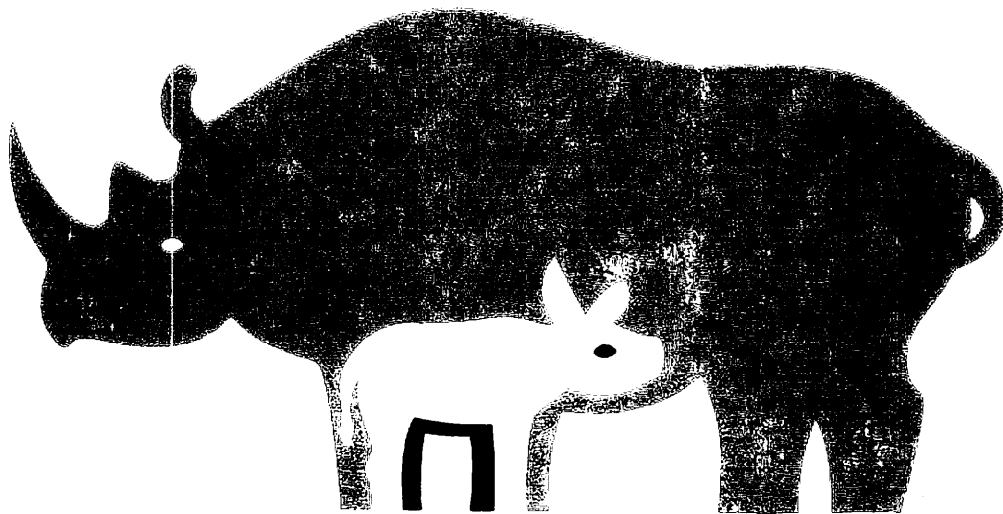


**VETERINARY  
BIBLIOGRAPHY  
FOR  
RHINOCEROSSES**



**COMPILED BY  
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## FOREWORD

Attached is a bibliography of 385 references pertaining to the veterinary care of rhinoceroses. It has been derived from a number of sources, including the "Bibliography of Rhinoceroses" by LC Rookmaaker\*, from several excellent review articles (C Furley, 1992; DM Jones, 1979; RA Kock, 1992; B McCulloch, 1969; RM Montali, 1992; and MS Silberman, 1979) and from the literature cited sections of many scientific articles concerning rhinoceroses. I have included personal communications when I felt they documented unreported or poorly documented diseases. I would like to thank Drs. Michael Briggs, Scott Citino, Robert Cook, Ellen Dierenfeld, Michael Kock and Oliver Ryder who reviewed these materials and suggested additional references, and Dr. Evan Blumer who encouraged the production of this resource.

A special thank you is due to Dr. Heinz-Georg Klos who reviewed the German literature and kindly supplied an extensive listing of additional articles. I (with a German/English dictionary) have tried to provide a short summary of the German titles for the non-German speaking reader. To the German speakers, I apologize that my language skills were not sufficient to perform the reverse translation. Finally, thank you to the St. Louis Zoological Park who supported this effort and paid for the printing and distribution costs related to these materials.

The bibliography is divided into two sections: the first lists the articles by subject. It is hoped that by listing papers by subject, the bibliography will be more "user friendly" when investigating specific problems. The second section is an alphabetical listing of all papers by author. I have tried to list all veterinary articles that were found, however, in some areas, eg, anatomy, management and nutrition, only articles were included that were related to veterinary medicine. Further materials on these topics can be obtained by referring to appropriate sections of LC Rookmaaker's bibliography, and the literature cited in the articles referenced here.

- next page -

\*Published in 1983 by AA Balkema Publishers,  
PO Box 1675, Amsterdam, the Netherlands.

This bibliography is being distributed to veterinarians at all rhinoceros holding institutions in North America, to regional rhinoceros coordinators, and to those involved in rhinoceros research projects. For your part, please distribute this bibliography to anyone whom you feel would find it useful.

It is my hope that this bibliography will serve as a valuable reference and an aid in unraveling some of the veterinary challenges presented by these species. If you have any further sources to add, please contact me and I will be glad to do so.

Sincerely,

A handwritten signature in cursive script, appearing to read "Eric", written in dark ink.

R. Eric Miller, DVM  
Veterinary Advisor,  
Rhinoceros Taxon Advisory Group  
Black Rhinoceros SSP Committee

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## PART I. LISTINGS BY SUBJECT

### GENERAL VETERINARY MEDICINE

- Furley, C: Diseases and management of black and Sumatran rhinoceroses at the Howletts and Port Lympne Zoos. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, 1992.
- Goltenboth, R: Zuchtprobleme bei panzernashorn (Management problems in greater one-horned Asian rhinoceroses). Arbeitsbericht d. 5. Arbeitstagung der zootierärzte im deutsche-Sprachigen Raum (Köln), 24-26, 1985.
- Goltenboth, R: Zur tierärztlichen Betreuung der Nashörner im Zoo Berlin (Veterinary care of rhinoceroses at the Berlin Zoo). Zool Gart. 56:43-52, 1986.
- Goltenboth, R: Zu einigen chirurgischen Eingriffen bei Nashörnern im Zoo Berlin (Surgical procedures on rhinoceroses in the Berlin Zoo). Berl. Munch. Tierarz. Wsch 104: 15-18, 1991.
- Goltenboth, R: Spitznashorn im Zoo Berlin (Black rhinos in the Berlin Zoo). Vet. Bericht Nashorn EEP Berlin, 1991.
- Jarofke, D, H-G Klos: Erkrankung bei in Gefangenschaft gehaltenen Afrikanischen Nashörnern (Zuchtbuchhauswertung) (Diseases of captive African rhinoceroses). Proc. Int. Symp. Dis. Zoo Animals, 287-290. 1979.
- Jessup, DA, R Clark, M Kock, P Morkel: Conservation of black rhino in Namibia and Zimbabwe: veterinary contributions. 1991 Proc. Am. Assoc. Zoo. Vet., Pp.379-382, 1991.
- Jessup, DA, MD Kock, P Morkel: Health data gained from black rhino immobilized for relocation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1991.
- Jones, DM: The husbandry and veterinary care of captive rhinoceroses. Int. Zoo Yrbk. 19:239-252, 1979.
- Kock, RA: Population and veterinary status of black rhinos in the United Kingdom. Pachyderm 9:29-32, 1987.
- Kock, RA, J Garnier: Veterinary management of three species of rhinoceros in zoological collections. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Kolb, K: Klinische Untersuchung und physiologische Daten des Nashornes (*Diceros bicornis* L.) (Clinical examination and physiological data in rhinoceroses). BMTW 71:380-382, 1958.
- Lang, EM: Rhinoceroses. In Handbook of Zoo Medicine, Von Nostrand Reinhold Co. New York, New York (originally published as Zootierkrankheiten by Verlag Paul Parey, Berlin), Pp.194-204, 1976.

- Lindemann, H: African rhinoceroses in captivity. University of Copenhagen, Copenhagen, Denmark, 1982.
- Maruska, EJ, BL Dresser, BD Barden: Black rhinoceros international management survey. American Association of Zoological Parks and Aquariums Species Survival Plan. Cincinnati Zoo and Center for Research on Endangered Species. Cincinnati, Ohio, USA 1986.
- McCulloch B, PL Achard: Mortalities associated with capture, trade, translocation and exhibition of black rhinoceroses. Int. Zoo Yrbk. 9:184-195, 1969.
- Miller, RE: Black rhinoceroses: a veterinary riddle. ZooView (Los Angeles Zoo Magazine), 26 (2): 4-5, 1992.
- Miller, RE: Health concerns and veterinary research in the North American black rhinoceros (*Diceros bicornis*) population. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Montali, RJ: Selected references of pathology and diseases of the rhinoceros. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Nelson, L, ME Fowler: Rhinocerotidae. In: Fowler, ME (ed.). Zoo and Wild Animal Medicine, 2nd ed., WB Saunders Co., Philadelphia, Pennsylvania, Pp.934-938, 1986.
- Rubel, A: Erkrankung von spitzmaulnashornern im Zurich Zoo (Diseases of black rhinoceroses at the Zurich Zoo). VAZ 10, 1990.
- Rookmaaker, LC: Bibliography of the rhinoceros. AA Balkema Pub., Amsterdam, Netherlands, 1983.
- Ruedi, D: Erfahrung bei der haltung, zucht und tierarztlichen betreuung des Indischen panzernashorns (*Rhinoceros unicornis*) im Zoologischen Garten Basel (Experience with management, breeding and veterinary care of Indian rhinoceroses at the Basel Zoo). Int. African Rhinoceros Studbook 2:90-93, 1983.
- Silberman, MS, RB Fulton: Medical problems of captive and wild rhinoceros - a review of the literature and personal experience. J. Zoo An. Med. 10:6-16, 1979.
- Vahale, J: Brief analysis of the veterinary care of black rhinoceros (*Diceros bicornis*) at Dvur Kralove Zoo. Proc. Int. Symp. Dis. Zoo Animals, Pp.261-275, 1990.
- Van Strein, NJ: *Dicerrhinus sumatrensis* (Fischer): the Sumatran or two-horned Asiatic rhinoceros - a study of the literature. Mededelingen Landbouwhogeschool Wageningen 74: 45, 1974.
- Wallach, JD, WJ Boever: Perissodactyla, Proboscidae, and hippotamidae. In: Diseases of exotic animals. Wallach, JD, WJ Boever, WB Saunders Co., Philadelphia, Pennsylvania, Pp.761-829, 1983.
- Zainal-Zahari, Z, MT Abdullah, MS Mohd Suri: The husbandry and veterinary care of captive Sumatran rhinoceros at Zoo Melaka, Malaysia. Malayan Nat. J. 44:1-19, 1990.

## ANATOMY

- Anderson, J: Tooth replacement and dentition of the black rhinoceros (*Diceros bicornis* Linn.). Lammergeyer 6:41-46, 1966.
- Cave, AJE, FJ Aumonier: The visceral histology of the Sumatran rhinoceros. J. Royal Microbiol. Soc. 82:29-37, 1963.
- Cave, AJE: The pedal scent gland in rhinoceros. Proc. Zool. Soc. London 139: 685-690, 1962.
- Cave, AJE: Hairs and vibrissae in the *Rhinocerotidae*. J. Zool. (London) 157: 247-257, 1969.
- Cave, AJE., DB Allbrook: Epidermal structures in a rhinoceros (*Ceratotherium simum*). Nature 182: 196-197, 1958.
- Freeman, GH, JM King: Relations amongst various linear measurements and weight for black rhinoceroses in Kenya. E. Afr. Wildl. J. 7:67-72, 1969.
- Garrod, AH: On the visceral anatomy of the Sumatran rhinoceros, *Ceratorhinus sumatrensis*. Proc. Zool. Soc. London, Pp.92-104, 1873.
- Garrod, AH: On some points of the visceral anatomy of the rhinoceros of the Sunderbunds (*R. sondaicus*). Proc. Zool. Soc. London Pp. 707-711, 1877.
- Garrod, AH: On the brain of the Sumatran rhinoceros. Trans. Zool. Soc. London 10: 411-414, 1878.
- Groves, CP, F Kurt: *Dicerorhinus sumatrensis*. Mammalian Species 21: 1-6, 1972
- Hubback, TR: The Asiatic two-horned rhinoceros, *Didermocerus sumatrensis*, J. Mammal. 20: 1-20, 1939.
- Kjaersgaard, P: A note on m articularis humeri in the wild boar, bear, tapir, and rhinoceros. Gegenbaurs Morphol. 120:143-145, 1974.
- Miller, RE, RC McClure, GM Constantinescu, WJ Boever: A clinical note on the vascular anatomy of the black rhinoceros (*Diceros bicornis*) forelimb. J. Zoo Wildl. Med. 20:228-230, 1989.
- Ottow, B: Biologische anatomie der genitalorgane und der fortpflanzung der sugetiere (Anatomy of the genital and reproductive organs of wild animals). G. Fischer Publ., Jena, Germany, 1955.

## ANESTHESIA/TRANSLOCATIONS

- Alford, BT, RL Burkhart, WP Johnson: Etorphine and diprenorphine as immobilizing and reversing agetns in captive and free-ranging mammals. J. Am. Vet. Med. Assoc. 64: 702-705, 1974.
- Allen, JL, DL Janssen, JE Oosterhuis, TH Stanley: Immobilization of captive non-domestic hoofstock with carfentanil. 1991 Proc. Am. Assoc. Zoo Vet., Pp.343-353, 1991.

- Barbiers, R: Post-anesthesia radial paralysis in a black rhinoceros (*Diceros bicornis*). Pers. comm., Detroit Zoological Park, Royal Oak, Michigan, USA, 1990.
- Beck, CC: Chemical restraint of exotic species. J. Zoo An. Med. 33:3-66, 1972.
- Booth, VF, AM Coetzee: The capture and relocation of black and white rhinoceroses in Zimbabwe. In: Nielsen, L, RD Brown (eds.). Translocation of Wild Animals. Wisconsin Humane Society and Caesar Kleberg Wildlife Research Institute, Milwaukee, Wisconsin, p. 333, 1988.
- Denney, RN: Black rhinoceros immobilization utilizing a new tranquilizing agent. East Afr. Wildl. J. 7:159-165, 1969.
- Geldenhuys, L: Black rhinoceros (*Diceros bicornis*) capture and translocation techniques and boma management used in Namibia. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, CA, USA, in press, 1992.
- Goltenboth, R., H-G Klos: Erfahrungen mit Bay VA 1470 bei der ruhigstellung von zootieren Berlin (Tranquilization of zoo animals). Berl. Munch Tierarztl. Wschr. 83:147-151, 1970.
- Haigh, JC: The capture of wild black rhinoceros using fentanyl and azaperone. S. Afr. J. Wildl. Res. 7:11-14, 1977.
- Harthoorn, AM: Capture of the white rhinoceros (*Ceratotherium s. simum* Burchell) with the use of drug immobilization technique. Can. J. Comp. Med. 26:203, 1962.
- Harthoorn, AM: Restraint of undomesticated animals. J. Am. Vet. Med. Assoc. 149:875-880, 1966.
- Harthoorn, AM, J Bligh: The use of a new oripavine derivative with potent morphine-like activity for the restraint of hooved wild animals. Vet. Sc. 6:290-299, 1965.
- Harthoorn, AM, L Lock: The rescue of rhinoceroses at Kariba Dam. Oryx 5:352-355, 1960.
- Harthoorn, AM, IC Player: The narcosis of the white rhinoceros. A series of 18 case histories. 5th Int. Symp. Dis. Zoo Animals 89(Suppl. 1): 225, 1964.
- Hitchins, PM, ME Keep, K Rochat: The capture of black rhinoceros in Hluhluwe Game Reserve and their translocation to the Kruger National Park. Lammergeyer 17:18-29, 1972.
- Hofmeyer, JM: The use of haloperidol as a long-acting neuroleptic in game capture operations. J. S. Afr. Vet. Assoc. 52:273-282, 1981.
- Hofmeyer, JM, H Ebedes, REM Fryer, JR de Bruine: The capture and translocation of the black rhinoceros *Diceros bicornis* Linn. in South West Africa. Madoqua 9:35-44, 1975.
- Jenkins, DH: The use of etorphine (M99) and diprenorphine (M50-50) for anesthesia in a white rhinoceros for the removal of growths on the third eyelid. Auburn Vet. 34: 39-43, 1978.
- Keep, ME: The use of etorphine hydrochloride (M-99)(Reckitt), fentanyl (Janssen) and hyoscine hydrobromide combination for field capture of white rhinoceroses. Lammergeyer 19:28-30, 1973.
- Keep, ME: The use of "Rompun" (VA1470) Bayer on the white rhinoceros. J. Zoo An. Med. 4:21-24, 1973.



- Keep, ME: Etorphine hydrochloride antagonists used in the capture of white rhinoceros, *Ceratotherium simum simum*. Lammergeyer 13:60-68, 1981.
- Keep, ME, JL Tinley, K Rochat, JV Clark: The immobilization and translocation of the black rhinoceros *Diceros bicornis* using etorphine hydrochloride (M99). Lammergeyer 10:4-11, 1969.
- King, JM: The capture and translocation of the black rhinoceros. E. Afr. Wildl. J. &:115-130, 1969.
- King, JM, BH Carter: The use of the oripavine derivative M99 for the immobilization of the black rhinoceros (*Diceros bicornis*) and its antagonism with the related compound M285 or nalorphine. E. Afr. Wildl. J. 3:19-26, 1965.
- Kock, MD: Capture and translocation of the black rhinoceros (*Diceros bicornis*) in Zimbabwe: capture and management modifications to reduce stress and mortalities. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Kock, MD: Use of hyaluronidase and increased etorphine (M99) doses to improve induction times and reduce capture related stress in the chemical immobilization of free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 24: in press, 1992.
- Kock, MD, M la Grange, R du Toit: Chemical immobilization of free-ranging black rhinoceros (*Diceros bicornis*) using combinations of etorphine (M99), fentanyl, and xylazine. J. Zoo Wildl. Med. 21:155-165, 1990.
- Kock, MD, P Morkel: Capture and translocation of free-ranging black rhinoceroses (*Diceros bicornis*): medical and management problems. In Fowler, M (ed.), Zoo and Wild Animal Medicine, WB Saunders Co, Philadelphia, Pennsylvania, USA, in press, 1993.
- Kock, MD, R du Toit, N Kock, D Morton, C Foggin, B Paul: Effects of capture and translocation on biological parameters in free-ranging black rhinoceros (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:155-165, 1990.
- Kock, RA, M Jago, FMD Gulland, J Lewis: The use of two novel alpha 2 adrenoceptor antagonists idazoxan and its analogue RX821002A in zoo and wild animals. J. Assoc. Vet. Anaesth. 16: 4-10, 1989.
- Kulow, W: Krankheiten der nashorner aus der sicht des zootierarztes mit einem zur immobilisierung (Rhinoceros diseases with a view towards immobilization). Diss. Vet. Med. FU Berlin, 1990.
- LeBlanc, PH, SW Eicker, M Curtis, B Beehler: Hypertension following etorphine anesthesia in a rhinoceros (*Diceros simius*). J. Zoo An. Med. 18:141-143, 1987.
- Mohd-Tajuddin, A: Rhino trapping in Malaysia. Rimba Indonesia 21:27-30, 1987.
- Player, I: Translocation of white rhinoceros in South Africa. Oryx 9:137-150, 1967.
- Pospisil, J, F Kase, J Vahala: Time-dependent influence of some sedating agents on basic haematological values in various artio- and perissodactylids. Comp. Biochem. Physiol. 85A: 305-308, 1986.
- Smuts, GL: An appraisal of naloxone hydrochloride as a narcotic antagonist in the capture and release of wild herbivores. J. Am Vet. Med. Assoc. 167:559-561, 1975.

Ullrich, W: Bemerkenswerte aufnahmen eines Sumatra-nashorns (*Dicerorhinus sumatrensis*) (Observations on the capture of Sumatran rhinoceroses). Zool. Gart. 22:29-33, 1955.

Vagner, J: Capture and transport of animals from Africa to the Zoological Gardens of Dvur Kralove n.L. Proc. Int. Symp. Zoo Animals, Pp.179-186, 1973.

Wallach, JD: Immobilization and translocation of the white (square-lipped) rhinoceros. J. Am. Vet. Med. Assoc. 149:871, 1969.

#### CIRCULATORY

Bambir, S, P Kardum, S Curio: Calcification of endocardium in black rhinoceros (*Diceros bicornis*). Proc. Int. Symp. Dis. Zoo Animals, Pp.423-424, 1985.

Beddard, FE, J Murie: Exhibition of and mementos upon some drawings and specimens illustrative of the cause of death of an African rhinoceros (right-sided endocarditis and a carcinoma of the stomach). Proc. Zool. Soc. London, Pp. 246-247, 1891.

Citino, S: Encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, 1988.

DeVos, V: Congenital unilateral aorta in a black rhinoceros (*Diceros bicornis bicornis*). J. S. Afr. Vet. Assoc. 49:71-end, 1978.

Fiennes, RNT-W: Report of the Society's pathologist for the year (mitral stenosis, bronchitis in a black rhinoceros). J. Zool. 148:372, 1966.

Harthoorn, AM: Restraint of undomesticated animals (discusses case of endocarditis). J. Am. Vet. Med. Assoc. 149:875-880, 1966.

Jayasinghe, JB, V Silva: Electrocardiographic study on the African black rhinoceros. Br. Vet. J. 128:1xix-1xx, 1972.

Kock, N, C Foggin, M Kock, P Trembath, D Jessup: Coronary artery aneurysms in two black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 22:355-358, 1991.

Miller, RE, RC McClure, GM Constantinescu, WJ Boever: A clinical note on the vascular anatomy of the black rhinoceros (*Diceros bicornis*) forelimb. J. Zoo Wildl. Med. 20:228-230, 1989.

Murray, M: The pathology of some diseases found in wild animals in East Africa (arteritis of lymph nodes and gastrointestinal vasculature in a black rhinoceros). E. Afr. Wildl. J. 5: 37-41, 1967.

Olsen, J: Fatal encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Busch Gardens, Tampa, Florida, 1989.

Schneider, HE, J Wisser: Pericarditis sicca in a female wide-mouthed rhinoceros (*Ceratotherium simum*). Proc. Int. Symp. Zoo Animals, Pp. 185-188, 1987.

Scott, HH: Neoplasm in an Indian rhinoceros (sarcoma of heart and lungs). Proc. Zool. Soc. London 1927: 503-510, 1927.

## DERMATOLOGY/APPENDAGES

- Barrie, M: Fungal pneumonia and ulcerative skin lesions in a black rhinoceros (*Diceros bicornis*). Pers. comm. Oklahoma City Zoo, Oklahoma City, Oklahoma, 1987.
- Bigalke, R. The regeneration of the anterior horn of the black rhinoceros, *Diceros bicornis* Linn. Proc. Zool. Soc. London 115: 323-326, 1946.
- Boever, WJ: Interdigital corns in a black rhinoceros. Vet. Med. Sm. An. Clin. 71:827-830, 1976.
- Boever, WJ: Interdigital papilloma in a black rhinoceros. J. Am. Vet. Med. Assoc. 165:823, 1974.
- Cave, AJE: The pedal scent gland in rhinoceros. Proc. Zool. Soc. London 139: 685-690, 1962.
- Cave, AJE: Hairs and vibrissae in the *Rhinocerotidae*. J. Zool. (London) 157: 247-257, 1969.
- Cave, AJE., DB Allbrook: Epidermal structures in a rhinoceros (*Ceratotherium simum*). Nature 182: 196-197, 1958.
- Fox, H: Pathology in the Philadelphia menagerie (Reports on fungal infections of rhinoceros skin). Rep. Lab. Mus. Comp. Path. Pp. 1-25, 1925.
- Franz, W, B Seidel, A Jacob: Clinical report on horn amputation of a wide-mouthed rhinoceros. Proc. Int. Symp. Dis Zoo An. Pp.353-358, 1988.
- Gillespie, D, M Burton, C Kohn, S Gosselin, L Munson: An unusual case of ulcerative stomatitis and prolonged pregnancy in a black rhinoceros. 1990 Proc. Am. Assoc. Zoo Vet., Pp.319-321, 1990.
- Goltenboth, R: Verdacht einer herpesvirus infektion bei spitznashornern im zoologischen garten Berlin (Suspected herpesvirus infection in a black rhinoceros in the Berlin Zoo). Arbeitsbericht d. 8. Arbeitstagung der zootierarzte im Deutsch-Sprachigen Raum, 123-124, 1988.
- Grunberg, W, H Burtscher: Uber eine pockenartige krankheit beim rhinozeros (*Diceros bicornis* L.)(pox-like lesions and mucous membrane lesions). Zentralblatt fur veterinarmedizin B v. 15:649-647, 1968.
- Hitchins, PM, ME Keep: Observations on skin lesions of the black rhinoceros (*Diceros bicornis*) in Hluhluwe Game Reserve, Zululand. Lammegeyer 12:56-65, 1970.
- Hogan, H: Recurrent vulvar ulcer in a white rhinoceros (*Ceratotherium simum*). Pers. comm., Kings Island, Kings Island, Ohio, USA, 1992.
- Jacobi, EF: Recuperative power of the horn of the black rhinoceros (*Rhinoceros bicornis* L.). Zoologischer Garten 23:227-233, 1957.
- Jones, DM, LR Thomsett: A short review of the diseases of rhinoceros skin with case reports on an exudative dermatitis of the white rhinoceros (*Ceratotherium simum*). Proc. Int. Symp. Dis. Zoo Animals, P. 227, 1972.

- Klos, HG: Uber die zeitdauer des hornersatzes beim breitmaulnashorn (*Ceratotherium simum*) (On the duration of horn growth in the white rhinoceros) . Zoologischer Garten 36:246-250, 1969.
- Kock, N. MD Kock: Skin lesions in free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:447-452, 1990.
- Lynch, LJ, V Robinson, CA Anderson: A scanning electron microscope study of the morphology of rhino horn. Aust. J. Biol. Sc. 26:395-399, 1973.
- McManamon, R: Pharyngeal squamous cell carcinoma and fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Zoo Atlanta, Atlanta, Georgia, USA, 1987.
- Messow, C: Filarien - dermatitis beim nashorn (Filarial dermatitis in a rhinoceros). Proc. Int. Symp. Dis. Zoo Animals. 9:195-196, 1967.
- Mohr, R: Das horn des Indischen rhinoceros unicornis (The horn of the Indian rhinoceros). Zoologischer Garten 23:37-45, 1957.
- Morkel, P: Dehorning of black rhinoceroses in Namibia. 1991 Proc. Int. Rhinoceros Symp., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Munson, L: Pathological findings in oral and skin ulcers in black rhinoceroses. Proc. 1991 Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Naik, SN, CS Aswad, MS Karawale, MV Wani: Squamous cell carcinoma in an Indian rhinoceros. Vet. Rec. 118:590-591, 1986.
- Nandi, SN, SK Deb: Horn cancer in a rhinoceros. Indian Vet. J. 49:881-882, 1972.
- Neuschulz, N, W Puschmann: Verlust und Neubildung des vorderhornes beim spitznashorn (*Diceros bicornis*). (Development and regrowth of the forward horn of the black rhinoceros) Felis 4: 51-54, 1986.
- Ott, JE, SE McDonald, PT Robinson, FW Wright: Ulcerative stomatitis in a black rhinoceros (*Diceros bicornis*). 1982 Proc. Am. Assoc. Zoo Vet.: 68-71, 1982.
- Paglia, DE, SW Renner, RC Cambre, RE Miller, M Nakatani, RA Brockway: Erythrocyte ATP deficiency and acatalasemia in the African rhinoceros and their pathogenic roles in acute episodic hemolysis and mucocutaneous ulcerations (abstract). Int. Soc. Hematol. (London), in press, 1992.
- Pilaski, J, PJ Schallar, P Olderding, H Finke: Characterization of a poxvirus from the white rhinoceros (*Ceratotherium simum*). Zentralbl. Bakt. Mikrobiol. Hyg. 1 Abt. Orig., Pp.251-253, 1982.
- Reitschel, W: Dermatitis beim panzernashorn (Dermatitis in a greater one-horned Asian rhinoceros). VAZ 8:121-122, 1988.
- Round, MC: A new species of *Stephanofilaria* in skin lesions from the black rhinoceros (*Diceros bicornis*) in Kenya. J. Helminth. 38:87, 1964.
- Ryder, ML: Structure of rhinoceros horn. Nature 193:1199-1201, 1962.

- Schaller, K: Pocken bei breitmaulnashornien (*Ceratotherium s. simum*)(Pox in a white rhinoceros). Zool. Garten. N.F. 49:169-184, 1979.
- Schultz, KCA: Ulcerating wound behind the shoulder of the black rhinoceros (*D. bicornis*) in the Hluhluwe and Mkuzi game reserves of Zululand. Afr. Wildl. 15:55-59, 1961.
- Schultz, KCA, EB Kluge: Dermatitis in a black rhinoceros (*Diceros bicornis*) due to filariasis. J. S. Afr. Vet. Assoc. 31:265, 1960.
- Strauss, G, B Seidel: Pododermatitis purulenta beim panzernashorn (*Rhinoceros unicornis*) - ein fallberichte (Unsuccessful treatment of purulent pododermatitis in a greater one-horned Asian rhinoceros). Proc. Int. Symp. Dis. Zoo Animals 24:177-181, 1982.
- Tremlett, JG: observations on the pathology of lesions associated with *Stephanofilaria dinniki* Round 1964 from the black rhinoceros (*Diceros bicornis*). J. Helminth. 38:171, 1964.
- Weidman, FD: Mycosis in lower animals (Skin lesions from *Pityrosporum pachydermatitis* in an Indian rhinoceros). Arch. Pathol. 8: 1019-1020, 1929.
- Weiss, R: Uber eine trichophytie bie breitmaulnashornern (*Ceratotherium simum* Burchell)(Trichophyton infection in a white rhinoceros). Mykosen 17:137-139, 1974.
- Young, E: Treatment of cutaneous granulomata in the black rhinoceros, *Diceros bicornis*. Int. Zoo Yrbk. 6:276-277, 1966.
- Zukowsky, L: Ursache und bedeutung der schwarenden wunden an den korperseiten freilebender spitzmaulnashorner (Reasons for and significance of a wound abscess in a black rhinoceros). Zoologischer Garten 32: 163-173, 1966.

#### GASTROINTESTINAL

- Antonius, O: Bilder aus dem fruheren und jetigen Schonbrunner Tierbestand I. nashorner (pulmonary TB and enteritis in a Sumatran rhinoceros). Zoologischer Gart. 9:18-26, 1937.
- Beddard, FE, J Murie: Exhibition of and mementos upon some drawings and specimens illustrative of the cause of death of an African rhinoceros (right-sided endocarditis and a carcinoma of the stomach). Proc. Zool. Soc. London, Pp. 246-247, 1891.
- Beehler, BA, M Bush: The use of iodochlordoxyquin for treatment of chronic diarrhea in an Indian rhinoceros (*Rhinocerso unicornis*). J. Zoo An. Med. 12:22-24, 1981.
- Cambre, RC: Hepatocellular carcinoma in an adult black rhinoceros (*Diceros bicornis*). Pers. comm. Denver Zoological Gardens, Denver, Colorado, USA, 1990.
- Campbell, Mark: Bile stasis, gastric ulcers and interstitial nephritis in a Sumatran rhinoceros (*Didermocerus sumatrensis*). Pers. comm., Cincinnati Zoological Gardens, Cincinnati, Ohio, USA, 1992.
- Chakrabarty, A, M Bhattahcharya, G Baishya: A note on the liver of Indian one-horned rhinoceros (*Rhinoceros unicornis*). Ind. Vet. J. 66:1071-1072, 1989.

- Char, KL, S Ramanathan, MRK Rao, KC Rao, SV Rao: Salmonellosis in an adult Indian rhinoceros (*Rhinoceros unicornis*). J. Zoo An. Med. 15:155-157, 1984.
- Clemens, ET, GMO Maloiy: The digestive physiology of three east African herbivores: the elephant, rhinoceros and hippopotamus. J. Zool. (London) 198: 141-156, 1982.
- Clemens, ET, GMO Maloiy: Nutrient digestibility and gastrointestinal electrolyte flux in the elephant and rhinoceros. J. Wildl. Dis. 24: 547-550, 1988.
- DeVos, V: Volvulus in a white rhinoceros (*Ceratotherium simum*). J. S. Afr. Vet. Med. Assoc. 46:374, 1975.
- Ensley, PK, M Bush: Rectal mucosal prolapse in an Indian rhinoceros (*Rhinoceros unicornis*). J. Zoo An. Med. 7:22-25, 1976.
- Frahm, M: Apparent colic after treatment of a black rhinoceros (*Diceros bicornis*) for *Oxyuris karamoja*. Pers. comm., Gladys Porter Zoo, Brownsville, Texas, USA, 1992.
- Haigh, JC: Case of a constipated rhino. Vet. Rec. 97:282, 1975.
- Janssen, D: Fatal colonic volvulus in a female Sumatran rhinoceros (*Didemocerus sumatrensis*). Pers. Comm., San Diego Zoo, USA, 1992.
- Kloppel, G: Uber einen fall von volvulus jejuni bei einem nashorn (Unsuccessful treatment of a jejunal volvulus in a rhinoceros). Zoologischer Garten 21:245-249, 1956.
- Kock, N, C Foggin, M Kock, R Kock: Hemosiderosis in the black rhinoceros (*Diceros bicornis*) in Zimbabwe: a comparison between captive, semi-captive and free-ranging animals. J. Zoo Wildl. Med. 24: in press, 1992.
- Lewandowski, A: Cecal torsion in a black rhinoceros (*Diceros bicornis*) at the Detroit Zoo. Pers. comm. Cleveland Zoological Park, Cleveland, Ohio, USA, 1987.
- Montali, RJ: Pathological findings in captive rhinoceroses (hemosiderosis and gastric impaction and duodenal torsion). Proc. 1991 Int. Rhinoceros Symp., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Nouvel, J, MA Pasquier: Corps etranzers gastrointestinaux des animaux sauvages en captivite (Gastrointestinal foreign bodies in captive wild animals - sand accumulation in the cecum of a black rhinoceros). Rev. Pathologie Comparie et d'Hygiene Generale 46: 41-45, 1946.
- Olsen, J: Prolapse of rectum and bladder in a black rhinoceros (*Diceros bicornis*) calf. Pers. comm., Busch Gardens, Tampa, Florida, USA, 1992.
- Page, CD: Possible congenital diaphragmatic hernia (and subsequent jejunal torsion) in a white rhinoceros (*Ceratotherium simum simum*) calf. Pers. comm., Jacksonville Zoological Park, Jacksonville, Florida, USA, 1992.
- Pearson, H, C Gibbs, AI Wright: Surgical treatment of a case of rectal prolapse in a young African rhinoceros (*Diceros bicornis*). Vet. Rec. 80:519, 1967.

- Poulsen, H: 1972 at the Copenhagen Zoo (liver cirrhosis in a Sumatran rhinoceros). Int. Zoo News. 20:274-275. 1973.
- Schmidt, RE, JD Toft, RL Eason, DA Hartfiel: Possible toxic liver degeneration in black rhinoceroses (*Diceros bicornis*). J. Zoo An. Med. 13:3-10, 1982.
- Simmons, LG, B Jenke: Impaction in a great Indian rhinoceros. Proc. Am. Assoc. Zoo Vet., Pp.125-135, 1977.
- Thomson, JK, FW Priestly: Enteritis of a white rhinoceros associated with *Pseudomonas pyocyanea* infection. Vet. Rec. 61: 341, 1949.
- Williamson, WM, E Tildern, RE Getty: Enteric infections occurring during an 8 year period at he Chicago Zoological Park, Brookfield (Salmonellosis in a young rhinoceros). Bijdr. Dierk. 33: 87-88, 1973.
- Windsor, RS, WA Ashford: Salmonella infection in the African elephant and the black rhinoceros. Trop. An. Health Prod. 4:214-219, 1972.
- Worley, M: Hepadnoviral survey in black rhinoceroses. Pers. Comm., Zoological Society of San Diego, San Diego, California, USA, 1992.
- Zainal-Zahari, Z, AR Sheikh-Omar, M Tajuddin: Severe necrotizing enteritis in a Sumatran rhinoceros (*Dicerorhinus sumatrensis*). Proc. First Cong. Malayan Vet. Assoc., 121-122, 1989.

#### GENETICS

- Amato, G, M Ashley, J Gatesy: Molecular evolution in living species of rhinoceros, implications for conservation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Ashley, MV, DJ Melnick, D Western: Conservation genetics of the black rhinoceros (*Diceros bicornis*), I: evidence from the mitochondrial DNA of three populations. Cons. Biol. 4: 71-77, 1990.
- Cumming, D: Small population management of black rhinos. Pachyderm 9: 12-13, 1987.
- George, M, LG Chemnick, OA Ryder: Mitochondrial DNA analysis of rhinoceros subspecies. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- George, M Jr, LA Puentes, OA Ryder. Genetic differences between subspecies of white rhinoceroses. In Int. Studbook African Rhinoceroses, HG Klos (Ed.), Berlin Zoo, Berlin, Germany, 1983.
- Goddard, J: A note on the absence of pinnae in the black rhinoceros. E. Afr. Wildl. J. 7: 178-180, 1969.
- Hitchins, PM, JL Anderson. Reproduction, population characteristics and management of black rhinoceroses *Diceros bicornis minor* in the Hhuhluwe/Corridor/Umfolozi game reserve complex. S. Afr. J. Wildl. Res 13: 78-85, 1983.
- Merenlender, AM, DS Woodruff, OA Ryder, R. Kock, J Valhala: Allozyme variation and differentiation in African and Indian rhinoceroses. J. Hered. 80:377-382, 1989.

- Page, CD, RE Schmidt: Disseminated intravascular coagulation in a neonatal white rhinoceros (*Ceratotherium simum simum*). J. Zoo Animal Med. 18:53-55, 1987.
- Paras, A: Spirochaetemia in a black rhinoceros with hemolytic anemia. Pers. comm. Chapultepec Park Zoo, Mexico City, Mexico, 1989.
- Pilaski, J, A Rosen, G Darai: Comparative analysis of the genomes of orthopoxviruses isolated from elephant, rhinoceros and okapi by restriction enzymes. Arch. Virol. 88:135-142, 1986.
- Pilaski, J, PJ Schallar, P Olderding, H Finke: Characterization of a poxvirus from the white rhinoceros (*Ceratotherium simum*). Zentralbl. Bakt. Mikrobiol. Hyg. 1 Abt. Orig., Pp.251-253, 1982.
- Powers, RR, RA Price: Human tuberculosis in a rhinoceros. J. Am. Vet. Med. Assoc. 151:891-892, 1967.
- Schaller, K: Salmonella lameness in rhinoceros calf (*Ceratotherium s. simum*). Proc. Int. Symp. Zoo Animals, Pp.89-94, 1981.
- Schenkel, RL, L Schenkel-Hulliger: Diseases (Leptospirosis in a black rhinoceros). In: Ecology and behavior of the black rhinoceros. Schenkel RL, L Schenkel-Hulliger, Verlag Paul Parey, Hamburg, Germany, p 26, 1969.
- Schmidt, ME, DA Hartfield: Disseminated bacterial infection in an infant rhinoceros. J. Zoo An. Med. 7:15-17, 1976.
- Sebek, VZ, V Mikulica, V Valova: Leptospirosis of exotic animals in zoological gardens. Mh. Vet. Med. 41:571, 1986.
- Sheperd, AJ, R Swanepoel, SP Sheperd, GM McGillivray, LA Searle: Antibody to Crimean-Congo hemorrhagic fever virus in wild mammals from southern Africa. Am. J. Trop. Med. Hyg. 36:133-142, 1987.
- Takagi, S, M Kondo, S Noda, T Hironao: Tuberculosis in a rhinoceros. Bull. Univ. Osaka. Pref. 15:125-130, 1964.
- Thomson, JK, FW Priestly: Enteritis of a white rhinoceros associated with *Pseudomonas pyocyanea* infection. Vet. Rec. 61: 341, 1949.
- Weidman, FD: Mycosis in lower animals (Skin lesions from *Pityrosporum pachydermatitis* in an Indian rhinoceros). Arch. Pathol. 8: 1019-1020, 1929.
- Weiss, R: Uber eine trichophytie bei breitmaulnashornern (*Ceratotherium simum* Burchell)(Trichophyton infection in a white rhinoceros). Mykosen 17:137-139, 1974.
- Windsor, RS, WA Ashford: Salmonella infection in the African elephant and the black rhinoceros. Trop. An. Health Prod. 4:214-219, 1972.



- Poulsen, H: 1972 at the Copenhagen Zoo (liver cirrhosis in a Sumatran rhinoceros). Int. Zoo News. 20:274-275. 1973.
- Schmidt, RE, JD Toft, RL Eason, DA Hartfiel: Possible toxic liver degeneration in black rhinoceroses (*Diceros bicornis*). J. Zoo An. Med. 13:3-10, 1982.
- Simmons, LG, B Jenke: Impaction in a great Indian rhinoceros. Proc. Am. Assoc. Zoo Vet., Pp.125-135, 1977.
- Thomson, JK, FW Priestly: Enteritis of a white rhinoceros associated with *Pseudomonas pyocyanea* infection. Vet. Rec. 61: 341, 1949.
- Williamson, WM, E Tildern, RE Getty: Enteric infections occurring during an 8 year period at the Chicago Zoological Park, Brookfield (Salmonellosis in a young rhinoceros). Bijdr. Dierk. 33: 87-88, 1973.
- Windsor, RS, WA Ashford: Salmonella infection in the African elephant and the black rhinoceros. Trop. An. Health Prod. 4:214-219, 1972.
- Worley, M: Hepadnoviral survey in black rhinoceroses. Pers. Comm., Zoological Society of San Diego, San Diego, California, USA, 1992.
- Zainal-Zahari, Z, AR Sheikh-Omar, M Tajuddin: Severe necrotizing enteritis in a Sumatran rhinoceros (*Dicerorhinus sumatrensis*). Proc. First Cong. Malayan Vet. Assoc., 121-122, 1989.

#### GENETICS

- Amato, G, M Ashley, J Gatesy: Molecular evolution in living species of rhinoceros, implications for conservation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Ashley, MV, DJ Melnick, D Western: Conservation genetics of the black rhinoceros (*Diceros bicornis*), I: evidence from the mitochondrial DNA of three populations. Cons. Biol. 4: 71-77, 1990.
- Cumming, D: Small population management of black rhinos. Pachyderm 9: 12-13, 1987.
- George, M, LG Chemnick, OA Ryder: Mitochondrial DNA analysis of rhinoceros subspecies. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- George, M Jr, LA Puentes, OA Ryder. Genetic differences between subspecies of white rhinoceroses. In Int. Studbook African Rhinoceroses, HG Klos (Ed.), Berlin Zoo, Berlin, Germany, 1983.
- Goddard, J: A note on the absence of pinnae in the black rhinoceros. E. Afr. Wildl. J. 7: 178-180, 1969.
- Hitchins, PM, JL Anderson. Reproduction, population characteristics and management of black rhinoceroses *Diceros bicornis minor* in the Hhuhluwe/Corridor/Umfolozi game reserve complex. S. Afr. J. Wildl. Res 13: 78-85, 1983.
- Merenlender, AM, DS Woodruff, OA Ryder, R. Kock, J Valhala: Allozyme variation and differentiation in African and Indian rhinoceroses. J. Hered. 80:377-382, 1989.

## HEMATOLOGY

- Asakura, S, S Nakagawa, M Masui: On the leptospirosis of the black rhinoceros. J. Jap. Assoc. Zool. Gard. Aq. 2:35-37, 1960.
- Abbasi, A, RE Weber, G Braunitzer, R Goltenboth: Molecular basis for ATP/2,3-biphosphoglycerate control switch-over (poikilotherm/homoiotherm) an intermediate amino acid sequence in the hemoglobin of the great Indian one-horned rhinoceros (*Rhinoceros unicornis*, Perissidactyla). Biol. Chem. 368:323-332, 1987.
- Baumann, R, G Mazur, G Braunitzer: Oxygen binding properties of hemoglobin from the white rhinoceros (beta-2-GLU)) and the tapir. Resp. Physiol. 56:1-9, 1984.
- Begg, TB: Hemoglobinuria in the black rhino. Br. Vet. Zool. Soc. Newsl. and Summ. of Papers, P.3, 1981.
- Bowling, A: Blood groups in black rhinoceroses. Pers. comm. University of California, Davis, California, USA, 1992.
- Chaplin, H Jr., AC Malacek, RE Miller, CE Bell, LS Gray, VL Hunter: Acute intravascular hemolytic anemia in the black rhinoceros: hematologic and immunohematologic observations. Am. J. Vet. Res. 47:1313-1320, 1986.
- DeJong, WW, EC Nuy-Terwindt, M Versteeg: Primary structures of a alpha-crystallin A chains of elephant, whale, hyrax and rhinoceros. Biochem. Biophys. Acta 491:573-580, 1977.
- Douglass, EM, RE Plue, CE Kord: Hemolytic anemia suggestive of leptospirosis in black rhinoceros. J. Am. Vet. Med. Assoc. 177:921-923, 1980.
- du Toit, R: Haematological studies of black rhinos in Zimbabwe. Pachyderm 9:28-29, 1987.
- Fairbanks, VF, RE Miller: Beta-globin chain hemoglobin polymorphism and hemoglobin stability in the black rhinoceros (*Diceros bicornis*). Am. J. Vet. Res. 51:803-807, 1990.
- Hawkey, CM: Comparative mammalian haematology. Wm. Heinemann Medical Books Ltd, London, Pp.154-155, 1975.
- International Species Inventory System: Normal physiological data. ISIS, Apple Valley, MN. Pp.631-633, 1989.
- Keep ME: Some physiological serum normals from free living wild animals species from Natal, S. Africa. J. Zoo An. Med. 7:7, 1976.
- Kock, MD, R du Toit, N Kock, D Morton, C Foggin, B Paul: Effects of capture and translocation on biological parameters in free-ranging black rhinoceros (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:155-165, 1990.
- Kock, MD, R du Toit, D Morton, N Kock, B Paul: Baseline biological data collected from chemically immobilized free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:283-291, 1990.

- Kolb, K: Klinische Untersuchung und physiologische daten des nashornes (*Diceros bicornis* L.)(Clinical examination and physiological data in rhinoceroses). BMTW 71:380-382, 1958.
- Miller, RE: Hemolytic anemia in the black rhino. Pachyderm 9:26-29, 1986.
- Miller, RE: Health concerns and veterinary research in the North American black rhinoceros (*Diceros bicornis*) population. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Miller, RE: Hemolytic anemia in the black rhinoceros (*Diceros bicornis*). In: Zoo and Wild Animal Medicine, 3rd ed., ME Fowler (ed.), WB Saunders Co., Philadelphia, Pennsylvania, USA, in press, 1993.
- Miller, RE, WJ Boever: Fatal hemolytic anemia in the black rhinoceros: case report and survey. J. Am. Vet. Med. Assoc. 181:1228-1231, 1982.
- Morimoto, T: Silver-stain + spirochaetes in the kidney of a black rhinoceros dying of hemolytic anemia. Pers. comm. Osaka Mun. Tennoji Zoo, Osaka, Japan, 1985.
- Osterhoff, DR, ME Keep: Natural variation in blood proteins of white and black rhinos. Lammergeyer 11:50-53, 1970.
- Paglia, DE: Acute episodic hemolysis in the African black rhinoceros as an analogue of human glucose-6-phosphate dehydrogenase deficiency. Am. J. Hematol. (in press), 1992.
- Paglia, DE, RE Miller: Increased susceptibility of black rhinoceros (*Diceros bicornis*) red blood cells to oxidant stress and consequent hemolysis. AAZPA Communique, P. 7, April 1992.
- Paglia, DE, RE Miller: Erythrocyte metabolism and susceptibility to oxidant-stressed hemolysis in the black rhinoceros (*Diceros bicornis*): an update (abstract). 1992 Proc. Am. Assoc. Zoo Vets., in press, 1992.
- Paglia, DE, SW Renner, RC Cambre, RE Miller, M Nakatani, RA Brockway: Erythrocyte ATP deficiency and acatalasemia in the African rhinoceros and their pathogenic roles in acute episodic hemolysis and mucocutaneous ulcerations (abstract). Int. Soc. Hematol. (London), in press, 1992.
- Paglia, DE, WN Valentine, RE Miller, M Nakatani, RA Brockway: Acute intravascular hemolysis in the black rhinoceros: erythrocytic enzymes and metabolic intermediates. Am. J. Vet. Res. 47:1321-1325, 1986.
- Paras, A: Spirochaetemia in a black rhinoceros with hemolytic anemia. Pers. comm. Chapultepec Park Zoo, Mexico City, Mexico, 1989.
- Pospisil, J, F Kase, J Vahala: Time-dependent influence of some sedating agents on basic haematological values in various artio- and perissodactylids. Comp. Biochem. Physiol. 85A: 305-308, 1986.
- Seal, US, R Barton, L Mather, CW Gray: Baseline laboratory data for the white rhinoceros (*Ceratotherium simum*). J. Zoo An. Med. 7:11-16, 1976.
- Strauss, G, B Seidel: Anemia in a greater Indian rhinoceros (hypochromic anemia secondary to renal disease). Proc. Int. Symp. Dis. Zoo Animals Pp.379-384, 1985.
- Takahashi, H: An autopsy case of black rhinoceros which showed anemia and hemoglobinuria. J. Jap. Assoc. Zool. Gard. Aq. 4:106-107, 1962.

Ullrey, DE, KK Pao, PA Whetter, PT Robinson. 1982: Black rhinoceros (*Diceros bicornis*) erythrocyte stability. 1989 Proc. Am. Assoc. of Zoo Veterinarians: 19-22, 1989.

Van Heerden, JRH Kefen, J Dauth, MJ Dreyer: Blood chemical parameters in free-living white rhinoceros *Ceratotherium simum*. S. Afr. Vet. Assoc. 56:187-189, 1985.

#### INFECTIOUS DISEASES

Asakura, S, S Nakagawa, M Masui: On the leptospirosis of the black rhinoceros. J. Jap. Assoc. Zool. Gard. Aq. 2:35-37, 1960.

Barrie, M: Fungal pneumonia and skin lesions in a black rhinoceros (*Diceros bicornis*). Pers. comm. Oklahoma City Zoo, Oklahoma City, Oklahoma, 1987.

Chaffee, PS: Report on the death of a rhinoceros (from *Clostridium sordelli*). J. Sm. An. Prac. 9:133-134, 1968.

Char, KL, S Ramanathan, MRK Rao, KC Rao, SV Rao: Salmonellosis in an adult Indian rhinoceros (*Rhinoceros unicornis*) J. Zoo An. Med. 15:155-157, 1984.

Citino, S: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1987.

Citino, S: Encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1988.

Clausen, B, WA Ashford: Bacteriological survey of black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 16:475-480, 1980.

Dalvosio, JR, M Stetter, SK Wells-Mikota: Rhinoceros rhinorrhea: cause of an airborne *Mycobacterium bovis* outbreak in zoo keepers. (TB in *Ceratotherium simum*). Cl. Inf. Dis., in press, 1992.

Douglass, EM, RE Plue, CE Kord: Hemolytic anemia suggestive of leptospirosis in black rhinoceros. J. Am. Vet. Med. Assoc. 177:921-923, 1980.

Faust, R: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Frankfurt Zoological Society, Frankfurt, Germany, 1982.

Gemeinhardt, H. R Ippen: Lungenmykose beim spitzmaulnashorn (*Diceros bicornis*) durch mischinfektion von *Aspergillus fumigatus* und *Absidia corymbifera* (ramosa)(Lung mycosis in a black rhinoceros). Zool. Garten. N.F. 52:342-350, 1982.

Gillespie, D, M Burton, C Kohn, S Gosselin, L Munson: An unusual case of ulcerative stomatitis and prolonged pregnancy in a black rhinoceros. (includes a description of *Aspergillus* sp. pneumonia) 1990 Proc. Am. Assoc. Zoo Vet., Pp.319-321, 1990.

Godfrey, RW, BL Dresser, BJ Campbell: Tuberculosis testing of captive rhinoceroses. 1990 Proc. Am. Assoc. Zoo Vet., P.312, 1990.

- Goltenboth, R: Verdacht einer herpesvirus infektion bei spitznashornern im zoologischen garten Berlin (Suspected herpesvirus infection in a black rhinoceros in the Berlin Zoo). Arbeitsbericht d. 8. Arbeitstagung der zootierärzte im Deutsch-Sprachigen Raum, 123-124, 1988.
- Griffith, AS: Tuberculosis in captive wild animals. J. Hygiene (Cambridge) 28: 198-218, 1928.
- Hamerton, AE: Reports on deaths occurring in the society's gardens during the year 1941 (Tuberculosis in a rhinoceros). Proc. Zool. Soc. London 112(B): 120-135, 1942.
- Jessup, DA, R Clark, M Kock, P Morkel: Conservation of black rhino in Namibia and Zimbabwe: veterinary contributions. 1991 Proc. Am. Assoc. Zoo. Vet., Pp.379-382, 1991.
- Jessup, DA, MD Kock, P Morkel: Health data gained from black rhino immobilized for relocation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, CA, USA, in press, 1992.
- Jessup, DA, RE Miller, CA Bolin, MD Kock, P Morkel: Evaluation for *Leptospiriosis interrogans* in wild-caught and captive black rhinoceroses (*Diceros bicornis*) by microscopic agglutination titers and fluorescent antibody testing. J. Zoo Wildl. Med., in press, 1992.
- Keep, ME, PA Basson: Mycobacteriosis in a black rhinoceros (*Diceros bicornis* Linnaeus 1758). J. S. Afr. Vet. Assoc. 44:285-286, 1973.
- Mann, PC, M Bush, DC Janssen, ES Frank, RJ Montali: Clinico-pathologic correlations of tuberculosis in large zoo mammals. J. Am. Vet. Med. Assoc. 179:1123-1129, 1981.
- Mayr, A, H Mahnel: Charakterisierung eines vom rhinoceros isolierten hühnerpockenvirus (characterization of a fowlpoxvirus isolated from rhinoceroses). Arch. fur Gesamte Virusforschung 31:51-60, 1970.
- McManamon, R: Pharyngeal squamous cell carcinoma and fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Zoo Atlanta, Atlanta, Georgia, 1987.
- Mikulica, V: Zur leptospirose der exotichentiere in den zoologischen garten (Leptospirosis in exotic animals in a zoological garden). Vychodocska Zoologicka Zahrada 41:571-76, 1986.
- Miller, RE, CA Bolin: Evaluation of leptospirosis in black rhinoceroses (*Diceros bicornis*) by microscopic agglutination and fluorescent antibody testing. 1988 Proc. Am. Assoc. Zoo Vet., Pp.161-163, 1988.
- Mitra, SC: The management of animals in the Calcutta Zoological Gardens (a report of tetanus in a black rhinoceros). J. Bombay Nat. Hist. Soc. 13: 254-272, 1893.
- Moodie, RL: Actinomycosis in a fossil rhinoceros. J. Parasit. 9: 28, 1928.
- Morimoto, T: Silver-stain + spirochaetes in the kidney of a black rhinoceros dying of hemolytic anemia. Pers. comm. Osaka Mun. Tennoji Zoo, Osaka, Japan, 1985.
- Mukherjee, SC, RK Das, BM Arora, ML Mehrota: A case of rabies in a captive rhinoceros (*Rhinoceros unicornis*). Ind. Comp. Microbiol., Immunol, and Inf. Dis. 5: 32, 1984.
- Olsen, J: Fatal encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Busch Gardens, Tampa, Florida, 1989.

- Page, CD, RE Schmidt: Disseminated intravascular coagulation in a neonatal white rhinoceros (*Ceratotherium simum simum*). J. Zoo Animal Med. 18:53-55, 1987.
- Paras, A: Spirochaetemia in a black rhinoceros with hemolytic anemia. Pers. comm. Chapultepec Park Zoo, Mexico City, Mexico, 1989.
- Pilaski, J, A Rosen, G Darai: Comparative analysis of the genomes of orthopoxviruses isolated from elephant, rhinoceros and okapi by restriction enzymes. Arch. Virol. 88:135-142, 1986.
- Pilaski, J, PJ Schallar, P Olderding, H Finke: Characterization of a poxvirus from the white rhinoceros (*Ceratotherium simum*). Zentralbl. Bakt. Mikrobiol. Hyg. 1 Abt. Orig., Pp.251-253, 1982.
- Powers, RR, RA Price: Human tuberculosis in a rhinoceros. J. Am. Vet. Med. Assoc. 151:891-892, 1967.
- Schaller, K: Salmonella lameness in rhinoceros calf (*Ceratotherium s. simum*). Proc. Int. Symp. Zoo Animals, Pp.89-94, 1981.
- Schenkel, RL, L Schenkel-Hulliger: Diseases (Leptospirosis in a black rhinoceros). In: Ecology and behavior of the black rhinoceros. Schenkel RL, L Schenkel-Hulliger, Verlag Paul Parey, Hamburg, Germany, p 26, 1969.
- Schmidt, ME, DA Hartfield: Disseminated bacterial infection in an infant rhinoceros. J. Zoo An. Med. 7:15-17, 1976.
- Sebek, VZ, V Mikulica, V Valova: Leptospirosis of exotic animals in zoological gardens. Mh. Vet. Med. 41:571, 1986.
- Sheperd, AJ, R Swanepoel, SP Sheperd, GM McGillivray, LA Searle: Antibody to Crimean-Congo hemorrhagic fever virus in wild mammals from southern Africa. Am. J. Trop. Med. Hyg. 36:133-142, 1987.
- Takagi, S, M Kondo, S Noda, T Hironao: Tuberculosis in a rhinoceros. Bull. Univ. Osaka. Pref. 15:125-130, 1964.
- Thomson, JK, FW Priestly: Enteritis of a white rhinoceros associated with *Pseudomonas pyocyanea* infection. Vet. Rec. 61: 341, 1949.
- Weidman, FD: Mycosis in lower animals (Skin lesions from *Pityrosporium pachydermatitis* in an Indian rhinoceros). Arch. Pathol. 8: 1019-1020, 1929.
- Weiss, R: Uber eine trichophytie bei breitmaulnashornern (*Ceratotherium simum* Burchell)(Trichophyton infection in a white rhinoceros). Mykosen 17:137-139, 1974.
- Windsor, RS, WA Ashford: Salmonella infection in the African elephant and the black rhinoceros. Trop. An. Health Prod. 4:214-219, 1972.

## MANAGEMENT/GENERAL

- Anderson, S: Sumatran rhinoceros at Copenhagen Zoo. Int. Zoo Yrbk. 3:56-57, 1961.
- Bigalke, R, T Steyn, D de Vos, K De Waard: Observations of a juvenile female square-lipped or white (*Ceratotherium simum simum*) in the National Zoological Gardens. Proc. Zool. Soc. London 120:519-528, 1950.
- Coenraad-Uhlig, V: Von gefangenleben eines jungen nashorns (On the captivity of young rhinoceroses). Zool. Garten Leipzig (N.F.) 6:114-116, 1932.
- Cumming, D: Small population management of black rhinos. Pachyderm 9: 12-13, 1987.
- Freeman, GH, JM King: Relations amongst various linear measurements and weight for black rhinoceroses in Kenya. E. Afr. Wildl. J. 7:67-72, 1969.
- Goddard, J: Age criteria and vital statistics of a black rhinoceros population. E. Afr. Wildl. J. 8:105-121, 1970.
- Goltenboth, R: Spitznashorn im Zoo Berlin (Black rhinos in the Berlin Zoo). Vet. Bericht Nashorn EEP Berlin, 1991.
- Hall-Martin, AJ, BL Penzhorn: Behavior and recruitment of translocated black rhinoceros (*Diceros bicornis*). Koedoe 20:147-162, 1977.
- Hitchins, PM, JL Anderson. Reproduction, population characteristics and management of black rhinoceroses *Diceros bicornis minor* in the Hhuhluwe/Corridor/Umfolozi game reserve complex. S. Afr. J. Wildl. Res 13: 78-85, 1983.
- Keep, ME: Observable criteria for assessing the physical condition of the white rhinoceros (*Ceratotherium simum*) in the field. Lammergeyer 13:25-28, 1973.
- Klos, HG, R. Frese: Population trends in African rhinoceroses living in zoos and safari parks. Int. Zoo Yrbk. 18:231-234, 1978.
- Klos, HG, R Frese: International studbook of the black rhinoceros. Berlin Zoo, Berlin, Germany, 1981.
- Klos, HG, R Frese: International studbook of African rhinoceroses, 3rd. Published by Berlin Zoological Garden, Berlin, Germany, 1987.
- Kock, RA: Population and veterinary status of black rhinos in the United Kingdom. Pachyderm 9:29-32, 1987.
- Lang, EM: Beobachtungen am Indischen panzernashorn (*Rhinoceros unicornis*)(Observations on an Indian rhinoceros). Zoologischer Garten 25:369-409, 1961.
- Lang, EM: The Indian rhino in captivity. In Martin, RD (Ed.), *Breeding endangered species in captivity* Academic Press, London, Pp. 293-302, 1975.
- Lindemann, H: African rhinoceroses in captivity. University of Copenhagen, Copenhagen, Denmark, 1982.
- Lindemann, H: Demographic survey of African rhinoceroses in captivity. Int. Zoo Yrbk. 23: 225-234, 1984.

- Maruska, EJ, BL Dresser, BD Barden: Black rhinoceros international management survey. American Association of Zoological Parks and Aquariums Species Survival Plan. Cincinnati Zoo and Center for Research on Endangered Species. Cincinnati, Ohio, USA, 1986.
- Miller, RE: Black rhinoceros conservation in Kenya - a field SSP? 1987 Reg. Proc. Am. Assoc. Zool. Parks Aqs., Pp.537-543, 1987.
- O'Connor: The behavioral ecology of the white rhinoceros at the Whipsnade Zoological Park. M. Philosophy Thesis, University of Cambridge, Great Britain, 1982.
- Owen-Smith, N: Territoriality in the white rhinoceros (*Ceratotherium simum simum*). Nature (London) 231: 294, 1971.
- Owen-Smith, N: The behavioral ecology of the white rhinoceros. PhD Thesis, University Microfilms International, 1973.
- Reynolds, RJ: Asian rhinos in captivity. Int. Zoo Yrbk. 2:17-42, 1961.
- Reynolds, RJ: White rhinos in captivity. Int. Zoo Yrbk. 2: 42-32, 1961.
- Reynolds, RJ: Black rhinos in captivity. Int. Zoo Yrbk. 4: 98-113, 1964.
- Ritchie, A: The black rhinoceros. E. Afr. Wildl. J. 1:54-62, 1963.
- Ruedi, D, K Tobler: International studbook for the great Indian rhinoceros, *Rhinoceros unicornis*. 5th Ed. Published by Basel Zoological Gardens, Basel, Switzerland, 1988.
- Rookmaaker, LC: Bibliography of the rhinoceros. AA Balkema Pub., Amsterdam, Netherlands, 1983.
- Schenkel, RL, L Schenkel-Hulliger: Diseases. *In: Ecology and behavior of the black rhinoceros.* Schenkel RL, L Schenkel-Hulliger, Verlag Paul Parey, Hamburg, Germany, p 26, 1969.
- Schenkel, RL, L Schenkel-Hulliger: The Javan rhinoceros (*Rh. sondaicus* Desm.) in Ujung Kulon Nature Reserve. Its ecology and behavior. Field Study 1967 and 1968. Acta Trop. (Basel) 26:97-135, 1969.
- Strickland, DL: Ecology of the rhinoceros in Malaya. Malayan Nat. J. 20: 1-17, 1967.
- Zainal-Zahari, Z, MT Abdullah, MS Mohd Suri: The husbandry and veterinary care of captive Sumatran rhinoceros at Zoo Melaka, Malaysia. Malayan Nat. J. 44:1-19, 1990.

#### MUSCULOSKELETAL

- Altmann, D: Zur heilung einer komplizierten offenen fraktur im nasenbereich eines breitmaulnashorns bei konservativer therapie. (Successful treatment of a complex, open fracture in the nasal region of a white rhinoceros with conservative therapy). Int. Symp. Dis. Zoo Animals 29:189. 1987.
- Goldtenboth, R: Zehenfraktur bei einem spitzmaulnashorn (Toe fracture in a black rhinoceros). AZ 8: 125-130, 1988.



- Goltenboth, R: Unterkieferfraktur beim panzernashorn (Lower jaw fracture in a greater one-horned Asian rhinoceros). AZ 9:105-106, 1989.
- Hamerton, AE: Report on deaths occurring in the society's gardens during the year 1938 (Osteomyelitis secondary to trauma in an Indian rhinoceros). Proc. Zool. Soc. London 109: 281-337, 1939.
- Jarofke, D, HG Klos: Successful treatment of black rhinoceros (*Diceros bicornis*) for myoglobinuria in Zoo Berlin. Proc. Int. Symp. Dis. Zoo Animals, pp. 385-388, 1988.
- Kjaersgaard, P: A note on m articularis humeri in the wild boar, bear, tapir, and rhinoceros. Gegenbaurs Morphol. 120:143-145, 1974.
- Lyon, DG: Annual report of the laboratory of the North of England Zoological Society (Report on muscular dystrophy of a 2 year old black rhinoceros), Zoological Society of the North of England, 1975.
- Montali, RJ: Pathological findings in captive rhinoceroses (myopathy and leiomyomas). Proc. Int. Rhinoceros Symp. (1991), Zoological Society of San Diego, San Diego, California, in press, 1992.
- Moodie, RL: Actinomycosis in a fossil rhinoceros. J. Parasit. 9: 28, 1928.
- Mugera, GM: JG Wandera: Degenerative polymyopathies in East African domestic and wild animals. Vet. Rec. 80: 410413, 1967.
- Wallach, JD: Degenerative arthritis in a black rhinoceros. J. Am. Vet. Med. Assoc. 151:887-889, 1967.
- Zukowsky, L: Ursache und bedeutung der schwarenden wunden an den korperseiten freilebender spitzmaulnashorner (Cause and significance of a body wall abscesses in free-ranging black rhinoceros). Zoologischer Garten 32: 163-173, 1966.

#### NEONATOLOGY

- Anon.: Rearing a baby black rhinoceros rescued during the Kariba floods. Oryx 7:22-25, 1963.
- Aschaffenburg, R, ME Gregory, SJ Rowland, SY Thompson, VM Kon: The composition of the milk of the African black rhinoceros (*Diceros bicornis*, Linn.). Proc. Zool. Soc. London 137:475, 1961.
- Coenraad-Uhlig, V: Von gefangenleben eines jungen nashorns (On the captivity of young rhinoceroses). Zool. Garten Leipzig (N.F.) 6:114-116, 1932.
- Dittrich, L: Beobachtung zur jungendentwicklung eines breitmausnashorns (*Ceratotherium simum*) im Zoo Hannover (Birth and development of white rhinoceroses). Z. Kolner Zoo 14: 73-81, 1971.
- Greed, RE: The composition of milk of the black rhinoceros. Int. Zoo Yrbk. 2:106, 1961.
- Gregory, ME, SJ Rowland, SY Thompson: Changes during lactation in the composition of the milk of the black rhinoceros, *Diceros bicornis*. Int. Zoo Yrbk. 5:154, 1965.

- Hagenbeck, CH: Notes on the artificial rearing of a great Indian rhinoceros (*Rhinoceros unicornis*) at Hamburg Zoo. Int. Zoo. Yrbk. 9:99-101, 1969.
- Hagenbeck, D: Report on the hand-rearing of an Indian rhinoceros (*Rhinoceros unicornis*) at Hamburg Zoo. Int. Zoo Yrbk. 6:82-87, 1966.
- Herrmann, VM, RE Miller: Total parenteral nutrition in a premature rhinoceros calf. Nutr. Cl. Pract. 6:193-196, 1991.
- Kirkwood, JK, J Eva, SI Jackson: The nutrition and growth of a hand-reared low birth weight rhinoceros (*Diceros bicornis*) during her first six months. 1989 Proc. Am. Assoc. Zoo Vets., Pp.32-41, 1989.
- Klos, HG, D Jarofke, H Languer, E Malek: Die chemische Zusammensetzung der pansernashornmilch (The composition of the milk of the greater one-horned Asian rhinoceros). Zuchtbuchhygiene 7:175-178, 1972.
- Kon, VM: Changes during lactation in the composition of the milk of the African rhinoceros (*Diceros bicornis* Linn.) Proc. Zool. Soc. London 145: 327-333, 1965.
- Kreag, KK: Hand-rearing a black rhinoceros, *Diceros bicornis*, at the Detroit Zoo. Int. Zoo Yrbk. 6:87-88, 1966.
- Lang, EM: Indian rhinoceros births in captivity. Int. Zoo Yrbk. 17:237-238, 1977.
- Page, CD: Possible congenital diaphragmatic hernia (and subsequent jejunal torsion) in a white rhinoceros (*Ceratotherium simum simum*) calf. Pers. comm., Jacksonville Zoological Park, Jacksonville, Florida, USA, 1992.
- Page, CD, RE Schmidt: Disseminated intravascular coagulation in a neonatal white rhinoceros (*Ceratotherium simum simum*). J. Zoo Animal Med. 18:53-55, 1987.
- Pearson, H, C Gibbs, AI Wright: Surgical treatment of a case of rectal prolapse in a young African rhinoceros (*Diceros bicornis*). Vet. Rec. 80:519, 1967.
- Robbins, CT, OT Oftedal, KI O'Rourke: Lactation, early nutrition and hand-rearing of wild ungulates with special reference to deer. *In*: Wemmer, CM (ed.), Research Symposia of the National Zoological Park: Biology and Management of Cervids. Smithsonian Institution Press, Washington, DC, Pp.429-442, 1987.
- Schmidt, ME, DA Hartfield: Disseminated bacterial infection in an infant rhinoceros. J. Zoo An. Med. 7:15-17, 1976.
- Stickle, JE, DC Miller, AH Lewandowski: Failure of passive immunoglobulin transfer in a black rhinoceros (*Diceros bicornis*). J. Zoo Wildl. Med., in press, 1992.
- Wallach, JD: Hand-rearing and observations of a white rhinoceros, *Diceros s. simus*, Int. Zoo Yrbk. 9:103-104, 1969.

## NEUROLOGY

- Barbiers, R: Post-anesthesia radial paralysis in a black rhinoceros (*Diceros bicornis*). Pers. comm., Detroit Zoological Park, Royal Oak, Michigan, USA, 1990.
- Citino, S: Encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1988.
- Franz, H. O Bohlert: Arthresioneuroepithelioma bei einem Indischen panzernashorn (Neuroepithelioma in a greater one-horned Asian rhinoceros). Proc. Int. Symp. Dis. Zoo Animals 32:353-358, 1990.
- Garrod, AH: On the brain of the Sumatran rhinoceros. Trans. Zool. Soc. London 10: 411-414, 1978.
- Miller, RE, RC Cambre, A de laHunta, RE Brannian, TR Spraker, C Johnson, WJ Boever: Encephalomalacia in three black rhinoceroses (*Diceros bicornis*). J. Zoo Wildl. Med. 21:192-199, 1990.
- Morton, DJ, N Kock: Some properties of pineal gland hydroxyindole-0-methyltransferase from black rhinoceros (*Diceros bicornis*). J. Pineal Res. 8:35-40, 1990.
- Mukherjee, SC, RK Das, BM Arora, ML Mehrota: A case of rabies in a captive rhinoceros (*Rhinoceros unicornis*). Ind. Comp. Microbiol., Immunol, and Inf. Dis. 5: 32, 1984.
- Olsen, J: Fatal encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Busch Gardens, Tampa, Florida, USA, 1989.

## NUTRITION

- Aschaffenburg, R, ME Gregory, SJ Rowland, SY Thompson, VM Kon: The composition of the milk of the African black rhinoceros (*Diceros bicornis*, Linn.). Proc. Zool. Soc. London 137:475, 1961.
- Clemens, ET, GMO Maloiy: The digestive physiology of three east African herbivores: the elephant, rhinoceros and hippopotamus. J. Zool. (London) 198: 141-156, 1982.
- Clemens, ET, GMO Maloiy: Nutrient digestibility and gastrointestinal electrolyte flux in the elephant and rhinoceros. J. Wildl. Dis. 24: 547-550, 1988.
- Dierenfeld, ES: Vitamin E levels measured in rhino browse plants. Rhinoceros Conserv. Newsletter 1: 1-2, 1990.
- Dierenfeld, ES, SB Citino: Circulating plasma alpha-tocopherol following a single injection in a black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 25:647-648, 1989.
- Dierenfeld, ES, R du Toit, L Bass: Nutrient composition of selected browses consumed by black rhinoceroses (*Diceros bicornis*) in Zimbabwe and Texas. J. Zoo Wildl. Med., in preparation, 1992.
- Dierenfeld, ES, R du Toit, RE Miller, EP Dolensek: Vitamin E in captive and wild black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 24:547-550, 1988.

- Dierenfeld, ES, FK Waweru, R du Toit, RA Brett: Alpha-tocopherol levels in plants consumed by black rhinoceros (*Diceros bicornis*): native browses compared with common zoo forages. 1990 Proc. Am. Assoc. Zoo Vet., Pp.196-197, 1990.
- Flynn, FW, Distribution, status, and feeding ecology of the Sumatran rhinoceros in Malaysia. M.Sc. Thesis. University of Montana, Missoula, Montana, USA, 1983.
- Foose, TJ: Trophic strategies of ruminant vs. nonruminant ungulates. Ph.D Dissertation. University of Chicago, Chicago, Illinois, USA, 1982.
- Frape, DL, MG Tuck, NH Sutcliffe, DB Jones: The use of inert markers in the measurement of the digestibility of cubed concentrates and of hay given in several proportions to the pony, horse and white rhinoceros (*Diceros simus*). Comp. Biochem. Physiol. 72:77-83, 1982.
- Ghebremeskel, K, G Williams, G Lewis, R du Toit: Serum alpha-tocopherol, all-trans retinol, total lipids and cholesterol in the black rhinoceros (*Diceros bicornis*). Comp. Biochem. Physiol. 91A:343-345, 1988.
- Ghebremeskel, K, G Williams, RA Brett, R Burek, LS Harbige: Nutrient composition of plants most favored by black rhinoceroses (*Diceros bicornis*) in the wild. Comp. Biochem. Physiol. 98A: 521-534, 1991.
- Goddard, J: Food preferences of two black rhinoceros populations. E. Afr. Wildl. J. 6: 1-19, 1968.
- Greed, RE: The composition of milk of the black rhinoceros. Int. Zoo Yrbk. 2:106, 1961.
- Gregory, ME, SJ Rowland, SY Thompson: Changes during lactation in the composition of the milk of the black rhinoceros, *Diceros bicornis*. Int. Zoo Yrbk. 5:154, 1965.
- Hall-Martin, AJ, T Erasmus, BP Botha: Seasonal variation of diet and faeces composition of black rhinoceroses (*Diceros bicornis*) in the Addo elephant National Park. Koedoe 25: 63-82, 1982.
- Herrmann, VM, RE Miller: Total parenteral nutrition in a premature rhinoceros calf. Nutr. Cl. Pract. 6:193-196, 1991.
- Hofmann, RR: Evolutionary steps of ecophysiological adaption and diversification of ruminants: a comparative view of their digestive systems. Oecologica 78: 443-457, 1989.
- Hofman, RR: Endangered tropical herbivores -their nutritional requirements and habitat demands. Twelve critically endangered species. 3rd Int. Symp. Nutr. Herbivores (Penang, Malayasia) Species 10: 22-24, 1991.
- Kirkwood, JK, J Eva, SI Jackson: The nutrition and growth of a hand-reared low birth weight rhinoceros (*Diceros bicornis*) during her first six months. 1989 Proc. Am. Assoc. Zoo Vets., Pp.32-41, 1989.
- Kirkwood, JK, J Markham, CM Hawkey, SI Jackson: Plasma vitamin E response in two black rhinoceros following dietary supplementation. Vet. Rec. 128:185-186, 1991.
- Klos, HG, D Jarofke, H Languer, E Malek: Die chemische Zusammensetzung der Pansernashornmilch (The composition of the milk of the greater one-horned Asian rhinoceros). Zuchtbuchhygiene 7:175-178, 1972.

- Kon, VM: Changes during lactation in the composition of the milk of the African rhinoceros (*Diceros bicornis* Linn.) Proc. Zool. Soc. London 145: 327-333, 1965.
- Lewis, JCM, JK Kirkwood, Studies of vitamin E supplementation in black rhinoceros. Vet. Rec. 126:558, 1990.
- Papas, AH, RC Cambre, SB Citino: Vitamin E: considerations in practical animal feeding and case studies with elephants and rhinoceroses. 8th Ann. Dr. Scholl's Conf. Nutr. Wild Animals. Lincoln Park Zoo, Chicago, Illinois, USA, 1989.
- Papas, AM, RC Cambre, SB Citino, DJ Bauer, GR Wooden: Species differences in the utilization of various forms of vitamin E. 1990 Proc. Am. Assoc. Zoo Vet., Pp.186-190, 1990.
- Papas, AM, RC Cambre, SB Citino, RJ Sokol: Efficacy of absorption of various vitamin E forms by captive elephants and black rhinoceroses. J. Zoo Wildl. Med. 22:309-317, 1991.
- Robbins, CT, OT Oftedal, KI O'Rourke: Lactation, early nutrition and hand-rearing of wild ungulates with special reference to deer. *In*: Wemmer, CM (ed.), Research Symposia of the National Zoological Park: Biology and Management of Cervids. Smithsonian Institution Press, Washington, DC, Pp.429-442, 1987.
- Schryver, HF, TJ Foose, J Williams, HF Hintz: Calcium excretion in feces of ungulates. Comp. Biochem. Physiol. 74:375-379, 1983.
- Spala, P, P Hradecky: Preliminary ascertainment of some nutritional requirements in the pregnant black rhinoceros (*Diceros bicornis*) females, Dvur Kralove n.L., Czechoslovakia, in press. 1992.
- Stickle, JE, DC Miller, AH Lewandowski: Failure of passive immunoglobulin transfer in a black rhinoceros (*Diceros bicornis*). J. Zoo Wildl. Med. (in press), 1992.

#### PARASITOLOGY

- Baylis, HA: A new species of *Oxyuris* (*Nematoda*) from a rhinoceros. Ann. Mag. Nat Hist. 3: 516-524, 1939.
- Bhattacharjee, ML BR Halder: The occurrence of *Fasciola gigantica* in the liver of an Indian rhinoceros (*R. unicornis*). Br. Vet. J. 127:5-8, 1971.
- Brocklesby, DW. A *Babesia* sp. of the black rhinoceros. Vet. Rec. 80:434, 1967.
- Clausen, B: Survey for trypanosomes in black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 17:581-596, 1981.
- Condy, JB, Jim McCulloch: The treatment of eight square-lipped rhinoceros (*Ceratotherium simum*) with an antihelminthic. J. S. Afr. Vet. Med. Assoc. 34:99-101, 1963.
- Duncan, IM: The use of flumethrin pour-on for de-ticking black rhinoceros (*Diceros bicornis*) prior to translocation in Zimbabwe. J. S. Afr. Vet. Med. Assoc. 60:195-197, 1989.
- Fletcher, TB, SK Sen: A veterinary entomology for India. Part XII (Report on botfly larvae in a rhinoceros). J. Cen. Bur. An. Hus. Dairy 4: 40-104, 1930.

- Frahm, M: Apparent colic after treatment of a black rhinoceros (*Diceros bicornis*) for *Oxyuris karamoja*. Pers. comm., Gladys Porter Zoo, Brownsville, Texas, USA, 1992.
- Garrod, AH: On the Taenia of the rhinoceros of the Sunderbunds (*Plagiofaenia gigantea* Peters). Proc. Zool. Soc. London Pp. 788-789, 1877.
- Greene, CT: Dipterous larvae parasitic of man and animals and some dipterous larvae causing myiasis in man. Trans. Am. Entomol. Soc. 82: 17-34, 1956.
- Horak, IG, KM Mclvor, TN Petney, V De Vos: Some avian and mammalian hosts of *Amblyomma hebraeum* and *Amblyomma marmoreum* (Acari: Ixodidae). Onderstepoort J. Vet. Res. 54:397-404, 1987.
- Keep, ME: A checklist of the blood parasites recorded from the larger wild mammals in Zululand. Lammergeyer 11:54-57, 1970.
- Keep, ME, PJ Keep, HJ Schoeman: A large *Babesia* sp. and a theileria-like piroplasm of the square-lipped rhinoceros. J. S. Afr. Vet. Med. Assoc. 41:291-294, 1970.
- Kraneveld, FC, JHW Kreidel: *Rhinoceros sondaicus* een gastheer voor *Amblyomma creantum* op Java (*Amblyomma creantum* ticks in Javan rhinoceroses). Hemera Zoo 63: 364-372, 1956.
- Krieger, W: Die endoparasiten beim rotwild unter berucksichtigung der jahreszeitlichen schwankungen in der ei-ausscheidung und ausscheidung der lungenwurmlarven. Vet. Med. Diss. (Munchen), 1960.
- Messow, C: Filarien - dermatitis beim nashorn (Filarial dermatitis in rhinoceroses). Proc. Int. Symp. Dis. Zoo Animals. 9:195-196, 1967.
- Palmieri, JR, JR Purnomo, H Ammaun: Parasites of the lesser one-horned rhinoceros (*Rhinoceros sondaicus*). J. Parasitol. 66:1031, 1980.
- Parsons, BT, DLW Sheldrick: Some observations on the biting flies (Diptera, Muscidae, subfam. Stomoxydinae) associated with the black rhinoceros (*Diceros bicornis* L.). E. Afr. Wildl. J. 2:78-85, 1964.
- Round, MC: A new species of the genus *Strongylus* Muller. *Diceros bicornis* L. and a note on the other species occurring in Kenya. J. Helminthol. 36: 189-200, 1962.
- Round, MC: A new species of *Stephanofilaria* in skin lesions from the black rhinoceros (*Diceros bicornis*) in Kenya. J. Helminth. 38:87, 1964.
- Sandground, JH: Two new helminths from *Rhinoceros sondaicus*. J. Parasitol. 19: 192-204, 1933.
- Singh, KI, M Krishnasamy, MK Mohamed Khan, MS Khairiah, MS Zahedi: Redescription of *Crossocephalus longicaudatus baulis* 1919 (Nematoda: Atractidae. A parasite of the Sumatran rhinoceros, *Dicerorhinus sumatrensis* (Fisher). Rivista Parassitologia 5:93-98, 1988.
- Teuscher, E, H Stunzi: Uber parasitologische kotuntersuchungen bei saugetieren des zoologischen gartens Zurich (Parasites on fecal examination at the Zurich Zoo). Acta Trop. 13:262-269, 1956.
- Tremlett, JG: Observations on the pathology of lesions associated with *Stephanofilaria dinniki* Round 1964 from the black rhinoceros (*Diceros bicornis*). J. Helminth. 38:171, 1964.

- Van Hoven, W, FM Gilchrist, VL Hamilton-Atwell: Intestinal ciliated protozoal of African rhinoceros: two new genera and five new species from the white rhino (*Ceratotherium simum* Burchell 1817). J. Protozool. 34:338-342, 1987.
- Van Hoven, W, FM Gilchrist, VL Hamilton-Atwell: A new family, genus, and seven new species of Entodiniomorphida (Protozoa) from the gut of African rhinoceros. J. Protozool. 35:92-97, 1988.
- Warneke, M.R Goltenboth: Uber das auftreten der magenbremse, *Gyrostigma conjungens* ENDERLEIN, bei zwei spitzmaulnashornern (*Diceros bicornis* L.) des Berliner Zoologischen Gartens (Botfly infestation in two black rhinoceroses at the Berlin Zoo). Berliner und Munchener 90:159-160, 1977.
- Wilson, DD, RD Richard: Interception of the vector of heartwater, *Amblyomma hebraeum* Koch (Acari:Ixodidae) on black rhinoceros imported into the United States. Proc. 88th Ann. Mtg. US Animal Health Assoc., Pp.303-313, 1984.
- Wright, JE, Oehler, JH Johnson, J Cannon: Control of house and stable fly breeding in rhinoceros dung with an insect growth regulator used as a feed additive. J. Wild. Dis. 11:522-524, 1975.
- Zumpt, FP: Parasites of the black and white rhinoceros. Lammergeyer 3:59-70, 1964.

#### PATHOLOGY/NECROPSY

- Cambre, RC: Hepatocellular carcinoma in an adult black rhinoceros (*Diceros bicornis*). Pers. comm. Denver Zoological Gardens, Denver, Colorado, USA, 1990.
- Cave, AJE, FJ Aumonier: Elephant and rhinoceros lymph node histology. J. Royal Microscop. Soc. 80:209-214, 1962.
- Cave, AJE, FJ Aumonier: The visceral histology of the Sumatran rhinoceros. J. Royal Microbiol. Soc. 82:29-37, 1963.
- Chakrabarty, A, M Bhattacharya, G Baishya: A note on the liver of Indian one-horned rhinoceros (*Rhinoceros unicornis*). Ind. Vet. J. 66:1071-1072, 1989.
- DeVos, V: Black rhinoceros (*Diceros bicornis minor*) mortality in the Kruger National Park. Koedoe 23:188-189, 1980.
- Griner, LA: Pathology of zoo animals. Zoological Society of San Diego, San Diego, California, Pp.484-488, 1983.
- Jarofke, D, HG Klos: Diseases of African rhinoceroses in captivity (pedigree evaluation). Proc. Int. Symp. Dis. Zoo Animals Pp. 287-290, 1979.
- Jarofke, V, HG Klos, R Frese: Zuchtbuchauswertung der todesuraschen von spitzmaulnashornern (*Diceros bicornis* L.) in zoologischen garten (summary of pathology results from 151 cases) Proc. Int. Symp. Dis. Zoo Animals 33:333-336, 1991.
- Klos, HG, H Fradrich: Eine uberblick uber die in zoologischen garten gehaltenen afrikanishchen nashorner (An overview of African rhinoceroses in zoological gardens including causes of death). Zool. Gart. 38:227-245, 1970.

- Klos, HG, R Frese: International studbook of the black rhinoceros (causes of death). Berlin Zoo, Berlin, Germany, 1981.
- Kock, N, MD Kock, A Pawandiwa, T Matambo: Postmortem findings in translocated black rhinoceroses (*Diceros bicornis*) in Zimbabwe. Proc. Int. Symp. Dis. Zoo Animals, Pp.275-279, 1989.
- Lang, EM: Disease and death of a male Indian rhinoceros - clinical and pathological findings. Proc. Int. Symp. Dis. Zoo Animals Pp.301-307, 1966.
- Maluf, MS: Renal morphology of the hook-lipped African rhinoceros, *Diceros bicornis*, Linnaeus. Am. J. Anat. 190:245-265, 1991.
- Mann, PC, M Bush, DC Janssen, ES Frank, RJ Montali: Clinico-pathologic correlations of tuberculosis in large zoo mammals. J. Am. Vet. Med. Assoc. 179:1123-1129, 1981.
- McCulloch B, PL Achard: Mortalities associated with capture, trade, translocation and exhibition of black rhinoceroses. Int. Zoo Yrbk. 9:184-195, 1969.
- Montali, RJ: Pathological findings in captive rhinoceroses. Proc. Int. Rhinoceros Symp. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Montali, RJ: Selected references of pathology and diseases of the rhinoceros. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Takahashi, H: An autopsy case of black rhinoceros which showed anemia and hemoglobinuria. J. Jap. Assoc. Zool. Gard. Aq. 4:106-107, 1962.

#### RENAL

- Campbell, Mark: Bile stasis, gastric ulcers and interstitial nephritis in a Sumatran rhinoceros (*Didermocerus sumatrensis*). Pers. comm., Cincinnati Zoological Gardens, Cincinnati, Ohio, USA, 1992.
- Krumbeigel, I: Das kopenhagener Sumatranashorn, *Didermocerus sumatrensis* (Fischer, 1814) (nephritis in a Sumatran rhinoceros). Saugetierkundliche Mitteilungen 13:97-100, 1965.
- Jarofke, D, HG Klos: Successful treatment of black rhinoceros (*Diceros bicornis*) for myoglobinuria in Zoo Berlin. Proc. Int. Symp. Dis. Zoo Animals, pp. 385-388, 1988.
- Maluf, MS: Renal morphology of the hook-lipped African rhinoceros, *Diceros bicornis*, Linnaeus. Am. J. Anat. 190:245-265, 1991.
- Sickert, VL, J Wisser: Untersuchungen zum vorkommen institieller nephatiden bei zoosuagetieren (Incidence of interstitial nephritis in zoo animals). Proc. Int. Symp. Dis Zoo Animals Pp. 225-241, 1988.
- Strauss, G, B Seidel: Anemia in a greater Indian rhinoceros (hypochromic anemia secondary to renal disease). Proc. Int. Symp. Dis. Zoo Animals Pp.379-384, 1985.



## REPRODUCTION

- Anon.: Tabulated data on the breeding biology of the black rhinoceros. Int. Zoo Yrbk. 7:166-167, 1967.
- Bhatia, CL, JH Desai: Breeding the Indian rhinoceros at the Delhi zoological park. In RD Martin (Ed.), Breeding Endangered Species in Captivity, Academic Press, London, Pp. 303-313, 1975.
- Blumer, E: Dystocia in a white rhinoceros (*Ceratotherium simum simum*). Pers. comm. Fossil Rim Wildlife Center, Glen Rose, Texas, USA, 1992.
- Gillespie, D, M Burton, C Kohn, S Gosselin, L Munson: An unusual case of ulcerative stomatitis and prolonged pregnancy in a black rhinoceros. 1990 Proc. Am. Assoc. Zoo Vet., Pp.319-321, 1990.
- DeVos, V, HH Braack: Castration of a black rhinoceros. Koedoe 23:185-187, 1980.
- Dittrich, L: Breeding the black rhinoceros *Diceros bicornis* at the Hanover Zoo. Int. Zoo Yrbk. 7: 161-162, 1967.
- Dresser, B: Reproductive research update. Pachyderm 9:22-26, 1987.
- Gairola, HK: Study of parturition in Great Indian rhinoceros. Ind. Vet. J. 11: 185-190, 1987.
- Goddard, J: Mating and courtship of the black rhinoceros (*Diceros bicornis* L.). E. Afr. Wildl. J. 4:69-75, 1966.
- Goddard, J: A note on age of sexual maturity in wild black rhinoceros. E. Afr. Wildl. J. 8: 205, 1970.
- Godfrey, RW, BL Dresser: Coordination of research efforts involving rhinoceros in the United States. 1989 Proc. Am. Assoc. Zoo Vet., P.54, 1989.
- Goltenboth, R: Sterilitatsbehandlung beim panzernashorn (Treatment of sterility in a greater one-horned Asian rhinoceros). Arbeitsbericht d. 2. Arbeitstagung der Zootierärzte im Deutsche-Sprachigen Raum (AZ), 56-57, 1983.
- Goltenboth, R: Zuchtprobleme bei panzernashorn (Management problems in greater one-horned Asian rhinoceroses). Arbeitsbericht d. 5. Arbeitstagung der zootierärzte im deutsche-Sprachigen Raum (Koln), 24-26, 1985.
- Goltenboth, R: Zyklen- und trachtigkeitsdiagnose durch kotanalyse beim spitzmaulnashorn (*Diceros bicornis*), Ind. elefanten und okapi (cycle and pregnancy diagnosis by excrement analysis in black rhinoceroses, Indian elephants and okapi). VAZ 10: 25-27, 1990.
- Greed, GR: Notes on the breeding of the black rhinoceros *Diceros bicornis*. Int. Zoo Yrbk. 7: 158-161, 1967.
- Halstrom, E: Notes on breeding the black rhinoceros *Diceros bicornis* at the Sydney Zoo. Int. Zoo Yrbk. 7: 165, 1967.
- Hays, HR: Notes on breeding the black rhinoceros *Diceros bicornis* a the Pittsburgh Zoo. Int. Zoo Yrbk. 7: 164-165, 1967.
- Hindle, JE, JK Hodges: Metabolism of oestradiol-17 beta and progesterone in the white rhinoceros (*Ceratotherium simum simum*). J. Repro. Fert. 90:571-580, 1990.

- Hitchins, PM, JL Anderson. Reproduction, population characteristics and management of black rhinoceroses *Diceros bicornis minor* in the Hhuhluwe/Corridor/Umfoloji game reserve complex. S. Afr. J. Wildl. Res 13: 78-85, 1983.
- Hodges, JK, DI Green: The development of an enzyme-immunoassay for urinary pregnanediol-3-glucuronide and its application to reproductive assessment in exotic animals. J. Zool. (London) 219:89-99, 1989.
- Hogan, H: Recurrent vulvar ulcer in a white rhinoceros (*Ceratotherium simum simum*). Pers. comm., Kings Island, Kings Island, Ohio, USA, 1992.
- Howard, JG, M Bush, L Colly, V de Vos, DE Wildt: Electroejaculation techniques and semen evaluation in rhinoceroses. 1983 Proc. Am. Assoc. Zoo Vet., Pp. 74-75, 1983.
- Kasman, LH, EC Ramsay, BL Lasley: Urinary steroid evaluations to monitor ovarian function in exotic ungulates: III. estrone sulfate and prenanediol-3-glucuronide excretion in the Indian rhinoceros (*Rhinoceros unicornis*). Zoo Bio. 5:355-361, 1986.
- Kassam, AA, BL Lasley: Estrogen excretory patterns in the Indian rhinoceros (*Rhinoceros unicornis*), determined by simplified urinary analysis. Am. J. Vet. Res. 42:251-255, 1981.
- Klug, E, JC Martin, E Soberon, AR Gunzel, A Graser, K Dellbrugge, C Machado: Penislahmung mit partieller dauererektion und nekrotisierendem praputialprolaps bei einem breitmaulnashorn (*Ceratotherium simum*) (Penile prolapse and preputial stricture in a white rhinoceros). Die Blauen Hefte 58:400-404, 1978.
- Kock, N, D Morton, M Kock: Reproductive parameters in free-ranging female black rhinoceroses (*Diceros bicornis*) in Zimbabwe. Onderstepoort J. Vet. Res. 58:55-57, 1991.
- Kreag, KK: Hand-rearing a black rhinoceros, *Diceros bicornis*, at the Detroit Zoo (also describes a uterine prolapse). Int. Zoo Yrbk. 6:87-88, 1966.
- Krishne, Gowda, CD: Breeding the great Indian rhinoceros *Rhinoceros unicornis* at Mysore Zoo. Int. Zoo Yrbk. 9: 101-102, 1969.
- Ludwig, KS, ZJ Dolinar: Zur Kenntnis der Placenta der Panzernashorns (Study of the placenta of the greater Asian one-horned rhinoceros). Acta Anat. 55: 401, 1963.
- McFarlane, JR, CM Cabrera, SA Coulson, H Papkoff: Partial purification and characterization of rhinoceros gonadotropins, growth hormone, and prolactin: comparison with horse and sheep. Biol. Reprod. 44:94-101, 1991.
- Marx, E, A Koch: Neus aus der Schausammlung: das Indische Nashorn. (uterine tumor) Bericht Senckenbergischen Naturforschenden Gesellschaft Frankfurt am Main. 41:161-171. 1910.
- Montali, RJ: PC Mann, DM Jones, LA Griner, GR Kuehn, E Narushina, M Bush: Leiomyomas in the genital tract of large zoo animals. Proc. Int. Symp. Dis. Zoo Animals. Pp.117-122, 1982.
- Morris, D, C Jarvis: Mammalian gestation periods. Int. Zoo Yrbk. 1: 159-160, 1960.
- Ottow, B: Biologische Anatomie der Genitalorgane und der Fortpflanzung der Säugetiere (Anatomy of the genital and reproductive organs of wild animals). G. Fischer Publ., Jena, Germany, 1955.

- Platz, CC, SW Seager, M Bush: Collection and analysis of semen from a black rhinoceros. J. Am. Vet. Med. Assoc. 175:1002-1004, 1979.
- Ramsay, EC, L Kasman, BL Lasley: Urinary steroid evaluations for monitoring ovarian function in Indian and black rhinoceroses. 1985 Proc. Am. Assoc. Zoo Vets., P. 1, 1985.
- Ramsay, EC, LH Kasman, BL Lasley: Urinary steroid evaluations to monitor ovarian function in exotic ungulates: V. Estrogen and pregnanediol-3-glucuronide excretion in the black rhinoceros (*Diceros bicornis*). Zoo Bio. 6:275-282, 1987.
- Rawlins, CGC: The breeding of white rhinos in captivity - a comparative survey. Zool. Garten 49: 1-7, 1979.
- Richter, N: Imperforate hymen in an adult female black rhinoceros (*Diceros bicornis*). Pers. comm., Detroit Zoological Park, Royal Oak, Michigan, USA, 1986.
- Ripley, SD: Territorial and sexual behavior in the great Indian rhinoceros. A speculation. Ecology 33: 570-573, 1967.
- Rumple, Haltung und zucht von breitmaulnashornern (*Ceratotherium simum*) in Allwetterzoo Munster (Conformation and breeding of the white rhinoceros at the Munster Zoo). Ztschr. Kolner Zoo, Pp. 91-102, 1991.
- Schaffer, NE, BA Beehler: Preliminary studies on the anatomy and ultrasonic images of the reproductive structures of three species of rhinoceroses (*Rhinoceros unicornis*, *Diceros bicornis*, *Ceratotherium simum*). 1990 Proc. Am. Assoc. Zoo Vet., Pp.215-220, 1990.
- Schaffer, NE, B Beehler, RS Jeyendian, B Balke: Methods of semen collection in an ambulatory greater one-horned rhinoceros (*Rhinoceros unicornis*). Zoo Biol. 9:211-221, 1990.
- Smith LJ: A note on the birth of a white rhinoceros, *Diceros simus*, at Pretoria Zoo. Int. Zoo Yrbk. 8:134, 1968.
- Smith, RL, B Read: Management parameters affecting the reproductive potential of captive female black rhinoceros, *Diceros bicornis*. Zoo Bio., in press, contact Smith: San Antonio Zoo, San Antonio, Texas, USA, 1992.
- Tong, EH: The breeding of the great Indian rhinoceros at Whipsnade Park. Int. Zoo Yrbk. 2: 12-15, 1962.
- Wagner, RA: The reproductive cycle of the southern white rhinoceros. 1986 Proc. Am. Assoc. Zoo Vets., Pp.14-15, 1986.
- Yamamoto, S: Notes on the breeding of the black rhinoceros *Diceros bicornis* at Kobe Zoo. Int. Zoo Yrbk. 7: 163, 1967.
- Young, E: Semen extraction by manipulation technique in the black rhinoceros. Int. Zoo Yrbk. 7:166-167, 1967.

## RESPIRATORY

- Antonius, O: Bilder aus dem fruheren und jetigen Schonbrunner Tierbestand I. nashorner (pulmonary TB and enteritis in a Sumatran rhinoceros). Zoologischer Gart. 9:18-26, 1937.
- Barrie, M: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Oklahoma City Zoo, Oklahoma City, Oklahoma, USA, 1987.
- Citino, S: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1987.
- Dalvosio, JR, M Stetter, SK Wells-Mikota: Rhinoceros rhinorrhea: cause of an airborne *Mycobacterium bovis* outbreak in zoo keepers. (TB in *Ceratotherium simum*). Cl. Inf. Dis., in press, 1992.
- Faust, R: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Frankfurt Zoological Society, Frankfurt, Germany, 1982.
- Fiennes, RNT-W: Report of the Society's pathologist for the year (mitral stenosis, bronchitis in a black rhinoceros). J. Zool. 148:372, 1966.
- Gemeinhardt, H. R Ippen: Lungenmykose beim spitzmaulnashorn (*Diceros bicornis*) durch mischinfektion von *Aspergillus fumigatus* und *Absidia corymbifera* (*ramosa*)(Lung mycosis in a black rhinoceros). Zool. Farten. N.F. 52:342-350, 1982.
- Gillespie, D, M Burton, C Kohn, S Gosselin, L Munson: An unusual case of ulcerative stomatitis and prolonged pregnancy in a black rhinoceros. (includes a description of *Aspergillus* sp. pneumonia) 1990 Proc. Am. Assoc. Zoo Vet., Pp.319-321, 1990.
- Griffith, AS: Tuberculosis in captive wild animals. J. Hygiene (Cambridge) 28: 198-218, 1928.
- Hamerton, AE: Reports on deaths occurring in the society's gardens during the year 1941 (Tuberculosis in a rhinoceros). Proc. Zool. Soc. London 112(B): 120-135, 1942.
- Mayr, A, H Mahnel: Charakterisierung eines vom rhinoceros isolierten huhnerpockenvirus (characterization of a fowlpoxvirus isolated from rhinoceroses - includes a report on mycotic pneumonia). Arch. fur Gesamte Virusforschung 31:51-60, 1970.
- McManamon, R: Pharyngeal squamous cell carcinoma and fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Zoo Atlanta, Atlanta, Georgia, USA, 1987.
- Ruedi, D, R Muller: Klinische und pathologische-anatomische aspekte einer interstitiellen pneumonie beim panzernashorn (*Rhinoceros unicornis*) im Zoo Basel (Clinical, pathologic and anatomical aspects of interstitial pneumonia in a greater Asian one-horned rhinoceros). Int. Symp. Dis. Zoo Animals, Pp. 75-79, 1975.
- Scott, HH: Neoplasm in an Indian rhinoceros (sarcoma of heart and lungs). Proc. Zool. Soc. London 1927: 503-510, 1927.
- Takagi, S, M Kondo, S Noda, T Hironao: Tuberculosis in a rhinoceros. Bull. Univ. Osaka. Pref. 15:125-130, 1964.

## SENSORY ORGANS

- Blair, WR: The medical care of animals in the zoo (Cataract removal in an Indian rhinoceros). Sc. Monthly 35: 454-457, 1932.
- Goddard, J: A note on the absence of pinnae in the black rhinoceros. E. Afr. Wildl. J. 7: 178-180, 1969.
- Jenkins, DH: The use of etorphine (M99) and diprenorphine (M50-50) for anesthesia in a white rhinoceros for the removal of growths on the third eyelid. Auburn Vet. 34: 39-43, 1978.
- Khan, MGA: A case of ulcerative keratitis in one-horned Indian rhinoceros (*Rhinoceros unicornis*). Livestock Advisor (Bangalore) 6:3, 1981.
- Prole, JHB: Removal of a prolapsed eyeball in a wild black rhinoceros. Vet. Rec. 77: 156-157, 1965.
- Van der Werken, H: Amboseli: op safari in Afrika (eye disease). Artis (Amsterdam Zoo publication, Amsterdam, the Netherlands) 12:18-31, 1966.
- Young, E: Lesions in the vicinity of the eye of the white rhinoceros (*Diceros simus*). Int. Zoo Yrbk 5:194-195, 1965.

## TOXICOLOGY

- Schmidt, RE, JD Toft, RL Eason, DA Hartfiel: Possible toxic liver degeneration in black rhinoceroses (*Diceros bicornis*). J. Zoo An. Med. 13:3-10, 1982.
- Soll, MD, MC Williams: Mortality of a white rhinoceros (*Ceratotherium simum*) suspected to be associated with the blue-green alga *Microcystis aeruginosa*. J. S. Afr. Vet. Med. Assoc. 56:49-51, 1985.

## MISCELLANEOUS

- Allbrook, DB: MA Harthoorn, CP Luck, PG Wright: Temperature regulation in the white rhinoceros. J. Physiol. 43: 51-52, 1958.
- Bligh, J. AM Harthoorn: Continuous radiotelemetric records of deep body temperatures of some unrestrained African mammals under near-natural conditions. J. Physiol. 176: 145-162, 1965.
- Butler, DJ, PR De Forest, L Kobilinsky: The use of isoelectric focusing to identify rhinoceros keratins. J. Forensic Sc. 35:336-344, 1990.
- But, PP, YK Tam, LC Lung: Ethnopharmacology of rhinoceros horn I: antipyretic effects of rhinoceros and other animal horns. J. Ethnopharmacol. 30:157-168, 1990.
- But, PP, YK Tam, LC Lung: Ethnopharmacology of rhinoceros horn II: antipyretic effects of prescriptions containing rhinoceros horn or water buffalo horn. J. Ethnopharmacol. (Ireland) 33:45-50, 1991.

- Freeman, GH, JM King: Relations amongst various linear measurements and weight for black rhinoceroses in Kenya. E. Afr. Wildl. J. 7:67-72, 1969.
- Merenlender, AM, DS Woodruff, OA Ryder, R. Kock, J Valhala: Allozyme variation and differentiation in African and Indian rhinoceroses. J. Hered. 80:377-382, 1989.
- Morton, DJ, N Kock: Some properties of pineal gland hydroxyindole-0-methyltransferase from black rhinoceros (*Diceros bicornis*). J. Pineal Res. 8:35-40, 1990.

## PART II. ALPHABETICAL LISTING BY AUTHOR

- Abbasi, A, RE Weber, G Braunitzer, R Goltenboth: Molecular basis for ATP/2,3-biphosphoglycerate control switch-over (poikilotherm/homoiotherm) an intermediate amino acid sequence in the hemoglobin of the great Indian one-horned rhinoceros (*Rhinoceros unicornis*, Perissidactyla). Biol. Chem. 368:323-332, 1987.
- Alford, BT, RL Burkhardt, WP Johnson: Etorphine and diprenorphine as immobilizing and reversing agents in captive and free-ranging mammals. J. Am. Vet. Med. Assoc. 64: 702-705, 1974.
- Allbrook, DB: MA Harthoorn, CP Luck, PG Wright: Temperature regulation in the white rhinoceros. J. Physiol. 43: 51-52, 1958.
- Allen, JL, DL Janssen, JE Oosterhuis, TH Stanley: Immobilization of captive non-domestic hoofstock with carfentanil. 1991 Proc. Am. Assoc. Zoo Vet., Pp.343-353, 1991.
- Altmann, D: Zur heilung einer komplizierten offenen fraktur im nasenbereich eines breitmaulnashorns bei konservativer therapie. (Successful treatment of a complex, open fracture in the nasal region of a white rhinoceros with conservative therapy). Int. Symp. Dis. Zoo Animals 29:189. 1987.
- Amato, G, M Ashley, J Gatesy: Molecular evolution in living species of rhinoceros, implications for conservation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Anderson, J: Tooth replacement and dentition of the black rhinoceros (*Diceros bicornis* Linn.). Lammergeyer 6:41-46, 1966.
- Anderson, S: Sumatran rhinoceros at Copenhagen Zoo. Int. Zoo Yrbk. 3:56-57, 1961.
- Anon.: Rearing a baby black rhinoceros rescued during the Kariba floods. Oryx 7:22-25, 1963.
- Anon.: Tabulated data on the breeding biology of the black rhinoceros. Int. Zoo Yrbk. 7:166-167, 1967.
- Antonius, O: Bilder aus dem fruheren und jetigen Schonbrunner Tierbestand I. nashorner (pulmonary TB and enteritis in a Sumatran rhinoceros). Zoologischer Gart. 9:18-26, 1937.
- Asakura, S, S Nakagawa, M Masui: On the leptospirosis of the black rhinoceros. J. Jap. Assoc. Zool. Gard. Aq. 2:35-37, 1960.
- Aschaffenburg, R, ME Gregory, SJ Rowland, SY Thompson, VM Kon: The composition of the milk of the African black rhinoceros (*Diceros bicornis*, Linn.). Proc. Zool. Soc. London 137:475, 1961.
- Ashley, MV, DJ Melnick, D Western: Conservation genetics of the black rhinoceros (*Diceros bicornis*), I: evidence from the mitochondrial DNA of three populations. Cons. Biol. 4: 71-77, 1990.
- Bambir, S, P Kardum, S Curio: Calcification of endocardium in black rhinoceros (*Diceros bicornis*). Proc. Int. Symp. Dis. Zoo Animals, St. Vincent/Torino, Italy, pp.423-424, 1985.
- Barbiers, R: Post-anesthesia radial paralysis in a black rhinoceros (*Diceros bicornis*). Pers. comm., Detroit Zoological Park, Royal Oak, Michigan, USA, 1990.

- Barrie, M: Fungal pneumonia and ulcerative skin lesions in a black rhinoceros (*Diceros bicornis*). Pers. comm. Oklahoma City Zoo, Oklahoma City, Oklahoma, USA, 1987.
- Baumann, R, G Mazur, G Braunitzer: Oxygen binding properties of hemoglobin from the white rhinoceros (beta-2-GLU)) and the tapir. Resp. Physiol. 56:1-9, 1984.
- Baylis, HA: A new species of *Oxyuris* (*Nematoda*) from a rhinoceros. Ann. Mag. Nat Hist. 3: 516-524, 1939.
- Beck, CC: Chemical restraint of exotic species. J. Zoo An. Med. 33:3-66, 1972.
- Beddard, FE, J Murie: Exhibition of and mementos upon some drawings and specimens illustrative of the cause of death of an African rhinoceros (right-sided endocarditis and a carcinoma of the stomach). Proc. Zool. Soc. London, Pp. 246-247, 1891.
- Beehler, BA, M Bush: The use of iodochloroxyquin for treatment of chronic diarrhea in an Indian rhinoceros (*Rhinoceros unicornis*). J. Zoo An. Med. 12:22-24, 1981.
- Beggs, TB: Hemoglobinuria in the black rhino. Br. Vet. Zool. Soc. Newsl. and Summ. of Papers, P.3, 1981.
- Bhattacharjee, ML BR Halder: The occurrence of *Fasciola gigantica* in the liver of an Indian rhinoceros (*R. unicornis*). Br. Vet. J. 127:5-8, 1971.
- Bhatia, CL, JH Desai: Breeding the Indian rhinoceros at the Delhi zoological park. In RD Martin (Ed.), Breeding Endangered Species in Captivity, Academic Press, London, Pp. 303-313, 1975.
- Bigalke, R. The regeneration of the anterior horn of the black rhinoceros, *Diceros bicornis* Linn. Proc. Zool. Soc. London 115: 323-326, 1946.
- Bigalke, R, T Steyn, D de Vos, K De Waard: Observations of a juvenile female square-lipped or white (*Ceratotherium simum simum*) in the National Zoological Gardens. Proc. Zool. Soc. London 120:519-528, 1950.
- Blair, WR: The medical care of animals in the zoo (Cataract removal in an Indian rhinoceros). Sc. Monthly 35: 454-457, 1932.
- Bligh, J. AM Harthoorn: Continuous radiotelemetric records of deep body temperatures of some unrestrained African mammals under near-natural conditions. J. Physiol. 176: 145-162, 1965.
- Blumer, E: Dystocia in a white rhinoceros (*Ceratotherium simum simum*). Pers. comm. Fossil Rim Wildlife Center, Glen Rose, Texas, USA, 1992.
- Boever, WJ: Interdigital corns in a black rhinoceros. Vet. Med. Sm. An. Clin. 71:827-830, 1976.
- Boever, WJ: Interdigital papilloma in a black rhinoceros. J. Am. Vet. Med. Assoc. 165:823, 1974.
- Bolau, H: Das ende des Indischen nashorns in Hamburger Zoologischen Garten. Zoologischer Garten 41:334-336, 1900.
- Booth, VF, AM Coetzee: The capture and relocation of black and white rhinoceroses in Zimbabwe. In: Nielsen, L, RD Brown (eds.). Translocation of Wild Animals. Wisconsin Humane Society and Caesar Kleberg Wildlife Research Institute, Milwaukee, Wisconsin, p. 333, 1988.



- Bowling, A: Blood groups in black rhinoceroses. Pers. comm. University of California, Davis, California, USA, 1992.
- Brocklesby, DW. A *Babesia* sp. of the black rhinoceros. Vet. Rec. 80:434, 1967.
- Butler, DJ, PR De Forest, L Kobilinsky: The use of isoelectric focusing to identify rhinoceros keratins. J. Forensic Sc. 35:336-344, 1990.
- But, PP, YK Tam, LC Lung: Ethnopharmacology of rhinoceros horn I: antipyretic effects of rhinoceros and other animal horns. J. Ethnopharmacol. 30:157-168, 1990.
- But, PP, YK Tam, LC Lung: Ethnopharmacology of rhinoceros horn II: antipyretic effects of prescriptions containing rhinoceros horn or water buffalo horn. J. Ethnopharmacol. (Ireland) 33:45-50, 1991.
- Cambre, RC: Hepatocellular carcinoma in an adult black rhinoceros (*Diceros bicornis*). Pers. comm. Denver Zoological Gardens, Denver, Colorado, USA, 1990.
- Campbell, Mark: Bile stasis, gastric ulcers and interstitial nephritis in a Sumatran rhinoceros (*Didermocerus sumatrensis*). Pers. comm., Cincinnati Zoological Gardens, Cincinnati, Ohio, USA, 1992.
- Cave, AJE: The pedal scent gland in rhinoceros. Proc. Zool. Soc. London 139: 685-690, 1962.
- Cave, AJE: Hairs and vibrissae in the *Rhinocerotidae*. J. Zool. (London) 157: 247-257, 1969.
- Cave, AJE., DB Allbrook: Epidermal structures in a rhinoceros (*Ceratotherium simum*). Nature 182: 196-197, 1958.
- Cave, AJE, FJ Aumonier: Elephant and rhinoceros lymph node histology. J. Royal Microscop. Soc. 80:209-214, 1962.
- Cave, AJE, FJ Aumonier: The visceral histology of the Sumatran rhinoceros. J. Royal Microbiol. Soc. 82:29-37, 1963.
- Chaffee, PS: Report on the death of a rhinoceros (from *Clostridium sordelli*). J. Sm. An. Prac. 9:133-134, 1968.
- Chakrabarty, A, M Bhattacharya, G Baishya: A note on the liver of Indian one-horned rhinoceros (*Rhinoceros unicornis*). Ind. Vet. J. 66:1071-1072, 1989.
- Chaplin, H Jr., AC Malacek, RE Miller, CE Bell, LS Gray, VL Hunter: Acute intravascular hemolytic anemia in the black rhinoceros: hematologic and immunohematologic observations. Am. J. Vet. Res. 47:1313-1320, 1986.
- Char, KL, S Ramanathan, MRK Rao, KC Rao, SV Rao: Salmonellosis in an adult Indian rhinoceros (*Rhinoceros unicornis*) J. Zoo An. Med. 15:155-157, 1984.
- Citino, S: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1987.
- Citino, S: Encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Miami MetroZoo, Miami, Florida, USA, 1988.

- Clausen, B: Survey for trypanosomes in black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 17:581-596, 1981.
- Clausen, B, WA Ashford: Bacteriological survey of black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 16:475-480, 1980.
- Clemens, ET, GMO Maloiy: The digestive physiology of three east African herbivores: the elephant, rhinoceros and hippopotamus. J. Zool. (London) 198: 141-156, 1982.
- Clemens, ET, GMO Maloiy: Nutrient digestibility and gastrointestinal electrolyte flux in the elephant and rhinoceros. J. Wildl. Dis. 24: 547-550, 1988.
- Coenraad-Uhlig, V: Von gefangenleben eines jungen nashorns (On the captivity of young rhinoceroses). Zool. Garten Leipzig (N.F.) 6:114-116, 1932.
- Condy, JB, Jim McCulloch: The treatment of eight square-lipped rhinoceros (*Ceratotherium simum*) with an antihelmintic. J. S. Afr. Vet. Med. Assoc. 34:99-101, 1963.
- Cumming, D: Small population management of black rhinos. Pachyderm 9: 12-13, 1987.
- Dalvosio, JR, M Stetter, SK Wells-Mikota: Rhinoceros rhinorrhea: cause of an airborne *Mycobacterium bovis* outbreak in zoo keepers. (TB in *Ceratotherium simum*). Cl. Inf. Dis., in press, 1992.
- Denney, RN: Black rhinoceros immobilization utilizing a new tranquilizing agent. East Afr. Wildl. J. 7:159-165, 1969.
- DeJong, WW, EC Nuy-Terwindt, M Versteeg: Primary structures of a alpha-crystallin A chains of elephant, whale, hyrax and rhinoceros. Biochem. Biophys. Acta 491:573-580, 1977.
- DeVos, V: Volvulus in a white rhinoceros (*Ceratotherium simum*). J. S. Afr. Vet. Med. Assoc. 46:374, 1975.
- DeVos, V: Congenital unilateral aorta in a black rhinoceros (*Diceros bicornis bicornis*). J. S. Afr. Vet. Assoc. 49:71-end, 1978.
- DeVos, V: Black rhinoceros (*Diceros bicornis minor*) mortality in the Kruger National Park. Koedoe 23:188-189, 1980.
- DeVos, V, HH Braack: Castration of a black rhinoceros. Koedoe 23:185-187, 1980.
- Dierenfeld, ES: Vitamin E levels measured in rhino browse plants. Rhinoceros Conserv. Newsletter 1: 1-2, 1990.
- Dierenfeld, ES, SB Citino: Circulating plasma alpha-tocopherol following a single injection in a black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 25:647-648, 1989.
- Dierenfeld, ES, R du Toit, L Bass: Nutrient composition of selected browses consumed by black rhinoceroses (*Diceros bicornis*) in Zimbabwe and Texas. J. Zoo Wildl. Med., in preparation, 1992.
- Dierenfeld, ES, R du Toit, RE Miller, EP Dolensek: Vitamin E in captive and wild black rhinoceros (*Diceros bicornis*). J. Wildl. Dis. 24:547-550, 1988.

- Dierenfeld, ES, FK Waweru, R du Toit, RA Brett: Alpha-tocopherol levels in plants consumed by black rhinoceros (*Diceros bicornis*): native browses compared with common zoo forages. 1990 Proc. Am. Assoc. Zoo Vet., Pp.196-197, 1990.
- Dittrich, L: Breeding the black rhinoceros *Diceros bicornis* at the Hanover Zoo. Int. Zoo Yrbk. 7: 161-162, 1967.
- Dittrich, L: Beobachtung zur jungendentwicklung eines breitmausnashorns (*Ceratotherium simum*) im Zoo Hannover (Birth and development of white rhinoceroses). Z. Kolner Zoo 14: 73-81, 1971.
- Douglass, EM, RE Plue, CE Kord: Hemolytic anemia suggestive of leptospirosis in black rhinoceros. J. Am. Vet. Med. Assoc. 177:921-923, 1980.
- Dresser, B: Reproductive research update. Pachyderm 9:22-26, 1987. Duncan, IM: The use of flumethrin pour-on for de-ticking black rhinoceros (*Diceros bicornis*) prior to translocation in Zimbabwe. J. S. Afr. Vet. Med. Assoc. 60:195-197, 1989.
- du Toit, R: Haematological studies of black rhinos in Zimbabwe. Pachyderm 9:28-29, 1987.
- Ensley, PK, M Bush: Rectal mucosal prolapse in an Indian rhinoceros (*Rhinoceros unicornis*). J. Zoo An. Med. 7:22-25, 1976.
- Fairbanks, VF, RE Miller: Beta-globin chain hemoglobin polymorphism and hemoglobin stability in the black rhinoceros (*Diceros bicornis*). Am. J. Vet. Res. 51:803-807, 1990.
- Faust, R: Fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Frankfurt Zoological Society, Frankfurt, Germany, 1982.
- Fiennes, RNT-W: Report of the Society's pathologist for the year (mitral stenosis, bronchitis in a black rhinoceros). J. Zool. 148:372, 1966.
- Fletcher, TB, SK Sen: A veterinary entomology for India. Part XII (Report on botfly larvae in a rhinoceros). J. Cen. Bur. An. Hus. Dairy 4: 40-104, 1930.
- Flynn, FW, Distribution, status, and feeding ecology of the Sumatran rhinoceros in Malaysia. M.Sc. Thesis. University of Montana, Missoula, Montana, USA, 1983.
- Foose, TJ: Trophic strategies of ruminant vs. nonruminant ungulates. Ph.D Dissertation. University of Chicago, Chicago, Illinois, USA, 1982.
- Fox, H: Pathology in the Philadelphia menagerie (Reports on fungal infections of rhinoceros skin). Rep. Lab. Mus. Comp. Path. Pp. 1-25, 1925.
- Frahm, M: Apparent colic after treatment of a black rhinoceros (*Diceros bicornis*) for *Oxyuris karamoja*. Pers. comm., Gladys Porter Zoo, Brownsville, Texas, USA, 1992.
- Franz, H. O Bohlert: Arthresioneuroepithelioma bei einem Indischen panzernashorn (Neuroepithelioma in a greater one-horned Asian rhinoceros). Int. Symp. Dis. Zoo Animals 32:353-358, 1990.
- Franz, W, B Seidel, A Jacob: Clinical report on horn amputation of a wide-mouthed rhinoceros. Proc. Int. Symp. Dis Zoo An. Pp.353-358, 1988.

- Frape, DL, MG Tuck, NH Sutcliffe, DB Jones: The use of inert markers in the measurement of the digestibility of cubed concentrates and of hay given in several proportions to the pony, horse and white rhinoceros (*Diceros simus*). Comp. Biochem. Physiol. 72:77-83, 1982.
- Freeman, GH, JM King: Relations amongst various linear measurements and weight for black rhinoceroses in Kenya. E. Afr. Wildl. J. 7:67-72, 1969.
- Furley, C: Diseases and management of black and Sumatran rhinoceroses at the Howletts and Port Lympne Zoos. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, 1992.
- Gairola, HK: Study of parturition in Great Indian rhinoceros. Ind. Vet. J. 11: 185-190, 1987.
- Garrod, AH: On the visceral anatomy of the Sumatran rhinoceros, *Ceratorhinus sumatrensis*. Proc. Zool. Soc. London, Pp.92-104, 1873.
- Garrod, AH: On some points of the visceral anatomy of the rhinoceros of the Sunderbunds (*R. sondaicus*). Proc. Zool. Soc. London Pp. 707-711, 1877.
- Garrod, AH: On the Taenia of the rhinoceros of the Sunderbunds (*Plagiofaenia gigantea* Peters). Proc. Zool. Soc. London Pp. 788-789, 1877.
- Garrod, AH: On the brain of the Sumatran rhinoceros. Trans. Zool. Soc. London 10: 411-414, 1878.
- Geldenhuys, L: Black rhinoceros (*Diceros bicornis*) capture and translocation techniques and boma management used in Namibia. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, CA, USA, in press, 1992.
- Gemeinhardt, H. R Ippen: Lungenmykose beim spitzmaulnashorn (*Diceros bicornis*) durch mischinfektion von Aspergillus fumigatus und Absidia corymbifera (ramosa)(Lung mycosis in a black rhinoceros). Zool. Garten. N.F. 52:342-350, 1982.
- George, M, LG Chemnick, OA Ryder: Mitochondrial DNA analysis of rhinoceros subspecies. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- George, M Jr, LA Puentes, OA Ryder. Genetic differences between subspecies of white rhinoceroses. In Int. Studbook African Rhinoceroses, HG Klos (Ed.), Berlin Zoo, Berlin, Germany, 1983.
- Ghebremeskel, K, G Williams, G Lewis, R du Toit: Serum alpha-tocopherol, all-trans retinol, total lipids and cholesterol in the black rhinoceros (*Diceros bicornis*). Comp. Biochem. Physiol. 91A:343-345, 1988.
- Ghebremeskel, K, G Williams, RA Brett, R Burek, LS Harbige: Nutrient composition of plants most favored by black rhinoceroses (*Diceros bicornis*) in the wild. Comp. Biochem. Physiol. 98A: 521-534, 1991.
- Gillespie, D, M Burton, C Kohn, S Gosselin, L Munson: An unusual case of ulcerative stomatitis and prolonged pregnancy in a black rhinoceros. 1990 Proc. Am. Assoc. Zoo Vet., Pp.319-321, 1990.
- Goddard, J: Mating and courtship of the black rhinoceros (*Diceros bicornis* L.). E. Afr. Wildl. J. 4:69-75, 1966.
- Goddard, J: Food preferences of two black rhinoceros populations. E. Afr. Wildl. J. 6: 1-19, 1968.

- Goddard, J: A note on the absence of pinnae in the black rhinoceros. E. Afr. Wildl. J. 7: 178-180, 1969.
- Goddard, J: Age criteria and vital statistics of a black rhinoceros population. E. Afr. Wildl. J. 8:105-121, 1970.
- Goddard, J: A note on age of sexual maturity in wild black rhinoceros. E. Afr. Wildl. J. 8: 205, 1970.
- Godfrey, RW, BL Dresser: Coordination of research efforts involving rhinoceros in the United States. 1989 Proc. Am. Assoc. Zoo Vet., P.54, 1989.
- Godfrey, RW, BL Dresser, BJ Campbell: Tuberculosis testing of captive rhinoceroses. 1990 Proc. Am. Assoc. Zoo Vet., P.312, 1990.
- Goltenboth, R: Sterilitätsbehandlung beim panzernashorn (Treatment of sterility in a greater one-horned Asian rhinoceros). Arbeitsbericht d. 2. Arbeitstagung der Zootierärzte im Deutsche-Sprachigen Raum (Dortmund) (AZ), 56-57, 1983.
- Goltenboth, R: Zuchtprobleme bei panzernashorn (Management problems in greater one-horned Asian rhinoceroses). Arbeitsbericht d. 5. Arbeitstagung der zootierärzte im deutsche-Sprachigen Raum (Köln), 24-26, 1985.
- Goltenboth, R: Zur tierärztlichen Betreuung der nashörner im Zoo Berlin (Veterinary treatment of rhinoceroses at the Berlin Zoo). Zool Gart. 56:43-52, 1986.
- Goltenboth, R: Zehenfraktur bei einem spitzmaulnashorn (Toe fracture in a black rhinoceros). AZ 8: 125-130, 1988.
- Goltenboth, R: Verdacht einer herpesvirus infektion bei spitznashornern im zoologischen garten Berlin (Suspected herpesvirus infection in a black rhinoceros in the Berlin Zoo). Arbeitsbericht d. 8. Arbeitstagung der zootierärzte im Deutsch-Sprachigen Raum, 123-124, 1988.
- Goltenboth, R: Unterkieferfraktur beim panzernashorn (Lower jaw fracture in a greater one-horned Asian rhinoceros). AZ 9:105-106, 1989.
- Goltenboth, R: Zu einigen chirurgischen eingriffen bei nashornern im Zoo Berlin (Surgical procedures on rhinoceroses in the Berlin Zoo). Berl. Munch. Tierarztl. Wschr. 104: 15-18, 1991.
- Goltenboth, R: Zyklen- und trachtigkeitsdiagnose durch kotanalyse beim spitzmaulnashorn (*Diceros bicornis*), Ind. elefanten und okapi (cycle and pregnancy diagnosis by excrement analysis in black rhinoceroses, Indian elephants and okapi). VAZ 10: 25-27, 1990.
- Goltenboth, R: Spitznashorn im Zoo Berlin (Black rhinos in the Berlin Zoo). Vet. Bericht Nashorn EEP Berlin, 1991.
- Goltenboth, R., H-G Klos: Erfahrungen mit Bay VA 1470 bei der ruhigstellung von zootieren Berlin (Tranquilization of zoo animals). Berl. Munch. Tierarztl. Wschr. 83:147-151, 1970.
- Greed, GR: Notes on the breeding of the black rhinoceros *Diceros bicornis*. Int. Zoo Yrbk. 7: 158-161, 1967.
- Greed, RE: The composition of milk of the black rhinoceros. Int. Zoo Yrbk. 2:106, 1961.

- Greene, CT: Dipterous larvae parasitic of man and animals and some dipterous larvae causing myiasis in man. Trans. Am. Entomol. Soc. 82: 17-34, 1956.
- Gregory, ME, SJ Rowland, SY Thompson: Changes during lactation in the composition of the milk of the black rhinoceros, *Diceros bicornis*. Int. Zoo Yrbk. 5:154, 1965.
- Griffith, AS: Tuberculosis in captive wild animals. J. Hygiene (Cambridge) 28: 198-218, 1928.
- Griner, LA: Pathology of zoo animals. Zoological Society of San Diego, San Diego, California, Pp.484-488, 1983.
- Groves, CP, F Kurt: *Dicerorhinus sumatrensis*. Mammalian Species 21: 1-6, 1972.
- Grunberg, W, H Burtscher: Uber eine pockenartige krankheit beim rhinozeros (*Diceros bicornis* L.)(pox-like lesions and mucous membrane lesions). Zentralblatt fur veterinarmedizin B v. 15:649-647, 1968.
- Hagenbeck, CH: Notes on the artificial rearing of a great Indian rhinoceros (*Rhinoceros unicornis*) at Hamburg Zoo. Int. Zoo. Yrbk. 9:99-101, 1969.
- Hagenbeck, D: Report on the hand-rearing of an Indian rhinoceros (*Rhinoceros unicornis*) at Hamburg Zoo. Int. Zoo Yrbk. 6:82-87, 1966.
- Haigh, JC: Case of a constipated rhino. Vet. Rec. 97:282, 1975.
- Haigh, JC: The capture of wild black rhinoceros using fentanyl and azaperone. S. Afr. J. Wildl. Res. 7:11-14, 1977.
- Hall-Martin, AJ, T Erasmus, BP Botha: Seasonal variation of diet and faeces composition of black rhinoceroses (*Diceros bicornis*) in the Addo elephant National Park. Koedoe 25: 63-82, 1982.
- Hall-Martin, AJ, BL Penzhorn: Behavior and recruitment of translocated black rhinoceros (*Diceros bicornis*). Koedoe 20:147-162, 1977.
- Halstrom, E: Notes on breeding the black rhinoceros *Diceros bicornis* at the Sydney Zoo. Int. Zoo Yrbk. 7: 165, 1967.
- Hamerton, AE: Report on deaths occurring in the society's gardens during the year 1938 (Osteomyelitis secondary to trauma in an Indian rhinoceros). Proc. Zool. Soc. London 109: 281-337, 1939.
- Hamerton, AE: Reports on deaths occurring in the society's gardens during the year 1941 (Tuberculosis in a rhinoceros). Proc. Zool. Soc. London 112(B): 120-135, 1942.
- Harthoorn, AM: Capture of the white rhinoceros (*Ceratotherium s. simum* Burchell) with the use of drug immobilization technique. Can. J. Comp. Med. 26:203, 1962.
- Harthoorn, AM: Restraint of undomesticated animals. J. Am. Vet. Med. Assoc. 149:875-880, 1966.
- Harthoorn, AM, J Bligh: The use of a new oripavine derivative with potent morphine-like activity for the restraint of hooved wild animals. Vet. Sc. 6:290-299, 1965.
- Harthoorn, AM, L Lock: The rescue of rhinoceroses at Kariba Dam. Oryx 5:352-355, 1960.

- Harthoorn, AM, IC Player: The narcosis of the white rhinoceros. A series of 18 case histories. 5th Int. Symp. Dis. Zoo Animals 89(Suppl. 1): 225, 1964.
- Hawkey, CM: Comparative mammalian haematology. Wm. Heinemann Medical Books Ltd, London, Pp.154-155, 1975.
- Hays, HR: Notes on breeding the black rhinoceros *Diceros bicornis* at the Pittsburgh Zoo. Int. Zoo Yrbk. 7: 164-165, 1967.
- Herrmann, VM, RE Miller: Total parenteral nutrition in a premature rhinoceros calf. Nutr. Cl. Pract. 6:193-196, 1991.
- Hindle, JE, JK Hodges: Metabolism of oestradiol-17 beta and progesterone in the white rhinoceros (*Ceratotherium simum simum*). J. Repro. Fert. 90:571-580, 1990.
- Hitchins, PM, JL Anderson. Reproduction, population characteristics and management of black rhinoceroses *Diceros bicornis minor* in the Hluhluwe/Corridor/Umfolozu game reserve complex. S. Afr. J. Wildl. Res 13: 78-85, 1983.
- Hitchins, PM, ME Keep: Observations on skin lesions of the black rhinoceros (*Diceros bicornis* Linn.) in the Hluhluwe game reserve, Zululand. Lammergeyer 12: 56-65, 1970.
- Hitchins, PM, ME Keep, K Rochat: The capture of black rhinoceros in Hluhluwe Game Reserve and their translocation to the Kruger National Park. Lammergeyer 17:18-29, 1972.
- Hodges, JK, DI Green: The development of an enzyme-immunoassay for urinary pregnanediol-3-glucuronide and its application to reproductive assessment in exotic animals. J. Zool. (London) 219:89-99, 1989.
- Hofmann, RR: Evolutionary steps of ecophysiological adaption and diversification of ruminants: a comparative view of their digestive systems. Oecologica 78: 443-457, 1989.
- Hofman, RR: Endangered tropical herbivores - their nutritional requirements and habitat demands. Twelve critically endangered species. 3rd Int. Symp. Nutr. Herbivores (Penang, Malaysia) Species 10: 22-24, 1991.
- Hofmeyer, JM: The use of haloperidol as a long-acting neuroleptic in game capture operations. J. S. Afr. Vet. Assoc. 52:273-282, 1981.
- Hofmeyer, JM, H Ebedes, REM Fryer, JR de Bruine: The capture and translocation of the black rhinoceros *Diceros bicornis* Linn. in South West Africa. Madoqua 9:35-44, 1975.
- Hogan, H: Recurrent vulvar ulcer in a white rhinoceros (*Ceratotherium simum simum*). Pers. comm., Kings Island, Kings Island, Ohio, USA, 1992.
- Horak, IG, KM McIvor, TN Petney, V De Vos: Some avian and mammalian hosts of *Amblyomma hebraeum* and *Amblyomma marmoreum* (Acari: Ixodidae). Onderstepoort J. Vet. Res. 54:397-404, 1987.
- Howard, JG, M Bush, L Colly, V de Vos, DE Wildt: Electroejaculation techniques and semen evaluation in rhinoceroses. 1983 Proc. Am. Assoc. Zoo Vet., Pp. 74-75, 1983.
- Hubback, TR: The Asiatic two-horned rhinoceros, *Didermocerus sumatrensis*, J. Mammal. 20: 1-20, 1939.

- International Species Inventory System: Normal physiological data. ISIS, Apple Valley, MN. Pp.631-633, 1989.
- Jacobi, EF: Recuperative power of the horn of the black rhinoceros (*Rhinoceros bicornis* L.). Zoologischer Garten 23:227-233, 1957.
- Janssen, D: Fatal colonic volvulus in a female Sumatran rhinoceros (*Didermocerus sumatrensis*). Pers. Comm., San Diego Zoo, USA, 1992.
- Jarofke, D, HG Klos: Diseases of African rhinoceroses in captivity (pedigree evaluation). Proc. Int. Symp. Dis. Zoo Animals Pp. 287-290, 1979.
- Jarofke, D, HG Klos: Successful treatment of black rhinoceros (*Diceros bicornis*) for myoglobinuria in Zoo Berlin. Proc. Int. Symp. Dis. Zoo Animals, pp. 385-388, 1988.
- Jarofke, D, H-G Klos: Erkrankung bei in gefangenschaft gehaltenen Afrikanischen nashornen (Zuchtbuchhauswertung) (Diseases of captive African rhinoceroses). Proc. Int. Symp. Dis. Zoo Animals 14:287-289, 1979.
- Jarofke, V, HG Klos, R Frese: Zuchtbuchauswertung der todesuraschen von spitzmaulnashornern (*Diceros bicornis* L.) in zoologischen garten (Summary of pathology results from 151 cases). Proc. Int. Symp. Dis. Zoo Animals 33:333-336, 1991.
- Jayasinghe, JB, V Silva: Electrocardiographic study on the African black rhinoceros. Br. Vet. J. 128:1xix-1xx, 1972.
- Jenkins, DH: The use of etorphine (M99) and diprenorphine (M50-50) for anesthesia in a white rhinoceros for the removal of growths on the third eyelid. Auburn Vet. 34: 39-43, 1978.
- Jessup, DA, MD Kock, P Morkel: Health data gained from black rhino immobilized for relocation. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Jessup, DA, RE Miller, CA Bolin, MD Kock, P Morkel: Evaluation for *Leptospirosis interrogans* in wild-caught and captive black rhinoceroses (*Diceros bicornis*) by microscopic agglutination titers and fluorescent antibody testing. J. Zoo Wildl. Med., in press, 1992.
- Jones, DM: The husbandry and veterinary care of captive rhinoceroses. Int. Zoo Yrbk. 19:239-252, 1979.
- Jones, DM, LR Thomsett: A short review of the diseases of rhinoceros skin with case reports on an exudative dermatitis of the white rhinoceros (*Ceratotherium simum*). Proc. Int. Symp Dis. Zoo Animals, P. 227, 1972.
- Kasman, LH, EC Ramsay, BL Lasley: Urinary steroid evaluations to monitor ovarian function in exotic ungulates: III. estrone sulfate and prenanediol-3-glucuronide excretion in the Indian rhinoceros (*Rhinoceros unicornis*). Zoo Bio. 5:355-361, 1986.
- Kassam, AA, BL Lasley: Estrogen excretory patterns in the Indian rhinoceros (*Rhinoceros unicornis*), determined by simplified urinary analysis. Am. J. Vet. Res. 42:251-255, 1981.
- Keep, ME: A checklist of the blood parasites recorded from the larger wild mammals in Zululand. Lammergeyer 11:54-57, 1970.



- Keep, ME: Observable criteria for assessing the physical condition of the white rhinoceros (*Ceratotherium simum*) in the field. Lammergeyer 13:25-28, 1973.
- Keep, ME: The use of etorphine hydrochloride (M-99)(Reckitt), fentanyl (Janssen) and hyoscine hydrobromide combination for field capture of white rhinoceroses. Lammergeyer 19:28-30, 1973.
- Keep, ME: The use of "Rompun" (VA1470) Bayer on the white rhinoceros. J. Zoo An. Med. 4:21-24, 1973.
- Keep ME: Some physiological serum normals from free living wild animals species from Natal, S. Africa. J. Zoo An. Med. 7:7, 1976.
- Keep, ME: Etorphine hydrochloride antagonists used in the capture of white rhinoceros, *Ceratotherium simum simum*. Lammergeyer 13:60-68, 1981.
- Keep, ME, PA Basson: Mycobacteriosis in a black rhinoceros (*Diceros bicornis* Linnaeus 1758). J. S. Afr. Vet. Assoc. 44:285-286, 1973.
- Keep, ME, PJ Keep, HJ Schoeman: A large *Babesia* sp. and a theileria-like piroplasm of the square-lipped rhinoceros. J. S. Afr. Vet. Med. Assoc. 41:291-294, 1970.
- Keep, ME, JL Tinley, K Rochat, JV Clark: The immobilization and translocation of the black rhinoceros *Diceros bicornis* using etorphine hydrochloride (M99). Lammergeyer 10:4-11, 1969.
- Khan, MGA: A case of ulcerative keratitis in one-horned Indian rhinoceros (*Rhinoceros unicornis*). Livestock Advisor (Bangalore) 6:3, 1981.
- King, JM: The capture and translocation of the black rhinoceros. E. Afr. Wildl. J. &:115-130, 1969.
- King, JM, BH Carter: The use of the oripavine derivative M99 for the immobilization of the black rhinoceros (*Diceros bicornis*) and its antagonism with the related compound M285 or nalorphine. E. Afr. Wildl. J. 3:19-26, 1965.
- Kirkwood, JK, J Eva, SI Jackson: The nutrition and growth of a hand-reared low birth weight rhinoceros (*Diceros bicornis*) during her first six months. 1989 Proc. Am. Assoc. Zoo Vets., Pp.32-41, 1989.
- Kirkwood, JK, J Markham, CM Hawkey, SI Jackson: Plasma vitamin E response in two black rhinoceros following dietary supplementation. Vet. Rec. 128:185-186, 1991.
- Kjaersgaard, P: A note on m articularis humeri in the wild boar, bear, tapir, and rhinoceros. Gegenbaurs Morphol. 120:143-145, 1974.
- Kloppel, G: Uber einen fall von volvolus jejuni bei einem nashorn (Unsuccessful treatment of a jejunal volvulus in a rhinoceros). Zoologischer Garten 21:245-249, 1956.
- Klos, HG: Uber die zeitdauer des hornersatzes beim breitmaulnashorn (*Ceratotherium simum*) (On the duration of horn growth in the white rhinoceros) . Zoologischer Garten 36:246-250, 1969.
- Klos, HG, R. Frese: Population trends in African rhinoceroses living in zoos and safari parks. Int. Zoo Yrbk. 18:231-234, 1978.

- Klos, HG, R Frese: International studbook of the black rhinoceros (causes of death). Berlin Zoo, Berlin, Germany, 1981.
- Klos, HG, R Frese: International studbook of African rhinoceroses, 3rd. Published by Berlin Zoological Garden, Berlin, Germany, 1987.
- Klos, HG, H Fradrich: Eine uberblick uber die in zoologischen garten gehaltenen afrikanishchen nashorner (An overview of African rhinoceroses in zoological gardens including causes of death). Zool. Gart. 38:227-245, 1970.
- Klos, HG, D Jarofke, H Languer, E Malek: Die chemische zusammensetzung der pansernashornmilch (The composition of the milk of the greater one-horned Asian rhinoceros). Zuchtbuchhygiene 7:175-178, 1972.
- Klug, E, JC Martin, E Soberon, AR Gunzel, A Graser, K Dellbrugge, C Machado: Penislahmung mit partieller dauererektion und nekrotisierendem praputialprolaps bi einem breitmaulnashorn (*Ceratotherium simum*)(Penile prolapse and preputial stricture in a white rhinoceros). Die Blauen Hefte 58:400-404, 1978.
- Kock, MD: Capture and translocation of the black rhinoceros (*Diceros bicornis*) in Zimbabwe: capture and management modifications to reduce stress and mortalities. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, in press, 1992.
- Kock, MD: Use of hyaluronidase and increased etorphine (M99) doses to improve induction times and reduce capture related stress in the chemical immobilization of free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 24: in press, 1992.
- Kock, MD, M la Grange, R du Toit: Chemical immobilization of free-ranging black rhinoceros (*Diceros bicornis*) using combinations of etorphine (M99), fentanyl, and xylazine. J. Zoo Wildl. Med. 21:155-165, 1990.
- Kock, MD, P Morkel: Capture and translocation of free-ranging black rhinoceroses (*Diceros bicornis*): medical and management problems. In Fowler, M (ed.), Zoo and Wild Animal Medicine, WB Saunders Co, Philadelphia, Pennsylvania, in press, 1993.
- Kock, MD, R du Toit, N Kock, D Morton, C Foggin, B Paul: Effects of capture and translocation on biological parameters in free-ranging black rhinoceros (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:155-165, 1990.
- Kock, MD, R du Toit, D Morton, N Kock, B Paul: Baseline biological data collected from chemically immobilized free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:283-291, 1990.
- Kock, N, C Foggin, M Kock, R Kock: Hemosiderosis in the black rhinoceros (*Diceros bicornis*) in Zimbabwe: a comparison between captive, semi-captive and free-ranging animals. J. Zoo Wildl. Med. 24:in press, 1992.
- Kock, N, C Foggin, M Kock, P Trembath, D Jessup: Coronary artery aneurysms in two black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 22:355-358, 1991.

- Kock, N. MD Kock: Skin lesions in free-ranging black rhinoceroses (*Diceros bicornis*) in Zimbabwe. J. Zoo Wildl. Med. 21:447-452, 1990.
- Kock, N, MD Kock, A Pawandiwa, T Matambo: Postmortem findings in translocated black rhinoceroses (*Diceros bicornis*) in Zimbabwe. Proc. Int. Symp. Dis. Zoo Animals, Pp.275-279, 1989.
- Kock, N, D Morton, M Kock: Reproductive parameters in free-ranging female black rhinoceroses (*Diceros bicornis*) in Zimbabwe. Onderstepoort J. Vet. Res. 58:55-57, 1991.
- Kock, RA: Population and veterinary status of black rhinos in the United Kingdom. Pachyderm 9:29-32, 1987.
- Kock, RA, M Jago, FMD Gulland, J Lewis: The use of two novel alpha 2 adrenoceptor antagonists idazoxan and its analogue RX821002A in zoo and wild animals. J. Assoc. Vet. Anaesth. 16: 4-10, 1989.
- Kock, RA, J Garnier: Veterinary management of three species of rhinoceros in zoological collections. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, in press, 1992.
- Kolb, K: Klinische Untersuchung und physiologische daten des nashornes (*Diceros bicornis* L.)(Clinical examination and physiological data in rhinoceroses). BMTW 71:380-382, 1958.
- Kon, VM: Changes during lactation in the composition of the milk of the African rhinoceros (*Diceros bicornis* Linn.) Proc. Zool. Soc. London 145: 327-333, 1965.
- Kraneveld, FC, JHW Kreidel: *Rhinoceros sondaicus* een gastheer voor *Ambylomma creantum* op Java (Ambylomma creantum ticks in Javan rhinoceroses). Hemera Zoo 63: 364-372, 1956.
- Kreag, KK: Hand-rearing a black rhinoceros, *Diceros bicornis*, at the Detroit Zoo. Int. Zoo Yrbk. 6:87-88, 1966.
- Krieger, W: Die endoparasiten beim rotwild unter berudksichtigung der jahreszeitlichen schwankungen in der ei-ausscheidung und ausscheidung der lungenwurmlarven. Vet. Med. Diss. (Munchen), 1960.
- Krishne, Gowda, CD: Breeding the great Indian rhinoceros *Rhinoceros unicornis* at Mysore Zoo. Int. Zoo Yrbk. 9: 101-102, 1969.
- Krumbeigel, I: Das kopenhagener Sumatranashorn, *Didermocerus sumatrensis* (Fischer, 1814) (nephritis in a Sumatran rhinoceros). Saugetierkundliche Mitteilungen 13:97-100, 1965.
- Kulow, W: Krankheiten der nashorner aus der sicht des zootierarztes mit einem zur immobilisierung (Rhinoceros diseases with a view towards immobilization). Diss. Vet. Med. FU Berlin, 1990.
- Lang, EM: Beobachtungen am Indischen panzernashorn (*Rhinoceros unicornis*)(Observations on an Indian rhinoceros). Zoologischer Garten 25:369-409, 1961.
- Lang, EM: Disease and death of a male Indian rhinoceros - clinical and pathological findings. Proc. Int. Symp. Dis. Zoo Animals Pp.301-307, 1966.
- Lang, EM: The Indian rhino in captivity. In Martin, RD (Ed.), *Breeding endangered species in captivity* Academic Press, London, Pp. 293-302, 1975.
- Lang, EM: Indian rhinoceros births in captivity. Int. Zoo Yrbk. 17:237-238, 1977.

- Lang, EM: Rhinoceroses. In Handbook of Zoo Medicine, Von Nostrand Reinhold Co. New York, New York (originally published as Zootierkrankheiten by Verlag Paul Parey, Berlin), Pp.194-204, 1976.
- LeBlanc, PH, SW Eicker, M Curtis, B Beehler: Hypertension following etorphine anesthesia in a rhinoceros (*Diceros simius*). J. Zoo An. Med. 18:141-143, 1987.
- Lewandowski, A: Cecal torsion in a black rhinoceros (*Diceros bicornis*) at the Detroit Zoo. Pers. comm. Cleveland Zoological Park, Cleveland, Ohio, USA, 1987.
- Lewis, JCM, JK Kirkwood: Studies of vitamin E supplementation in black rhinoceros. Vet. Rec. 126:558, 1990.
- Lindemann, H: African rhinoceroses in captivity. University of Copenhagen, Copenhagen, Denmark, 1982.
- Lindemann, H: Demographic survey of African rhinoceroses in captivity. Int. Zoo Yrbk. 23: 225-234, 1984.
- Ludwig, KS, ZJ Dolinar: Zur kenntis der placenta der panzernashorns (Study of the palcenta of the greater Asian one-horned rhinoceros). Acta Anat. 55: 401, 1963.
- Lynch, LJ, V Robinson, CA Anderson: A scanning electron microscope study of the morphology of rhino horn. Aust. J. Biol. Sc. 26:395-399, 1973.
- Lyon, DG: Annual report of the laboratory of the North of England Zoological Society (Report on muscular dystrophy of a 2 year old black rhinoceros), Zoological Society of the North of England, 1975.
- Maluf, MS: Renal morphology of the hook-lipped African rhinoceros, *Diceros bicornis*, Linnaeus. Am. J. Anat. 190:245-265, 1991.
- Mann, PC, M Bush, DC Janssen, ES Frank, RJ Montali: Clinico-pathologic correlations of tuberculosis in large zoo mammals. J. Am. Vet. Med. Assoc. 179:1123-1129, 1981.
- Maruska, EJ, BL Dresser, BD Barden: Black rhinoceros international management survey. American Association of Zoological Parks and Aquariums Species Survival Plan. Cincinnati Zoo and Center for Research on Endangered Species. Cincinnati, Ohio, USA, 1986.
- Marx, E, A Koch: Neus aus der Schausammlung: das Indishce nashorn. (uterine tumor) Bericht Senckenbergischen Natureforschenden Gesellschaft Frankfurt am Main. 41:161-171. 1910.
- Mayr, A, H Mahnel: Charakterisierung eines vom rhinozeros isolierten hühnerpockenvirus (characterization of a fowlpoxvirus isolated from rhinoceroses). Arch. fur Gesamte Virusforschung 31:51-60, 1970.
- McCulloch B, PL Achard: Mortalities associated with capture, trade, translocation and exhibition of black rhinoceroses. Int. Zoo Yrbk. 9:184-195, 1969.
- McFarlane, JR, CM Cabrera, SA Coulson, H Papkoff: Partial purification and characterization of rhinoceros gonadotropins, growth hormone, and prolactin: comparison with horse and sheep. Biol. Reprod. 44:94-101, 1991.
- McManamon, R: Pharyngeal squamous cell carcinoma and fungal pneumonia in a black rhinoceros (*Diceros bicornis*). Pers. comm. Zoo Atlanta, Atlanta, Georgia, USA, 1987.

- Merenlender, AM, DS Woodruff, OA Ryder, R. Kock, J Valhala: Allozyme variation and differentiation in African and Indian rhinoceroses. J. Hered. 80:377-382, 1989.
- Messow, C: Filarien - dermatitis beim nashorn (Filarial dermatitis in a rhinoceros). Proc. Int. Symp. Dis. Zoo Animals. 9:195-196, 1967.
- Mikulica, V: Zur leptospirose der exotichentiere in den zoologischen garten (Leptospirosis in exotic animals in a zoological garden). Vychodocska Zoologicka Zahrada 41: 571-76, 1986.
- Miller, RE: Hemolytic anemia in the black rhino. Pachyderm 9:26-29, 1986.
- Miller, RE: Black rhinoceros conservation in Kenya - a field SSP? 1987 Reg. Proc. Am. Assoc. Zool. Parks Aqs., Pp.537-543, 1987.
- Miller, RE: Black rhinoceroses: a veterinary riddle. ZooView (Los Angeles Zoo Magazine), 26 (2): 4-5, 1992.
- Miller, RE: Health concerns and veterinary research in the North American black rhinoceros (*Diceros bicornis*) population. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, California, in press, 1992.
- Miller, RE: Hemolytic anemia in the black rhinoceros (*Diceros bicornis*). In: Zoo and Wild Animal Medicine, 3rd ed., ME Fowler (ed.), WB Saunders Co., Philadelphia, Pennsylvania, USA, in press, 1992.
- Miller, RE, WJ Boever: Fatal hemolytic anemia in the black rhinoceros: case report and survey. J. Am. Vet. Med. Assoc. 181:1228-1231, 1982.
- Miller, RE, CA Bolin: Evaluation of leptospirosis in black rhinoceroses (*Diceros bicornis*) by microscopic agglutination and fluorescent antibody testing. 1988 Proc. Am. Assoc. Zoo Vet., Pp.161-163, 1988.
- Miller, RE, RC Cambre, A de laHunta, RE Brannian, TR Spraker, C Johnson, WJ Boever: Encephalomalacia in three black rhinoceroses (*Diceros bicornis*). J. Zoo Wildl. Med. 21:192-199, 1990.
- Miller, RE, RC McClure, GM Constantinescu, WJ Boever: A clinical note on the vascular anatomy of the black rhinoceros (*Diceros bicornis*) forelimb. J. Zoo Wildl. Med. 20:228-230, 1989.
- Mitra, SC: The management of animals in the Calcutta Zoological Gardens (a report of tetanus in a black rhinoceros). J. Bombay Nat. Hist. Soc. 13: 254-272, 1893.
- Mohd-Tajuddin, A: Rhino trapping in Malaysia. Rimba Indonesia 21:27-30, 1987.
- Mohr, R: Das horn des Indischen rhinoceros unicornis (The horn of the Indian rhinoceros). Zoologischer Garten 23:37-45, 1957.
- Montali, RJ: Pathological findings in captive rhinoceroses. Proc. Int. Rhinoceros Symp. (1991), Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Montali, RJ: Selected references of pathology and diseases of the rhinoceros. Proc. Int. Rhinoceros Conf. (1991), Zoological Society of San Diego, San Diego, CA, USA, in press, 1992.
- Montali, RJ: PC Mann, DM Jones, LA Griner, GR Kuehn, E Narushina, M Bush: Leiomyomas in the genital tract of large zoo animals. Proc. Int. Symp. Dis. Zoo Animals. Pp.117-122, 1982.

- Moodie, RL: Actinomycosis in a fossil rhinoceros. J. Parasit. 9: 28, 1928.
- Morimoto, T: Silver-stain + spirochaetes in the kidney of a black rhinoceros dying of hemolytic anemia. Pers. comm. Osaka Mun. Tennoji Zoo, Osaka, Japan, 1985.
- Morkel, P: Dehorning of black rhinoceroses in Namibia. 1991 Proc. Int. Rhinoceros Symp., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Morris, D, C Jarvis: Mammalian gestation periods. Int. Zoo Yrbk. 1: 159-160, 1960.
- Morton, DJ, N Kock: Some properties of pineal gland hydroxyindole-0-methyltransferase from black rhinoceros (*Diceros bicornis*). J. Pineal Res. 8:35-40, 1990.
- Mugera, GM: JG Wandera: Dégenerative polymyopathies in East African domestic and wild animals. VEt. Rec. 80: 410413, 1967.
- Mukherjee, SC, RK Das, BM Arora, ML Mehrota: A case of rabies in a captive rhinoceros (*Rhinoceros unicornis*). Ind. Comp. Microbiol., Immunol. and Inf. Dis. 5: 32, 1984.
- Munson, L: Pathological findings in oral and skin ulcers in black rhinoceroses. Proc. Int. Rhinoceros Conf., Zoological Society of San Diego, San Diego, California, USA, in press, 1992.
- Murray, M: The pathology of some diseases found in wild animals in East Africa (arteritis of lymph nodes and gastrointestinal vasculature in a black rhinoceros). E. Afr. Wildl. J. 5: 37-41, 1967.
- Neuschulz, N, W Puschmann: Verlust und Neubildung des Vorderhorns beim Spitznashorn (*Diceros bicornis*). (Development and regrowth of the forward horn of the black rhinoceros) Felis 4: 51-54, 1986.
- Naik, SN, CS Aswad, MS Karawale, MV Wani: Squamous cell carcinoma in an Indian rhinoceros. Vet. Rec. 118:590-591, 1986.
- Nandi, SN, SK Deb: Horn cancer in a rhinoceros. Indian Vet. J. 49:881-882, 1972.
- Nelson, L, ME Fowler: Rhinocerotidae. In: Fowler, ME (ed.). Zoo and Wild Animal Medicine, 2nd ed., WB Saunders Co., Philadelphia, Pennsylvania, Pp. 934-938, 1986.
- Nouvel, J, MA Pasquier: Corps étrangers gastrointestinaux des animaux sauvages en captivité (Gastrointestinal foreign bodies in captive wild animals - sand accumulation in the cecum of a black rhinoceros). Rev. Pathologie Comparée et d'Hygiène Générale 46: 41-45, 1946.
- O'Connor: The behavioral ecology of the white rhinoceros at the Whipsnade Zoological Park. M. Philosophy Thesis, University of Cambridge, Great Britain, 1982.
- Olsen, J: Fatal encephalomyocarditis virus infection in a black rhinoceros (*Diceros bicornis*). Pers. comm. Busch Gardens, Tampa, Florida, USA, 1989.
- Olsen, J: Prolapse of rectum and bladder in a black rhinoceros (*Diceros bicornis*) calf. Busch Gardens Tampa, Florida, 1992.
- Osterhoff, DR, ME Keep: Natural variation in blood proteins of white and black rhinos. Lammergeyer 11:50-53, 1970.

- Ott, JE, SE McDonald, PT Robinson, FW Wright: Ulcerative stomatitis in a black rhinoceros (*Diceros bicornis*). 1982 Proc. Am. Assoc. Zoo Vet.: 68-71, 1982.
- Ottow, B: Biologische anatomie der genitalorgane und der fortpflanzung der sugetiere (Anatomy of the genital and reproductive organs of wild animals). G. Fischer Publ., Jena, Germany, 1955.
- Owen-Smith, N: Territoriality in the white rhinoceros (*Ceratotherium simum simum*). Nature (London) 231: 294, 1971.
- Owen-Smith, N: The behavioral ecology of the white rhinoceros. PhD Thesis, University Microfilms International, 1973.
- Page, CD: Possible congenital diaphragmatic hernia (and subsequent jejunal torsion) in a white rhinoceros (*Ceratotherium simum simum*) calf. Pers. comm., Jacksonville Zoological Park, Jacksonville, Florida, USA, 1992.
- Page, CD, RE Schmidt: Disseminated intravascular coagulation in a neonatal white rhinoceros (*Ceratotherium simum simum*). J. Zoo Animal Med. 18:53-55, 1987.
- Paglia, DE: Acute episodic hemolysis in the African black rhinoceros as an analogue of human glucose-6-phosphate dehydrogenase deficiency. Am. J. Hematol. (in press), 1992.
- Paglia, DE, RE Miller: Increased susceptibility of black rhinoceros (*Diceros bicornis*) red blood cells to oxidant stress and consequent hemolysis. AAZPA Communique, P. 7, April 1992.
- Paglia, DE, RE Miller: Erythrocyte metabolism and susceptibility to oxidant-stressed hemolysis in the black rhinoceros (*Diceros bicornis*): an update (abstract). 1992 Proc. Am. Assoc. Zoo Vets., in press, 1992.
- Paglia, DE, SW Renner, RC Cambre, RE Miller, M Nakatani, RA Brockway: Erythrocyte ATP deficiency and acatalasemia in the African rhinoceros and their pathogenic roles in acute episodic hemolysis and mucocutaneous ulcerations (abstract). Int. Soc. Hematol. (London), in press, 1992.
- Paglia, DE, WN Valentine, RE Miller, M Nakatani, RA Brockway: Acute intravascular hemolysis in the black rhinoceros: erythrocytic enzymes and metabolic intermediates. Am. J. Vet. Res. 47:1321-1325, 1986.
- Palmieri, JR, JR Purnomo, H Ammaun: Parasites of the lesser one-horned rhinoceros (*Rhinoceros sondaicus*). J. Parasitol. 66:1031, 1980.
- Papas, AH, RC Cambre, SB Citino: Vitamin E: considerations in practical animal feeding and case studies with elephants and rhinoceroses. 8th Ann. Dr. Scholl's Conf. Nutr. Wild Animals. Lincoln Park Zoo, Chicago, Illinois, USA, 1989.
- Papas, AM, RC Cambre, SB Citino, DJ Bauer, GR Wooden: Species differences in the utilization of various forms of vitamin E. 1990 Proc. Am. Assoc. Zoo Vet., Pp.186-190, 1990.
- Papas, AM, RC Cambre, SB Citino, RJ Sokol: Efficacy of absorption of various vitamin E forms by captive elephants and black rhinoceroses. J. Zoo Wildl. Med. 22:309-317, 1991.
- Paras, A: Spirochaetemia in a black rhinoceros with hemolytic anemia. Pers. comm. Chapultepec Park Zoo, Mexico City, Mexico, 1989.

- Parsons, BT, DLW Sheldrick: Some observations on the biting flies (Diptera, Muscidae, subfam. Stomoxydinae) associated with the black rhinoceros (*Diceros bicornis* L.). E. Afr. Wildl. J. 2:78-85, 1964.
- Pearson, H, C Gibbs, AI Wright: Surgical treatment of a case of rectal prolapse in a young African rhinoceros (*Diceros bicornis*). Vet. Rec. 80:519, 1967.
- Pilaski, J, A Rosen, G Darai: Comparative analysis of the genomes of orthopoxviruses isolated from elephant, rhinoceros and okapi by restriction enzymes. Arch. Virol. 88:135-142, 1986.
- Pilaski, J, PJ Schallar, P Olderding, H Finke: Characterization of a poxvirus from the white rhinoceros (*Ceratotherium simum*). Zentralbl. Bakt. Mikrobiol. Hyg. 1 Abt. Orig., Pp.251-253, 1982.
- Player, I: Translocation of white rhinoceros in South Africa. Oryx 9:137-150, 1967.
- Platz, CC, SW Seager, M Bush: Collection and analysis of semen from a black rhinoceros. J. Am. Vet. Med. Assoc. 175:1002-1004, 1979.
- Pospisil, J, F Kase, J Vahala: Time-dependent influence of some sedating agents on basic haematological values in various artio- and perissodactylids. Comp. Biochem. Physiol. 85A: 305-308, 1986.
- Powers, RR, RA Price: Human tuberculosis in a rhinoceros. J. Am. Vet. Med. Assoc. 151:891-892, 1967.
- Prole, JHB: Removal of a prolapsed eyeball in a wild black rhinoceros. Vet. Rec. 77: 156-157, 1965.
- Ramsay, EC, L Kasman, BL Lasley: Urinary steroid evaluations for monitoring ovarian function in Indian and black rhinoceroses. 1985 Proc. Am. Assoc. Zoo Vets., P. 1, 1985.
- Ramsay, EC, LH Kasman, BL Lasley: Urinary steroid evaluations to monitor ovarian function in exotic ungulates: V. Estrogen and pregnanediol-3-glucuronide excretion in the black rhinoceros (*Diceros bicornis*). Zoo Bio. 6:275-282, 1987.
- Rawlins, CGC: The breeding of white rhinos in captivity - a comparative survey. Zool. Garten 49: 1-7, 1979.
- Reitschel, W: Dermatitis beim panzernashorn (Dermatitis in a greater one-horned Asian rhinoceros). VAZ 8:121-122, 1988.
- Reynolds, RJ: Asian rhinos in captivity. Int. Zoo Yrbk. 2:17-42, 1961.
- Reynolds, RJ: White rhinos in captivity. Int. Zoo Yrbk. 2: 42-32, 1961.
- Reynolds, RJ: Black rhinos in captivity. Int. Zoo Yrbk. 4: 98-113, 1964.
- Richter, N: Imperforate hymen in an adult female black rhinoceros (*Diceros bicornis*). Pers. comm., Detroit Zoological Park, Royal Oak, Michigan, USA, 1986.
- Ripley, SD: Territorial and sexual behavior in the great Indian rhinoceros. A speculation. Ecology 33: 570-573, 1967.
- Ritchie, A: The black rhinoceros. E. Afr. Wildl. J. 1:54-62, 1963.



- Robbins, CT, OT Oftedal, KI O'Rourke: Lactation, early nutrition and hand-rearing of wild ungulates with special reference to deer. *In: Wemmer,, CM (ed.), Research Symposia of the National Zoological Park: Biology and Management of Cervids. Smithsonian Inst. Press, Washington, DC, Pp.429-442, 1987.*
- Rookmaaker, LC: Bibliography of the rhinoceros. AA Balkema Pub., Amsterdam, Netherlands, 1983.
- Round, MC: A new species of the genus *Strongylus* Muller. *Diceros bicornis* L. and a note on the other species occurring in Kenya. *J. Helminthol.* 36: 189-200, 1962.
- Round, MC: A new species of *Stephanofilaria* in skin lesions from the black rhinoceros (*Diceros bicornis*) in Kenya. *J. Helminth.* 38:87, 1964.
- Rubel, A: Erkrankung von spitzmaulnashornern im Zurichher Zoo (Diseases of black rhinoceroses at the Zurich Zoo). *VAZ* 10, 1990.
- Ruedi, D: Erfahrung bei der haltung, zucht und tierarztlichen betreuung des Indischen panzernashorns (*Rhinoceros unicornis*) im Zoologischen Garten Basel (Experience with management, breeding and veterinary care of Indian rhinoceroses at the Basel Zoo). *Int. African Rhinoceros Studbook* 2:90-93, 1983.
- Ruedi, D, R Muller: Klinische und pathologische-anatomische aspekte einer interstitiellen pneumonie beim panzernashorn (*Rhinoceros unicornis*) im Zoo Basel (Clinical, pathologic and anatomical aspects of interstitial pneumonia in a greater Asian one-horned rhinoceros). *Int. Symp. Dis. Zoo Animals*, Pp. 75-79, 1975.
- Ruedi, D, K Tobler: International studbook for the great Indian rhinoceros, *Rhinoceros unicornis*. 5th Ed. Published by Basel Zoological Gardens, Basel, Switzerland, 1988.
- Rumple, Haltung und zucht von breitmaulnashornern (*Ceratotherium simum*) in Allwetterzoo Munster (Conformation and breeding of the white rhinoceros at the Munster Zoo). *Ztschr. Kolner Zoo*, Pp. 91-102, 1991.
- Ryder, ML: Structure of rhinoceros horn. *Nature* 193:1199-1201, 1962.
- Sandground, JH: Two new helminths from *Rhinoceros sondaicus*. *J. Parasitol.* 19: 192-204, 1933.
- Schaffer, NE, BA Beehler: Preliminary studies on the anatomy and ultrasonic images of the reproductive structures of three species of rhinoceroses (*Rhinoceros unicornis*, *Diceros bicornis*, *Ceratotherium simum*). 1990 *Proc. Am. Assoc. Zoo Vet.*, Pp.215-220, 1990.
- Schaffer, NE, B Beehler, KS Jeyendian, B Balke: Methods of semen collection in an ambulatory greater one-horned rhinoceros (*Rhinoceros unicornis*). *Zoo Biol.* 9:211-221, 1990.
- Schaller, K: Pocken bei breitmaulnashornen (*Ceratotherium s. simum*)(Pox in a white rhinoceros). *Zool. Garten. N.F.* 49:169-184, 1979.
- Schaller, K: Salmonella lameness in rhinoceros calf (*Ceratotherium s. simum*). *Proc. Int. Symp. Zoo Animals*, Pp.89-94, 1981.

- Schenkel, RL, L Schenkel-Hulliger: Diseases (Leptospirosis). *In: Ecology and behavior of the black rhinoceros.* Schenkel RL, L Schenkel-Hulliger, Verlag Paul Parey, Hamburg, Germany, p 26, 1969.
- Schenkel, RL, L Schenkel-Hulliger: The Javan rhinoceros (*Rh. sondaicus* Desm.) in Ujung Kulon Nature Reserve. Its ecology and behavior. Field Study 1967 and 1968. Acta Trop. (Basel) 26:97-135, 1969.
- Schmidt, ME, DA Hartfield: Disseminated bacterial infection in an infant rhinoceros. J. Zoo An. Med. 7:15-17, 1976.
- Schmidt, RE, JD Toft, RL Eason, DA Hartfiel: Possible toxic liver degeneration in black rhinoceroses (*Diceros bicornis*). J. Zoo An. Med. 13:3-10, 1982.
- Schneider, HE, J Wisser: Pericarditis sicca in a female wide-mouthed rhinoceros (*Ceratotherium simum*). Proc. Int. Symp. Zoo Animals, Pp. 185-188, 1987.
- Schryver, HF, TJ Foose, J Williams, HF Hintz: Calcium excretion in feces of ungulates. Comp. Biochem. Physiol. 74:375-379, 1983.
- Schultz, KCA: Ulcerating wound behind the shoulder of the black rhinoceros (*D. bicornis*) in the Hluhluwe and Mkuzi game reserves of Zululand. Afr. Wildl. 15:55-59, 1961.
- Schultz, KCA, EB Kluge: Dermatitis in a black rhinoceros (*Diceros bicornis*) due to filariasis. J. S. Afr. Vet. Assoc. 31:265, 1960.
- Scott, HH: Neoplasm in an Indian rhinoceros (sarcoma of heart and lungs). Proc. Zool. Soc. London 1927: 503-510, 1927.
- Seal, US, R Barton, L Mather, CW Gray: Baseline laboratory data for the white rhinoceros (*Ceratotherium simum*). J. Zoo An. Med. 7:11-16, 1976.
- Sebek, VZ, V Mikulica, V Valova: Leptospirosis of exotic animals in zoological gardens. Mh. Vet. Med. 41:571, 1986.
- Sheperd, AJ, R Swanepoel, SP Sheperd, GM McGillivray, LA Searle: Antibody to Crimean-Congo hemorrhagic fever virus in wild mammals from southern Africa. Am. J. Trop. Med. Hyg. 36:133-142, 1987.
- Sickert, VL, J Wisser: Untersuchungen zum vorkommen institieller nephritiden bei zoosuagetieren (Incidence of interstitial nephritis in zoo animals). Proc. Int. Symp. Dis Zoo Animals Pp. 225-241, 1988.
- Silberman, MS, RB Fulton: Medical problems of captive and wild rhinoceros - a review of the literature and personal experience. J. Zoo An. Med. 10:6-16, 1979.
- Simmons, LG, B Jenke: Impaction in a great Indian rhinoceros. 1977 Proc. Am. Assoc. Zoo Vet., Pp.125-135, 1977.
- Singh, KI, M Krishnasamy, MK Mohamed Khan, MS Khairiah, MS Zahedi: Redescription of *Crossocephalus longicaudatus baulis* 1919 (Nematoda: Atractidae. A parasite of the Sumatran rhinoceros, *Dicerorhinus sumatrensis* (Fisher). Rivista Parassitologia 5:93-98, 1988.

- Smith LJ: A note on the birth of a white rhinoceros, *Diceros simus*, at Pretoria Zoo. Int. Zoo Yrbk. 8:134, 1968.
- Smith, RL, B Read: Management parameters affecting the reproductive potential of captive female black rhinoceros, *Diceros bicornis*. Zoo Bio., in press, contact Smith: San Antonio Zoo, San Antonio, TX., 1992.
- Smuts, GL: An appraisal of naloxone hydrochloride as a narcotic antagonist in the capture and release of wild herbivores. J. Am Vet. Med. Assoc. 167:559-561, 1975.
- Soll, MD, MC Williams: Mortality of a white rhinoceros (*Ceratotherium simum*) suspected to be associated with the blue-green alga *Microcystis aeruginosa*. J. S. Afr. Vet. Med. Assoc. 56:49-51, 1985.
- Spala, P, P Hradecky: Preliminary ascertainment of some nutritional requirements in the pregnant black rhinoceros (*Diceros bicornis*) females, Dvur Kralove n.L., Czechoslovakia, in press, 1992
- Stickle, JE, DC Miller, AH Lewandowski: Failure of passive immunoglobulin transfer in a black rhinoceros (*Diceros bicornis*). J. Zoo Wildl. Med. (in press), 1992.
- Strauss, G, B Seidel: Pododermatitis purulenta beim panzernashorn (*Rhinoceros unicornis*) - ein fallberichte (Unsuccessful treatment of pododermatitis in a greater one-horned Asian rhinoceros). Proc. Int. Symp. Dis. Zoo Animals 24:177-181, 1982.
- Strauss, G, B Seidel: Anemia in a greater Indian rhinoceros (hypochromic anemia secondary to renal disease). Proc. Int. Symp. Dis. Zoo Animals Pp.379-384, 1985.
- Strickland, DL: Ecology of the rhinoceros in Malaya. Malayan Nat. J. 20: 1-17, 1967.
- Takagi, S, M Kondo, S Noda, T Hironao: Tuberculosis in a rhinoceros. Bull. Univ. Osaka. Pref. 15:125-130, 1964.
- Takahashi, H: An autopsy case of black rhinoceros which showed anemia and hemoglobinuria. J. Jap. Assoc. Zool. Gard. Aq. 4:106-107, 1962.
- Teuscher, E, H Stunzi: Uber parasitologische kotuntersuchungen bei sauetieren des zoologischen gartens Zurich (Parasites on fecal examination at the Zurich Zoo). Acta Trop. 13:262-269, 1956.
- Thomson, JK, FW Priestly: Enteritis of a white rhinoceros associated with *Pseudomonas pyocyanea* infection. Vet. Rec. 61: 341, 1949.
- Tong, EH: The breeding of the great Indian rhinoceros at Whipsnade Park. Int. Zoo Yrbk. 2: 12-15, 1962.
- Tremlett, JG: Observations on the pathology of lesions associated with *Stephanofilaria dinniki* Round 1964 from the black rhinoceros (*Diceros bicornis*). J. Helminth. 38:171, 1964.
- Ullrey, DE, KK Pao, PA Whetter, PT Robinson. 1982: Black rhinoceros (*Diceros bicornis*) erythrocyte stability. 1989 Proc. Am. Assoc. of Zoo Veterinarians: 19-22, 1989.
- Ullrich, W: Bemerkenswerte aufnahmen eines Sumatra-nashorns (*Dicerorhinus sumatrensis*)(Observations on the capture of Sumatran rhinoceroses). Zool. Gart. 22:29-33, 1955.

- Vahale, J: Brief analysis of the veterinary care of black rhinoceros (*Diceros bicornis*) at Dvur Kralove Zoo. Proc. Int. Symp. Dis. Zoo Animals, Pp.261-275, 1990.
- Van der Werken, H: Amboseli: op safari in Afrika (eye disease). Artis (Amsterdam Zoo publication, Amsterdam, the Netherlands) 12:18-31, 1966.
- Van Heerden, JRH Kefen, J Dauth, MJ Dreyer: Blood chemical parameters in free-living white rhinoceros *Ceratotherium simum*. S. Afr. Vet. Assoc. 56:187-189, 1985.
- Van Hoven, W, FM Gilchrist, VL Hamilton-Atwell: Intestinal ciliated protozoal of African rhinoceros: two new genera and five new species from the white rhino (*Ceratotherium simum* Burchell 1817). J. Protozool. 34:338-342, 1987.
- Van Hoven, W, FM Gilchrist, VL Hamilton-Atwell: A new family, genus, and seven new species of Entodiniomorphida (Protozoa) from the gut of African rhinoceros. J. Protozool. 35:92-97, 1988.
- Poulsen, H: 1972 at the Copenhagen Zoo (liver cirrhosis in a Sumatran rhinoceros). Int. Zoo News. 20:274-275. 1973.
- Vagner, J: Capture and transport of animals from Africa to the Zoological Gardens of Dvur Kralove n.L. Proc. Int. Symp. Zoo Animals, Pp.179-186, 1973.
- Van Strein, NJ: *Dicerrhinus sumatrensis* (Fischer): the Sumatran or two-horned Asiatic rhinoceros - a study of the literature. Mededelingen Landbouwschool Wageningen 74: 45, 1974.
- Wagner, RA: The reproductive cycle of the southern white rhinoceros. 1986 Proc. Am. Assoc. Zoo Vets., Pp.14-15, 1986.
- Wallach, JD: Degenerative arthritis in a black rhinoceros. J. Am. Vet. Med. Assoc. 151:887-889, 1967.
- Wallach, JD: Hand-rearing and observations of a white rhinoceros, *Diceros s. simus*, Int. Zoo Yrbk. 9:103-104, 1969.
- Wallach, JD: Immobilization and translocation of the white (square-lipped) rhinoceros. J. Am. Vet. Med. Assoc. 149:871, 1969.
- Wallach, JD, WJ Boever: Perissodactyla, Proboscidae, and hippotamidae. *In: Diseases of exotic animals.* Wallach, JD, WJ Boever, WB Saunders Co., Philadelphia, Pennsylvania, Pp.761-829, 1983.
- Warneke, M.R Goltenboth: Uber das auftreten der magenbremse, *Gyrostigma conjungens* ENDERLEIN, bei zwei spitzmaulnashornern (*Diceros bicornis* L.) des Berliner Zoologischen Gartens (Botfly infestation in two black rhinoceroses at the Berlin Zoo). Berliner und Munchener 90:159-160, 1977.
- Weidman, FD: Mycosis in lower animals (Skin lesions from *Pityrosporium pachydermatitis* in an Indian rhinoceros). Arch. Pathol. 8: 1019-1020, 1929.
- Weiss, R: Uber eine trichophytie bie breitmaulnashornern (*Ceratotherium simum* Burchell)(Trichophyton infection in a white rhinoceros). Mykosen 17:137-139, 1974.
- Williamson, WM, E Tildern, RE Getty: Enteric infections occurring during an 8 year period at he Chicago Zoological Park, Brookfield (Salmonellosis in a young rhinoceros). Bijdr. Dierk. 33: 87-88, 1973.

- Wilson, DD, RD Richard: Interception of the vector of heartwater, *Amblyomma hebraeum* Koch (Acari:Ixodidae) on black rhinoceros imported into the United States. Proc. 88th Ann. Mtg. US Animal Health Assoc., Pp.303-313, 1984.
- Windsor, RS, WA Ashford: Salmonella infection in the African elephant and the black rhinoceros. Trop. An. Health Prod. 4:214-219, 1972.
- Worley, M: Hepadnoviral survey in black rhinoceroses. Pers. Comm., Zoological Society of San Diego, San Diego, California, USA, 1992.
- Wright, JE, Oehler, JH Johnson, J Cannon: Control of house and stable fly breeding in rhinoceros dung with an insect growth regulator used as a feed additive. J. Wild. Dis. 11:522-524, 1975.
- Yamamoto, S: Notes on the breeding of the black rhinoceros *Diceros bicornis* at Kobe Zoo. Int. Zoo Yrbk. 7: 163, 1967.
- Young, E: Lesions in the vicinity of the eye of the white rhinoceros (*Diceros simus*). Int. Zoo Yrbk 5:194-195, 1965.
- Young, E: Treatment of cutaneous granulomata in the black rhinoceros, *Diceros bicornis*. Int. Zoo Yrbk. 6:276-277, 1966.
- Young, E: Semen extraction by manipulation technique in the black rhinoceros. Int. Zoo Yrbk. 7:166-167, 1967.
- Zainal-Zahari, Z, AR Sheikh-Omar, M Tajuddin: Severe necrotizing enteritis in a Sumatran rhinoceros (*Dicerorhinus sumatrensis*). Proc. First Cong. Malayan Vet. Assoc., 121-122, 1989.
- Zainal-Zahari, Z, MT Abdullah, MS Mohd Suri: The husbandry and veterinary care of captive Sumatran rhinoceros at Zoo Melaka, Malaysia. Malayan Nat. J. 44:1-19, 1990.
- Zukowsky, L: Ursache und bedeutung der schwarzen wunden an den korperseiten freilebender spitzmaulnashorner (Reasons for and significance of a wound abscess in a black rhinoceros). Zoologischer Garten 32: 163-173, 1966.
- Zumpt, FP: Parasites of the black and white rhinoceros. Lammergeyer 3:59-70, 1964.