

## Introduction

Dogs occupy a very special position in human societies not only because of their faithfulness but also because of their multifarious talents in serving human beings in various capacities. They are one of the most unique animals in their response to social rewards. In India the stray dogs are omnipresent in both urban and rural environments. Their population is increasing at an alarming rate in India and in most southeast Asian countries. India has an estimated dog population of 80 million, more than 80 % of which are stray dogs ( Sivaraman , 1992 ). These free ranging creatures are also called pariah dogs and live in association with human habitations.

### Antiquity and origin of dogs :-

Investigations of caves , middens and lake dwellings point out that Europeans of the new stone age possessed a wild type breed of dog. A similar breed has been traced through the successive ages of bronze and iron. From the oldest records supplied by Chaldean and Egyptian monuments , it is seen that several distinct varieties were developed around 4000 - 5000 years ago. Slender dogs of grey hound type and a short - legged type with hound like mastiffs are depicted in the paintings of Egypt and the Assyrians at about 600 B.C.

The early Greeks and Romans often mentioned about dogs in their literature . The varieties described in Roman classification of dogs are similar to our modern categories. Both Greeks and Romans made distinction between dogs that hunted by scent and those that hunted by sight.

The most accepted notion regarding canid evolution is that they are closer to the wolves rather than the jackals because of strong similarity in their dental structure . Most authorities believe that the ancient forms belonging to Fissipedia appeared at the transitional period between the end of Eocene and the beginning of Oligocene presumably being derived from the miacids ( Romer , 1960 ; Young , 1962 ).

The genera Canis and Vulpes appeared some 12 million years ago in Pliocene. Two of the most primitive canids are Hesperocyon , from lower Oligocene of North America and Cynodictis , from the upper Eocene of Europe and Asia and Oligocene of Europe ( Stains , 1975 ).

Dogs in Mythology : -  
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Dogs held very high position in Egyptian , Greek , Japanese , African and Indian mythologies. In Egyptian mythology dog and its relatives such as jackals and wolves were

worshipped as deities ( Ions , 1968 ). Egyptian paintings , tablets and inscriptions ( 5000 to 6000 years old ) contained various forms akin to our hunting , sheep herding and pet dogs. In African mythology ( Parrinder , 1967 ) death of a man was linked with some misdeeds of the animals like dog.

The earliest reference of dogs in Indian mythology is found about 2000 B. C. as associate of Yama ( Ions , 1967 ). In the epic , Mahabharat a dog was found to accompany Yudhisthira , the eldest of the Pandavas on his way to the heaven . In Rig Veda a distinction is made between the Pasu , the tethered or domesticated animals such as goats , sheep dogs etc. and mriga or game like antelops , bisons , deer etc. In some parts of India dogs are worshipped as descendants of Khandoba. In a 'Sloka' of Rig Veda reference of dog is found as follows :

" Sastu Mata , Sastu Pita ,  
Sastu Swa , Sastu Vispaith".

Which means :

' Sleep , mother , sleep ,  
Sleep , father , Sleep.  
Watch dog sleep , household Sleep ,  
Slumber deep , fall asleep ' .

In the Sankhya of the Upanishad reference of dog is given as follows :

" If base materialism were the final goal and the highest truth , then dumb animals must live the ideal life . Dogs revel in matter , and cognize little beside it ; the narrow ken of brutes hardly transcends matter "

Dogs in Astronomy : -  
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Canis minor , the little dog and Canis major , the great dog are well known constituents of the constellation . Procyon in the former and Sirius in the latter are well known stars. References to these stars are found in nearly all ancient classical literature. Sirius , in particular , was of great importance to the Egyptians , because it rose with the sun at the time when the waters of the Nile were due to rise , and was considered as a herald of the returning fertility of the valley.

The warmest days of summer , usually from about July 3 until August 15 in temperate latitudes of the Northern Hemisphere , were named the dog days by the Romans. The brightest star in the sky during this period is the Sirius , the dog . This suggests that the Romans tended to associate weather patterns with the stars.

Early domesticated form : -  
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It is not known when prehistoric men first domesticated wild canids to serve as hunting aid or cave guardian. The aborigines of Switzerland and Ireland used dogs for hunting and undoubtedly ate dog flesh before they learned to till the soil.

Authorities differ widely as to the place of occurrence of the earliest form of domesticated dogs. According to Prasad ( 1936 ) the teenager dog of Java is the ancestral form of dogs found in south India. Degerbol ( 1961 ) claimed that the bones of dog found from Starr Carr , Yorkshire , England were the most ancient records of the domestic dog. Sauer (1952) stated that the first domesticated form might have been a species native to south and eastern tropical Asia. It is only about 5000 years that man began to develop breeds of dog in order to promote different qualities. The modern domesticated breeds of dog undoubtedly represent the progeny originating from different wild canids in many parts of the world ( Bates , 1968 ). In biological terms any dog can be potentially bred with any other so that there is no reproductive barrier between different breeds of dogs , and even between dogs and wolves.

Discussion on the terms - feral , stray etc. applied to dogs :-  
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Scientists used the terms such as : free-ranging , stray and feral to dogs that commonly live in direct or indirect association with man . Beck ( 1971 ) opined that the ownerless stray dogs that live in urban and rural environments without having direct bearing with human beings may be called feral dogs. In Nesbitt's ( 1975 ) view the distinction between a feral , stray or free-ranging dog is sometimes a matter of degree , a free-ranging pet might become stray or finally a feral. According to Fox et al ( 1975 ) the free-ranging dogs are those which have free access to human neighbourhood , are without definite homes and support themselves independent of human assistance ; and the stray dogs are regarded as random assortment of the feral and the free-ranging dogs.

Dogs in space mission : -  
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The first animal in space was a dog named Laika, which was launched in a spacecraft by the then Soviet Union in November , 1957. Unfortunately the capsule was not designed to return to earth and about a week later Laika died of asphyxiation, provoking a world wide outcry from the animal lovers. Three years later , in August , 1960 , Soviet Union sent two more dogs - Strelka and Belka on a 24 - hour space flight. This time the

capsules was parachuted safely back to earth , and the animals were said to be none the worse for their experience.

Excellence and importance of dogs : -  
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Almost all the major powers used trained dogs during World War I and II in various capacities. In World War II U. S. army maintained a K - I corps as a branch of the quartermaster department for the sole purpose of training dogs for army use. It is known that Germany had 40,000 to 50,000 trained dogs available for service. Soviet Russia and England also adopted dogs in the army during World War II.

The idea of using dogs as substitute eyes for the blind grew out of a chance incident at a German Hospital during the First World War . A doctor walking with a blind soldier was called away but he left his pet German Shepherd ( Alsatian ) to look after his patient. Impressed by the response of the dog , he experimented on training dogs to guide the blind. A wealthy American , Dorothy Eustis , who was then training German shepherds in Switzerland for the army and police , heard of the doctor's work . In 1928 she set up a guide-dog centre at Vevey , and three years later lent a trainer to start a trial scheme in Britain . Guide dog became well established in Britain in 1934 and later in all parts of the world.

Utilitarian role of dogs : -

In some countries of the world dogs are important source of food . Koreans use dogs as food . The Nagas of Nagaland in Northeast India , also consume dog flesh.

The stray dogs play an important role in the rural and urban ecosystems and are found to successfully maintain peaceful coexistence with man and other domestic animals. They serve as useful cleaners by consuming part of the faecal eliminates , unconsumed food and carcasses . Thus they prevent local atmosphere from getting polluted.

Besides , they also act as night guards by barking in chorus when strangers or miscreants enter domestic localities for the purpose of committing antisocial activities or thefts.

Remarkable diversity in temperament and social responses that has resulted from the artificial selection of several dog breeds from the wolf provides a telling insight into how individual animal is a product of heredity and experience.

Harmful role of dogs : -  
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The stray dogs , however , also cause considerable harm to human beings by creating serious health problems. They are known to serve as carriers of rabies virus. In India every year 25,000 human beings die of rabies ( Science Reporter , Feb. 1992 ). Besides dogs are known to spread several diseases caused by : Salmonella sp. , Entamoeba histolytica , Leishmania sp. , Leptospiral spirochetes , Toxocara canis , Trichurus ( Chandler and Read , 1963 ).

Study of stray dogs is becoming more and more important because of increase of their ferocious behaviour. Krishnan ( 1980 ) reported that in three or four outlying villages of Nilgiris these stray dogs hide in the peripheral scrubs during day time and pounce on weak and unwary humans and drag them into cover. In the present study it was observed that dogs attacked goats , calves , hens , ducks , cats and even man . Adult male dogs , in particular , are becoming more and more fierce ( Sikder and Pal , 1990 ).

The Calcutta citizens are now crying hoarse for the eradication of stray dogs from the city . The Corporation is seriously thinking of finding out appropriate ways and means

for stray dog eradication programme and planning to vaccinate them with antirabies serum , but this is a costly affair. It is high time for the scientists as well as public health people to find out some appropriate solution to this problem.

The present research work on dogs involves ownerless stray dogs of Jalpaiguri ( Semi-urban ) , Siliguri ( Urban ) and Belakoba ( rural ) areas . These are situated in the northern part of West Bengal , India. Here dogs are associated with human habitats and remain in peaceful coexistence with human beings. This study attempts to investigate different behavioural patterns in three types of environments. The entire work is divided into ten chapters. These are discussed successively.

The objectives of the present study are to determine growth rate of stray dog population and their density in relation to human population ; territory and home range size of adult dogs and factors associated with territoriality ; food composition, preference and food intake per unit time ; various aspects of scent marking in them ; different behavioural patterns associated with their aggressive behaviour ; breeding season, age at sexual maturity and various behavioural patterns associated with reproduction, effects of climatic factors on reproduction ; maternal behaviour in parental care and to correlate changes in maternal behaviour with developmental process of the puppies and incidence of rabies in dogs.