice, and the differentiation of species in rats and mice, and traces geological history of the Japan islands in the light of murine distribution.

- 1941 "A Classification of Rats and Mice Found in Japan, Formosa, Korea, and Manchuria - Investigation of Intraspecific Variations Observed in Rats and Mice": Zool Mag, LIII (6), pp 287-298, 9 fig, Jun 1941.

A Japanese abstract of the next title.

- 1941 "A Revised Monograph of the Japanese and Manchou-Korean Muridae" (in English): Bioge, IV (1), pp 1-155, 88 fig, 10 pl, Dec 1941.

A detailed monograph, bringing together in a single volume most of the known information on all the species of Muridae known in Japan and in the Manchou-Korean areas. The systematics are treated thoroughly, and excellent synonymies are given. Detailed descriptions and measurements are included for each species. The author revises somewhat the accepted phylogenetic system of the group and proposes two new genera, Lemmicrotus and Acanthomys, and five new geographical varieties, three from Formosa, and one each from Tsushima and Sado Islands. From his studies of Murine taxonomic relationships and geographical distribution he concludes the geological detachment of Honshu from the mainland came before the isolation of Hokkaido and Sakhalin, and the separation of Hokkaido considerably earlier than that of Sakhalin, which is in accordance with other zoological, botanical, and geological evidence.

- 1942 "On the Rodents of Hokkaido, with Special Reference to the Red-Backed Vole as Injurious to Forests": Nip Gak Kyo Hok, XVII (1), pp 121-124, Oct 1942.

The author lists the known rodents of Hokkaido and their ecological preferences. He gives a detailed account of the harmful effects to forest plantings of Clethrionomys rufocanus bedfordiae, which girdles young trees under the snow.

- 1943 "A Study of the Manchurian Line-Back Field-Mouse Apodemus agrarius (As a Guide to the Study of Systematics, Morphology, and Ecology of Small Mammals)": Trans Shi Ken, (1), pp 1-22, Mar 1943.

The method of investigation of small mammals is stated in detail. The author used Apodemus agrarius for his studies because it is the most common mammal in Manchuria.

- 1944 "On the Biogeographical Division of Inner Mongolia": Trans Shi Ken, (7) pp 95-125, Oct 1944.

Dr. Tokuda spent two months in the summer of 1943 collecting and observing animals at Uranchap (inner Mongolia). The most abundant desert animals are the rodents and ornithopterans. Their species and distribution are given in detail.

Utinomi, Huzio

- 1945 Bibliographia Micronesica, (sic) (Nanyo Gunto Kagaku Bunkenshu), royal 8vo, Hokuryukan, Tokyo, pp 1-208, 1945.

The Mammalia section, pp 24-27, lists 62 titles on Micronesian mammals.

Yamashina, Yoshimaro

- 1943 "On the New Subspecies of Emballonura semicaudata (Chiropt.) Found in Marianas Group, Micronesia": Bull Bioge Soc Jap, XIII (15), pp 99-100, Jun 1943.

Emballonura semicaudata rotensis is described. The type specimen came from Rota Island, Marianas group.

Yoshikura, Makoto

- 1944, "On a New Whiskered Bat from Sakhalin": Zool Mag, LVI (1,2,3), pp 6-7, Mar 1944.

A new whiskered bat, Myotis abei, sp. n., is described from a single adult male collected by the author in southern Sakhalin.

- 1944 "On Myopus middendorffi vinogradov (Microtinae) Found in Southern Sakhalin": Zool Mag, LVI (1,2,3), pp 48-50, Mar 1944.

This first record of the species from Sakhalin is also a new addition to the fauna of Japan.

PERIODICALS

Ann Rpt Exp Morph

Annual Reports of Experimental Morphology (Jikken Keitaigaku Nempo)

Published in Tokyo by the Society of Experimental Morphology, directed by Dr. Yo Uchida.

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|-----|-------------|
| I | 10 Apr 1942 |
| II | 20 Aug 1943 |
| III | 25 Apr 1947 |

Ann Zool Jap

Annotationes Zoologicae Japonensis (Nippon Dobutsugaku Iho)

Published quarterly by the Zoological Society of Japan, Zoological Institute, Tokyo Imperial University, Tokyo.

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| XX | (1) Apr, (2) Jun, (3) Sep, (4) Dec 1941 |
| XXI | (1) Apr, (2) Jun, (3) Sep, (4) Dec 1942 |
| XXII | (1) Apr 1943, (2) Jun 1943, (3) May 1944, (4) 25 Nov 1944 |

Bioge

Biogeographica, Transactions of the Biogeographical Society of Japan (no Japanese title)

Published irregularly by the society, Tokyo, in English and Japanese.

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|-----|----------------------------|
| III | (3) Dec 1941, (4) Dec 1942 |
| IV | (1) Dec 1941 |

Bot Zool

Botany and Zoology (Shokubutsu to Dobutsu)

Published monthly by Yokando, Tokyo, edited by Gosaji Oyokawa.

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| IX | (1-12) Jan-Dec 1941 |
| X | (1-12) Jan-Dec 1942 |
| XI | (1-12) Jan-Dec 1943 |

Bull Bioge Soc Jap

Bulletin of the Biogeographical Society of Japan (Nippon Seibutsu Chirigakkai Kaiho)

Published in Tokyo by the society, in Japanese and English.

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|-----|---------------------|------|---------------------|
| XI | (1-15) Jan-Dec 1941 | XIII | (1-20) Jan-Oct 1943 |
| XII | (1-7) Jan-Aug 1942 | XIV | (1-2) Jan 1944 |

Bull Shi Ken

Bulletin of the Shigenkagaku Kenkyujo (Shigenkagaku Kenkyujo Hokoku)

Published by the institute (see Shi Ken Iho) in Tokyo, for articles in both Japanese and English

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| I | (1) Mar 1943, (2) Apr 1943 |
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Cytologia

Cytologia, International Journal of Cytology (no Japanese title)

Edited by K. Fujii, Professor of Botany, Tokyo Imperial University. The journal is issued at irregular intervals, one volume of about 500 pages appearing annually in four numbers.

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|------|---|
| XII | (1) Dec 1941, (2,3) May 1942, (4) Dec 1942 |
| XIII | (1) Nov 1943, (2) Apr 1944, (3,4) Dec 1944 (actual date autumn, 1945) |

Dob Bung

Dobutsu Bungaku (Animal Literature)

A small, semi-popular periodical, devoted primarily to the literary aspect of nature writing, but which occasionally publishes papers of scientific value. It is edited and published by Yonekichi Hirai-awa in Tokyo, in Japanese, formerly in annual volumes of 12 numbers each.

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|------|---------------------|------|------------------------------|
| VIII | (1-12) Jan-Dec 1941 | XII | (1,2) Feb 1945, (3) Dec 1945 |
| IX | (1-12) Jan-Dec 1942 | XIII | (1) Jun 1946, (2) Dec 1946 |
| X | (1-12) Jan-Dec 1943 | XIV | (1,2) Jun 1947, (3) Sep 1947 |
| XI | (1-11) Jan-Nov 1944 | | |

Hokk Teik Daig Shoho

Hokkaido Teikoku Daigaku Rigakubu Dobutsugaku Kyoshitsu Kenkyu Gyoseki Shoho (Hokkaido Imperial University, Faculty of Science, Zoology Department, Abstracts of Researches)

A new temporary series published in unbombed Hokkaido for the benefit of authors no longer able to publish in bombed-out Tokyo periodicals.

(1) Aug 1945, (2) Nov 1945

Hop Fub

Hoppo Fubutsu (Northern Nature)

A new monthly magazine, started in Hokkaido after the surrender. The author of this report has seen only Vol I, No 6, Jun 1946, called the "Wild Bird Number", which contains miscellaneous short notes on birds.

Hyogo Chu Hak Zas

Hyogo Ken Chuto Kyoiku Hakubutsugaku Zasshi (Natural History Magazine for Hyogo Middle School Education)

Published by Hyogo Natural History Society, Kobe.

(8,9) Jan 1943

Ig Sei

Igaku to Seibutsugaku (Medicine and Biology)

Published by the Society of Medicine and Biology (Igaku Seibutsugaku Sakuko Kai) of the Faculty of Medicine, Tokyo Imperial University, in two volumes annually of 12 numbers each, issued twice monthly, on the 5th and 20th of each month.

I	(1-12) Jan-Jun 1942	IV	(1-12) Jul-Dec 1943
II	(1-12) Jul-Dec 1942	V	(1-12) Jan-Jun 1944
III	(1-12) Jan-Jun 1943	VI	(1-3) Jul-Aug 1944

Jap Jour Gen

Japanese Journal of Genetics (Idengaku Zasshi)

The organ of the Genetic Society of Japan, published bimonthly in annual volumes of about 330 pages each, under the auspices of the Faculty of Science, Tokyo Imperial University.

XVII	(1-6) Feb-Dec 1941
XVIII	(1-6) Feb 1942 - Jan 1943
XIX	(1) Feb 1943, (2) Apr 1943, (3) Jun 1943, (4) Aug 1943
XX	(1) 28 Feb 1944, (2) Apr 1944, (3) Jun 1944, (4,5,6) Dec 1944 (the last combined number was actually published during the summer of 1947)

Jap Jour Zool

Japanese Journal of Zoology (Nippon Dobutsugaku Shuho (Gencho & Shoroku))

Formerly published three times yearly by the National Research Council (Gakujutsu Kenkyukai) at the Imperial Academy (Teikoku Gakushiin) at Ueno Park, Tokyo.

IX	(1) 30 Oct 1940, (2) 30 Mar 1941, (3) 15 Jun 1941, (4) 25 Dec 1941
X	(1) 15 Jan 1942, (2) 20 Jul 1942, (3) 10 Nov 1943

Jour Fac Sci Hok Imp Univ

Journal of the Faculty of Sciences of Hokkaido Imperial University, Series 6, Zoology (Hokkaido Teikoku Daigaku Rigakubu Kiyo)

This series, published by the University at Sapporo, is for papers in English only.

VII	(4) 25 Mar 1941
VIII	(1) Jan 1942, (2) Oct 1942, (3) Mar 1943, (4) Apr 1943
IX	(1) Jun 1943, (2) Oct 1944 (actually published May 1946)

Jour Fac Sci Imp Univ Tok

Journal of the Faculty of Sciences, Imperial University, Tokyo, Series IV, Zoology (Tokyo Teikoku Daigaku Rigakubu Kiyo)

Published irregularly for papers in English. Volume V was issued in 1939, and no other number appeared until those listed below:

VI	(1) Mar 1943, (2) May 1943, (3) Jun 1943, (4) Feb 1944, (5) Aug 1944 (published Oct 1947)
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Jour Dep Agr Kyushu Imp Univ

Journal of the Department of Agriculture, Kyushu Imperial University, (Nogakubu Kiyo)

Published irregularly by the University at Fukuoka, for papers in Japanese, German, French, and English.

- VI (6) 15 Feb 1942
VII (9) 15 May 1945
VIII (1) 25 Nov 1946

Jour Sci Hiro Univ

Journal of Science, Hiroshima University (Series B, Division 1: Zoology) (Hiroshima Bunrika Daigaku Rika Kiyo) (Dobutsugaku)

Formerly published irregularly at Hiroshima in Japanese by the University.

- IX 1941
X (1) Jun 1943, (2) Oct 1944

Jour Shi Ken

Journal of the Shigenkagaku Kenkyujo (Shigenkagaku Kenkyujo Obun Hokoku)

This series, as its Japanese name implies (Obun Hokoku means "European language reports"), was for articles in English and other tongues beside Japanese. It was published by the Institute in Tokyo.

- I (1) Mar 1943, (2) Nov 1943, (3) Jul 1944

Jour Soc Trop Agr

Journal of the Society of Tropical Agriculture (Nettai Nogaku Kaishi)

Published by the Society of the Faculty of Science and Agriculture, Taihoku Imperial University, Formosa.

- XIII (1) Apr 1941, (2) Sep 1941, (3) Nov 1941, (4) Dec 1941
XIV (1) Apr 1942, (2) Jul 1942, (3) Nov 1942, (4) Dec 1942

Jour Taiwan Mus Assoc

Journal of the Taiwan Museum Association (Kagaku no Taiwan)

Formerly published bimonthly by the Taiwan Museum Association at the Museum of the Government General in Formosa.

- IX (1,2) Apr, (3) Jun, (4) Sep, (5,6) Dec 1941
X (1) Apr, (2) May, (3,4) Sep, (5) Dec 1942

Kagaku (Science)

Published by Iwanami Shoten, Tokyo, formerly in volumes of 12 numbers annually.

- XI (1-13) Jan-Dec 1941 XIV (1-10) Jan-Oct 1944
XII (1-12) Jan-Dec 1942 XV (1) Feb 1945, (2) Oct 1945
XIII (1-12) Jan-Dec 1943

Kag Nan

Kagaku Nanyo (South Sea Science)

Published by the Nippon Gakujutsu Shinkokai Parao Nettai Seibutsu Kenkyujo (Japanese Association for the Promotion of Science) of Tokyo (formerly under the auspices of the Ministry of Education, and now at the Imperial Academy at Ueno Park, Tokyo).

- III (3) Feb 1941
IV (1) Jun 1941, (2) Oct 1941, (3) May 1942
V (1) Sep 1942, (2) Mar 1943, (3) Jul 1944

La Krom

La Kromosomo (Senshyokutai)

Edited by the Senshyokutai-Kenkyujo (Institute of Chromosome Research) of uncertain authority, and published by Tikareshyobo, 835 Unanemachi, Setagayaku, Tokyo, a commercial publishing house. The "European" title adopted by the magazine is of uncertain language, claimed by the editors to be perhaps Esperanto.

(1) 21 Sep 1946, (2) 21 Dec 1946, all published to date

Mem Fac Sci Agr, Taihoku Imp Univ

Memoirs of the Faculty of Science and Agriculture, Taihoku Imperial University, (Rinogakubu Kiyo)

Published irregularly by Taihoku Imperial University, Formosa, for papers in English. Issues are combined in volumes but are also numbered serially by departments.

- XXIII (3) (Zool 12) Feb 1941, (4) (Zool 13) May 1941, (5) (Zool 14) Jun 1942,
(6) (Zool 15) Sep 1942
XXIV (1) (Zool 16) Oct 1942

Mem Fac Sci Taihoku Imp Univ

Memoirs of the Faculty of Science, Taihoku Imperial University, Formosa, Series 2 (Taihoku Teikoku Idai-gaku Rigakubu Kiyo).

I (1) Apr 1944 (in English), (2) Jul 1944 (in Japanese)

Nat Sci Mus

Natural Science and Museum (Shigenkagaku to Hakubutsukan)

Formerly published by the Science Museum of the Ministry of Education, Tokyo, in annual volumes of 12 numbers each.

XII (1-12) (133-144) Jan-Dec 1941 XIV (1-12) (157-168) Jan-Dec 1943
XIII (1-12) (145-156) Jan-Dec 1942 XV (1-10) (169-176) Jan-Oct 1944

Nip Gak Kyo Hok

Nippon Gakujutsu Kyokai Hokoku (Reports of the Japanese Scientific Society)

Published irregularly in Japanese by the Nippon Gakujutsu Kyokai, with offices formerly at the Institute of Applied Chemistry, Faculty of Technical Science, Tokyo Imperial University. Since 1946 the Society has moved its office to the Faculty of Medicine, Tokyo Imperial University, but has issued no publications.

XVI (1) Mar, (2) July, (3) Nov 1941 (actual date of (3) Jan 1942)
XVII (1) Oct 1942, (2) Jul 1943

Saiensu (Science)

A journal of science in Romanized Japanese, edited by the Saiensu Publishing Society, published by Akitaya Co, No 1, Oiwaketo, Kitashirakawa, Kyoto, Japan.

I (1) May 1947

Sai Shi

Saishu to Shiiku (Collecting and Breeding)

Published monthly by Uchida Rokakuho Co, Hongoku, Tokyo, and edited by Prof Y. Shinoto of the Botanical Institute and Prof T. B. Oka of the Zoological Institute, Faculty of Science, Tokyo Imperial University. This magazine is one of the few which kept its continuity of numbering through the war years, by omitting those which were not published.

III (1-12) Jan-Dec 1941 VII (1-2) Jan-Feb 1945
IV (1-12) Jan-Dec 1942 VIII (1-12) Jan-Dec 1946
V (1-12) Jan-Dec 1943 IX (1-8,9) Jan-Sep 1947
VI (1-12) Jan-Dec 1944

Sci Rpt Tokyo Bun Dai

Science Reports, Tokyo Bunrika Daigaku (no Japanese title)

Published irregularly in English by Bunrika University, Tokyo. These numbers listed are devoted to zoology.

V (85) Jun 1941
VI (89) (93) May 1942, (95) (98) Jun 1943, (99) 20 Dec 1943
VII (100) 28 Feb 1944, (102) 8 Oct 1944, (103) 18 Oct 1944, (104) Feb 1945

Sci Rpt Tohoku Imp Univ

Science Reports of the Tohoku Imperial University (Tohoku Teikoku Daigaku Rika Hokoku), Series 4 (Biology).

Formerly published by Tohoku Imperial University at Sendai, in annual volumes of four numbers each.

XVI (1) 10 Feb 1941, (2) 30 Apr 1941, (3) 20 Aug 1941, (4) 30 Sep 1941
XVII (1) 20 Mar 1942, (2) 14 Dec 1942, (3) 30 Apr 1943, (4) 30 Aug 1943

Seib Soho

Seibutsugaku Soho (General Reports of Biology)

A new periodical, published in Japanese by the Maruzen Co for the National Research Council (Gakujutsu Kenkyu Kaigi) at Ueno, Tokyo.

I 10 Feb 1947

Seibutu (The Living Creature)

A new journal published by the Northern Publishing Co (Hoppo Shuppan Sha) in Sapporo. The director of the journal is Dr Toru Uchida and the editor Dr Sajiro Makino, both professors of zoology at Hokkaido Imperial University, Sapporo.

- I (1) Feb 1946, (2) Apr 1946, (3) Jun 1946, (4) Aug 1946, (5,6) Dec 1946
II (1) Feb 1947, (2) Apr 1947, (3) Jun 1947, (4) Aug 1947 Supplement
(1) Jan 1947

Shi Ken Iho

Shigenkagaku Kenkyujo Iho (Miscellaneous Reports of the Research Institute for Natural Resources)

This series of reports was published in Japanese by the Institute in Tokyo.

- I (1) Mar 1943, (2) Apr 1943, (3) Oct 1943, (4) Nov 1943, (5) Mar 1944,
(6) Aug 1944, (7) Oct 1944, (8) Jun 1945, (9) Nov 1946, (10) Dec 1946
(See also Bull Shi Ken, Jour Shi Ken, Shi Ken Tampo and Trans Shi Ken. In addition to these five series of periodicals, the Institute also began a "Bibliography of Natural Science in the Great Eastern Co-prosperity Zone" series, of which only the Philippine section, dated 1943, was published, and planned a series of "Geographical Maps of the Great Eastern Co-Prosperity Zone", none of which was completed.)

Shi Ken Tampo

Shigenkagaku Kenkyujo Tampo (Short Reports of the Research Institute for Natural Resources)

A series of short papers, mimeographed, of 4-10 pages each, mostly on ichthyology.
(1-21) May-Jul 1947

Tori (The Bird)

Bulletin of the Ornithological Society of Japan, published at irregular intervals by the society, Tokyo. Contains papers in English and Japanese.

- XI (51,52) Oct 1941, (53,54) Dec 1942, (55) Sep 1944

Trans Nat Hist Soc Taiwan

Transactions of the Natural History Society of Taiwan (formerly Formosa)

(Taiwan Hakubutsu Gakkai Kaiho)

Published monthly in annual volumes by the Natural History Society of Formosa, Faculty of Science and Agriculture, Taihoku Imperial University, Taihoku, Formosa. Contains papers in Japanese and English.

- XXXI (208-219) Jan-Dec 1941
XXXII (220-231) Jan-Dec 1942
XXXIII (232-240) Jan-Sep 1943, (241) Oct 1943, (242,243) Dec 1943
XXXIV (244) Jan 1944, (245) Feb 1944, (246,247) Apr 1944, (248,249) Apr 1944,
(250) Aug 1944, (251) Oct 1944

Trans Orn Soc Jap

Transactions of the Ornithological Society of Japan (Nippon Chogakkai Kaiho)

A new temporary series published after the war, in leaflet form, to be discontinued when Tori is again published. The first issue was edited by Shiro Matsuyama, the remainder by Naganisa Kuroda. They contain reports of activities of members, minutes of meetings, short accounts of papers, and short articles by members.

- I (1) 1 May 1946, (2) 1 Jun 1946, (3) 1 Aug 1946, (4) 1 Oct 1946,
(5) 1 Dec 1946
II (1) 1 Jan 1947, (2) 30 May 1947, (3) 30 May 1947

Trans Shi Ken

Transactions of the Shigenkagaku Kenkyujo (no Japanese title)

This series was published by the Institute in Tokyo in English. Only two numbers appeared.
(1) Mar 1943, (2) Aug 1943

Yacho (The Will Bird)

A popular monthly magazine formerly published by the Japan Wild Bird Club, Tokyo, and managed and edited by Godo Nakanishi, the founder and secretary of the club. The magazine is devoted to the popularizing of all nature, particularly birds.

- VIII (1-12) Jan-Dec 1941
- IX (1-12) Jan-Dec 1942
- X (1-8) Jan-Aug 1943, (9,10) Oct, 1943, (11,12) Dec 1943
- XI (1) (old 114) Feb 1944, (2) (old 115) Sep 1944

Zool Mag

Zoological Magazine (Dobutsugaku Zasshi)

Published by the Nippon Dobutsu Gakkai (Zoological Society of Japan), of the Zoological Institute, Faculty of Science, Tokyo Imperial University.

- LIII (1-12) 15 Jan-15 Dec 1941
- LIV (1-12) 15 Jan-15 Dec 1942
- LV (1-8) 15 Jan-15 Aug 1943, (9,10) Oct 1943, (11,12) Dec 1943
- LVI (1,2,3) 15 Mar 1944, (4,5,6) 15 Jun 1944, (7) 15 Jul 1944 (published 25 Mar 1946), (8) 15 Aug 1944 (published 25 Apr 1946), (9,10) Oct 1944 (published 20 Aug 1946, (11,12) Dec 1944 (published 25 Dec 1946)
- LVII (1,2) Jan 1947 (pub 5 May 1947), (3) Mar 1947, (4) Apr 1947, (5) May 1947

End

