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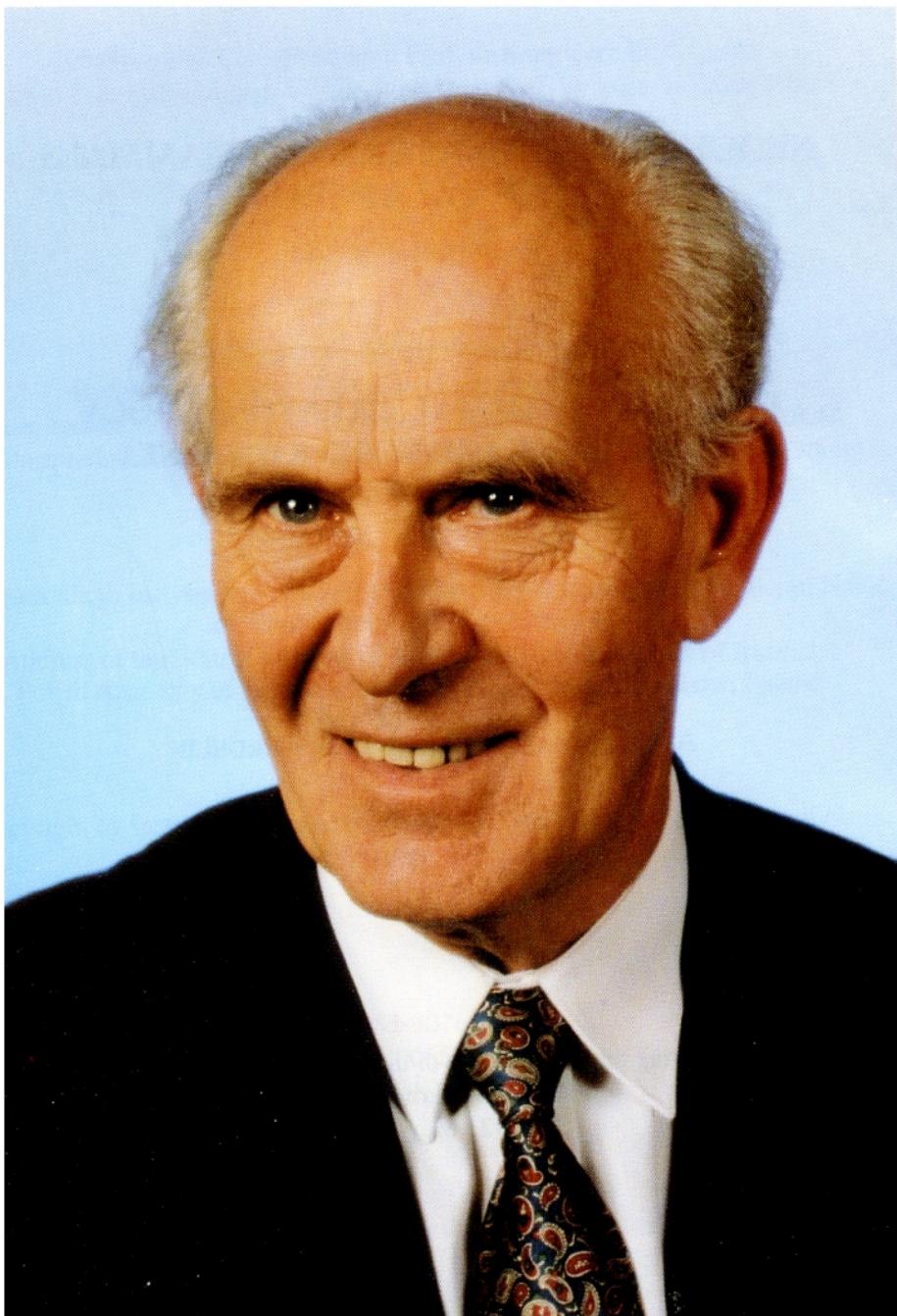
**NEOGENE AND QUATERNARY MAMMALS
OF THE PALAEARCTIC**

**PAPERS IN MAMMAL PALAEONTOLOGY
HONORING KAZIMIERZ KOWALSKI**

Edited by

Adam NADACHOWSKI & Lars WERDELIN

Incorporating the Proceedings of the International Conference
Held in Kraków, Poland
17-21 May 1994



K. Konrelski

PREFACE

The conference 'Neogene and Quaternary mammals of the Palaearctic' that we see the printed results of in this volume originated as a tribute to the scientific activities of Kazimierz KOWALSKI. It was developed as one offshoot of the European Science Foundation network on 'Quaternary Mammalian Faunas', which in the years 1991-1993 organised three workshops dealing with important aspects of the evolution of mammalian faunas during the Quaternary. The conference was held in Kraków, 17-21 May, 1994. It included 101 participants from 26 countries.

On the first day a special ceremonial session took place celebrating Kazimierz KOWALSKI's almost 50 years of service to the field of mammalian paleontology. During the subsequent sessions, a total of 39 oral presentations were made and 57 posters presented. There was no central theme to the conference other than that indicated by the title, and papers were presented on mammalian systematics, evolution, taphonomy, palaeoecology and biostratigraphy in the Neogene and Quaternary. In addition, three round-table discussions on specified themes were organised: 'Evolutionary dynamics and classification of phyletic series' (conveners: R. MARTIN and L. WERDELIN), 'The *Allophaiomys* problem and early stages of *Microtus* evolution (convener: J. AGUSTÍ) and 'Biostratigraphic and chronostratigraphic correlation of the Neogene and Quaternary mammal localities of the Palaearctic' (conveners: R. DAAMS, O. FEJFAR, E. VANGENGEIM).

Papers discussing systematics and/or new taxa form 31% of the total, while papers that are regional surveys of mammalian palaeofaunas represent 27%. Articles on mammalian evolution form 19% of all papers, while biostratigraphic problems (11%), palaeoecology (6%), taphonomy (3%) and new methodologies (3%) make up the rest.

Some 62 scientific papers related to the conference are published here. Not all were presented in Kraków; some contributors who were unable to attend were invited to contribute to this volume and to thus honour Kazimierz KOWALSKI. Taken as a whole the contents of this volume make a forceful statement concerning the importance of mammalian paleontology to studies of the biology of mammals and also show the dynamic state of the field.

After the conference a one-day scientific excursion was organized. It took the participants to karst localities with Neogene and Quaternary mammals in the Kraków-Częstochowa upland.

The following colleagues assisted in the compilation of this volume by reviewing papers: J. AGUSTÍ, P. BRUNET-LECOMTE, J. CHALINE, R. DAAMS, C. DENYS, V. EISENMANN, M. ERBAJEVA, V. FAHLBUSCH, O. FEJFAR, F. FLADERER, A. FORSTEN, M. FORTELIUS, L. GINSBURG, G. HAYNES, G. DAXNER-HÖCK, L. L. JACOBS, W. v. KOENIGSWALD, L. KORDOS, K. KOWALSKI, A. LISTER, A. MARKOVA, R. MARTIN, E. MARTIN-SUAREZ, J. MICHAUX, A. NADACHOWSKI, G. RABEDER, J. REUMER, B. RZEBIK-KOWALSKA, B. SALA, R. SAVAGE, A. SHER, G. STORCH, E. STWORZEWICZ, D. TORRE, A. TURNER, T. VAN KOLFSCHOTEN, L. WERDELIN and M. WOLSAN.

The editors wish to express their appreciation to all the contributors and reviewers, who have worked so hard to pay a worthy tribute to our friend and colleague Kazimierz KOWALSKI. We are grateful to the staff of *Acta zoologica cracoviensis* and especially to Zygmunt BOCHEŃSKI and Ewa ŻYCHOWSKA for the support and assistance that has made it possible to publish these proceedings.

We wish to dedicate this volume to Kazimierz KOWALSKI in acknowledgement of his achievements as a scientist, his devotion to natural history and his efforts on behalf of our scientific community.

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KAZIMIERZ KOWALSKI: A BIOGRAPHICAL SKETCH

Kazimierz KOWALSKI was born in Cracow 15 March, 1925 into the family of Jagiellonian University professor Tadeusz KOWALSKI and Zofia MEDWECKA, a medical doctor. He attended high school (gymnasium) before the Second World War, and completed his studies by 1943, passing courses in secret. Immediately after, he began attending classes in biology at the Jagiellonian University, officially closed under German occupation, but secretly working underground. He graduated from this University in 1947 and obtained his PhD in 1949. His thesis was based on the description of daily activity rhythms in two common rodents and their dependence on lighting conditions.

From 1948 to 1954 he worked as a research assistant and instructor at the Department of Animal Psychology and Ethology at the Jagiellonian University, and was interested in the ecology and biology of small mammals. In 1954 Dr. KOWALSKI changed his job and continued his research in the Cracow Branch of the Institute of Zoology of the Polish Academy of Sciences (now the Institute of Systematics and Evolution of Animals). From that time onward his career has been linked to this Institute.

In 1962 Dr. KOWALSKI became professor of zoology. He was appointed as the director of the Institute and served in this capacity for many years (1960-1978, and again in 1985-1987) and also headed its Department of Vertebrates. Under his direction the Institute became an independent research unit of the Academy (1960). This long stay in the Institute was interrupted only for 5 years (1978-1983) when Professor KOWALSKI went to Algeria, where he lectured in zoology at the University of Oran and studied the mammalian fauna of this country.

The scientific interests of Kazik KOWALSKI (as he is known to his friends) are well known to zoologists, paleontologists and speleologists. As a zoologist he studied the ecology of forest rodents and their activity rhythms. He studied the distribution and migration of bats and the ecological conditions of their hibernation. One of the results of these studies was a book: "Our bats and their protection" (1954), which was later translated into English (1969). Kazik was also interested in the morphological characteristics of mountain rodents and contributed to research on the mammal fauna of selected regions and national parks. This interest in the mammal fauna of Poland was later extended, and was summarized in "Keys to vertebrates of Poland. V. Mammals" (1964). Professor KOWALSKI had initiated this series, and was the editor of the part devoted to Mammals, of which he wrote half the text. He participated in the next two editions of this book.

KOWALSKI's interest in living mammals was revived many years later, when he worked in Algeria (1978-1983). He collected more than 5000 specimens, published several papers on the adaptation of mammals to living in subtropical climates and above of all, prepared a monograph (together with his wife Barbara RZEBIK-KOWALSKA) on "Mammals of Algeria" (1991). This was based on studies lasting 12 years and gave an up to date summary of the recent mammal fauna of Algeria, its origin and evolution.

After his move from the Jagiellonian University to the research institute of the Polish Academy of Sciences, Kazik KOWALSKI's studies took a change in direction. After 1954 he became more and more involved in the systematics and evolution of mammals and began investigating fossil mammals, predominantly rodents from Tertiary and Quaternary deposits. This was soon to become his main area of study. It would be difficult for me to summarize in detail all of his work in this field, and I can offer only a very brief recapitulation of his most important results. Kazik discovered and studied mammal faunas from many Miocene to Holocene sites in Poland and described 24 new taxa of fossil shrews, bats and rodents. He investigated the evolution of mammal faunas and various larger groups of arvicolid, glirids, gerbillines, zapodids and sciurids. This rich material enabled him to formulate important conclusions concerning paleoclimatic changes in Poland. A succession of mammal faunas from Paleolithic sites enabled him to reconstruct the environmental conditions of the oldest human occupation of Poland. During his study tours abroad he investigated the fossil mammal faunas of other countries. He prepared monographs on Pleistocene rodents of Great Britain (together with A. SUTCLIFFE) and Japan (together with Y. HASEGAWA), participated in the investigation of the Bacho Kiro Cave in Bulgaria, as well as deposits in Czechoslovakia, Jugoslavia, China, Japan and Mongolia.

Professor KOWALSKI's most recent interest is concentrated on the Miocene mammals of the Bełchatów brown coal deposits. This is a very rich mammal fauna, which includes, among other taxa, representatives of the genus *Neocometes*, known from the Miocene of Europe and Thailand. These finds suggest an uninterrupted expanse of tropical forest from southeast Asia to Europe. In addition he found mastodont teeth, one of the oldest dated finds of Proboscidea in Europe.

Professor KOWALSKI was an active member of the steering committee of the European Science Foundation network "Quaternary Mammalian Faunas", which promoted research on the evolution of the mammalian fauna of the Quaternary of Europe.

During the last few years Professor KOWALSKI has become very much involved in taphonomy. He has already presented some of his own results and propagated these ideas in several articles.

As a young man Kazik eagerly practiced caving and took part in many expeditions to caves in the Tatra Mountains, as well as many other caves in Bulgaria, Czechoslovakia, France, Cuba and Mexico. As a zoologist, he observed cave animals and collected scientific material for his studies. He investigated bat distribution and ecology, analysed cave sediments, with breccias containing mammal fossils. He soon became an authority on cave faunas and authored an extensive study of the "Cave fauna of Polish Tatra Mts" (1956) and a fundamental three volume monograph "Polish caves" (1952-1954), which contains detailed description of all known caves. Through popular books and many articles and notes (some 80 publications between 1946 and 1961) he promulgated knowledge of the caves and the need for protecting them. Among these publications were such books as "Life in caves" (1956), and "Polish caves" (1965). This writing stimulated further interest in the scientific exploration and protection of caves. Kazik was one of the organizers of caving in Poland, founded the Speleological Section of the Nicolaus Copernicus Society of Naturalists and chaired it for many years.

Professor KOWALSKI has published 11 books and many articles. The total number of publications from his pen is probably about 550, including original books, chapters and papers containing first-hand materials (ca 120), reviews, congress reports and abstracts, popular articles, notes and entries in encyclopedias. Counting the total volume of books (of one edition only), scientific papers and more important articles this is no less than 6000 printed pages! We can see him as an unusually productive and efficient author.

Kazik KOWALSKI has also edited several books (e. g., "Keys to Vertebrates of Poland", 1960-1971, which he initiated, chaired the editorial board of and was the editor of part 5, devoted to mammals, "Small Zoological Vocabulary, Mammals" - 4 editions between 1973-1992, and "History and evolution of the terrestrial fauna of Poland", 1989). He was the editor-in-chief of *Acta Zoologica Cracoviensia* for 14 years (1971-1984) and he has been the editor of *Folia Quaternaria* from its inception in 1960. He is a member of several editorial boards of different periodicals in

Poland and abroad, including *Acta Theriologica*, *Folia Biologica*, *Evolutionary Theory* (USA), *Paleovertebrata* (France), and *Quartärpaläontologie* (Germany).

Kazik KOWALSKI enjoys traveling immensely and has visited many countries in Europe, Africa, America and Asia. These trips include study tours or longer stays as visiting professor as well as scientific expeditions. He was the head of the first Polish- Mongolian Expedition to the Gobi Desert (1964), organized from the Polish side by the Institute of Paleobiology in Warsaw. He also organized and headed a zoological expedition to some countries of the Near East in 1977. Kazik has represented Poland at many conferences and congresses, including the first four International Theriological Congresses. All these visits abroad have been connected with collecting new material and bringing it to the Institute in Cracow, or the investigation of already existing museum collections. This usually resulted in new publications, frequently prepared together with colleagues from the countries he visited. These study tours increased KOWALSKI's knowledge of the recent and fossil mammal fauna of the world and brought about new scientific contacts, co-operation and friendships. Several of these colleagues have described new taxa in his honour.

Unlike university professors, Kazik has not had to teach students when working in the research institute. In several cases he has, however, acted as a supervisor of master's and PhD theses. He is also frequently appointed as a reviewer of theses in mammalogy, presented at various universities or research institutes, and has also acted as appraiser of the scientific output of several mammalogists in Poland. The fact that he does not regularly teach in the classroom situation does not mean that he has no contact with students. He trained students of biology at summer field courses, and spent 5 years in Algeria devoting himself mainly to lecturing in zoology. However, Kazik's main contribution to teaching has been his books. As co-author of the handbook of "Vertebrate Zoology" (1979) he is responsible for sections on "mammals" and "zoogeography". He wrote a textbook of mammalogy ("Mammals. An outline of theriology" 1971) that has been translated into English (1976) and Spanish (1981).

Professor KOWALSKI plays a very important part in the scientific life of Poland. Polish mammalogists know that the Theriological Section of the Polish Zoological Society was organized in 1962 on his initiative. It was also chaired by him for the first few years. Kazik actively participates in several committees and commissions of the Polish Academy of Sciences and on scientific boards of some institutes and national parks. He was scientific secretary (1958-1969) and chairman (1984-1987) of the Committee for Zoology PAS, deputy Scientific Secretary or presidium member of the Cracow Branch of PAS. He served for two terms as a member of the Central Qualification Commission, a body which accepts scientific degrees and professorial nominations in Poland. Recently, Kazik has been very active in re-starting the activities of the Polish Academy of Arts and Sciences in Cracow. He undertook the responsibility of organizing of the scientific Station of PAAS in New York.

Kazik KOWALSKI's scientific achievements have been well recognized by the community of Polish zoologists and paleontologists, who nominated him for membership in the Polish Academy of Sciences. In 1971 he was elected corresponding member, and in 1986 full member of this Academy. After restoring the activities of the Polish Academy of Arts and Sciences (1990) he was also elected an active member and played an important role in its governing body (deputy chair).

In 1994 Professor KOWALSKI was elected President of the Polish Academy of Arts and Sciences.

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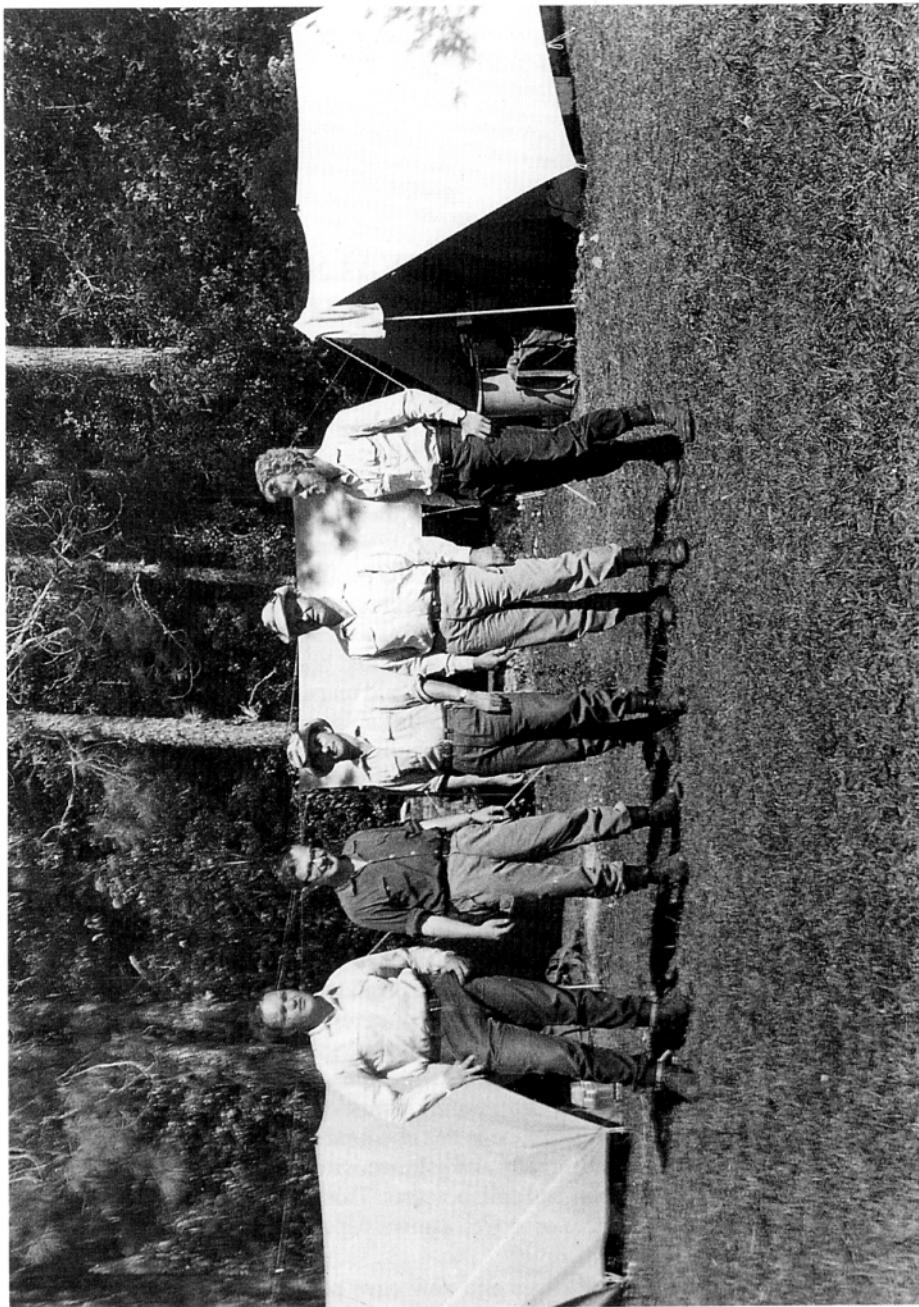
KAZIMIERZ KOWALSKI AS THE MOST PROMINENT POLISH SPELEOLOGIST AND CAVER

Professor KOWALSKI is not only an outstanding zoologist and vertebrate palaeontologist, but also a prominent speleologist and caver. These latter activities should be mentioned here because his attainments are of great importance.

Kazimierz KOWALSKI began caving in the vicinity of Cracow as a boy before the Second World War. He began a systematic survey of caves in the Cracow upland during the dangerous times of the War and extended this work to encompass all of Poland just after the war. He published many papers on this subject (KOWALSKI 1950), including the monumental monograph "Caves of Poland" (KOWALSKI 1951a, 1953a, 1954). This monograph contains a complete review of all that is known of karst and caves in this country, with an unrivalled annotated bibliography. However, the value of this monograph lies mostly in the original descriptions and maps of 658 caves. During this work he showed broad interdisciplinary knowledge and penetrating scientific ability, which are seen in the many references to this monograph in subsequent books and papers. This monograph forms the starting point of modern speleology in Poland (cf. WÓJCIK 1981).

K. KOWALSKI had as a zoology student combined his caving interest with biospeleological observations, which gave him material for many papers on cave bats (e. g., KOWALSKI 1951b, KOWALSKI 1953b). During his cave survey, he found new localities of Pliocene and Pleistocene fossil vertebrates in cave deposits, which shifted his scientific activity towards vertebrate palaeontology, and this subject became his main scientific field over the next decades. Here I can mention the discovery of the important Pliocene vertebrate fauna in Podlesice (KOWALSKI 1951c, 1956) and many papers on Pliocene and Pleistocene vertebrates from localities found by other geologists and archaeologists in cave deposits. He concentrated his interest in the at that time poorly known micromammals, which are very important for Cenozoic stratigraphy and palaeoecology. He began very early with broad interdisciplinary collaborations with archaeologists, geologists and geomorphologists, not only as a laboratory expert determining bones of mammals, but also as a careful field collaborator collecting micromammals. Due to this cooperation we have at present very useful data on the Neogene and Quaternary stratigraphy and paleogeography of Poland, which was mostly established by KOWALSKI and his students and collaborators. This knowledge has been summarized and presented at international conferences or in well known papers and monographs several times (e. g., KOWALSKI 1962, 1964, 1989).

K. KOWALSKI has discovered many caves and new cave passages, as well as gained many sportive and technical successes in caving (BARYŁA 1980, 1981, 1985). He gained his first success in cave diving (Zwolinski's Syfon in the Zimna Cave, Tatra Mts.) in 1953. Two times he broke records in vertical caving in Poland: -160 m in 1951 and -213 in 1952 (both in the Miętusia Cave, Tatra Mts.). Moreover, jointly with French cavers he reached a world record in vertical caving in August 1956 (-1122 m) in the Gouffre Berger (France, Isère, Plateau Vercors). This world record



Phot. I. Expedition to caves in Mexico, 1969. From right to left: Bronisław KOISAR, Kazimierz KOWALSKI, Maciej KUCZYŃSKI, Ryszard GRADZIŃSKI, Wojciech SKARŻYŃSKI. Phot. B. KOISAR.

in vertical caving was beaten only 10 years later, since the depth of -1171 m reached in 1956 by French cavers in the cave system Pierre St.-Martin (Atlantic Pyrenees, France and Spain) was partly reached through an artificial EDF tunnel. However, by Polish cavers it was not broken until 1980.

Kazimierz KOWALSKI (nicknames among cavers "Kazik" or "Kowal") was also very active in caving and speleological organizations. He was co-founder of the Cracow Cavers Club in 1950 and of the Speleological Section of the Polish Copernicus Society of Naturalists, where he was the first President (1963-1968). He has been the organizer and leader of many caving and surveying expeditions to Polish caves since the 1950's. When the political conditions after 1955 began to permit caving expeditions to foreign countries, KOWALSKI organized and/or participated in many such expeditions to Slovakia, Hungary and Bulgaria, and since 1956 to France, Cuba and Mexico (Phot. 1). This activity was accompanied by many programmatic papers (written in Polish only) for the mimeographed caving bulletin "Grotołaz" (Caver), e. g., "Speleology and caving in Poland" (1950) and "We are travelling abroad" (1955). It was natural that Kazik was certified as one of the first caving instructors in Poland.

Really it is impossible to imagine the present state of the art in caving and the present state of knowledge of speleology in Poland without the attainments of Professor K. KOWALSKI!

REFERENCES

BARYŁA J. 1980. Klub grotołazów, cz.I. (Cavers Club, pt. I). Gacek, **15**(36): 7-15. (In Polish).

BARYŁA J. 1981. Klub grotołazów, cz.II. (Cavers Club, pt. II). Gacek, **17**(38): 6-13. (In Polish).

BARYŁA J. 1985. Klub grotołazów, cz.III. (Cavers Club, pt. III). Gacek, **19**(40): 6-22. (In Polish).

KOWALSKI K. 1950. Speleologia i turystyka jaskiniowa w Polsce. (Speleology and caving in Poland). Grotołaz, **3**: 2-5. (In Polish).

KOWALSKI K. 1951a. Jaskinie Polski, t. I. (Les cavernes de la Pologne, t. I, rés.) Państwowe Muzeum Archeologiczne, Warszawa, pp. 466. (In Polish).

KOWALSKI K. 1951b. Nocek orzęsiony *Myotis emarginatus* GEOFFROY (Chiroptera, Vespertilionidae) nowy gatunek dla fauny Polski. Fragmenta faunistica Musei Zoologici Polonici, **6**(9): 165-167. (In Polish).

KOWALSKI K. 1951c. Brekcja nietoperzowa w Podlesicach koło Kroczyce. (La brèche à ossements de chauves-souris, rés.). Zabytki Przyrody Nieożywionej, Nowa Seria **1**(4): 38-40. (In Polish).

KOWALSKI K. 1953a. Jaskinie Polski, t. II. (Les cavernes de la Pologne, t. II, rés.) Państwowe Muzeum Archeologiczne, Warszawa, pp. 186. (In Polish).

KOWALSKI K. 1953b. Materiały do rozmieszczenia i ekologii nietoperzy jaskiniowych w Polsce. (Materials relating to the distribution and ecology of cave bats in Poland, Sum.). Fragmenta faunistica Musei Zoologici Polonici, **6**(21): 541-567. (In Polish).

KOWALSKI K. 1954. Jaskinie Polski, t. III. (Les cavernes de la Pologne, t. III, rés.) Państwowe Wydawnictwo Naukowe, Warszawa, pp. 192. (In Polish).

KOWALSKI K. 1955. Jedziemy za granicę. (We are travelling abroad). Grotołaz, **16**: 2-5. (In Polish).

KOWALSKI K. 1956. Insectivores, bats and rodents from the Early Pleistocene bone breccia from Podlesice near Kroczyce (Poland). Acta palaeontologica polonica, **1**(4): 331-394.

KOWALSKI K. 1962. Les micro-mammifères du Pliocène et du Pléistocène inférieur de la Pologne. Colloque International de CNRS, **104**: 409-416.

KOWALSKI K. 1964. Paleoekologia ssaków pliocenu i wczesnego pleistocenu Polski. (Paleoecology of mammals from the Pliocene and Early Pleistocene of Poland, Summ.). Acta Theriologica, **8**(4): 73-88. (In Polish).

KOWALSKI K. (ed.). 1989. Historia i ewolucja lądowej fauny Polski. (History and evolution of the terrestrial fauna of Poland, Summ.). Folia Quaternaria, **59-60**: 1-278. (In Polish).

WÓJCIK Z. 1981. An outline of history of Polish speleology. Kras i speleologia, **4**(13): 85-97.

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BIBLIOGRAPHY OF KAZIMIERZ KOWALSKI

I. BOOKS AND CHAPTERS IN BOOKS

1951

KOWALSKI K. Jaskinie Polski (Les cavernes de la Pologne) I. Państwowe Muzeum Archeologiczne, Warszawa, 466 pp., 27 pls., 1 map.

1953

KOWALSKI K. Jaskinie Polski (Les cavernes de la Pologne) II. Państwowe Muzeum Archeologiczne, Warszawa, 186 pp., 20 pls., 5 maps.

1954

KOWALSKI K., MAŁACHOWSKI B., SOSNOWSKI K. Dolina Prądnika. Sport i Turystyka, Warszawa, 72 pp.

KOWALSKI K. Jaskinie Polski (Les cavernes de la Pologne) III. Warszawa, PWN, 192 pp., 2 pls.

1955

KOWALSKI K. Jaskinie tatrzanskie. [In:] Tatrzański Park Narodowy. Wydawnictwa popularnonaukowe PAN, Zakład Ochrony Przyrody, 10: 20-36.

KOWALSKI K. Nasze nietoperze i ich ochrona. PAN – Zakład Ochrony Przyrody, 110 pp.

KOWALSKI K. Ssaki. [In:] Tatrzański Park Narodowy. Wydawnictwa popularnonaukowe PAN, Zakład Ochrony Przyrody, 10: 181-191.

1956

KOWALSKI K. Życie w jaskiniach. Mała Biblioteczka Towarzystwa Wiedzy Powszechnej, Warszawa, 50 pp.

1959

KOWALSKI K. Katalog ssaków plejstocenu Polski. (A catalogue of the Pleistocene mammals of Poland). PWN, Warszawa-Wrocław, 267 pp.

1962

KOWALSKI K. Jaskinie tatrzanskie. (The Tatra caves). [In:] Tatrzański Park Narodowy. PAN, Zakład Ochrony Przyrody, Wydawnictwa Popularnonaukowe, 21: 167-186.

KOWALSKI K. Ssaki. (Mammals). [In:] Tatrzański Park Narodowy, PAN, Zakład Ochrony Przyrody, Wydawnictwa Popularnonaukowe, 21: 365-388.

1964

KOWALSKI K. Ssaki – Mammalia. [In:] Klucze do oznaczania kręgowców Polski, cz. V. Warszawa – Kraków, 280 pp. (editor and co-author).

1965

KOWALSKI K. Jaskinie Polski. Wiedza Powszechna, seria: Przyroda Polska, Warszawa, 144 pp.

1967

KOWALSKI K. Animal life (part of the entry "Poland"). [In:] Encyclopaedia Britannica, p. 114.

KOWALSKI K. Fauna plejstocenu Polski. [In:] Czwartorzęd Polski. PWN, Warszawa, pp. 72-82.

KOWALSKI K. Polska. Świat zwierzęcy. [In:] Wielka Encyklopedia Powszechna PWN 9: 17-18.

KOWALSKI K. Ssaki. [In:] Z. GRODZIŃSKI (ed.) – Zoologia. Przedstrunowce i strunowce. PWN, Warszawa, pp. 361-480.

1968

KOWALSKI K. Our bats and their protection. Published for the U.S. Department of the Interior and the National Science Foundation, Washington D.C. by the Scientific Publications Foreign Corporation Center of the Central Institute for Scientific, Technical and Economic Information, Warsaw, Poland. Warszawa, 75 pp.

KOWALSKI K. The Pleistocene extinction of mammals in Europe. [In:] Pleistocene extinctions, Yale Univ. Press, New Haven and London, pp. 349-364.

1969

KOWALSKI K. Ssaki. [In:] Z. GRODZIŃSKI (ed.) – Zoologia. Przedstrunowce i strunowce. PWN, Warszawa, 2 ed., pp. 361-484.

1971

KOWALSKI K. European Upper Pliocene and Quaternary mammal faunas. [In:] R. F. FLINT: Glacial and Quaternary geology, John Wiley, N. Y., London, pp. 748-751.

KOWALSKI K. Ssaki. Zarys teriologii. PWN, Warszawa, 642 pp.

KOWALSKI K. The biostratigraphy and paleoecology of Late Cenozoic mammals of Europe and Asia. [In:] K. K. TUREKIAN (ed.) – The Late Cenozoic glacial ages. Yale Univ. Press, New Haven and London, pp. 465-477.

1972

KOWALSKI K. Ssaki. [In:] Z. GRODZIŃSKI (ed.) – Zoologia. Przedstrunowce i strunowce. 3 ed. PWN, Warszawa, pp. 361-480.

KOWALSKI K., ŚWIECIMSKI J. Muzeum Przyrodnicze Polskiej Akademii Nauk w Krakowie. Nauka dla wszystkich 180: 1-18, plates.

1973

KOWALSKI K. Rozwój fauny w czwartorzędzie Polski. [In:] E. RÜHLE (ed.) – Metodyka badań osadów czwartorzędowych. Wydawnictwo Geologiczne, Warszawa, pp. 100-110.

KOWALSKI K. Badanie szczątków kopalnych kręgowców. [In:] E. RÜHLE (ed.) – Metodyka badań osadów czwartorzędowych. Wydawnictwo Geologiczne, Warszawa, pp. 219-231.

KOWALSKI K. Mały słownik zoologiczny. Ssaki. Wiedza Powszechna, pp. 470, 16 pls. (editor and co-author)

1974

KOWALSKI K. Szczątki zwierzęce w osadach Jaskini Raj. [In:] Badania i udostępnienie jaskini Raj. Kieleckie Towarzystwo Naukowe, Wydawnictwo Geologiczne, Warszawa, pp. 101-128.

KOWALSKI K. Świat zwierzęcy. [In:] Polska – Zarys encyklopedyczny. PWN, Warszawa, pp. 28-29.

1975

KOWALSKI K. Mały słownik zoologiczny. Ssaki. 2 ed. Wiedza Powszechna, Warszawa, 454 pp. (editor and co-author).

1976

KOWALSKI K. Mammals. An outline of theriology. PWN, Warszawa, 617 pp.

1978

KOWALSKI K. Mały słownik zoologiczny. Ssaki. 3 ed. Wiedza Powszechna, Warszawa, 454 pp. (editor and co-author).

1979

KOWALSKI K. Gromada Ssaki – Mammalia. [In:] Z. GRODZIŃSKI (ed.) – Zoologia. Przedstrunowce i strunowce. PWN, Warszawa, pp. 397-462, 470-501.

KOWALSKI K., SZYMCZAKOWSKI W. Zoogeografia. [In:] Z. GRODZIŃSKI (ed.) – Zoologia. Przedstrunowce i strunowce. PWN, Warszawa, pp. 502-525.

1981

KOWALSKI K. Chapters: Cetaceans, pinnipeds, bats (with A. L. RUPRECHT), rodents (with Z. PUCEK and A. L. RUPRECHT). [In:] Z. PUCEK (ed.) – Keys to vertebrates of Poland – Mammals. Polish Scientific Publishers, Warszawa, pp. 101-154, 164-260, 306-312.

KOWALSKI K. Mamiferos. Manual de teriología. H. Blume, Madrid, 532 pp.

1983

KOWALSKI K. Fauna plejstocenu. [In:] J. K. KOZŁOWSKI, S. K. KOZŁOWSKI (eds.) – Człowiek i środowisko w pradziejach. PWN, Warszawa, pp. 73-79.

KOWALSKI K. Chiroptera (with A. L. RUPRECHT), Rodentia (with Z. PUCEK and A. L. RUPRECHT), Cetacea (with Z. PUCEK), Pinnipedia (with Z. PUCEK). [In:] Z. PUCEK (ed.) – Klucz do oznaczania ssaków Polski, 2 ed., PWN, Warszawa, pp. 85-138, 149-255, 310-316.

1986

KOWALSKI K. Die Tiere des Eiszeitalters. Erträge der Forschung. Wissenschaftliche Buchgesellschaft, Darmstadt, 147 pp.

1987

KOWALSKI K. A history of mammalogy in Poland. [In:] K. B. STERLING (ed.) – An international history of mammalogy. 1. Eastern Europe and Fennoscandia. One World Press, Bel Air, pp. 25-61.

1989

KOWALSKI K. Naczelne – Primates. [In:] K. KOWALSKI (ed.) – Historia i ewolucja lądowej fauny Polski. Folia quaternaria, Kraków, 59/60: 143-144.

KOWALSKI K., KRZANOWSKI A., URBAŃCZYK Z. Badania populacji nietoperzy w Międzyrzeckim Rejonie Umocnionym. (Investigation of the population of bats in the Międzyrzec fortification). [In:] E. BIDERMAN (ed.) – Energetyka jądrowa, człowiek, środowisko. Poznań, Wyd. Naukowe Uniwersytetu A. Mickiewicza, pp. 341-348.

1990

KOWALSKI K. Stratigraphy of Neogene mammals of Poland. [In:] E. H. LINDSAY, V. FAHLBUSCH, P. MEIN (eds.) – European Neogene Mammal Chronology. Plenum Press, New York, pp. 193-209.

1991

KOWALSKI K. (editor and co-author). Mały Słownik Zoologiczny. Ssaki. 4 ed. Wiedza Powszechna, Warszawa, 454 pp., 10 pls.

KOWALSKI K., RZEBIK-KOWALSKA B. Mammals of Algeria. Ossolineum, Wrocław, Warszawa, Kraków, 370 pp.

1992

ANDRZEJEWSKI R., KOWALSKI K. Strategia ochrony ssaków w Polsce. (The conservation strategy for mammals in Poland). [In:] R. OLACZEK, L. TOMIAŁOJC (eds.) – Czynna ochrona zwierząt. PWN, Warszawa, pp. 67-78.

1993

KOWALSKI K. Rodents (Rodentia: Mammalia) from Bir Tarfawi. [In:] F. WENDORF, R. SCHILD, A. E. CLOSE (eds.) – Egypt during the Last Interglacial. The Middle Paleolithic of Bir Tarfawi and Bir Sahara East. Plenum Press, New York and London, pp. 189-201.

KOWALSKI K. Taphonomy and paleoecology of small vertebrates from Bir Tarfawi. [In:] F. WENDORF, R. SCHILD, A. E. CLOSE (eds.) – Egypt during the Last Interglacial. The Middle Paleolithic of Bir Tarfawi and Bir Sahara East. Plenum Press, New York and London, pp. 201-204.

1996

KOWALSKI K. Modelo de extinción de mamíferos durante el Cuaternario. [In:] J. AGUSTÍ (ed.) – La logica de las extinciones. Metatemas 42. Tusquets Editores, Barcelona, pp. 193-212.

II. ORIGINAL PAPERS

1950

KOWALSKI K. Badania nad ekologią drobnych ssaków leśnych w okolicy Krakowa. (Investigations on the ecology of forest small mammals in the neighbourhood of Kraków). Materiały do fizjografii kraju, 22: 1-20.

1951

KOWALSKI K. Nocek orzęsiony *Myotis emarginatus* GEOFFROY (Chiroptera, Vespertilionidae), nowy ssak dla fauny Polski. (*Myotis emarginatus* GEOFFROY (Chiroptera, Vespertilionidae) a new bat in Polish fauna). Fragmenta faunistica Musei Zoologicci Polonici, 6(9): 165-167.

KOWALSKI K. Rytmika dobowa aktywności gryzoni *Clethrionomys glareolus glareolus* SCHREBER i *Sylvimus flavigollis flavigollis* MELCHIOR i jej zależność od warunków świetlnych. Rozprawy Wydziału Matematyczno-Przyrodniczego. Polska Akademia Umiejętności, 74 B(4): 1-37.

KOWALSKI K. Znaczenie naukowe i ochrona jaskiń polskich. Chrońmy przyrodę ojczystą, 2(1-2): 19-35.

1952

KOWALSKI K., WOJTUSIAK K. J. Homing experiments on bats. Part I. Bulletin de l'Académie Polonaise des Sciences et des Lettres, Cl. Sc. Math. et Nat., B(II) 1951 (ed. 1952), 33-56, 2 pls.

1953

KOWALSKI K. Materiały do rozmieszczenia i ekologii nietoperzy jaskiniowych w Polsce. (Materials relating to the distribution and ecology of cave bats in Poland). Fragmenta faunistica Musei Zoologici Polonici, **6**(21): 541-567.

KOWALSKI K. Nietoperze jaskiniowe Polski i ich ochrona. (Cave dwelling bats in Poland and their protection). Ochrona przyrody, **21**: 58-77.

1955

KOWALSKI K. Rytmika dobowa aktywności nietoperza *Myotis myotis* BORKHAUSEN. (The daily rhythm of activity in the mouse-eared bat, *Myotis myotis* BORKHAUSEN). Folia biologica, Kraków, **3**(1): 55-64.

KRZANOWSKI A., KOWALSKI K. Wyniki obrączkowania nietoperzy w latach 1950-1953. Kosmos, **3**(3): 345-347.

1956

KOWALSKI K. Fauna jaskiń Tatr Polskich. (The cave fauna of the Polish Tatra Mountains). Ochrona przyrody, **23**: 283-333.

KOWALSKI K. Insectivores, bats and rodents from the early Pleistocene bone breccia from Podlesice near Kroczyce (Poland). Acta palaeontologica polonica, **1**(4): 331-394.

1957

KOWALSKI K. *Microtus nivalis* (MARTINS, 1842) (Rodentia) in the Carpathians. Acta theriologica, **1**(6): 159-182.

KOWALSKI K., KRZANOWSKI A., WOJTUSIAK R. Sprawozdanie z akcji obrączkowania nietoperzy w Polsce w latach 1939-1953. (Report on bat banding in Poland in the years 1939-1953). Acta theriologica, **1**(5): 109-158.

1958

KOWALSKI K. Altpleistozäne Kleinsäugerfauna von Podumci in Norddalmatien. Palaeontologia Jugoslavica, Zagreb, **2**: 1-30.

KOWALSKI K. An Early Pleistocene fauna of small mammals from the Kadzielnia Hill in Kielce. Acta palaeontologica polonica, **3**(1): 1-47.

KOWALSKI K. *Microtus socialis* (PALLAS) (Rodentia) in the Lebanon Mountains. Acta theriologica, **2**(13): 269-279.

KOWALSKI K. Plejstoceńskie Microtinae (Rodentia, Mammalia) z jaskini w Dziadowej Skale. (Pleistocene Microtinae (Rodentia, Mammalia) from Dziadowa Skała Cave). Acta zoologica cracoviensis, **2**(32): 805-823.

KOWALSKI K., SCHAUB S. *Trilophomys pyrenaicus* DEP. im Pliozän von Węże (Polen). Eclogae geologicae Helvetiae, Basel, **51**(2): 480-483.

1959

KOWALSKI K. *Baranogale helbingi* KORMOS and other Mustelidae from the bone breccia in Podlesice near Kroczyce (Poland). Acta palaeontologica polonica, **4**(1): 61-69.

1960

KOWALSKI K. An early Pleistocene fauna of small mammals from Kamyk (Poland). Folia quaternaria, **1**: 1-24.

KOWALSKI K. Pliocene insectivores and rodents from Rębielice Królewskie (Poland). Acta zoologica cracoviensis, **5**(5): 155-201.

KOWALSKI K. Cricetidae and Microtidae (Rodentia) from the Pliocene of Węże (Poland). Acta zoologica cracoviensis, **5**(11): 447-506.

KOWALSKI K. *Pitymys* McMURTRIE 1831 (Microtidae, Rodentia) in the Northern Carpathians. *Acta theriologica*, **6**(6): 81-91.

KOWALSKI K. *Prospalax priscus* (NEHRING) (Spalacidae, Rodentia) from the Pliocene of Poland. [In:] *Anthropos*, suppl. 1960: *Mammalia pleistocaenica*, **1**: 109-114

1961

KOWALSKI K. Materiały do znajomości ssaków Puszczy Piskiej. *Acta theriologica*, **4**(14): 295-296.

KOWALSKI K. Pleistoceńskie gryzonie Jaskini Nietoperzowej w Polsce. (Pleistocene rodents from Nietoperzowa Cave in Poland). *Folia quaternaria*, **5**: 1-22.

1962

KOWALSKI K. Fauna of bats from the Pliocene of Węże in Poland. *Acta zoologica cracoviensis*, **7**(3): 39-51.

KOWALSKI K. Bats of the early Pleistocene from Koneprusy (Czechoslovakia). *Acta zoologica cracoviensis*, **7**(9): 145-156.

KOWALSKI K. Paleozoological dating of cave sediments. *Folia quaternaria*, **8**: 1-16.

1963

KOWALSKI K. The Pliocene and Pleistocene Gliridae (Mammalia, Rodentia) from Poland. *Acta zoologica cracoviensis*, **8**: 533-567.

KOWALSKI K., LI CHUAN-KUEI. A new form of Soricidae (Insectivora) from the Pleistocene of North China. *Vertebrata PalAsiatica*, **7**(2): 138-143.

KOWALSKI K., LI CHUAN-KUEI. Remarks on the fauna of bats (Chiroptera) from Locality 1 at Choukoutien. *Vertebrata PalAsiatica*, **7**(2): 144-150.

KOWALSKI K., MŁYNARSKI M., WIKTOR A., WOŁOSZYN B. W. Postglacial fauna z Józefowa, pow. Biłgoraj. (The postglacial fauna from Józefów in the Biłgoraj District). *Folia quaternaria*, **14**: 1-26, 2 pls.

KOWALSKI K., SKOCZEN S. Obserwacje nad ślepkiem, *Spalax leucodon* NORDMANN, 1840, trzymany w niewoli. (Observation on the mole-rat, *Spalax leucodon* NORDMANN, 1840, kept in captivity). *Przegląd zoologiczny*, **7**(3): 290-296.

KOWALSKI K., SYCH L. Ssaki. (Mammals). [In:] Babiogórski Park Narodowy. PAN, Zakład Ochrony Przyrody. Wydawnictwa Popularnonaukowe, **22**: 181-184.

1965

KIELAN-JAWOROWSKA Z., KOWALSKI K. Polish Mongolian Palaeontological Expeditions to the Gobi Desert in 1963 and 1964. *Bulletin de l'Academie Polonaise des Sciences, Cl. II, Sci. biol.*, **13**(3): 175-179.

1966

KOWALSKI K. The stratigraphic importance of rodents in the studies of the European Quaternary. *Folia quaternaria*, **22**: 1-16.

1967

CHMIELEWSKI W., KOWALSKI K., MADEYSKA-NIKLEWSKA T., SYCH L. Wyniki badań osadów Jaskini Koziarni w Sąspowie, pow. Olkusz. (Study of the deposits of Koziarnia Cave at Sąspów in the Olkusz District). *Folia quaternaria*, **26**: 1-69.

KOWALSKI K. Rodents from the Miocene of Opole. *Acta zoologica cracoviensis*, **12**(1): 1-18.

KOWALSKI K. *Lagurus lagurus* (PALLAS, 1773) and *Cricetus cricetus* (LINNAEUS, 1758) (Rodentia, Mammalia) in the Pleistocene of England. *Acta zoologica cracoviensis*, **12**(6): 111-122.

KOWALSKI K., KOZŁOWSKI J. K., KRYSOWSKA-IWASZKIEWICZ M., PAWLICKA B., WIKTOR A. Badania osadów schronisk podskalnych w Źytniej Skale (Bębło, pow. Kraków). (A study of the deposits of the rock-shelters in Źytnia Skała (Bębło, Kraków District)). *Folia quaternaria*, **25**: 1-48.

KOWALSKI K., KOZŁOWSKI J. K., KRYSOWSKA M., WIKTOR A. Badania osadów schroniska w Puchaczej Skale w Prądniku Czajowskim, powiat Olkusz. (Investigation of sediments of the Puchacza Skała Cave in Prądnik Czajowski, Olkusz District). *Folia quaternaria*, **20**: 1-44.

1968

BOCHEŃSKI Z., KOWALSKI K., MŁYNARSKI M., SZYMCZAKOWSKI W. Przemiany fauny w holocenie Polski. (Changes of the Holocene fauna of Poland). *Folia quaternaria*, **29**: 59-70.

KOWALSKI K. New data on the distribution of mammals in the Mongolian People's Republic. *Acta zoologica cracoviensis*, **13**(1): 1-11.

KOWALSKI K. *Pararhizomys hipparium* TEILHARD and YOUNG, 1931 (Rodentia) from the Pliocene of Altan Teli, Western Mongolia. *Palaeontologia polonica*, **19**: 163-169.

1970

KOWALSKI K. Les Mammifères fossiles des remplissages karstiques de Pologne – problèmes paléobiologiques et stratigraphiques. [In:] *Livre du centenaire Emile G. RACOVITZA*. Acad. Rep. Soc. Roumanie, Bucuresti, pp. 491-498.

KOWALSKI K. Variation and speciation in fossil voles. *Symposium of Zoological Society, London*, **26**: 149-160.

1971

JORDAN M., KOWALSKI K., KUBIAK R., RUDEK Z. Cytotaxonomic studies of the genus *Pitymys* in Poland. I. Preliminary karyological investigations on *Pitymys subterraneus* (DE SELYS LONG-CHAMPS, 1835). *Folia biologica, Kraków*, **19**(4): 443-447.

1972

KOWALSKI K. Chiroptera from Stranska Skala near Brno. *Anthropos*, **20**: 71-75.

KOWALSKI K. Fossil fauna. [In:] Studies on Raj Cave near Kielce (Poland) and its deposits. *Folia quaternaria*, **41**: 45-59.

KOWALSKI K., KOZŁOWSKI J. K., MADEYSKA T. Notes on chronology and paleoecology. [In:] Studies on Raj Cave near Kielce (Poland) and its deposits. *Folia quaternaria*, **41**: 133-141.

1973

ZBOROWSKI J., FERENS B., KOWALSKI K. Antoni KOCYAN (1836-1916). *Memorabilia zoologica*, **23**: 1-60.

1974

BLACK C. C., KOWALSKI K. The Pliocene and Pleistocene Sciuridae (Mammalia, Rodentia) from Poland. *Acta zoologica cracoviensis*, **19**(19): 461-485.

KOWALSKI K. Działalność Akademii Umiejętności w Krakowie w zakresie faunistyki i muzealnictwa zoologicznego. [In:] *Polska Akademia Umiejętności 1872-1952. Nauki lekarskie, ścisłe, przyrodnicze i o Ziemi*. Ossolineum, Wrocław, Warszawa, Kraków, Gdańsk, pp. 307-320.

KOWALSKI K. Middle Oligocene rodents from Mongolia. *Palaeontologia polonica*, **30**: 147-178.

KOWALSKI K., ZAPFE H. *Pliopithecus antiquus* (BLAINVILLE 1839) (Primates, Mammalia) from the Miocene of Przeworno in Silesia (Poland). *Acta zoologica cracoviensis*, **19**(2): 19-30.

KOWALSKI K. Remains of Gerbillinae (Rodentia, Mammalia) from the Pliocene of Poland. *Bulletin de l'Académie Polonaise des Sciences, Cl. II Ser. Sci. biol.*, **22**(9): 591-595.

1975

KADYI S., KOWALSKI K. Pierwsze znalezisko kopalnego świstaka *Marmota marmota* (LINNAEUS, 1758) w Polsce. (First discovery of the fossil marmot *Marmota marmota* (LINNAEUS, 1758) in Poland). *Przegląd zoologiczny*, **19**(2): 241-244.

BARTOLOMEI G., CHALINE J., FEJFAR O., JÁNOSSY D., JEANNET M., KOENIGSWALD W., KOWALSKI K. *Pliomys lenki* (HELLER, 1930) (Rodentia, Mammalia) en Europe. *Acta zoologica cracoviensis*, **20**(10): 393-467.

KOWALSKI K. Earliest appearance of lemmings in the Quaternary of Poland. [In:] *Actas I Col. Intern. sobre Biostratigr. Continental del Neogeno Superior y Quaternario Inferior*. Madrid, pp. 99-104.

1976

KOWALSKI K. Fauna ssaków Japonii. (Mammalian fauna of Japan). *Przegląd zoologiczny*, **20**(2): 185-195.

KOWALSKI K. Jan STACH, 1877-1975. *Nauka Polska*, **1**: 142-146.

KOWALSKI K., HASEGAWA Y. Quaternary rodents from Japan. *Bulletin of the National Science Museum, Tokyo*, **2**(1): 31-66, 1 pl.

KOWALSKI K., MALINOWSKI T., WASYLIKOWA K. Coprolithes from a castrum of Lusatian culture in Komorowo, Poznań District. *Folia quaternaria*, **48**: 1-15.

SUTCLIFFE A. J. KOWALSKI K. Pleistocene rodents of the British Isles. *Bulletin of the British Museum (Natural History), Geology*, **27**(2): 31-147.

1977

GŁAZEK J., LINDNER T., TUCHOLKA P., KOWALSKI K., MŁYNARSKI M., STWORZEWICZ E., WYSOCZAŃSKI-MINKIEWICZ T. Cave deposits at Kozi Grzbiet (Holy Cross Mts., Central Poland) with vertebrate and snail faunas of the Mindelian I / Mindelian II interglacial and their stratigraphic correlations. [In:] *Proceedings of 7th International Speleological Congress, Sheffield*, pp. 211-214.

KOWALSKI K. Fossil Lemmings (Mammalia, Rodentia) from the Pliocene and Early Pleistocene of Poland. *Acta zoologica cracoviensis*, **22**(7): 297-317.

KOWALSKI K. Les mammifères de la zone arctique. *La Recherche*, Paris, **77**: 344-351.

KOWALSKI K. Vertebrate fauna of the Quaternary. [In:] *Geology of Poland, II. Catalogue of Fossils. Part 3b. Cainozoic-Quaternary*, Wydawnictwo Geologiczne Warszawa, pp. 29-41, 1 pl.

1978

KOWALSKI K. Mammalia and Aves. [In:] *Geology of Poland, II. Catalogue of fossils. 3a. Cainozoic – Tertiary*. Wydawnictwo Geologiczne, Warszawa, pp. 97-100.

1979

AGADJANIAN A. K., KOWALSKI K. *Prosomys insuliferus* (KOWALSKI, 1958) (Rodentia, Mammalia) from the Pliocene of Poland and the European part of the USSR. *Acta zoologica cracoviensis*, **23**(3): 29-54.

KOWALSKI K. Fossil Zapodidae (Rodentia, Mammalia) from the Pliocene and Quaternary of Poland. *Acta zoologica cracoviensis*, **23**(9): 199-212.

KOWALSKI K. Note on bats from North-West Algeria. *African Small Mammal Newsletter, Antwerpen*, **3**: 19-21.

KOWALSKI K. Terrestrial mammals of Algeria in the collection of the City Museum of Oran. *African Small Mammal Newsletter, Antwerpen*, **4**: 8-10.

1980

COMINARDI F., KOWALSKI K. Découverte du ratel (*Mellivora capensis*) dans le Sud Oranais. *Bulletin de la Société de Géographie et Archéologie d'Oran*, **1980**: 44-46.

KOWALSKI K. Origin of mammals of the Arctic tundra. *Folia quaternaria*, **51**: 3-16.

1982

KOWALSKI K. General remarks. [In:] J. K. KOZŁOWSKI (ed.) – Excavation in the Bacho Kiro Cave (Bulgaria). Final Report. PWN, Warszawa, pp. 66-73.

KOWALSKI K., NADACHOWSKI A. Rodentia. [In:] J. K. KOZŁOWSKI (ed.) – Excavation in the Bacho Kiro Cave (Bulgaria). Final Report, PWN, Warszawa, pp. 45-51.

1985

BEAUCOURNU J. C., KOWALSKI K. *Caenopsylla eremita* sp. n. (Siphonaptera; Leptopsyllidae), puce de *Massoutiera mzabi* (LATASTE, 1881) (Rodentia: Ctenodactylidae) au Hoggar (Algérie). *Acta zoologica cracoviensis*, **28**(2): 159-168.

BEAUCOURNU J. C., KOWALSKI K. Données nouvelles sur les puces (Insecta, Siphonaptera) d'Algérie. *Bulletin de la Société de Pathologie Exotique*, **78**: 378-392.

KOWALSKI K. Annual cycle of reproduction in *Apodemus sylvaticus* (LINNAEUS, 1758) in Algeria. *Acta zoologica fennica*, **173**: 85-86.

1986

GAISLER J., KOWALSKI K. Results of netting of bats in Algeria (Mammalia, Chiroptera). *Vestník československé Společnosti Zoologické*, **50**: 161-173.

KOWALSKI K., GAISLER J., BESSAM H., ISSAAD CH., KSANTINI H. Annual life cycle of cave bats in Northern Algeria. *Acta theriologica*, **13**(15): 185-206.

1988

KOWALSKI K. The food of the sand fox *Vulpes rueppelli* SCHINZ, 1925 in the Egyptian Sahara. *Folia biologica*, Kraków, **36**(1-2): 89-94.

1989

KOWALSKI K., VAN NEER W., BOCHĘŃSKI Z., MŁYNARSKI M., RZEBIK-KOWALSKA B., SZYNDLAR Z., GAUTIER A., SCHILD R., CLOSE A. E., WENDORF F. A. A Last Interglacial Fauna from the Eastern Sahara. *Quaternary Research*, Washington, **32**: 335-341.

1990

BEAUCOURNU J. C., KOWALSKI K. Quelques siphonaptres (Insecta) de République démocratique de Corée. *Acta zoologica cracoviensis*, **33**(15): 331-344.

KOWALSKI K. Some problems of the taphonomy of small mammals. [In:] O. FEJFAR & H.-D. HEINRICH (eds.) – International Symposium Evolution, Phylogeny and Biostratigraphy of Arvicolids (Rodentia, Mammalia), Geological Survey, Praha, pp. 285-296.

KOWALSKI K., NADACHOWSKI A. Review of fossil arvicolid faunas of Poland. [In:] O. FEJFAR & H.-D. HEINRICH (eds.) – International Symposium Evolution, Phylogeny and Biostratigraphy of Arvicolids (Rodentia, Mammalia), Geological Survey, Praha, pp. 297-304.

WENDORF F. A., CLOSE A. E., SCHILD R., GAUTIER A., SCHWARCZ H. P., MILLER G. H., KOWALSKI K., KRÓLIK H., BLUSZCZ A., ROBINS D., GRUN R. Le dernier interglaciaire dans le Sahara Oriental. *L'Anthropologie*, Paris, **94**(2): 361-391.

1991

WENDORF F. A., CLOSE A. E., SCHILD R., GAUTIER A., SCHWARCZ H. P., MILLER G. H., KOWALSKI K., KRÓLIK H., BLUSZCZ A., ROBINS D., GRUN R., MCKINNEY C. Chronology and stratigraphy of the Middle Paleolithic at Bir Tarfawi, Egypt. [In:] D. CLARK (ed.) – Cultural beginnings. Röm.-Germ. Zentramuseum Monographien, Bonn, **19**: 197-208.

1992

DENYS C., KOWALSKI K., DAUPHIN Y. Mechanical and chemical alterations of skeletal tissues in a recent Saharan accumulation of faeces from *Vulpes rueppelli* (Carnivora, Mammalia). *Acta zoologica cracoviensia*, **35**(2): 265-283.

KOWALSKI K. *Bjornkurtenia*, a new genus of primitive voles of Europe (Rodentia, Mammalia). *Annales Zoologici Fennici*, **28**(3-4): 321-327.

KOWALSKI K. Remarks on the zoogeography of Quaternary rodents in Europe. *Courier Forschungsinstitut Senckenberg*, **153**: 197-203.

1993

KOWALSKI K. *Microtocricetus molassicus* FAHLBUSCH and MAYR, 1975 (Rodentia, Mammalia) from the Miocene of Bełchatów (Poland). *Acta zoologica cracoviensia*, **36**(2): 251-258.

KOWALSKI K. *Neocometes* SCHaub and ZAPFE, 1953 (Rodentia, Mammalia) from the Miocene of Bełchatów (Poland). *Acta zoologica cracoviensia*, **36**(2): 259-265.

KOWALSKI K., KUBIAK H. *Gomphotherium angustidens* (CUVIER, 1806) (Proboscidea, Mammalia) from the Miocene of Bełchatów and the Proboscidean Datum in Poland. *Acta zoologica cracoviensia*, **36**(2): 275-280.

1994

DAUPHIN Y., KOWALSKI K., DENYS C. Assemblage data and bone and teeth modifications as an aid to paleoenvironmental interpretations of the open-air Pleistocene site of Tighenif (Algeria). *Quaternary Research*, Washington, **42**: 340-349.

KOWALSKI K. Evolution of *Anomalomys* GAILLARD, 1900 (Rodentia, Mammalia) in the Miocene of Poland. *Acta zoologica cracoviensia*, **37**(1): 163-176.

1995

KOWALSKI K. Lemmings (Mammalia, Rodentia) as indicators of temperature and humidity in the European Quaternary. *Acta zoologica cracoviensia*, **38**(1): 85-94.

KOWALSKI K. Taphonomy of bats (Chiroptera). *Geobios, M.S.*, **18**: 251-256.

1996

DENYS C., DAUPHIN Y., RZEBIK-KOWALSKA B., KOWALSKI K. Taphonomic study of Algerian owl pellet assemblages and differential preservation of some rodents: palaeontological implications. *Acta zoologica cracoviensia*, **39**(1): 103-116.

MADE J. VAN DER, KOWALSKI K. Suidae (Artiodactyla, Mammalia) from the Miocene of Bełchatów in Poland. *Acta zoologica cracoviensia*, **39**(1): 305-310.

KOWALSKI K. Gliridae (Rodentia, Mammalia) from the Miocene of Bełchatów in Poland. *Acta zoologica cracoviensia*, in press.

KOWALSKI K., SHEVYREVA N. S. Gliridae (Rodentia, Mammalia) from the Miocene of the Zaysan Depression (Eastern Kazakhstan). *Acta zoologica cracoviensia*, in press.

III. SELECTED ARTICLES

1946

KOWALSKI K. Jaskinia w Kryspinowie. (The cave at Kryspinów). *Chrońmy przyrodę ojczystą*, **2**(7-8): 15-18.

1951

KOWALSKI K. Brekcja nietoperzowa w Podlesicach koło Kroczyce w pow. Olkuskim. (La bréche à ossements de chauves-souris). *Zabytki przyrody nieożywionej*, N. S., **1**: 38 - 40.

KOWALSKI K. Jaskinie Polski, ich inwentaryzacja i ochrona. (Les cavernes de Pologne. Leur inventaire et leur protection). *Zabytki przyrody nieożywionej*, N. S., **1**: 11-18.

KOWALSKI K. Znaczenie naukowe i ochrona jaskiń polskich. Chrońmy przyrodę ojczystą, **7**(1-2): 19-56.

1955

KOWALSKI K. Fauna jaskiń. Kosmos, **4**(3): 387-404.

1956

KOWALSKI K. Caves of the Cracow-Wieluń Plateau, Poland. Cave Science, **4**(25): 35-40.

1957

KOWALSKI K. Profesor dr Jan STACH. W osiemdziesiątą rocznicę urodzin. (Professor Jan STACH. On the occasion of His 80th Birthday). Przegląd zoologiczny, **1**(1): 7-10.

1958

KOWALSKI K. Fledermausforschung in Polen. Biologisk glasnik, Zagreb, **10**(3-4): 209-215.

1959

KOWALSKI K. Jan STACH. Nauka Polska, **7**(3): 171-175.

KOWALSKI K. Obrączkowanie a ochrona nietoperzy. (Bats, their banding and protection). Chrońmy przyrodę ojczystą, **15**(6): 11-14.

1962

KOWALSKI K. Les micro-mammifères du Pliocène et du Pléistocène Inférieur de la Pologne. [In:] Problèmes actuels de paléontologie. Coll. Intern. C.N.R.S., Paris, **104**: 409-416.

1964

KOWALSKI K. Paleoekologia ssaków pliocenu i wczesnego plejstocenu Polski. (Paleoecology of mammals from the Pliocene and Early Pleistocene of Poland). Acta theriologica, **8**: 73-88.

KOWALSKI K. Pleistocene rodents from the Nietoperzowa Cave in Poland. [In:] Report of the VIth International Congress INQUA, Warsaw, pp. 527-532.

1965

KOWALSKI K. Jaskinie i ich ochrona. [In:] W. SZAFER (ed.) – Ochrona przyrody i jej zasobów., **1**: 261-273.

KOWALSKI K. Vor den Toren der Gobi. Kosmos, Stuttgart, **61**: 426-433.

1966

KOWALSKI K. Cave studies in China today. Studies in Speleology, London, **1**: 75-81.

KOWALSKI K. Dziewięćdziesięciolecie urodzin profesora Jana STACHA. (90th Birthday of Professor Jan STACH). Przegląd zoologiczny, **10**: 361-364.

1968

KOWALSKI K. The evolution and fossil remains of the European bison. Acta theriologica, **12**: 335-338.

1971

KOWALSKI K. Qui a tué des grands mammifères? Science, Progrés, Découverte, **3432**: 31-37.

1972

KOWALSKI K. Zoologia systematyczna. [In:] Biologia XX wieku. Wiedza Powszechna, pp. 418-436.

1973

KOWALSKI K. The vertebrate fauna of the Upper Pliocene and Lower Pleistocene of Poland. [In:] The boundary between Neogene and Quaternary. Coll. of papers, Moskva, **4**: 123-136.

1974

KOWALSKI K. Fauna archeologicznych stanowisk jaskiniowych w Polsce. (Fauna of archaeological cave sites in Poland). Przegląd zoologiczny, **18**(1): 39-42.

1975

KOWALSKI K. Die fossile Säugetierfauna der Höhle Raj bei Kielce und ihre Bedeutung für die Würm-Stratigraphie in Polen. Quartärpaläontologie, **1**: 217-219.

KOWALSKI K. Profesor dr Kazimierz WODZICKI jun. w 75 rocznicę urodzin. (Professor Kazimierz WODZICKI jun. On the occasion of His 75th birthday). Przegląd zoologiczny, **19**(2): 159-162.

KOWALSKI K. The vertebrate fauna of the Upper Pliocene and Villafranchian of Poland. [In:] V Congr. Néogène Méditerranéen, Lyon, Communications, recommandations, conclusions. Mémoires du B.R.G.M., Paris, **78**(1): 197-202.

1978

KOWALSKI K. Geneza świata zwierzęcego Polski. Rocznik Oddziału PAN w Krakowie za 1976, pp. 61-68.

KOWALSKI K. Jan STACH (8.III.1877 – 28.VII.1975). Zoologica Poloniae, **26**(3-4): 289-290.

1983

KOWALSKI K. The fossil fauna and the reconstruction of paleoenvironmental of the Palaeolithic man. [In:] M. KUBASIEWICZ (ed.) – Archaeozoology, Szczecin, **1**: 279-285.

1988

KOWALSKI K. Professor M. MŁYNARSKI. Acta zoologica cracoviensia, **31**(2): 427-432.

1991

KOWALSKI K. L'histoire de la faune de rongeurs de la zone aride de l'ancien monde pendant le Quaternaire. [In:] M. LE BERRE, L. LE GUELTE (eds.) – Le rongeur et l'espace. Actes du Coll. Intern., Chabaud, Paris, pp. 165-175.

KOWALSKI K. Mammalia – Ssaki. [In:] J. RAZOWSKI (ed.) – Wykaz zwierząt Polski, **2**: 309-313.

KOWALSKI K. Polish science and European challenge. [In:] Transformation of science in Poland. State Committee for Scientific Research, Warsaw, pp. 224-230.

1993

KOWALSKI K. The Polish Academy of Arts and Sciences in the past, present and future. The Polish Review, New York, **38**(2): 149-158.

1995

KOWALSKI K. Kopalne Megachiroptera w miocenie Polski. Wszechświat, **96**(3): 81.

KOWALSKI K. Polska Akademia Umiejętności. Problemy Społecznego Ruchu Naukowego, **3/4**: 5-19.

TAXONOMIC NAMES HONORING KAZIMIERZ KOWALSKI

INSECTA

Collembola

Onychiurus kowalskii STACH, 1964

STACH J. 1964. Materials to the knowledge of Chinese Collembolan fauna. *Acta zoologica cracoviensis*, Kraków, **9**(1): 1-26.

Diptera

Idiocera kowalskii STARY & KRZEMIŃSKI, 1984

STARY J., KRZEMIŃSKI W. 1984. A new species of *Idiocera* from Algeria (Diptera, Limonidae). *Annotationes zoologicae et botanicae*, Bratislava, **159**: 1-3.

MAMMALIA

Insectivora

Condylura kowalskii SKOCZEN, 1976

SKOCZEN S. 1976. *Condylurini* DOBSON, 1883 (Insectivora, Mammalia) in the Pliocene of Poland. *Acta zoologica cracoviensis*, Kraków, **21**(8): 291-314.

Sorex casimiri RZEBIK-KOWALSKA, 1991

RZEBIK-KOWALSKA B. 1991. Pliocene and Pleistocene Insectivora (Mammalia) of Poland. VIII. Soricidae: *Sorex* LINNAEUS, 1758, *Neomys* KAUP, 1829, *Macroneomys* FEJFAR, 1966, *Paenelinnoecus* BAUDELOT, 1972 and Soricidae indeterminata. *Acta zoologica cracoviensis*, Kraków, **34**(2): 323-424.

Chiroptera

Rhinolophus kowalskii TOPAL, 1979

TOPAL G. 1979. Fossil bats of the *Rhinolophus ferrumequinum* group in Hungary (Mammalia: Chiroptera). *Fragmenta mineralogica et palaeontologica*, Budapest, **9**: 61-102.

Eptesicus kowalskii WOŁOSZYN, 1988

WOŁOSZYN B. W. 1988. Pliocene and Pleistocene bats of Poland. *Acta palaeontologica polonica*, Warszawa, **32**(3-4): 207-325.

Rodentia

Baranomys kowalskii KRETZOI, 1962

KRETZOI M. 1962. Fauna und Faunenhorizont von Csarnota. Magyar Állami Földtani Intézet Évi Jelentése az 1959: 297-395.

Pliomys kowalskii SHEVCHENKO, 1965

SHEVCHENKO A. I. 1965. Faunistic complexes of small mammals from Upper Cenozoic deposits in the south-western part of the Russian Plain. [In:] Stratigraphic importance of Anthropogene fauna of small mammals. Nauka Press, Moscow, 7-59. (In Russian).

Kowalskia FAHLBUSCH, 1969

FAHLBUSCH V. 1969. Pliozäne und Pleistozäne Cricetinae (Rodentia, Mammalia). Acta zoologica cracoviensis, Kraków, **14**(5): 99-138.

Lemmus kowalskii CARLS & RABEDER, 1988

CARLS N., RABEDER G. 1988. Die Arvicoliden (Rodentia, Mammalia) aus dem ältest- Pleistozän von Schernfeld (Bayern). Beiträge zur Paläontologie von Österreich, Wien, **14**: 123-236.

Villanyia kowalskii TERZEA, 1991

TERZEA E. 1991. Le genre *Villanyia* KRETZOI dans le Pléistocène Inférieur de Befia - XIII (Dp. de Bihor, Roumanie). Travaux de l'Institut de Spéléologie "Emile Racovitza", Bucuresti, **30**: 59-105.

Parasaidomys kowalskii AGUSTÍ & LLENAS, 1996

AGUSTÍ J., LLENAS M. 1996. The late Turolian muroid rodent succession in eastern Spain. [In:] A. NADACHOWSKI, L. WERDELIN (eds.) – Neogene and Quaternary mammals of the Palaearctic. Acta zoologica cracoviensis, Kraków, **39**(1): 47-56.

Eumyarion kowalskii LINDSAY, 1996

LINDSAY E. H. 1996. A new eumyarionine cricetid from Pakistan. [In:] A. NADACHOWSKI, L. WERDELIN (eds.) – Neogene and Quaternary mammals of the Palaearctic. Acta zoologica cracoviensis, Kraków, **39**(1): 279-288.

INDEX OF MAMMAL TAXA PROPOSED BY KAZIMIERZ KOWALSKI

INSECTA

Caenopsylla eremita BEAUCOURNU & KOWALSKI, 1985

MAMMALIA

Insectivora

Sorex alpinoides KOWALSKI, 1956

Sorex dehneli KOWALSKI, 1956

Peisorex pohaiensis KOWALSKI & LI, 1963

Chiroptera

Myotis podlesicensis KOWALSKI, 1956

Myotis dasycneme subtilis KOWALSKI, 1956

Myotis danutae KOWALSKI, 1956

Myotis helleri KOWALSKI, 1962

Rodentia

Stachomys KOWALSKI, 1960

Praesynaptomys KOWALSKI, 1977 (subgenus)

Bjornkurtenia KOWALSKI, 1992

Glis sackdillingensis minor KOWALSKI, 1956

Promimomys insuliferus KOWALSKI, 1958

Mimomys polonicus KOWALSKI, 1960

Stachomys trilobodon KOWALSKI, 1960

Microtodon longidens KOWALSKI, 1960

Muscardinus pliocaenicus KOWALSKI, 1963

Pseudocylindrodon mongolicus KOWALSKI, 1974

Cyclomys minutus KOWALSKI, 1974

Tataromys gobiensis KOWALSKI, 1974

Pliopetaurista meini BLACK & KOWALSKI, 1974

Blackia polonica BLACK & KOWALSKI, 1974

Epimeriontes progressus KOWALSKI, 1974

Synaptomys (Praesynaptomys) europaeus KOWALSKI, 1977