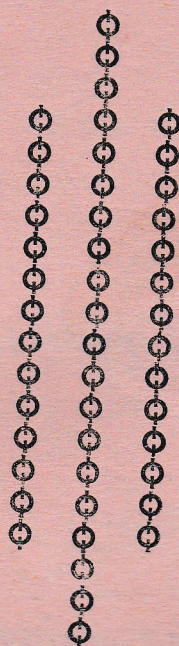


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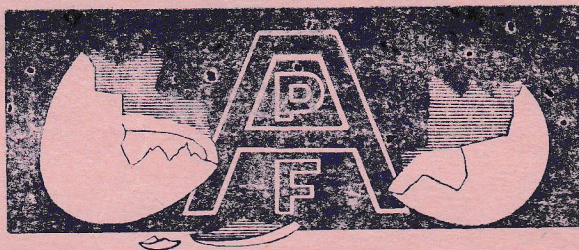
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EDITORIAL

Last three decades of Veterinary Profession in Nepal

An era of "Treatment of animals by scientific means" began in Nepal only after the birth of veterinary hospital at Kathmandu in 1939. Prior to this some homeopathic system of treatment in tenfold dilution of country drugs were practised in case of certain maladies. The establishment of the hospital only could not altogether outbeat the "stone-age" of veterinary service in the beginning, despite that it seems as though, for quite a long time there existed a sort of "tug of war" between the two systems of treatment.

This system of scientific approach towards animal diseases could in fact, display its effectiveness against other traditional methods of treatment, when there was a series of serious outbreaks of rinderpest at Pokhara valley in 1953. The use of Edward's goat tissue vaccine proved to be the most useful tool to combat this menace and to convince the people as well as the administration of that time, which ultimately could wipe out the age long controversies that existed between homeopathic and allopathic systems of treating animal diseases.

Considering the importance of livestock health of the country the government of that time thought to make veterinary service more easily approachable to the people outside the capital also. As a result of which a small scale training of veterinary stock supervisors was carried out at Kathmandu in 1954, which later on facilitated to open veterinary dispensaries in few districts of Nepal viz. Bhaktapur, Lalitpur (Patan), Dhulikhel, Okhaldhunga, Pokhara, Nuwakot, Bhojpur, Bhairahwa, Birgunj, and Biratnagar.

Considerable breakthrough in the development of veterinary service came into being, when government of India extended her help to control rinderpest in Nepal in 1960. Government of India under Indian aid programme contributed a sum of Rs 40,00,000 in the development of veterinary service including the control of rinderpest. This amount was utilized to establish one veterinary laboratory at Kathmandu and also veterinary hospitals, dispensaries, and checkpoints with adequate facilities all over the country.

Immediately after that FAO (UN) took interest in the implementation of rinderpest control programme more effectively and contributed a sum of \$ 167,000 for its achievement. These two aids proved to be of substantial value in the development of veterinary service of this country in many ways. Besides controlling rinderpest part of the establishment like construction of hospital as well as laboratory were achieved out of Indian aid. Also some of the common laboratory equipments were procured through this aid. On the other hand FAO contribution became equally efficacious in controlling rinderpest as well as to equip the laboratory with sophisticated machineries and equipments of apt necessity. All these provisions have made this laboratory competent enough to meet the requirements of biologicals as well as to carry out the investigation and research work, provided they are handled effectively and efficiently.

The lack of skilled technical knowhow has been continuing to become a constant threat in the progress of this service in Nepal. The whole country was blessed with only one veterinarian till the middle of 1959. From the first half of 1960 qualified veterinary graduates started pouring in every year in the country and took up a broad spectrum of responsibilities in the development of livestock. All these veterinarians have, so far, received their basic degree in India. Few of them are also trained up to the masters level in different subjects of interest who are now displaying their skill in various aspects of livestock development, *par exemple*, production of veterinary biologicals, investigation and scientific studies of various bacterial and viral diseases prevalent in Nepal, animal breeding and artificial insemination programme and treatment of livestock. It is another appealing fact that hardly a few veterinarians have, so far got opportunity to receive advanced training in the developed countries outside India which might probably deprive them from the advanced technical skill, which can obviously be useful in the betterment of the country, if it is not properly taken into consideration, without any delay. Besides this the acute shortage of lower level technicians have been met with by arranging training programme locally.

The gross look of this profession, now, may appear fairly satisfactory in progress but persons who have dedicated themselves for this profession will not be fully contented when they look at its cross-section. This is obvious that in this country where all of us are marching ahead aiming all-round-development, the progress achieved, so far, by this branch of science is not fully satisfactory. However it is not by far, difficult to combat the challenge of the epoch in bringing this profession up to the mark, in case the members of this profession render their service with greater devotion and sacrifice,

In comparison to the past two decades the number of qualified personnels are fairly good at present. However, keeping in view the amount of work we have to do in the building up of the nation, we are just a drop in the ocean. Besides mere treatment (in which the veterinarians are employed) veterinarians are also qualified by the university in other branches of livestock and poultry development and also public health. To achieve optimum service from them it is very high time for all of us to train and employ veterinarians in all these branches of science and technology.

In the end we believe *ab initio pectore* that veterinary profession will get proper consideration in different spheres of its activities and it will march *pari passu* with other professions rendering valuable service in the development of livestock and to help uplift the economic and nutritive standard of the people, in the able leadership of His Majesty the King Birendra Bir Bikram Shah Deva.

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Condition of Livestock in Karnali

N. P. Singh Karki

Veterinary Hospital, Kathmandu.

Karnali is the most remote area among the 14 zones of Nepal. It comprises of four different districts namely Mugu, Tibrikot, Jumla and Humla. All these developmental districts have more or less the same type of climate and geographical configuration. Jumla is most densely populated of them all having 43 village panchayats. Khalanga, the central place of Jumla is the Zonal headquarter of Karnali. The intensity of population is comparatively thin in Humla, Mugu and Tibrikot. This Zone provides a virgin field for research scholars in various subjects. However, to depict them is in beyond the scope of this short note. Because of lack of transport facilities this area is totally out of from other parts of Nepal. That is why,

the impulse of time could not invade their social, cultural and religious traditions.

The gleimps of natural buties of this locality are praise worthy. Mahendra Tal (Rara Lake) of Mugu is one of the most enchanting lake of whole of this small country. If transport and communication facilities could be made easily accessible it can enhance the prestige of tourism in Nepal.

Cattle population is denser in Humla & Jumla than in parts of this zone, but as regards pasture land Tibrikot is richest specially for summer season, as a result of which during this period of the year cattle from Jumla and Mugu are also shifted to Tibrikot. While on other

hand Humla can afford its own pasture land to livestock. The pasture land being too steepy is not favourable for raising buffalo and heavy breeds of cattle in this Zone. Rather sheep and goat raising can be recommended as a means of improving the living standard of the local people of this territory. Among the cattle cross Yak (Jhaupa) is very common and economic too, it can be popularized specially in Humla, Mugu and Tibrikot.

At present the livestock strength is more than 3,00,000 in the Karnali Zone. Among them cows, Yak (crossed with local cows,) sheep, goats, horses are common. Buffaloes are very rare and localized to low altitude areas. Due to the scarcity of pasture land for buffaloes, its husbandry is not prescribed for this area.

Karnali Zone has its own type of breed particularly in cows and horses. Sheep and goats are found as in other parts of Nepal. Cows are very small in size and poor in milk yield. A cow hardly gives one litre of milk per day. Being light in size they can graze even in steepy land. Only bullocks are used in ploughing. So an intensive programme to

change the whole strain is badly needed. The economical importance of the present stock is insignificant.

Further, it is important to emphasize animal husbandry in this zone because of poor productivity of land. Only animal husbandry and horticulture can prove fruitful in this area. Realizing this fact His Majesty's Government have taken necessary measures to help develop horticulture as well as animal husbandry activity of this zone.

To inspire the progressive animal husbandry men in this zone, Department of Animal Development and Veterinary Services is going to start six sheep farms and two yak farms. These farms will be run directly by the local people. Nevertheless, technical and material help will be extended by the department. It suitable exotic fine woolled improved breed of sheep introduced under the strict supervision of technicians it will be fruitful to change the existing strain into productive stock. So it can be said that the programme implemented by the HMG is timely help to the people of this area. To make it successful the department needs full co-operation from all corners of the Panchayat

and above all the support of the People. Further livestock improvement Section has planned to raise a Government sheep farm to boost the stock wealth of this zone.

A lot of diseases have become endemic with severe outbreak records in the animals in this belt. Therefore proper prevention of diseases is needed to save the country from great economical loss. Every year thousands and thousands heads of livestock disappear due to nonavailability of veterinary aid. In such area every district should have a mobile dispensary along with well equipped hospitals at centre. At present there is one hospital at Khalanga and one dispensary at Humla.

Department of Animal Development & Veterinary Services is planning to establish a mobile dispensary in every district in the near future. The author got opportunity to study some of the common diseases of this area, as listed below during his visit to survey pasture land for raising sheep and yak farms.

Rinderpest

A large number of animals were reported dead due to rinder-

pest because of the difficulty in communication, it is quite troublesome for veterinary aid to reach this area affected with rinderpest. However, with freeze dried rinderpest vaccine made available to the mobile teams the disease was controlled. This vaccine was made at Veterinary Laboratory Kathmandu which was established under FAO and Indian co operation. It is essential to continue such vaccination programme in future also, with a view to pull down the danger of this disease.

Foot and Mouth Disease

Though mortality due to this disease is only 5-10 percent specially in young animals, the morbidity inflicted by it is considerably high. This disease exists as endemic and every year many outbreaks occur through out this Zone.

Goat Pox

It is commonly found in this belt and localized to caprine [goats] only. Sheep grazing together with goats are not infected.

Liver fluke

This parasitic infestation causes the greatest havoc to livestock of

this area. More than 50% of deaths is due to this disease. Goats, sheep, cows and buffaloes are commonly suffer from this disease.

Mange

It is particularly common with goats and some times sheep are also affected. This disease has become endemic with severe loss of wool and goats. Timely dosing with drugs and hygienic housing will give remedy.

Gid

It is also recorded in goats, sheep cows and yaks. Even then the loss of animal from this disease is not heavy.

Piroplasmosis

Particularly in hot belt of this zone this disease is commonly seen. Loss of animals from this disease is also appreciable.

Anthrax and H. S.

These diseases are sometimes seen in lower course of hilly tract.

Lacking proper investigation, occurrence of Anthrax is not conformed but HS is reported to occur more commonly.

Mineral deficiency

This zone can be considered as a mineral deficiency pocket. Iodine, phosphorous and calcium deficiency is very common. The deliterous effect inflicted due to the lack of these minerals are commonly observed in the form of shounted growth of the body, milk fever in lactating animals and goitor in human beings and goats.

Poisonous plants

High peaks of hilly range above 12000 ft. from sea level do not have tress but herbs only. In this region highly nutritive grass 'Buki' is available. Some of the poisonous plants which grow by the side of the nutritive grass may claim the live-stocks while grazing.



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P.V.G.48

Common Respiratory Diseases of Poultry in Nepal.

S. N. Pyakural

Veterinary Laboratory, Tripureswar

I. Introduction

Respiratory diseases of poultry, which is world wide in distribution, continues to be a problem of economic importance, in the modern poultry industry. During the past few decades poultry production has gained momentum throughout the modern world, as a result of which, transportation of stocks from one area to the other has become intensive. This, on the other hand has served as a means of introducing new diseases into a locality which otherwise remained britherto free from such diseases. Transportation of eggs has equally become of great concern in the occurrence of egg-borne diseases.

The growing poultry industry has modernized the traditional

methods of husbandry and nutrition and has made considerable progress in distribution and transportation of chicks as well. However this change in the present concept of industry has a marked impact in poultry health. Continious and prolonged use of hatchery and poultry plants with increased number and size of flock has contributed in the flare up of respiratory disease—complex to a great extent (Van Rokel 1955.) Reports have been made from different countries about the prevalence of respiratory disease — complex whereas countries like Japan, Sweden and Spain have made less reports (Van Pokel 1955).

Improved transport facilities, as adapted these days, has, to a

great extent enhanced the possibility of spreading the diseases. So also possibility of introducing diseases in one country via media poultry eggs, dressed poultry and other poultry product can not be over emphasized.

In Nepal, poultry keeping, as a fancy, was in practice since long, although, the breeds maintained were unidentified and the type of husbandry provided was indigenous. Due to the impulse of time, people in this country realised slowly the idea of profitable poultry keeping, which made them go after better breeds, better husbandry and better nutrition, as a result of which recognized breeds of poultry have been introduced in this country. Numbers of poultry raisers are increasing slowly, although the type of husbandry provided is not up to the mark except in few farms where the numbers of birds are fairly high. At present poultry production in this country is being realised as a subject of economic interest among the commonplace.

As stated earlier this turnover in the indigenous method of exotic diseases which otherwise was not

known to exist in this country. Although laboraton confirmation is still awaited, the symptomatological and epizootiological evidences are prone to to suspect the presence of diseases like avian leucosis complex, cronic respiratory disease (CRD) etc.

In this paper efforts are made to summarize briefly the salient features of common diseases of poultry producing respiratory syndroms which are known to exist in this country.

II. Viral Diseases

1. Ranikhet disease (Newcastle diseases)

It is a highly infectious and devastating viral contagion which attacks chiefly chicken and turkey. Various other birds as well as human beings may also contact the disease. Kraneveld (1926) first reported a highly fatal disease from Dutch West Indies and in the same year Doyle noted it in Newcastle—n—Tyne, England and he named it after the locality. In India was first appeared at Ranikhet in Uttarpradesh, hence it is also called Ranikhet diseases in India. In Nepal also the disease is commonly known by the later name.

The common respiratory signs revealed in this disease are gasping, coughing and hoarse chirping. There will be loss of appetite and increased thirst. In adult flocks the manifestations of this disease are to a great extent similar to those of bronchitis and laryngotracheitis, followed by respiratory distress, drop in egg production and off feed. Mayer (1968) has noted that in the respiratory aspect of Ranikhet disease the most common reactions are located in the trachea. There may be Oedema of the submucosa, cellular infiltration along with epithelial hyperplasia. Hyperplasia of the alviolar walls of the lungs are also observed.

2. Fowl Pox

Next to Ranikhet disease is fowl pox, which inflicts considerable loss in the developing poultry industry of this county. Regular vaccination of chicks has sufficiently minimised the incidence of this disease, nevertheless considerable number of birds are still becoming the victims of this scourge every year.

This contagious disease, which is caused by a filterable agent infects varieties of avian species

and is reported from many countries (Goodpasture 1928) including Nepal. As early as 1908 Carawarth showed that virus is responsible for cutaneous as well as diphtheritic forms of the disease. Beaudette 1953 has beautifully reviewed this disease and its effect in canary. He described three types of lesions in canary, the cutaneous, the mucosal and the so called "Schnappkrankheit" all caused by the same viral agent. As described by him the "Schnappkrankheit" form does not show any cutaneous or mucosal symptoms; the birds manifest marked dyspnoea and consolidation of lungs.

The diphtheritic form of Fowl pox has been described by various worders (Bollinger 1873, Burnet 1906, Goodpasture 1978.) Generally dermal form of fowlpox does not complicate diagnosis, whereas the respiratory form, associated with inflammatory and exudative reaction of oral and respiretoy mucossa followed by caseous pseudo-membrane may not be so simple always to the diagnosticians. The dephteritic form of the disease generally inflicts heavy loss as a result of disfunction of respiratory organs (Beaudette) 1953.

Besides chicken fowl pox virus also affects turkey, guineafowls, pheasants, peafowls pigeons and canary. At present three immunologically distinct types of avian poxes have been recognized viz. fowl, pigeon, and canary poxes (Beaudette 1949.) The reaction of fowlpox virus to pigeon will be a bit milder. Pigeon pox virus when inoculated into chickens produces local reactions and confers immunity (Doyle 1930) but of shorter duration. Egg adapted pigeon pox virus has also been tried to immunise day old chicks.

II. Bacterial diseases.

1. Infectious coryza (Fowl Coryza).

After the isolation of the causative agent of this disease by de Blicke (1931), it is known to exist in different parts of the world. The etiologic factor of this disease is a hemophilic, gram negative, non motile, bacteria which is designated as Hemophilus gallinarum.

Fowl coryza infection was thought to be of common occurrence in the past two decades but in recent years the incidence is remarkably subsided (Yoder 1965). However, the early reports reveal that H. gallinarum, frequently occurred as

ary infection with other respiratory diseases like fowl pox, infectious bronchitis, infectious laryngotracheitis and other respiratory diseases.

This infection causes acute coryza in fowls with the involvement of respiratory tract and sinus. The infected birds reveal oedema or swelling of the head, which is obvious mainly around the eyes and the comb. Symptoms like conjunctivitis and sneezing are also very common. These reactions lead to other secondary symptoms like decreased appetite, loss in weight and decrease in egg production.

The occurrence of the disease is quite often in the fall of winter. Infection once introduced by some carrier birds spreads within the flock by contact or by air borne or droplet infection (Yoder 1965). Page (1962) noted that water contaminated with nasal discharge can serve as easiest medium in the transmission of infection. The discharge in natural cases of fowl coryza is highly infectious when injected into palatine cleft of susceptible birds but the filtrate gives negative result (Hagan and Bruner 1961).

In case of infection occurring during winter the disease may persist through out the cold months whereas in summer the infection may be less severe with a shorter duration (Yoder 1965.)

The existence of this disease has been suspected since long in Nepal, although laboratory confirmation is still awaited. In field cases of suspected fowl coryza the symptoms appeared resemble, to a great extent with the conventional symptoms described above.

2. Avian pasteurellosis.

Organisms morphologically resembling *Pasteurella* were observed in heart blood film preparations from one laying bird brought to the hospital (Pyakural 1965). This material could not be processed further towards the isolation of the organism. However, symptoms observed at this outbreak were not of respiratory type.

The etiologic agent of this disease in small nonmotile, gram-negative, ovoid, elongated rods termed as *Pasteurella multocida*.

Avian pasteurellosis when appears in a flock manifests itself in

many forms. The symptoms mainly described here are of respiratory type. It may affect all most all species of birds. Harshfield (1965) has pointed out that small feral birds that happen to visit poultry yard are also susceptible to this disease.

To a great extent the symptoms revealed by avian pasteurellosis resemble fowl coryza. When respiratory symptoms are predominant, there will be facial swelling resulting from accumulation of exudate in sinus, nasal passages. There will also be conjunctivitis or tracheitis and involvement of power respiratory tracts including lungs. Sneezing, coughing accompanied with nasal discharge and trachial rills are often noticed. The mortality rate is very low but persists for a longer duration. Birds infected with respiratory pasteurellosis may also express symptoms like gradual loss in body weight, decreased activity, loss of appetite and finally death. Some of these birds which resist this form of infection become nasal carrier (Harshfield 1965).

In fowl cholera form of pasteurellosis gastrointestinal syndroms predominate the respiratory symptoms. In peracute form of the

disease, birds will die suddenly with no appreciable symptoms.

3. Salmonellosis.

It has been known that pullo-rum disease or other salmonellose of poultry are involved in producing clinical symptoms similar to those observed in other respiratory diseases affecting poultry (Van Roccoel 1955). So far there is no evidence of the existence of avian salmonellosis in Nepal, although, serological screening has been made in some cases. However, it needs further investigation both serological as well as bacteriological, in this direction.

III. Other respiratory infections

Due to the lack of adequate reporting system, proper diagnostic and laboratory facilities the existence of other respiratory diseases like infectious bronchitis, infectious laryngotracheitis, chronic respiratory diseases and other respiratory diseases of virus infection (Fahey and Crawley 1954), have not so far been studied in this country. However the report of the diseases such as infectious bronchitis, infectious laryngotracheitis (Panda and Sinch

1967 a, 1967 b), chronic respiratory disease (Singh and Singh 1967, Das Gupta and Nayak 1967) from India is sufficient to warn the poultry raisers of this country who are introducing considerable number of chicks from there.

IV. Diagnosis

Diagnosis of poultry respiratory infection remains a complex problem confronting the diagnosticians. Mayer (1968) feels that histopathology along with other laboratory findings will serve as an important tool in the diagnosis of this complex.

In a country like Nepal where need of proper diagnostic facility is seriously felt with, the respiratory disease-complex remains a great challenge to the development of poultry industry. In the presence of adequate laboratory facilities equipped with all modern technical needs and qualified technical hand, problem of respiratory diseases of poultry can be simplified to some extent.

In some of the simple cases of this group of disease like cutaneous form of sowl pox where lesions are properly developed diagnosis will be less difficult.

In case of Ranikhet Disease sometime the symptoms and post-mortem lesions are evident for diagnosis. Serological tests like haemagglutination (HA), Burnet (1942) and haemagglutination inhibition (HI) (Burnet 1942, Lush 1943) and serum neutralization (CN) tests are generally used in laboratories for the diagnosis of RD. McClurkin et al (1954) has recently described a rapid method of HA in which lung extract is used as antigen. However other more sensitive methods of diagnosis like SN, complement fixation and virus isolation can be employed in better equipped laboratories.

In case of bacterial infection like coryza where the conventional clinical signs and history of the disease are evident diagnosis become simple. However biological tests followed by cultural isolation of the organism may be of use to confirm the diagnosis.

On clinical symptoms only avian respiratory pasteurellosis may be confused with other similar infections as described above. On the other hand, outbreak of this disease in poultry may be identified readily when adequate case

history and suitable specimen for laboratory processing are obtained in time to isolate the organism (Van Rockel 1955).

V. Control and Prevention

The usual practice in the control of infectious and contagious diseases holds good in this disease complex also.

Various sulfonamides are found effective in the treatment and control of bacterial infections like coryza and pasteurellosis. Pomeroy (1950) is of opinion that medication with sulfamethazine has been found effective to minimise the loss due to coryza, but when the treatment is discontinued loss from the disease may be renewed. Parenteral use of antibiotics like penicillin and streptomycin have been useful in some cases, which is not practicable in large flocks. So far no drug or vaccine has been found to prevent or control the disease satisfactorily (Van Rockel 1955.)

Sulphathiazole (Delaplane 1949) and sulfaquinoxaline, sulfamethoxine and sodium sulfamerazine (Peterson 1949) in drinking water were found to be effective in the control of chronic respiratory form of avian

pasteurellosis. Kiser, et. al. (1948) noted considerable reduction in mortality produced by fowl cholera using sulfamethazine and sodium sulfamethazine. Nelson (1955) also got favourable result by giving sulfaquinoxaline in drinking water in controlling the loss in acute outbreak of fowl cholera.

Dorsey and Harshfield (1959) could not notice any significant influence in the course of fowl cholera infection by using antibiotics at a very low level. According to them sulfaquinoxaline and sulfamerazine were superior to tetracycline in preventing mortality whereas penicillin and streptomycin were of no use. *P. multocida* bacterin have been used with some success in the control of fowl cholera.

Two important virus diseases of poultry prevalent in this country i. e. Ranikhet disease and fowl pox can be controlled by proper management and timely vaccination.

Several inactivated as well as live vaccines tried in different parts of the world against Ranikhet disease have been described. However the method of vaccination commonly recommended is to

inoculate F-strain (Asplein 1952) intranasally to day-old chicks, followed by revaccination with Mukteswar (R_2B) strain (Haddow and Idnani 1941) at 6 to 8 weeks of age by intramuscular or wing web puncture method. This method is proved to booster the immunity level in the observation of several workers (Rao and Agrawal 1960, 1962, Nilakantan and Rao 1955, Nilakantan et. al. 1960).

Egg adopted fowl pox vaccine and pigeon pox virus have been used successfully to immunize chicks against fowl pox. Doyle (1930) noted satisfactory immunity against fowl pox by the use of pigeon pox virus. He has also advised the use of this virus to immunize day old chicks. Successful results have been obtained by various workers to immunize chicks against fowl pox by egg adopted strain of fowl pox virus (Rao et. al. 1953, Iyer et. al. 1953, Nilakantan et. al. 1960 a, b, c.)

Simultaneous immunization with combined Ranikhet disease and fowl pox vaccines has also been found encouraging in various cases (Dhanda et. al. 1958, Gupta and Rao 1959.)

VI. Conclusion

In an agricultural country like Nepal, the importance of livestock and poultry industry in the building up to national economy can not be under-estimated. During the past few years growing interest has been observed among the people of Nepal, towards the improvement of poultry production. However, the amount of work put so far in this direction is not sufficient enough to meet the growing need of the people. To some extent the authorities concerned are trying to extend their hands to make the farmers aware of the modern technical knowhow about economic poultry production. This requires further stimulus in

educating the people about the efficacy of this business.

As already mentioned along with the improved breed of birds imported for profitable poultry production various diseases which were supposed to be unknown in this country may have also been introduced, which in the long run can create a serious problem for the in-a-state-of-developing poultry business of this country. So it has become a very high time now for all who are directly or indirectly related to this problem to think of establishing an equipped "Poultry Disease Diagnostic Laboratory" to face this challenge.

References

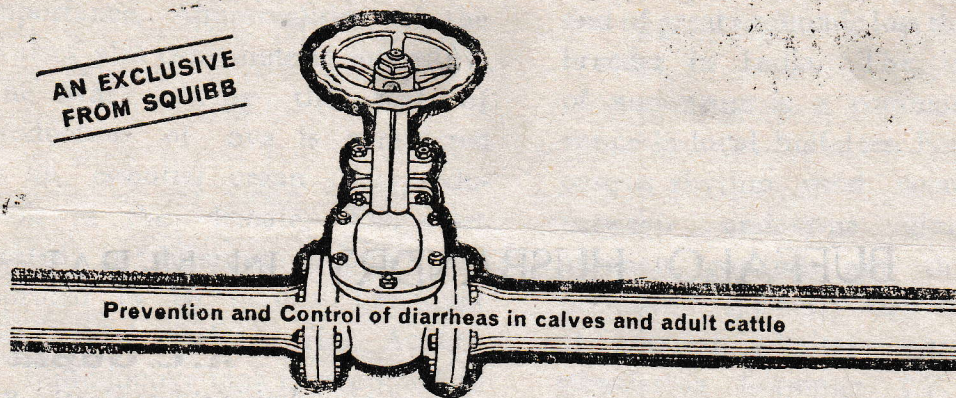
1. Asplin, F. D. (1952)
2. Beaudette, F.R. (1949)
3. Beaudette F.R. (1953)
4. Bollinger, O. 1873)
5. Brandly, C.A. and Hanson R.P. (1965) In "Disease of Poultry", Biester and Schwarte, ed. 5th. ed. pp. 633, Iowa State College Press, Ames.
- Vet. Rec. 64, 245
- J. Amer. Vet. Med. Assn 115, 232
- Proc. 57th. Ann. Meeting U.S. Livestock Sanit. Assn. 249.
- Cited by Cunningham (1965) in "Discases of Poultry", Biester and Schwarte ed. 5th. ed. pp. 788 Iowa state collage press, Ames.

6. Burnet E. (1906) Cited by Cunningham (1965) In "Disease of Poultry" Biester and schwarte, ed. 5th. ed. pp. 788 Iowa State College Press, Ames.
7. Burnet F. M. (1942) Aust. J. Expt. Biol. Med. Sci. 20, 81
8. Carnwarth, T. (1908) Cited by Doyle & Minett (1927) Jour. Comp. Path. and Therap, 40, 247
9. Das Guptn, P. & Nayak, N. C. (1967) Indian Vet. J. 44, 473
10. de Blicck, L (1931) Cited by Yoder, JR. W. H. (1965) J. Amer. Vet. Med. Assn. 115, 40
11. Delaplane, J. P. (1949)
12. Dhanda, M. R., Nilakantan, P. R. & Sakhubai, P. R. (1958) Indian Vet. J. 35, 5
13. Dorser, T. A. & Harshfield G. S. (1959) S. Dak. Agr. Exper. St. Tech Bull. 23
14. Doyle, T. M. (1930) Rep. of 11th. International Vet cong. 3, 675
15. Fahey, J. F. & Crawley J. F. (1954) Canad. J. comp. Med. Sc. 18, 13
16. Goodpasture, E. W. (1928) Cited by T. M. Rivers In "Filterable viruses" pp. 235, Williams & Wilkins, Baltimore.
17. Gupta, B. R. and Rao, S.B.V. (1959) Indian Vet. J. 36, 365
18. Haddow J. R. Idnani, J. A. (1941) Indian J. Vet Sc. 11, 115
19. Hagon, W.A & Burner, D.W. (1961) The infectious diseases of domestic animals 4th. ed. 300.
20. Harshfield G. S. (1965) In "Diseases of poultry" Biester & Schwart ed. 5th ed. pp. 359, Iowa State College press, Ames.
21. Iyer, S. G. Rao S. B. V and Thakral B. T. (1953) Indian Vet. J. 29, 553
22. Kiser, J. S., Pricer J., Botorff, C. A. & Greene L. M. (1948) Poultry Sc. 27, 257

23. Kraneveld, F. C. (1926) Cited by Brandly, C. A. & Hanson, R. P. (1965).
Vet. Bull 34, 57
24. Lancaster J. E. (1964) J. Comp. Path. 53, 157
25. Lush, D. (1943) Vet Bull 38, 273
26. Mayor, O. Y. (1968) Amer J. Vet Res 15, 314
27. McClurkin, A. W. Sinha, S. K.,
Hanson, R. P. (1954) Proc. 92. nd. Ann. Meet. Amer. Vet.
Med. Assn. pp. 306.
28. Nelson, C. L. (1955) Indian Vet. J. 42, 383
29. Nilakantan, P.R. & Rao S.B.V. (1965) Indian Vet. J. 37, 503
30. Nilakantan, P. R. Sakhubai, P. R.
& Dhandam M. R. (1960a) Indian Vet. J. 37, 548
31. Nilakantan, P. R., Sakhubai, P. R.,
& Dhandam, M. R. (1960b) Indian Vet. J. 37, 1
32. Nilakantan, P. R., Sengupta, B. R.
& Sakhubai, P. R. (1960c) Avian Diseases 6, 211
33. Page L.A. (1962) Indian Vet. J. 44, 365
34. Panda P.C. & Sing C.M. (1967) J. Amer. Vet. Med. Assn. 113, 263.
35. Peterson, E.H. (1948) Vet. Med. 45, 277
36. Pomeroy, B.S. (1950) Unpublished observations
37. Pyakural S.N. (1966) Indian Vet. J. 37, 6
38. Rao, S.B.V. & Agarwal, K.K. (1960) Indian J. Vet. Sc. 32, 6
39. Rao S.B.V. & Agarwal, K.K. (1962) Indian J. Vet. Sc. 32, 6
40. Rao, S.B.V., Thakral, B.M. &
Ramnani, B.R. (1953) Indian Vet. J. 29, 387
41. Singh S.B. & Singh C.M. (1967) Indian Vet. J. 44, 187
42. Van Roekel (1955) Avances in Vst. Sc. 2, 64
43. Yoder J.P., H.W. (1965) In "Diseases of Poultry" Biester &
Schwarte ed. pp. 405, Iowa State
Collège Press, Ames.

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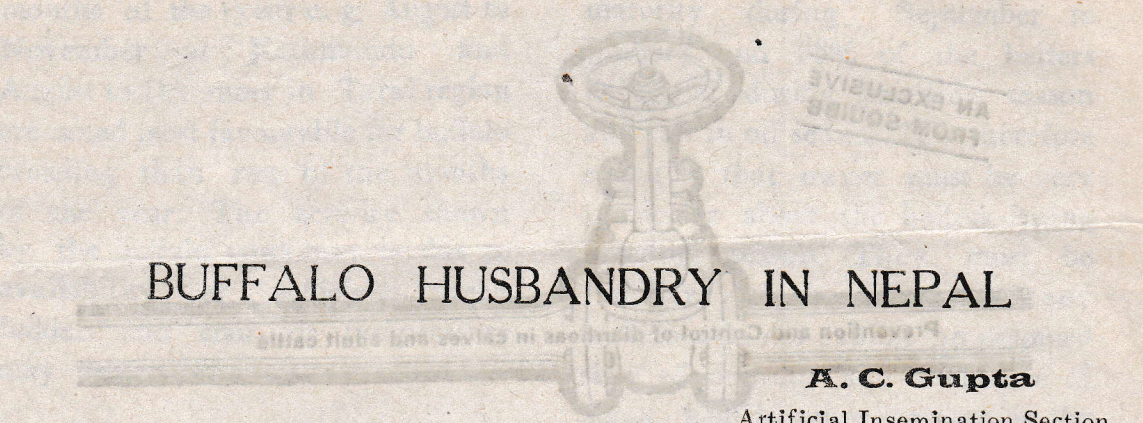


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BUFFALO HUSBANDRY IN NEPAL

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The buffalo as a prime dairy animal is recognised throughout Nepal. The secondary importance of being a draft animal varies from one region to the other. In the Terai male buffaloes are used to plough and to yoke carts. In the valley or Kathmandu and in some other parts of Nepal they are used for meat purposes also.

The greater percentage of buffalo population belongs to non-descript type (no recognised breed). The milk yield of these buffaloes is very poor in comparison to that of the recognised breed. The milk production fairly depends on genotype of an animal and the environment in which it is placed. The environment includes favoura-

ble atmosphere, suitable diet and good managerial conditions. The genotype of an Animal cannot function properly unless it is put in favourable environment.

The important aspect of buffalo husbandry is to consider the economic traits in these animals. Among the economic traits, early maturity persistency of lactation, short dry period and regular calving interval are the most important. Majority of the buffaloes are lacking in such traits and may be due to poor genetic make as well as not proper feeding and managerial condition.

Infertility and repeat breeding are the problems of great economic

importance. Abnormalities of the ovaries also contribute to infertility. The ovary being the seat of production of ova is considered as an essential organ of reproduction in the female. The cases treated in different hospitals are reported to be mainly persistent corpus and cystic ovaries. Acidity of reproductive tract is supposed to be the important cause of repeat breeding. The diseases of the ovary are the highest in order of magnitudes among the abnormalities of the reproductive organs of buffalo cows. Other possible abnormalities of the ovaries are haematoma of ovary, luteinized follicles, sub-active and smooth ovaries and adhesions of ovaries with other organs.

Certain diseases of the reproductive organs interfere with the reproductive efficiency of the buffalo cows and cause abortion. Abortion in buffalo cows is reported to occur in farms and outside. No investigation is carried out so far to detect the actual cause of abortion. The important diseases which can cause abortion are brucellosis, vibriosis, trichomoniasis and leptospirosis. Brucellosis is the most important diseases of the bovines

and of great economic loss the buffalo breeder in India. The incidence of anoestrus is a common occurrence in local buffaloes. For regular oestrus rhythm good coordination between endocrine glands eg. adrenals, gonads and thyroid is necessary specially the hormones of anterior pituitary eg. follicle stimulating hormone (F. S. H.) leutinizing hormone (L. H.) and luteotropic hormone (L. T. H.) and hormones of the ovary—estrogen and progesteron play the most important role to maintain sexual activity. Any adverse environment that affects the health of the animal, may produce adverse effect on the reproductive system by causing anoestrus.

Late maturity among the heifers is also a uneconomic trait and is mainly due to inactive condition of the ovaries. The heifers are generally maintained on paddy straw and grazing. Underfed and low nutritious diet may be the cause of late maturity; of course genetic make up plays the important part in early maturity.

Though buffalo cow is known as polyoestrous animal showing sexual activity throughout the year, certain

months of the year e. g. August to November at Kathmandu and August to December in Tarai region are noted most favourable for buffalo breeding than rest of the months of the year. The activity shown by the buffalo cows may be due to availability of sufficient green fodder and cool air temperature may be the another factor.

Many workers have reported on the breeding season among buffaloes. According to Goswami and Nair (1964) high air temperature was detrimental to high conception rate whereas cool air temperature was conducive to conception rate. Rao & Rao (1968) reported that maximum and minimum insemination were done during November and July, respectively. Physiological mechanism of ovulation was normal and high air temperature adverse affects the onset of oestrus.

It is reported by many workers that the heifers which are not matured in breeding season, may not conceive in off seasons. At the present stage no such information is available in Nepal. Gautam and Singh (1968) reported that 74% of the heifers attained the age of

maturity during September to January and 88% of the heifers conceived during breeding season and rest in off season. It is therefore essential that owner must be very particular about the heifers during breeding season. They must be familiar with the oestrus. Many buffaloes do not exhibit pronounced sign of oestrus and incidence of silent heat is more common in the buffalo so that heat may be missed unless greatest care is exercised in detection.

The success of buffalo breeding depends on the quality of semen produced by the improved bull which in turn depends on the healthy condition of the female reproductive tract. Murah bulls have been supplied to the veterinary hospitals and the panchayat under livestock development programmes for natural service. The bulls have adopted well throughout Nepal and their breeding efficiency is judged quite satisfactory but their number is negligible in comparison to the buffalo population. Natural service is a time consuming factor in up grading the local buffaloes. In order to cope with the public demand in a country like Nepal, artificial insemination will definitely prove better than natural

service considering the availability of improved bulls. As artificial inseminations have not been tried in buffalo cow in our country, so efforts are being made to introduce artificial insemination in buffaloes. As buffalo is the most important dual purpose animal because of high yield, fat content and prolon-

ged lactation and the male calves are equally important, much attention should be paid to improve the local buffaloes to encourage dairy industry. Care management, diet and veterinary aid are as important as improved bulls for the success of buffalo husbandry in Nepal.

References

1. Gautam, J. P. and Singh, (1968) Indian Vet. J. 45, 420
2. Goswami, S. B. & Nair, A. P. (1964) Indian J. Vet. Sc. 34, 127
3. Ram Mohan Rao and Venketeswara Rao (1968) Indian Vet. J. 45, 846



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MILK AND MILK-BORNE DISEASES

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Introduction

Over a hundred diseases have been encountered today, to be communicable from animal to man and they are grouped under "Zoonoses". Zoonoses like tuberculosis, Brucellosis, Leptospirosis, Rabies etc. need serious consideration from public health point of view. So also the impact of these diseases in the economic of a country is of no less significance. In the year 1951 World Health Organization summarized these zoonoses in its publication although there is considerable expansion in that list today.

Cow has been recognised as the "foster - mother of the world". It is most indispensable of all domestic animals, furnishing not only

motive power but also milk and meat. Milk as a food for mankind antedates the earliest recorded history. Human beings, over hundred of years ago learnt that milk serve as food both for young as well as old. A chemical assay of milk shows that it contains more or less all the essentials of food such as water, sugar fat, protein and minerals in adequate quantity and is of high biological value. However, milk, when it not properly treated may also become a source of disease in human beings and such diseases are studied under the chapter "milk-borne diseases". The purpose of this paper is to review these diseases briefly, with a view to make the common people familiar with them, so that they may be

able to take necessary measures to combat them.

Sources of bacteria in milk

In the early days milk in the udder used to be considered germ-free. Now it is known that milk even in its normal state contains common microbial flora of cow's udder which are not deleterious to human consumption; rather they are essential for so many reasons. Even if drawn under aseptic precaution milk invariably contains number of bacteria derived from cow's udder. The number of these organisms vary considerably from animal to animal, udder to udder, and are highest in the fore milk and lowest in the stripping.

When aseptic measures are devoid of milk is liable to be contaminated with bacteria from the surrounding where the milking is done. Contamination of milk by human handling cannot also be over-emphasized. Though numerically few microbes get access to the milk through this source, it may be considerably of great public health significance particularly if milker happens to be, a carrier of typhoid, paratyphoid, dysentery or food poisoning bacilli.

When the cow is diseased, she eliminates various disease producing organisms through the milk which thus becomes a menace to human health. The most common of these diseases is mastitis which is described here briefly.

Mastitis;

Mastitis means inflammation of the udder tissue. In apparent cases of mastitis the colour or consistency of the milk will tell us frankly to discard it. The problem which challenges the common consumer is the inapparent case of the disease, where the animal constantly secretes the pathogens through the milk; without showing any change to the naked eye. Depending upon the clinical picture mastitis can be classified as insignificant, milk, severe or chronic. In the first case there is an increase in alkalinity, chloride content and leucocyte count; there is no appreciable swelling of the udder or other changes in the milk. In the second type a slight or moderate swelling of one or more quarters along with abnormalities in milk is observed. Severe mastitis reveals symptoms like swelling and pain in the udder, abnormal milk, loss of appetite, temperature and signi-

ficant fall in milk yield. In the last type clinical "flare-ups" with varying degree of mastitis is revealed at irregular interval.

A number of organisms have been found to cause mastitis in cow. The commonest of these are groups and species of streptococci, Staph. aureus, Pseudomonas pyocyanea, coliform coranibacterium, Tubercle bacilli and brucella organisms are also encountered in certain cases. All these organisms are responsible to establish various disease syndroms in human beings. The most common of these are described in short over here in order of their importance from public health point of view.

Tubercle bacilli

The presence of tubercle bacilli in milk depends upon the frequency of bovine tuberculosis. In Great Britain this disease is still prevalent, though the progress of attested Herd Scheme after the Second World War has made significant reduction in the incidence. The statistical data indicates that in 1945 about 20 to 30 percent of milk cow in Engand and Wales were tuberculin positive, that 0.2 percent were discharging tubercle bacilli in the milk and that

an average of 7 percent of farmers were sending out milk containing tubercle bacilli.

Significant change has undergone in the relationship of bovine tuberculosis to man. The Expert committee on Tuberculosis (World Health Organisation 1951 a) has summarised it as follows "the committee recognises the seriousness of human infection with bovine tuberculosis.... There is danger of transmission of infection by direct contact between diseased cattle and farm workers and their families as well as from infected food products .. Reduction in bovine tuberculosis helps to improve the economic and nutritional standard of a country by improving the quality of milk and the productivity of cattle".

In man, tuberculosis is caused by two types of tubercle bacilli, the human and the bovine type—a fact which may have stamped the epidemiology of the disease to a great extent. It has been seen that alimentary infection with tuberculosis is caused almost exclusively by the consumption of raw milk containing bovine tubercle bacilli. It is assumed that tuberculosis infection through intestinal canal is conside-

rably benign than the inhalation infection. However, this does not hold good in infants. In places where tuberculosis among cattle is prevalent tuberculous meningitis and cervical adenitis among infants caused by bovine type are not uncommon. In Sweden, milk epidemics caused by tubercle bacilli of the bovine type have been reported.

The FAO/WHO seminar on zoonoses held in 1952 believes that, in some countries in as much as 10 percent or more of all human tuberculosis, bovine type of bacilli has been recorded. A part from its transmission through raw milk infection through respiratory tract, in place where there is association with infected cattle should not be overlooked. Children in farms are generally infected this manner.

Brucella organism

In cattle brucellosis is caused by Br. abortus. Brucellosis is one of the most studied zoonoses which has drawn attention of both the medical as well as veterinary workers as it is prevalent throughout world. One may accross in the literature that the ingestion of infected milk or milk products is the principal cause of

brucellosis in human beings. Brucellosis in man is also called undulant fever or malta fever, Bruce, (1887) was the painer who discovered malta. fever and its causal organisms in human beings.

Brucellosis is responsible for contagious abortion in cattle. The mammary gland is often infected even in animals that have not aborted and though no lesions can be detected by clinical examination the bacilli are intermitantly excreted in milk. The number of the organisms are greater at the beginning of lactation which generally decreases at the later stage.

In human brucellosis the clinical signs are generally seen in two forms: (a) an acute fever of limited duration followed by apparent recovery (b) long continued disease with periodic exacerbation.

Streptococcal diseases:

As already mentioned organisms of this group are the commonest to cause mastitis in cattle. This organisms also produce diseases like scarlet fever and septic sore throat in human beings.

Group A streptococci of any serotype which produces erythrogenic toxin against which the host lacks immunity are responsible to produce scarlet fever in human beings. It is now established that the species so commonly associated with scarlet fever in human beings is Str. progenes. Scarlet fever is simply one of the clinical manifestation of infection with Str yogenes. Besides this it can also produce septic sore throat or tonsillitis in human beings. In some instances it can also be the cause of various acute, suppurative and septicaemic infections in human beings.

This organism may get access to the milk from personal handling, dust or direct from the cow's udder. Above all milk is supposed to be the most important mode of these diseases in man. Since the classical Hendo outbreak of 1885 there have been numerous epidemics both in Europe and America in which epidemiological evidence has been incriminated to be milk (Topley and Wilson 1955). Stebbins et al (1937) were also able to show the relationship of an outbreak of sore throat to mastitis.

Staphylococcal infection

Staphylococci are common in

human nasopharynx, on human skin and in mastitis infected cow's milk. Some strains of Staph. aureus produce a lethal 'toxin' capable of irritating the gastrointestinal tract. Barber (1941) working in the Philippines, reported an instance of a 'toxin' outbreak due to the growth of staphylococcus in milk. After Dack and his colleagues (1930) rediscovery of the case of staphylococcal food poisoning in man numerous outbreaks caused by the production of toxic substance elaborated by staphylococcus in the food have been described by various other workers. Most of these outbreaks have been associated with the consumption of infected milk and milk products.

Typhoid, Paratyphoid food poisoning and Dysentery bacilli,

Enteric infection with these groups of organism have been incriminated since pre-bacteriological days by Ballard through the consumption of polluted milk. In England there are numerous records of milk-born outbreaks of typhoid and paratyphoid fever, of which the 1931 outbreak of paratyphoid fever and 1936 outbreak of typhoid fever are more important (Topley and Wilson

1955). Similar infection of typhoid and paratyphoid fever have been recorded in the United States and Canada. These important pathogens generally get access to the milk from human and other extraneous sources.

Measures to increase the safety of Milk,

Now we know that the danger of infection of milk from cattle, from human handling and other surrounding are so great that it will not be an over stating if we assert that no raw milk can be regarded as perfectly safe for human consumption. To increase the safety of

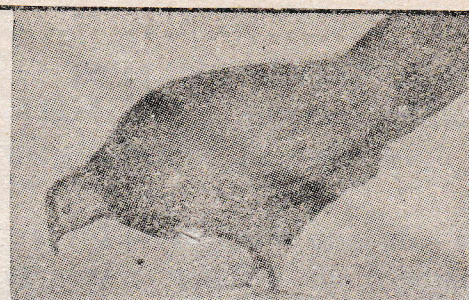
milk, measures like control of animal diseases control of human personnel handling the milk and thirdly heat treatment of milk such as pasteurization, boiling and sterilization should be taken into account. In Nepal generally milk is taken only after in case the boiling is not proper we will not be beyond the range of these pathogens. Some of these organisms like tubercle bacilli need through boiling for considerably longer duration or pasteurization. Nevertheless in some places the practice of taking raw milk is also noticed which should always be avoided for all these reasons.

Literatures Referred

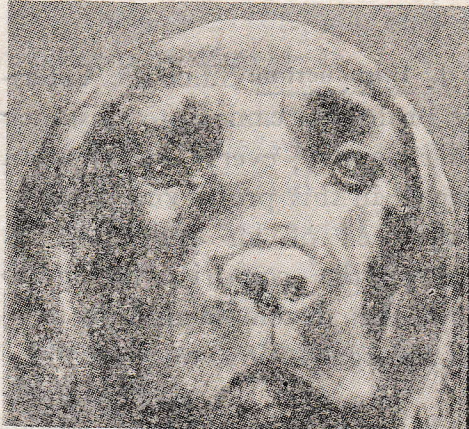
1. Plastringe, W. N. (1953) Advances in Veterinary Science Vol. 1 pp. 221 Academic Press, New York.
2. Topley & Wilsons' Principals of Bacteriology and Immunity 4th. ed. Edward Arnold (Publishers) Ltd, London.
3. WHO / FAO (1953) Advances in the control of zoonoses, Agricultural studies, No. 25.



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Preamble of Nepal Veterinary Association

1. Introduction: Since the Veterinary profession came into existence in our country, every veterinarian engaged in this profession strongly felt the need of an association. As many of the countries trying to follow the developmental course, need an organisation, we need one.

The Association may give direction and energy to corporate endeavour for the betterment of the country and countrymen. This association shall be a source of incentive to the members of profession and do creative work for the development of veterinary, animal husbandry and allied Sciences all over the country. Veterinarians might contribute singly or collectively their shares to help the progress of the Nation.

2. Name of the Association:—Shall be Nepal Veterinary Association or in short N. V. A.

3. Headquarter of the Association: Shall be at Kathmandu.

4. Aims and objects:

This Association shall purely be a scientific and professional organisation having no affiliation with politics or other shorts of in irrelevant propaganda.

The objects of the Association shall be:

(i) to emphasize the necessity of the unity among the members of the profession, to promote spirit of harmony and co-operation among each other working in this profession.

(ii) to convey new discoveries and developments in the field of veterinary, Animal Husbandry and allied sciences in our country as well as in other corners of the world.

(iii) to work for the development of livestock wealth of the country.

(iv) to help supply nutritious food of high biological value of animal origin and livestock product to the nation.

(v) to improve the allopathic system of veterinary medical treatment and surgery.

(vi) to make veterinary services readily and promptly available to the public.

(vii) to help control, prevention and eradication of animal pests.

(viii) to safe - guard public health from diseases communicable from animals to man & vice versa (zoonotic diseases).

(ix) to maintain honour and dignity of the profession in the society and to safeguard its rights and interests.

5. Methods:-

In order to fulfil the aims and objects stated above the association (N. V. A) shall carry out followings acts and functions.

(a) to help promote the spirit of harmony and co-operation among the members of the profession.

(b) to maintain up - to - date allopathic standard of treatment, to educate the public to notify in case of enzootic diseases and also to make the people conscious regarding treatment of animals.

(c) The association will always be willing to offer its services and cooperation to the Government in the solution of any technical problems and difficulties relating to veterinary, animal husbandry and allied object.

(d) The association shall consider all matters affecting the mode of life and work of the members of veterinary profession and will always endeavour and safeguard the legitimate professional interest.

(e) The association will also publish periodicals or other papers or both for the achievement of its aims and objects.

(f) The association will also encourage members to exchange professional informations with one other.

(g) The association will also arrange conferences or seminars for the discussion of subject pertaining to veterinary, animal husbandry and allied sciences.

(h) The association will also perform any other functions or duties pertaining to its aims & objects.

6. Official year The official year of the association shall be the lunar calander.

Constitution.

The constitution of the association shall be as mentioned below:

1. Membership: Person possessing a recognised degree or deploma in veterinary science are eligible to become a member of the association. Every member of an affiliated branch association is ipso-facto a member of the Nepal veterinary association. The membership of Nepal veterinary association can be classified as follows:-

(a) Honoray Membership -Persons of high distinctions who have rendered magnificent service to the Association, or the profession will be invited to become the mem-

ber of the association by a special resolution of the council of the Association.

(b) Ordinary Members: All the persons possessing minimum professional qualification, as mentioned above shall have the membership of this catagory as per rules la'd down in the constituion.

(c) Associate Members: Non-Nepales natinoals possessing minimum professional qualification as mentioned above shall have the privilege to enjoy the membership of N. V. A. They shall enjoy all the privileges of ordinary members except that they shall not be eligible to vote or to hold office.

(d) Life members: Person holding the minimum qualification as mentioned above, if pays a sum of Rs 400/-at a time, in lieu of the monthly subscription shall enjoy this catagory of membership. Their privileges and facilities shall be as those of ordinary members.

2. Mode of admission: Every application for membership shall be addressed to General Secretary of the Association. The General Secretary will put those applications

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before the council of the Association which is empowered with right to admit, refuse or re-admit the members.

3. Reeligibility of Membership:

Any member who has discontinued the membership by resignation or by nonpayment of the dues shall be admitted by fresh application to General Secretary of the Association.

4. Privileges of members:

(a) They shall be entitled to receive the publications of the association either free or at rates as fixed by the council of the association.

(b) They shall be entitled to vote on all resolution put forward at the meetings of the association.

(c) They shall have the right to take part in scientific lectures, seminars conferences, demonstration and discussions organised by the association.

(d) They shall be entitled to enjoy other privileges as per decision of the council.

(e) They shall be entitled to use the reading room and library of the association.

5. Termination of membership: The membership of the association can be terminated by any one of the three ways mentioned below:

(i) By resignation.

(ii) by nonpayment of subscription in time.

(iii) by indelicate behaviour or conduct of any member which shall be deemed prejudicial to the interest of the Association or found to be responsible for bringing disrepute to the profession or Association. In such cases any member shall terminate to hold the membership by the resolution of the council of the Association.

6. Subscription The annual subscription shall always be paid as advance either in one instalment for one year or by half yearly instalments.

The annual subscription of all categories of members shall be Rs 36/- No subscriptions shall be collected from Honorary members.

7. Council of the Association: The office bearers of the Association shall constitute the council of the Association.

8. Office bearers: The Association shall have the following office bearers for the proper management of activities.

- i. A President.
- ii. A Vice-President.
- iii. A General Secretary.
- iv. A Joint Secretary Cum Treasurer.
- v. Editor.

9. Powers and Functions of the Council of the Association

(i) The council of the Association shall carry out all the administrative work of the Association according to the constitution of the Association.

(ii) The council shall form as and when necessary within itself or with the inclusion of some other ordinary members of the Association, committees of not more than three members for some specific purpose such as finance, propaganda, etc. A committee of such type which also include editor shall look after the work of publishing a bulletin or journal, whatsoever it may be, which shall be the official organ of the Association, or other publication.

(iii) The council of the Association shall have following powers.

(a) to appoint a special adhoc committee or committees and to delegate a portion of its power to such committee.

(b) to make some ammendments in the articles of the constitution as time demands, in view of the aims and objectives of the Association the concept of general body.

(c) to admit, refuse or re-admit admission.

(d) to sanction all expenditures of the Association.

(e) to arrange for auditing the accounts of the Association.

(f) to arrange for conferences and General body meeting.

(g) to prepare or ammend bye laws in furtherence to the approval of the General body at its next meeting.

(h) to entertain, investsgate, determine any dispute or reference, of matter that may be brought to its notice by any member.

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