

A practical treatise on the treatment of the diseases of the elephant, camel & horned cattle : with instructions for improving their efficiency ; also, a description of the medicines used in the treatment of their diseases ; and a general outline of their anatomy / by W. Gilchrist.

Contributors

Gilchrist, W.

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A PRACTICAL TREATISE
ON
The Treatment of the Diseases
OF THE
ELEPHANT, CAMEL & HORNE D CATTLE,
WITH INSTRUCTIONS FOR PRESERVING THEIR EFFICIENCY ;
ALSO,
A DESCRIPTION OF THE MEDICINES USED IN THE TREAT-
MENT OF THEIR DISEASES ;
AND
A GENERAL OUTLINE
OF THEIR
A N A T O M Y.



BY
W. GILCHRIST,
SURGEON, MADRAS MEDICAL ESTABLISHMENT.

HOONSOOR, 1848.

Calcutta:
W. PALMER, MILITARY ORPHAN PRESS.
1851.



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AND

A GENERAL OUTLINE

OF THEIR

ANATOMY.

BY

W. GUNNING

ASSISTANT SURGEON GENERAL, ARMY.

BOONSBOR, 1818.

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BY PATRICK MILLAR, M.D. & F.R.S.

1818.

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PREFACE.

THE object of this Treatise is to detail in a practical form the result of Researches into the History and Treatment of Public Cattle, and to convey such other information as will, it is hoped, prove useful in preserving the efficiency of those animals.

The design of the Treatise being purely practical, all other questions relating to Public Cattle unconnected with their employment in the Public Service, however interesting such questions may be in themselves, are excluded. During peace, when time and facilities exist to recruit the Department of Public Cattle, as occasions arise, the value of the individual animals can be, to an extensive Government like that of British India, of little comparative amount. But opposite conditions exist in regard to their value during the progress of Military Operations when circumstances, whether of position or of extensive casualty, render reinforcement difficult. The preservation of the efficiency of Public Cattle, during active service, more especially when employed beyond the Frontier, being an object of paramount importance, I have, in drawing up this Treatise, endeavoured to communicate whatever has occurred to me as likely to conduce to that important end, so that those into whose hands is entrusted the superintendency of Public Cattle will, it is hoped, find information that will assist them in the discharge of their important duties.

In regard to the plan of the Treatise, it is divided into four parts. Each of the first three parts refers, respectively, to the Elephant, the Camel and Horned Cattle. In part fourth are stated and described the Medicines and Curative Measures employed in the Treatment of their Diseases.

W. GILCHRIST, *Surgeon,*
Public Cattle Depôt.

HOONSOOR, }
16th December, 1848. }

PREFACE

The object of this Treatise is to supply a practical knowledge of the principles of the treatment of Public Cattle, and to present such other information as will be found useful in promoting the efficiency of those animals.

The design of the Treatise being purely practical, all other questions relating to Public Cattle are omitted, with those exceptions in the Public Service, however interesting such questions may be in themselves, are considered. Amongst these, when time and facilities exist to treat the Department of Public Cattle, as a common case, the value of the individual animals can be to an extensive Government, the fact of Public Cattle, of this comparative nature, that of Public Cattle exist in regard to their value, the progress of Public Cattle, and in circumstances, whether of position or of extent, thereby, render relationship difficult. The preservation of the efficiency of Public Cattle, during active service, more especially when employed beyond the Treaty, being an object of permanent importance, I have, in drawing up this Treatise, endeavored to communicate whatever has occurred to me as likely to conduce to that important end, so that those into whose hands it is entrusted the expediency of Public Cattle will be aided, and the question that will exist them in the discharge of their important duties.

In regard to the plan of the Treatise, it is divided into four parts. Each of the first three parts refers respectively to the treatment of Cattle and Horses. In part fourth are stated and described the Medicines and Chemicals employed in the treatment of these Animals.

W. GILCHRIST, Esq.
Public Cattle Veterinarian.

London,
1844.



PART I.

HISTORY AND TREATMENT OF DISEASES OF THE ELEPHANT.

CHAPTER I.

GENERAL DISEASES.

سرد گرم.—*Surdh Gurum.* ٹھپ.—*Thup.*

SECTION 1.—FEVER.

HISTORY.—An attack of fever in the Elephant is generally ushered in with rigours of the whole body; the trunk contracts; the animal leaves off feeding; is weak, sometimes drowsy and listless. Sooner or later the hot stage sets in, during which, however, the ears remain cold: the animal is now desirous to cool itself by throwing water over its body, if opportunity offer, or blowing over itself the fluid secretion of the trunk, as if heated by exertion when marching in the sun. There is much thirst, and little inclination to eat; the urine, by the appearance of which, in regard to colour and quantity, the Mahawuts correctly infer the degree of fever, is either reddish and scanty, indicative of a severe attack, or of whitish and muddy appearance, though of healthy quantity, which characterizes the milder forms.

There is a discharge from the eyes, which is frothy and white in severe cases. The pulse, which is to be felt on the hinder part of the root of the ears, is about 70 or 80 per minute; (49 is the average healthy pulsation, *vide* Part I. Chap. IV. Sec. 4.)

It is rare that fever occurs other than symptomatic, that is, complicated with local diseases, as inflammation of the lungs, bowels, and other severe ailments. Its duration and severity are dependant on the local affections, as will be particularly described under the respective heads of those affections. Perhaps the least complicated variety is the fever that precedes the affection Lungun (fasting and worms described below.) Fever in the hot stage, as above described, may continue for a week. The animal is relieved on being freely purged either by medicine, or by eating one or two pounds of earth which it instinctively resorts to by way of purgative, when that kind of medicine is required.

TREATMENT.—In its milder degree, fever may abate of itself, or be removed by free purgation, for which purpose either of the recipes Nos. 2, 3 or 4, under the head of Purgatives, Part IV. Chap. I. No. 8, may be given. But in aggravated cases,

marked by much restlessness, fiery eye, attempts to get loose, in short, madness, bleeding must be resorted to; instructions for performing which will be found in Part I. Chap. IV. Sec. 5. Bleed to $\frac{1}{2}$ or 1 gallon, and repeat if the symptoms have not considerably abated, give as a purgative six ounces of aloes, along with some rice made up in the form in which the ratib is given; or, if the animal refuses to take this medicine, which is sometimes the case, give it four or six drams of croton oil seeds, bruised and mixed in some rice in the manner just alluded to. The ratib or allowance of rice ought to be stopped in the severe cases; and if a choice of fodder can be commanded, that known to Mahawuts by the names Puttairah and Ghut-lavaloo and Pohkla-lavaloo, is to be preferred to branches of trees usually given, the former being less stimulating. Cocanut leaves, cholam straw, and long grass, dried or green, may also be given in preference to branches of trees.

وانى كا درد.—*Vahce ka Durudh.*

SECTION 2.—RHEUMATISM.

HISTORY.—This is a very common affection of the muscles and joints of the Elephant, and is most prevalent during the rainy and cold weather; but may supervene at any season if the animal, when heated from exertion, is allowed to cool suddenly, especially if allowed access to water immediately on coming off a march. While on the march it is advisable to allow the animal to cool before taking it through a river or other body of water. The usual symptom is stiffness of one or more of the joints or limbs, causing the animal to walk lame: generally swelling of the affected part supervenes, and usually more or less tenderness on pressure. It has not been known to be accompanied with fever. Occasionally, though rarely, cases occur wherein there is a periodical nocturnal increase of stiffness and pain, as in the human subject. It may start on the march apparently well, but sooner or later commences limping. The joints most frequently affected are those of the shoulder. Young and old animals are equally subject to it; the same is to be said of the strong and weak. The animal may be, in all other respects, healthy, and seldom, if ever, leaves off fodder. As to degree, it ranges from an affection which causes the animal to limp on marching, but which, the rest while at the stage, removes, and consequently does not much interfere with the efficiency of the animal, to an affection which renders it for the time totally inefficient. The disease is frequently protracted, but is not fatal.

TREATMENT.—The affected part is to be sedulously fomented; (*vide* Part IV. Chap. I. No. 7,—instructions regarding Fomentation.) The bowels are to be freely moved with the following:—

Croton seeds, coarsely powdered, $\frac{1}{2}$ ounce to be mixed up with the charah and so given. The fomentation is to be intermitted occasionally, and during the intermission any one of the liniments, given in Part. IV. Chap. I. No. 7.—Liniment No. 1 is to be rubbed over the affected joint which is to be well covered up. Any one of the following Mussauls may be given in the more severe cases.

Mussaul No. i.

1 Take of Shemruf,.....	Tolas	2	7 Kohst,	Tolas	6
2 Russasendoor,	do.	2	8 Piplamohde,	do.	6
3 Wurkee Urthal,	do.	2	9 Kupeelah,	do.	6
4 Munseel,	do.	2	10 Kootkee,	do.	3
5 Moordharsing,	do.	2	11 Goode,	do.	24
6 Ahfeeme,	do.	6	12 Rahyan,	do.	12

Pulverize the metallic, and coarsely powder the vegetable substances, then mix together and beat up with No. 11. Add to this mixture $1\frac{1}{2}$ bottle of Arrack, and form into boluses of the size of a large lime; of which give one every night for a fortnight successively. Animal to be kept from exposure to cold.

Mussaul No. ii.

1 Take of Urthal,	Tolas	1	6 Munseel, ..	Tolas	1
2 Shemruf,	do.	2	7 Gendugh,	do.	6
3 Moordharsing,	do.	2	8 Ahfeeme,	do.	10
4 Russasendoor,	do.	1	9 Udrak,	Seers	6
5 Soomul,	do.	1	10 Shahth,	do.	6

The hard substances to be finely powdered, No. 9 to be bruised and added to the above, then add No. 10 and form into a mass, which divide into boluses of the size of a large lime; of which give one every night for 7 successive days—then stop for a fortnight and resume by giving it every other night for 12 days.

Mussaul No. iii.

1 Take of Moordharsing,...	Tolas	6	3 Uzgun Rajud,	Seers	4
2 Ahfeeme,	do.	6			

No. 3 to be cut in pieces of about 6 inches in length. Pulverize the other two ingredients, and introduce this powder in a canal, which is to be made for this purpose by cutting away a portion along the middle of No. 3. Heat these under wood-ashes until they assume a black colour, and give two pieces to the animal night and morning, for a fortnight successively.

زهر باد.—*Zaarbad.*

SECTION 3.—DROPSICAL SWELLING.

HISTORY.—This, which is frequently a fatal affection, appears usually during the monsoon and cold season. The symptom by which it is first recognized is a swelling of the parotid gland. This is the gland that secretes saliva, and is situated

on either side of the neck behind the lower part of the ears. In health these glands do not project beyond the general contour of the surface, but when under the influence of this affection they are very prominent. The parts situated lower down, on the neck, next swell, and the skin over them becomes tense; then the swelling occupies the lower part of the neck, and stretching between the forelegs finally occupies the lower part of the abdomen. The swelling is caused by fluid secreted into the cellular tissue underneath the skin; and when it appears on the abdomen, which is usually two or three days after the commencement of the swelling of the parotid glands, these glands usually diminish in size though they still continue enlarged. Though the parotid glands are usually the seat of the first swelling, they are not always so, as the swelling sometimes begins in the parts lower down, just named. It occasionally commences in the temples and thence extends to the parotid glands; also, though more rarely, it shows itself first in the fore-knee joints, extending thence throughout the limbs and eventually to the abdomen, and lastly to the external parts of generation, which occasionally mortify and slough off extensively. The swelling below the abdomen does not always supervene, apparently from the disease running a rapidly fatal course, for it uniformly appears in all the more protracted cases, and sometimes to a great extent, adding more than a cubic measure to the depth of the body of the animal. When punctured a considerable quantity of fluid oozes out.

Occasionally the Zaarbald observes a slow and gradual course, and the first indication of this variety is the appearance of blind boils about the abdomen and knee-joint, which do not suppurate. Nunjee or Nunj is the name given to this blind boil, indicative of Zaarbald. Boils, which suppurate and which are called Russoolee, *vide* Part I. Chap. II. Sec. 35, are not indicative of the disease now under consideration.

Zaarbald sometimes, though rarely, runs its course to a fatal termination in two or three days. Usually, however, it is more protracted and may terminate fatally after three months or more. In these protracted cases, the swellings, above described, may alternately enlarge and decrease; the animal gradually losing flesh though continuing to the last to eat fodder. It is at all times a dangerous disease, a large majority of cases proving fatal. Palsy of the hinder extremities occurs before death; and there is always more or less numbness of the extremities. During the Military Operations in Goomsoor, Northern Circars, in 1837 and 1838, eight Elephants with the Force died of this disease. Indeed, with the exception of the swelling of the parotid glands, this disease very much resembles, in its symptoms and appearance shown by dissection, the acute form of the disease to which in the Northern Circars the human subject is subject, known by the name of Beriberi; and it is a singular fact that several of the horses, belonging to the Officers of the Goomsoor Force, died from an affection, the symptoms of which were very similar to those detailed above, as obtaining in the affection of the Elephant now under consideration.

The animal is always listless and heavy, frequently drowsy, never troublesome or furious. Even animals, in the wild state in the jungle, when suffering from it, have been approached closely with impunity. The secretions of urine are greatly increased, and thirst is urgent.

The disease appears to be an affection of the spinal canal, and to consist of an accumulation of fluid therein, which takes place more or less rapidly, and which is variously situated as to particular part of the spine. When it takes place near the head, the progress of the disease, to a fatal termination, is rapid; but when the fluid commences to collect in the lower parts of the spine and thence extends upwards towards the neck, the disease is less speedy in its progress, and more within the range of treatment. On dissection, there are found from 5 to 8 ounces of fluid in the spinal canal. In the cavity of the abdomen, fluid is always found, amounting from 5 to 10 gallons, or even more.

TREATMENT.—Bleeding in this disease is of unquestionable utility. The quantity to be drawn is from half a gallon to one gallon. The progress of the disease, to a fatal termination, in one of the cases in which it was largely practised, was decidedly impeded thereby. Marked mitigation of the symptoms followed each recourse to it, and had the animal come under treatment soon after the commencement of the disease, good grounds exist for the supposition that a cure would have resulted. Free purgation ought also to be practised. Give aloes either alone or in combination with croton oil seeds.

Aloes 4 to 6 drachms.

Croton seeds, bruised 2 to 4 drachms, or an ounce of croton seeds alone, may be given and repeated the following day, if the animal refuse to take the aloes. The croton seeds may be combined with calomel—an ounce of the former with 1 to 3 drachms of the latter. *Vide* under the head of Purgatives, Part IV. Chap. I. No. 8, for instructions regarding the exhibition of purgative medicines. The animal ought to be well fomented along its spine. Several recipes for fomentations are given in Part IV. Chap. I. No. 7. Three alterative doses of calomel are to be given, half a drachm or a drachm daily—the first 2 or 3 doses being of the latter quantity.

The swelling below the abdomen, when very large, may be advantageously punctured with a scalpel or phlegm in several places, when a large quantity of fluid will ooze out. After the above means have been practised, the following Native *Mussauls* may be given with marked advantage. They have been frequently given to animals under treatment in Hospital, and have proved useful, particularly in chronic cases.

Mussaul No. i.

1 Take of Urthal, Tolas	1½	6 Moordharsing, Tola	1
2 Shemruf, do.	1½	7 Lussoon, Seer	0¼
3 Russasendoor, do.	1½	8 Uldhee, do.	0¼
4 Munseel, do.	1½	9 Moosumber, do.	1
5 Soohgah, do.	4		

The first five substances to be finely pulverized and mixed with the juice of 6 and 7, then add No. 9 and as much of honey as to form the whole into a soft mass,

which make into boluses of the size of a large walnut. If swelling is extensive give 2 pills three times daily, until the swelling and other symptoms subside.

Mussaul No. ii.

1 Take of Kahtch Kooree, Seer	1	5 Gendugh,	Tolas	4
2 Cannare Kajud,	do.	6 Urthal,	do.	4
3 Shemruf,	Tolas	7 Aak ka doodh, sufficient quantity.		
4 Moordharsing,	do.	8 Geon ka Attah, ditto.		

The metallic substances to be finely powdered, the vegetable, &c. bruised; then mix and form with No. 8 a soft mass by adding No. 7 gradually, and divide into boluses of the size of a marble. Two to be given night and morning, until the whole are given. If benefit is derived the above to be continued for a fortnight longer.

Mussaul No. iii.

1 Take of Bahroodh,	Seer	1	8 Shemruf,	Tolas	2½
2 Uldhee,	do.	0½	9 Russasendoor,	do.	2½
3 Kaleejeera,	do.	1	10 Urthal,	do.	2½
4 Lussoon,	do.	0½	11 Munseel,	do.	1½
5 Kohst,	do.	0½	12 Sooahgah,	do.	4
6 Moordharsing,	do.	2½	13 Ukul Kurrah,	Seer	1
7 Ahleem,	do.	1½	14 Shahth,	do.	4

The above ingredients to be finely powdered separately, then added together and well mixed; then add No. 14 and form into boluses of the size of a lime, of which give one night and morning for fifteen successive days.

Mussaul No. iv.

1 Take of Urthal,	Tolas	4	7 Googul,	Seer	1
2 Russasendoor,	do.	3	8 Dik ka mullee,	do.	0½
3 Shemruf,	do.	3	9 Hing,	do.	1
4 Moordharsing,	do.	3	10 Sungjeera,	Tolas	3
5 Moosumber,	Seers	3	11 Sungpaleetha,	do.	3
6 Gunbeede,	do.	2	12 Gaheelone,	do.	3

The above to be finely powdered and added to as much jingili oil or honey as will form the whole into a mass, of which give the size of half or one lime according to the age of the animal, twice daily, until the whole are given. The last two recipes of Mussauls have been given in Hospital with decided benefit.

When the tumours, above alluded to, called *Nanj*, appear unaccompanied with any swelling about the neck, the following Native Mussauls have been given with advantage. They may be given successively, if improvement does not result after continuing the previous ones for the periods stated.

Mussaul No. i.

1 Take of Gudge kay ka		7 Cheraytha,	Seer	0½	
Charolee,	Seer	0½	8 Baeebadung,	do.	0½
2 Kootkee,	do.	0½	9 Sheraufe ka mudde,	do.	2½
3 Piplee,	do.	0½	10 Googul,	do.	0½
4 Butch,	do.	2	11 Gunbeede,	do.	0½
5 Pipleemohde,	do.	0½	12 Koochlah,	do.	0½
6 Kalcejeera,	do.	0½			

Powder the hard substances together and soak in No. 9 for an hour; then give a handful to the animal night and morning for ten successive days.

Mussaul No. ii.

1 Take of Butch,	Tola	0½	3 Koochlah,	Tola	0½
2 Kaleejeera,	do.	2	4 Moordharsing,	do.	0½

Bury the above under ground for one night, then to be taken out the following morning, then roll them over with tender grass or chara, to be heated under wood-ashes for a few minutes, and given to the animal night and morning for a fortnight.

Mussaul No. iii.

1 Take of Indrayen,	Seers	3½	4 Butch,	Seers	4
2 Teendaree Sahend ka chall, do.		3½	5 Nullare,	do.	4
3 Aakapool,	do.	4	6 Koochlah,	do.	0½

The bark No. 2 to be cut in small pieces and put with the other ingredients in a new pot, which place on fire of bratties, until the contents are burnt to charcoal, then take

7 Rahyan,	Seer	1	10 Soahgah,	Tolas	4
8 Gunbeede,	do.	1	11 Bahroodh,	Seer	1
9 Hing,	Tolas	4	12 Soomul,	Tola	0½

The above ingredients to be powdered and added to the substances in the pot, which is to be previously powdered, then mix together; of which give the animal 1½ tola weight every morning and evening, for four successive days; afterwards give but once daily, until the whole is given.

This disease is particularly worthy the attention of those who, during a Campaign, are entrusted with the superintendence of the public cattle. Early recourse to bleeding and purgation with fomentation may restore Elephants speedily to health, while neglect may deprive the force of their invaluable services; and it is the more worthy of attention, since the disease, whether endemic or epidemic, may attack several at one and the same time.

سوکا زہرباہد.—*Sooka Zaurbahd.*

SECTION 4.—EMACIATION.

HISTORY.—A falling out of condition and gradually encreasing emaciation are the characteristic symptoms of this affection. The skin, to a greater or less extent, assumes a white leprous appearance, and always has a dry husky and scaly aspect. The animal is weak and listless, restless during the night, appetite variable, usually greatly diminished, the alvine motions are very pale and very fetid. Urine keeps healthy, but the animal is usually very thirsty.

This affection is a frequent consequence of Zaurbahd; it may also follow the careless exhibition of mercurial preparations: other cases result from no traceable cause, but its existence is an unmistakeable evidence of the animal being in a very bad habit of body; from which, after a protracted ailment of from four to eight months, occasioning encreasing debility, it usually dies.

TREATMENT.—The treatment is tonic and alterative. Only one case has been under treatment in Hospital which recovered from the use of the following Native *Mussauls*.

Mussaul No. i.

1 Take of Urthal, Tola	1	7 Moosumber, Seers	1½
2 Shemruf, do.	1	8 Ahfeeme, Tolas	9
3 Gendugh, do.	4	9 Uddaruk, Seers	6
4 Russasendoor, do.	1	10 Kuteha Uldhee, do.	6
5 Moordharsing, do.	1	11 Choonah, do.	6
6 Soomul, do.	1	12 Dik ka mullee, do.	1

The hard substances to be finely powdered and formed into a paste with lime juice. Take a small portion out of each of No. 9, fill the space of the whole with the above paste. A part of No. 11 to be spread on ground, place No. 9 in order over it, which cover with the same (11) and sprinkle a little water; and after cooled, soak No. 9 in honey for one day. Give the animal two of No. 9 rolled over with grass, night and morning, before the allowance of gram is given.

Mussaul No. ii.

1 Take of Googul, Seer	1	6 Laul Mirchee, Seer	1
2 Butch, (burnt to charcoal,) do.	1	7 Kalee Mirchee, do.	0½
3 Rahyan, do.	1	8 Ujwan, do.	0½
4 Inderjoathe, do.	1	9 Hing, do.	1
5 Pullas pupada, do.	0½	10 Sendalone, do.	0½

The above to be finely powdered and added to as much of honey as will form it into a soft mass, which divide into boluses of the size of a lime, and give one every morning before ratib.

دھوبلا.—*Dhoolba.* لاہگر.—*Lahgahr.*

SECTION 5.—DEBILITY.

HISTORY.—This is, in its nature, a falling off of condition of the animal, accompanied with more or less emaciation, and usually results from continued hard work, and want of proper or efficient fodder.

TREATMENT.—A course of tonics and alteratives is the appropriate treatment conjoined with rest; usually the recovery to health is slow, but although of frequent occurrence is rarely a fatal complaint, and when death occurs, this disease is complicated with some other affection to which the mortality is traceable.

Several cases have been under treatment in Hospital, and have usually done well under the use of either of the following Mussauls.

Mussaul No. i.

1 Take of Heera Googul, ... Tolas	8	4 Umbee Ulludh, Tolas	25
2 Soohgah, do.	14	5 Pullas pupada, do.	25
3 Hing, do.	12	6 Shahth, sufficient quantity.	

Take Nos. 1, 2 and 3 and heat slightly on fire, then to be finely powdered, adding Nos. 4, 5 and 6. Give the animal about the size of a lime twice daily for one week, afterwards every other day.

Mussaul No. ii.

1 Take of Kohst, Tola	1	9 Uldhee, Tolas	2
2 Ukurkurrah, do.	1	10 Moosumber, do.	6
3 Sumenderpul, do.	1	11 Umbee Ulludh, do.	2
4 Gudge kay Charolee, ... do.	4	12 Kapeelah, do.	2
5 Hing, do.	6	13 Beelahmay, do.	4
6 Kahjoor, do.	4	14 Koochlah, do.	2
7 Eerakuss, do.	4	15 Sheraafe Pucka, Seer	1
8 Kalee Mirchee, do.	2		

The hard substances to be powdered together and added to No. 15 and mix; then add wheat flour as much as will form the whole into a soft mass, which divide into boluses of the size of a lime, and give one night and morning before ratib.

Mussaul No. iii.

1 Take of Uldhee, Seer	0½	7 Kolunjin, Seer	0½
2 Umbee Ulludh, do.	0½	8 Pipamohde, do.	1½
3 Kaleejeera, do.	0½	9 Butch, do.	2
4 Kootkee, do.	0½	10 Chope Chinee, do.	1
5 Mudode pullee, do.	0½	11 Murattee Mogah, do.	0½
6 Lussoon, do.	0½	12 Goode, do.	8

Coarsely powder the above ingredients, then beat up with No. 12. Of which give a handful every morning before the allowance of rice. This Mussaul may be repeated if benefit is derived from the first course of exhibition.

Mussaul No. iv.

1 Take of Googul, Tolas	6	8 Inderjoathe, Seer	0½
2 Kootkee, Seer	1	9 Kohst, do.	1
3 Piplee, do.	1	10 Kahchoor, do.	1
4 Rahyan, do.	1½	11 Koochlah, do.	1
5 Ujwan, do.	0½	12 Gudge kay Charolee, ... do.	1
6 Uzmodha Ujwan, do.	0½	13 Butch, do.	1½
7 Cheraytha, do.	2	14 Goode Pucka, do.	1½

The above ingredients to be coarsely powdered together, then added to No. 14 and well mixed. Give a handful every morning for one week successively—afterwards every other morning for a fortnight, before ratib is given to the animal.

دیوانہ کنے کا مرضی۔—*Dewanah Kootha ka Murz.*

SECTION 6.—HYDROPHOBIA.

HISTORY.—It has been satisfactorily ascertained that the bite of a mad dog will occasion madness in the Elephant. No such case has appeared at the Hospital, but such occurrences are well known to Mahawuts; and the following account of a case is given by a Mahawut who is personally acquainted with the facts. A mad dog, about five years ago, appeared in the Elephant lines at Hyderabad. It attempted to bite several Elephants, but was by each driven away. During the night it attacked an Elephant when asleep, and bit it on the trunk. The bite marks having been distinctly observed next day, a little oil was applied but nothing more was done; and nothing particular occurred till a month after the infliction of the bite, when decided symptoms of delirium, as described under the head Ahren Bhao, Part I. Chap. II. Sec. 2, suddenly supervened. During the first three days the animal took fodder, ratib and water, but afterwards took nothing. It did not appear to be afraid of water, as it drew it into its trunk and squirted it about, and did not drink any. It continued furious for two days, not allowing even the Mahawut to approach, after which it fell down and died suddenly.

On the same occasion another Elephant died fifteen days after the one above alluded to, with the same symptoms, but it was not clearly known whether the animal had been bitten by the dog, though it was one of those it attempted to bite. The above cases occurred about the month of October. A man and bullock had been bitten by the same dog and both died mad.

TREATMENT.—The furious state of both Elephants prevented any treatment being adopted. There is little hope of saving the animal by treatment after the

disease has supervened; but if the animal allows of any thing being done, the treatment given under the head Ahren Bhao would appear to be the appropriate one. Particular orders ought to be given for an early cauterizing of the bitten part, or even cutting it out; and if no caustic be at hand the part may be cauterized with a red hot iron. Prevention of the disease is thus secured, and is the only chance of saving the animal, for no case has been known to recover after the madness has set in.

The following Mussauls are used by the Mahawuts, when the animal will take it, but the only active ingredient appears to be the sulphate of copper, (Morethootha) and would not appear of much use.

Mussaul No. i.

1 Take of Bahg ka Go- hoshth dried,..... Seer	0½	4 Gaheelone, Tolas	2
2 Sahvun Mouze,..... No.	12	5 Morethootha,..... do.	1
3 Moosumber, Seer	0½	6 Muskah, Seer	1

The above to be beaten together and divided into six parts, of which give one part every six hours for two days successively, and twice during the following day.

Mussaul No. ii.

1 Take of Soomul, Tola	0½	4 Laul Bunnauth, Seer	0½
2 Sahvun Mouze, No.	12	5 Booin ka veet ka chall,.... do.	0½
3 Moosumber, Seer	0½	6 Muskah, do.	1

The above ingredients to be finely powdered and added to Nos. 2 and 5 and well mixed, then form into four or six boluses according to the age of the animal, of which give one every eight hours for the first day, if any abatement of the symptoms, repeat the following day.

CHAPTER II.

LOCAL DISEASES.

SECTION 1.—AFFECTIONS OF THE HEAD.

Ahren Bhao, Bhao ka Murz, Bhao, Dhudkay, Thereek Bhao, Thorung Bhao, and Budda Bhao.

GENERAL REMARKS.—The head is the seat of frequent disease in the Elephant, and some of these affections are the most fatal to which the animal is subject. In its wild state the animal repairs to the shaded depths of the jungle during the heat of the day, thus showing a natural aversion to exposure to the sun; and in the tame state when unsheltered, it invariably throws fodder on the head and back, or indeed, any thing that will screen it from the sun. The jool, if lying near enough to the animal, is sure to be thrown by it on the back; again when reaching water its first act is to cool itself by throwing the fluid over its body. Thus the instinct and natural habits of the animal show that exposure to the sun is opposed to its comforts. The diseases of the head to which it is subject prove that such exposure is also inimical to its health. These diseases are of frequent occurrence, and owing to their usually dangerous character require prompt and active treatment. The Mahawuts apply several names to this class of diseases, but they have not clear ideas regarding the varieties of affection, and are not therefore, as might be expected, very definite in the application of those names.

It will best subserve the purpose of description to consider the diseases of the internal contents of the head of the Elephant so arranged as to place at the commencement of the list, those which consist of inflammation of the brain and its surrounding membranes; and at the end of the list those of an apoplectic nature. Between these two extremes the varieties shade more or less into each other, either at the commencement or during the progress of the attack. Of the names given above, the first three, Ahren Bhao, Bhao, Bhao ka Murz, are given to the inflammatory varieties of the disease, while Dhudkay ka Murz, Thereek Bhao, Thorung Bhao, and Budda Bhao are given to those varieties marked by apoplectic symptoms.

SECTION 2.—INFLAMMATION OF THE BRAIN AND SURROUNDING MEMBRANES.

أهرون بهاء—*Ahren Bhao.* بهاء کا مرض—*Bhao, Bhao ka Murz.*

HISTORY.—This affection usually commences with a tremulous state of the whole body, extremities and trunk, animal extremely restless and makes constant endeavors to break loose, stretches itself frequently, raising its trunk in the air, and tries to strike its Mahawut or any person approaching it, is extremely sensible

to any noise, and from all its acts shows that it is labouring under strong delirium. The eye-balls protrude and have a wild fiery aspect, animal lies down and rises up frequently, though these exertions sooner or later come to an end as from increasing weakness it becomes unable to get up. A characteristic symptom of the variety of the affection under consideration, is a contraction of the trunk which becomes much shortened and shrivelled. The ears droop, and the surface of the body is below healthy temperature, the pulse is quick, but from the excited state of the animal it is impossible to keep continuous examination of the heart's action, and much more reliance is to be placed on the contracted state of the trunk and symptoms of delirium, than on the indication of the pulse. The motions are costive, and the urine scanty, and of the colour of turmeric, that is, reddish yellow and muddy. Sometimes it is passed only in drops. The animal attempts to eat fodder, but it rejects it after chewing a little, or rather attempting to chew it. It attempts to drink frequently, but apparently has not the power of so doing.

SECTION 3.—APOPLEXY OF THE BRAIN.

دهرکیکا مرضی.—*Dhudka ka Murz.* تهرک بهاو.—*Thereck Bhao.*

تورنگ بهاو.—*Thorung Bhao.* بوا بهاو.—*Budda Bhao.*

HISTORY.—The attack of apoplexy commences with the premonitory symptoms of general tremor of the body and trunk; the latter shrivelled and shortened occasionally, but frequently relaxed and lengthened, and the animal has a confused demeanour; it is weak and wishful to lean against a tree or other support on the line of march; it is unsteady in its gait. The breathing is hurried; and there appears much tremulous action of the heart; at last the animal staggers, falls down forward on its chest, and has convulsive action of limbs. After falling, difficulty of respiration continues, but soon it lies quiet and motionless, and may continue in this apparently lifeless, or nearly lifeless state for three or more hours. Death frequently results after the lapse of that time; but cases have occurred when the animal after remaining in this quiet state for the time just specified shows symptoms of returning animation. It rises, or if helped to rise, stands, begins to eat; and about the second or third day is able to go on the journey, though continuing weakly. The urine is high coloured, but not muddy, but usually somewhat less in quantity than in health, the bowels continue healthy.

Animals once seized with this affection are subject to attacks at tolerably regularly returning intervals, usually about every fourth month: during the intervals, it usually exhibits an excited demeanour; and if opposed or disturbed by attendants will attempt to strike them with the trunk. Any such attack may cut off the animal suddenly. On dissection of cases that have died from either of the above two varieties of affections, namely, inflammation of the brain and apoplexy, bloody fluid to the extent of a pound and more has been found in the cavity of the skull.

SECTION 4.—INFLAMMATION OF PARTS EXTERNAL TO THE CAVITY OF THE SKULL, BUT EXTENDING THERETO AND PRODUCING THE INFLAMMATION OF THE BRAIN ABOVE DESCRIBED.

HISTORY.—Occasionally cases occur in which inflammation has commenced in the membrane which lines the air cells between the outer and inner plates of the bones of the skull. Between these two plates of bone (as is described at length under the head of Anatomy of the Elephant, *vide* Part I. Chap. IV. Sec. 2,) which are two, and in some places three inches apart, there are numerous cells, more especially in what may be called the forehead and top of head, that are lined with a membrane that secretes a fluid. These plates of bone and included cells are very thin, so that although from the external aspect of the animal it may be considered that the head is a strong compact mass, the sportsman knows that by aiming at the forehead immediately above the trunk or at the side of the head a little in front of the ear, he is most likely to inflict an immediate mortal wound. This arises from the comparative ease with which the ball penetrates to the brain through the thin plates and cells above alluded to. When the inflammation commences in the membrane lining these cells, it sooner or later extends externally to the skin and frequently internally to the brain. In the former case the skin sloughs off leaving a foul and extensive ulcer. There is a foul discharge and frequently pieces of the long structure of the cells come away. In the latter case, when the inflammation reaches the brain the animal dies with symptoms described above under the head of "Inflammation of the Brain." There can be little doubt that the above affections arise from exposure to the sun, a circumstance which is, as above stated, diametrically opposed to the instructive habits of the animal. Over-feeding, with little work or over-exertion, and especially allowing the animal to cool itself suddenly by throwing water over itself when heated, are powerfully exciting causes. The continuous giving of stimulating Mussauls with a view to support the strength of the animal, during arduous labour under a powerful sun, may also prove instrumental in superinducing the disease, more especially the inflammatory variety.

It would appear that the Elephant is sometimes, though rarely, seized with an epidemic affection of a nature similar to the Budda Azar of the Bullock, *vide* Part III. Chap. I. Sec. 7. The name Budda Bhao is more especially given to this fatal variety of disease. For further remarks on this epidemic affection, *vide* the head Peepsa ka Murz, Part I. Chap. II. Sec. 19. Under Part I. Chap. III. Sec. 3, will be found some instructions regarding the defending of the animal, as much as is practicable, from the sun when unavoidably exposed thereto during the movement of a force, especially during the hot season.

TREATMENT.—The only chance of saving the animal when attacked with inflammation of the brain, so with apoplexy, consists in copious bleeding, and the same practice must prove highly serviceable when the inflammation of the lining membrane of the cells above alluded to, or of the skin over the forehead, exists. Bleeding ought to be carried to the extent of six to twelve pounds, (from half to one

gallon) and repeated, if need be. *Vide* Part I. Chap. IV. Sec. 5, for instructions for bleeding. Fomentations to the haunches and abdomen will assist in drawing off blood from the head, *vide* Part IV. Chap. I. No. 7, for recipes, and for instructions regarding composition and mode of applying fomentations.

When inflammation of skin over the forehead is the disease to be treated, bleeding is to be practised if the affection be extensive; and hot fomentations applied to the head will prove useful. An aperient may be given consisting of an ounce of croton seeds, bruised with a drachm of calomel. Afterwards one drachm of calomel may be given daily for six days. When sloughing has occurred, the ulcerated surface is to be washed with a detergent as camphoretted oil. Great care is to be taken to prevent flies from depositing eggs of maggots which they are particularly apt to do if allowed access to sores to wheresoever situated. The following are Mussauls, the natives are in the habit of giving in this affection; confidence is not to be placed on their powers as primary curative agents; but they may be resorted to with advantage after the above measures have been practised.

Mussaul No. i.

1 Take of Gaheelone, Tola	1	4 Soomul,..... Tola	0½
2 Hing,..... do.	3	5 Dhatooray ka russ, a suffi-	
3 Joon,..... do.	0½	cient quantity.	

Nos. 1 to 4 to be finely pulverized and added to No. 5 and formed into three boluses; each to be rolled over with dhatooray ka puttha and heated under hot ashes for a quarter of an hour; and give one every hour, or as the animal is inclined to take it.

Mussaul No. ii.

1 Take of Urthal, Tola	1	6 Shemruf, Tola	1
2 Munseel, do.	1	7 Moosumber, do.	6
3 Moordharsing, do.	1	8 Heera Googul, do.	3
4 Avulsaree Gundugh, ... do.	2	9 Uddaruck, do.	12
5 Soomul, do.	0½		

Nos. 1 to 8 to be finely powdered, then added to No. 9, and well beaten together, which form into eight boluses, and give one every fourth hour, until three doses are given for the first day—then give one every night until the whole are given.

In about six gallons of hot water throw a small quantity of burnt bratty and a fourth part of a handful of mirchee in fine powder. Keep this as a drink for the animal during its severe illness; and omit as soon as the animal is improved.

Mussaul No. iii.

1 Take of Soomul, Tolas	1½	5 Googul,..... Tolas	2
2 Moordharsing, do.	1½	6 Soohagah,..... do.	2
3 Munseel, do.	1½	7 Moosumber, do.	4
4 Therecak faruk, do.	0¾	8 Lussoon ka russ, do.	8

Nos. 1 to 7 to be finely pulverized and mixed up with No. 8 and divided into four parts. Give one part every hour. If necessary mix the above ingredients in honey instead of No. 8.

Mussaul No. iv.

1 Take of Russasendoor, ... Tolas	1½	5 Soomul, Tolas	2
2 Morethootha, do.	1	6 Dhatooray ka russ, do.	4
3 Moordharsing, do.	2	7 Aaka russ, do.	4
4 Seepee ka Choonah,..... do.	1½	8 Uddaruk ka russ,..... do.	4

The hard substances to be finely powdered and mixed with the juices of Nos. 6, 7, and 8; and divide into three parts. Give one part every two hours. The ordinary drink as given under No. 2 to be particularly used during the exhibition of this Mussaul.

Mussaul No. v.

1 Take of Hing, Tolas	3	7 Shemruf, Tolas	3
2 Soohagah,..... do.	3	8 Russasendoor, do.	3
3 Googul, do.	3	9 Munseel, do.	3
4 Rahyan, do.	12	10 Sohute,..... do.	36
5 Lussoon, Seers	8	11 Kohst, do.	36
6 Kapeelah,..... Tolas	4	12 Uddaruk, Seers	2

The metallic substances to be finely powdered, the vegetable to be coarsely powdered, and all to be mixed together; then add jaggery 2 seers and beat up. Of which give a handful every four hours until decided relief of all the symptoms is obtained, then stop the medicine.

Mussaul No. vi.

1 Take of Gaheelone, Tolas	2	8 Gudge kay Charolee, ... Tolas	12
2 Googul,..... do.	6	9 Shemruf, do.	4
3 Hing, do.	6	10 Moordharsing, do.	4
4 Uddaruk, do.	12	11 Pullas pupada, do.	12
5 Butch, do.	12	12 Goode, Seers	1½
6 Moosumber, do.	12	13 Hirbisee, Tolas	1½
7 Inderjoathe, do.	12	14 Nirbisee, do.	1½

The above to be powdered, then add to No. 12, and mix with as much water as will form it into a soft mass, which divide into eight boluses: and give one every four hours. Omit the Mussaul as soon as the irritability is abated.

AFFECTIONS OF THE EXTERNAL EAR.

کرن بھاءو.—*Kurren Bhao.*

SECTION 5.—PARALYSIS OF CARTILAGE OF EAR.

HISTORY.—This is a paralytic state of the wing of the ear in which it falls downwards and forwards. Both ears are always simultaneously affected, although one may droop more than the other. It is not an affection of much importance in itself; but the Mahawuts have an opinion that it is indicative of a habit of body, which, if not corrected by an alterative course of mercury, makes the animal more liable than otherwise to deafness.

TREATMENT.—The following Mussaul may be given with benefit in this affection.

Mussaul No. i.

1 Take of Russasendoor, ... Tola	1	6 Kosht,	Tolas	12
2 Shemruf,	do.	7 Butchnaag,	do.	12
3 Moordharsing,	do.	8 Kala Bitchwa,	do.	12
4 Urthal,	do.	9 Kahchoor,	do.	6
5 Gaheelone,	do.	10 Goode,	Seer	1
	0½			

The metallic substances to be finely powdered, bruise the vegetable and mix all together adding No. 10, which soften with Maendhee ka russ and divide into boluses of the size of a lime; of which give one to the animal every night until the whole are given.

اندریکا مرضی.—*Indhree ka Murz.*

SECTION 6.—ULCERATION OF CARTILAGE OF EAR.

HISTORY.—This is an ulceration of the cartilage of the wing of the ear whereby it drops off piecemeal. It commences with a vesicle or bleb containing fluid, which afterwards ulcerates and eventually sloughs off. This affection is usually occasioned by continued exposure to an ardent sun.

TREATMENT.—This is obviously a superficial sore occasioned by an external cause, and consequently the simple treatment of keeping the ulcers clean, and using a stimulant as camphorette oil, or an ointment made as follows, will effect a cure:

Mussaul No. i.

1 Take of Morethootha, ... Tola	0½	4 Oodh,	Tola	1
2 Kahpoor,	do.	5 Ghee (old,)	do.	3
3 Munseel,	do.	6 Socahgah,	do.	3
	0½			

The hard substances to be finely pulverized and added to No. 5 and well mixed; which apply to the ears every morning, after washing them previously with warm water.

SECTION 7.—FETID DISCHARGE FROM CANAL OF EAR.

HISTORY.—This is a discharge of pus from the canal of the external ear, accompanied by inflammation. It comes and goes repeatedly without any known cause, and is usually obstinate.

TREATMENT.—Fomentations to the side of the head affected is the most efficient remedy in this complaint. The following is the Native treatment:

1	Take of Sungjeera,	Tola	1	4	Oodh,	Tola	1
2	Sungpaleetha,	do.	1	5	Neem ka thale,	Seer	0½
3	Moordharsing,	do.	1	6	Sahboone,	Tola	0½

The hard substances to be finely powdered and mixed with Nos. 5 and 6. About half a tola weight to be dropped into the affected ear night and morning.

The ear to be previously syringed with arrack, slightly diluted with water, adding to it a small quantity of soap.

AFFECTIONS OF THE EYE.

اگین بھاءو.—*Agin Bhao.*

SECTION 8.—INFLAMMATION OF THE OUTER COATING OF THE EYE-BALL.

HISTORY.—This affection is characterized in the commencement by a flow of water from the eyes and redness of the eye-ball; after the second or third day the discharge becomes thicker and white. This affection usually arises from continued exposure to the sun, and usually subsides without the aid of art, but occasionally it is so severe in degree as to leave a dimness, or even an opacity of the naturally transparent front part of the eye-ball, (cornea.) The name "*Agin Bhao*" is also applied to an affection of the skin, *vide* Part I. Chap. II. Sec. 31. A fleshy growth of the eye may result from the inflammation above described called by the Mahawuts *Mothea Beenj*.

TREATMENT.—In severe cases five grains of lunar caustic dissolved in a fluid ounce of water may be injected into the eye twice daily; or three, or at most four grains of lunar caustic may be pulverized and blown into the eye of the animal. The easiest way of doing which is to put the powder into a piece of quill which is

fixed with wax to the end of a piece of bamboo about a foot long and open at both ends. In milder cases any one of the following astringent Mussauls called by the Mahawuts "Lape Cheeta" and "Unjun" may be used with much advantage.

Cheeta No. i.

1 Take of Morethootha, ... Tolas	2	3 Puttukdee, Tolas	4
2 Lahvung, do.	4	4 Pahnee, Gallon	1

Put in the above quantity of river water Nos. 1, 2 and 3, and kept aside for a whole night. To be well shaken the following morning. Use this lotion to the eyes twice or thrice daily.

Cheeta No. ii.

1 Take of Lahvung, Seer	$0\frac{1}{4}$	4 Butch, Seer	$0\frac{1}{4}$
2 Dhuryah, do.	$0\frac{1}{4}$	5 Ahfeeme, Tolas	3
3 Ujwan, do.	$0\frac{1}{4}$	6 Morethootha, do.	1

The above hard substances to be powdered coarsely and put into one gallon of water, then to be set aside for a whole night. Apply this lotion to the eyes night and morning.

Cheeta No. iii.

1 Take of Kulcopree, Tolas	2	6 Nowsaggur, Tola	1
2 Puttukdee, do.	2	7 Lahvung, Grains	4
3 Kaheepul, do.	6	8 Puttaneeloodh, Tola	1
4 Morethootha, ... grains weight	26	9 Pahnee, Pucka Seers	3
5 Misree, Tola	1	10 Ahfeeme, Tolas	3

Pulverize the above and put in water and boil down to $1\frac{1}{2}$ pukka seers. Cool and strain, which keep in a bottle well corked. About a tea spoonful to be put into the eyes twice or thrice daily.

Unjun or Ointment No. i.

1 Take of Nowsaggur, Tolas	4	7 Kulcopree, Tolas	4
2 Puttukdee, do.	4	8 Jahfull, do.	4
3 Shorah, do.	4	9 Jowathree, do.	1
4 Sendhalone, do.	4	10 Zungaur, do.	$1\frac{1}{2}$
5 Morethootha, do.	2	11 Kamonee ka russ, do.	20
6 Ahfeeme, do.	3	12 Koopee ka russ, do.	20

Powder the whole except Nos. 11 and 12, then mix and add the latter ingredients. Then rub together for a day and keep for use in a copper vessel. When required, a small quantity to be inserted in the eye every night.

Unjun No. ii.

1 Take of Nowsaggur,..... Tolas	1	6 Puttukdee, Tolas	2
2 Morethootha, do.	2	7 Mohthee, do.	1
3 Kulcopree, do.	1½	8 Ahfeeme, do.	2
4 Zungaur, do.	1	9 Phoolale ka thale, sufficient quantity.	
5 Pingance, do.	1	10 Nimboo,..... Nos.	20

Pulverize the hard substances adding the juice of the limes and oil. Rub up in a brass vessel, then preserve in a copper one, use as above, after inserting, and if free lachrymation exists, throw on the eye and surrounding parts some cold water to moderate the effect of the ointment. This is a very efficient remedy and will always cure the affection completely.

Unjun No. iii.

1 Take of Zungaur,..... Tola	1	3 Cowdee, Tola	1
2 Pupudkahr, do.	1	4 Sunk, do.	1

Nos. 2 and 3 to be finely powdered and sifted and add Nos. 1 and 4. The juice of five limes to be then added to convert the whole into a consistence of paste, which spread on cloth and dried. The cloth to be rolled up to preserve the medicine on it. When required the necessary quantity to be softened by adding lime juice, and put into the eye night and morning.

دھلیکا مرض—Dhul ka Murz.

SECTION 9.—OPACITY OF THE CORNEA.

HISTORY.—The cornea is the circular transparent part of the eye-ball, through which are seen the iris and pupil. From inflammation of the organ as above described under the head of Agin Bhao, during which the cornea is always more or less cloudy, ulceration may result, and this ulceration of the cornea leaves, on healing, opaque white scars of variable extent. When they occupy the whole surface of the cornea, which, however, is rare, total blindness of the affected organ is the result.

TREATMENT.—The part either in the ulcerated state, or as an opaque scar, is to be touched once daily with solid lunar caustic. The native treatment is on a similar principle. The Mahawuts blow into the eye a powder of blue stone, or introduce into the eye a strong solution of that caustic as above mentioned. The following are useful applications of this nature:

Unjun No. i.

1 Take of Morethootha, ... Tolas	2	3 Puttukdee, Tolas	3
2 Shorah, do.	2	4 Nowsaggur, do.	2

Powder the above separately, then mix and put into a small earthen pot, the mouth of which is to be so closed as to make it air-tight. The vessel to be then enclosed in a fire of bratties and kept so for a whole night. The contents to be taken out the following morning and finely powdered, which is to be applied to the eyes, softened with lime juice, twice daily.

Unjun No. ii.

1 Take of Puttukdee, Tolas	3	6 Putchkahpoor, Tola	0½
2 Pinganee, do.	1	7 Bungdeekahr, ... do.	1
3 Zungaur, do.	0½	8 Ahfeeme, do.	3
4 Morethootha, do.	1	9 Shorah, do.	3
5 Suffadhe Goomchee, do.	1	10 Pupudkahr, do.	1

The hard substances to be finely pulverized and sifted through cloth; the juice of ten limes to be added to convert the whole into a paste, which is to be kept in a copper vessel for use. A small quantity to be introduced into the eye, with the finger, every morning and evening.

Nos. ii. and iii. *Unjun* under "Inflammation of the outer coating of the eye," may be also used in this affection.

اندا.—*Undha*.

SECTION 10.—BLINDNESS.

HISTORY.—This, which is comparatively a rare condition, usually is the result of inflammation of the eye. The opacity alluded to above may disappear; the cornea resuming its normal transparency, but the existing blindness under such circumstances, is the result of inflammation of the interior parts of the eye.

Blindness does not render the animal altogether inefficient. There is one totally blind at this *Depôt* at present. It places implicit confidence in its *Mahawut* to guide it aright, and walks nearly as freely as if it had its sight unimpaired. It makes constant use of its trunk in feeling the ground, unless the *cawadee* go in front. Its total blindness could be ascertained only from moving an object before its eyes when it did not wink or flinch in the least—also when the *Mahawut* urged it to move, it would strike up against a wall or other resisting object with unslack speed. The animal, from fear at times, gives trouble; especially, it is very unwilling to ford rivers, and in other respects is less docile and manageable than animals having unimpaired vision.

This affection is incurable.

SECTION 11.—TUSK.

HISTORY.—The tushes are not subject to any disease arising from internal causes. The tushes of the largest animals require to be cut, otherwise they would be inconveniently long. This growth is like that of the human nail, namely, from the root outwards. The guide as to the proper place for cutting the tushes, which operation is done with a common saw, is the length between the eye and root of the tusk measured along the latter. Sometimes however, especially in young animals, this site is too near the root as the medullary pulp of the tusk may reach beyond, in which case the tusk bleeds after the operation.

All that is required in such a case is to apply some adhesive astringent salve, which prevents the access of flies, that otherwise are apt to deposit their ova which turn into maggots that may penetrate to the root of the tusk, and occasion ulceration, whereby the subsequent growth of the tusk is impaired. The Mahawuts use the following Mussaul which is efficacious:

Mussaul No. i.

1 Take of Buldah,	Seer	0 $\frac{1}{4}$	4 Babool ka chall,	Seer	1
2 Uldah,	do.	0 $\frac{1}{4}$	5 Goolbale,	do.	1
3 Nurkachoor,	do.	0 $\frac{1}{4}$			

Bruise the above and put into a gallon of water and boil for an hour, and keep for use. The stumps of the tushes to be washed with the above night and morning.

Mussaul No. ii.

1 Take of Uldah,	Tolas	6	6 Zungee Uldah,	Tolas	6
2 Buldah,	do.	6	7 Kootkee,	do.	6
3 Uldhee,	do.	6	8 Belahmay,	do.	6
4 Umbee Uldadh,	do.	6	9 Butch,	do.	6
5 Utchah Uldhee,	do.	6	10 Kudwa Chikoondha,	do.	6

Pulverize the ingredients finely and mix with two seers of Jinjili oil and boil down to 1 $\frac{1}{2}$ seers. Apply this to the ulcers night and morning. The wash given under No. 1 to be used to wash the sores with.

SECTION 12.—TEETH.

In advanced age of the Elephant the front portions of the teeth are liable to loosen and fall out—Koochlee of the Mahawuts. Sometimes at earlier ages one or more portions of the teeth in the upper or under jaw may, from some morbid growth at the root, be forced out of their normal site, and project so far as to occasion ulceration of the opposite portion of the wall of the month. Mastication is thereby

impeded. Such projecting portion has been removed with perfect relief to the animal by sawing it off. A round piece of wood, about 4 inches in diameter and about 3 feet long, is inserted across the mouth and tied in that position by ropes going round the neck. The mouth is thus kept open when the operation of sawing can be proceeded with easily.

This operation has been performed at the Hospital of this Dépôt. The saw used was that of a Surgeon's amputating case of instruments.

دھلد بونڈہ.—*Dhahd Bundh.*

SECTION 13.—LOCK JAW.

HISTORY.—The name is sufficiently descriptive of this affection. It occurs principally in the cold and monsoon weather, and the jaw has been known to be immovable for eight days, during which the animal neither ate nor drank. The surface of the body generally is cold. There is full power of moving the trunk; but the ears are not so movable as in health. The animal becomes weak from fasting. I have never seen a case of this kind, and the above is the history of the affection as given by Mahawuts.

TREATMENT.—The native treatment consists in pouring two tolas of quicksilver in the upper ear, (the animal lying on one side) and the quicksilver is plugged in with 3 or 4 tolas weight of opium. Mercury in the metallic state does not act on the human subject, and very probably exerts, in the same state, no effect on the Elephant. The opium most probably has considerable curative effect.

The following is introduced in the shape of a bolus by the fundament, being carried up as far as the arm can reach, viz.,

Sulphur,.....	Tolas	2
Asafoetida,	do.	2
Opium,	do.	2
Croton Seeds,.....	do.	0½
Cloves,	do.	0½
Garlic,.....	do.	0¼

Fomentations of the jaw would be a useful addition. The following Mussauls are given as soon as the animal evinces signs of moving the jaw, and of the power of swallowing.

Mussaul No. i.

1 Take of Calomel,	Tolas	1½	5 Lussoon,	Tolas	2
2 Hing,.....	do.	4	6 Sohute,.....	do.	3
3 Croton Seeds,	do.	1	7 Inderjoathe,	do.	6
4 Butch,	do.	6	8 Shermate,	Bs.	1

Nos. 2, 4, 6 and 7 to be powdered, then add the other ingredients and mix; then add as much of No. 8 as to form it into a soft mass which divide into four boluses, of which give one every eight hours.

اماسي.—*Amasyae*.

SECTION 14.—INFLAMMATION OF THE GLAND CALLED KUPPOOL. كپول.

HISTORY.—The gland, kuppool, is situated about $7\frac{1}{2}$ inches in front of the eye, where a small orifice is seen. This gland secretes a peculiar fluid when the male Elephant is in musth. This gland sometimes inflames and swells, and may also suppurate.

TREATMENT.—This is not an affection of much importance and is to be cured by fomentations or other topical applications, as goat's milk mixed with wheat flour which is nothing more than a poultice, and which is applied hot. Although musth cannot be considered a disease, still the animal admits of being considerably quieted by treatment, and the following Mussaul is usually given by the Mahawuts when the animal is under the influence of musth, and has been generally found to compose it.

Mussaul No. i.

1 Take of Misree, ...	Pucka Seers	2	4 Peeaz,	Pucka Seers	4
2 Muskah,	do.	2	5 Goode,	do.	2
3 Geon ka attah, ...	do.	4	6 Moorghee,	No.	2

Nos. 1 to 5 to be bruised and mixed together; No. 6 to beat up with the mixture and formed into boluses of the size of an orange; and one to be given morning and evening until the whole are given.

كثلا.—*Kuthlah*.

SECTION 15.—ULCERATION OF THE MUCOUS MEMBRANE OF THE TRUNK WITH ULCERATION OF FEET.

HISTORY.—This affection commences in vesicles or bladders containing transparent fluid. About the second or third day these break and are succeeded by ulceration, or a raw red surface. They may appear simultaneously in the lining membrane of the mouth in which case the animal does not eat fodder, or does so only sparingly from the pain occasioned by its coming in contact with the tender surface. About 7 or 8 days after commencement of the vesicles above alluded to, the animal

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The above to be well beaten together and divided into three parts. Give one part daily for three successive days. The Dheighn and Thudwud ka puttha to be used as in No. 1. The Mussauls given under Agin Bhao may also be advantageously used in this affection.

Occasionally suppuration occurs from this affection extending below the thickened skin on the sole of the feet; an early incision is required to give free vent to this matter, otherwise it may burrow extensively and lay the animal up for some months. To the ulceration on the feet either of the following Mussauls is to be applied. They have been found useful in Hospital practice. A loose leather bag is put over the dressing to keep all beneath it clean and dry.

Mussaul No. i.

1 Take of Ahfeeme,..... Tolas	3	7 Sungjeerah, Tolas	6
2 Parah, do.	1	8 Bamneesoork, do.	1
3 Belahmay,..... Seers	3	9 Bamneesuffadhe, do.	1
4 Moordharsing, Tolas	3	10 Mohme, do.	6
5 Kahpoor, do.	6	11 Thumbakoo,..... do.	24
6 Sungpaleetha, do.	6	12 Mitta thale, Seers	4

Divide No. 3 in two halves and put in No. 12, and boil until the colour of the oil is quite black, then throw away the nuts, add to this oil the other ingredients, previously powdered. Stir the oil well and keep for use. The sores to be washed in warm water and a small quantity of the oil to be applied daily, using a heated bratty over the surface to dry the application.

Mussaul No. ii.

1 Take of Neem ka thale,... Seers	4	6 Ahfeeme, Tolas	3
2 Kahdeekahr, Tolas	1½	7 Kudwa Thorace ka beenj, do.	1
3 Shemruf, do.	2	8 Sungjeerah, do.	3
4 Sendhoor, do.	2	9 Sungpaleetha, do.	3
5 Moordharsing, do.	4	10 Kahpoor, do.	4

Powder the above finely and add to No. 1 and mix, which apply to the sores of the foot every morning, and dry the application with a heated bratty.

Mussaul No. iii.

1 Take of Soomul, Tola	1	3 Kudwa Thorace ka beenj, Tola	1
2 Jumanul Cottah, do.	1½	4 Neem ka thale, Seer	1½

The hard substances to be finely pulverized and mixed in No. 4 and well shaken. The substance to be first applied to the ulcer once daily; and after granulations have formed, use the oil alone.

AFFECTIONS OF THE NECK.

کنڈیا بہاؤ.—*Kuntay Bhao.*

SECTION 16.—MUMPS.

HISTORY.—This is an inflammation of the throat, and glands in the vicinity. It is apt to arise when the animal is suddenly cooled after being heated. It is a rare affection, but has been known to occasion death after the second or third day. The whole neck becomes swollen as also the gland below and behind the ear, (parotid gland) and swallowing is difficult or impossible, in which latter case the masticated fodder becomes impacted in the upper part of the gullet, and occasions death from mortification of these parts. The animal is low, bowels constipated, and urine scanty.

TREATMENT.—The animal is to be bled to half a gallon. A purgative of an ounce of croton seeds, bruised, with a drachm of calomel, is to be given; and the swollen neck is to be well fomented: indeed, the fomentation will advantageously be extended to the body, and the animal is to be kept warm and sheltered. After the bowels have been freely moved, the following Mussaul is to be given:

Mussaul No. i.

1 Take of Urthal, Tolas	2	6 Umbee Ulludh, Tolas	6
2 Moosumber, do.	4	7 Uldhee, do.	6
3 Munseel, do.	1	8 Soahgah ka killee, do.	8
4 Shemruf, do.	1	9 Googul, do.	4
5 Kala Bitchwah, do.	4	10 Shahth, sufficient quantity.	

Powder the above finely, then add as much of No. 10 as will form it into a soft mass; and divide into pills of about an inch diameter; and give one every 6 hours for the first day; and every night and morning the second and successive days, until the whole are given.

سردي.—*Surdhee.*

SECTION 17.—CATARRH.

HISTORY.—This affection is characterized by coldness of the body generally; and a slight discharge of watery fluid from the trunk, which becomes more of the consistence of phlegm as the affection advances. The eyes are kept a good deal closed, and there is slight discharge from these organs. Eats little, but drinks largely. Animal is heavy and listless; and ears and tail much less moved than in health. Bowels generally costive; but occasionally there is purging. This is an affection to which the Elephant is very subject; and to prevent its occurrence the Mahawuts are in the habit of giving stimulating Mussauls. This ailment may lapse into inflammation of the lungs, and thus indirectly prove fatal.

TREATMENT.—The animal is to be fomented on the body and kept sheltered. A warm purgative is to be given, *vide* Part IV. Chap. I. No. 8. The following Mussauls have been found useful in the treatment of this affection, any one of which may be given after purgation.

Mussaul No. i.

1 Take of Uzzun ka jud,... Tolas	8	3 Ahfeeme, Tola	0½
2 Moordharsing, do.	2	4 Sohute, do.	2

Beat up the whole into a mass; and give a third part heated under wood ashes, twice or thrice daily. This treatment to be continued until the discharge from the eyes and trunk is stopped.

Mussaul No. ii.

1 Take of Googul, Tolas	3	4 Hing, Tolas	4
2 Rahyan, do.	3	5 Soahgah, do.	3
3 Uldhee, do.	3	6 Geong ka attah, sufficient quantity.	

Coarsely pulverize the above and add to No. 6, and use water to form it into a mass, which divide into three boluses and give one night and morning.

Mussaul No. iii.

1 Take of Hing, Seer	0½	6 Inderjoathe, Seer	0½
2 Moosumber, do.	0½	7 Pullas pupada, do.	0½
3 Googul, do.	0½	8 Dik ka mullee, do.	0½
4 Soahgah, do.	0½	9 Rahyan, do.	0½
5 Gunbeede, do.	0½	10 Geong ka attah, sufficient quantity.	

The above to be bruised and added to No. 10, and form the whole into a mass with water, and divide into boluses of the size of a lime and give one to the animal thrice daily.

Mussaul No. iv.

1 Take of Shemraf, Tola	1	9 Kohsth, Tolas	6
2 Russasendoor, do.	1	10 Koochlay, do.	6
3 Munseel, do.	1	11 Nurkachoor, do.	3
4 Wurkee Urthal, do.	1	12 Nagooree Uzzun, do.	6
5 Moordharsing, do.	4	13 Uddaruck, do.	12
6 Googul, do.	4	14 Butchnahg, do.	2
7 Moosumber, do.	6	15 Nukkolay, do.	3
8 Gunbeede, do.	4	16 Inderjoathe, do.	3

The above ingredients to be coarsely powdered; add to this the juice of 30 limes, which beat up with the mixture until formed into a mass, adding, if necessary, a little water, and divide into boluses of the size of a lime, and give one every night and morning before ratib for six successive days; afterwards give one bolus every alternate morning until the whole are given.

SECTION 18.—AFFECTIONS OF THE CHEST.

The lungs of the Elephant are subject to inflammation, suppuration, and sanguineous engorgement. The inflammation and suppuration of the organ are known by the name of *Peepsa ka Murz*—the sanguineous engorgement by that of *Bhao* or *Ghut Bhao*.

پہپس کا مرض.—*Peepsa ka Murz*.

SECTION 19.—INFLAMMATION OF LUNGS.

HISTORY.—In this disease the animal becomes very restless, but does not lie down; it opens its mouth wide frequently, and coughs several times in an hour; as the disease advances, the animal becomes more restless, endeavours to escape, but does not become furiously delirious. The surface of the whole body is cold, and the bowels are costive, urine healthy. The opening of the mouth, under the circumstances abovenamed, is a good distinguishing sign of the disease; the same symptom is present during the disease of the abdominal organs, presently to be described, under the head *Pate ka Durrudh*, *vide* Part I. Chap. II. Sec. 24; but in this latter disease, the animal frequently rises up and lies down; and crosses its hind legs, shewing evident signs of great pain; but these symptoms are absent under the disease now under consideration. It is to be observed, however, that this symptom is not always present, but is confined to the most severe varieties of the affection; and an inflammation of the lungs may exist, which though less intense in degree, and unmarked by any prominent symptom, may continue a variable period, and eventually cause death, if allowed to run its course undisturbed. It is only by frequent enquiry into the state of the animal's health that obscure diseases are to be detected, as any change from the known healthy standard, will thereby arouse attention of intelligent subordinates to the animal's state.

TREATMENT.—The treatment of this disease must be active and speedy; and like all inflammatory diseases of important organs requires active depletion. Bleeding to a full quantity is to be practised. *Vide* Part I. Chap. IV. Sec. 5, for instructions for bleeding. Fomentations, *vide* Part IV. Chap. I. No. 7, are to be assiduously applied to the trunk of the body; and an aperient of aloes and croton seeds, bruised, or croton seeds alone, *vide* Part IV. Chap. I. No. 8, for the doses, is to be administered, conjoined with one or two drachms of tartar emetic. This latter medicine may be

continued in drachm doses every second hour. Next morning two drachms of calomel may be given, and if need be the aperient repeated. The after treatment consists in repeating the bleeding and in continuing the fomentations and tartar emetic; with the occasional exhibition of an aperient and of calomel in a drachm every other morning.

After the prominent symptoms have subsided from the above treatment, the animal is to be put through the following course of Mussauls, given in the order named, for three successive days; after which the first is to be recommended. The state of the animal will indicate the necessity or otherwise of continuing the course.

Mussaul No. i.

1 Take of Parah ka kahk or Calomel, Tolas	2	3 Hing,..... Tolas	6
2 Gendugh, do.	4	4 Chalee ka doodh, a sufficient quantity.	

Finely pulverize the above substances and add No. 4 and mix; divide into six boluses, of which give one night and morning.

Mussaul No. ii.

1 Take of Rahyan, Tolas	4	6 Kootkee, Tolas	6
2 Butch, do.	4	7 Hing, do.	4
3 Gunbeede, do.	4	8 Lussoon, do.	3
4 Aaka Chahl, do.	4	9 Indrayen, do.	2
5 Moosumber, do.	6	10 Shahth, sufficient quantity.	

The above ingredients to be finely powdered and to which add as much of honey, No. 10, as to form the mixture into a soft mass, and divide into eight boluses, of which give one night and morning for two successive days.

Mussaul No. iii.

1 Take of Butchnahg, ... Tolas	2	5 Ahfeeme, Tolas	2
2 Kala Bitchwa, do.	1	6 Shemruf, do.	2
3 Nurkachoor, do.	2	7 Russasendoor, do.	2
4 Moosumber, do.	6	8 Hing, do.	4

The above ingredients to be finely powdered, and add to this mixture as much of honey as to form it into a soft mass, which divide into eight boluses, and give one to the animal night and morning.

Inflammation of the lungs of the Elephant may appear epidemically. I have not myself seen this affection, but I have much satisfaction in inserting here an account of it, as it showed itself in the Tenasserim Coast in the year 1839, and when it proved extensively fatal to the Elephants, as well public as private, of that province. The account of this epidemic is the production of Dr. Macdonald, a zealous Officer, on

the Madras Establishment, who communicated it to the Medical Board in a topographical description of the Tenasserim Provinces, of which he was Staff Surgeon, and I am indebted for it to the consideration of the Madras Medical Board, who ordered it to be forwarded to me, being connected with my duties as far as regards the investigation of the diseases of the Public Cattle. With reference to Dr. Macdonald's account, he says—"In this year [1839], extensive mortality prevailed among the Government Elephants, it began to shew itself at Moulmein, after the mortality ceased among the bullocks sometime in June. Previous to this, Elephants throughout the provinces died in immense numbers, *post mortem* examinations were made of many of these cases, and save in two instances, when death appeared to be the result of peritonitis, in one of which, rupture into the abdominal cavity had taken place, all died of disease of the lungs in various stages of congestion and inflammation; in one case suppuration was present, in another tuberculous deposits; generally one side of the chest was only affected, the other being pretty healthy: among those which died in the first outbreak of the disease, the lungs were absolutely black throughout their whole substance, more like the spleen, save in its tough membranous intersections, than the lungs. This was so general that in our first examination, it was a matter of doubt, what was health and what was disease; but in progress it was ascertained that the healthy lung is of a pale fleshy elastic firm substance, while the diseased structure shewed every shade from the florid appearance of active inflammation to the black apoplectic congestion; this latter when cut into, giving forth a frothy purulent exudation."

"The animals attacked with this epidemic," Dr. M. further states, "continue to do work till the hour of their death." It gives me much satisfaction to add that the practice this gentleman found beneficial is confirmatory of the utility of that above given. He also suggests the benefit of attaching to a *depôt* where Elephants are kept, an intelligent subordinate with the express object to ascertain by daily inspection the state of the health of these useful animals: of the great advantage of such a measure, more especially in regard to the cattle attending a Force in the Field, there can be but one opinion.

گھٹ بھاء.—*Ghut Bhao.*

SECTION 20.—APOPLEXY OF THE LUNGS.

HISTORY.—This is the name given by the Mahawuts to a very fatal affection of the lungs, and one which also shows itself epidemically. It is said, indeed, to be the form in which affections of the lung usually appear in epidemic visitations. The premonitory symptoms of the invasion of this disease consist in the appearance of hard tumours at the back of the ear, and inside of the top of the foreleg, after a variable period, usually twenty-four hours. The animal then leaves off feeding and soon shows symptoms of delirium, sometimes of a furious kind. It falls down, limbs become convulsed, and dies after an hour or more from the commencement of the delirium. About the year 1810, I am told that the Government Elephants, then

stationed at Goa, were seized with an epidemic affection of the above kind with the exception of the appearance of tumours. It proved fatal to every animal attacked.

TREATMENT.—This affection has not come under treatment at the Hospital of this Dépôt. It appears to be an apoplexy of the lungs, and to require a treatment somewhat of the kind above recommended for inflammation of those organs.

دھمیکا مرض.—*Dhumay.*

SECTION 21.—CHRONIC INFLAMMATION OF LUNGS.

HISTORY.—This is a chronic inflammatory condition of the membrane of the air passages of the lungs as also of that of the mouth and fauces. Its prominent symptom is that of the animal soon becoming blown, a wheezing and hurried breathing supervening shortly after commencing march. There is sometimes cough, especially if the animal is worked hard for some time.

TREATMENT.—The animal is to be purged with the purgative of salt and tamarind, *vide* Part IV. Chap. I. No. 8; after which any one of the following Mussauls may be given. The animal is to be kept warm.

Mussaul No. i.

1 Take of Sulphuret of Antimony, Tolas	8	7 Rahyan, Seer	1
2 Moosumber, Seer	1	8 Mydha Lukdee, do.	1
3 Hing, do.	1	9 Ghee, Pucka	do. 2
4 Googul, do.	1	10 Ahleem, do.	1
5 Jeerah, do.	1	11 Sohnfe, do.	1
6 Soahgah, do.	0½	12 Pohsth, do.	2
		13 Shukker, do.	1½

The above to be powdered and fried in No. 9, leaving out No. 1, which is to be afterwards added, and well mixed. Of this mixture give a handful every night for six successive days, afterwards every other night, until the whole are given.

Mussaul No. ii.

1 Take of Ootkatahee, Seers	5	6 Mahlkungnee, Seers	2
2 Booin Katahee, do.	5	7 Ahleem, do.	2
3 Phan ka russ, do.	0½	8 Dik ka mullee, do.	2
4 Shahth, do.	1	9 Dhevuckkughur, do.	5
5 Kalee Mirchee, do.	1		

The above hard substances, except No. 4, to be finely powdered; then add as much of No. 4 as to form it into a soft mass, and divide into boluses of the size of a lime, and give one every morning.

Mussaul No. iii.

1 Take of Uldhee, Seer	1	7 Kapeelah, Seer	1
2 Rahyan, do.	1	8 Booin Neem, do.	1
3 Kahchoor, do.	1	9 Booin Kutahee, do.	1
4 Nurkachoor, do.	1	10 Gunpode, do.	1
5 Bahl Uldah, do.	1	11 Hirbisee, Tolas	3
6 Bhungrah, do.	1	12 Nirbisee, do.	3

The above ingredients to be finely powdered, then beaten up with Shumbaloo ka puttha ka russ, and made into boluses of the size of a lime, of which give one every morning.

SECTION 22.—THE HEART.

No disease of this organ has come under my notice, with the exception of its valves being clogged with coagulated lymph, but this arose from other causes than disease of the organ itself. Such a condition of the valves arises from Zaarbahd.

AFFECTIONS OF THE ABDOMINAL ORGANS.

دھاک کا مرض.—*Dhaak ka Murz.*

SECTION 23.—VOMITTING.

HISTORY.—This disease supervenes suddenly with great irritability of the stomach, the animal being up to the moment of attack apparently quite well. For several hours after commencement, every thing taken, whether solid or fluid, into the stomach, is immediately rejected. When the irritability subsides, the food taken is retained; it does not, however, reach the stomach, but collects in the gullet; subsequently the power of swallowing is lost, though the animal masticates fodder and attempts to swallow it: at this stage of the disease a hard swelling is to be felt in the neck occasioned by the gullet at this part, (as also is the case throughout its whole extent) being impacted with masticated food. There is hiccough. The animal shows evident symptoms of much distress, but never becomes delirious. If not relieved after a variable period, varying from two to four days, the animal dies, having previously been deadly cold over the whole surface for several hours.

Dissection will show the gullet mortified in several places and to be impacted throughout from pharynx to diaphragm with solid masticated food. In one case, so considerable was this impaction that when a portion of the more healthy part of the gullet was laid open, the edges of the incision retracted more than two inches. In two cases of this affection which came under my notice none of the organs of either

carcase showed any appearance of previously existing disease; so it is clear that this impaction of the gullet or rather consequent mortification was the cause of death.

After the irritability of the stomach subsides, it would appear that spasmodic action of the diaphragm supervened, obstructing the permeability of that portion of the gullet which passes through it, that impaction of the food then commenced, and continued until the muscular power of the œsophagus became paralysed, when inflammation, and finally mortification, followed. According to the experience of the Mahawuts, this disease almost uniformly proves fatal; it may shew itself equally during any portion of the year. The animal is liable to be seized with it if washed immediately after coming off a journey when it is heated.

TREATMENT.—When this disease supervenes, no time should be lost in bleeding the animal freely. It ought then to be well fomented over the trunk; *vide* Part IV. Chap. I. No. 7, for instructions regarding Fomentation. This practice is based on the well established powers of depletion over spasmodic affections, of which the present doubtless is one, at least at the commencement. The animal ought most rigorously to be prevented eating any solid food until every symptom or tendency of vomiting has disappeared. The benefit of withholding solid food under the circumstances just mentioned arises from this, that spasm at the lower part of the gullet exists, which prevents the passage of food into the stomach, consequently, when the animal swallows, the food swallowed becomes impacted in the gullet throughout its whole extent; palsy of this organ arises from over distension. It inflames and mortifies, and death doubtless is the result of the latter process. The adjusting powers of the animal's constitution might overcome the primary spasmodic disorder, but are evidently unable to overcome the paralysing effects of the stuffing of the gullet, and by consequence are unable to ward off the subsequent mortal process.

After the active symptoms are subsided by the above measures, the Mussaul No. 1 below is to be given as directed for a week. Afterwards No. 2 is to be given for 10 days or a fortnight.

Mussaul No. i.

1	Take of Parah ka kahk, Tolas	3	9	Bun Bunosah,	Tolas	3	
2	Gendugh,	do.	6	10	Shemruf,	do.	3
3	Hing,	do.	4	11	Russasendoor,	do.	3
4	Butchnahg,	do.	2	12	Koochlay,	do.	18
5	Kala Bitchwa,	do.	1	13	Belahmay,	do.	24
6	Ahfeeme,	do.	2	14	Geonalah,	do.	6
7	Mahl Kungnee,	do.	6	15	Ghee,	do.	30
8	Bhabg Bunosah,	do.	3				

All the hard substances to be pulverized. No. 13 to be fried in No. 15; afterwards add No. 12. The Ghee containing the medicinal virtues of 12 and 13 is added to the powder (throwing away the 12 and 13) consisting of the other ingre-

dients, and mix, which divide into boluses of the size of a large lime. Give one to the Elephant every evening.

Mussaul No. ii.

1 Take of Kohsht,	Tola	1	7 Hing,.....	Tolas	6
2 Ukkulkarah,.....	do.	3	8 Googul,.....	do.	6
3 Awulsaree Gendugh, ...	do.	3	9 Neemboo,.....	No.	60
4 Munseel,	do.	3	10 Moosumber,.....	Tolas	8
5 Urthal,.....	do.	3	11 Parah ka kakh,	do.	1½
6 Mohur ka phur,	do.	12	12 Shahth, sufficient quantity.		

Rub down No. 3 with No. 11; powder the other ingredients and mix with the above; add the juice of No. 9, and add as much of No. 12 as to form the whole into a soft mass, and divide into boluses of the size of a lime, and give one night and morning.

پیٹ کا درد.—*Pate ka Durudh.*

SECTION 24.—COLIC.

HISTORY.—This disease is known to exist by the following symptoms—the animal leaves off feeding; is very restless; very frequently engaged in alternate lying down and rising up; moves from side to side; opens the mouth more or less frequently, and keeps it open a minute or so; crosses its legs often; and frequently strikes its sides with its tail; and otherwise evinces much distress.

The bowels are confined. The surface is more or less below healthy temperature. It may arise from sudden depression of temperature of the surface; and is always more or less connected with the existence of worms in the bowels. This disease is a spasmodic affection of the bowels; and if neglected may occasion inflammation of those organs, which inflammation may prove fatal.

TREATMENT.—This disease is relieved by antispasmodics.

Opium,	1 to 3 Tolas.
Asafoetida,	3 Ditto.
Ginger,	3 Ditto.

Mix with Jaggery into a mass and give. Repeat an hour afterwards, if need be. Next open the bowels freely with aloes and croton seeds, bruised, or the latter alone, *vide* Part IV. Chap. I. No. 8, for the dose. In addition to giving this internally, the animal may be well fomented about the abdomen.

If inflammation of the bowels have occurred, shewn by slime in the stools, 10 or 15lbs. of blood will be drawn with advantage; but a small quantity of slime will not have recourse to this operation, as fomentations, which ought to be practised in the severer cases, also will prove sufficient to effect a cure in the milder varieties.

Slime in the evacuations is not an uncommon appearance during hot weather, more especially when during that season the animal is worked much. It also results from the continued use of the Peepul tree for fodder.

In all such cases, regard will be had to the relative quantity of the slime passed; and in determining whether the active treatment of bleeding is required, or the milder one of fomentations alone. After the above treatment has been practised either of the following Mussauls may be given.

Mussaul No. i.

1 Take of Aaka puttah, ...	No.	12	5 Sohute,	Seer	0½
2 Lussoon,	Seer	0¼	6 Pooranah Goode,	do.	0½
3 Bahroodh,	do.	0½	7 Ujwan,	do.	0½
4 Moosumber,	do.	0½	8 Jahphul,	do.	0¼

Beat up the whole together, adding a little water to form it into three boluses; and give one immediately, and the two others every 8 hours.

Mussaul No. ii.

1 Take of Hing,	Tolas	3	5 Moosumber,	Tolas	3
2 Shoree Ujwan,	do.	3	6 Bigun ka jud,	do.	3
3 Korasane Ujwan,	do.	3	7 Mirchee ka jud,	do.	4
4 Uzmoodha Ujwan,	do.	3	8 Goode,	Seer	1

Powder the above; add No. 8 and mix; then divide into two parts, and give one immediately and the other after 12 hours.

Mussaul No. iii.

1 Take of Hing,	Tolas	3	5 Gudge kay ka charolee, ..	Tolas	6
2 Ujwan,	do.	4	6 Kapeelah,	do.	6
3 Moosumber,	do.	6	7 Goode,	Seer	1½
4 Vahee Combah,	do.	6	8 Sohute,	do.	0½

Powder the above together, then add No. 6 and divide into three parts, and give three times during the day.

هري سانگ راني.—*Eray Sangraanee.*

SECTION 25.—DYSENTERY.

HISTORY.—In this affection there is a copious discharge of soft dung mixed with slime and blood. There is severe pain, shewn by great restlessness; animal lying down, getting up, moving about whilst on its legs; endeavouring to press abdomen when on the ground, much thirst, dryness of the mouth, trunk contracted and little moved. Urine scanty and high coloured. Temperature of surface little

different, if at all from healthy state. There is evident straining when dunging. The animal soon becomes too weak for work. This is usually a fatal disease.

TREATMENT.—The above is the Native history of Dysentery. No case has come under treatment in Hospital. Fomentations will doubtless be of service. The following Mussauls are strongly recommended by intelligent Mahawuts. Oleaginous injections would prove useful.

Mussaul No. i.

1 Take of Thabd ka jud, ... Tolas	3	13 Gunbeede,..... Tolas	3
2 Nahrul ka jud, do.	3	14 Inderjoathe, do.	3
3 Uzgun ka jud, do.	3	15 Butch, do.	3
4 Goomchee ka jud,..... do.	3	16 Neemuck, do.	24
5 Gundaar ka jud, do.	3	17 Kala Bitchwa, do.	3
6 Kahch Kooree ka jud, ... do.	3	18 Kahchoor, do.	3
7 Tikree ka jud, do.	3	19 Rahyan, do.	3
8 Thoombay ka jud, do.	3	20 Dik ka Mullee,..... do.	3
9 Bigun ka jud, do.	3	21 Uddaruck, do.	3
10 Soahgah, do.	3	22 Sheeraafe,..... Bs.	1
11 Hing,..... do.	3	23 Goode, Seers	3
12 Piplee, do.	3	24 Pohsht, do.	1

The above ingredients to be all pounded together, adding No. 22 gradually, until the whole is formed into a soft mass, which divide into boluses of the size of a lime, and give one night and morning.

Mussaul No. ii.

1 Take of Mahdhee ka jud, Tolas	3	8 Nurkachoor, Tolas	3
2 Kala Oomuth ka jud, ... do.	3	9 Soahgah, do.	3
3 Bale Gundaar ka jud, ... do.	3	10 Googul,..... do.	3
4 Cunnare ka jud, do.	3	11 Moosumber, do.	3
5 Agahdhee ka jud,..... do.	3	12 Neemuck,..... Seer	1½
6 Biscoprav ka jud,..... do.	3	13 Thabd ka Goode, do.	2
7 Gudge kay ka jud, do.	3	14 Pohsht, do.	1½

The above ingredients to be pounded together, adding No. 13 and water, until well mixed and made into a soft mass, which divide into boluses of the size of a large lime, and give one night and morning.

The Charah to be of a cooling nature.

سنگ رانی — *Sangraanee* — جلاب or *Joolaub*.

SECTION 26.—DIARRHOEA.

HISTORY.—This is a watery purging without passing worms. The motions are copious and fetid. The animal has colic pains more or less severe. Falls off in

condition. Eats little, but drinks plentifully. This affection occasionally assumes a chronic state, which gradually undermines the constitution; and the animal may die of Sooka Zaaabahd, or Emaciation. The animal frequently takes mud, *vide* Part IV. Chap. I. No. 8, Lungun, doubtless from feeling uneasiness or pain in the bowels. The urine is high coloured and scanty.

TREATMENT.—After sedulous fomentations to the abdomen, the following carminative Mussauls may be given.

Mussaul No. i.

1 Take of Urthal, Tola	1	5 Sohnfe, Tolas	8
2 Gendugh, do.	1	6 Hing, do.	3
3 Sohute, do.	6	7 Goode, Seer	1
4 Butch, do.	6		

Powder the above finely; then add No. 7 and mix with water until it forms a soft mass, which divide into boluses of the size of a lime, and give one three times a day.

Mussaul No. ii.

1 Take of Ujwan, Tolas	2	9 Ahfeeme, Tolas	4
2 Korasancee Ujwan, do.	2	10 Pullas pupada, do.	2
3 Uzmoodeha Ujwan, do.	2	11 Hira Googul, do.	2
4 Shoree Ujwan, do.	2	12 Gudge kay charolee, ... do.	20
5 Butchnahg, do.	2	13 Sheraafe, Pints	3
6 Moosumber, do.	2	14 Goode, Tolas	42
7 Belahmay, do.	2	15 Ambee Ulludh, do.	2
8 Hing, do.	2		

The above to be pounded together and made into a soft mass with No. 13, and kept in a new pot. Give the size of a lime twice daily, until the whole is given.

Also Nos. 2 and 3 of the Mussauls for Vahee Golah, may be given in this disease.

واہی گولہ.—*Vahee Golah*,—باد گولہ or *Bahdh Golah*.

SECTION 27.—FLATULENCY WITH IMPAIRED FUNCTION OF THE BOWELS.

HISTORY.—In this affection there is much rumbling noise in the abdomen which is swollen, and which is the characteristic symptom of this affection. Trunk contracted and animal restless; urine pale coloured, copious, and of ammoniacal odour. Takes little fodder, and what is taken is but little digested. Animal looking

dull and heavy. The evacuations are not formed, but at the same time are not watery; they are pale coloured. This is a chronic affection, and arises from loss of tone of the alimentary canal, whereby it discharges its function only imperfectly. The animal consequently becomes weak and loses flesh; and if the disease be neglected, it may eventually prove fatal. Under ordinary cases, however, this is an easily curable affection though somewhat protracted.

TREATMENT.—The treatment consists in restoring the tone of the bowels, and this is done by tonics and stimulants.

Take of Ginger,.....	4 Ounces.
Asafoetida,	1 Ounce.
Sweet Flag,.....	2 Ounces.
Margosa Bark,	8 Ounces.
Sulphuret of Antimony,.....	2 Drachms.

To be powdered and mixed together and given to the animal twice daily for a week. A drachm of Calomel may be given daily for four days, afterwards give half a drachm every alternate day. The Mussauls given below will be found very useful; and may be confided in, in all ordinary and in uncomplicated cases of this affection.

Mussaul No. i.

1 Take of Moosumber, ... Seer	0½	6 Inderjoathe, Seer	0½
2 Rahyan, do.	0½	7 Dik ka Mullec,..... do.	0½
3 Hing, do.	0½	8 Lussoon, do.	0½
4 Gunbeede,..... do.	0½	9 Butch, do.	1
5 Uldhee,..... do.	0½	10 Geong ka Attah, sufficient quantity.	

Powder all the ingredients, form into a mass with No. 10, adding as much water as is necessary; then divide into pills of the weight of two tolas each, and give one at night after the first sleep, and before the animal commences to take fodder on waking. This treatment to be continued for seven successive days.

Mussaul No. ii.

1 Take of Butch,..... Seer	1	8 Mirchee, Seer	1½
2 Moosumber, do.	1	9 Kala Mirchee, do.	0½
3 Soahgah, Tolas	2	10 Lussoon, do.	2
4 Hing,..... do.	6	11 Koochlay,..... do.	0½
5 Ahfeeme, do.	3	12 Neemuck, do.	2
6 Gaheelone, do.	1	13 Awulsaree Gundugh, ... do.	2
7 Sohute, do.	24	14 Ghee,..... do.	2

Powder the above ingredients; then add No. 14 and fry for an hour. Of this mixture give a handful every morning and evening until the whole is given.

Mussaul No. iii.

1 Take of Dik ka Mullee,...	Tolas	6	8 Butch,	Tolas	2
2 Kootkee,	do.	12	9 Kohsht,.....	do.	1
3 Piplee,	do.	6	10 Sohute,.....	do.	3
4 Gunbeede,.....	do.	12	11 Rahyan,	Seer	1
5 Ahleem,	do.	18	12 Ahfeeme,	Tolas	4
6 Pipla Mohde,	do.	12	13 Russasendoor,	do.	3
7 Ujwan,	do.	1	14 Hing,.....	do.	6

The above to be finely powdered separately; then to be added together and well mixed with $1\frac{1}{2}$ seers of Ghee and fried. Of which give a handful to the animal twice daily, until the whole is given.

The Mussauls given under Pate ka Durudh, *vide* Part I. Chap. II. Sec. 24, are also useful in this affection.

لنگن کا مرض.—*Lungun or Keed ka Murz.*

SECTION 28.—WORMS.

HISTORY.—This disease consists of a purging during which worms, in variable number, are passed. The worms that infest the alimentary canal of the Elephant are of two kinds, the one, a worm about 2, or at most 3 inches in length and about a line in diameter, semitransparent and of a whitish colour; the other is a flat circular worm, if the term circular can rightly be used in reference to it, about the diameter of a silver two anna piece, and of a reddish fleshy colour—the former is called *Chotee*, and the latter *Mussodee* by the Mahawuts. The Elephant's bowels is rarely, if ever, free of the Chotee, and unless present in very great numbers they do not appear to be hurtful. On the other hand, the Mussodee causes much irritation, and induces the animal to resort to a measure which instinct has pointed out to give relief from the irritability thence resulting, and in accordance with the suggestion of instinct this measure is perfectly successful. The measure referred to is the eating of a variable quantity of earth from one to two seers. After the expiration of twelve hours, though usually after the expiration of two days, during which the animal occasionally partakes of earth, the effect of this measure shows itself in copious purgation; after the purgation has commenced, the animal leaves off taking the earth. The alimentary canal is by this means effectually scoured of the worms, of which the number is sometimes very great, amounting to a maund or upwards. It would appear that there is something of an infectious nature in the disease Lungun, as animals, previously healthy of the complaint, have been frequently observed to be seized with it, within a week, after being picquetted near others under its influence. This has several times occurred in Hospital. During the continuance of the Lungun the ratib ought to be withheld according to the Mahawuts' opinions, who consider the giving of rice when the animal is taking mud as dangerous; and there would appear

some foundation for this opinion. *Mookundha* is the name given to the affection—the result of giving ratib while the animal is undergoing a course of earth for Lungun. It consists in a swelling of the abdomen, restlessness, and the symptoms of abdominal pain named under Vahee Golah. The animal looks heavy, and surface cold; and purging does not supervene. The disease is called Lungun, or fasting, because the animal is thus deprived of its ratib. Lungun or Lunganum being a Tamil term, signifying fasting, or going without food from necessity.

TREATMENT.—Allow the animal to use the earth with a view to scour out the worms present. Afterwards a course of tonics with carminatives will prove useful in restoring the tone of the bowels.

Take of Sulphuret of Antimony,.....	$\frac{1}{2}$ Ounce.
Sweet Flag,.....	$\frac{1}{4}$ Pound.
Asafoetida,	1 Ounce.
Ginger,	2 Ounces.
Bark of the Margosa tree dried and powdered, ...	$\frac{1}{2}$ Pound.

The above to be powdered and mixed together, to be given with the ratib once daily. Half a drachm of Calomel may be given daily for five or six days, *vide* Part IV. Chap. I. No. 8, for remarks regarding the exhibition of earth, and of the supposed mode of action.

The following have been found, in Hospital practice, well established as useful *Mussauls* after the removal of worms by purging as above alluded to.

Mussaul No. i.

1 Take of Laul Mirchee,... Seer	$0\frac{1}{4}$	7 Uldhee,..... Seer	$0\frac{1}{4}$
2 Inderjoathe, do.	$0\frac{1}{4}$	8 Piplee, do.	$0\frac{1}{4}$
3 Pullas pupada, do.	$0\frac{1}{8}$	9 Pipla Mohde, do.	$0\frac{1}{4}$
4 Hing,..... do.	$0\frac{1}{2}$	10 Gunbeede, do.	$0\frac{1}{4}$
5 Kootkee, do.	$0\frac{1}{4}$	11 Soahgah, do.	$0\frac{1}{4}$
6 Rahyan, do.	$0\frac{1}{4}$	12 Lussoon, do.	$0\frac{1}{4}$

The above ingredients to be pounded together, and a handful given to the animal night and morning, or once every morning before ratib.

Mussaul No. ii.

1 Take of Kala Mirchee,... Seers	3	4 Sohute,..... Seers	2
2 Hing,..... do.	$0\frac{1}{4}$	5 Ghee, do.	2
3 Lussoon, do.	$0\frac{1}{4}$	6 Neem ka puttha, do.	3

Nos. 1, 2 and 4 to be pounded together, and added to 3 and 5, then fried; and a handful to be given night and morning.

مکندہ.—*For Mookundha.*

Mussaul No. i.

1 Take of Shemruf,	Tolas	2	7 Gaheelone,	Tola	1
2 Russasendoor,	do.	2	8 Moosumber,	Seer	1
3 Urthal,	do.	2	9 Hing,	do.	0½
4 Moordharsing,	do.	3	10 Rahyan,	do.	0½
5 Munseel,	do.	3	11 Kohsth, ...	do.	0¼
6 Ahfeeme,	do.	2	12 Sheraafe, ...	do.	2½

The above to be coarsely powdered and added to No. 12, and well mixed together. A handful to be given twice or thrice daily until the whole is given.

After Lungun, or when suffering from Mookundha, any one of the Purgatives named in Part IV. Chap. I. No. 8, may be given.

گھنرس.—*Gunruss—چورنگ and Chowrung.*

SECTION 29.—A PARTIAL AFFECTION OF THE FOREFEET.

HISTORY.—After eating ratib during the taking of earth, the affection called by the Mahawuts *Gunruss* has been known to supervene. This is a turning outwards of the feet of the animal; but except in cases where it occurs to a considerable extent, the power of walking, or efficiency of the animal generally, is not impaired. This affection, the seat of which is the forefeet only, has also been known to arise spontaneously, the animal being in apparent health. When occurring under the latter circumstance, the affection would appear to be a premonitory symptom of that state of constitution which terminates in Zaarbad. Chowrung is merely an extended state of the above, affecting all the feet and limbs, the latter of which are stiff.

TREATMENT.—An aperient ought to be given, of croton seeds, bruised, with Calomel, *vide* Part IV. Chap. I. No. 8. The following Mussauls are given with advantage by the Mahawuts.

Mussaul No. i.

1 Take of Googul,	Seer	0¼	7 Shoree Ujwan,	Seer	0¼
2 Gunbeede,	do.	0¼	8 Korasane Ujwan,	do.	0¼
3 Dik ka Mullee,	do.	0¼	9 Lussoon,	do.	0¼
4 Sendalone,	do.	0¼	10 Nukkolah,	do.	0¼
5 Ujwan,	do.	0¼	11 Kapeelah,	do.	0¼
6 Uzmoodha Ujwan,	do.	0¼	12 Choonah ka Neera, sufficient quantity.		

Powder the hard substances, and mix and add as much of lime water (No. 12,) as will form it into a soft mass, and give the size of a lime morning and evening.

Mussaul No. ii.

1 Take of Saend ka chall, Seers	2	7 Kootkee,	Seer	0½
2 Kahrenj ka chall,	do.	8 Lahvung,	do.	0½
3 Recta ka chall,	do.	9 Kalee Mirchee,	do.	0½
4 Pahruss ka chall,	do.	10 Pipa Mohde,	do.	0½
5 Kalee Sujjee,	Tolas	11 Inderjoathe,	do.	0½
6 Uddaruck,	do.	12 Pullas pupada,	do.	0½
	48			

Powder the barks separately, then add the other ingredients, and mix with as much of arrack as to moisten the whole—of which give a handful every night and morning.

پک سول کا مرض—*Puck Sool ka Murz*—شکم کا درد or *Sehum Durudh*.

SECTION 30.—AFFECTION OF THE LIVER.

HISTORY.—This affection is not characterized by any peculiar symptom; but there is continued difficulty in breathing or heaving of flanks, with restlessness, and little, if any, sleep at night, the animal apparently having a dislike to lie down. The mouth is dry; trunk shrivelled; bowels irregular. This irregularity of bowels with heaving of flanks, is perhaps the best distinguishing symptom of Puck Sool. The animal frequently takes mud, as alluded to under the affection Lungun, *vide* Part IV. Chap. I. No. 8, but no worms are brought away, although purgation is sometimes produced. Dung darker coloured than in health; and urine high coloured and scanty. The abdomen becomes gradually swollen, and on dissection is found to contain several gallons of watery fluid. On the whole, the existence of inflammation of the liver is more to be inferred from the absence of any affection of the bowels, or of the head, while the animal shows evident symptoms of the existence of some serious affection than from the presence of any distinguishing symptom, or collection of symptoms. Frequently the lungs are consecutively affected, and dissections show abscess more or less extensive in the right side of the liver and right lung. The appetite is variable; but thirst always great. This is a rare disease of the Elephant; and of those cases that have come under treatment at this Hospital, the symptoms have been those indicative of a chronic form of disease.

TREATMENT.—Bleeding has not been indicated in any case that has come under treatment, though acute forms of attack are possibly and would require abstraction of blood. What has been found most efficacious is purgation from croton seeds, combined with Aloes or Calomel, *vide* Part IV. Chap. I. No. 8. After-

wards an alterative treatment of the following Mussauls. Fomentations, so frequently recommended in this Manual from its proved utility, in the treatment of diseases of the Elephant, will be found useful in this ailment.

Mussaul No. i.

1 Take of Parah ka kahk		3 Hing,	Tolas 4
or Calomel,	Tolas 2	4 Moordharsing,	do. 4
2 Moosumber,	do. 4		

Powder the above and add honey to form it into a soft mass, and divide into two boluses, and give one twice a day. Repeat the above for one week. Afterwards give the following:

Mussaul No. ii.

1 Take of Dik ka Mullee, ..	Seer 1	6 Moosumber,	Seer 1
2 Peeaz,	do. 1	7 Rahyan,	do. 1
3 Lussoon,	do. 1	8 Sukeyah Soomul,	Tolas 2
4 Hing,	do. 0 $\frac{1}{4}$	9 Pooranah Goode,	Seer 1 $\frac{1}{2}$
5 Gendugh,	do. 0 $\frac{1}{4}$	10 Parah ka kahk,	Tolas 3

The above to be finely pounded together and with the addition of water to form it into a soft mass, which divide into boluses of the size of a lime and give one night and morning for a fortnight successively, or until the whole are given.

اگن بھاءو.—*Agin Bhao.*

SECTION 31.—ERUPTION OF THE SKIN.

HISTORY.—This disease is eventually an eruption of the skin, commencing with vesicles or small blisters, and sometimes, especially when neglected, proceeding to ulceration. The first symptom is a watery discharge from the eyes; and the usual cause of it is exposure to a hot sun; though it occasionally arises from a full habit of body or disorders of the digestive organs. The eruption is frequently and usually situated on the head, or the ears and haunches, those parts in short most exposed to the sun, and during the progress of the affection the affected parts have the aspect of having been branded with a hot iron. It is not a dangerous ailment and will not incapacitate the animal for duty though in proportion to its extent, especially if neglected, it will more or less impair the efficiency of the animal. *Agin Bhao* is a name also given to an affection of the eye, *vide* Part I. Chap. II. Sec. 8, which usually arises from a similar cause, namely, exposure to an ardent sun; and indeed, as above stated, is usually the first indication of the approaching cutaneous eruption.

TREATMENT.—The eruption ought to be lubricated with camphoretted oil and an aperient given, *vide* Part IV. Chap. I. No. 8, for aperients. The following cooling Mussauls will be given with advantage after the action of the aperient.

Mussaul No. i.

1 Take of Dheighn,..... Seers	6	6 Sohnfe, Seers	2
2 Peeaz, do.	6	7 Awulgunttee,..... do.	2
3 Missree, do.	3	8 Tabaseer, Tolas	3
4 Dhalchinnee, do.	2	9 Muskah, Seers	3
5 Elachee, do.	2	10 Maythee, do.	1

The above to be pounded together, and given every morning for three successive days.

A part of the tyre to be reserved, and in which add the leaves of any one of these two species, viz., Thudwud or Neem ka puttha, previously grounded together, then mix and apply this over the body daily at noon.

Mussaul No. ii.

1 Take of Kootkee, Seer	1	7 Gunbeede,..... Seer	1
2 Ruscapoor, Tola	1½	8 Moosumber, do.	1½
3 Russasendoor, do.	1½	9 Hirbisee, Tola	1½
4 Putchkapoor, do.	0½	10 Nirbisee, do.	1½
5 Shemruf, do.	3	11 Thahd ka Goode,..... Seers	3
6 Gaheelone, do.	1	12 Ahfeeme, Tolas	3

The above to be powdered and added to No. 11, and well mixed together, adding water to make it into a mass, which to be divided into boluses of the size of an orange, and given one every 8 or 12 hours.

The Mussauls used for *Kuthlay* may also be given in this disease if necessary.

جھولے کا مرض.—*Jolay ka Murz.*

SECTION 32.—PALSY OF THE HINDER EXTREMITIES.

HISTORY.—For several days previously to the setting in of the palsy, the animal has an irritable, sometimes a wild, demeanour, when it may attempt to strike the attendants; has no sleep at night, and leaves of taking fodder and water. Bowels regular, but urine is high coloured, scanty, and sometimes passed in drops. The surface of the body is cold from the commencement of the affection, and about eight days thereafter, palsy of the hinder extremities gradually supervenes. During attempts to walk, the legs are as it were dragged: at length total palsy supervenes

and the animal is unable any longer to stand; feeling and power of limbs are completely lost. It is when this complete palsy sets in that the urine is passed in drops, and bowels become confined. This is generally a fatal complaint, and evidently consists of an affection of the spinal marrow.

TREATMENT.—The following Mussauls which are of a stimulating nature are reported to have been useful in the milder attacks; but no case of this affection has come under treatment at this Hospital.

Mussaul No. i.

1 Take of Urthal, Tola	1	4 Sukeyah Soomul,..... Tola	0½
2 Munseel, do.	1	5 Aaka Dhooth, do.	3
3 Morethootha, do.	0½	6 Lussoon ka russ, do.	3

The hard substances to be finely powdered, then mix with Nos. 5 and 6, and make into seven boluses, and give one every fourth hour for two days. If relief is obtained, repeat it on the third day, and give but three boluses daily for a week. Then stop for a week and resume it, giving but two boluses daily for a week successively; then stop it altogether, and give Nos. 3 and 4 of the Mussauls for Dhoobla, *vide* Part I. Chap. I. Sec. 5.

The following may be given if there be no improvement under the use of the above Mussauls.

Mussaul No. i.

1 Take of Butchnahq,..... Tolas	3	5 Sumenderphul, Tolas	2
2 Lussoon ka russ, do.	6	6 Gaheelone, do.	2
3 Russasendoor, do.	2	7 Munseel, do.	2
4 Moordharsing, do.	2	8 Aaka Dhooth, sufficient quantity.	

Powder the hard substances and add No. 8, then mix together and add No. 2 and divide the whole into seven boluses; and give one every fourth hour for three days. If the animal is better, continue for a fortnight, by giving only two boluses daily.

Mussaul No. ii.

1 Take of Hing, Tolas	3	5 Rahyan, Tolas	3
2 Googul,..... do.	3	6 Sungjeera, do.	3
3 Moosumber, do.	3	7 Sungpaleetha, do.	3
4 Morethootha, do.	0½	8 Soahgah, do.	3

Place No. 8 over moderate heat until it becomes white and spongy, roast No. 1, then powder these with the other ingredients and add as much of jaggery as to form the whole into a soft mass, which divide into three parts and give one night and morning.

AFFECTIONS OF THE URINARY ORGANS.

استنجا بند کا مرض.—*Stinja bundh ka Murz.*

SECTION 33.—INFLAMMATION OF THE KIDNEYS.

HISTORY.—In this affection the animal passes urine by drops at the beginning of the attack. On the same day it is totally suppressed. The abdomen swells, the animal becomes restless, and leaves off taking fodder. It lies down and rises up frequently and shows evident symptoms of much suffering. The bowels are costive, and there is pain in the flanks on pressure. This is usually a fatal affection after appearing, which, however, is rarely the case. There are usually febrile symptoms, especially heat of surface; and the animal is subject to subsequent attacks.

TREATMENT.—The Native treatment consists in giving the following Mussauls in the state of mucilaginous drinks; and exhibiting, Nitre 2 tolas, with Tabaseer 4 tolas, twice or thrice daily. Fomentations will prove useful, and one of the Purgatives named in Part IV. Chap. I. No. 8, may be given.

Mussaul No. i.

1 Take of Sohute, Seer	0½	5 Buldah,..... Seer	0½
2 Jahree, do.	0½	6 Baebadung, do.	0½
3 Hing, do.	0½	7 Indrayen, do.	0½
4 Uldah, do.	0½	8 Tabaseer, Tolas	4

Soak the above in gram water (not boiled) for 24 hours, then pound the substances and divide into seven parts, of which give one daily. If urine is passed freely after the second or third day, give it every alternate morning. The animal to be allowed ½ seer of the tender stock of the Neem tree during the taking of the above Mussauls.

Mussaul No. ii.

1 Take of Dheighn, Pucka Seers	5	3 Pecaz, Pucka Seers	5
2 Chavul ka Kanah, do.	5		

No. 2 to be boiled, then pound No. 3, and add to the whole and mix with No. 1, and give to the animal either in the morning or evening as is found necessary.

For common drink.

The animal to be allowed water sweetened with sugar,—the Palmyra sugar would be preferable.

The water in which horse gram has been soaked over night, is also to be given as a cooling drink in this disease.

كسوم كا مورغ.—*Koosum ka Murz.*

SECTION 34.—BLOODY URINE.

HISTORY.—This is a term used by the Mahawuts to designate bloody urine. It is said to void urine in drops mixed with blood, and attended with severe pain and straining—the animal evincing great distress during the discharge. This is said to be a dangerous malady, but it is of rare occurrence. No case of it has been under treatment in Hospital.

TREATMENT.—The Native treatment consists of cooling remedies; and the following Mussaul may be given with advantage.

Mussaul No. i.

1 Take of Peeaz, Seers	5	5 Kundhooree ka puttha, .. Seers	3
2 Goolaub ka phool, do.	4	6 Esup Gool, do.	3
3 Ambee Ulludh, do.	3	7 Chenee Shukur, do.	5
4 Awul Gunttee, do.	2	8 Siah Mooslie, do.	2

Powder the hard substances and beat up with No. 1, and mix; and divide into eight parts. Give one every eight hours.

رئوولي.—*Russoolee.*

SECTION 35.—BOILS.

HISTORY.—The Elephant occasionally suffers from boils, confined to no particular part, though most usually situated on the face and thighs. They appear to arise from internal derangement of the digestive organs, and most probably that of the liver. They are either blind boils, *i. e.*, such as do not proceed to suppuration, but disappear without advancing to that stage after a variable time either without treatment, or by the assistance of a purgative of an ounce of croton seeds with one drachm of Calomel by way of correction of the biliary derangement. The blind boils differ from the Nunj or tumour, indicative of Zaarbahd, *vide* Part I. Chap. I. Sec. 3, in size, number, and situation. Others, however, are of a suppurative character; and by no treatment can be prevented going on to termination in the suppurative process. This latter variety of boils requires care and management, for if not properly treated they may occasion so much mischief as to consume several months for treatment, during which time the animal is nearly, or totally incapacitated for service.

The important point to be attended to in the treatment of suppurative boils, consists in early giving exit to the matter or pus secreted during the progress of the affection. Prior to its formation, however, fomentations ought to be practised as

this will ameliorate the intensity of the inflammation; and when the suppurative process is established, will also prove useful; amongst other advantages, it softens the swelling of the tumour and admits the more easily of the presence of pus being ascertained. This point being determined, no time ought to be lost in making a free incision to give exit to the pus. If a free opening be made early, and the pus continues to be secreted, it will, having no external passage for escape, burrow below the skin which will be separated from its healthy connexions, whereby an abscess more or less extensive is eventually formed, the healing of which may be the work of months.

TREATMENT.—The boils, therefore, of the suppurative kind, now under consideration, are first to be well fomented to expedite the suppurative process, and to ameliorate the inflammation. When matter is formed, make a free incision to give it exit; after which dress the abscess with Camphorette oil or with a solution of Blue Stone, or with Turpentine or other detergent substance. The following Native ointments have been found very efficacious in expediting the filling up of the abscess with healthy flesh.

Under this treatment the parts will soon be healed, and an extensive abscess be prevented from forming, which, if allowed to form, will take months to cure.

It may be advisable to make a few more remarks on this important point of early opening abscesses occasioned by boils or otherwise.

The Natives resort to this practice, but not till much of the mischief alluded to above, arising from delay in opening the abscess, has been done. The Mahawut in all probability will raise objections to the opening of the boil on the ground of its not being ready or ripe, in other words suppuration not having, in his estimation, taken place, and he will defend the correctness of his assertion on the circumstance of the boil or tumour feeling *hard*. But his advice is not to be acted on from the simple fact that a hard immovable swelling, the contour of which rises more or less abruptly above the general surface of the body, shews that suppuration has occurred, and the hardness considered by him the test of absence of pus, arises from its presence, the pus being confined as yet to narrow limits and stretching the skin over it. It is not till the skin becomes soft from absorption, when extensive mischief has been done, that he considers the boil ready to be opened. The following case, strongly illustrative of the practical utility of the above remarks, occurred at this Dépôt. An Elephant, which was caught in a pit, had, when falling therein, been severely injured in one of the forelegs—swelling and eventually suppuration occurred. The limb, swollen to nearly twice the size of the healthy one, felt as hard as stone, the hardness arising from confined pus. The Mahawuts, however, asserted there could be no pus present, seeing the hardness of the swelling. They were convinced of their error only when a free opening was made into it, when there escaped several pints of fetid pus, the first portions of which were projected several feet from the orifice of the incision. This distant projection of the pus was a corro-

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كَبْوَا.—*Kuvvah*—بَدَت or *Pheet*.

SECTION 36.—SORE BACK.

HISTORY.—This injury arises from inflammation caused by unequal pressure of the animal's load, or by the ropes, by means of which its burden is fastened on its back. The inflammation does not primarily attack the skin, but the more delicate membrane beneath, that connects the skin to the parts it more immediately covers. Such inflammation, which is shewn to exist by more or less swelling of the injured part, may frequently be subdued, if early submitted to the simple treatment of fomentation, *vide* Part IV. Chap. I. No. 7, for instruction regarding fomentations. But if it be completely neglected till the usual consequence, viz., suppuration and also sloughing of the membrane in question follow, an abscess more or less extensive will arise. It is an injury very apt to occur, and therefore demands strict supervision when the animal is being loaded, that no part of the body on which the load rests be without due protection of the pad; and that the ropes passing down the sides and under the belly be properly secured against causing abrasion by the interposition of leather between them and the body. Inattention to these particulars, may speedily deprive a Force of the valuable services of the animal.

There is at present an Elephant under treatment for an extensive abscess along the spine, the extent of which is about two feet in length and one in breadth, when admitted into Hospital; which arose from no opening being made for the exit of pus. It has been under treatment for twenty-four months, and most probably six months more will elapse before cure is effected, thus proving how slow such extensive abscesses are in healing, and therefore, how desirable it is to prevent their spreading by early incision.

TREATMENT.—Under what circumstances soever the injury has been caused, the injured parts ought as soon as possible to be well fomented. This operation alone may cause the inflammation to subside, or if the injury be of such a degree, that suppuration cannot be prevented, the fomentation will moderate the inflammation, while it expedites the suppurative process. As soon as matter has formed, let an exit be given to it externally by a free incision: an opposite course may render the animal useless for many months. The cogency of early incision is set forth under the head of suppurative boils, *vide* Part I. Chap. II. Sec. 35, which, as the same principles are involved as respects the ailment just referred to, in regard to treatment and consequences of neglect in the injury now under consideration, the remarks under that head will be advantageously consulted in reference to the present injury. In consequence of not making early incision in a case of subcutaneous suppuration, an Elephant was under treatment here upwards of a year. The skin had, from the consequence of an injury, such as is now being considered, been separated from the subjacent parts to an enormous extent, namely, throughout the greater portion of the posterior part of the back and haunches. The wonder is, that so extensive a suppuration of the skin was not followed by the detached portion sloughing off altogether. Had a seasonable opening been made in this case, much of the extensive mischief above detailed would have been avoided.

Several modes of practice have been tried with the view to determine the most efficient mode, when the skin on the ridge of the back is undermined by suppuration; and it has been found that the best practice consists in making incisions across the abscess, that is, at right angles to the line of the back, and at distances of from 4 to 6 inches apart. The pus and sloughs are thus allowed free exit, and the cure is much more expeditiously effected than when the whole of the undermined skin is removed by the knife.

The subsequent treatment is similar to that recommended for the after treatment of suppurative boils, with the addition, if need be, of pledgets of cloth inserted to prevent the orifice of the incision closing, whereby the pus would be again pent up. The incisions ought to be more or less in number according to the extent of the surface undermined. These pledgets of cloth will allow the adhesion of the skin to the subjacent parts, to proceed regularly from the circumference of the subcutaneous ulcer to the central parts where the incisions are situated. If extreme suppuration goes on, the animal ought to be allowed a double quantity of ratib.

The Mussauls named under the head Russoolee, *vide* Part I. Chap. II. Sec. 35, are advantageously employed in healing abscesses and sores on the back of the Elephant. For other Mussauls, *vide* Part IV. Chap. I. No. 7.

بیل کا مرضی.—*Bale ka Murz.*

SECTION 37.—TUMOURS.

HISTORY.—This is a variety of tumours which appears in succession; one tumour appearing when another is healing. They always contain matter and require to be laid open after the fifth or sixth day. If not opened sufficiently early, the pus collects and undermines the skin, thus protracting recovery, *vide* remarks under Russoolee, Part I. Chap. II. Sec. 35. Some intelligent Mahawuts state, that one cause of this affection, and that of Kandi, *vide* Part I. Chap. II. Sec. 39, is the too free use of mercury which attendants give their animals when attacked with acute disease.

Ghutt and Mooss are terms also used in reference to tumours—the former merely meaning the inflammatory stage of tumours, the latter, such as have suppurated.

TREATMENT.—This consists, as above stated, in laying open the tumours so soon as they are found to contain pus; and afterwards applying the following detergent ointment.

Ointment.

1 Take of Sungjeera, Tolas	2	5 Kahpoor, Tolas	4
2 Sungpaleetha, do.	2	6 Coprah, do.	10
3 Suffadhe Reel, do.	8	7 Morethootha, do.	2
4 Moordharsing, do.	4	8 Ghee, Seer	0½

Fry No. 6 in No. 8, then powder the other ingredients and add to No. 8. Throwing away No. 6. Mix. Apply this ointment to the sores every morning.

The following Mussaul is to be given as directed.

Mussaul No. i.

1 Take of Kohst, Tolas	4	6 Vahee Combah, Tola	1
2 Ukkul Korah, do.	4	7 Gaheelone, do.	2
3 Butchnaag, do.	4	8 Nur ka choor, do.	2
4 Kala Bitchwa, do.	4	9 Wurkee Urthal, do.	1
5 Gendugh, do.	4	10 Althees, do.	4

Powder the above, then add jaggery as much as will form it into a mass; which divide into boluses of the size of a marble, and give one morning and evening.

بماني.—*Bumnee*—بماني or *Bomancee*.

SECTION 38.—AFFECTIONS OF THE TAIL.

HISTORY.—This, which is a rare affection, consists in the loss of a greater or less portion of the tail, sometimes the whole, by a slow process of mortification, commencing at the extremity of the tail, and successively attacking the higher parts, joint by joint. If not interfered with by remedies it will eventually remove the whole of the tail, but attack no other part of the animal, having then expended itself. It does not interfere with the animal's capability for duty during its continuance, and does not prove fatal. The animal is usually in good condition when this affection shews itself. The cause of it is not evident.

TREATMENT.—The treatment consists in applying any stimulating ointment, as turpentine mixed with wax, to the diseased part, after it has been well washed; or blue stone with lard in the proportion of a drachm of the former to an ounce of the latter. The following Native Mussauls may also be practised.

Mussaul No. i.

1 Take of Sendalone, Tola	1	6 Nowsaggur, Tola	1
2 Kulcopree, do.	2	7 Zungaur, do.	0½
3 Morethootha, do.	1	8 Shorah, do.	1
4 Puttukdee, do.	2	9 Kahpoor, do.	2
5 Shambralone, do.	1		

Pulverize the ingredients. Put two pukka seers of water in a copper vessel and add the powdered ingredients, then boil down to $\frac{3}{4}$ seer and let it cool. Apply in convenient quantity twice or thrice daily.

Mussaul No. ii.

1 Take of Morethootha, ... Tolas	2	5 Uldah, Tola	1
2 Kulcopree, do.	2	6 Buldah, do.	1
3 Zungaur, do.	0 $\frac{1}{2}$	7 Ahfeeme, do.	2
4 Puttukdee, do.	2	8 Ghee, sufficient quantity.	

The ingredients to be finely powdered; then add Nos. 7 and 8 and mix, and form into an ointment, which apply to the affected parts every morning after washing the sores in warm water.

كاندي.—*Kandi*—بمبور and *Bumbood*.

SECTION 39.—WHITLOW OF THE FEET.

HISTORY.—The first of the above terms is applied to ulceration on the soles of the feet; the second to the same affection when situated above the nails, or lower parts of the extremities. This affection, sometimes though rarely, occurs spontaneously, but usually is the result of a bruise or of a wound inflicted, by the animal treading or accidentally knocking its feet against thorns, sharp pieces of stones, &c. It may also arise from the continued marching of the animal over wet muddy ground. Inflammation and suppuration follow, leaving a suppurating surface or a fistulous ulcer, from which latter fungous flesh grows rapidly.

TREATMENT.—The treatment consists first in the application of fomentations, whereby the inflammation will be moderated and possibly suppuration prevented. The foreign substance, whether thorn, &c. should, it is scarcely necessary to say, be removed as soon as possible; and diligent search ought to be made, if doubt exists as to its presence within the foot. Then, if ulceration exists, detergent applications, as camphorette oil, or blue stone solution, ought to be injected by means of a syringe: the orifice is then to be filled with a piece of cloth to prevent mud, &c. getting into the wound, thereby occasioning further irritation, which prevents the curative process going on. *Vide* Part IV. Chap. I. No. 7, for recipes. These injuries are extremely tedious of cure; they always more or less interfere with the efficiency of the animal, and may wholly disable it. They may intentionally be inflicted by the attendants to incapacitate the animal for duty, and thus escape the fatigues or the dangers, real or supposed, of active service. As animals may speedily be incapacitated for further service, when marching over rough roads in consequence of severe injury being done to the feet, every diligence ought to be taken to ensure inspection of the feet after coming off a march, more especially during the movements of a force. If need be, one or more persons ought to be detained to point out to the Mahawut, such

parts of the road as are free of all bodies likely to occasion injury, as stumps of shrubs, &c. whereby all excuses for injury to the animals from such sources will be removed, and consequently security greatly ensured against intentional injury to the animal on the part of its keeper.

The following are Native remedies, which are used in these affections with much advantage.

Mussaul No. i.—For Kandi.

1 Take of Soomul, Tola	1	3 Kadavee Thorae ka beenj, Tolas	3
2 Jumaul Cottah,..... do.	2	4 Neem ka Thale,..... Seers	2

Nos. 1, 2, and 3 to be finely powdered and added to No. 4 and mixed; which keep for use. The powdered substance it contains to be applied to the ulcer every morning; and after granulations have formed apply the oil alone.

Mussaul No. ii.—For Kandi.

1 Take of Jumaul Cottah,.. Tolas	4	4 Moordharsing, Tolas	3
2 Puttukdee, do.	2	5 Ahfeeme, do.	2
3 Kulcopree, do.	2	6 Ghee, sufficient quantity.	

Powder the above finely, and add as much of No. 6 as will form it into the consistence of a soft paste; which apply to the sores every morning. Foot to be guarded against dirt, stone, &c.

Mussaul No. iii.—For Bumbood.

1 Take of Sungbusree, ... Tolas	2	5 Butch, Tola	1
2 Morethootha, do.	2	6 Mitta Thale,..... Seer	0½
3 Roohee, (burnt,) do.	0½	7 Kahpoor, Tolas	6
4 Soohgah,..... do.	1		

The above to be finely powdered and added to No. 6, then mix and keep for use every morning.

For other recipes, *vide* Part IV. Chap. I. No. 7.

ثُلِي.—*Thullee.*

SECTION 40.—TENDER FEET.

HISTORY.—The feet of the Elephant are liable to become tender when marching continuously for some days over stony ground, especially during hot weather. Such tender condition of the feet is called Thullee. The cure is rest, but with a

view to prevent the occurrence of this tenderness, the Mahawuts apply mixtures of astringent kinds which are found to be practically useful. The following are mixtures of this nature, and have been frequently used with benefit in Hospital after the tenderness in question has occurred, and which has preserved their efficiency for several months.

It is a common practice with the Mahawuts to harden the feet of their animals when required to march over rough ground, such as is likely to occasion the injury at present under consideration. The following Mussauls are used for this purpose with advantage.

Mussaul No. i.

1 Take of Moosumber, .. Seer	1	8 Gotee Suparee,..... Seer	0½
2 Mohme,..... do.	1	9 Oodh, do.	0½
3 Lahk, do.	0¾	10 Belahmay, do.	2½
4 Churbee, do.	1	11 Sendhoor,..... do.	0½
5 Kuttha,..... do.	0½	12 Neemuck, do.	0½
6 Bahl Uldah,..... do.	0½	13 Goode, do.	3
7 Awulguntee,..... do.	0¼	14 Mitta Thale,..... do.	3

The above ingredients to be finely powdered together and added to No. 14, then mix and keep for use. To be applied to the soles of the feet in the form of a paste, which to be dried by hot bratty. This application to be repeated every morning—after washing: the former application every other day.

Mussaul No. ii.

1 Take of Awulguntee, ... Seer	0¼	8 Moordharsing, Tolas	2
2 Moosumber,..... do.	0½	9 Puttukdee, do.	6
3 Kuttha,..... do.	0½	10 Jumaul Cottah,..... do.	4
4 Uldah, do.	0½	11 Sendhoor,..... do.	2
5 Bahl Uldah,..... do.	0½	12 Soomul, do.	1½
6 Mahphul, do.	0¼	13 Mohme,..... Seer	1
7 Kaheephul, do.	0¼	14 Mitta Thale,..... do.	2

The above to be finely powdered and added to Nos. 12 and 14, and boiled for an hour. Apply this oil to the soles of the feet night and morning.

SECTION 41.—ACCIDENTS.

Under this head it is proposed to make a few remarks on injuries indicated by that term.

1st.—*Wounds.* These may be inflicted by sharp or blunt instruments, &c. In the latter case suppuration is more likely to occur than in the former; but in either case clean hot water ought to be applied for a couple of hours or longer by way of

fomentation to keep down or allay inflammation after which camphoretted oil applied to the seat of injury will prevent maggots, and otherwise expedite cure. The blood-vessels of the Elephant being comparatively few and small, extensive bleeding will rarely occur except in wounds of an extent as are likely to prove mortal. The bleeding will generally be stopped by pressure made by the attendant, if on the body of the animal, or by bandage, if on the extremities. The most effectual mode is that of piercing the mouth of the bleeding vessel with a steel wire bent in the shape of a hook and pointed; by this the vessel is to be drawn out, and a thread afterwards tied around it, or a pair of pincers may be used for drawing out the mouth of the vessel. The edges of the wound are then to be brought together by stitches and bandage.

The Native mode of stopping the bleeding is, by applying first, Sulphur, in the shape of powder, sprinkled over the wound; afterwards, burnt hair, and an iron sufficiently hot is then applied to burn the whole into a mass. This is a very rude mode of procedure, and greatly retards recovery although it stops the bleeding.

2nd.—*Dislocation.* No case of this accident has come under treatment at the Hospital; and should it occur, I do not think any thing efficiently curative could be done.

3rd.—*Fracture.* No case of this nature in the Elephant has come under treatment, and the accident also appears incurable.

4th.—*Burns.* The treatment recommended for Agin Bhao, *vide* Part I. Chap. II. Sec. 31, is best suited to injuries of this nature.

5th.—*Contusions.* When accidents of this kind occur to an extent requiring treatment, the most efficient will be found to be continued fomentation. This abates inflammation, and may prevent suppuration; but if the accident runs on to the formation of pus, the treatment recommended for suppurative boils, *vide* Part I. Chap. II. Sec. 35, is to be recommended.

6th.—*Sprain. Lutchuk.* The Elephant is a very sure-footed animal, and will ascend or descend inclinations of such steepness, as without personal observation would startle belief. I have seen one descend the bank of a river, the inclination of which was at least 60°. This animal was not loaded; but I am told with half a load on its back, it would go either up or down such an inclination, provided it consists of earth. In descending steep inclinations, it goes on its hinder knees, then, as it were, walks on its forelegs, drawing its body after it; its ponderous weight causes its forefeet to flatten the bank and thus to form for itself a flight of steps. In ascending, it goes on its knees if the bank is of the steepness above alluded to. Nevertheless, it does, when engaged in such steep ascents or descents, occasionally, get sprained, more specially when it is hurried, as well as under other circumstances. The symptoms are more or less lameness with swelling and pain of the injured part. Sprains are usually tedious of cure in the Elephant, arising from the tendinous character of the fleshy parts of the whole body.

TREATMENT.—The Native treatment of this accident does not evince much curative skill. It consists in causing the animal to undergo severe bodily exertion, such as swimming in water or walking knee-deep in mud. The latter exertion I have known to have caused an Elephant which was on the mark, and accidentally got into a quagmire knee-deep, to break its legs in its endeavour to extricate itself. Fomentations and rest, and if need be, bleeding, promise a more certain cure, *vide* Part IV. Chap. I. No. 7, for several recipes for fomentations. After fomentation, the liniments named in Part IV. Chap. I. No. 7, may be used.

CHAPTER III.

SECTION 1.—PRACTICAL REMARKS REFERRING TO THE PRESERVING OF THE EFFICIENCY OF THE ANIMAL WHILE IN HEALTH, AND ON OTHER SUBJECTS CONNECTED THEREWITH.

In the first Section we have seen that negligence may, in several ways, materially impair, or wholly destroy, the efficiency of the Elephant during the employment of the animal with a force. This untoward event is most likely to occur from the following two causes, *viz.*, injuries of the feet, and abrasion of the back, from direct pressure of the load.

1st.—Injuries of the Feet.

These are very liable to occur when the movement of a force is over strong ground, or in woody situations, through the latter of which roads have been newly opened up for the advance of the force; on which occasions the bushes are not always cut even with the ground, but short stumps are frequently left standing. The animal may unawares tread either on some of these stumps, or on sharp pieces of stone; and, in either case cripple itself more or less. It therefore will be a prudent measure to send parties in advance of the Elephant, to point out to the Mahawut where such possible sources of injury are situated; and this is the more advisable as thereby all source of excuse for the animal being thus rendered inefficient is removed, and consequently a check instituted against malpractices on the part of the Mahawuts in rendering their animals inefficient, with the view to escape the fatigue of active service.

When the route of a force is over road, such as above alluded to, recourse is sometimes had to the hardening of the soles of the Elephant's feet by the application of a composition as stated in Chap. II. Sec. 40, under the head Thulle. The remarks there made, need not here be repeated, but are well worthy of attention, as

illustrative of the advantage of resorting to the precautionary measure now recommended. Quagmires ought also to be carefully avoided. An Elephant got into one of these in this vicinity when on the line of march, its load being on its back, and broke its leg in its endeavour to extricate itself, whereby it was rendered useless and was shot. This quagmire was concealed by water being on the road over it. It ought, in short, to be kept in mind that the structure of the Elephant is that adapted to massive weight, and combines little of the elasticity of the Horse or Bullock, whereby the latter animals can recover themselves to a considerable extent when accidentally getting into holes, &c. The heavy loads of the Elephant also, renders greater the chance of injury from false grounds, so that at least a solid road is required for safety. Also the Elephant is very liable to slip on clayey ground.

2nd.—Injury of the back from direct pressure of the load thereon.

The kind of injury from this source, and the extent to which it may operate are detailed in Chap. II. Sec. 36, under the head Sore back. This is a very frequent cause of rendering the animal more or less inefficient, and causes of this kind are almost uninterruptedly under treatment at Hoonsoor. The injury is generally caused by the padding being out of order, in consequence of which the loads press directly on the back, and thus occasion inflammation, and very frequently suppuration to an extent that sometimes require months to cure.

The Guddhaylah or pads, placed on the back of the Elephants to prevent their loads making direct pressure on the animal's back, are very liable to become rotten when exposed to rain. As therefore, the efficiency of the Elephant is mainly dependent on the serviceable condition of these pads, too much attention cannot be given to ensure their being kept under cover, when the animal arrives at the halting station. One month's continued exposure to wet will render them useless, and this was proved in respect of the pads of the two animals which were exposed for about a month to the monsoon of the Western Coast. The pads and other furniture at present in use for the Elephant are as follows: 1st. The Numdha, which consists of hair well felted together: it is about an inch thick, and about two yards square: it has a covering of gunny on the upper side, and one of coarse cloth on the under. The latter is in immediate contact with the back of the animal. 2nd. Guddhaylah, placed on the top of the Numdha, which consists of two bags of gunny filled with Puttairah, (bulrushes) and about a foot thick, and two feet broad, the length about four or five, variable according to the size of the animal. These bags are joined sideways near either extremity, the space in the middle receiving the spinous ridge of the backbone of the animal. 3rd. Neemgahdhee, which is of similar construction to the Guddhaylah, but smaller in its dimensions. 4th. Over the whole is placed the Jhool, which is a cloth consisting of gunny. 5th. A rope about an inch in diameter by which the above are fixed on the back—one end of this rope is converted into a loop, sufficiently large nearly to surround the body of the animal and the pads. It is tied on the top, thence passed singly round the neck, then along the upper sides of the pads, then below the tail, and finally tied again at the place of first knot on the top. The parts which pass below the belly and below the tail, are sheathed with leather, to prevent abrasion from so narrow a body as a rope.

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side to the Numdha. At the end above *C*, this belly-band should be furnished with an equal number of holes with iron rings, as in the corresponding portion of the Numdha immediately above at *B*. By passing a rope alternately through the rings of the Numdha and belly-band, the latter can easily be drawn to the necessary degree of tightness. The belly-band ought to be 12 or 16 inches broad, and to consist of three folds of gunny with a thin lining of Numdha or felt on one side, which is situated next to the body. Then by means of other ropes passing through the rings at *d d d*, the pads can be attached to the Numdha, and thus secured on the animal's back.

The animal is put to much inconvenience by the rope passing underneath the tail. This apparently could be conveniently superceded by a sort of breaching consisting of *D* going below the body, and *E* round the buttock a short way below the junction of the tail with the body. From the angle *E* where these belts meet, rings may be placed to receive the rope from the top of the pad. Then as regards the neck, a broad band *F* might be placed on the under part to which the rope *G*, with the corresponding one on the opposite side, could be attached.

The above are the two most common causes of rendering the Elephant, when on active service, more or less inefficient. As illustrative of how much may be done with the view to preserve the efficiency of the Public Cattle, by the establishment of systematic checks against carelessness, and still more of checks to malpractices on the part of the attendants by the success, may be here stated, of arrangements instituted at Hoonsoor to accomplish the important object just stated by Lieutenant Colonel W. Watkins, Deputy Commissary General, when in charge of the Public Cattle Department. It is one of the many improvements effected in the four Public Establishments that were confided to the charge of that zealous Officer at Hoonsoor, when Senior Assistant Commissary General.

Assuming it as a principle that sore backs and injuries to the feet of the Elephant or Camel, were, unless the contrary could be proved, the result of negligence on the part of the attendants, Colonel Watkins instituted the rule, that so long as animals were under treatment for such injuries, *half* of the Cattle attendant's pay should be stopped, unless good cause could, in individual cases, be shewn why the rule ought not to be put in operation.

The immediate result was, a great reduction of the number of these injuries; and, while previously to the institution of the above rule, there were in Hospital always a comparatively great number of animals under treatment for them, more especially of Camels, *now* we rarely see a case. In fact, in former times, there was a premium for disability of the Public Cattle, for so long as the Mahawut or Sirwan was permitted to draw full pay, whether his animal was efficient or otherwise, as in the latter case, he escaped detachment duty, exemption thereby obtained from personal exertion, too often suggested malpractices to secure it.

During a campaign the principle of reward, for the continued efficiency of the cattle, might advantageously be brought into operation simultaneously with punishment for the opposite condition.

SECTION 2.—PADS TO DEFEND THE HEAD WHEN PUSHING.

Pads to defend the head when the animal is required to lend his aid in pushing, ought always to be applied. If he bruise or injure himself when so employed, and this he is liable to do, if the pads be not used, he will most likely refuse again to give assistance in this way.

SECTION 3.—DEFENCE FROM THE SUN.

In the 1st Section we have seen that an ardent sun may operate very injuriously on the Elephant. The affection Agin Bhao, *vide* Part I. Chap. II. Sec. 8, is the direct result of solar influence; and that dangerous affection, namely, Inflammation of the Brain, Bhao ka Murz, *vide* Part I. Chap. II. Sec. 2, may arise from the same cause. A white coloured covering of a spongy nature over the head and forehead to be worn during the hot weather, would doubtless be attended with much comfort to the animal, as these parts being altogether uncovered by its load are the most frequent seat of the Agin Bhao, a circumstance which shows strongly the propriety of having these parts defended in the manner suggested.

SECTION 4.—SUDDEN CHANGES OF TEMPERATURE TO BE AVOIDED.

On coming off the march, the Elephant ought to be allowed to cool, previously to being washed; negligence in this particular is apt to occasion serious disease. The animal when in a heated state may be allowed to drink water without the chance of any untoward effects resulting, but care is to be taken to prevent its throwing water over itself.

SECTION 5.—MOST HEALTHY SITUATIONS FOR PICQUETING THE ELEPHANT.

Elephants ought to be picqueted in dry open ground, not in topes. The only exception to this rule that ought to be made is, with the view to obtain shelter from the effects of a hot sun, so that during the heat of the day they may advantageously be picqueted in shady places, as in topes, &c. The Elephant lines at Hoonsoor are on elevated open ground, to which place they were moved from a low damp site, the latter having been found unhealthy to the animal, particularly during the monsoon. The above is in accordance with the opinion of intelligent Mahawuts, who consider that the animal ought to be picqueted in shady places during the hot weather, and in open localities during the monsoon.

SECTION 6.—DIET.

The diet of the Elephant consists of charrah or fodder, and ratib, or allowance of rice. There are four sorts of grass, or more properly rushes, which the Elephant prefers to all other kinds of fodder, and which agree best with it. These are in Hindoostanee called Kusseelah, Ghut-lavaloo, Lavaloo, Puttairah and Pohkla-lavaloo or Budh; Chit-lavaloo is another variety of an indifferent quality. There is a rush called Pahnee-ka-arcallee, or commonly called Rahksee, which is a long species that grows in some tanks, which, if used continuously, is liable to occasion Lungun, or worms, not however, from any quality the grass itself possesses, but in consequence of a weed which grows amongst it, and with which it is unavoidably cut with the kind of fodder just named. The continued use of this causes the ailment in question. Branches of trees constitute less nutritious food to the Elephant than rushes; and are moreover of a more heating nature, nevertheless the animal can live on them throughout the year and usually with impunity.

The following trees are used as fodder by the Elephant:

Peepul ka jahd.	Rahmbudh ka jahd.
Bhud ka jahd.	Bahns ka jahd.
Piplee ka jahd.	Geolaree ka jahd.
Nahndhroo ka jahd.	

The relative quality of which is in the order named—the first being the best, and the last is to some extent unwholesome, particularly to sick animals. Cocoanut leaves, Cholum straw, Raggy grass and long grass, dried or green, may also be given in preference to branches of trees.

If Charah is procurable within two miles of the stage, the Elephant may be sent out for it; but it ought to be brought in if not to be had at or within that distance; as the animal would be overworked, if in addition to an average length of stage of about 10 miles, it had to travel much more than 4 miles in going for, and returning with fodder. It is the custom not to free the animal of its trappings till the Charah has been brought in.

The ratib or rice, is necessary to keep the animal in condition; but in inflammatory affections it ought to be suspended, being of a heating nature.

Till within a few years ago, Elephants were allowed from half a seer to a seer of piggery with their ratib; for this however, common salt was substituted, and with great advantage, as it promotes digestion, and gives tone to the digestive organs generally.

SECTION 7.—WATER.

An Elephant is watered twice daily; and at each time takes about $15\frac{1}{2}$ gallons of water. This is the average consumption determined after several observations—the animal drinking out of a cask and the quantity taken each time noted.

Elephants are very nice as to the quality they drink; they prefer river water to all others, and willingly drink that procured by digging holes in the sandy beds of rivers after it has stood undisturbed a few minutes to admit of clearing. Some Elephants have so great a dislike to tank water that, I am told, they will go five days without taking any. Generally, however, the animal drinks willingly of the water of large tanks; and it is only a rare occurrence that they will not drink even of stagnant water, though of greenish colour, rather than go without for an entire day. The animal generally cannot with impunity support a deprivation of water much beyond 24 hours.

CHAPTER IV.

SECTION 1.—A GENERAL VIEW OF THE ANATOMY OF THE ELEPHANT.

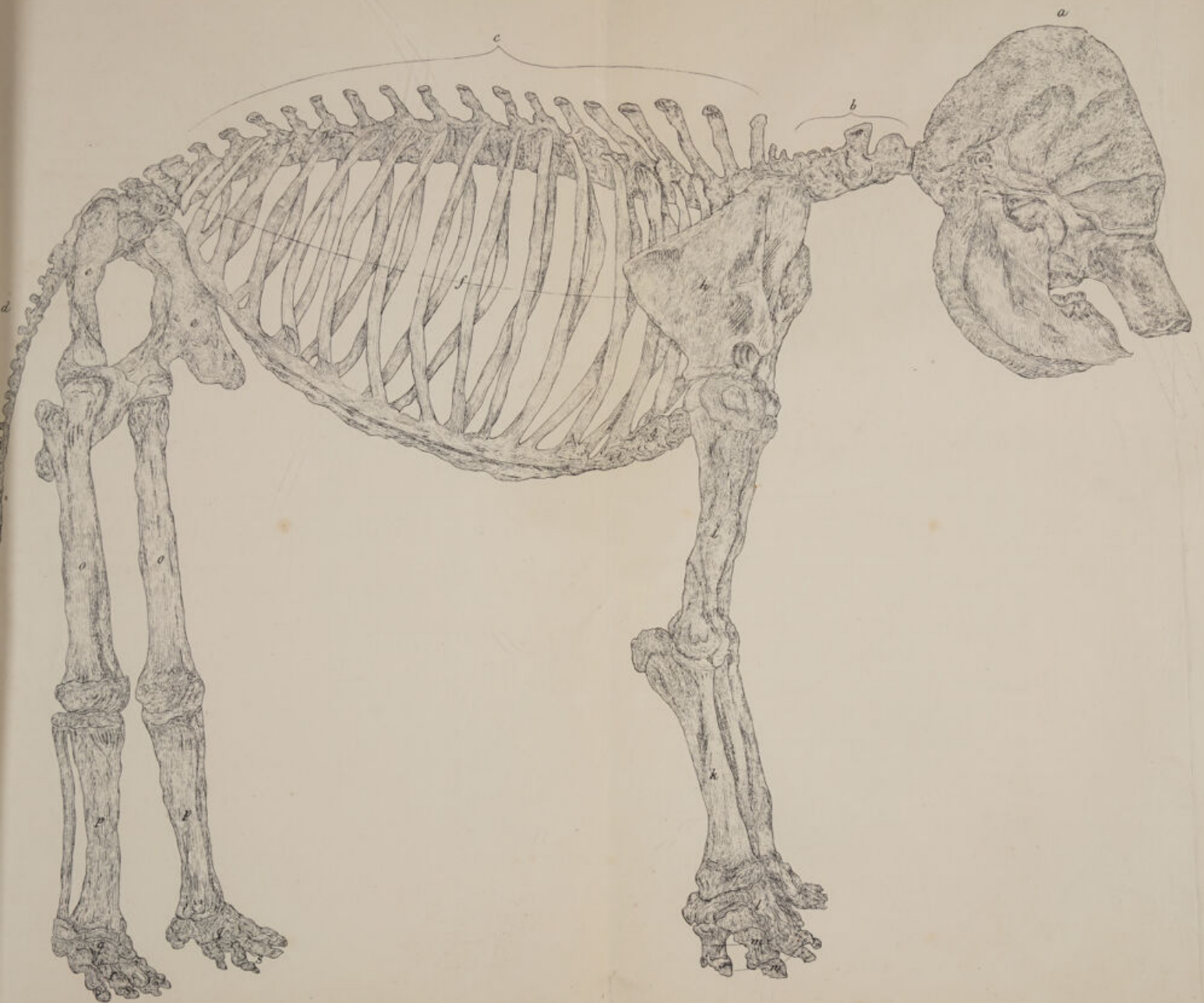
THE following anatomical notices of the Elephant are of such a kind as is considered sufficient to convey only a general knowledge of the structure of the animal, and the relative situation of the organs. A minuter description of its organization than this, would be attended with no practical advantage, and consequently here, where practical utility is the one object in view, would be superfluous, and of a like character would be disquisitions on the functions of the organs, and the laws of their action. The eye of the Elephant is constructed on the same optical principles as that of other land animals, and so of other organs. Those, therefore, who wish to possess such information, have only to consult existing works in which—in reference to other land animals, the Horse, for instance—these matters are discussed; perhaps, as useful a work as can be consulted with respect to this object, is the volume of the Library of Useful Knowledge on “The Horse.”

Appended is a Sketch of the Skeleton of the animal fitted up at Hoonsoor, and designed to convey to the Mahawuts some idea of the structure of the animal.

a. Is the Head, consisting of upper jaw and skull and lower jaw.

b. The bones of the neck of which there are seven. These bones are connected, as in other large quadrupeds, together by *tendons*, but the latitude of *motion*, possessed by each bone on those to which it is attached, is not so great in the Elephant as in

Fig.I.



the Horse, Camel or Bullock. Accordingly, the general flexibility of the neck of the animal is comparatively of limited degree, and when the animal wishes to observe an object posterior to the direct line of vision at right angles to his body, he requires to turn his whole body more or less round.

c. The spinous processes forming the basis of the prominent ridge that runs along the top of the back. This ridge consists of these processes, bound together with numerous strong tendinous bands covered only by the skin. Its prominence, above the contour of the body, exposes it to be pressed on directly by the animal's load, if attention be not paid to the condition of the pads, or to their proper adjustment, accordingly it is a frequent seat of inflammation and suppuration, as described in Sec. 36, Part I. Chap. II.

d. The bones of the tail, of which there are twenty-four.

ee. The bones of the pelvis or haunch bones. This bone in the Elephant is placed almost perpendicularly, while in the Horse, Bullock and Camel it is considerably inclined.

f. The ribs of which there are nineteen on either side.

g. The breast bone or sternum. To this the ribs are attached, not directly however, as between the sternum and each rib a cartilaginous continuation of the latter is placed. The sternum itself consists of spongy bony substance at its commencement at the neck, but a considerable portion of the other extremity consists of cartilage. The ropes which go beneath the belly to fix on the animal's furniture and load, bear on the cartilaginous portion of the breast bone.

h. The shoulder bone. This bone has considerable latitude of motion during the movements of the animal, more especially at the upper part, accordingly if due attention be not paid to the adjustment of the pads, the skin over this bone is very apt to be inflamed, and suppuration follow.

i. The humerus or bone of the arm, which proportionally is much larger in the Elephant than in the Camel, Horse and Bullock.

k. The bones of the forearm, of which there are two, but the one is greatly larger in breadth and thickness than the other. The projection corresponding to the projecting bone at the hinder part of the elbow joint in man, is the point on which the animal bears the front part of its body when in the couchant position.

l. The bones of the wrist or carpus, of which there are seven in each limb. These bones are the hardest in the body of the Elephant. They are firmly braced together by numerous tendons and tendinous expansions.

m. The metacarpal bone or bones corresponding to the bones in the back of the hand of man, of which there are five in each extremity of the Elephant.

n. The phalanges are those corresponding to the bones of the fingers in *man*, of which there are eighteen.

o o. The thigh bones. The joint between which, and the pelvis or haunch bone, is in the Elephant of peculiar conformation, inasmuch as the articulating surface of the thigh bone in this animal is placed on the top of the bone, while with large quadrupeds it is at the extremity of a projection set off from the side. This construction in the Elephant is better adapted for bearing downward pressure, to meet which in this animal, its weight makes a necessary condition: but it is a construction in which strength is secured at the expense of elasticity, and is one cause why the gait of the Elephant is so deficient in this source of comfort to the rider.

p. The bones of the leg, of which there are two in each extremity.

q. The bones of the tarsus or ankle joint. These are the bones of the wrist or carpus, and are seven in each foot.

r. The bones of the instep or metatarsus, of which in each hinder extremity there are four.

s. The bones of the toes, nine in each limb.

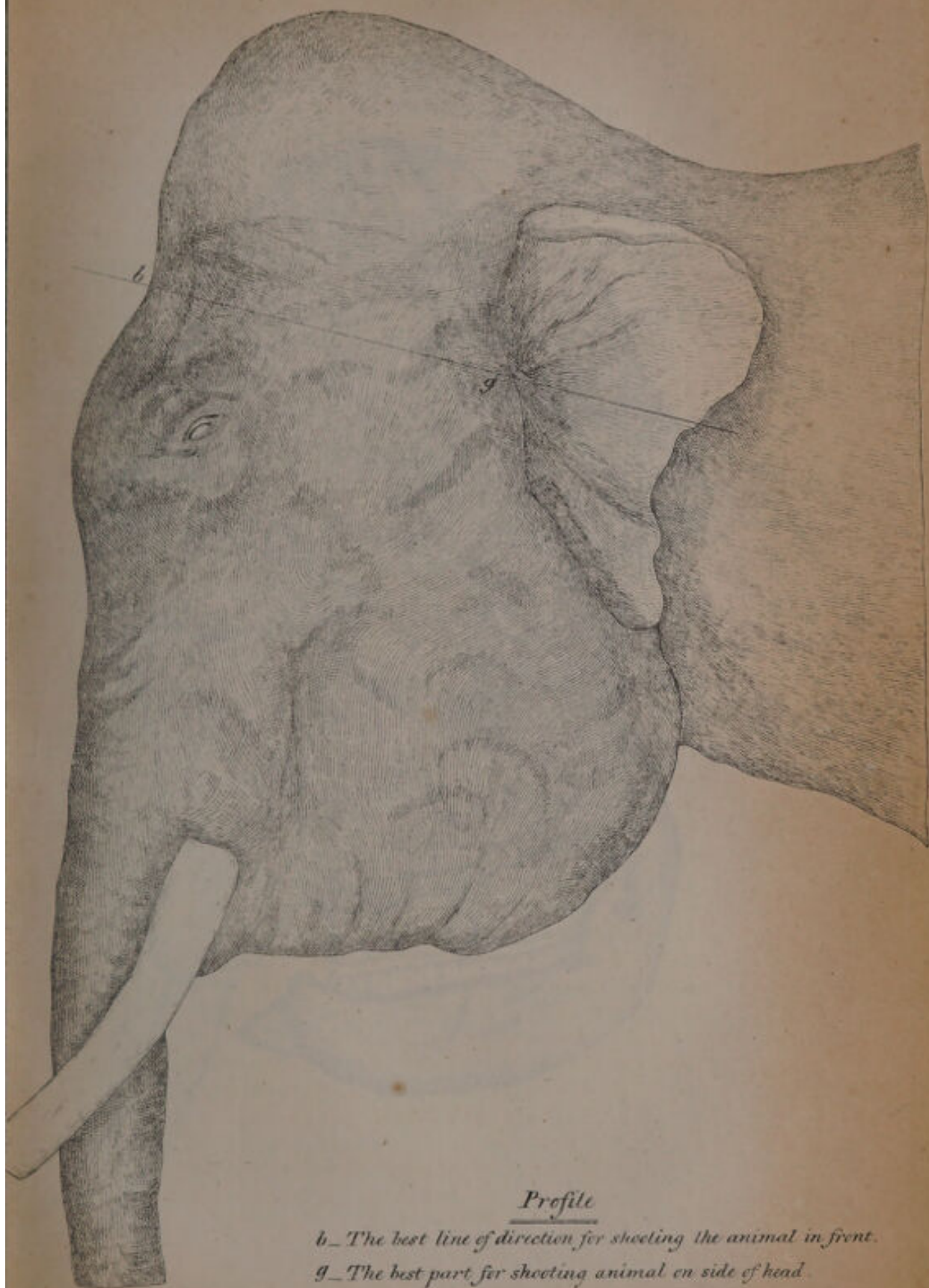
In the construction and distribution of the digestive organs, the Elephant and the Horse have much similarity; but in that of their extremities they differ very much, leaving out of consideration the bones in the Horse's legs which, at the pastern, connect the hoof to the legs. The Horse has three bones in his legs, the Elephant has only two; consequently while the latter has only three joints in his extremities, the former animal has four. These bones of the carpus and tarsus, which in the Elephant are immediately above the foot, are in the Horse placed at the knee and the hock. The construction under consideration in the Horse, admits of the elastic pace of this animal, while that of the Elephant admits of a less agreeable kind of progression, consequently as this is the result of the anatomical construction, training cannot altogether correct it in the latter animal.

SECTION 2.—OF THE HEAD.

As might be expected, the Elephant differs widely from other animals in the anatomical construction of the head. It will be attended with some practical advantages to consider this part of the animal somewhat in detail, more especially to point out the immense extent of the cells which separate the outer bony plate of the skull from the inner. These cells are, as already alluded to, in Sec. 4, Part I. Chap. II., lined with a membrane which occasionally inflames and constitutes one variety of the disease *Bhao ka Murz*, *vide* Part I. Chap. II. Sec. 4.

The accompanying Sketch, No. 2, will assist in forming an idea of the extent of these cells.

Profile

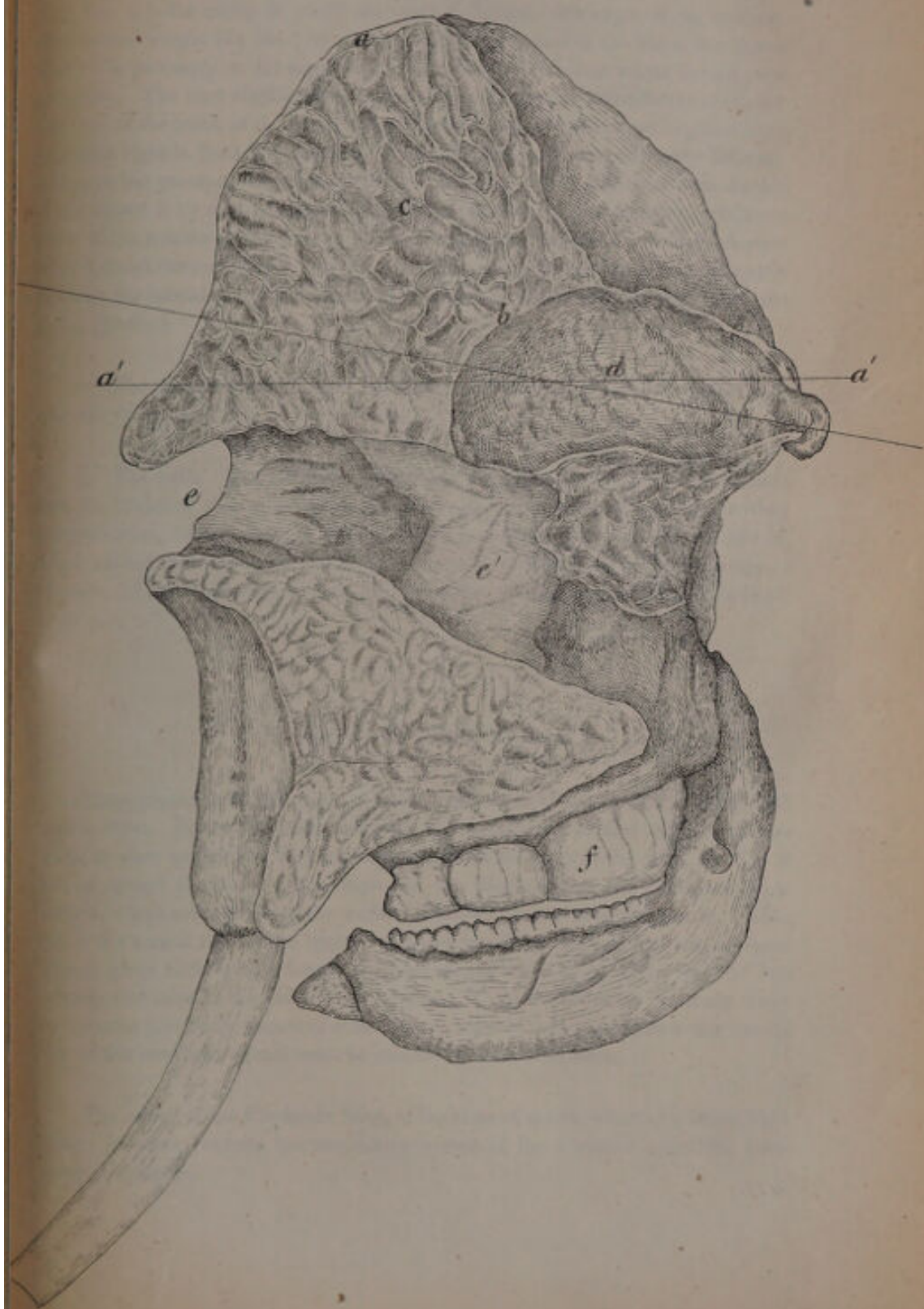


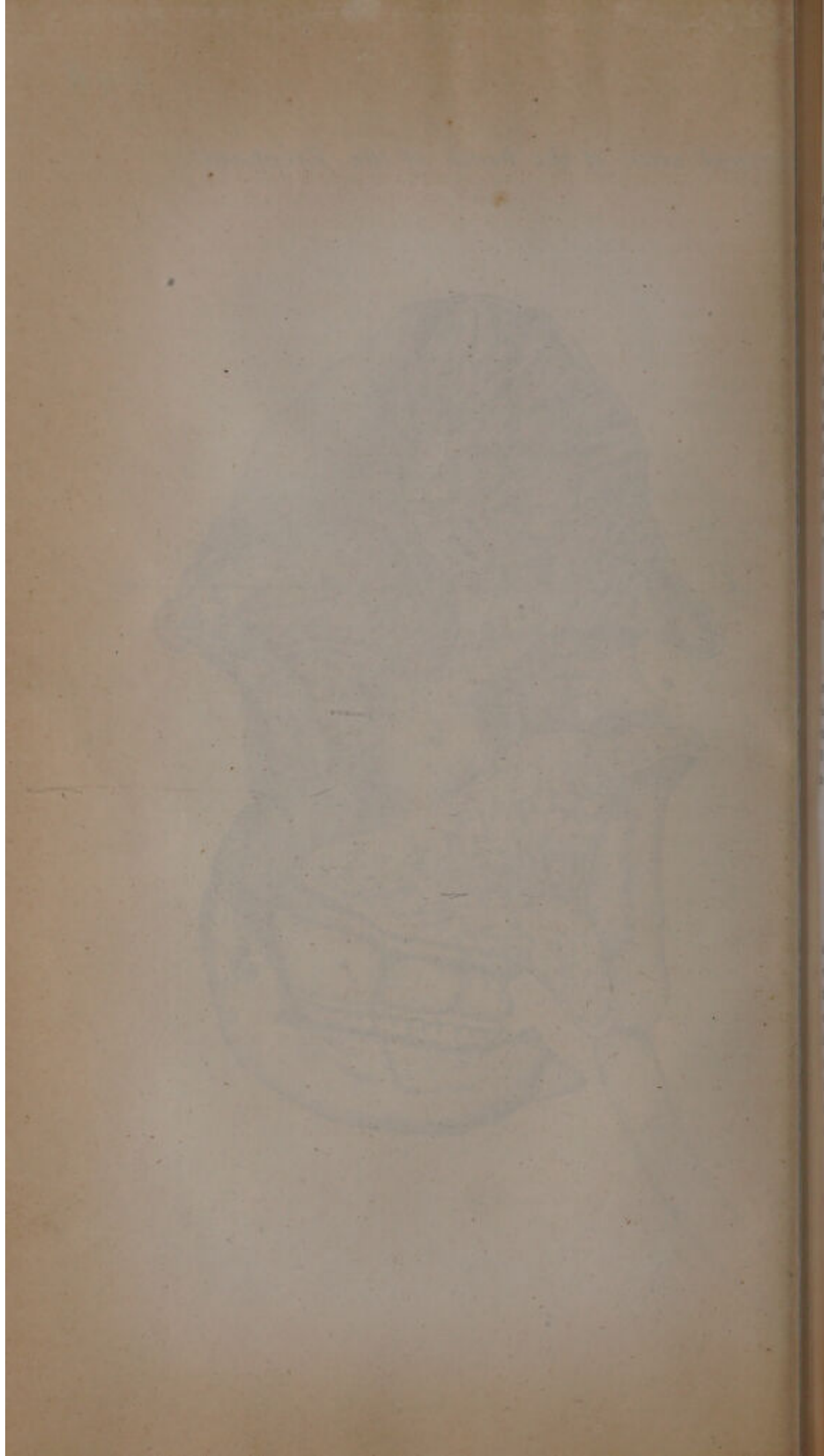
Profile

- b_ The best line of direction for shooting the animal in front.*
g_ The best part for shooting animal on side of head.

Fig II.

Sectional view of the head of the Elephant.





a. The outer bony table of the skull, *b.* the inner, between which *c.* are the cells, under consideration. They communicate freely with one another, and while their aggregate bulk constitutes a very considerable portion of that of the head, so very thin are the long partitions of the cells that a section of the skull through *d. d.* including the larger portion of them, weighs only 8 lbs. and 9 ozs., while the entire skull weighs $108\frac{1}{2}$ lbs., *d.* is the cavity in which the brain is lodged, this organ in an ordinary sized animal weighs $16\frac{1}{2}$ lbs. In order to shoot the animal in the brain, this sketch shows it is necessary to hit much lower down in the head than might be supposed necessary. The most eligible place is the hollow *b.* (profile) immediately above the insertion of the trunk at the lower part of the forehead; the marksman ought to have a position right in front of the animal, as then the ball will meet with very little impediment but penetrate direct backwards to the brain. A shot directed from the side of the animal is by no means so likely to prove efficient, as the numerous tendinous fibres of the muscles at the sides of the head are apt to occasion the ball to deviate from a direct inward course. On the side of the head, the best part for aiming at in shooting the animal is near the ear on a line drawn from the hole of the ear to the eye *g.* (profile.)

e. The opening of the nostrils, being the continuation of the two canals that traverse the entire length of the trunk *e.*

f. The teeth. The teeth of the Elephant are eight in number, four in each jaw, the hinder of the two on either side above or below is several times larger than the front ones, the flat grinding surface of each is crossed with lines of hard enamel, which extend throughout the substance of the teeth to their roots; about the age of 70 years the front side teeth fall out; during earlier age, they are not usually subject to disease.

SECTION 3.—OF THE LUNGS.

These organs in the Elephant, as in the other warm blooded animals, are situated in the chest. In the Elephant, however, this peculiarity obtains with them, that while in other quadrupeds they are separated from the walls of the chest, so that if this is opened the lungs will collapse; in the Elephant they are throughout their surface, which corresponds to the walls of the chest, firmly attached thereto. That this is the normal state of the organ, I satisfied myself by inspection of a newly-born animal, given birth to by a female Elephant caught while in an early stage of the impregnated state in the Coimbatore jungles. It was the condition uniformly found in six cases previously inspected of full-grown animals, but nevertheless the inspection of this new-born animal must be considered most conclusive.

The colour of the Elephant's lungs in the state of health, is that of a bright light pink. In other respects the respiratory system of the Elephant resembles other large quadrupeds.

SECTION 4.—THE SANGUIFEROUS SYSTEM.

The centre of this system, the heart, in the Elephant, is situated nearly in the same relative position of the chest as is the same organ in that of other large quadrupeds, namely, near the lower part of the front above the sternum or breast bone, where its pulsations are distinctly to be felt.

The average number of pulsations of the heart of a healthy Elephant is per minute, 49. This is the average result of a great number of trials made to determine the point. The most eligible place for ascertaining the state of the pulse is at the back and root of the ears, where will be seen distinctly a branch of the carotid artery running over the cartilaginous root of the ear, and subsequently ramifying on its surface. Its pulsation will be distinctly felt when pressing with the finger. It is not, however, so easy a matter to determine the exact amount of the pulsations, as the animal when approached by a stranger, and especially in the recumbent position in which it requires to be placed for the purpose, will rarely remain the required time sufficiently quiet. The better way is to cause an intelligent Mahawut to count aloud the pulsations while the animal is standing, and when the circulatory system is not disturbed by fear or exertion on the part of the animal.

In disease, the pulse of the Elephant will rise from the healthy standard above named, to 90 or 100 pulsations in a minute. The heart of the Elephant, like that of other large quadrupeds, is contained in a membranous envelope, called the pericardium, but not attached to it, as are the lungs to the walls of the chest, as already alluded to. The heart, however, is proportionally smaller in the Elephant than in other large quadrupeds, and indeed a peculiarity appertaining to the whole sanguiferous system of the Elephant is its comparative smallness. The aorta immediately at its origin at the heart, is above 3 inches in diameter, the descending aorta $1\frac{1}{2}$ inch, the carotid artery in the neck is little more than $\frac{1}{2}$ an inch in diameter, but a still greater disproportion holds both in regard to the number and the size of the veins. There is no external jugular vein, and the internal jugular is smaller than the carotid artery it accompanies. Then in regard to other superficial veins, which are numerous and prominent in the Camel, the Horse and the Bullock, their counterparts in the Elephant are in many instances either wanting altogether, or so small, as seldom to be distinguishable.

This state of things renders the important operation of bleeding: the site for performing, which is about to be described, a more difficult operation in regard to the Elephant than with respect to the Camel, the Horse or the Bullock.

SECTION 5.—THE OPERATION OF BLEEDING.

When the arteries on the back of the ear, by which the state of the pulse is determined, are sufficiently large, the operation of bleeding will be most conveniently performed there. The operation is simple enough, and consists in making an incision

into the trunk or largest of the arterial branches on the back of the ear in a longitudinal direction. With respect to the vessel, or obliquely across, care must be taken not to cut the artery completely asunder, otherwise the flow of blood, in consequence of the retraction of the divided ends, will be greatly, if not altogether, obstructed. The instrument to be used is a two-edged scalpel or an abscess lancet, of the common Surgical or the Veterinary case. The animal must previously be caused to lie down on its side, generally, however, it will, from fear rise up immediately after the incision; sometimes the blood will flow in a jet, but usually trickles down the ear, and this will not be wondered at, when it is understood, that the artery opened will rarely equal the calibre of a common writing quill. If the animal can, after the first incision, be got to lie down again, which it usually will do, though it occasionally refuses, the artery of the opposite ear should be opened. The withdrawal of half a gallon of blood is an ordinary bleeding, a gallon is a full bleeding. When blood cannot be produced in the place above alluded to, in consequence of the smallness of the arteries, search must be made over the trunk, or extremities, for a suitable vein. Search will in vain be made in the neck, as in the Elephant there is no external jugular vein, and the internal jugular is at least four inches from the surface, and independently of this, is too small for the present purpose. I have tried to bleed from the carotid artery, which, as stated above, is about $\frac{1}{2}$ an inch in diameter. It is in close proximity to the jugular vein, and therefore about 4 inches from the surface. The artery was attempted to be reached by means of a trocar furnished with a canula, the instrument with which, in the human subject, dropsical accumulation of fluid is drawn off, from the cavity of the abdomen, &c., and in hopes that by leaving the canula or silver tube of the instruments in question in the artery, when the trocar was withdrawn, an exit would thereby be secured through the overlying muscular substance situate between the artery and surface, the contraction which, unless some such measures were adopted, would defeat the object in view presuming the artery were pierced. In all attempts, however, complete failure resulted, arising from the difficulty of hitting so small a tube as is the artery, in so large a mass as that of the neck, where no guide is afforded to the exact locality from pulsation of the vessel being felt or otherwise: the only guide is the relative anatomical distribution of the parts, which is too indefinite to serve any practical purpose, in regard to the operation under consideration.

The most common locality in which a serviceable vein will be found, is the inner surface of either of the hinder legs; let a rope be tied around either hinder limb above the knee, with some considerable degree of tightness, soon thereafter a swelling will arise on the inner side of the leg abruptly prominent, in regard to the contour of the limb; by means of a strong scalpel make an incision through the skin immediately over this swelling about an inch in length; then the vessel dilated with blood will project in the opening; by means of a two-edged scalpel, or an abscess lancet lay this open, when blood will flow freely, but seldom in a jet; it will usually trickle down the limb, accordingly, the animal ought, previously to the commencement of the operation, to be made to stand on a large piece of leather which will receive the blood and prevent its flowing on the ground, whereby a more correct estimation can be made of the quantity drawn off. After the required quantity of

blood has been drawn off, the lips of the wound are to be brought together by a superficial stitch. In order to prevent the animal kicking, its legs ought to be tied together previously to the commencement of the operation.

The locality just alluded to, will rarely fail to supply an eligible vein for the operation of bleeding; if so, however, search must be made elsewhere. Occasionally a large vein will be found above the under part of the sides of the abdomen, frequently a large vein is to be seen on the inner sides of the forelegs, but the proximity of this locality to the trunk of the animal renders it unsafe to operate there, more particularly by a person to whom the animal is unaccustomed.

SECTION 6.—MUSCULAR SYSTEM.

The muscular system of the Elephant is peculiar, on account of the great amount of tendinous fibre it contains: about the shoulders and on the buttocks, the usual fleshy red muscle is principally to be found, though even there it contains a considerable quantity of tendinous fibre, but elsewhere, on the sides of the abdomen, the legs, &c., tendinous fibre exists, in equal if not in greater degree than the fleshy. The trunk is a singular compound of fleshy and tendinous fibre. This state of the muscular system is alluded to, on account of the practical bearing it has on injuries done to these parts. It is well known that bruises, &c., inflicted on the tendinous parts of the human subject, as near the joints, &c., are relieved by warm applications, as hot fomentations or poultices, much more efficiently than by cold ones; and experience shows that the same principle holds good in regard to the Elephant, so, therefore, all bruises and inflammations of the carcass of the Elephant, ought to be well fomented in the manner pointed out in Part IV. Chap. I. No. 7. By immediate recourse to this measure, inflammation will frequently be subdued, which, if neglected or otherwise dealt with, will frequently run on to suppuration, and this more or less interferes with the efficiency of the animal.

SECTION 7.—OF THE CELLULAR SYSTEM.

The cellular system is that which connects the various parts of the animal frame. In man and in larger quadrupeds, it is very thin and transparent, and contains in its folds the fatty matter.

This system in the Elephant is proportionally to relative bulk, of much stronger texture, and has more the character of a tendinous structure; another peculiarity of it is the absence of fatty matter; nowhere throughout the carcass of the Elephant is fat to be found. It would appear as if nature had considered the weight of the Elephant sufficiently ponderous when it combined the essentials of the animal frame, without further increasing that weight by a variable secretion of fat. The tendinous character of this system further indicates the utility of hot fomentation in assuaging

superficial inflammatory action by what cause soever superinduced. It is this membrane which undergoes the inflammatory and frequently the suppurative process from injury inflicted by the direct pressure of the animal's load on its body, when from carelessness on the part of the Mahawut, or inefficiency in regard to the padding, the animal's burden is thus allowed to press directly on its body.

SECTION 8.—ORGANS OF GENERATION.

The chief peculiarity of this department is in regard to the male, whose testicles are contained within the cavity of the abdomen, and are there situated near the kidneys. Of course this position renders the operation of castration impracticable, were all other circumstances favourable. These organs would appear to be much diminished or wasted in the tame animal.

SECTION 9.—OF THE WEIGHT OF THE CARCASS OF AN ORDINARY SIZED ELEPHANT.

Before closing this Section, it may be useful to append the result of weighing the carcass of an Elephant, with the view to ascertain the exact data whence to form an opinion of the weight of the animal. There appears to me to be misapprehension entertained on the subject, in works on the Natural History of the Elephant published in Europe, in some of which the weight of the animal is certainly over-rated. From 6 to 7 thousand pounds, in these works, is given as the average weight.

In conducting the weighing of the carcass in portions, as stated below, every regard was paid to ensure a correct result, and I consider the one given to be within a very few pounds of the exact weight of the living animal.

	<i>Cwt. qrs. lbs.</i>			<i>Cwt. qrs. lbs.</i>		
Head, (including brain which weighed						
16½ lbs.,	4	0	22			
Left Foreleg,	2	2	25			
Right ditto,	2	2	14			
Left Shoulder,	0	3	18			
Right ditto,	1	0	7			
Left Hind Leg,	2	2	11			
Right ditto,	2	3	0			
Left Ribs,	1	1	20½			
Right ditto,	2	0	26			
Loins and part of Buttock,	3	0	16			
Pelvis,	3	1	19½			
Neck,	0	3	13			
Breast Bone,	0	3	0			
<i>Weight of Carcass, .....</i>	...	...	...	28	2	24

	<i>Cwt. grs. lbs.</i>	<i>Cwt. grs. lbs.</i>
<i>Weight of Carcass</i>,.....	... ..	28 2 24
Heart,.....	0 1 14	
Lungs and Diaphragm,	0 3 14	
Kidneys,.....	0 0 16	
Intestines, (small and large Bowel,).....	2 1 23	
Liver,.....	0 2 20½	
Spleen,	0 0 4½	
Stomach,.....	0 3 12	
<i>Weight of Carcass and Organs</i>,.....	... ..	34 1 12
Dung, weighed,	2 1 9	
Water in bowels and cavity of abdomen about,.....	2 1 18	
		39 0 1
		<hr/>
	Pounds Avoirdupois,.....	3,369
		<hr/>

The dimensions of the animal were as follows:—

	<i>Feet. Inches.</i>	<i>Feet. Inches.</i>
Height,	7 4	
Length from top of Forehead to insertion of Tail,.....	10 1	
Round Abdomen,	13 8	
Length of small Intestines,	68 0	
Ditto large ditto,	38 3	
		106 3
		<hr/>

Skin about $\frac{3}{4}$ ths of an inch thick to 1 inch, thickest about the loins and buttocks.

Depth of the carotid artery from the surface of the neck 4 inches. Diameter of the carotid artery $\frac{3}{4}$ ths of an inch.

Jugular vein in close proximity to the carotid artery about $\frac{1}{2}$ an inch. The dimensions of the animal taken while alive, will show the carcass thus weighed, piecemeal, was of more than average size.

PART II.

HISTORY AND TREATMENT OF DISEASES OF THE CAMEL.

CHAPTER I.

GENERAL DISEASES.

سرد.—*Surdh.* گرم.—*Gurum.* ثپ.—*Thup.*

SECTION I.—FEVER.

HISTORY.—As with the Elephant so with the Camel, the occurrence of pure uncomplicated fever is of comparatively rare occurrence. It does, however, occasionally present itself, and the cause almost always is sudden exposure to cold when heated by exertion. The fever sets in by shivering and stiffness of limbs. There is more or less restlessness; and the animal has a heavy listless aspect. The whole body and limbs have a shrivelled appearance, and usually are below the healthy temperature; after a variable period, generally about a couple of hours, the chest and head become warm, then the belly; thirst is evident; there is more or less restlessness, and stiffness of limbs, though abated, continues. This, which is the hot stage, may continue for two days or more, during which the urine is scanty and yellow coloured; and the bowels are costive. Eats little; but thirst is evidently great, for if it happens to get loose it makes for water immediately, and after drinking will lie down in it. The breathing is hurried and hard; and there is usually a discharge of mucus from the nostrils, and watery discharge from the eyes. Does not chew its cud; but this is a circumstance that usually obtains when the Camel, in common with other ruminating animals, is suffering from any severe ailment. This affection is much within the range of treatment; but may prove fatal if no curative measures be adopted.

TREATMENT.—The Native treatment is highly objectionable, as it consists principally in giving stimulating Mussauls internally; and in introducing sternutative powders or liquid preparations of that quality into the nostrils: stimulating applications are also applied to the eyes to occasion discharge from these organs.

The animal ought to be bled freely; especially if young, and in good condition, bleed from half a gallon to a gallon. *Vide* Chap. IV. Sec. 4, for instructions for bleeding. A purgative ought then to be given, consisting of

Aloes, 4 Ounces. | Calomel, 2 Drachms.

made into a ball with jaggery. Or if Calomel be not at hand in sufficient quantity, any other of the recipes named in Part IV. may be given. *Vide* Part IV. Chap. II. No. 6. Fomentations of the body will also be useful, the animal being kept in a sheltered place. The bleeding may be repeated to the extent of a quarter or half a gallon, if the fever has not given way from previous bleeding and purgation; and the purgative may also be repeated.

After the fever has been completely subdued, either of the following tonic decoctions can be given.

Mussaul No. i.

1 Take of Ujwan,	Seer	1	7 Pipla Mohde,	Seer	0½
2 Lussoon,	do.	0½	8 Kalee jeera,	do.	0½
3 Baheebadung,	do.	0½	9 Pullas pupada,	do.	0½
4 Kootkee,	do.	0½	10 Sohute,	do.	0½
5 Inderjoathe,	do.	0½	11 Goode,	do.	1
6 Uldhee,	do.	0½			

The above to be pounded together and added to No. 11, and well mixed, of which give a handful twice daily, until the animal is improved in health.

Mussaul No. ii.

1 Take of Moosumber, ...	Seer	0¼	7 Korasancee Ujwan,	Seer	0¼
2 Googul,	do.	0¼	8 Shoree Ujwan,	do.	0¼
3 Mudode pullee,	do.	0¼	9 Rahyan,	do.	0¼
4 Uddaruck,	do.	0¼	10 Kalee jeera,	do.	0¼
5 Ujwan,	do.	0½	11 Palnee Pucka,	do.	1½
6 Cheraytha,	do.	1			

Pound the above ingredients then add to No. 11, and boil down to one pucka seer, of which give a fourth part every evening for four successive days.

مورغي کا مرض.—*Moorghee ka Murz.*

SECTION 2.—EPILEPSY.

HISTORY.—This complaint, which is not uncommon, is a regular epileptic affection, and has received its Native name from the circumstance of the animal shewing symptoms which resemble those shewn by the domestic fowl, which labours under a similar ailment.

The approach of this malady is marked by no symptom. The animal continues healthy to all outward appearance up to the supervening of the disease; it eats as usual; does not fall off in condition; and continues to work. The near approach of a fit is marked by the animal walking around its picquet restlessly, making an

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The substances to be powdered, then added to No. 2 and made into a soft mass, which divide into three parts; and give one every morning for three days successively.

Mussaul No. ii.

1 Take of Korasnee Ujwan, Seer	1	5 Keecooday ka pool, No.	4
2 Kalee jeera, do.	1½	6 Ujwan, Seer	0½
3 Uddaruck, do.	0½	7 Shoree Ujwan, do.	0½
4 Lahvung, do.	0¼	8 Sheraafe, sufficient quantity.	

These to be powdered and a sufficient quantity of No. 8 added, to form into a mass, and divide into boluses, and give one every morning for three successive days.

Mussaul No. iii.

1 Take of Lussoon, Seers	2	6 Lahvung, Seer	0¼
2 Rahyan, do.	1	7 Ujwan, do.	1
3 Uldhee, do.	1	8 Kolimjun, do.	0½
4 Inderjoathe, do.	0½	9 Uddaruck, do.	0¼
5 Nagooree Ujwan, do.	1	10 Dhalchinee, do.	0¼

The whole to be pounded together and made into a mass and divided into 14 boluses, of which give one every morning for a week, afterwards every other day, until the whole are given.

زهر باد.—Zaarbahd, —كسوري or Kussooree.

SECTION 3.—DROPSICAL AFFECTION.

HISTORY.—This is a dropsical swelling of the extremities and of greater part of the body, usually commencing in the former, afterwards appearing about the lower part of the belly, thence extending forward to Rahafay or protuberance on the breast bone, on which the animal rests when in the couchant position. In some cases the swelling extends up the neck, and eventually reaches the head. The back is exempt from swelling. Bowels usually healthy; urine yellow coloured and scanty. The surface of the body warm and other symptoms of fever are present. It is most prevalent during the cold and rainy seasons. Six cases have been under treatment in Hospital, of which only one proved fatal. On dissection, gelatinous fluid, in quantity of about 16 gallons, was found in the abdomen; and fluid was also found in the spinal canal. In the liver and lungs were found several cysts containing fluid, which, from the elastic nature of the cyst itself, was projected to some distance when the cyst was cut into. The animal falls out of condition, and is subject to attacks of ailment after recovering from previous ones. After repeated attacks, or after the fresh attack, if neglected, the animal falls much out of condition, and to this variety of the affection the name Sooka Zaarbahd is given.

TREATMENT.—When a young or healthy animal is seized for the first time with Zaarbaid, bleeding to the extent of half a gallon is advisable; afterwards an Aloes' purgative is to be given. After the febrile symptoms have abated, alterative doses of Calomel and Sulphuret of Antimony may be given, namely, half a drachm of the former with two drachms of the latter, repeated for a week; after which a course of tonic Mussauls will be useful. Either of the three following may be given as directed. In chronic cases, those to which the name Sooka Zaarbaid is given, the animal ought, in the first instance, to be purged with half an ounce of Croton Seeds, bruised; then the alterative course above named is to be entered on; and subsequently the tonic Mussauls continued for at least a fortnight, after which the alterative treatment may be resumed, and alternately with the tonic Mussauls till recovery. Generally this is tedious, and sometimes, most probably on account of the formation of cysts, the cases are incurable.

Mussaul No. i.

1 Take of Ujwan, Seers	2	6 Moosumber, Seer	1
2 Kaleejeera, do.	2	7 Parah, Tolas	1½
3 Kootkee, do.	1	8 Gendugh, do.	2
4 Cheraytha, do.	1	9 Moordharsing, do.	0½
5 Gudge kay, do.	2½	10 Goode, sufficient quantity.	

Nos. 7 and 8 to be rubbed down until the globules disappear. Powder the other substances, and add to the mercurial preparation and mix; now add as much of No. 10 as will form the whole into a soft mass with water, which divide into boluses of the size of a lime, and give one night and morning for a fortnight successively.

Mussaul No. ii.

1 Take of Gudge kay, Seers	3	5 Kaleejeera, Seers	3
2 Piplee, do.	2	6 Gunbeede, Tolas	6
3 Lussoon, do.	2	7 Buckray ka pittha, No.	20
4 Rahyan, do.	2	8 Shahth, sufficient quantity.	

The above to be pounded together, then add No. 9 and mix; now add as much of No. 10 as will form it into a mass, which divide into 20 boluses, and give one night and morning.

Mussaul No. iii.

1 Take of Urthal, Tolas	3	6 Butch, Tolas	12
2 Gudge kay, Seers	2½	7 Moosumber, do.	12
3 Kaleejeera, do.	2	8 Lussoon, do.	24
4 Inderjoathe, do.	1	9 Dhal Mukanah, do.	12
5 Uldhee, do.	1		

Pound the above and mix together, and keep in a new pot; of which give a handful every morning for one week.

३३.—*Dhoolba*,—*झ* or *Lahgarh*.

SECTION 4.—DEBILITY.

HISTORY.—Animals may frequently come under treatment for a weak and emaciated condition, which of course may arise from severe disease, more especially from affection of the liver or bowels, as these organs on dissection are usually found diseased. The liver being enlarged and containing cysts as stated under the head *Zaarbahd*, *vide* Cap. I. Sec. 3, and the bowels more or less inflamed and sometimes ulcerated. Frequently, however, the animal falls out of condition from hard work or carelessness on the part of the Serwan neglecting to groom his animal properly, when the skin becomes foul with more or less scaly eruption, itch or vermin.

TREATMENT.—*Rest.* Proper grooming and with an alterative and tonic course of treatment—with the substituting for gram, the grain *Oodoodh*, boiled, will soon bring the animal into condition. If itch is present, the treatment recommended under that head is to be followed. Walking the animal out daily is useful. Either of the following tonic *Mussauls* is to be given; after the following has been continued for a week, namely, half an ounce of Sulphuret of Antimony and the same quantity of Sulphur made into a ball.

Mussaul No. i.

1 Take of Uddaruck, Seers	4	6 Bhang, Seers	1½
2 Uldhee, do.	4	7 Ujwan, do.	2
3 Sohnfe, do.	4	8 Lussoon, do.	2
4 Kalee Mirchee, do.	2	9 Dhunyah, do.	2
5 Pipla Mohde, do.	1	10 Ghee, do.	4

The substances above named to be finely powdered together, then added to No. 10 and fried, and preserved in a new pot; of which give a handful morning and evening for a fortnight successively.

Mussaul No. ii.

1 Take of Kalee Mirchee, Seers	3	7 Bhang, Seer	1
2 Ujwan, do.	3	8 Rahyan, do.	2
3 Uldhee, do.	2	9 Awalguntce, do.	1
4 Jeera, do.	2	10 Neemuck Pucka, do.	3
5 Sohnfe, do.	2	11 Butch, do.	1½
6 Mydha Sukdee, do.	1	12 Korasancee Ujwan, do.	0½

The above to be pounded separately, then added together and mixed with No. 10. Give a handful every morning and evening until the whole is given.

Mussaul No. iii.

1 Take of Pipla Mohde, ... Seer	1	8 Umbee Ulludh,..... Seer	0½
2 Rahyan, do.	1	9 Kapeelah, do.	0½
3 Kootkee, do.	1	10 Moosumber, do.	0½
4 Inderjoathe, do.	1	11 Hing,..... do.	0½
5 Ujwan, do.	1	12 Sheraafe, ... Bottles	2
6 Uzzun, do.	1	13 Maythee, do.	1
7 Butch, do.	0½	14 Sohute, do.	1

The ingredients named above to be powdered and well mixed with No. 12, and kept in a new pot; of which give a handful every morning before ratib.

Animal to be well groomed daily, immediately before the Mussaul is given.

وائی کا درد.—*Vahee ka Durudh.*

SECTION 5.—RHEUMATISM.

HISTORY.—This affection is usually seated in the joints of the limbs and those of the shoulder, though the muscular parts of the trunk of the body may also, though rarely, be attacked with it. More or less lameness is occasioned by it, and swelling of the knee joints usually occur when these are the parts affected. The animal has difficulty in lying down or rising up, in the latter case, requiring to be assisted. This affection usually occurs during the cold season, especially if the animal, during night, is not sheltered.

The affected parts are tender to pressure. The affection usually attacks animals out of condition or old, the young and healthy seldom being the subjects of it.

TREATMENT.—A warm purgative ought to be given; and the affected parts well fomented, *vide* Part IV. Chap. II. No. 4. If the animal is out of condition, Sulphuret of Antimony, to the extent of quarter of an ounce, is to be given daily, along with either of the following Mussauls. Firing the part, which is the principal Native treatment, may be resorted to in protracted cases.

Mussaul No. i.

1 Take of Mohl Kungnee, Seers	2	7 Ahfeeme, Tolas	3
2 Kungway ka beenj, do.	1	8 Piplee, do.	6
3 Kootkee, do.	1	9 Pipla Mohde, do.	12
4 Pullas pupada, do.	1	10 Ujwan, do.	12
5 Bhaus ka chavul, Tolas	3	11 Korasancee Ujwan, do.	12
6 Kala Bitchwa, do.	18	12 Goode, Seers	3

Powder the above separately, then add Nos. 7 and 12, and beat together, adding water gradually until formed into a mass, which divide in boluses of the size of an orange, and give one night and morning.

Mussaul No. i.

1 Take of Urthal,	Tolas	1½	6 Cheraytha,	Seers	2
2 Butch,	Seers	2	7 Gunbeede,.....	do.	1
3 Bhang,	do.	1	8 Gendugh,	do.	2
4 Neel ka pool,	do.	2	9 Kahjoor,	do.	0½
5 Kootkee,	do.	1	10 Kalee Mirchee,.....	do.	1

Powder the above and add No. 1, previously powdered finely, then mix and use as much honey as will form the whole into a soft mass, and which divide into 12 boluses. Give one to the animal every night and morning.

جهنكوئي.—*Jenuk Vahee.* جھولے کا مرض.—*Jolay ka Murz.*

SECTION 6.—PARALYSIS.

HISTORY.—The first of the above names is given to an affection which consists in, more or less, loss of power of the hinder extremities. In the milder cases, the animal moves its hinder limbs in a dragging manner when walking; and in the more severe, there is complete inability to walk. The common cause of it is exposure without shelter at night, and during the cold season, and it may attack animals of all ages. The name *Jolay ka Murz* is applied to a weakness of the loins, generally arising from a similar cause, and usually amounting to a total loss of power. These affections are to be distinguished from Rheumatism, by the absence of pain or swelling; and when not complicated with other ailments, the appetite continues good.

TREATMENT.—Cases of *Jenuk Vahee* are relieved by firing near the lower part of the spine; and in giving a Purgative of two drachms of Croton seeds in powder. Fomentations and frictions to the hinder extremities are also very useful. The second affection, *Jolay ka Murz*, is relieved by firing on the loins, and by the use of the following *Mussauls*; but this variety, although considerably relieved by treatment, is usually incurable; and even the first affection, *Jenuk Vahee*, is very liable to return when the animal is exposed to cold.

It is rare, however, that a pure case of Paralysis occurs, as those that have come under treatment for that affection in the Hospital have nearly all, in addition to the Paralysis affection, either of the bowels, liver or lungs, requiring the treatment to be practised as detailed under affections of those organs. *Vide* Chap. II. Secs. 15, 22 and 23.

Mussaul No. i.

1 Take of Hing, Seer	0½	7 Rahyan,..... Seers	2
2 Kootkee, do.	1	8 Ujwan, do.	2
3 Baebadung, do.	3	9 Korasunee Ujwan, do.	1
4 Googul,..... do.	3	10 Shoree Ujwan,..... do.	1
5 Gendugh, do.	0½	11 Uzgun,..... do.	1
6 Parah ka kahk,..... Tolas	2	12 Goode, do.	6

The above to be finely pulverized, then added to No. 12, and with the addition of water, made into a soft mass, then divide into boluses of the size of an orange; and give one night and morning.

Mussaul No. ii.

1 Take of Urthal, Tola	0½	5 Soohgah, Tolas	4
2 Moordharsing, do.	0½	6 Dhatooray ka jud, Seer	1
3 Kahchoor,..... do.	2	7 Moosumber, Tolas	6
4 Nurkachoor,..... do.	2	8 Uddaruck,..... Seers	1½

The first four substances to be finely pulverized, then added to No. 6, which being previously powdered, then add the powdered substances, and form into boluses of the size of a lime; and give one every morning.

دبوانے کے کامرض۔—*Dewanah Kootha ka Murz.*

SECTION 7.—HYDROPHOBIA.

HISTORY.—No case of this description has come under treatment in Hospital; but well authenticated cases are known to have occurred, of one of which the following is the history. At Nagpore, about 1833, during the hot weather, a Camel was bit on the lip by a mad dog. About two days afterwards, it became restless, and ran away. After being secured, it frequently started convulsively, as if from fear, and tried to get loose; frothed much at the mouth; had a wild aspect; and when approached, endeavoured to escape from fear, and frequently fell down in its attempts to get loose. It then became insensible, and died on the fourth day from that on which it was bitten. It left off eating from the time the symptoms showed themselves, and nothing was attempted in the way of treatment.

TREATMENT.—No time ought to be lost in cauterizing or cutting out the bitten part as mentioned under the head, Hydrophobia, in Part I. Chap. I. Sec. 6. Nothing efficacious would appear to admit of being done after the symptoms of madness have set in. The Natives give opium dissolved in Jingili oil in the proportion of half a tola of the former and two and a half of the latter, to the animal; but it would appear to be useless.

CHAPTER II.

LOCAL DISEASES.

DISEASES OF THE HEAD.

کپالے کا مرض.—*Kupalee ka Murz.*

SECTION I.—AFFECTIONS OF THE ORBITS.

HISTORY.—The term is applied to an inflammatory affection situated in some part of the head, which, if left uncontrolled, proceeds to ulceration, and usually terminates in the death of the animal. The most common seat of the affection is the soft parts of the orbits.

The disease commences with tremors over the body: about the second day thereafter, the neck becomes stiff throughout its length, and after the lapse of another 24 hours, a tumour, hard and prominent, and about the size of a small hen's egg, appears on the top of the head; if that be the immediate seat of the malady, or if the orbit or eyeball, is its site, then the eyelids swell, there is much watery discharge. As the disease progresses, the eyelids are turned outwards, the eyeball swells and inflames. If active measures are not resorted to, the eye is destroyed by sloughy ulceration. There is always a discharge of unhealthy mucus from the nose, but this is in comparatively large quantity when the tumour is situated in the nostrils, which it sometimes is. The inflammation is liable to extend to the brain; when this happens the animal is cut off, this, namely, the spreading of the inflammation to the brain, is the usual cause of death. If the inflammation confines itself to the orbit, the extent of the mischief is the loss of its contained organ—the eye; and with respect to the other sites, if the inflammation is confined thereto, a foul ulcer results, which heals slowly.

This affection is not uncommon. It appears to be an inflammation of the cellular membrane, situate in the usual site of the disease, which, if uncontrolled, speedily runs on to sloughy suppuration. The disease is supposed to be occasioned by a sudden check of perspiration, as it usually occurs after the animal has drank plentifully of cold water immediately after coming off a march. If active curative measures are not early resorted to, the animal usually dies; and the ultimate termination of the malady, in the cure or death, is estimated by the early or protracted appearance of the tumour. In the former case, recovery may be anticipated; in the latter, death.

TREATMENT.—Bleeding and purgative must be resorted to, and practised freely. Instruction for performing the operation of bleeding will be found in Chap IV. Sec. 4. Bleed to half a gallon or one gallon if the animal be high in condition. Give a full dose of Aloes, namely, 4 ounces with milk, as described in Part IV. Chap. II. No. 6, or half an ounce of Croton seeds. The affected part ought to be well fomented, a practice which alone will go far to ameliorate the severity of

the affection—more especially if early resorted to, it goes far to subdue the inflammation and thereby proportionally to diminish the extent of suppuration and sloughing.

The Native treatment consists in firing on the head, giving stimulating Mussauls, and blowing acrid substances into the nostrils with the view to occasion increased secretion of mucus—but this will only do harm in the early stages of the affection. After the above Mussauls have been practised, and when suppuration in the nostril exists, the stimulating powder, recipe for which is given below, may be introduced into the nostril to clear the passage.

Mussaul No. i.

1 Take of Parah ka kahk, Tolas	2	9 Korasancee Ujwan,	Seer	0½
2 Gendugh,	do. 6	10 Uzmodha Ujwan,	do.	0½
3 Lussoon,	do. 24	11 Inderjoathe,	do.	0½
4 Googul,	do. 12	12 Baebadung,	do.	0½
5 Kootkee,	do. 12	13 Rahyan,	do.	0½
6 Uddaruck,	do. 48	14 Shahth,	Bottles	1½
7 Ujwan,	do. 24	15 Uzgun,	Seer	0½
8 Shoree Ujwan,	do. 12			

The above to be finely pounded together, adding the honey gradually, until it is made into a mass, which divide into boluses of the size of a large lime, and give one night and morning.

Mussaul No. ii.

1 Take of Uldhee,	Seers	2	7 Ukkul Kurah,	Tolas	6
2 Kaleejeera,	do.	4	8 Gaheelone,	do.	2
3 Pipla Mohde,	do.	2	9 Ujwan,	Seer	1
4 Piplee,	do.	1	10 Gendugh,	do.	0½
5 Cheraytha,	do.	1½	11 Dharoo, sufficient quantity.		
6 Sohnfe,	do.	1	12 Goode,	Seers	2

The substances above named to be pounded together and added to as much of No. 11, as to moisten the whole. Of which give a handful every morning.

Nahass or Nose Powder.

1 Take of Puttukdee,	Tola	1	6 Sumunderphul,	Tolas	2
2 Lahvung,	do.	2	7 Ukkul Kurah,	do.	1
3 Kaheephul,	do.	2	8 Nurkachoor,	do.	1
4 Mahphul,	do.	2	9 Umbee Ulludh,	do.	2
5 Sohute,	do.	2			

The above to be finely pulverized and sifted through cloth. A small quantity to be blown into the nostrils every morning until the animal is relieved.

ياوكا مرضى.—*Bhao ka Murz.* دهوكا.—*Dhudkay.* هرن بهاو.—*Ahren Bhao.*

SECTION 2.—AFFECTIONS OF THE BRAIN.

HISTORY.—This disease, as shewn both by symptoms during life and dissection after death, has, as holds with respect to the Elephant, two seats, that of the brain and that of the lungs. At present the disease as existing in the former seat will be considered. *Bhao ka Murz* when affecting the brain consists either in inflammation of that organ, or in an apoplectic effusion of blood or serum within the skull, and occasioning death by pressure on the contained vital organ. The apoplectic variety, known by the names *Bhao ka Murz*, or simply *Bhao* or *Dhudkay*, usually supervenes suddenly, and without any premonitory indication, and is speedily fatal. The animal proceeds on its journey, and up to the moment of seizure may evince no ailment; it then suddenly staggers, falls down and dies. The apoplectic variety usually has this sudden termination, and in most animals effusion, either serous or sanguineous, within the skull has been discovered on dissection.

The inflammatory variety of the disease called *Ahren Bhao*; and which is similar in its nature to mad stages in Horses, indicated by the animal attempting to bite its keeper or any person within its reach; usually it is unable to stand; there is restlessness, sometimes convulsive motion of the limbs, and the animal rolls on its back, bellowing loudly the while; the ears are stiff and cold, and the surface of the body is generally in the latter condition. Eyeballs red and protruded, and aspect wild. Sooner or later the animal falls down; froths at the mouth, and protrudes its tongue. If convulsions now supervene they are the forerunner of death. This disease is equally prevalent in all seasons of the year; and arises generally from sudden check of perspiration, as the washing of the animal soon after coming off the march, and before it is sufficiently cooled; but in all probability the continued exposure of the animal to an ardent sun, is a predisposing cause, acting on the head so as to impair the healthy condition of its vital contents, and thereby causing the animal to be the more sensible to morbid causes.

The native treatment consists in giving stimulating *Mussauls*, and in introducing between the eyeball and eyelid acrid substances with the view to cause copious lachrymation. Firing around the navel and along the sides of the body is also practised. It is almost unnecessary to remark that this practice, as a whole, is at least useless, if not positively injurious.

TREATMENT.—*First.* The Apoplectic Variety—Cold applications ought to be applied to the head; while the trunk and hinder extremities are kept hot with fomentations sedulously applied. Blood, to the extent of a gallon, ought to be drawn off. An aperient given of Croton seeds, bruised, dose—from 2 to 4 drachms. *Second.* Inflammatory Variety—This variety being in its nature an inflammation of the brain or its containing membranes, requires the most active measures that can be resorted to in order to allay inflammation. If the animal be young and previously healthy, bleed to the extent of a gallon and a half. Apply cold lotions to the head and warm

fomentations to the body. Give the aperient above named. The bleeding may be repeated to the extent of half a gallon if the symptoms be not greatly relieved by previous bleeding.

After the active symptoms are subdued by the above measures, the following alterative should be given. Calomel $\frac{1}{2}$ a drachm, Sulphuret of Antimony 2 drachms, to be continued for five days. Afterwards, during convalescence, the following Mussauls are to be given as directed.

Mussaul No. i.

1 Take of Parah ka kahk, Tolas	2	4 Sohnfe,	Seer	1	
2 Gendugh,	do.	6	5 Uldhee,	do.	0½
3 Hing,	do.	6	6 Sohute,	do.	1

The above to be finely pulverized, and as much honey as will be required to make it into a soft mass to be gradually added, then form into 20 boluses, and give one every eight hours for two days.

Mussaul No. ii.

1 Take of Sohute,	Seers	2	7 Kuttha,	Seer	$0\frac{1}{2}$
2 Jeera,	do.	$0\frac{1}{2}$	8 Bae Combah,	do.	$0\frac{1}{2}$
3 Awalgunttee,	do.	$0\frac{1}{2}$	9 Mudode Pulee,	do.	$0\frac{1}{2}$
4 Pohsht,	do.	$0\frac{1}{2}$	10 Maythee,	do.	$0\frac{1}{2}$
5 Dhunyah,	do.	$0\frac{1}{2}$	11 Pullas pupada,	do.	$0\frac{1}{2}$
6 Gotee Suparee,	do.	$0\frac{1}{2}$	12 Uddaruck,	do.	4

The above to be pounded together and added to 2 gallons of water, which put into a new pot and keep aside for a whole night; of this liquid, give a pint every eight hours until relief of the symptoms is obtained, afterwards to be omitted.

Nahass.

1 Take of Hing,	Tolas	2	3 Pahnee, Ghee, or Thale, Seers	2
2 Neelbudday Kapoor,	do.	2		

Powder the above two substances and add to any one of the named substances and mix; of which take 4 tolas weight, and introduce into the nostrils once daily for three days successively.

داز بند کا مریض — *Dhahd Bundh ka Murz.*

SECTION 3.—LOCK JAW.

HISTORY.—The symptoms of this affection are as follow—hanging down of the under lip, jaw immovable by animal, and can be opened only by considerable force,

and immediately closes when power is withdrawn; there is tenderness or pain in the temples on pressure—discharge of mucus from the nostrils and of saliva from the mouth; eyes are watery. Bowels constipated and the animal has a heavy listless aspect. The only case that has come under treatment was caused by continued exposure in this neighbourhood during the cold nights of November. This affection appears to be connected with diseases of the bowels.

TREATMENT.—Fomentations of the head with firing over the temples and along the lower jaw will give relief. The following, which is a warm purgative, combined with a tonic, ought afterwards to be given.

Mussaul No. i.

1 Take of Ujwan,.....	Seer	0 $\frac{1}{4}$	8 Goode,	Seers	2 $\frac{1}{4}$
2 Kootkee,	do.	0 $\frac{1}{4}$	9 Lussoon,	do.	1 $\frac{1}{4}$
3 Pipla Mohde,	do.	0 $\frac{1}{4}$	10 Uldhee,.....	do.	0 $\frac{1}{4}$
4 Inderjoathe,	do.	0 $\frac{1}{4}$	11 Uddaruck,	do.	1 $\frac{1}{4}$
5 Baebadung,	do.	0 $\frac{1}{4}$	12 Sohute,.....	do.	1 $\frac{1}{4}$
6 Sohute,	do.	0 $\frac{1}{4}$	13 Rahyan,	do.	1 $\frac{1}{4}$
7 Pullas pupada,	do.	0 $\frac{1}{4}$			

The above named substances to be pounded together, and added to as much of Sheraafe as will form the whole into a mass; then divide into boluses of the size of an orange, and give one thrice daily for four successive days.

چوڑی.—*Choodce.* کپری.—*Cuppray.*

SECTION 4.—INFLAMMATION OF THE THROAT.—MUMPS.

HISTORY.—This is a swelling which is frequently large and situated behind the lower jaw at the top of the neck, occasioned by inflammation of the large glands there situated on either side of the head. The swelling is tender to pressure, and there is evident difficulty of swallowing. There is much redness of the membrane lining the mouth and throat—running from the eyes and nose—the breathing hard and discharge of saliva from the mouth. The head, generally, is hot, and there are general symptoms of fever. Urine diminished in quantity—bowels healthy. Animal is low; and eats nothing willingly, and takes liquid nourishment, as wheat boiled, only when forced to do so. Frequently the affection runs on to suppuration of the glands, the pus escaping by an external opening. The animal falls much out of condition. When suppuration occurs, which is not uncommon, death generally results. This affection may occur during all seasons, but is more prevalent during the hot weather; it is occasioned by washing the animal when heated, or allowing it to drink largely when in that state.

TREATMENT.—This being an inflammation which is liable to run on to suppuration, active measures must be adopted. Blood ought to be drawn to the extent of a gallon from young animals, which are frequently the subject of this affection. The whole head ought to be fomented; and an aperient of 4 ounces of Aloes in a pint of cow's milk be given. The fomentations will prove of great use. This is the Native treatment, and if not successful, firing is resorted to; but the bleeding, as above-mentioned, will be found much more efficient: and if, after it has been practised, the swelling has not been greatly subdued, the swollen parts may be scarified freely and fomentations continued—or the bleeding may be repeated to the extent of half a gallon. If the glands continue enlarged after all pain on pressure is removed, firing the skin over them will then be useful. If suppuration has occurred, a free opening ought to be made to give exit to the pus, and the fomentation continued. The animal will be more or less out of condition, and recovery will be expedited after inflammation has been completely subdued by giving the following Mussaul.

Mussaul No. i.

1 Take of Ujwan, Seers	1½	9 Moosumber, Seer	0¼
2 Korasane Ujwan, do.	1	10 Rahyan, do.	0½
3 Shoree Ujwan, do.	1	11 Lahvung, do.	0½
4 Uzmoodha Ujwan, do.	1	12 Dhalchine, do.	0½
5 Uzzun, do.	0½	13 Cubaub Chine, do.	0½
6 Hing, Tolas	6	14 Kalee Mirchee, do.	2
7 Mydha Lukdee, do.	12	15 Pipla Mohde, do.	0½
8 Dhatoray ka phul, do.	12	16 Goode, do.	2

The above named ingredients to be pounded together and added to No. 16, then mix and make into boluses of the size of an orange, and give one, mixed in a pint of warm water, twice daily until the animal is relieved.

Nahass or Nose Powder.

As given under Kupalee may also be used. *Vide* Chap. II. Sec. 1.

ॐॐॐ.—*Gahasha.*

SECTION 5.—AFFECTION OF THE UVULA.

HISTORY.—This is an inflammation of the uvula, which, with the loose skin about the top of the throat, the animal has the power of protruding at will. The inflammation is usually occasioned by the animal accidentally wounding the part by biting it: but it may occur spontaneously. The animal leaves off eating apparently from the pain occasioned by swallowing. There is tenderness on pressing the top of

the neck; and the animal continues to make a guttural sound indicative of the pain felt even when pressure is not made.

TREATMENT.—Fomentations to the head and neck ought to be practised. Warm drinks given—and an aperient of Aloes and milk or one of Croton seeds, *vide* Part IV. Chap. II. No. 6. If the animal is young and robust, and the case severe, blood to the extent of half a gallon may be drawn at the commencement of the treatment.

فندي کا مرض۔—*Pinsee ka Murz.*

SECTION 6.—ULCERATION OF THE NOSTRILS.

HISTORY.—This is an ulceration of the mucous membrane of the nostril^s arising from no obvious cause. There is first much redness of the inner surface of the nostrils; then ulcerated spots appear, which spread to a greater or less extent, frequently involving small bones of the nose which are thrown off. The discharge is copious, foetid, and mixed with blood. Frequently the disease runs on to the extent of removing the outer wall of the nostrils. It is not a common affection. No case of it has occurred at the Hospital.

TREATMENT.—The Native treatment consists in applying the following ointment which is of a stimulating and detergent nature, and is said to be efficacious. Camphoretted oil, which will prevent the appearance of maggots, may also be used.

Ointment.

1 Take of Dik ka mullee, Tolas	2	6 Putuckdee,	Tola	1
2 Kahpoor,	do.	7 Ahfeeme,	do.	2
3 Patch Kahpoor,	do.	0 $\frac{1}{8}$	8 Choona ka puttha,	do.
4 Soahgah,	do.	0 $\frac{1}{2}$	9 Moordharsing,	do.
5 Morethootha,	do.	0 $\frac{1}{8}$	10 Ghee,	do.

The above named substances to be finely pulverized and added to No. 10 and well mixed, which is to be kept in a copper vessel, and a small quantity to be applied to the ulcerated surface every morning—the parts to be previously washed.

جلیباز۔—*Zillay-baaz.*

SECTION 7.—ULCERATION OF THE MOUTH AND TONGUE.

HISTORY.—This is an aphthous affection of the inside of the mouth, during the progress of which small vesicles appear on the living membrane, which ulcerate and

discharge pus. The ulceration in severe cases extends to the nostrils. The tongue becomes very white, and presents a rough appearance on the upper surface from the enlargement of the papillæ. The animal leaves off eating, apparently from the pain thereby occasioned. There is generally heat of the head and other symptoms of fever. The animal drinks largely.

TREATMENT.—An aperient of Aloes with milk ought to be given. Afterwards camphoretted oil ought to be applied to the surface of the mouth; or the following astringent Mussaul may be used by way of lotion to clean the ulcerated surface.

Mussaul No. i.

1 Take of Kalee jeera, Tolas	2	6 Neemuck, Tolas	4
2 Uldhee, do.	2	7 Ahfeeme, do.	0½
3 Kuttha, do.	1	8 Uldah, do.	0½
4 Puttukdee, do.	1	9 Pahnee, Seer	1
5 Heera Bohl, do.	0½		

The above ingredients from 1 to 7 to be finely powdered and added to No. 9, and well stirred. This to be applied to the tongue and ulcerated parts of the mouth three times daily. A part of the above powder may also be mixed up in a small quantity of lime juice and applied to the ulcers.

كمان كا مرض.—*Cumaun ka Murz.*

SECTION 8.—SPASMODIC AFFECTION OF THE NECK.

HISTORY.—This is a spasmodic affection of the muscles of the neck by which it is drawn to one side or backwards, and remains in this bent position during the fit of spasm. The animal becomes powerless and insensible; and when, as is usually the case, the attack comes on suddenly, it falls down; there is tremor of the limbs and quivering of the lips, and grinding of the teeth. The complaint usually occurs during the cold season. The bowels and digestive organs generally are in healthy condition; and the nature of the disease appears to be one of the nervous system.

TREATMENT.—Only two cases have been under treatment for this affection, which recovered from bleeding and purgation. After which give Sulphuret of Antimony two drachms, and Calomel half a drachm, combined, on alternate days for a fortnight. The recovery is in general slow.

After the spasmodic condition has been completely subdued, as shewn by the absence of fits, the following tonic Mussaul may be given with advantage. If the fits continue to return after bleeding, the animal may be fired along the back of the neck.

Mussaul No. i.

1 Take of Piplee,.....	Seer	1	8 Kalee jeera,	Seer	0½
2 Mahl Kungnee,.....	do.	1	9 Jeerah,	do.	0½
3 Inderjoathe,	do.	1	10 Uldhee,.....	do.	0½
4 Kolinjun,	do.	0½	11 Gunbeede,.....	do.	1
5 Uddaruck,	do.	2	12 Ujwan,	do.	1
6 Sohnfe,.....	do.	1	13 Shoree Ujwan,.....	do.	1
7 Peeaz,	do.	1	14 Korasnee Ujwan,	do.	0½

The above to be pounded together and added to as much of honey as will make it into a mass, which divide into boluses of the size of a lime, and give one night and morning.

كزوكا مرغى.—Kuddah ka Murz.

SECTION 9.—AFFECTION OF THE LARYNX.

HISTORY.—This, which is not an uncommon affection, consists in a tenderness and sometimes a swelling of the larynx, said to arise from the animal overstretching the neck, or otherwise spraining the parts at the top of the windpipe.

TREATMENT.—Fomentations in mild cases. If there be considerable tenderness in the upper part of the neck or swelling in that situation, half a gallon of blood ought to be abstracted. *Vide* Chap. IV. Sec. 4.

SECTION 10.—AFFECTIONS OF THE CHEST.

This is a class of affections to which the Camel is very subject, and ranges from a simple catarrh or cold to inflammation and even abscess of the lungs. These affections appear either epidemically or otherwise, and by them a very large proportion of the mortality of Camels is occasioned.

كودكاى.—Koodkay,—سردى or Surdhee.

SECTION 11.—CATARRH.

HISTORY.—This, although frequently a severe ailment, may be considered the mildest variety of the affections of the chest to which the Camel is subject. The symptoms are as follows—copious discharge of mucous from the nostrils, running from the eyes, more or less cough especially during the night, breathing hurried, some

restlessness, a heavy listless aspect, thirst; animal sometimes froths at the mouth, and leaves off eating. The bowels are frequently much out of order, the evacuations being slimy and fetid. Urine scanty and yellow coloured. This affection occurs particularly during the monsoon and cold season, and evidently occasioned by atmospherical causes.

TREATMENT.—The mild cases will speedily recover by free purgation with fomentation of the chest and copious draughts of warm conjee made by boiling the flour of Rhaggy, Cholum or Kumboo. But if the cough be urgent, blood ought to be drawn away without delay to the extent of half a gallon or even a gallon in young and previously healthy animals. The animal ought to be well sheltered and covered with cumblies or other warm covering. This line of treatment modified by the individual case, if persevered in, will be found to effect a speedy recovery in cases of simple Surdhee. The following Mussaul is to be given during convalescence to bring the animal into condition.

Mussaul No. I.

1 Take of Mahl Kungnee, Tolas 12	8 Moosumber, Seer 0½
2 Piplee Mohde, Seer 1	9 Gaheelone, Tolas 2
3 Inderjoathe, do. 0½	10 Nullare, do. 12
4 Rahyan, do. 1	11 Goolbale, do. 24
5 Kootkee, do. 1	12 Shahth, sufficient quantity.
6 Lussoon, do. 1	13 Ujwan, Seer 1
7 Hing, do. 0½	14 Mydha Lukdee, do. 0½

Powder the above ingredients and add as much of No. 12 as to make the whole into a soft mass, which divide into boluses of the size of an orange, and give one every night, until the whole are given.

پپسہ کا مرز.—*Papesa ka Murz.* پپڑی.—*Pupday.* پپرا.—*Paprah.*

SECTION. 12.—INFLAMMATION OF THE LUNGS.

This is the general name given by the Serwans to the more severe affections of the contents of the chest, and consists of inflammation of the lungs or its appendages.

HISTORY.—Most usually this is an inflammation of the lining membrane of the windpipe, but the substance of the lung is also frequently the seat of the inflammation, as also is the membrane lining the internal sides of the chest and covering the lungs, called pleura. When the membrane lining the windpipe and its ramifications constitute the principal seat of the disease, there is much cough: the breathing is more or less hurried and laborious, and the animal evinces considerable distress. There is running from the eyes; the ears are cold, and so is the surface of the body. When the substance of the lung is the principal seat of the ailment, or when this is

affected contemporaneously with the membrane of the windpipe, the breathing is very laborious, as evinced by the heaving of the flanks and the greater distress of the animal. In this variety, the Natives erroneously consider that the lungs are over distended with air, and that the difficulty of breathing arises from the lungs being forced by over distension into the lower part of the neck, thereby preventing the free passage of air into, and out of the organs. When the lining membrane of the chest and that of the lung is the seat of disease, it is difficult during life to pronounce decidedly and correctly that such is the seat of the animal's ailment. There is not much cough, but from the hurried breathing, together with the circumstance being observed in other organs, the bowels being in a healthy condition, it may be inferred with considerable confidence in the correctness of the inference that the animal is labouring under the variety of thoracic disease just alluded to. The exact knowledge of the seat of the ailment is not however a point of great practical importance, since each variety requires an equal degree of active treatment as given below. After death a collection of fluid is generally found in the chest. This class of affections, as might be expected, is more prevalent in cold and rainy weather than during the hot season. The Native treatment consists in giving Mussauls of a stimulating character, firing is never practised. This treatment has not even the negative character of doing no harm, it is positively injurious, feeding the disease instead of subduing it.

TREATMENT.—This disease being severe inflammation of a vital organ, the most active measures for subduing inflammation ought to be practised, and with the least possible delay. Bleed to one, or one and a half gallon. *Vide* Chap. IV. Sec. 4, for instructions on bleeding. Give half an ounce of Croton seeds, bruised, in half a pint of water, or the following—four ounces of Aloes dissolved in a pint of cow's milk. After the active symptoms are subdued, Calomel a drachm, and Tartar Emetic half a drachm, made into a ball with soap, is to be given twice or thrice daily for five days.

The tonic Mussauls recommended under the head Koodkay, *vide* Chap. II. Sec. 11, are to be given during the convalescence.

سُولْفَی کا مرض.—*Soolfay ka Murz.*

SECTION 13.—CHRONIC AFFECTION OF THE LUNGS.

HISTORY.—The two varieties of affection of the lungs above noticed are, it will be observed, of an acute character—frequently the Camel suffers from a chronic affection of the same organs known under the name Soolfay.

The symptoms that characterize this affection are cough; more or less difficulty of breathing; general weakness, and the animal being much out of condition. The tongue is pale coloured; and the appetite is indifferent. Animals labouring under this affection are frequently long under treatment, seldom recover, and

on dissection, as has been found in numerous *post mortem* examinations, cysts containing transparent fluid and of variable number and size, and found in the substance of the lungs and in the liver. In the same organs, abscesses have also been observed and not unfrequently fluid to the extent of one or more gallons has been found in the chest or abdomen. In one case, a large portion of the lung was seen in a mortified state. There can be no doubt that this condition of the animal frequently arises from the want of active treatment, when, as is usually the case, at the commencement of attack, the animal was labouring under the acute variety of disease of the lungs—namely, Koodkay, or Papesa ka Murz.

TREATMENT.—The treatment adapted to this affection, is of an alterative and tonic character. Sulphuret of Antimony two drachms, with Calomel half a drachm is to be given on alternate days. The following tonic Mussauls to be given as directed. The animal to be sheltered and occasionally fomented. The grain Oodoodh is to be substituted for gram. The fodder consisting of the pods of common gram or of those of the Chennay or Bengal gram, as also husks of the Oodoodh, will be found the best.

If the animal does not improve under this treatment, after a fair trial has been given, but rather continues to fall off and becomes much emaciated, it will come to be a question how far it is advisable to condemn the animal, as the pay of the Serwan will soon amount to more than it is or ever will be worth.

Mussaul No. i.

1 Take of Kahchoor, Seer	0½	9 Rahyan, Seer	1
2 Nurkachoor, do.	1	10 Mahl Kungnee, do.	1
3 Bahl Uldah, do.	0½	11 Boin Katabee, do.	0½
4 Kapeelah, do.	1	12 Moosumber, do.	1
5 Mydha Lukdee, do.	1	13 Nagooree Uzgun, do.	0½
6 Dhalchinee, do.	0½	14 Pullas pupada, do.	0½
7 Mudode Pulee, do.	0½	15 Uldhee, do.	1
8 Aleem, do.	1		

The above to be pounded and added to as much of jaggery or honey, and the whole well mixed: then form into boluses of the size of a lime, and give one night and morning, an hour before allowance of gram.

بھاء.—*Bhao.* بھاء بھاء.—*Budda Bhao.*

SECTION 14.—APOPLEXY OF THE LUNGS.

HISTORY.—The term Bhao is used by the Serwans with considerable latitude of meaning, when regard is had to the nature and seat of the individual ailment, it

being used to express any severe disease generally, terminating in death speedily. As stated under the head Bhao ka Murz, *vide* Chap. II. Sec. 2, it is applied to an apoplectic affection of the brain. Dissection has shewn that the lungs also may be the seat of a similar ailment which proves speedily fatal. These organs are found in animals that have died from this ailment, gorged with dark blood with effusion of serous fluid into the air passages. The symptoms are in a great measure similar to those that appear when the head is the seat of the ailment, as stated at Chap. II. Sec. 2, but the animal usually sinks sooner under the pulmonary affection with more laborious breathing. This affection may occur epidemically, as stated below.

TREATMENT.—The treatment for this affection is the same as that for Papesa ka Murz given in Chap. II. Sec. 12.

SECTION 15.—EPIDEMIC AFFECTION OF THE CAMEL.

Pupday, Pape dah, Papesa ka Murz, Budda Bhao, Bhao, Ahren Bhao, Pakdar.

The first six of these terms are in common use in Peninsular India, as well to indicate occasional individual attacks of the ailment described under those heads, *vide* Chap. II. Secs. 2 and 12, as to indicate the same affections when prevailing epidemically. The seventh term is the Bengalee name for the variety of Papesa ka Murz when prevailing epidemically.

HISTORY.—The Budda Azar, (the Murrain of Europe) is described in Part III. Chap. I. Sec. 7, an epidemic affection to which the Bullock is subject. That the Camel is subject to a similar disease has been satisfactorily determined, and indeed has prevailed to a considerable extent amongst the Camels of the Public Cattle Establishment during the current year [1848.] The serous mucous membranes of the head, lungs and bowels are the seats of the affection. The lungs and air passages are the most commonly affected, and for the purpose of description and for giving a convenient view of the symptoms of the epidemic, these may be stated under distinct heads: but it will be readily understood that, during an epidemic seizure, some only of the symptoms named will shew themselves—while, on the other hand, cases will present in which the varieties shade one into the other,—as for instance, one case may shew more symptoms of affection of the head than of the lungs or bowels, another more derangement of the lungs—a third may shew symptoms of more or less affection of the organs.

First. Head.—When the membranes enveloping the brain are affected, the symptoms detailed under the head of Bhao ka Murz are developed, *vide* Chap. II. Sec. 2. During the existence of inflammation of the brain, and its membranes, called by the Serwans Ahren Bhao, the animal shews prominent symptoms of delirium; attempts to bite the attendants and to get loose; and has

altogether a wild demeanour which sooner or later, however, abates; the animal falls down, breathes stentoriously for a time, and dies. On some occasions, the apoplectic symptoms set in almost at the commencement of the attack, the animal is lethargic, it has a confused demeanour, walking round and round its picquet; attempts to lie down, but does not carry its intention into effect. At length the lethargic symptoms increase, the animal lies down heavily, breathes stentoriously, and dies from marked symptoms of effusion within the skull, producing fatal pressure on the brain. This is the Bhao of the Serwans, *vide* Chap. II. Sec. 2.

Second. Membranes lining the nostrils, throat, air passages, and lungs.—When the nostrils are affected, the mucous secreted by the lining membrane of those passages assume a thicker consistency and yellow colour, and the animal frequently rubs its nose against the ground, post or wall. It is restless and makes the guttural sound indicative of uneasiness. *Vide* Koodkay or Surdhee, Chap. II. Sec. 11.

When the lining membrane of the Pharynx or top of the throat, is affected, this part as also the Uvula, is red and swollen, *vide* Chooder, Sec. 4, and *Gahasha*, Sec. 5, of Chap. II. There is difficulty of swallowing, and the animal shews unmistakable signs of tenderness in these parts, when pressure over them is made.

The symptoms that indicate affection of the windpipe and lungs are detailed under Papesa ka Murz, *vide* Chap. II. Sec. 12.

Third.—When the bowels are affected there is usually watery purging, the evacuations being very fetid, and frequently mixed with slime, sometimes with blood. The belly is swollen, there is great rumbling of the bowels; the tongue is pale and dry; the animal is pale and restless, and leaves off eating.

Dissection shews either effusion on the brain; inflammation of the lungs; sanguineous engorgement of those organs, or inflammation and thickening of the bowels according to the seats of the attack.

TREATMENT.—Whatever the variety of affection as above described be, bleeding ought immediately to be resorted to, half a gallon or a gallon of blood being drawn at one bleeding. Next in curative value is fomentation of the whole trunk of the body which ought to be sedulously persevered in, and the animal ought to be sheltered as much as possible. These are the only efficient means of subduing the severe symptoms—the after treatment consists in persevering with the fomentation, and in giving a purgative, as a pint of Castor oil, if the bowels are the principal seat of the disorder, or common salt, 4 or 6 ounces. When the symptoms are subdued, and convalescence progressing, recovery will be expedited by the following Mussaul.

Mussaul No. i.

1 Take of Mahl Kungnee, Seer	1	9 Uldhee,..... Seer	1
2 Piplee, do.	1	10 Kaheephul, do.	0 $\frac{1}{4}$
3 Pipla Mohde, ... do.	1	11 Baecombah, do.	0 $\frac{1}{2}$
4 Sohnfe, do.	1	12 Sohute, do.	1
5 Uddaruck, do.	1	13 Ujwan, do.	2
6 Kalinjin, do.	0 $\frac{1}{2}$	14 Inderjoathe, do.	2
7 Dhunyah, do.	2	15 Goolbale, do.	1
8 Bahebadung,..... do.	1		

The above ingredients to be well pounded together and added to as much of arrack or honey; and a handful to be given once or twice daily for six successive days.

عراق.—Rahafay.

SECTION 16.—TUMOUR ON THE BREAST BONE.

HISTORY.—The Rahafay is that large tuberosity on the breast bone of the Camel on which it rests when in the couchant position. This tuberosity is in structure, partly membranous, but principally cartilaginous.

It is a frequent seat of disease, being subject to inflammation when injured, whilst the animal with its load on its back is placing itself in the couchant position with the view to being unloaded; and the inflammation is of a kind which is liable to go on to a sloughy suppuration: sometimes incurable, always tedious. When the suppuration occurs deep in the substance of the tuberosity, the discharge instead of working outwards to the surface, generally burrows inwards into the cavity of the chest. When this happens, that part of the breast bone covered by the Rahafay becomes absorbed to a greater or less degree. That part of the lungs in the vicinity of the affection inflames and suppurates, and the pus goes on accumulating in the cavity of the thorax, till the contained organs, either from pressure or destructive suppuration, are unable to perform their function, and death results.

The native treatment consists in firing around the base of the tuberosity, a treatment which, in the inflammatory stage of this affection, can do no good; and most probably will do much mischief.

TREATMENT.—In the inflammatory stage, the animal ought to be bled to a gallon; and the Rahafay well fomented. Fomentations in this complaint are very useful. These two means—the latter persevered in, may arrest the inflammation and cure will speedily result. But there is a great tendency to suppuration; and when pus is formed it ought to be let out by incision, early, otherwise it burrows through

the substance of the tuberosity thus giving rise to sinuses, more or less extensive, which are very tedious of cure. When the Rahafay has fungous flesh, and is largely swollen, the swollen part may be removed by the knife. Much attention ought to be paid to cleanliness. Frequently cases come under treatment with sinuses just alluded to, which ought to be laid open and dressed with camphorette oil, or with the following ointment. Much attention ought to be paid to keeping the ulcer clean.

Ointment No. i.

1 Take of Parai ka kahk, Tolas	2	7 Neemuck,	Tolas	4	
2 Urthal,	do.	2	8 Kahpoor,	do.	4
3 Morethootha,	do.	2	9 Sahboone,	do.	12
4 Ahfeeme,	do.	4	10 Peeaz,	Seer	1
5 Soohagah,	do.	2	11 Oodh,	do.	0½
6 Puttukdee,	do.	2			

The above ingredients to be finely powdered and added to No. 10, and well rubbed down; a small quantity of which to be applied to the parts every other morning.

AFFECTIONS OF THE ABDOMEN.

دانی — *Daak*, — اوکھال کا مرضی or *Ookahl ka Murz*.

SECTION 17.—VOMITING.

HISTORY.—The irritability of the stomach is the prominent symptom of this ailment. It arises from inflammation, more or less extensive and severe, of that organ. The disease may also arise from over-distension of the stomach from too much food. There is a herb called in Dhucknee, Goomchee ka puttha, of which if the animal eats, the disease is likely to supervene: but this herb does not occasion death. The disease is most prevalent in hot weather, and generally is not a fatal ailment, though when occasioned by inflammation such may be the result.

TREATMENT.—In the inflammatory variety, active measures are required and ought to be practised without delay. Bleeding ought to be practised to one and a half gallon. Fomentations ought to be soon commenced and persevered in. The animal ought to be prevented eating or drinking till the irritability of the stomach be overcome, as either food or drink given previously only tend to keep up that condition of the organ; and attention ought to be paid to the kind of food given subsequently. A gram diet for a few days will be sufficient, afterwards grass may be added, and then a gradual return to ordinary food.

Mussaul No. i.

1 Take of Sohute, Seer	1	6 Dhalchinee, Seer	0½
2 Goode, do.	1	7 Pipla Mohde, do.	0½
3 Awulgunttee, do.	1	8 Kalee Mirchee, do.	0½
4 Misee, do.	0½	9 Johphul, Tolas	4
5 Uldah, do.	0¼	10 Pahnee, Seers	3

The above ingredients to be finely powdered and added to the water, which is to be boiled down to two seers. Of which give a fourth part every morning until the whole is given.

واي گوله.—*Vahee Golah.*

SECTION 18.—INDIGESTION.

HISTORY.—This is an ailment of the digestive organs which has been named as above for want of a more appropriate popular name; in which though no prominent individual symptom is to be observed, with the exception of falling off in condition of the animal, there is, to a greater or less degree, weakness of one or more of those organs. The protracted continuance of this unhealthy condition occasions mangy eruption over the trunk, and indeed, occasionally throughout the whole of the surface of the body of the animal; and a most obstinate eruption it is to get rid of. In animals which have died while labouring under the affection now under consideration, I have occasionally found cysts as alluded to under Soolfay ka Murz, *vide* Chap. II. Sec. 13, varying in size from half an inch to two inches in diameter and more or less numerous, though six is the maximum number that have been observed. They have the usual elastic property, so that when cut into, the transparent fluid they contain is projected to the distance of some two or three feet. They are usually found in the liver in this affection. But these cysts are not an uniform concomitant of this ailment.

TREATMENT.—The treatment found most efficacious is an alterative one—

Calomel, 0½ Drachm,
Sulphuret of Antimony, 1 Drachm,

made up into a ball with soap, ought to be given for three consecutive nights. Afterwards a purge of Aloes, and the ball continued on alternate nights with an occasional purge. When cutaneous eruption exists, the surface ought to be well washed with soap and water, and particular attention paid to the grooming of the animal.

گٹتود کا مرض — *Guttud ka Murz.*

SECTION 19.—CONSTIPATION.

HISTORY.—This is an obstinate constipation of the bowels. The animal becomes low and drowsy; is restless and leaves off eating. The abdomen is swollen and tympanitic, bowels confined, and when opened by medicine, the motions are hard-formed and scanty—the hard dung being imbedded in a mass of slime of very fetid odour and of a dark colour if the ailment is of a few days' standing. Urine is scanty and high coloured, animal is weak. If this affection is not attended to, it proves fatal.

Dissections have shewn the large intestines to be highly inflamed with patches of ulcerations nearly their whole extent; and the liver pale and flabby.

TREATMENT.—Injection of a gallon of tepid water ought to be given immediately, and repeated so soon as the previous one has come away, with a view to soften and wash out the hardened dung. A purgative of half an ounce of bruised Croton seeds is to be given by mouth in half a pint of water. Fomentations to be used if there is much tenderness on pressing the abdomen. Bleeding to half a gallon ought to be practised. The after treatment will consist in keeping the bowels open with 2 ounces of Aloes mixed in a pint of milk and repeated. The following ought to be given to correct the disordered state of the liver—

Calomel,	1 Drachm,
Sulphuret of Antimony,	2 Drachms,

made into a ball with soap; and repeated twice or oftener on alternate days.

ملول — *Mulole.* کُورکوری — *Koorkooree.*

SECTION 20.—COLIC.

HISTORY.—This is a spasmodic affection of the bowels usually accompanied with constipation. There is evidently much pain, the animal taking the couchant position to admit of relief from pressing the stomach on the ground, or it rolls about. There is usually escape of wind and the belly more or less swollen. The dung is hard, and has a shape somewhat different from the healthy condition. The mouth is generally dry, and there is much thirst. The animal leaves off feeding; and is subject to this ailment most frequently in the cold season. It is of frequent occurrence during that season, but relief and cure have generally been effected by the following treatment, which is the usual Hospital practice for this ailment.

TREATMENT.—This consists in fomentation and in giving the following antispasmodic Mussaul immediately on admission.

Mussaul No. i.

1 Take of Hing, ...	Tolas	2	4 Butch,	Tolas	4
2 Sohute,	do.	1	5 Moosumber,	do.	6
3 Kolinjin,	do.	1	6 Goode, sufficient quantity.		

Powder the above and add No. 6 and mix; then make into three boluses and give one immediately and repeat every 8 or 10 hours.

After the above, give the following purgative Mussaul combined with antispasmodics, as directed, and the fomentations continued.

Mussaul No. ii.

1 Take of Gunbeede,	Seer	0 $\frac{1}{4}$	6 Korasanee Ujwan,	Seer	0 $\frac{1}{4}$
2 Inderjoathe,	do.	0 $\frac{1}{4}$	7 Shoree Ujwan,	do.	0 $\frac{1}{4}$
3 Rahyan,	do.	0 $\frac{1}{4}$	8 Sohute,	do.	0 $\frac{1}{4}$
4 Ujwan,	do.	0 $\frac{1}{4}$	9 Hing,	do.	0 $\frac{1}{4}$
5 Uzmodha Ujwan,	do.	0 $\frac{1}{4}$	10 Poshth,	do.	0 $\frac{1}{4}$

The above to be added to four seers of water and boiled down to two seers; of this, give a fourth part in the morning, and repeat after 12 hours if bowels be not open.

If the dung is of a paler colour than in health, the following ought to be given on alternate days for a week or fortnight.

Sulphuret of Antimony,	2	Drachms.
Calomel,	0 $\frac{1}{2}$	Drachm.

The thirst, when urgent, is relieved by the following Mussaul.

Mussaul No. iii.

1 Take of Awulgunttee, ...	Seer	0 $\frac{1}{4}$	4 Dhalchinee,	Seer	0 $\frac{1}{4}$
2 Dhunyah,	do.	0 $\frac{1}{4}$	5 Uldah,	do.	0 $\frac{1}{4}$
3 Kuttha,	do.	0 $\frac{1}{4}$	6 Pahnee,	do.	6

Add the above to No. 6, and boil down to four seers; and give half a seer twice daily. Stop the medicine as soon as the animal is relieved. During convalescence, the following is to be given as directed.

Tonic Mussaul No. i.

1 Take of Pullaspupada, ... Seer	0½	7 Goolbale, Seer	0½
2 Mahl Kungnee, do.	1	8 Nullare, do.	0½
3 Uddaruck, do.	1	9 Cheraytha, do.	0½
4 Uzgun, do.	1	10 Butch, Tolas	6
5 Sohnfe, do.	0¼	11 Jahphul, do.	6
6 Ujwan, do.	1	12 Shahth, sufficient quantity.	

Powder the above, and form into boluses of the size of an orange; and give one three times daily.

جلاب.—*Joolaub.*

SECTION 21.—PURGING.

HISTORY.—This may arise spontaneously during the rainy and cold season or at the commencement of the monsoon, and may be the result of the animal eating largely of the plant known to Sirwans by the name Junglee Erundee, of which it is very fond, and which at a greater age is very nutritious. The symptoms are as follows—frequent purging of light coloured watery evacuations with some griping. If nothing is done in the way of cure, there may be alternate purging and evacuation of formed dung for a variable period. The animal is sometimes shivering to some degree, as if from cold. If allowed to continue, the affection is apt to change its character and to shew symptoms more or less complete of the following affection, namely, Soole, which is an inflammation of the mucous membrane of the bowels.

TREATMENT.—Fomentation is to be immediately resorted to, then the following is to be given:

Mussaul No. i.

1 Take of Peeaz, Seer	1	4 Dheighn, Seers	3
2 Sohnfe, do.	1	5 Chavul, do.	4
3 Bhang, do.	0¼		

No. 5 to be boiled; then add the above, previously pounded, and mix—and give the whole to the animal and repeat the following day if necessary.

If after the above treatment, the purging continues, the following is to be given as directed:

Opium,	0½ Drachm.
Calomel,	40 Grains.
Camphor,	1 Drachm.
Ginger,	0½ Drachm.
	c 2

Make into a bolus conjoined with the following Mussaul:

Mussaul No. i.

1 Take of Sohnfe,	Seer	1	7 Bhang,	Seer	0½
2 Awulgunttee,	do.	1	8 Mahl Kungnee,	do.	0½
3 Pohsht,	do.	1½	9 Hing,	do.	0½
4 Choep Chinee,	do.	0½	10 Pipla Mohde,	do.	0½
5 Jeerah,	do.	1	11 Goode, sufficient quantity.		
6 Kolinjin,	do.	1			

The above substances to be pounded together, then added to No. 11, and beaten up with the addition of water, which divide into boluses of the size of a lime, and give one twice daily.

سولي کا مرض.—*Soolee ka Murz.* پینچس.—*Penchees.* موز.—*Mohdah.*

SECTION 22.—DYSENTERY.

HISTORY.—The above two terms are applied to an inflammatory condition of the membrane lining the intestines marked by slimy fetid evacuation. When only slime and no blood appears, the affection is called by the Sirwans Soolee; when there is blood mixed with the slime, the term Penchees is given to the ailment. There is frequent purging, evacuations are always fetid; restlessness; lying down and getting up; urine scanty, and high coloured; and as in Mulole there may be occasional discharge of wind from the bowels. After the affection continues two or three days, the animal becomes very weak, leaves off taking fodder and rapidly loses flesh. Dissection invariably shews the intestines to be inflamed, frequently ulcerated, and sometimes mortified—more or less fluid is found in the abdomen; and the liver is not unfrequently enlarged and pale coloured. This affection is of frequent occurrence, particularly amongst animals out of condition; and carries off a great number during the monsoon and cold weather. It may appear epidemically as stated at page

TREATMENT.—If the animal is young and previously in good health, bleeding to the extent of half a gallon ought to be practised; and the trunk well fomented. Two pints of Castor oil ought to be given. The after treatment of this, which may be called the acute variety, consists in persevering with the fomentations, and if need be, removing half a gallon more of blood. Calomel, half a drachm, ought to be given once daily, about noon, and continued for four or five days. The Castor oil purge is to be repeated once or oftener according to the appearance of the evacuations—continuing it while these are slimy, and omitting it when they become healthy.

When the affection has been of long standing or occurs in weak animals, the bleeding, if practised at all, must be sparing in quantity—from a quarter to half a

gallon. When the animal is very weak on admission to Hospital, bleeding must be omitted altogether. Fomentations are to be sedulously continued, and the following alterative ball given.

Calomel,	0½	Drachm.
Sulphuret of Antimony,	1	Drachm.
Opium,	1	Scruple.
Soap, enough to make into a ball.		

This is to be continued once daily. Castor oil, two pints, is to be given occasionally, when there is reason to consider ulceration of the bowels exist—or when the stools are watery and fetid. The following Mussaul ought to be given as directed.

Few cases recover, particularly those occurring in old animals after ulceration of the bowels has occurred; and none ever regain good condition, being weak, emaciated, and mangy. Such animals ought to be condemned.

Mussaul No. i.

1 Take of Jahphul,	Seer	0½	7 Ujwan,	Seer	1
2 Sohnfe,	do.	2	8 Korasane Ujwan,	do.	0½
3 Dhunyah,	do.	2	9 Shoree Ujwan,	do.	0½
4 Butch,	do.	0½	10 Uzmoodha Ujwan,	do.	0½
5 Pohsht,	do.	1½	11 Kootkee,	do.	0½
6 Sohute,	do.	0½	12 Bhang,	do.	0½

The above substances to be finely powdered, then mixed together, and added to as much of jaggery as will sweeten the mixture. Of this give the animal a handful morning and evening until the whole is given.

کلیجہ کا مرض — *Kaleejah ka Murz.*

SECTION 23.—INFLAMMATION OF THE LIVER.

HISTORY.—This organ is the frequent seat of disease, but no case of pure inflammation alone has come under treatment, as all cases have been complicated with disorder of the bowels or of lungs. When dissection has shewn the liver to have been the seat of the ailment, the dung is of paler colour than in health; and this is during life the most practical indication of disorder of the organ.

The liver is also subject to chronic disease, becoming enlarged or contracted; and is the seat of cysts as mentioned in Chap. II. Sec. 18. Abscesses also have been frequently discovered on dissection. The existence of chronic disorder of the liver is to be inferred more from negative signs than from positive symptoms. If the respiration is free and natural, the bowels also healthy, and in short no sign of derangement of the other organs or their functions—while the animal falls out of

condition and the evacuations are of variable colour, the liver in all probability is the seat of ailment. But even cases of uncomplicated chronic affection of the liver are of unusual occurrence. However, in a particular point of view, the positive determination of the existence of the affection of the organ although desirable, is not of essential importance, because whether the case be either acute or chronic, the same line of treatment is to be adopted, as would be taken up for the acute or chronic affection of the other organs generally found to be simultaneously affected.

TREATMENT.—*First.* The acute inflammatory affection is to be treated by bleeding and purgation. Bleed to a gallon. Give a purgative of Aloes four ounces, and Calomel two drachms, made into balls with soap. Foment. After bowels have been freely moved, and the active symptoms subdued, the following ball is to be given twice daily.

Calomel,..... 0½ Drachm.
Sulphuret of Antimony, 1 Drachm.
Soap, enough to make into a ball.

Second.—The chronic variety is to be treated by fomentation, and Croton seeds, to the extent of two to four drachms, is to be given in water. Afterwards, the above named alterative ball and Calomel and Sulphuret of Antimony is to be given once daily, and persevered in till improvement has taken place, an occasional purgative either of Aloes or of Croton seeds being given.

The following tonic Mussaul is to be given during convalescence:

Mussaul No. i.

1 Take of Kolinjin, Seers	1½	7 Cheraytha, Seer	1
2 Pohsht, do.	2	8 Inderjoathe, do.	1
3 Jeera, do.	1	9 Aleeme, do.	1
4 Kalajeera, do.	1	10 Gaheelone, Tolas	3
5 Piplee, do.	1	11 Moosumber, do.	6
6 Pipla Mohde, do.	0½	12 Shahth, Bottle	1

Powder the above separately and mix, then add No. 12. Give a handful twice daily for one week successively; afterwards on every alternate day.

بہاؤ.—*Bhao.*

SECTION 24.—INFLAMMATION OF THE SMALL INTESTINES.

HISTORY.—This affection may commence and progress to the extent of causing stoppage of the bowels before the Sirwan considers it ill; or at least before he is likely to report its being so. The animal then walks unsteadily; breathes labori-

ously; has twitching of the ears; and heaving of the flanks; the lower jaw is closed; lower lip hanging down; and respiration is entirely through the nostrils; the surface is hot. The animal inclines to one side in the couchant position, which it adopts from want of strength to stand, with the evident object of relieving by pressure on the bowels. The above symptoms the Sirwans will likely name Bhao, a term which they use for laborious breathing, and other severe symptoms when they do not exactly know what is the real nature of the case. The animal leaves off eating. That the bowels are the seat of the affection is to be inferred from their being bound; from the animal inclining to one side; from the absence of cough, shewing the lungs are not the seat of disease; and from the absence of delirium or stupor, shewing the head is equally free from ailment. If the affection has, as is commonly the case, continued for some time before it comes under treatment, the abdomen will be rounded and full, from the extensive secretion of fluid amounting from two to six gallons.

Dissection shews the small bowels to be contracted, empty and highly inflamed; extensive collection of fluid, as above stated, in the abdomen, with a quantity of coagulable lymph near or adhering to the inflamed portion of the bowels. Animals in good condition are the subjects of this affection.

TREATMENT.—Bleeding must be immediately resorted to, from one to one and a half gallon. The animal fomented over the whole trunk. About 24 hours after bleeding, a full purgative of a large dose of Aloes, 6 ounces in two pints of milk, is to be given. The bleeding is to be repeated after 6 hours, if marked improvement has not taken place. The fomentation is to be persevered with. If fluid to a considerable extent has collected, the abdomen ought to be tapped and the fluid thus drawn off, whereby the respiration will be relieved. The after treatment will consist in keeping the bowels open with small doses of Croton seeds, namely, two drachms, repeated on alternate days; and when convalescence is restored, a tonic Mussaul as that under the head Mulole, *vide* Chap. II. Sec. 20, is to be given.

SECTION 25.—AFFECTIONS OF THE URINARY ORGANS.

Of the following three affections, I have seen only the first; the description and treatment of the other two are those of the Camel attendants.

فردوت.—*Phudmooth.*

SECTION 26.—DIFFICULTY OF PASSING URINE.

HISTORY.—In this affection the urine is passed scantily and with pain; the urine is reddish coloured. It is a disease, which, although not usually a fatal one, may be protracted. The animal falls off in flesh.

TREATMENT.—The animal is to be made to drink largely of conjee water and tyre.

The following Mussaul is to be given.

Mussaul No. i.

1 Take of Sohnfe, Seer	1	5 Awalgunttee, Seer	0½
2 Dhunyah, do.	1	6 Kuttha, do.	0½
3 Issupgole, do.	1	7 Jeera, do.	1
4 Alsee, do.	0½	8 Untergungah, do.	0½

The above to be coarsely bruised and added to three gallons of water and allowed to soak for one night. Of this water give the animal two seers morning and noon for three successive days—or until it is relieved. A handful of the substance the fluid contains may also be given once daily.

كسوم كا مرضى.—*Koossum ka Murz*,—سوزاك or *Soozauk*.

SECTION 27.—BLOODY URINE.

HISTORY.—In this affection, which shews itself in hot weather only, the urine is scanty and is mixed with blood. It is passed only in drops and with much straining. The disease may prove fatal from over distention of the bladder.

TREATMENT.—The Native treatment consists in giving the following Mussauls. It would appear that bleeding and purgation in this affection would be useful; afterwards giving copious drinks of conjee with nitre. Fomentations also would do good.

Mussaul No. i.

1 Take of Dheighn, Seers	3	3 Chavul, Seers	6
2 Peeaz, do.	3	4 Sahrn Mouz, No.	20

Boil No. 3, pound No. 2, and add to Nos. 1 and 3, then add No. 4 and mix; of which give a third part thrice daily.

The Mussaul No. 1 for Dhundee ka Murz, *vide* Chap. II. Sec. 28, may also be given in this ailment.

دندیکا کا مرضى.—*Dhundee ka Murz*.

SECTION 28.—PROTRUSION OF THE PENIS.

HISTORY.—This appears to be a falling out of condition from frequent seminal discharge; the penis is protruded and the animal eventually becomes so weak as to be unable to rise, and is said to die. Only young and robust animals are seized.

TREATMENT.—The Native treatment consists in giving cooling Mussauls and firing on the loins. It would appear that bleeding with saline purgatives would be a more efficient treatment.

Mussaul No. i.

1 Take of Sohnfe,	Seers	2	7 Awulgunttee,.....	Seer	0½
2 Dhunyah,.....	do.	2	8 Kuttha,.....	do.	0½
3 Issupgole,	do.	2	9 Peeaz,	do.	2
4 Alsee,	do.	1	10 Jeera,	do.	1
5 Mouze ka jud,	do.	6	11 Pahnee,.....	do.	12
6 Untergungah,	do.	4	12 Pohsht,.....	do.	2

Bruise the above and soak in No. 11 for one day. Give a handful of the substance and three seers of the liquor three times a day. The animal to be allowed as much of No. 5 as it will eat, as fodder. The Mussauls under Koossum, *vide* Chap. II. Sec. 27, may also be given in this affection.

SECTION 29.—TUMOURS.

Of Tumours, the Camel is subject to a very great variety; some are situate in the glands—others below the skin in various parts of the body. Of the former variety are *Gooroosh*, *Yahcud* and *Rhunduck*, of the latter are *Russoolce* and *Bale ka Murz*. These affections are described below.

گروش.—*Gooroosh*. هيكتر.—*Yahcud*.

SECTION 30.—SWELLING OF THE GLANDS ABOUT THE NECK AND SHOULDER.

HISTORY.—The *first* of these terms is applied to a swelling of two glands situate near the root of the neck on the lower part. The glands in health protrude somewhat beyond the general contour of the body, and are distinctly visible.

The *second* term is applied to a similar swelling of some glands between the neck and shoulder blade, near the site of the glands just alluded to. It is equally liable to occur at all seasons; and animals in good condition are subject to it, equally with those that are not. It occurs in each animal only once, but not before the tenth year of age. The swelling invariably goes on to suppuration according to native experience. The cyst sloughs out, leaving a foul deep ulcer. The animal usually can work when this is present, though, if opportunity exist, of course, relief from duty during treatment, is advisable.

TREATMENT.—The Native treatment consists in applying a stimulating liniment with the view to expedite suppuration. Fomentation ought to precede the Native application; afterwards it, or camphorette oil, or a solution of blue stone, or, on the principle of cauterization, boiling oil may be introduced into the sloughy hollow ulcer to clean its surface. The after treatment consists in the continued application of camphorette oil, or blue stone, and excluding as much as possible access of flies, which are apt to deposit ova that turn into maggots.

رندک.—*Rhunduk.*

SECTION 31.—SUPPURATIVE GLANDS.

HISTORY.—This is a swelling always terminating in suppuration of the glands situate in the groin. Animals of all ages are equally liable to it. It occurs during the hot weather only. The animal is unfit for service when the disease exists.

TREATMENT.—The same treatment is to be observed for this affection as for *Yahcud* given above.

بیل کا مرض.—*Bale ka Murz*,—جھولے لگدی and *Joluk ka Gudday.*

SECTION 32.—SUPPURATIVE TUMOURS.

HISTORY.—This is a very troublesome and acrid tumour of a suppurative kind which may appear in any part of the body; and in several numbers at a time; they usually attain to a size of two inches in diameter. When situated on the body, they are called *Nur-bale*; when on the legs, *Mahdhee-bale*; but there is no difference beyond the site except the latter being larger, the tumour, whether on the body or limbs, being of the same nature. After one set of tumours have appeared, suppurated, and nearly healed, another set appear, and go through the same stage, to be succeeded by successive sets which eventually render the animal unfit for further service. It is an obstinate disease, and fortunately is one of rare occurrence. In some cases of the limb being affected, it remains permanently swollen and has fistulous ulcers.

TREATMENT.—The treatment recommended for *Russoolee* ought to be practised for the variety called *Nur-bale* as also for *Mahdhee-bale* at the commencement of its appearance; but if the limb has become swollen and full of fistulous ulcers, the animal will never recover, and ought to be condemned.

رسولي.—*Russoolee.*

SECTION 33.—BOILS.

HISTORY.—This is a tumour about two inches in diameter, situate below the skin and consists of a cyst containing caseous or cheese-like matter, sometimes liquid. It has no particular site as it may occur in any part of the surface. It invariably goes on to ulceration when the matter of the cyst escapes, and this latter sloughs out. It occurs during all seasons, and animals of all ages and variety of condition are attacked equally by it. It is not of frequent occurrence and does not throw the animal out of condition. In some cases the cyst does not slough out, but refills with lymph or matter.

TREATMENT.—The tumour is to be laid open and dressed with camphorette oil. Should it re-fill, the cyst ought to be dissected out, or boiling oil may be introduced to cause it to slough out. A purgative of Aloes, four ounces, mixed with a pint of milk, is to be given; afterwards the following alterative ball is to be given on alternate days for a fortnight.

Calomel, 1 Scruple.
Sulphuret of Antimony, 1 Drachm.
Soap, sufficient to make a ball.

اگن باؤ.—*Ageen Bhao.*

SECTION 34.—VESICULAR ERUPTION.

HISTORY.—This is an eruption beginning with vesicles, and terminating in suppuration, which breaks out over different parts of the body; and usually is the result of over exposure to an ardent sun.

TREATMENT.—An occasional purgative. The eruption should be washed with warm water daily, and afterwards camphorette oil applied.

قارش.—*Kahreesh.*

SECTION 35.—ITCH.

HISTORY.—The Camel is very subject to cutaneous eruptions arising either from insufficient grooming, from continued exposure to an ardent sun, or from impairment of the digestive functions. That known by the name of Kahreesh (itch) is to be distinguished from the other varieties by the discharge being of a suppurative kind, that of the others being of a serous or glutinous nature at the commencement, and which is more abundant than the quantity of discharge arising from the itch.

TREATMENT.—The application of the Native Mussaul which consists of sulphur, marking nut and milk hedge juice, is very efficacious.

The following is the recipe:

Mussaul No. i.

1 Take of Gendugh, Seer	0 $\frac{1}{4}$	5 Neemuck, Seer	0 $\frac{1}{2}$
2 Choke, do.	0 $\frac{1}{4}$	6 Bahvunchean, do.	0 $\frac{1}{4}$
3 Umbee Ulludh, do.	0 $\frac{1}{4}$	7 Mittah Thale, do.	4
4 Belahmay, do.	0 $\frac{1}{2}$		

Powder the hard substances separately; the marking nuts to be broken and boiled with the oil for a short time; after which throw away the nuts and add to the oil the powdered ingredients and mix. Rub over the body of the animal daily at noon.

بماني.—*Bunnee.*

SECTION 36.—ULCERATION OF THE TAIL.

HISTORY.—This appears to be a constitutional affection shewing itself first in an affection of the tail, where small hard tumours appear that eventually suppurate; the pus being fetid, and go on to ulceration of the substance and bone of the part, so that joint by joint the greater part of the tail is lost. If it extends to the skin a scaly eruption appears, and the animal falls out of condition. It is an obstinate disease though eventually curable. No case of it has occurred at this Hospital.

TREATMENT.—The Native treatment consists merely in applying stimulating ointment to the affection on the tail. It would appear that an alterative course of Calomel and Sulphuret of Antimony, with an occasional purgative, would prove useful.

Mussaul No. i.

1 Take of Kulcopree, Tolas	2	6 Shambrelone, Tola	0 $\frac{1}{2}$
2 Morethootha, do.	0 $\frac{3}{4}$	7 Neemuck, do.	2
3 Puttukdee, do.	1 $\frac{1}{2}$	8 Uldah, do.	0 $\frac{1}{2}$
4 Shorah, do.	2	9 Ahfeeme, do.	0 $\frac{1}{2}$
5 Buldah, do.	0 $\frac{1}{4}$	10 Mittah Thale, sufficient quantity.	

The substances to be finely powdered separately, then mixed together and formed into a soft consistency by the addition of No. 10, and apply to sores on tail every other morning.

گذمان.—*Guzmah.*

SECTION 37.—WHITLOW.

HISTORY.—This consists of an inflammation and eventual ulceration around and beneath the nails of the feet, which become swollen and tender. Sometimes, though rarely, the nail falls off. It may arise from external injury, but usually from no known cause.

TREATMENT.—The feet are to be well fomented during the inflammatory stage. When ulceration exists camphorette oil is to be applied and attention given to keep the part clean. A loose leather case, drawn over the foot, is found useful for the latter purpose.

ACCIDENTS.

ثلي.—*Thullee.* تكي.—*Tahkee.*

SECTION 38.—INJURIES OF THE FEET.

HISTORY.—The feet of the Camel are frequently injured by going over stony roads and being pierced more or less deeply by thorns or other sharp bodies. In the latter case fistulous wounds are inflicted that are very tedious of cure, and indeed such is the case with all injuries of the feet which are liable to swell to a large size from inflammation of the elastic ligamentous pad situate on the bottom of the feet immediately internally with respect to the thick skin over the soles.

TREATMENT.—Superficial ulcers require fomenting in the first instance to clean them. They are then to be dressed with camphorette oil or blue stone, bandaged, and the whole enclosed in a leathern case to exclude dirt. Fistulous ulcers are to be laid open if extending parallel with the surface. If very foul, the most powerful and speedy detergent means are the application of a red hot iron to the sloughy surface. Fistulous ulcers at right angles to surface require to be laid open their whole length, and if foul to be cleaned by the above means, afterwards dressed with camphorette oil or blue stone solution. A piece of cloth being introduced to fill up the entire space of the fistulous ulcer that the healing process may go on regularly and progressively from the bottom of the ulcer to the surface. When there are fungous ulcers over the swelling, the whole ought to be removed by knife, and a hot iron used to stop the bleeding if necessary.

بيت كا زخم.—*Peet ka Zukhum.*

SECTION 39.—SORE BACK.

HISTORY.—This is an injury of frequent occurrence arising from the back being injured in consequence of the saddle being out of order, or from the animal's

load pressing on it. The back inflames, and abscesses of various extent burrowing under the skin are formed, that are tedious of cure. Death is not an uncommon occurrence, the animal becoming exhausted from the continued large quantity of suppuration, or from this burrowing internally into the lungs, not having an exit by external opening.

TREATMENT.—A large poultice made of the following ingredients is to be applied on the back and properly secured, with a view either to reduce inflammation or to clean ulcers, if these have formed. Should abscess exist, an opening is to be made to give free exit to pus; and an injection consisting of blue stone (in the proportion of 8 or 10 grains to an ounce of water) is to be introduced daily to clean the surface of the abscess. When the ulceration is superficial camphorette oil is found an useful application. A piece of wax cloth is to be put over the ulcer, and on the whole, the leathern furniture of the animal, which ought to be kept at rest. When the discharge is copious a double allowance of gram ought to be given, and any of the tonic Mussauls, named under Dhoolba, *vide* Chap. I. Sec. 4, are to be given.

Take of Kataymaht or Pahnee Cunnar ka puttha two handfuls, and half an ounce of common salt, pound both together and heat for 10 minutes, and apply to back every morning. To open ulcers, apply No. 2, or any of the remedies given in Part IV. Chap. II. No. 4.

لچک.—*Lutchuk.* کچوا.—*Kutchwah.*

SECTION 40.—SPRAIN.

HISTORY.—The Camel walks insecurely on slippery ground and on falling sprains itself more or less severely. When this injury happens to the hinder legs, they swell and the affected joints are painful on motion. Cure is tedious, the accident is one that not unfrequently comes under treatment.

TREATMENT.—Fomentations are of greater use in these injuries. When there is much inflammation, and the animal is in good condition, bleeding, or at least an active purgative, ought to be given. Firing over the affected joint may advantageously be used when the inflammation has been reduced, but the cure is slow.

When the shoulder joint is swollen from sprain the accident is called *Kutchwah*, the treatment for which, is that above given.

زخم.—*Zukhum.*

SECTION 41.—WOUNDS.

The remarks under this head in Part I. Chap. II. Sec. 41, apply to the Camel.

SECTION 42.—DISLOCATION.

These accidents appear incurable. A powerful machine was fitted up at the Hospital on the principle of a capstan, with a view to reduce dislocations, but it was not found to succeed. Cases, of which there have been several brought to Hospital have, after a time acquired, some use of the limb by firing, &c., but never became serviceable, and the better plan is to condemn the animal at once, when the accident occurs to the shoulder joint particularly, which is the one most frequently dislocated—the accident arising from the animal falling on slippery ground.

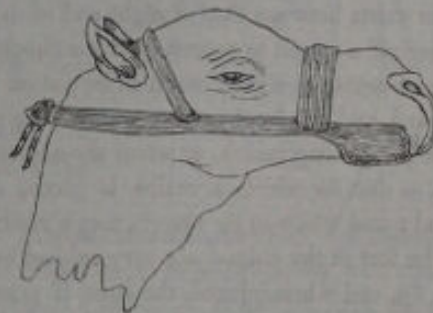
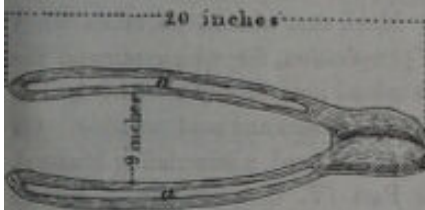
SECTION 43.—FRACTURE.

Fractures of the bones of the extremities are incurable. Of the fractures that have come under treatment the only one that has been cured, was fracture of the lower jaw. The accident occurred from a fall, and the seat of the fracture was about the middle of the bone. An iron splint, of the shape and dimensions shown in Sketch No. 1 below, was used. The arms *aa*. were covered with tow. The mode of fixing it is shown in Sketch No. 2. The animal was fed on gram while under treatment, by hand; after six weeks, a perfect cure was effected.

Shape and dimensions of Iron Splint

No. 1.

No. 2.



CHAPTER III.

SECTION 1.—PRACTICAL REMARKS REFERRING TO THE PRESERVING OF THE EFFICIENCY OF THE ANIMAL WHILE IN HEALTH, AND ON OTHER SUBJECTS CONNECTED THEREWITH.

A VIGILANT superintendence over the Sirwans will go far to preserve the efficiency of the animals under their immediate charge ; whereas if this class of people are left to themselves they are liable from indolence, carelessness, or from a wish not to proceed with a force, to render their animals unserviceable, either temporarily or permanently. Instances of this malpractice have come under my own notice. To show what can be done by attention and vigilant supervision, I may mention that I was informed by an Officer of H. M. 2nd Regiment, who served throughout the Afghanistan campaign under Lord Keane, that he was enabled, by carefully superintending his Sirwan, to take his Camel through the campaign, at the end of which it was equally healthy and efficient as at the commencement. Officers less attentive to their cattle were much inconvenienced by inefficiency or loss. The Officer just alluded to was particular in having his Camel well groomed ; and in avoiding exposure, as far as was practicable to sudden and to great alterations of temperature ; and after a hard day's work, giving it half a bottle of arrack or other stimulus.

The best places for picquetting Camels are topes, if not situated on wet ground. They thereby are sheltered to a greater or less degree from the sun during the day ; and during cold weather from the great difference of temperature which in that season exists between that of night and of day. Much care should be taken when coming off a march to prevent sudden check of perspiration, for which purpose the joolle or coarse covering ought to be put on the animal immediately after its load is removed, and this ought to be worn during the night season and cold weather. On coming off a long march, or when the animal is worked hard, a stimulating Mussaul, such as that for which a recipe is given, *vide* Part IV. Chap. II. No. 3, will be useful : and while on the march, rough roads should be avoided as far as practicable ; for the feet of the animal are very subject to injury as already noticed in Chap. II. Sec. 38, and when injured, the cure, if practicable, is eventually tedious. On the other hand, slippery roads ought to be avoided as much as possible, for the animal on such roads is far from being sure-footed. The Sirwans are in the habit of passing a rope between the hinder legs of the animal when going along slippery roads, so as to allow only of short steps being taken ; and in the event of one foot slipping, it may thereby be brought up. Dislocations are not an uncommon result of the animal slipping : also fractures of some of the bones of the extremities.

A vigilant attention to grooming is amongst the most important means for keeping the animal in health ; and it is one that is apt to be neglected.

Another important point to be attended to in preserving the efficiency of the animal, is attention to the condition of the saddles. If these are allowed to get out

ot order, sore back will be the result. The Sirwan ought to be ordered to report at once when the saddles become so, and unless good and conclusive reasons can be assigned for injury from this cause it ought to be regarded as one arising from carelessness.

SECTION 2.—EXPOSURE TO SUN.

The Camel, like the Elephant, doubtless suffers from continued exposure to an ardent sun ; which therefore, as far as is practicable, should be avoided. The epileptic affection described in Chap. I. Sec. 2, of this book, I have reason to think arises from exposure ; and I have been informed that Tippoo Sultan defended his Camels from the sun by sheds. The Breeders of the Camel are attentive to this point, securing their shelter by topes. It therefore becomes a question how far it is adviseable to preserve the head of the animal when employed during hot weather by a wadded piece of cloth.

CHAPTER IV.

SECTION 1.—A GENERAL VIEW OF THE ANATOMY OF THE CAMEL.

As the Camel differs little in its general organization from the Horse, and as only so much of its Anatomy is intended here to be given as will meet the practical object of a guide in the treatment of diseases of its organs, little under this head need be advanced. Indeed, the osseous system or Skeleton, and the sanguiferous, appear to be all that it is practically useful to allude to. The former as affording points for determining the relative position of organs—the latter in reference to the operation of bleeding.

SECTION 2.—OF THE OSSEOUS SYSTEM.

Figure 3, is a Sketch of the Skeleton of a Camel fitted up at Hoonsoor, with the view to convey some idea of the structure of the animal to the Sirwans.

a. The cranium and upper and lower jaws. In the upper jaw there are no front incisor teeth. There are two canine teeth and five grinders on each side. In the under jaw there are six front or incisor teeth—two canine on either side and five grinders.

b. The bones or vertebræ of the neck, of which there are seven.

c. Vertebræ of the trunk and loins, of which there are nineteen.

d. Ribs, of which there are twelve on each side.

e. The shoulder blade. *f.* The humerus, or arm bone. *g.* The bone of the forearm.

h. The bones of the carpus, or wrist of which there are seven in each fore-limb.

i. The metacarpal bone. *j.* The phalanges, of which there are six arranged in the two parallel views. At *k.* are four semilunar shaped bones.

l. The rump bone, terminated by *m.* the bones of the tail.

n. The haunch bones, or side bones of the pelvis.

o. The thigh bone.

p. The tibia or bone of the leg.

q. The bones of the tarsus, of which there are as in the fore-limb seven.

r. The metatarsal bone.

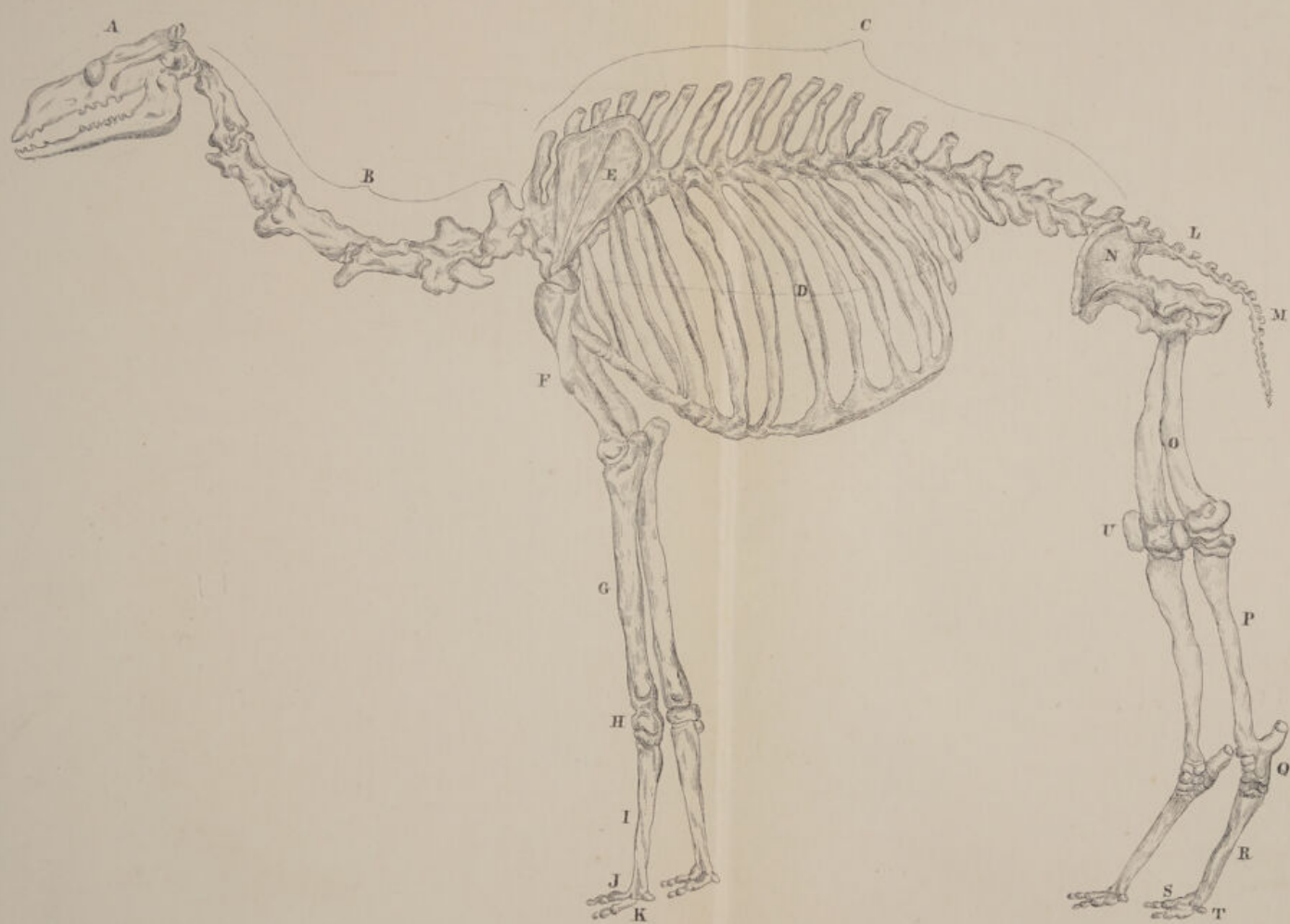
s. The phalanges or feet bones. *t.* The hinder bones of the feet of which in all, as in the fore-feet, there are ten bones.

u. The knee pan.

SECTION 3.—SANGUIFEROUS SYSTEM OF THE CAMEL.

Different from the sanguiferous system of the Elephant, that of the Camel, at least in the venous department, is very capacious. Large veins are to be seen extending longitudinally along the lower part of the trunk and in the neck. The jugular vein is between two inches to two and a half inches in diameter; but the pulsations of the arterial system are not distinct. No artery about the neck or extremities is to be found possessing a distinct and easily recognizable pulse. The

Fig. III.



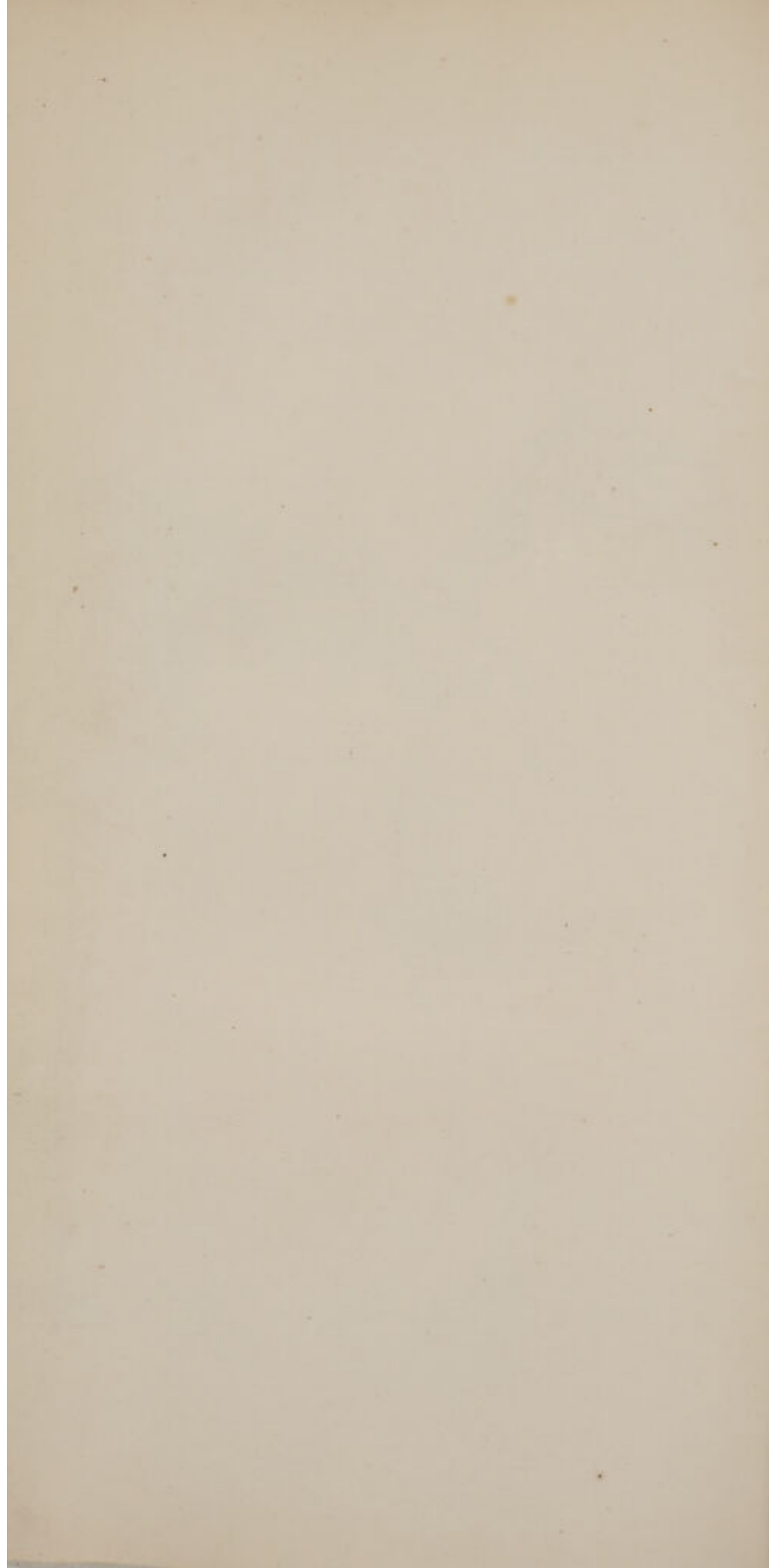
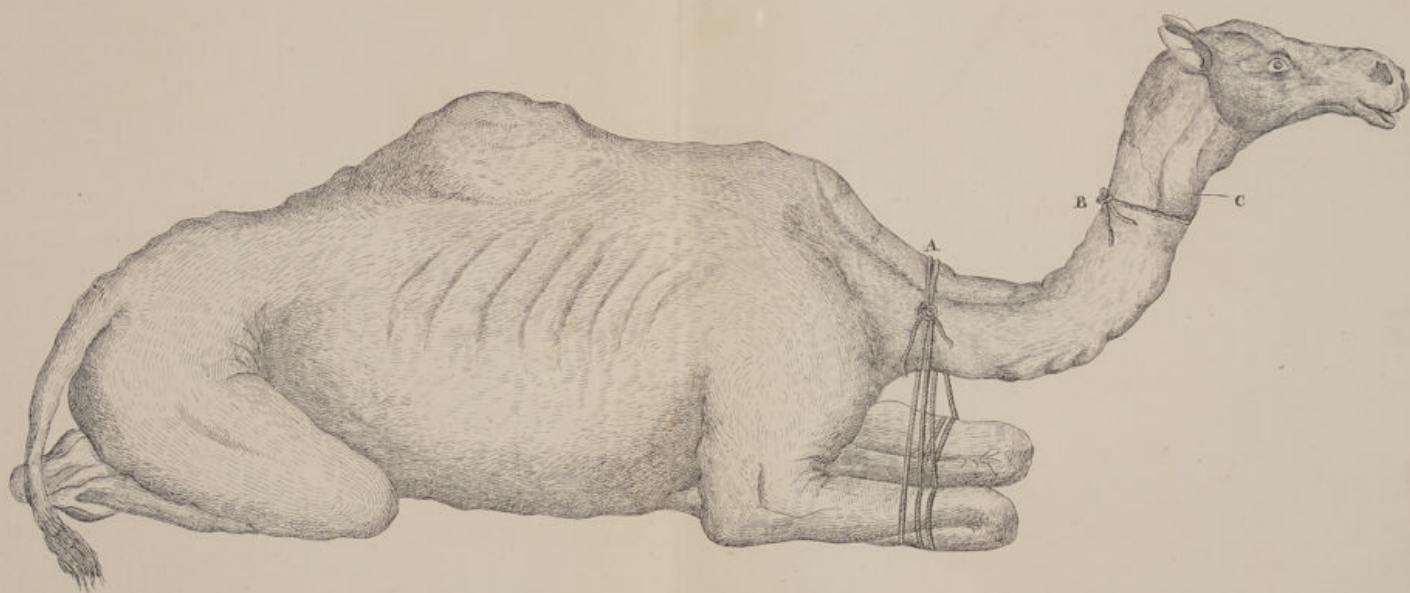
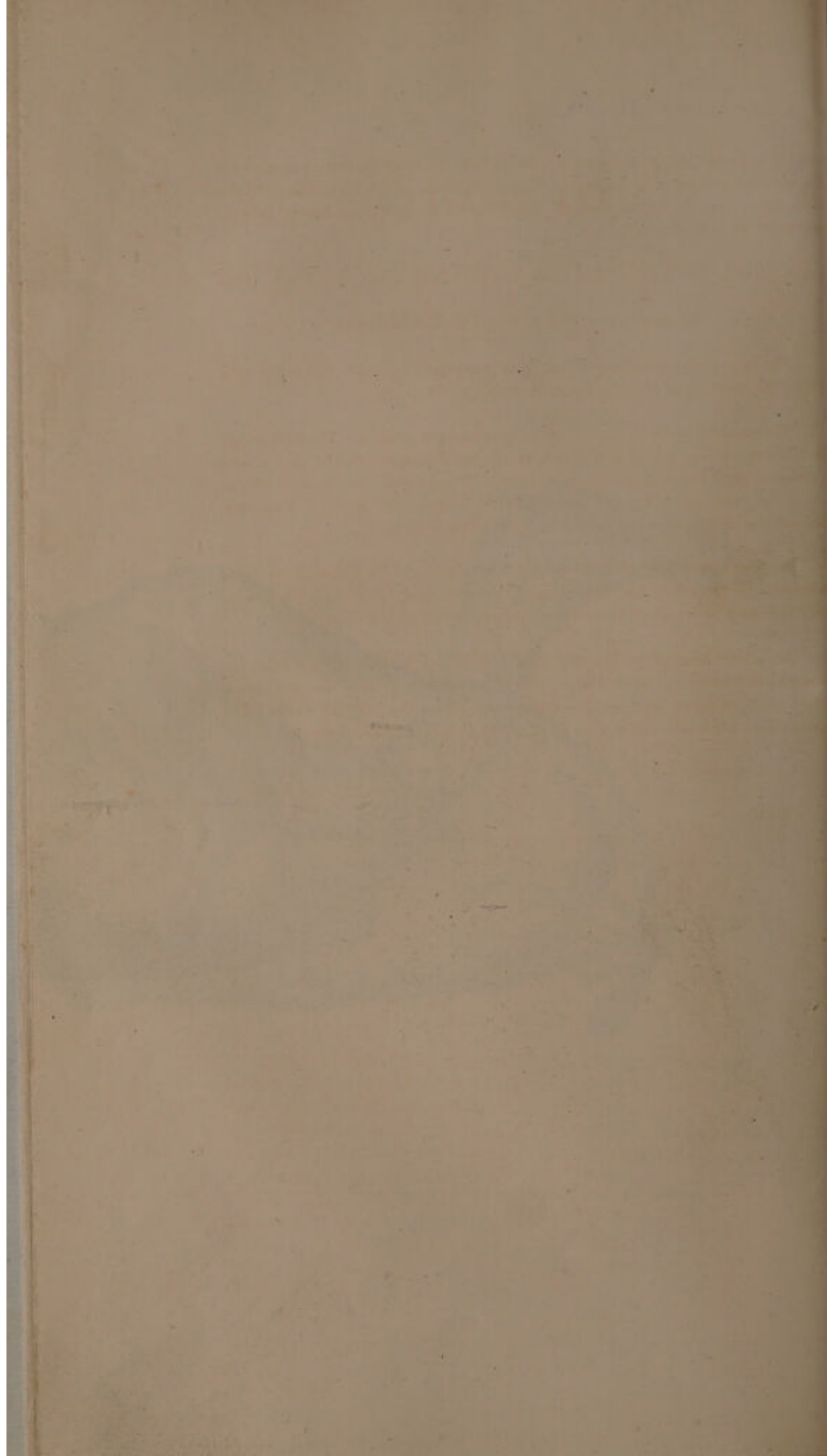


Fig IV.





heart is to be felt, though not always distinctly beating, when pressure is made with the hand between top of the forelegs in front of the chest. From several observations made there, it would appear that the pulsations of the heart, in a healthy subject, amount to 54 in a minute.

SECTION 4.—OPERATION OF BLEEDING.

The large diameter and superficial site of the external jugular vein in the neck render the operation of bleeding one of very easy performance.

The animal is made to place itself in the couchant position. The forelegs are then secured as represented in Fig. 4 *a*, to prevent the animal rising; then a rope moderately tight is put round the neck as at *b*. The jugular vein speedily swells, at the site most eligible for the incision, *c*, and is opened by means of a common horse fleam, used in the same manner as for bleeding a horse.

A gallon and a half of blood is a full bleeding, and in inflammatory cases that quantity should, in the first instance, be abstracted; afterwards a gallon, or only half, may be drawn off according to the urgency of the individual case.

An animal brought to Hospital with a fractured humerus, or arm bone, (an incurable accident) was made the subject of experiment to ascertain how much blood could be drawn off from the jugular vein before death would ensue. The animal lived a few hours after upwards of ninety pounds had been abstracted.

PART III.

HISTORY AND TREATMENT OF DISEASES OF HORNED CATTLE.

CHAPTER I.

GENERAL DISEASES.

*Chellay Novoo, Tam. Chellay, Can.**

SECTION 1.—FEVER.

HISTORY.—Fever may commence with shivering, though not always. Animal at first is heavy and listless, afterwards becomes restless and breathing hurried; there is dryness of the mouth; the ears are cold; hair stands on end. Animal does not graze, but drinks largely of water, the bowels are constipated, and the urine, soon after voiding, acquires an ammoniacal smell. There is watery discharge from the eyes. These symptoms are usually associated with local affections of the head, lungs, or some other vital organs. It is rare that pure fever, that is, fever unconnected with local affections, occurs.

TREATMENT.—When no local complication can be detected, and the animal is in good condition, it ought to be bled to half a gallon; the flanks ought to be well fomented, and the following purgative given:

Common Salt,	6 Ounces,
Aloes,.....	4 Ounces,

dissolved in a pint of warm water.

Coolooroo, Tam. Sallee, Can.

SECTION 2.—AGUE.

HISTORY.—This affection, which consists of a shivering with exhaustion, is liable to supervene after exposure to heavy rain, more especially the thunderstorms that prevail in the Mysore country in April or May. Such storms indeed have been known to prove extensively fatal, particularly when the cattle are out of condition, and consequently have not the requisite stamina to resist the sudden shock which exposure to such storms occasions.

* There being no Goejrattée type in this office, the names of diseases, &c., are put in romanized character.

TREATMENT.—The cattle ought to be got under shelter and fomented over the whole body: but the most prudent measure is a preventive one. It ought to be a rule when, during the movement of a force, such storms may be expected, to picquet the cattle in the most sheltered situation procurable. The same precaution is also advisable during the monsoon, for as the state of the roads during that season occasions greater labour and consequent greater exhaustion from fatigue, the cattle are less able to bear up against exposure to heavy rains.

A decoction, composed of black pepper two ounces, chillies two ounces and water two quarts, is commonly given with benefit when the animal is aguish from exposure to rain. The fomentation alone will be found very serviceable.

Thalay Choothoo, Tam. Thalay Choothee Rogah, Can.

SECTION 3.—APOPLEXY.

HISTORY.—This affection usually occurs suddenly during the hot weather. The first symptom is a trembling of the limbs; the animal then turns round and round, and sooner or later falls; afterwards there is a convulsive condition of the body and limbs, which abating the animal rises, but soon turns round and round again and then falls. The eyes roll about and the animal looks wild, but is not usually furious, though it may, apparently from fear, show dislike at the presence of strangers. The breathing now becomes laborious, the animal is insensible, and dies after a few hours of sterterous breathing. In milder cases, recovery may occur if firing on the forehead and back of the head is practised early. Young and robust cattle are mostly the subjects of this affection; but it rarely occurs unless epidemically, as one of the varieties of Burra Azar, *vide* Chap. I. Sec. 7.

TREATMENT.—In addition to firing on the head, the animal ought to be bled to a quarter or half a gallon; and the body well fomented. A purgative is to be given of six ounces of common salt and four ounces of aloes dissolved in a pint of water.

Parsevayvoo, Tam. Farsecrogah, Can.

SECTION 4.—PALSY.

HISTORY.—Palsy of the hinder extremities is not uncommon, and arises from injury to the lower part of the spine, arising from severe blows, strains from falling when loaded, &c. It may also arise from severe injury to the head, as the breaking off of the horns; great exertion alone may occasion it.

TREATMENT.—This affection generally is incurable, or at best only a partial recovery occurs, rendering the animal more or less inefficient, so that perhaps the better plan will be to condemn the animal at once. The treatment, however, if it be

deemed advisable to institute one, consists in general bleeding, fomentations to the flanks, and firing over the lower part of the spine. The following aperient may be given occasionally :—

Common salt,.....	3 Ounces,
Aloes,.....	4 Ounces,
Ginger in powder,.....	2 Drachms,

diffused in a quart of warm water.

Vahevoo Novoo, Tam. Vaheerogah, Can.

SECTION 5.—RHEUMATISM.

HISTORY.—This is a somewhat common affection, seated in the muscles usually and sometimes in the joints. The cause of its supervening is exposure to cold. The joints swell and become stiff when they are the seat of the affection, and the muscles are tender to pressure when it is situated in them. In obstinate cases the animal falls considerably out of condition.

TREATMENT.—The Native treatment is firing, which frequently is efficacious. However fomentations may, in the first instance, be resorted to, and an aperient given of aloes and common salt, of each four ounces, dissolved in a quart of warm water. Some cases have done well after the application of leeches to the affected joints, but when the case is obstinate, firing has usually proved the most efficacious treatment. In chronic cases, when the animal falls out of condition, the following tonic wash ought to be given:

Tonic Wash.

1 Take of Sohmbuoo,.....	Tolas 6	5 Vasumbuoo,.....	Tolas 6
2 Kusskussa Tholoo,.....	do. 12	6 Kadoogoo,	do. 4
3 Nellavembuoo,.....	do. 12	7 Mohdee,	do. 6
4 Moosambrum,	do. 6	8 Sookoo,	do. 4

Boil the above in 4 pukka seers of water for 2 hours, and give half a pint morning and evening.

Dhoolba, Hind. Buddathana, Can.

SECTION 6.—WEAKNESS.

HISTORY.—This is a very comprehensive class of disease in regard to its causes, although the general symptoms are the same or nearly so, what cause

soever occasions them. The symptoms are emaciation in various degrees, affections of the skin, varying from roughness of the hair and scurfy secretion to positive ulceration in the shape of small pustules. Occasionally the pustules are large. In other cases only a redness of the skin obtains with some falling off of the hair. The animal is much influenced as to the state of the bowels, by the condition of the atmosphere, so that exposure, during a heavy fall of rain, occasions purging which often proves fatal. There is drooping of the head and ears, and loss of appetite; and the animal altogether has a listless aspect.

Affections of the brain and spine, as also of the liver and lungs, and of the digestive organs generally, are the usual causes of weakness.

1st. *Brain and Spine.*—In numerous cattle dissected, the only appearance to account for death was watery effusion on the brain and spinal marrow. On separating the head from the spine, a fluid always watery, but sometimes coloured red with blood, has been found to escape. The practical distinction of this cause of the disease under consideration is a considerable degree of listlessness, sometimes stupidity of the animal. It separates from the herd, and seeks some sheltered place where it grazes a little and then lies down. The bowels are regular. The attendants usually attribute the ailment of the animal to have arisen from a bird, called Murreeyakee in Canarese, having perched on its back, or to an insect having bit its mouth. Even the shade of the above named bird is supposed by the attendants to cause the disease. But either bird or insect, I have never been able to get procured, although parties have started out full of purpose to bring both in. This is evidently one of the numerous superstitions entertained by the cattle attendants, and is mentioned merely to prevent attention being drawn from the real cause which appears to be solar influence, as the affection under consideration arising from the effusion mentioned, obtains during or immediately after the hot season.

2nd. *Liver and Lungs.*—In these organs cysts or bladders are found, varying from half an inch to three inches in diameter, filled with a limpid fluid. When a cyst is opened this fluid is ejected to a considerable distance, thus showing the elastic nature of the containing cysts. These cysts vary in number in the lungs from six to twenty, and the practical indication of their existence in these organs consists in shortness of breath, falling to the rear and lying down. When the liver is the seat of these cysts, there is generally a constipated state of the bowels, and the presence of the pustules of the skin, above alluded to, of a large size.

3rd. *Stomach.*—As is well known the stomach of the bullock is a complicated organ, consisting of four distinct cavities. Of these the third or "many plies" is subject to derangement, which is shown by an extensive dryness of its contents, arising from a deficient secretion from the surface of this cavity. Debility is the result of this condition and is shown by a variable state of the bowels, which are usually costive, but sometimes the reverse. This latter condition is most prevalent during the commencement of the monsoon.

TREATMENT.—*Of the effusion of fluid on the brain and spinal cord.*—There is no doubt that this cause of weakness arises from exposure to the sun, and therefore shows the propriety of confining, as far as the circumstances of the moving force will allow, the movement of cattle to morning or evening during the hot season. An occasional purgative, especially after unavoidable exposure will prove beneficial. The following will be found efficient,—Aloes, four ounces, common salt, six ounces, dissolved in a quart of warm water. In addition to giving this aperient, the cattle ought to be fomented on occasions of halting, as explained under the head *Burra Azar*, *vide* Chap. I. Sec. 7. In cantonments, where there is opportunity for a more leisurely treatment, the native practice of firing along the spine will prove beneficial, in addition to which an alterative bolus composed as under will be given with advantage :

Calomel,	0½ Drachm,
Sulphuret of Antimony,	1 Drachm,
Soap,	0½ Ounce,

which mix.

The above bolus to be given on alternate days for a week.

Cysts of the Liver and Lungs.—In these affections the alterative bolus just named, with the occasional use of the aloetic aperient, will prove the most efficient treatment, but these cases are obstinate usually, and generally a treatment extending through several months is required for cure, which nevertheless is not always effected.

Stomach.—When the stomach is impaired, the most efficient treatment consists in giving the following daily, until the condition of the animal is restored :

Infusion of Margosa bark,	2 Pints,
Common salt,	2 Ounces,
Ginger in powder,	2 Drachms,

which mix.

The infusion of Margosa bark is made by boiling four ounces of the bruised bark in three pints of water, boiling down to two pints.

Although for the sake of description the causes and treatment of weakness are separately stated, it can easily be understood that more than one cause may operate contemporaneously; in such cases a combination of the above named modes of treatment ought to be adopted. In all cases a sedulous attention to grooming the animal and giving it the benefit of good shelter and forage, will greatly expedite a cure.

Burra Azar, Hind. Perriah Novoo, Tam. Dhodrogah, Can.

SECTION 7.—MURRAIN, OR EPIDEMIC DISEASE.

HISTORY.—Of all diseases to which the Bullock is subject, Burra or Budda Azar is much the most important. It is the Murrain of Europe, and during the epidemic visitation, occasions as extensive a mortality amongst the herds of Asia, as amongst those of the Western world. It may occur at any season, no one part of the year being more influential than another for its development.

Nature of the Disease.—The interior side of the chest and of the abdomen, the inside of the skull and of the spine, the mouth, the nostrils, the throat, the stomach and the intestines are all lined with membranes. The membranes lining the first four of the above named parts are of the kind called serous; those lining the last five named parts are of the kind called mucous. The nature of Burra Azar is an inflammation of one or more of these membranes, and the individual case of attack will vary both as to symptoms and to severity according to the kind of membrane and its situation, which is the seat of disease, as will be subsequently specifically detailed.

General Symptoms.—These are drooping of the ears, which are cold, the hair on the body standing out as if it were on end; the animal is heavy and listless and ceases to graze. The urine is scanty and reddish coloured. The pulse is quick, and is either weak or strong according to the kind of individual attack. A further stage of development of the disease occasions running at the nose and eyes, soon after which the symptoms indicative of the particular seat of the disease appear.

Particular Symptoms.—1st. If the membranes of the skull and spine be the seat of attack, the animal evinces symptoms of madness. The eyes are prominent and fiery, and from these organs as also from the nose there is much discharge, which is at first clear and watery, afterwards thick and yellowish coloured. The whole demeanour of the animal is one of madness, running about in a wild manner, and attempting to attack the attendants. Sooner or later these symptoms give place to those of an apoplectic character, *vide* Chap. I. Sec. 3. The animal falls down, commences a snoring breathing, is little if at all sensible, and dies.

The epidemic of Horned cattle is usually most severe at the commencement. It accordingly frequently happens at the outbreak of the epidemic seizure that this apoplectic state supervenes within a few hours after the individual attack, not being preceded by the madness above alluded to, and indeed by few or none of the general symptoms, except leaving off grazing and drooping and coldness of the ears. The animal is frequently so speedily overpowered by the disease, that it dies within two or three hours with well-defined symptoms of apoplexy. After ten days or a fortnight's continuance of the epidemic, this variety does not prove so rapidly fatal: the animal may continue in an insensible state with snoring breathing for two or even three days, but this variety, whether running its course speedily or more slowly, is generally fatal, and is almost certain to be so if early treatment be not adopted.

Dissection most clearly indicates the cause of death which results from fluid, more or less bloody, being secreted within the skull and making fatal pressure on the vital organ within—the brain, which is itself, as also its membranes, more or less inflamed. In the more protracted cases of this variety, the discharge from the nostrils consists of mucus mixed with blood, and is very fetid, attracting flies which deposit eggs that become maggots in the space of a few hours.

2nd. *Chest and Lungs*.—When the membranes of the chest and lungs are the seat of the disease there is cough and rapid breathing.

3rd. *Bowels*.—When the mucous membranes of the bowels are affected, the evacuations are loose and mixed with slime and blood: not unfrequently, however, there is frequent watery purging with little slime, though the evacuations are very fetid. Sometimes the dung is hard at the commencement, dark coloured and offensive. When the costive state of the bowels, just spoken of, is conjoined with the affection of the head above alluded to, the name Buttee Azar is sometimes given to that variety of attack—also the name Bhao. The cysts described under Dhoobla, *vide* Chap. I. Sec. 6, are found occasionally in the lungs or liver of animals that have died of Burra Azar, but such cysts are in no way an essential condition of this epidemic.

It is not to be understood, however, that cases so completely insulated, as stated in the above history, are the ordinary manifestation of the disease, which is thus subdivided for facility of description. On the contrary, few cases occur which do not exhibit a combination, more or less extensive, of the above symptoms, and the progress of the epidemic from outbreak to decline usually observes the order of symptoms above given, shading gradually from one group of symptoms into the other.

The causes, whether predisposing or immediate of this epidemic, are unknown. The ordinary condition of the seasons appears to have little influence over it, as it occurs equally frequent during all seasons. The theory of the natives as to the cause is, as might be expected, based on the most crude superstition. Apart from religious ideas, the only circumstance I have known them to name as productive of it, is that of a tiger having urined in the vicinity of the herd.

TREATMENT.—The only efficient part of the Native treatment consists in firing, which is done sometimes in spots, or in straight lines, or curved along the spine, or on the flanks, and generally terminating trilinearly or forked. To this mode of termination of the lines they attach, though needlessly, much importance, the only requisite being sufficiently extensive firing. Their internal treatment is wholly inert; peacock's feathers and tiger's flesh are the essential ingredients of their boluses.

Whether this disease be infectious or otherwise, has not been determined. However, as a precautionary measure, it is advisable that the infected cattle be separated from the healthy. The earlier the sick are brought under treatment the greater is the chance of cure. Whatever be the variety or combination of symptoms,

as a first and essential measure, blood ought to be drawn to the extent of two to four quarts.

The most favourable place for performing the operation of bleeding, is the vein of the neck, corresponding to the same vessel in the horse; but in Horned cattle the skin is much more loosely attached to the flesh than is the case in the horse, so that with respect to the former animal, after the opening into the vein is made in the usual manner with a common horse fleam, the skin is very apt to move, and thus to cover up the opening in the vein, thereby impeding or altogether stopping the flow of blood. The following will be found a more successful mode of procedure. The skin immediately over the vein is to be cut through with any sharp cutting instrument to the extent of an inch at right angles to the course of the vein, which is to be kept distended by making pressure on it between the incision and the trunk of the body. The vein, which will be distinctly seen in the incision of the skin, is now to be laid open for three-fourths of an inch lengthwise. The blood will then flow freely, if not, a quill, or thin tube of any metal, about a quarter of an inch in diameter, is to be introduced into the vein, through which the blood will flow freely.

The effect of this operation on the animal will soon be distinctly visible. Animals previously lying in a state of snoring insensibility, have a few minutes after its performance, got up unassisted, ceased to breathe stentorously, and became sensible: but unless the operation be performed early after seizure, this marked improvement will be only temporary, as far at least as regards the variety with apoplectic symptoms. After bleeding, the following aperient ought to be given, namely, of aloes and common salt, each four ounces, dissolved in a quart of warm water, and two drachms of ginger in powder added.

Next the whole body of the animal ought to be fomented in the following manner:—Cow dung is to be mixed with water in such proportion that the mixture will have the consistency of thin paste. This is to be made hot over a fire in a wide mouthed chatty, and applied to the body of the animal by means of a sort of brush made of a piece of cloth tied to the end of a bamboo about five feet long. An imperfect incrustation of the mixture will adhere to the body of the animal, and be found to retain the heat. The cattle under treatment ought to be kept in a well sheltered place.

In the variety that shows apoplectic symptoms, if these be not relieved by the first bleeding, it is to be repeated after the lapse of two hours, to the extent of two quarts. The fomentations are to be sedulously continued, and will be found to be a very useful curative measure. Firing on the top of the neck, throughout its extent and on both sides, ought to be performed.

The plan of treatment for the other varieties of this affection is, in a great measure, similar to that just recommended, the disease under every variety being of an inflammatory nature. In cases of watery purging, which speedily weakens the animal, very much bleeding is not to be practised. Fomentations and warm drenches, such as the following, will constitute the most efficient practice.

Warm Drench No. i.

1 Take of Raggy Conjee, Bottles	2	6 Mohdee,	Tolas	2	
2 Vengayum,	Seer	0½	7 Kuskussa,	do.	4
3 Seeragum,	Tolas	2	8 Mahdalum Pinjee,	do.	2
4 Lahvungum,.....	do.	3	9 Moorookum Puttay,.....	do.	1
5 Thipili,	do.	2			

The hard substances to be powdered and added to No. 1 and mixed. Give a bottle full, morning and evening, until the animal is relieved.

Warm Drench No. ii.

1 Take of Raggy Conjee, or thick Rice Conjee,	Bottle	1	4 Vengayum,	Tolas	12
2 Sookoo,	Tola	1	5 Avarum Kolindhoo,	do.	12
3 Sohmboo,	do.	2	6 Masee Kahee,	do.	1
			7 Thyroo P.,	Seer	1

Powder the hard substances and add to Nos. 1 and 7, and mix and give one-third part night and morning.

Pahudoo, Tam. Pahudoorogah, Can.

SECTION 8.—DROPSY.

HISTORY.—A collection of fluid in the cavity of the belly is a common result of severe inflammation, and shows a weakened state of the system, being associated with loss of flesh and weakness. This is a condition from which it is hopeless to save the animal, and death results sooner or later; but there is a general swelling of the surface not uncommon, consisting of fluid secreted below the skin, to which the names *Pahudoo* and *Pahudoorogah* are given, which occurs during the hot weather and appears to result from the effect of an ardent sun on the skin. It commences with feverish symptoms: the surface of the body is hot: there is thirst, the urine is scanty and high coloured. The animal grazes a little but does not ruminate. About a week after the commencement of the fever, a swelling appears about the neck which extends along the chest, down the limbs, and eventually, more or less, over the whole body. Death sometimes results from this affection, and on dissection, fluid is found in the cavities of the abdomen and chest; the liver is found to be swollen and of a pale colour.

TREATMENT.—Slight attacks recover from a brisk purgative with firing along the flanks and on the sides of the neck. Animals in good condition, having this ailment, ought to be bled to a quarter or half a gallon, after which an aperient of four ounces of aloes and six of common salt, dissolved in a quart of water, ought to be given. The following is a useful diuretic decoction which is given by the natives in this affection:

Diuretic Drink.

1 Take of Poolee, Tolas 24	3 Vengayum, Tolas 24
2 Oopoo, do. 12	4 Mohroo P., Seers 4

Mix No. 1 in No. 4, throw away the seeds; powder the other ingredients and add to No. 4, and mix; give one-third to the animal night and morning.

Veree Nahee Kadee, Tam.

SECTION 9.—HYDROPHOBIA.

HISTORY.—The bite of a mad dog occasions madness in the bullock. The symptoms appear about two days after the bite is inflicted, of which the first observed is frothing at the mouth. The animal is confused, restless and wild looking, trying to break loose. It will drink freely, but does not graze. The symptoms of madness may continue 10 or 15 days, during which time the animal loses flesh and appears to die from the combined effects of starvation and of the poison occasioning madness. It dies convulsively.

TREATMENT.—The only treatment likely to be useful is the early excision of the bitten part and cauterizing it with a hot iron afterwards. The Native treatment consists in firing on the head and along the spine, and giving opium dissolved in gingili oil, but without any curative effect, so far as is known by the cattle attendants at this Hospital, from whom the above history was received.

Kuttee, Tam. Korovoo, Can.

SECTION 10.—BOILS.

HISTORY.—These are not unfrequent of occurrence, and, as mentioned under the head Weakness, *vide* Chap. I. Sec. 6, are usually the result of internal ailment. Sometimes, however, they arise from other causes, of which apparently the most common is heat of weather, as they are most prevalent during the hot season.

TREATMENT.—The general treatment consists in giving an aloes' aperient combined with common salt. Camphoretted oil is to be applied to the ulcers which frequently result from the boils; but these ulcers are much less likely to occur if the boils be laid open with a scalpel when they are found to contain pus.

SECTION 11.—IRLEE.

HISTORY.—There is a small boil which appears between the hoofs of one or more feet, known by the above name, which, if neglected, may render the animal lame for several days.

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SECTION 2.—HORN.

As mentioned above, horns are not unfrequently broken off by accident. The bony covering of the brain consists of two tables or plates, between which there is a hollow space about an inch. The horn, properly so called, is fixed on a hollow bony process which is an elongation of the outer of the two plates above alluded to. When therefore a horn and its contained hollow elongated process are broken off, the space between the two plates of the skull is laid open. The sides of this space are lined with a membrane, which when thus exposed and injured by the fracture of the bone over which it is spread, inflames, and the inflammation sooner or later affects the brain. We have succeeded in causing skin to grow over the opening occasioned by the removal of the horn and its contents, but most of the animals lost flesh and became unfit for service: those that recovered were young animals, but they did not regain their former efficiency.

TREATMENT.—This consists in removing the horn and its contents by dividing the skin by which only it remains attached to the head; and so arranging the loose skin over the opening as is most likely to secure its permanent closure. The air is to be excluded by pitch and cloth: and the uniting process of the skin allowed to go on undisturbed by the non-removal of the dressings for a fortnight or three weeks. Should inflammation of the brain occur, the treatment given under that head is to be followed.

SECTION 3.—NOTICE OF EXPERIMENTS IN REFERENCE TO CUTTING OFF HORNS.

Experiments have been made of cutting off the horn of the Bullock, details of which may here be stated. The object in view was to ascertain how far the removing of the horn and its bony contents would affect the health of the animal, if at all, so that in the event of its being wished to remove the long horns of some varieties of the Mysore breed, the length of which may be considered objectionable, the effect of the operation as regards health might be previously determined.

Experiment First.—A horn was cut off with a saw, about an inch and a half from the root. The animal showed signs of pain when the membrane, lining the hollow bony process to which the horn is attached, was reached by the saw. There was some bleeding from the remaining part of the bony process, and air from the nostrils escaped through the opening made by the removal of the horn. The dressing consisted of strips of common adhesive plaster applied so as effectually to close the opening. Fourteen days after the operation the dressing was removed, when the membrane, lining the remaining portion of the bony process, was found red coloured, and so far swollen as to leave an opening only about half the diameter of the original one. A month from the date of operation the opening had closed, and horny matter was growing over the cicatrized surface. About a month and a half after the operation of sawing off the horn, the surface was covered with horny

substance, but pressure occasioned uneasiness in the part. After four months the bony matter was so thick over what may be called the stump of the horn, that pressure gave no uneasiness whatever. Thus upwards of four months elapsed before the opening was closed and covered with horn.

Experiment Second.—The other horn of the same animal was then cut off, the remaining portion being about the same length. The treatment was the same as followed in the first experiment, but there remained after six months a small opening about a quarter of an inch in diameter, which closed about two months afterwards, at which time the whole was covered over with horny matter: however at ten months from the date of operation pressure on the part gave uneasiness to the animal.

When the animal was first operated on it was considerably out of condition from affection of the skin, but it has since become robust and healthy, so that these experiments clearly show that the operation of cutting off the horns within two inches from the head is not hurtful to health: whether the operation would be advisable to get rid of the inconvenience arising from the length of the horn is a question to be decided by parties interested therein. The experiments above detailed show that no effect prejudicial to health results from the operation.

SECTION 4.—AFFECTIONS OF THE EYE.

HISTORY.—The eyeball is not unfrequently the seat of a tumour resulting from one animal having gored the other in that organ. There are many degrees of severity of wound, but the tumour in question, results only when the coats of the eye are destroyed and grows out of what was the interior surface of the organ. It discharges pus and may project beyond the orbit.

TREATMENT.—The tumour, with what remains of the eyeball, ought to be extirpated with the knife; whereby only the morbid mass is got rid of, while the orbit will, to a considerable extent, fill up by the granulating process. In less severe injuries of this organ, amounting to inflammation, only fomentation, local bleeding or firing may be practised. White specks that may remain on the cornea, or transparent front of the eye, may be occasionally removed by touching them with lunar caustic.

Moopaung, Hind. Comaree, Tam. Bahejerrah, Can.

SECTION 5.—EPIDEMIC AFFECTION OF THE MOUTH AND FEET.

HISTORY.—This is another epidemic affection to which horned cattle are subject, and one which is not usually of serious import in itself, but which from

neglect on the part of the attendants may become one of considerable mischief and even occasion death.

Moopaung consists of a vesicular eruption of the lining membrane of the mouth and nostrils: and also of that portion of the skin of the legs immediately above the hoof, as also of that between the hoofs. The animal on seizure becomes listless and leaves off grazing, apparently from tenderness of the mouth. After the lapse of three days there appears a running from the nose; the lower part of the legs swells and little bladders or vesicles are found immediately above the hoofs. About the fifth day from seizure, these vesicles become small ulcers, which are to be seen on the tongue and inside of the mouth; the same also appears in the nostrils and above and between the hoofs. The animal walks limpingly. The general functions of the system are little, if at all sensibly, disturbed; but if the animal be neglected maggots appear in the nostrils and about the feet. The foul ulcers resulting may produce permanent lameness or death from mortification within the nostrils.

TREATMENT.—Camphorette oil, applied to the nostrils and feet, speedily effects a cure, being curative as a means, while it prevents flies from depositing ova which speedily turn to maggots. The native treatment consists in causing the cattle to stand in soft mud: flies are thereby prevented access to the feet, and so far well, but the nostrils continue undefended. The application of camphorette oil, consisting of camphor eight tolas, dissolved in a quart bottleful of cocoanut oil, meets every requisite and effects a speedy cure.

The following is an extract from a Topographical Report by Staff Surgeon G. B. Macdonell, which describes a variety of Moopaung, as it appeared in the Tenasserim Provinces in 1839.

"The last warm season was considered unusually hot, and with it the cattle which came down in March, brought with them a disease which spread extensively among the Moulmein cattle and proved exceedingly destructive. It appears that this epidemic was present in the Shan country and very destructive, and, as it abated there, it became apparent on the coast; and it is very doubtful whether it could be considered infectious.

"It is more rational to attribute it to some hidden epidemic constitution of the atmosphere, having the same laws as other epidemics, than to contagion; the cattle in the town were in no way exposed to contact with the Shan cattle, and were moreover in excellent condition, while the others were thin from long travel, yet all suffered.

"It showed itself in a most insidious manner, and to the inexperienced eye was not obvious, but the cattle drivers in their diagnosis were always right. At first the animal appeared dull, then the feet between the hoofs were seen to swell, and the heels became spongy: next the breath was observed to be offensive, the gums became spongy, and the mouth pouring out a frothy discharge; at this stage the feet became much diseased, the toes extended, the foot swelled, and the animal could

hardly walk; emaciation gradually came on; the animal appeared never to lose its appetite, but was prevented from feeding by the state of its gums; the bowels were generally confined, and the pulse quick; the disease in the course of three weeks from its first commencement generally proved fatal. From this disease some 7 or 800 head of cattle died.

"To ascertain the effects of the disease a series of post mortem examinations were instituted; and save in a few instances, which showed ulceration and softening of the mucous membrane of the stomach, the disease might be called bronchitis extending to the substance of the lungs. From this view of the subject the treatment I suggested was to bleed copiously in the first instance, to relieve the bowels with Glauber salts and Tartar emetic."

Adapaun, Tam.

SECTION 6.—MUMPS.

HISTORY.—This is a swelling of the parotid gland, and is indicated by a swelling at the angles of the jaw, with cough and more or less difficult breathing. It sometimes proves quickly fatal; but in such cases there is also inflammation of the top of the windpipe; and the cause of death is an effusion of fluid into the surrounding soft parts closing up the air passage and thus occasioning suffocation.

TREATMENT.—Free bleeding ought immediately to be had recourse to on the appearance of the external swelling, as thus the disease will be most speedily checked, and prevented increasing to the affection of the air passage. Fomentations to the neck will also prove beneficial, and an aperient ought to be given.

Kundamahlay, Tam. Gendamahlay, Can.

SECTION 7.—SWELLING AND SUPPURATION OF THE GLANDS OF THE NECK.

HISTORY.—The glands situate in the neck are the seat of an affection which causes them to inflame and frequently to suppurate. The attendants consider this affection to be of the nature of scrofula in the human subject. It is hereditary and appears from the second year of age upwards. It begins with swelling of the parotid gland: afterwards other glands on the neck swell and become hard. In this state they may remain for several months, and on firing them, the swollen condition may disappear from the glands so treated, but other glands in the vicinity will subsequently inflame. Usually after the second month the swellings suppurate, then heal, and others assume the suppurative state. Ordinarily the animal does not fall much out of condition, nevertheless the affection appears incurable. It may be free

from suppurative swellings for a time, but they return from time to time and there are more or fewer during life.

TREATMENT.—The tumours are to be laid open when they contain pus. Firing is useful, sometimes preventing suppuration. The following alterative is to be given, once daily for a fortnight, viz.

Sulphuret of Antimony,	2	Drachms,
Sulphur,	1	Drachm,

which mix with water and give.

An aperient ought occasionally to be given, consisting of aloes and common salt, of each four ounces, dissolved in a quart of water. The tonic decoction mentioned, *vide* Chap. I. Sec. 5, ought to be given twice weekly.

Thorupoo, Tam. Papesa ka Murz, Hind. Dhomay Rogah, Can.

SECTION 8.—INFLAMMATION OF THE LUNGS.

HISTORY.—Hurried breathing shown by quick motion of the flanks, drooping of the ears, and hanging of the head, horns about the root hot, nose hot and dry, loss of appetite, cough, and the animal altogether much oppressed, are symptoms which indicate an extreme degree of inflammation of the lungs. Less severe varieties are marked by a more frequent cough, and running from the nostrils and eyes, but all form a link in the same chain of disease, and the slightest varieties may soon lapse into the more severe. This affection sometimes prevails epidemically when atmospheric conditions appear to be the cause—Burra Azar, *vide* Chap. I. Sec. 7. The individual cases arise from sudden change from heat to cold, when the animal is heated after hard work, being allowed to stand exposed to a chilling wind. Cattle in good condition are the most subject to it.

TREATMENT.—Bleeding from four quarts to a gallon ought to be at once resorted to. Fomentations of the trunk will prove very beneficial, and the following ought to be given about an hour after the bleeding, and continued daily till cough disappears.

Sulphuret of Antimony,	3	Drachms.
Calomel,	0½	Drachm.
Soap, sufficient to make a ball.		

The bowels ought to be freely opened. The bleeding may be repeated to two quarts; if considerable relief has not followed the previous operation, the fomentation is to be persevered with, and hot drinks, as decoction of brau, are to be given occasionally.

Rolanovoo or Goondee, Tam and Can.

SECTION 9.—INFLAMMATION OF THE HEART.

HISTORY.—With the exception of the presence of cough, the symptoms of inflammation of the heart much resemble those of the same affection of the lungs; indeed, the two affections are not unfrequently associated, and arise from similar causes, namely, exposure to cold when heated from hard exercise.

TREATMENT.—The same treatment is to be observed for this affection as for that of inflammation of the lungs.

Navalee, Tam. Nundrogah, Can.

SECTION 10.—INFLAMMATION OF THE SPLEEN.

HISTORY.—This, which is rather a common affection, is indicated by a heavy demeanour of the animal and running at the mouth; it grazes little or none at all, and if curative measures are not soon adopted it falls off very much. The bowels become variable, sometimes costive, sometimes the reverse. Post mortem examinations show the spleen to be enlarged, and generally containing several cysts of pus. This disease is peculiar to the hot season, and is a frequent cause of mortality.

TREATMENT.—The Native treatment consists in giving a stimulating mixture of arrack, soap-nut of the large variety, ginger, black pepper and garlic, with firing between ribs on the near side. Of this treatment in the early stage, the firing only ought to be practised, and if the animal be in good condition two quarts of blood ought to be drawn at the commencement; fomentations to the trunk of body will prove useful in this as in other inflammations of the internal organs, and the following aperient ought to be given.

Aloes and common salt, of each four ounces, dissolved in two quarts of warm water.

After the bowels have been freely moved, the following alterative ought to be given daily for a fortnight.

Sulphuret of Antimony,	1½ Drachms.
Copperas (Sulphuret of Iron,).....	1 Drachm.

The gram is to be omitted and the animal supplied with the best grass procurable; from time to time an ounce of common salt dissolved in a quart of water, is to be given.

Goondeka Novoo, Tam. Oolovaykar, Can.

SECTION 11.—INFLAMMATION OF THE KIDNEYS.

HISTORY.—Acute inflammation of the kidneys may be produced by violent exertion, strains of the loins, and blows on those parts. There is a frequent desire to pass urine, but it is voided with difficulty; and usually in continuous drops. The urine is bloody.

TREATMENT.—Bleed the animal freely to three or four quarts: foment the loins, and give a purgative of aloes and common salt four ounces of each in four quarts of warm water.

The following is to be given every other morning for one week or until the animal is observed to void urine freely.

1 Take of Poolee,.....	Seer	1	5 Kuskussa,	Tolas	3
2 Dhrachoopoo,	Tolas	4	6 Yalarasee,.....	do.	2
3 Oopoo,	do.	4	7 Sohmbao,	do.	2
4 Seeragum,	do.	2	8 Mohroo P.,	Seers	3

Powder the hard substances and add to No. 8 and mix. Give a third part twice or thrice daily. The diuretic drink for Pahndoo may also be given in this case. *Vide* Chap. I. Sec. 8.

Vahethoo Novoo, Tam. Otay Novoo, Can.

SECTION 12.—COLIC.

HISTORY.—When labouring under this ailment, the animal is evidently in great distress, often lying down and getting up again: and turns its head to its hind parts, attempting to strike its belly with its horns, as if to remove the supposed external cause of its sufferings. With the same view it strikes its belly with its hind legs, and leaves off grazing—bowels constipated and usually swollen from contained wind; but this last symptom arises during the continuance of the ailment and usually does not exist at the commencement. The native idea, as to the cause of this ailment, is that the animal has accidentally swallowed some insect while grazing; also that feeding largely on young grass will occasion the affection. The former may possibly be a correct idea, the latter certainly is so: and when the disease arises from feeding on young grass, it constitutes the affection called Blown or Hoven by British grazers.

TREATMENT.—When the animal is much swollen from contained air, arising as it does, from the fermentation of the fodder in the paunch, Mr. White in

his "Compendium of Cattle Medicine," page 54, Edition 1825, says "a common way of affording relief is by plunging a sharp knife into the distended rumen where it is prominent, that is, on the left side, between the last rib and the hip-bone. As soon as the knife is withdrawn the air rushes out violently." A small tube as a bamboo may be introduced into the opening to admit of all the air escaping, after which the wound is to be closed with sticking plaster.

The bowels ought to be opened freely and as early as possible, combining with the aperient, carminative and antispasmodic remedies as follows:

Common salt,	6 Ounces,
Aloes,	4 Ounces,
Ginger in powder,.....	2 Drachms,
Asafoetida,	2 Drachms,
Black Pepper,	1 Ounce,

to be mixed in one quart of warm water and given.

While the above is being prepared fomentation of the whole trunk ought to be gone on with, a measure which, in this ailment, is particularly useful. If the animal is in good condition and the ailment has continued a few hours before coming under treatment, it ought to be bled at once to the extent of half a gallon, after which the measures above stated are to be proceeded with.

Vulum Theechel, Tam. Yentayyentay, Can.

SECTION 13.—CONSTIPATION.

HISTORY.—The Bullock, like the Elephant, is instinctively led to swallow mud when there exists irritation in the bowels. In the case of the Bullock, however, simple constipation will induce it to have recourse to that measure; accordingly when Horned cattle are not under continued restraint, they will of their own accord keep their bowels open, when opportunity for procuring the mud offers. The kind of mud it uses is of a dark colour, such as usually contains soda, and about a pound weight of it acts efficiently. It is procurable in the bazars under the name of Dhoby's mud. Its action may be favourably assisted by adding to the above named quantity about two ounces of aloes, mixing these ingredients in a quart of water. Or the following may be given:

Aloes,	6 Ounces,
Common salt,	6 Ounces,

dissolved in two quarts of warm water.

Seedha Kaleechel, Tam. Akvoo Simkee, Can.

SECTION 14.—DYSENTERY.

HISTORY.—Passing of slime and blood from the bowels, together with more or less heaving of the flanks, characterizes this affection. It prevails most during the latter end of the rainy season or beginning of the cold weather. It may, however, occur during the hot season, but only epidemically, and then constitutes a variety of Burra Azar, *vide* Chap. I. Sec. 7. It may also follow a severe diarrhoea, occasioned by grazing on young grass springing up after the first falls of rain at the commencement of the monsoon.

TREATMENT.—In the treatment of this affection free fomentation of trunk of body will prove very serviceable. A quart of castor oil, to be had in almost every bazar, will prove the best aperient. This dose may be repeated on the third day, after the first dose, if blood continues to pass. When the animal is robust, it ought, as the first curative measure, to be bled to half or one gallon.

The following ball is to be given once daily for four days:

Sulphuret of Antimony,	2	Drachms.
Camphor,	1	Drachm.
Opium,	0½	Drachm.
Soap, enough to make a ball.		

The following Native Mussauls have been found useful in this ailment, when given at the commencement of the purging; fomentations to trunk of body being at the same time used.

Mussaul No. i.

1 Take of Kuss Russa, ... Tolas	3	3 Nelli Rahee, Tolas	4
2 Avarum Kolindhoo, do.	12	4 Gendoo Seeakae, do.	2

The above to be pounded together; add Palmyra jagury a sufficient quantity, and form into four boluses. Give one morning and evening.

Mussaul No. ii.

1 Take of Valaree Kolin-		3 Mashee Rae, Tolas	2
dhoo, Seer	1	4 Tahnee Rae, do.	2
2 Madalam Pinjee, No.	4	5 Kuss Russa Tholoo, do.	4

Powder the above and mix with two seers of tyre; and give a fourth part every morning and evening until the animal is relieved.

Kaleechel, Tam. Otoy Kaloothah, Can.

SECTION 15.—DIARRHŒA.

HISTORY.—When not constituting one variety of Burra Azar, purging is usually the result of grazing on young grass, which springs up at the commencement of the monsoon. It may also result from exposure to thunder-storms. The purging from grazing on young grass may weaken the cattle so much as to impede their progress on a march. It would, therefore, be advisable, during the commencement of the monsoon, to fasten the cattle by rope, so that they will not have access to other grass than that growing on open ground, as that which springs up in shady places at the commencement of the rains is very liable to occasion purging.

TREATMENT.—Fomenting the body will be found very efficacious in arresting the progress of the purging; and the following mixture will also be advantageously exhibited:

Catechu, powdered,	2	Drachms,
Cloves, ditto,	2	Drachms,
Black Pepper, ditto,	2	Drachms,
Ginger, ditto,	2	Drachms,
Caraway Seeds, ditto,	4	Drachms,
Warm Water,	1	Quart,

which mix. The mixture to be given once daily, till symptoms improve.

SECTION 16.—WORMS.

HISTORY.—When dissecting Horned cattle, flat round worms, about a quarter of an inch in diameter and of a red colour, have been occasionally observed in the paunch and small bowels: they have never been observed in the dung. On the Tenasserim Coast “leech-like animals, varying in size from an inch to an inch and a half, were found in the bloodvessels of the liver,” agreeably to a report of Captain Babington’s forwarded to the Commissary General in 1842.

Of the above two varieties of worms, the first appears to be generated in the stomach or bowels, and does not appear to affect, to any appreciable extent, the health or efficiency of the animal. The second variety was found in the grass of low marshy situations, so that most probably it was swallowed while the cattle were grazing, and consequently are little likely to have been generated in their intestines. They are reported to have caused death suddenly by occasioning congestion of the liver.

TREATMENT.—The Neem leaf, in decoction, was found by Captain Babington to remove from the body of cattle “these leech-like animals,” and therefore would appear

to be the appropriate treatment for that variety. The bark or leaf of the Neem tree, in decoction, has not been found to remove the first named variety, even when largely given, but as above remarked, this variety of worms does not appear to impair the health of the animal. They have never been found in great numbers, and only in comparatively few carcasses.

SECTION 17.—DISEASES OF THE SKIN.

HISTORY.—Under the head of Weakness, Chap. I. Sec. 6, it has been mentioned, that several affections of the skin of Horned cattle are connected with internal disorders, the cure of which latter will be accompanied or followed by those of the surface.

Insufficient grooming allows a collection of vermin to take place that irritate the surface. This vermin is best destroyed by a decoction of a common herb of the Labiate order, called in Tamil Toombay. It has a somewhat pungent odour and hot taste, resembling, in a considerable degree, that of mustard. The continued application of this decoction to the surface of the affected cattle at mid-day, while grooming morning and evening, if sedulously practised, will soon remove this variety of cutaneous affection. A decoction of tobacco, similarly used, is also efficacious.

A species of mange called *Koostum*, and usually associated with swelling and ulceration of the lower parts of the limbs, is not uncommon, and which is sometimes tedious of cure.

TREATMENT.—*Koostum* is to be treated by frequent washing with country soap and afterwards applying a mixture of sulphur one ounce, gingili oil eight ounces, by measure, in which the expressed juice of fifteen marking nuts is diffused on the surface of the animal at noon on alternate days.

When the ulcerations of the surface are rather large, and are irritable, any of the remedies given in Part IV. Chap. III. No. 5, ought to be applied every alternate morning. Internally the following is to be given daily :

Sulphuret of Antimony,	2	Drachms,
Tartar Emetic,	20	Grains,
Ginger,	1	Drachm,
Soap enough to make a ball,		

to be washed down with decoction of Margosa or Neem bark, two quarts.

An occasional aperient, of aloes three ounces, with common salt five ounces, and ginger two drachms, diffused in a quart of decoction of Margosa bark, ought to be given.

Under all circumstances a proper attention to grooming will go far to prevent the occurrence of the class of ailment now under consideration, whether arising primarily in the skin itself, or being associated with internal disorders.

Onaun Vahl.

SECTION 18.—TAIL ROT.

HISTORY.—This is an affection of the tail of Horned cattle, which appears to arise from a paralytic cause. The hair of the tail first falls off, then ulceration appears at the extremity, by which it is gradually shortened. The power of moving the member is more or less impaired, and if no curative measures are resorted to, the whole tail may by piecemeal be removed by the ulcerative process. The animal will fall out of condition and may eventually die from weakness, apparently from the affection extending to the spinal marrow in the backbone. Healthy animals may be attacked with it, and the affection is not, as in Europe, connected with purging. No case has come under treatment in this Hospital, though it is well known by the cattle attendants, whose treatment consists in making incisions lengthwise throughout the paralyzed part, then dipping it in boiling oil, which destroys the affected portion: this eventually falls off, and the affection is thus prevented from attacking the remaining sound portion.

SECTION 19.—ACCIDENTS.

1st. *Sore back.*—This injury is a frequent cause of Horned cattle being temporarily rendered inefficient. It may consist of simple abrasion, or of ulceration more or less extensive, with or without suppurating sinuses; and arises from the animal's load rubbing on the back in consequence of the saddle being out of order, or not being properly adjusted.

On a march too much attention cannot be paid to the furniture of cattle; and as inattention to this point may render many inefficient, the injury is noticed here more as a caution to prevent its occurrence than for giving instructions for treatment, for the injury may speedily be inflicted, but the cure generally is tedious.

TREATMENT.—If the ulcers resulting from the injury are foul, poultices made of the leaves of any succulent plant are to be applied. If maggots are present, camphorette oil is to be added to the poultices to destroy them. When the surface of the ulcer is clean camphorette oil alone is to be applied, which expedites the healing process, and prevents the regeneration of maggots.

Fistulous ulcers ought to be laid open throughout the whole length. This ought to be done early as the pus is apt to burrow amongst the muscles, and even to penetrate into the chest and thereby occasion death.

2nd. *Injuries of the Extremities.*—Dislocations and fractures are the principal injuries that fall under this head. Several cases of dislocation of the hip have been brought to Hospital, but it has uniformly been found that if the muscular exertion of the animal does not effect a reduction, no other means were successful. Powerful mechanical force has been applied in the hope of effecting a reduction of dislocation at the hip joint, but without success.

The native mode of reduction consists in causing the animal to bring into powerful action the muscles of the dislocated limb. For this purpose it is thrown, and the three sound limbs are tied together, while the dislocated limb being free and uppermost, is forcibly moved by the animal itself, and is thus sometimes, though rarely, thrown into joint. Two cases of reduction thus effected have been witnessed, the dislocations being those of the hip, but after reduction six months elapsed before the animals could walk freely, and after all they were not fit for ordinary work. In fact, so little ultimate good has resulted from all endeavours to cure either dislocations or fractures of the extremities of Horned cattle, that the better plan appears to be to condemn the animal at once, that it may pass into the hands of the butcher before irritation from the accident has deteriorated the quality of the beef.

PART IV.

OF MEDICINES AND CURATIVE MEASURES USED IN THE TREATMENT OF THE DISEASES OF THE ELEPHANT, CAMEL AND HORNED CATTLE.

THE cattle attendants consider all diseases to arise either from a superabundance or deficiency of heat in the system of the animal. Accordingly medicines are arranged by them into two classes. Those that are considered heating are included in the one class, those supposed to be cooling in the other. Not only is this classification, like the theory on which it is founded, erroneous, but substances are included in the one class which have different and frequently opposite effects. In short they treat diseases empirically to a great extent, and have no correct idea of the curative effects of several efficient kinds of medicines as purgatives, &c., which accordingly are seldom prescribed. There is nothing, therefore, in reference to Native views or practice, with respect to the classification of medicines, worth following. In drawing up this part, therefore, practical utility being the guide, the following arrangement is adopted, based on the known effects of medicines on each class of animal. It is divided into four Sections. In the first three, the medicines are arranged according to their effects respectively, on the Elephant, Camel and Horned Cattle. In the fourth Section a general list of the medicines is given, arranged alphabetically, and the virtues and doses in reference to each class of animal stated.

CHAPTER I.

MEDICINES, &c. FOR THE ELEPHANT.

No. 1.—ALTERATIVES.

THIS is a very useful class of medicines and is much used in several chronic affections, particularly those of the digestive organs. A list of the most useful alterative medicines is given below, with the doses suitable for the Elephant.

Gendugh,	Sulphur,	2	to	8	Tolas.
Moordharsing,	Litharge,	1	to	3	Ditto.
Munseel,	Red and Yellow Orpiment, ...	$0\frac{1}{4}$	to	1	Ditto.
Parah,	Quicksilver,	$0\frac{1}{2}$	to	1	Ditto.
Parah ka kahk,	Calomel,	$0\frac{1}{2}$	to	2	Ditto.
Russasendoor,	Sulphuret of Mercury,	$0\frac{1}{16}$	to	$0\frac{1}{2}$	Ditto.
Shemruf,	Cinnabar, Native,	$0\frac{1}{4}$	to	2	Ditto.
Soomul,	Preparation of Arsenic,	5	to	20	Grains.
Surmah ka kahk,	Sulphuret of Antimony,	1	to	6	Tolas.

No. 2.—ANTHELMINTHICS OR MEDICINES FOR WORMS IN THE BOWELS.

The alimentary canal of the Elephant is, as stated at length under the head *Langun*, in Part I. of this Treatise, subject to be infested with worms. These are effectually scoured out as mentioned under the head *Purgatives*, *vide* Chap. I. No. 8, by the use of the earth, which the animal instinctively and immediately resorts to, when troubled with worms. These sometimes accumulate to an enormous number, and after the Elephant takes earth they are usually passed dead. The earth is a most efficient cleanser of these worms, but tonics are required to restore the vigour of the digestive organs, on the derangement of which their existence seems to depend. The following is a list of the most useful Anthelmintics with the doses:

Biscoprah,	Trianthema Decandrum,	2 to 8	Tolas.
Kootkee, .....	.....	2 to 6	Ditto.
Koochlay,	Nux Vomica,	$0\frac{1}{4}$ to 4	Ditto.
Pallas pupada,	Butea Frondosa, seed of	2 to 4	Ditto.
Sahboone,	Country Soap,	$0\frac{1}{2}$ to 2	Ditto.

No. 3.—ANTISPASMODICS AND OPIATES.

This class of medicines is used principally in spasmodic and flatulent colic. The following is a list of the most useful:

Ahfeeme,	Opium,	$0\frac{1}{2}$ to 4	Tolas.
Butchnaag,	Monkshood,	$0\frac{1}{8}$ to 1	Ditto.
Hing,	Asafetida,	2 to 8	Ditto.
Jahphul,	Nutmeg,	$0\frac{1}{4}$ to 4	Ditto.
Kahpoor,	Camphor,	2 to 8	Ditto.
Koochlay,	Nux Vomica,	$0\frac{1}{4}$ to 4	Ditto.

No. 4.—ASTRINGENTS.

This class of medicines is used in Diarrhœa of the Elephant and after the purging occasioned by taking earth, *vide* *Purgatives*, Chap. I. No. 8. Astringents also have tonic virtues. The following is a list of the most important of this class of medicines:

Bahl Uldah,	Tender Ink Nuts.		
Bulday,	Terminalia Bellerica.		
Chiknee Suparee,	The Nut used in Beetle.		
Gotee Suparee,	Areca Nut.		
Kattha,	Catechu,	$0\frac{1}{4}$ to 1	Seer.
Kahcepul,	Columba Root,	1 to 6	Tolas.
Mahpul,	Gall Nut,	$0\frac{1}{2}$ to 3	Ditto.
Uldah,	Ink Nut,	2 to 8	Ditto.

No. 5.—CARMINATIVES AND EXCITANTS.

This class of medicines is in frequent use in spasmodic affections of the bowels, or in impaired function of the digestive organs. The following is a list of the most useful :

Belahmay,	Marking Nut,	2 to 8	Tolas.
Butch,	Sweet Flag,	4 to 12	Ditto.
Cubaub Chinee,	Canine Pepper,	2 to 8	Ditto.
Dhal Chinee,	Cinnamon,	0 $\frac{1}{4}$ to 2	Seers.
Elachii,	Cardamoms,	0 $\frac{1}{4}$ to 2	Ditto.
Hing,	Asafoetida,	2 to 8	Tolas.
Jeera Suffadhe,	Caraway,	0 $\frac{1}{2}$ to 1	Seer.
Kala Jeera,	Black Cumin,	0 $\frac{1}{2}$ to 1	Ditto.
Lussoon,	Garlic,	2 to 8	Tolas.
Pipla Mohde,	Long Pepper,	2 to 8	Ditto.
Sohute,	Ginger,	0 $\frac{1}{4}$ to 1	Seer.
Sheraafe,	Arrack,	0 $\frac{1}{2}$ to 3	Ditto.

No. 6.—EMETICS.

No medicine, whether animal, vegetable or mineral, is known to have an emetic effect on the Elephant. Tartar emetic has been given in two ounce doses morning and evening, till half a pound was taken, but no emetic or other obvious medicinal effect followed. The animal continued to eat as usual, though some difficulty was experienced in getting it to take the last two doses.

No. 7.—EXTERNAL APPLICATIONS.

These may be referred under the following heads :

1st. Detergents.	3rd. Escharotics.
2nd. Topical irritants.	4th. Fomentations.

1st. *Detergents*.—The following is a list of the most useful of these :

Kahpoor,	Camphor.
Kulcopree,	Impure Carbonate of Zinc.
Morethootha,	Sulphurate of Copper.
Neemuck,	Salt, Common.
Puttukdee,	Alum.
Peela Dhatoray,	The Peruvian Poppy.
Uldhi,	Turmeric.
Koochlay ka chall,	Nux Vomica, bark of.

Turmeric, Salt, the Peruvian poppy, or the bark of the Nux Vomica, are pounded together and applied to foul and irritable ulcers, &c. The other articles are used either in powder, or solution in the proportion of 10 to 20 grains to an ounce of water.

Camphor.—This is dissolved in cocoanut oil in proportion of 6 ounces of the former to 24 ounces of the latter, and constitutes a very useful external detergent to foul ulcers. Camphor also, in the proportion of 4 drachms to 24 ounces of water with sufficient arrack to cause the camphor to dissolve, constitutes a useful topical application to foul ulcers. These two preparations are largely and advantageously used to ulcers of the feet and back.

The following are useful recipes for stimulating applications for irritable and sloughy ulcers:

Mussaul No. i.

1 Take of Jumaul Gottah, .. Tolas	4	3 Ahfeeme,	Tola	1
2 Moordharsing, do.	4	4 Kahpoor,	do.	2

Beat up the above and add to 1 seer of ginjili oil and mix; apply a small quantity every morning.

Mussaul No. ii.

1 Take of Pahngray ka puttha, Seers	4	4 Neemuck,	Seer	0 $\frac{1}{4}$
2 Neem ka puttha, do.	3	5 Kahpoor,	Tolas	2
3 Uldhee, do.	0 $\frac{1}{2}$	6 Pahnnee, sufficient quantity.		

Pound the above leaves and other ingredients together, adding water gradually until formed into a paste, which apply to ulcers every morning until healthy granulations are formed.

Mussaul No. iii.

1 Take of Soomul, Tola	1	5 Ahfeeme,	Tolas	2
2 Jumaul Gottah, do.	1 $\frac{1}{2}$	6 Morethootha, do.		0 $\frac{1}{2}$
3 Cunnare ka jud, do.	8	7 Puttukdee, do.		4
4 Moordharsing, do.	4	8 Suffadhe Reecal, do.		4

Powder the above ingredients finely, and add to 1 seer of cocoanut oil and mix; of this, apply a small quantity over the surface of sloughy ulcers every morning.

Mussaul No. iv.

1 Take of Shaih Mooslee, ... Seer	0 $\frac{1}{4}$	6 Jumaul Gottah, Tolas	2
2 Suffadhe Mooslee, do.	0 $\frac{1}{4}$	7 Kahpoor, do.	4
3 Morethootha, Tola	0 $\frac{1}{2}$	8 Puttukdee, do.	12
4 Uldhee, do.	2	9 Kulcopree, do.	2
5 Bulday, Seer	0 $\frac{1}{2}$	10 Misree, do.	6

Finely pulverize the above and keep for use. A small quantity to be sprinkled over the ulcers every morning.

The above powder is used to promote the healing process of all ulcers, wounds, fistulous sores, &c.

Mussaul No. v.

1 Take of Ahm ka Chall, ... Seer	1	3 Uldhee, Seer	0½
2 Neemuck, do.	0½	4 Soohgah, Tolas	4

The above to be finely grounded together, and with the addition of water to be made into the consistency of paste. This is also a good application for ulcerations of the back, &c.

2nd. *Topical irritants.*—Of these the following are recipes for topical inflammatory affections of the eyes, &c.:

Mussaul No. i.

1 Take of Puttukdee, Tola	1	5 Pupud Kahr, Tola	0½
2 Nowsaggur, do.	1	6 Putchkapoor, do.	0½
3 Soohgah, do.	0½	7 Misree, do.	2
4 Ahfeeme, do.	0½	8 Pahnee, Seers	4

Powder the above, and mix with No. 8. A small quantity to be applied to the eyes twice or thrice daily.

Mussaul No. ii.

1 Take of Kulcopree, Tolas	2	4 Puttancee Lodh, Tola	1
2 Puttukdee, do.	4	5 Lahvung, do.	2
3 Kahpoor, do.	2	6 Jowathree, do.	1

Coarsely powder the above and add to 8 seers of water, set aside for a night, and use a small quantity of this wash to the eyes night and morning.

Liniment No. i.

1 Take of Alsee ka thale, . Seers	2	5 Lussoon, Tolas	4
2 Koossum ka thale, do.	1	6 Sendalone, do.	6
3 Beelahmay ka thale, ... do.	1	7 Nowsaggur, do.	6
4 Ahfeeme, Tolas	4	8 Uddaruk ka russ, do.	8

The hard substances to be powdered and added to the oils, &c., to be well mixed and kept for use in rheumatisms, sprains, &c.

The following are stimulating liniments and ointments for the same cases as above. Blistering ointment and turpentine, in the proportion of 6 ounces of the former to 12 ounces of the latter, mixed, constitute an efficient stimulating application when applied to the skin.

Liniment No. i.

1 Take of Belahmay ka thale,..... Seer 0½	5 Lussoon, Tolas 6
2 Googul,..... Tolas 6	6 Moosumber, do. 6
3 Rahyan, do. 6	7 Sahboone, Seer 0½
4 Soahgah, do. 4	8 Neemboo ka russ, sufficient quantity.

Powder the above and mix with No. 8, which to be applied over the swollen and painful part in the form of a paste. The above to be applied hot.

Liniment No. ii.

1 Take of Sahboone, Seer 0½	3 Neemuck, Tolas 6
2 Soahgah, Tolas 4	4 Neemboo ka russ, Seer 0½

Powder Nos. 2 and 3, and add to Nos. 1 and 4, and mix over fire. Apply this to the affected part (while hot) every morning, washing off the previous application.

3rd. *Escharotics*.—Lunar caustic and blue stone are the most efficient. They are applied either in powder or in solution. Opacities of the cornea ought to be touched with solid caustic; and in topical inflammation of the eye, a solution of 10 to 15 grains of lunar caustic to an ounce of water will prove useful. Blue stone is frequently used in powder for ulcers of the back and feet, or in strong solution, viz., 15 to 20 grains to an ounce of water.

The actual cautery is sometimes used, though it is not generally advisable, as sloughy ulcers are liable to result from firing the Elephant, owing to inflammation spreading beneath the skin.

In marking the Elephant by firing, such ulcers have occurred. The better plan is to cut out the skin in the shape of the required number or mark. From experiments made with this view it would appear that after a term of years, about five, the light coloured eschar thus produced will disappear, though it is probable a ridge or roughness of skin, sufficient for identification, will remain permanently.

Some animals were marked in this manner about two years ago; the numbers are at present distinctly legible.

The following are a few of the substances the cattle attendants use as Escharotics, viz. :

Choona ka putther,	Lime Stone.
Pinganee,	Porcelain Plate.
Zungaul,	Verdigris.
Sunk,	Sea Shells.
Neemuck,	Common Salt.

4th. *Fomentations*.—This is a most useful application, and from the extent to which it may be used, can be made to exert much curative influence on internal complaints, as inflammations and spasmodic ailments. In sprains and rheumatic affections of the joints and tumours, of an inflammatory character, it also is very useful, as it moderates the process of inflammation, and facilitates the formation of pus, when topical inflammations cannot be prevented running on to suppuration.

The mode of using fomentations, as practised here, is as follows : cow-dung is mixed with water in such proportion that the mixture has a semifluid consistency. This being heated in a large *chatty* is applied to the body over as much of the surface as is deemed necessary for the particular malady under treatment. The application is continued uninterruptedly till a coating of it has accumulated, the thickness of which prevents the rapid dissipation of heat. When it is wished to foment the back and sides of the Elephant, a flannel cloth (*jool*) ought to be first thrown over the back, and the ends tied together beneath the abdomen, then hot water without cow-dung may be applied to the *cumblie* by means of a brush, as above alluded to : this will soon become saturated with hot water, and the continued application of this will keep up its temperature, which the thickness of the cloth will prevent immediately becoming reduced.

The following decoctions may be sometimes substituted advantageously for simple hot water ; and may be considered medicated fomentations :

Mussaul No. i.

Take of Mooringha bark,... Seers 12 | Water, Gallons 2

Boil for an hour, and apply hot. This is a stimulating fomentation, useful for contusions, sprains, &c.

Mussaul No. ii.

Take of Neem ka puttha,... Seers 15 | Shumbalee ka puttha, Seers 15
Umbli ka puttha, do. 10 | Water, Gallons 12

and boil for two hours.

Mussaul No. iii.

Take of Aak ka puttha, ... Seers 12	Pohsht, Seers 3
Umbli ka puttha, do. 15	Pahnee, Gallons 15
Ooth ka muttee, do. 5	

Boil for two hours and apply to affected part night and morning. This is a good application also in internal inflammation of the organs.

No. 8.—PURGATIVES.

This is an equally important class of medicines in regard to the Elephant, the Horse or the Horned Cattle, but strange to say, it is a class of medicines which is seldom resorted to by the Mahawuts. They never prescribe purgatives, such having no place in their *Materia Medica*. The aloes, indeed, is a common ingredient in their *Mussauls*, but it is given with an alterative and tonic object, the dose prescribed being immensely smaller than what is required to produce purgation.

Before detailing the doses of substances found useful as purgatives, allusion may be made to the practice the Elephant itself resorts to, and which instinct suggests to produce purgation: only in one affection does the Elephant resort to it, namely, in the disease Lungun, or fasting, which as stated, in Part I. Chap. II. Sec. 28, consists in an accumulation of worms in the alimentary canal. When irritation arises from this cause, the animal swallows a variable quantity of sandy earth, generally, however, about one or two seers. Twelve hours thereafter copious purgation results. This effect appears to be brought about by the mechanical qualities of the earth, and not from any chemical quality it may possess; for it has been ascertained that it is not of any particular chemical kind the animal uses, but the one requisite appears to be possessing of small solid particles of mineral of any kind, usually, however, silica or quartz; and this exists in sand of a degree of coarseness, such as is used for preparing mortar. This point appears fully settled from the fact, that the animal will, and does frequently use, common river sand, to bring about purgation.

It will readily be understood, that such cannot contain, at least in quantity, any soluble saline substance, and I have satisfied myself that what has been used, contained nothing that could, by its chemical qualities, produce the effect under consideration. But there evidently is required a particular state of the alimentary canal, to admit of purgation being produced by the mechanical effects of earth, or rather sand. This at least appears very probable from the fact of earth having been given in considerably larger quantity, during the absence of Lungun, than what the animal takes to produce purgation, but without the smallest purgative effect resulting. It has been given to the extent of 10lbs. doses for five days successively, making an aggregate of 50lbs., and not the slightest symptom of

purgation followed. This experiment was made with a view to determine whether earth, under all conditions of the animal, will operate on it as an aperient. The decisively negative result, from so large a quantity of earth, as that just stated, very distinctly settles the question, and shews that a particular condition of the alimentary canal is essential to its successful effect, a condition, the existence of which, the instinct of the animal unerringly intimates and suggests the remedy.

The following is a list of the most efficient purgatives:

Moosumber,	Aloes,	8 to 16	Ounces.
Jumaul Gottah,	Croton seeds,	6 to 12	Drachms.
Erimdee ka thale,	Castor oil,	16 to 24	Ounces.
Elaith ka Neemuck,	Epsom Salts,	8 to 16	Ditto.
Rahyan,	Mustard,	12 to 16	Ditto.
Neemuck,	Common salt,	16 to 24	Ditto.
Sayend ka Coplee,	Stalk of the Euphorbium,	12 to 24	Ditto.
Para ka kahk,	Calomel,	6 to 12	Drachms.

The bazar aloes is a very uncertain remedy, being occasionally almost inert: four times the quantity just stated of the common bazar aloes is to be coarsely powdered, put into the ratib, and included with it in the grass envelope, in which the latter is always given. The older Elephants usually take the medicine readily, but the younger frequently reject ratib and all, when they taste the medicine.

The Croton seeds will be found an efficient purgative; it is to be powdered and given along with the ratib in the manner above described for the exhibition of aloes. No difficulty will be experienced in getting the animal to take this medicine; no one instance is known in which it was rejected. It may advantageously be combined with aloes. By means of either or both of the above, purgation, copious and free, can be produced under all conditions of the animal, so long as the power of swallowing exists, and also sufficient tone of the organs is present.

The following are useful purgative Mussauls:

Mussaul No. i.

1	Take of Moosumber,	Seer	0½	5	Rahyan,	Tolas	4
2	Hing,.....	Tolas	4	6	Laul Mirchee,	do.	4
3	Sayend ka Coplee,	do.	8	7	Pulhas pupada,.....	do.	4
4	Neemuck,.....	do.	12	8	Goode,	Seer	0½

Powder the above separately, then mix together, and, adding water gradually, form it into a soft mass and divide into two parts. Give one at night, and repeat the following morning if necessary.

Mussaul No. ii.

1 Take of Rahyan, Seer	2	5 Choree Ujwan, Seer	0½
2 Misree, do.	1	6 Lussoon, do.	0½
3 Uldah, do.	1	7 Erimdee ka thale, do.	2
4 Belahmay, do.	1		

Powder the above and mix with No. 7, and divide into three parts, and give one morning and noon, and repeat the following morning if the bowels have not been acted on.

Mussaul No. iii.

1 Take of Geong ka Attah, Seer	0½	3 Moosumber, Seer	0½
2 Theendaree Sayned ka		4 Gunbeede, Tolas	5
Coplee, do.	0½	5 Goode, do.	12

The above to be pounded together until well incorporated, then divided into three parts. Each to be baked on fire and given to the animal at night, and repeat the following morning if the bowels are not moved.

Mussaul No. iv.

1 Take of Lussoon, Seer	0½	4 Aak ka Chall, Tolas	4
2 Aak ka puttha, do.	0½	5 Aak ka Doodh, do.	4
3 Aak ka jud, do.	0½	6 Hing, do.	4

The above to be pounded together and made into three boluses. Give one every four hours until the bowels are opened.

Mussaul No. v.

1 Take of Erimdee ka		5 Neemuck, Seer	0½
Coplee, Seer	0½	6 Lussoon, do.	0½
2 Aak ka Coplee, do.	0½	7 Mirchee, do.	0½
3 Sayend ka Coplee, do.	0½	8 Goode, do.	1
4 Moosumber, do.	0½		

Beat up the above into a mass and divide into two parts. Give one immediately after it is prepared, and repeat after eight hours if necessary.

The animal to be allowed to take water twice during the day after taking this Mussaul.

Mussaul No. vi.

1 Take of Bareek Sayend		2 Rahyan, do.	12
ka Doodh, Tolas	12	3 Neemuck, Tolas	12

No. 2 to be coarsely powdered, then added to the other ingredients and well mixed. Divide into two parts and give one at night. Repeat the following morning if necessary.

No. 9.—REFRIGERANTS.

The following is a list of this class of medicines:

Awul gunttee,.....	Gooseberries,	3 to 6	Tolas.
Chilbeenj,	Clearing Nut Tree.		
Dunyah,.....	Coriander,	1 to 4	Seers.
Shendh ka gahbah,	The Date, stalk of... ..	5 to 10	Ditto.
Shorah,	Saltpetre,	1 to 4	Tolas.
Tabasir,	{ A siliceous concretion of the female bamboo,	1 to 4	Ditto.
Ungooree Neemuck,	Cream of Tartar,	0½ to 1	Seer.

No. 10.—TONICS.

The following is a list of the most useful medicines of this class:

Tonics are extensively used in conjunction with alteratives and carminatives for the treatment of an impaired condition of the digestive organs.

Aak ka Chall,	Mudar, bark of	2 to 8	Tolas.
Cherayetha,	Creyat,	2 to 8	Ditto.
Choonah,	Lime Stone,	0½ to 3	Ditto.
Chope Chinee,	Smilax, China,	2 to 8	Ditto.
Eera kus,	Sulphate of Iron,	1 to 3	Ditto.
Gudge kay,	Bonduc Nut,	2 to 8	Ditto.
Heera bohle,	Myrrh,	1 to 4	Ditto.
Moordharsing,	Litharge,.....	1 to 4	Ditto.
Moosumber,	Aloes,	2 to 8	Ditto.
Piplee,	Long Pepper,	2 to 8	Ditto.
Pohsht,	Poppies,	0½ to 2	Seers.
Pudhinah,	Spear Mint,.....	0½ to 2	Ditto.
Ujwan,	Fennel seeds,	0½ to 2	Ditto.
Ditto Shoree,.....	The Cleome Viscosa of Ainslie,	2 to 8	Tolas.
Ditto Uzmoodha,	Henbane, seeds of	2 to 8	Ditto.
Ditto Korasancee, .....	.....	2 to 8	Ditto.

CHAPTER II.

MEDICINES, &c. FOR THE CAMEL.

No. 1.—ALTERATIVES.

THIS class of medicines is extensively used, and generally efficaciously, by the Serwans, in diseases of an obscure and chronic kind, mainly connected with diseases of the digestive organs. The following is a list of the most efficacious :

Moordharsing,	Litharge,	$0\frac{1}{8}$ to $0\frac{1}{2}$ Tola.
Parah ka kahk,	Calomel,	$0\frac{1}{8}$ to 1 Ditto.
Shemruf,	Cinnabar,	$0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.
Surmah ka kahk,	Sulphuret of Antimony,	$0\frac{1}{2}$ to 2 Ditto.
Urthal,	Sulphuret of Arsenic,	$0\frac{1}{12}$ to $0\frac{1}{4}$ Ditto.

Calomel.—Although Calomel is not prescribed by the Serwans, it is a useful alterative medicine given in doses from half a drachm to one drachm, conjoined with the following:—*Sulphuret of Antimony*, in equal doses.

Tartar emetic, in half drachm doses, is useful in clearing the surface and improving the coat.

No. 2.—ASTRINGENTS.

The following are a few of the most useful of this class of medicines:

Bahl Uldah,	Tender Ink Nut.	
Gotee Suparee,	Areca Nut.	
Kaheepul,	Columba Root,	$0\frac{1}{4}$ to 2 Tolas.
Kuttha,	Catechu,	$0\frac{1}{8}$ to $0\frac{1}{2}$ Seer.
Mahpul,	Gall Nut,	$0\frac{1}{8}$ to 1 Tola.
Uldah,	Terminalia Bellerica.	

No. 3.—CARMINATIVES AND EXCITANTS.

Butch,	Sweet Flag,	2 to 6 Tolas.
Cubaub Chinee,	Cayenne Pepper,	1 to 4 Ditto.
Dhal Chinee,	Cinnamon,	$0\frac{1}{8}$ to 1 Seer.
Elachii,	Cardamoms,	$0\frac{1}{4}$ to 1 Ditto.
Hing,	Asafoetida,	$0\frac{1}{2}$ to 4 Tolas.

Jeera Suffathe,	Caraway,	0½ to 1 Seer.
Lahoung,	Cloves,	1 to 4 Tolas.
Laul Mirchee,	Chillies,	2 to 8 Ditto.
Mirchee, (Kala,)	Black Pepper,	2 to 8 Ditto.
Kolinjun,	Alpinia Galanga,	0½ to 2 Ditto.
Lussoon,	Garlic,	0½ to 4 Ditto.
Piplee,	Long Pepper,	1 to 3 Ditto.
Pipla Mohde,	Long Pepper, root of,	1 to 3 Ditto.
Sohnate,	Aniseed,	0½ to 0¾ Seer.
Sohnfe,	Ginger,	0½ to 0¾ Ditto.
Sheraafe,	Arrack,	0½ to 1 Bottle.

Half a bottle of arrack given to a Camel, when coming off a long day's journey, occasionally exhibited while on the line of march, will go far to preserve the efficiency of the animal. The following may be given to animals on a line of march every second or third morning. Take of Lussoon, Piplee, Piplamohde, Sohnate, Koochlay, Ujwan, Korasane Ujwan, Shoree Ujwan, Lahoung, Dhal Chinee and Bung, two tolas of each, pound together with jagury and make into balls of the size of a lime, and give one for a dose.

No. 4.—EXTERNAL APPLICATIONS.

1st. *Detergents*.—The following is a list of substances of this class. They are in frequent use amongst the cattle attendants.

Kahpoor,	Camphor.
Morethootha,	Sulphate of Copper.
Neemuck,	Common Salt.
Peela Dhotaray,	Peruvian Poppy.
Kulcopree,	Impure Carbonate of Zinc.
Oodh,	Benjamin.
Puttukdee,	Alum.
Thudwud ka Chall,	Tannin Bark.
Sahboone,	Soap.
Uldhee,	Turmeric.
Sooahgah,	Borax.

Camphor, dissolved in ginjili oil or Cocoanut oil, in various proportions, from 2 to 6 ounces of the former to 12 ounces of the latter, is a useful detergent application. *Turpentine* and *pitch* may be added in the more foul ulcers.

Blue Stone, either pulverized or in solution of 6 grains to an ounce of water also, is a useful detergent application.

Sulphate of Zinc, in solution from 5 to 10 grains to an ounce of water, has also been advantageously employed in cleaning foul ulcers.

A red-hot iron, to the surface of very foul sores, expedites the cleaning of them; after which the solution of camphor in oil expedites the cure.

Red Precipitate ointment, in proportion of eighty to eighty-five grains of the powder to an ounce of lard, is also a useful application to clean ulcers, and expedites the healing process.

The following are useful detergent Mussauls:

Mussaul No. i.

1 Take of Oodh,	Tolas 2	3 Recahl,	Tolas 2
2 Belahmay,	do. 2	4 Saboone,	do. 2

Finely powder and add to No. 4 and mix together. Apply this ointment to the affection called Rahafay and to other ulcers, wounds, &c.

Mussaul No. ii.

1 Take of Aak ka puttha, Handful	0½	4 Uldhee,	Tolas 4
2 Dhatooray ka puttha, ..	do. 1	5 Neemuck,	do. 4
3 Erundee ka puttha,	do. 0½		

Finely pound the above together and apply a small quantity to the surface of the ulcers.

Mussaul No. iii.

1 Take of Saboone,	Tolas 4	3 Oodh,	Tolas 2
2 Peeaz,	do. 4	4 Neemuck,	do. 4

mix the above and apply. This is a very efficient ointment to sloughy ulcers.

Mussaul No. iv.

1 Take of Ravashun ka		2 Neemuck,	Tolas 4
puttha,	Handful 2	3 Uldhee,	do. 4

which mix and apply to the ulcers.

2nd. *Escharotics*.—*Lunar Caustic* and *Blue Stone* are the most useful of this class. They are employed in powder or in solution. The latter to consist of 10 grains to an ounce of water, and the former 5 to 8 grains to an ounce of water.

Firing may also be practised in the affection, called Rahafay, situated on the breast bone, and in some diseases of the foot in this animal.

Boiling Water or oil may be advantageously used with which to wash the surface of foul ulcers, by which means the sloughy surface is speedily thrown off and succeeded by a healthy granulating one.

The following are used as Escharotics in the Camel for Rahafay, &c.

Mussaul No. i.

1 Take of Urthal, Tola	1	3 Oodh, Tolas	2
2 Kullee ka Choonah, do.	1	4 Saboone, do.	2

Powder Nos. 1, 2 and 3 finely, and mix with No. 4, and keep for use.

Mussaul No. ii.

Thaht, (burnt to charcoal.)		Neemuck, Tolas	4
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Powder finely, and keep for use.

3rd. *Fomentations*.—This is a very useful external application as well for acute internal diseases as for Sprains and Rheumatic affections, and for discussing some kind of tumours. For internal diseases, the trunk of the body ought to be fomented with hot water, a couple of *cumbles* or coarse blankets being previously put round the body, which is kept hot by the application of hot water to successive portions, applied by means of a piece of cloth fixed to the end of a piece of bamboo some five or six feet long; which is alternately dipped in the pot of hot water and applied to the *cumblie*.

For the limbs or other parts a similar plan may be observed.

A very convenient mode of applying heat in the shape of fomentation is one commonly resorted to by the cattle attendants, and is that of mixing cow-dung with hot water till the mixture have the consistency of thin paste. This is heated in a common *chatty* and applied direct to the surface to be fomented, with the cloth and bamboo brush-like apparatus, as described under the head Fomentations, *vide* Chap. I. No. 7.

The following are useful medicated fomentations:

Mussaul No. i.

Take of Shumbalee ka put-		Ooth ka muttee, Seers	4
tha, Seers	8	Pahnee, Gallons	10
Ganjah ka puttha, do.	1		

Boil for two hours and apply hot.

The above is a useful fomentation in internal affections, and in Sprains and Rheumatism.

Mussaul No. ii.

Take of Umbli ka puttha, ... Seers	10	Ooth ka muttee, Seers	4
Chowl kahr, do.	4	Pahnee, Gallons	12

Boil for two hours and apply hot.

Mussaul No. iii.

Take of Moongay ka puttha, Seers	5	Ooth ka muttee, Seers	5
Umbli ka puttha, do.	5	Pahnee, (koolthee ka) ... Gallons	12
Uldhee, do.	1		

Boil for two hours and apply hot.

No. 5.—OPIATES AND ANTISPASMODICS.

The following is a list of the most useful of this class of medicines:

Ahfeeme,	Opium,	$0\frac{1}{4}$ to 2	Tolas.
Hing,	Asafoetida,	$0\frac{1}{2}$ to 4	Ditto.
Jahpul,	Nutmeg,	$0\frac{1}{4}$ to 2	Ditto.
Kolinjun,	Alpinia Galanga, root of,	$0\frac{1}{8}$ to 2	Ditto.
Kapoor,	Camphor,	$0\frac{1}{2}$ to 3	Ditto.
Uddaruk,	Ginger, (green,)	$0\frac{1}{2}$ to $0\frac{1}{2}$	Seer.
Ujwan,	Fennel Seeds,	$0\frac{1}{2}$ to $0\frac{1}{2}$	Ditto.
Ujwan Khorasane, .....	.....	$0\frac{1}{2}$ to $0\frac{1}{2}$	Ditto.
Ujwan Shoree,	The Cleome Viscosa of Ainslie,	$0\frac{1}{2}$ to $0\frac{1}{2}$	Ditto.
Ujwan Uzmodha,	Henbane Seeds,	$0\frac{1}{2}$ to $0\frac{1}{2}$	Ditto.

No. 6.—PURGATIVES.

The following is a list of the most useful of this class of remedies:

Amulthas,	Cassia Fistula,	4 to 12	Tolas.
Indrayen,	Colocynth,	3 to 12	Ditto.
Moosumber,	Aloes,	4 to 12	Ditto.
Jumaul Gottah,	Croton Seeds,	2 to 4	Ditto.
Sayend ka Coplee,	Euphorbium, stalk of,	$0\frac{1}{4}$ to 1	Seer.
Sikka Kahee,	Jungle Soapnuts,	$0\frac{1}{4}$ to $1\frac{1}{2}$	Ditto.
Neemuck,	Common Salt,	$0\frac{1}{4}$ to $1\frac{1}{2}$	Ditto.
Rahyan,	Mustard,	$0\frac{1}{4}$ to 2	Ditto.
Umbli,	Tamarind,	$0\frac{1}{2}$ to 2	Ditto.
Parah ka kaluk,	Calomel,	$0\frac{1}{2}$ to 3	Tolas.

The following are useful purging Mussauls :

Mussaul No. i.

Take of Croton Seeds		Ginger,	Drachms 2
bruised,.....	Drachms 4 to 6	Black Pepper,	do. 2

Mix, and make into a ball.

This is a very useful purgative in all cases where it is wished to purge the animal freely.

Mussaul No. ii.

Take of Neemuck,	Seer 0½	Sohnate,	Tolas 2
Umbli,	do. 0½	Soona Mukkee,.....	Seer 0½
Rahyan,.....	do. 0½	Pahnee,	(Pucka) do. 2

Boil down to one seer and give half for a dose, repeat the other half after eight hours if necessary.

Mussaul No. iii.

Take of Mudode pullee,...	Tolas 2	Ahmultas ka pullee,.....	Tolas 2
Pulas pupada,	do. 2	Moosumber,	do. 4
Vahee Combah,	do. 4	Pahnee,	(Pucka) Seers 3
Inderjoathe,	do. 2		

Boil the above to one and half seers, and give half seer every eight hours until the bowels are open.

Mussaul No. iv.

Take of Moosumber,.....	Seer 0¼	Inderjoathe,	Tolas 2
Neemuck,	do. 0¼	Mudode pullee,.....	do. 2
Soona Mukkee,.....	do. 0½		

Bruise the above ingredients and add two and half pucka seers of water, and boil to one and half seers. Give a third part every eight hours until the bowels are open.

Mussaul No. v.

Take of Moosumber,.....	Tolas 8	Sohnate,	Tolas 3
Dhoodh,	Seer 1		

Pulverize the hard substances and mix with the milk. Give half to the animal for a dose and repeat the other half after eight hours if the bowels are not open.

Mussaul No. vi.

Take of Moosumber,.....	Tolas	8	Sahboone,.....	Tolas	2
Parah ka kahk,	do.	2			

Pulverize and mix, form into two balls, and give one every eight hours until the bowels are open.

No. 7.—REFRIGERANTS.

The following are useful in the Camel, in all cases where a cooling remedy is required.

Awul gunttee,.....	Gooseberries,	2 to 6	Tolas.
Dhunya,	Coriander,	$0\frac{1}{4}$ to 1	Seer.
Shendh ka gabah,	The Date, stalk of,.....	$0\frac{1}{2}$ to 4	Ditto.
Shorah,	Nitre,	$0\frac{1}{8}$ to 2	Tolas.
Ungooree Neemuck,	Cream of Tartar,	2 to 8	Ditto.

No. 8.—TONICS.

The following are a few of the most useful of this class of medicines:

Aak ka Chall,	Mudar, bark of,	1 to 4	Tolas.
Aak ka puttha,	Mudar, leaves of,	$0\frac{1}{2}$ to 1	Seer.
Cheraytha,	Creyat,	2 to 6	Tolas.
Gudge Kay,	Bondue Nut,	1 to 4	Ditto.
Piplee,	Long Pepper,	$0\frac{1}{4}$ to 1	Seer.
Pohsth,	Poppies,	$0\frac{1}{4}$ to $1\frac{1}{2}$	Ditto.
Pudhinah,	Spearmint,	$0\frac{1}{4}$ to 1	Ditto.
Maythee,	Dill,	$0\frac{1}{4}$ to $1\frac{1}{2}$	Ditto.
Uldhee,	Turmeric,	2 to 6	Tolas.
Ujwan,	Fennel Seeds,.....	3 to 6	Ditto.
Ujwan Khorasane, .....	.....	3 to 6	Ditto.
Ujwan Shoree,	The Cleome Viscosa of Ainslie,	2 to 8	Ditto.
Ujwan Uzmodha,	Henbane Seeds,.....	2 to 8	Ditto.
Uzgun Kajud,	Physalis Somnifera,	2 to 6	Ditto.

CHAPTER III.

MEDICINES, &c. FOR HORNED CATTLE.

THE *Materia Medica*, for Horned Cattle, of the attendants and Natives generally, is very limited. Their almost universal resort is the operation of firing, to the forms of which, as spots and circles, and lines straight and curved, and variously terminating in two or more extremities arranged fork-like, they attach a superstitious importance. This operation is doubtless an efficient remedial means, but frequently the operation of fomentation, so often recommended in Part III. Chap. I. Sec. 7, of this treatise, may be advantageously substituted. The best mode of performing this operation, as also that of bleeding, will be found under the head *Burra Azar*, in Part III. Chap. I. Sec. 7.

No. 1.—ALTERATIVES.

Of these, *Calomel* and *Sulphuret of Antimony* are the most important. They are useful generally when the animal falls out of condition; but more especially when the digestive organs are impaired. The dose of *Calomel* may vary from twenty grains to half a drachm: that of *Sulphuret of Antimony* from half a drachm to a drachm. *Tartar Emetic* also possesses alterative qualities; and is beneficial, more especially in affections of the skin; the dose is from ten grains to twenty.

No. 2.—ANTHELMINTHICS.

Decoction of the leaves of the *Neem* tree (*Melia Azedarach*) is used for worms. *Vide* Part III. Cap. II. Sec. 16, but worms in India are seldom found to infest the alimentary canal of Horned Cattle.

The following is a recipe for preparing the decoction of *Neem* leaves:

Take of leaves of the <i>Neem</i>		Water,	Quart 1
tree,	Seer 1		

Boil for an hour and strain.

No. 3.—ASTRINGENTS.

This is a useful class of medicines in Diarrhœa. The following is a list:

Avarum Kolindhoo,	Tannin bark,	2 to 6	Tolas.
Madalam Kolindhoo,	Pomegranate,	2 to 8	In No.
Mashee Kahee,	Gall Nut,	1 to 4	Tolas.
Kadookah,	Ink Nut,	1 to 4	Ditto.
Thanee Kahee, .....	.....	1 to 4	Ditto.
Valaree Kolindhoo, .....	.....	2 to 6	Ditto.

No. 4.—CARMINATIVES AND EXCITANTS.

Butch,	Sweet Flag,	2 to 8	Tolas.
Dhal Chinee,	Cinnamon,	0½ to 1	Seer.
Hing,	Asafoetida,	0½ to 4	Tolas.
Jeera, Suffadhe,	Caraway,	0¼ to 0½	Seer.
Kala Mirchee,	Black Pepper,	0¼ to 1	Ditto.
Piplee,	Long Pepper,	1 to 4	Tolas.
Sohnte,	Ginger,	0½ to 0¼	Ditto.
Sheraafe,	Arrack,	0¼ to 1	Bottle.

The above are useful in colic, and also when the animal is weak and aguish after exposure to rain. Half a bottle of Arrack is frequently given by the Natives under such circumstances. When the animal is hard worked, and disinclined therefrom to graze, an ounce of jagury, half an ounce of ginger, one ounce of onions and half a drachm of opium, are made into a bolus and given, washed down with half a bottle of Arrack.

No. 5.—EXTERNAL APPLICATIONS.

Camphorette Oil proves the most efficacious application for ulcers, having as well the advantage of preventing flies depositing ova which eventually become maggots, as from possessing curative properties. A decoction of the plant called *Thoombay*, or one of *Tobacco*, is useful in removing vermin.

The following is an efficient application to kill vermin and to remove diseases of the skin, as itch, &c. and has been found to have cured several animals.

Mussaul No. i.

1 Take of Pottle Oopoo, ... Tolas	6	4 Vahsumboo,	Tolas	12
2 Nowasaggurum, do.	6	5 Karpoorum,	do.	6
3 Dikkamullee, do.	6	6 Narevalum,	do.	3

Finely powder the above separately, and add Nos. 1, 2, 5 and 6 to two bottles of cocoanut or ginjili oil and boil for ten minutes, then add Nos. 3 and 4 and mix. A small quantity of this oil to be rubbed over the surface once daily for three successive days; then wash the animal with soap and water and repeat the application, and wash as above for fifteen days.

Instructions for fomenting are given under the head Burra Azar, *vide* Part III. Chap. I. Sec. 7. Firing is frequently practised with advantage. Ulcerations frequently require the application of the solution of blue stone (5 to 10 grains to one ounce of water) to keep down fungous flesh and to cleanse those of a foul description. The following are used in fistulous ulcers, &c.

Mussaul No. i.

1 Take of Uldhee, Tolas	12	5 Gaookadee, Tolas	6
2 Puttukdee, do.	4	6 Cunare ka puttha, do.	18
3 Poorana Rooce, do.	6	7 Neemuck, do.	4
4 Girgoot, No.	2		

Powder the above; burn Nos. 4 and 6 to charcoal and powder also, then mix and keep for use daily.

Mussaul No. ii.

1 Take of Bremadundhee		4 Oopoo, Tolas	2
Yellay, Handfulls	2	5 Kurpoorum, do.	1
2 Munjaul, Tolas	2	6 Oomatha Yellay, do.	6
3 Choonambo, do.	1		

Pound the above together and apply to the ulcer daily, after previously washing it with warm water.

No. 6.—PURGATIVES.

The following are useful recipes for purgative mixtures. Medicines of this class act much more efficiently in combination than when given singly. Croton seeds, so useful as a purgative for the Elephant and Camel, are found too irritating for the Bullock, being liable to occasion inflammation of the bowels: they are not therefore to be prescribed for this class of animal.

Mussaul No. i.

Take of Aloes, Seer	0½	Ginger, Tolas	2
Common Salt, do.	0½	Water, Ounces	16

Powder the hard substances and mix with the water. Half to be given for a dose, and repeat the other half after eight hours if necessary.

Mussaul No. ii.

Take of Koomootee kahee, Tolas	6	Sookoo,..... Tolas	4
Nellah varay, Seer	0 $\frac{1}{4}$	Oopoo, do.	4
Konakahee, Tolas	4		

Powder the above ingredients and add to three pints of water, and boil down to two pints and strain. Give a pint for a dose, and repeat after six hours if necessary.

Mussaul No. iii.

Take of Moosamburum, ... Tolas	6	Roollee,..... Tolas	8
Nellah varay, Seer	0 $\frac{1}{4}$	Kadagoo, do.	6
Sookoo,..... Tolas	4		

Powder the above and mix with three pints of water, and boil down to two. Of this mixture give a pint for a dose, adding to it an ounce of common salt; and repeat after eight hours if necessary.

Mussaul No. iv.

Take of Mudode pullee, ... Tolas	4	Ahmultas ka pullee, Tolas	4
Pulas pnpada, do.	4	Moosumber, do.	4
Vahee Combah, do.	6	Pahnee, (Pucka) Seers	4
Inderjoathe, do.	4		

Boil down to three seers and give half for a dose. Repeat the mixture after an interval of eight hours if the bowels are not moved by the first.

Mussaul No. v.

Take of Moosumber,..... Seer	0 $\frac{1}{4}$	Sohnte, Tolas	4
Parah ka kahk,..... Tolas	2	Hing,..... do.	2

Beat up the above and add as much Goode as to make it into a soft mass, which divide into three balls, and give one every four hours until the bowels are moved.

No. 7.—REFRIGERANTS.

The following is a list of the most useful of this class of medicines:

Dhunyah,	Coriander,	0 $\frac{1}{2}$ to 2 Seers.
Shorah,	Nitre,	0 $\frac{1}{4}$ to 2 Tolas.
Neemuck,	Salt,	0 $\frac{1}{4}$ to 2 Seers.
Ungooree Neemuck,	Cream of Tartar,	0 $\frac{1}{8}$ to 0 $\frac{3}{4}$ Ditto.
Umbli,	Tamarind,	0 $\frac{1}{2}$ to 3 Ditto.

No. 8.—TONICS.

Of this class the Margosa bark is in common use. It is given in decoction made of 12 ounces of the bark to a quart of water, boiled for an hour; a pint of which constitutes a dose, to which one ounce of common salt is to be added, to be given morning and evening.

CHAPTER IV.

A GENERAL LIST OF MEDICINES USED IN THE TREATMENT OF THE DISEASES OF THE ELEPHANT, THE CAMEL AND THE BULLOCK.

اک کا جڑ.—*Aaka jud.* *Yerrakum Vayr.*

No. 1.—MUDAR ROOT.

OPERATION.—Tonic and Excitant.

USE.—In the Elephant in Vahee Golah, Sekum Durudh,—Mookundha, after Lungun; and in debility. In the Camel in Surdhee.—Externally to cleanse foul ulcers, and in severe contusions use fomentations to abate pain and inflammation.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from 1 to 4 Ditto.

اک کا پھول.—*Aak ka phool.* *Yerrakum poo.*

No. 2.—MUDAR FLOWERS.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Vahee Golah, Sooka Zaarbahd, Vahee ka Durudh, Sangrance. In the Camel in Dhoobla. In the Bullock both the flowers and leaves are in frequent use, when the abdomen is swollen and the bowels are costive. The leaves are used in ulcers and as fomentations.

DOSE.—In the Elephant from 10 to 20 Tolas.
In the Camel and Bullock from 4 to 16 Ditto.

أفيم .—*Ahfeeme.* *Abinee.*

No. 3.—OPIUM.

OPERATION.—Narcotic, Antispasmodic and Excitant.

USE.—Opium allays spasms of the stomach and bowels, and relieves pain in Vahee Golah, Sekum Durudh and Pate ka Durudh, in the Elephant: in profuse purging in the Camel and Elephant. In severe sprains and contusions used only in particular cases and generally alone. Externally in diseases of the eyes of the Elephant and Camel. Applied on the surface of the body in extensive swellings as fomentation.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
In the Camel from $0\frac{1}{4}$ to 2 Ditto.

أبني هادي .—*Ahmbee Uludh.* *Kastoorce Munjal.*

No. 4.—TURMERIC.

OPERATION.—Slightly Excitant and Tonic.

USE.—In the Elephant in Vahee Golah, Dhoobla, Joolaub, Sekum Durudh, Zaarbahd and in diseases generally of this animal; the Camel and the Bullock requiring warm tonic.

DOSE.—In the Elephant from 6 to 12 Tolas.
In the Camel from 3 to 6 Ditto.

أم كا جز .—*Ahmkajud.* *Mahm Vayr.*

No. 5.—BARK OF THE MANGOE TREE.

OPERATION.—Tonic.

USE.—In Sooka Zaarbahd and in Dhoobla, both in the Elephant and Camel, externally.

أثيس .—*Athees.* *Utthevedayum.*

No. 6.—LINUM USITATISSIMUM.

The root and seed in use.

OPERATION.—Tonic and slightly Excitant.

USE.—In weak and debilitated constitutions of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

آہول گنتی.—*Ahvul Gunttee.* *Nellikae.*

No. 7.—COUNTRY GOOSEBERRIES.

OPERATION.—Refrigerant, Astringent and Tonic.

USE.—In Agin Bhao, diseases of the kidneys and the bladder of the Elephant and Camel, also in Vahee Golah, Lungun and Sooka Zaarbahd.

DOSE.—In the Elephant from 4 to 8 Tolas.
In the Camel from 1 to 4 Ditto.

آہول ساری گندی.—*Ahwulsarree Gendugh.* *Gendagum.*

No. 8.—FLOWER OF SULPHUR.

OPERATION.—Excitant, Alterative and Tonic.

USE.—In Dhoobla, Lungun, Mookundha Bhao, Budda Bhao, Zaarbahd, Dhudkay, Sooka Zaarbahd in the Elephant. In the Camel it forms an efficient application in Kahreesi and in diseases of the skin in those out of condition. In the Bullock in diseases of the skin from Dhoobla.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from 1 to 4 Ditto.

آہملثاس.—*Ahmulthas.* *Konakae.*

No. 9.—CASSIA FISTULA, (PULP OF FRUITS.)

OPERATION.—Laxative and Purgative.

USE.—In the Elephant in Worms, Mookundha, Pate ka Durudh, Vahee Golah, Zaarbahd, Bhao ka Murz and Dhudkay. In the Camel in Kupalee, Mulole, Soole, Cuppray, Moorghee, Cumaun, Koodkay, Guttud and Vahee ka Durudh. In the Bullock in Dropsy, Colic and Constipation.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 6 Ditto.

الهي.—*Alee*,—هليم or *Ahleem*. *Ahlicaray*.

No. 10.—LINSEED.

OPERATION.—Tonic and Demulcent.

USE.—In Zaarbahd, Dhudkay, Bhao, Nunj, Koosum ka Murz, Dao ka Murz, in the Elephant. In the Camel in Dysentery, Diarrhoea, Papesa ka Murz, Surdhee, Bhao and Kaleeja. Externally it forms, with camphoretted liniment, a useful application in contusions and sprains, also in Rheumatism.

DOSE.—In the Elephant from 2 to 12 Tolas.

In the Camel from 1 to 6 Ditto.

بادام ميٹھا.—*Bahdum*, *Mittah*. *Bahdum Cotay*.

No. 11.—SWEET ALMONDS.

OPERATION.—Demulcent and Emollient.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Eeray Sangranee and in affections of the urinary organs. In the Camel in Dysentery and affections of the kidneys.

DOSE.—In the Elephant from 4 to 12 Tolas.

In the Camel from 2 to 8 Ditto.

باہی بڑنگ.—*Baheebadung*. *Vaheebadungum*.

No. 12.—THE BERRIES OF THE EMBELIA RIBES.

OPERATION.—Excitant, Anthelmintic and Tonic.

USE.—In the Elephant in Surdhee, Chowrung, Mookundha, Lungun, Vahee Golah, Vahee ka Durudh and Zaarbahd. In the Camel in Surdhee, Worms and Dhoobla.

DOSE.—In the Elephant from 2 to 6 Tolas.

In the Camel from 1 to 4 Ditto.

باہی کھبا.—*Baheecombah*. *Pudhmoogum*.

No. 13.—

OPERATION.—Excitant, Tonic and Expectorant.

USE.—In Zaarbadh, Dhahdbundh, Choodee, Lahgar, Bhao in the Camel, Mulole and debility in the Elephant and Camel.

DOSE.—In the Elephant from ... 1 to 6 Tolas.
In the Camel from ... $0\frac{1}{2}$ to 4 Ditto.

بال هلدّا.—*Bahl Uldah*,—زنگی هلدّا or *Zingee Uldah*. *Pinjee Kadookae*.

No. 14.—TENDER INK NUTS.

OPERATION.—Tonic and Astringent.

USE.—Externally in the Elephant in diseases of the eye as an astringent. In the Camel in Diarrhoea, Dysentery, Mulole, Koodkay. In tender feet of the Elephant and Camel and to ulcerations.

DOSE.—In the Camel from ... 1 to 4 Tolas.

بان تي بول.—*Bahndhee Bole*,—گندھا فیروزا or *Gundha Barosa*. *Vahluthee Bohlum*.

No. 15.—OLIBANUM.

OPERATION.—Excitant, Tonic and Astringent.

USE.—In the Elephant in Zaarbadh, Nunj, Chowrung, Worms after Lungun, in Debility, Dysentery, Vahee Golah, Sooka Zaarbadh and Daaka Murz. In the Camel, in some acute diseases as Bhao, Papesa ka Murz, Kaleeja, &c. Externally to foul ulcers. Never used in the Bullock.

DOSE.—In the Elephant from ... 2 to 6 Tolas.
In the Camel from ... $0\frac{1}{2}$ to 3 Ditto.

بالی کا جوڑ.—*Bahlay ka jud*. *Vettie Vayr*.

No. 16.—KUSKUSS.

OPERATION.—Refrigerant, Tonic and Carminative.

USE.—In the Elephant in Eeray Sangranee, Agin Bhao and Vahee Golah. It is said to prevent the frequent repetition of Lungun. In the Camel in Diarrhoea and Dysentery. Given in the form of an infusion made of 1 seer of this article to $\frac{1}{2}$ a gallon of water.

DOSE.—In substance in the Elephant from ... 4 to 12 Tolas.
In the Camel, Infusion from ... 2 to 8 Pounds.

بانس کا چاول.—*Bahns ka Chavul.* *Moongul Arisee.*

No. 17.—BAMBOO SEEDS.

OPERATION.—Excitant, Tonic and Demulcent.

USE.—In Surdhee, Zaarbahd, Nunj, Lungun, Guttud ka Murz, Debility and in violent contusions in the Elephant and Camel.

DOSE.—In the Elephant from 1 to 3 Seers.
In the Camel from 0½ to 2 Ditto.

بارود.—*Bahroodh.* *Doobakee Marundhoo.*

No. 18.—GUNPOWDER.

OPERATION.—Excitant and Tonic.

USE.—In Zaarbahd, Dhudkay, Bhao, Ahren Bhao, Budda Bhao, Gunruss, Dhoolah and after Lungun in the Elephant. Externally applied over the body in Zaarbahd, also to harden the tender feet of the Elephant with the milk of the Euphorbium.

DOSE.—In the Elephant from 2 to 8 Tolas.

بیل گندن کی جو.—*Balegundaun ka jud.* *Especree Vayr.*

No. 19.—

OPERATION.—Excitant, Tonic and Carminative.

USE.—In flatulence from Vahee Golah, Lungun, Mookundha and Debility. In the Camel in Mulole and in Debility. Never given in the Bullock.

DOSE.—In the Elephant from 8 to 24 Tolas.
In the Camel from 4 to 16 Ditto.

بہلا مای.—*Belahmay.* *Cherrauun Cotay.*

No. 20.—THE MARKING NUT, OR MALACCA BEAN.

OPERATION.—Excitant, Tonic, Astringent and Rubefacient.

USE.—In the Elephant in Zaarbahd, Vahee, Vahee ka Durudh, Nunj, Lungun, Gunruss and Pate ka Durudh. In the Camel after severe exposure to wet or cold, one to four nuts are boiled in two pints of milk and given to the animal, also in severe Surdhee. Externally, the oil, with other ingredients, is applied to irritable ulcers of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel from 1 to 4 Ditto.

بھنگ.—*Bung.* *Gunjah.*

No. 21.—THE LEAVES AND CAPSULES OF THE HEMP.

OPERATION.—Excitant, Tonic and Narcotic.

USE.—In weak and emaciated animals, in Diarrhoea and Dysentery, given on a line of march with other stimulating substances. The attendants administer this to keep their animals in good working order during hard work. It is used in the Camel in Diarrhoea and Colic.

DOSE.—In the Elephant from 2 to 4 Tolas.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.
In the Bullock from $0\frac{1}{4}$ to 2 Ditto.

بیس کھوپڑا.—*Biscoprah.* *Vellay Chaturani.*

No. 22.—GEN. TRIANTHEMA DECANDRUM.

OPERATION.—Excitant, Tonic and Cathartic.

USE.—In the Elephant in Vahee Golah, Zaarbahd, Mookundha. Its root is given in Ecray Sangraanee. Large quantities, as from 3 to 6 seers, are required to act as a Cathartic in the Camel in Guttud and Mulole. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 12 Tolas.
In the Camel from 1 to 8 Ditto.

بھون اونلا.—*Booin Ahelah.* *Keeraun Nellee.*

No. 23.—

OPERATION.—Cooling and Tonic.

USE.—Chiefly used in the Elephant for Agin Bhao, Kuthlay, Gunruss and Dhoobla. The juice is used externally in diseases of the eyes. In the Camel in affections of the urinary organs and in Dysentery. In the Bullock in inflammatory diseases of the bowels.

DOSE.—In the Elephant from 6 to 18 Tolas.
In the Bullock and Camel from 4 to 14 Ditto.

بھین کویت.—*Booin kavet.* *Naree Velanga.*

No. 24.—WOODAPPLE.

OPERATION.—Tonic and Astringent.

USE.—In the Elephant in Sooka Zaarbahd, Dhoobla, Zaarbahd, Nunj Dhummay, Diarrhoea and Lungun. In the Camel in Koossum, Dysentery and Debility. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel from 1 to 4 Ditto.

بھین دورلا.—*Booin-dorlah.* *Kundun Kathree.*

No. 25.—

OPERATION.—Tonic, Anthelmintic and Cathartic in large doses.

USE.—In the Elephant in Worms, Vahee Golah, Zaarbahd, Eeray Sangranee and Lungun. In the Camel for Kapalee, Mulole, Soole and Guttud. Its seeds are used as snuffs in Mussauls. It is given in the Elephant as a Cathartic when earth does not act on the bowels.

DOSE.—In the Elephant from 8 to 24 Tolas.
In the Camel from 4 to 12 Ditto.

Buboon ka phool. *Chamaindoopoo.*

No. 26.—CAMOMILE FLOWERS.

OPERATION.—Tonic and Astringent.

USE.—In ulcerations of the fauces in the Camel and in Debility: the stalk is useful in Dysentery. In the Elephant in Agin Bhao and Kuthlay: the stalk

and leaves are useful applications to harden the tender feet of the Elephant and the Camel.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Seers.
In the Camel from $0\frac{1}{4}$ to 2 Ditto.

بُلْدَاهُ.—*BulDAH.* Tharee kae.

No. 27.—TERMINALIA BELLERICA.

OPERATION.—Astringent.

USE.—Externally in Kuthlay, Thullee, Wounds, Bruises and Ulcers in the Elephant and Camel. In the former to affections of the eyes. Internally in Dysentery and Diarrhoea in the Camel. Never used in the Bullock.

DOSE.—In the Camel from 2 to 4 Tolas.

بُتْچ.—*Butch.* Vasumboo.

No. 28.—SWEET FLAG.

OPERATION.—Tonic, Antispasmodic and Carminative.

USE.—In Vahee Golah, Mookundha, Pate ka Durudb, Lungun, Sooka Zaarbahd, Dhummay and Dhudkay in the Elephant. In the Camel in Mulole, Soole, Bhao, Diarrhoea and Debility. In the Bullock in Pahndoo, Colic and Diarrhoea.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 6 Ditto.

بُتْچَنَہُ.—*Butchnahg,*—بُتْچَنَہُ or Kala Bitchara. Putchnavce.

No. 29.—MONKSHOOD.

OPERATION.—Excitant and Narcotic.

USE.—In Zaarbahd, Nunj, Bhao, Dhudkay, Daaka Murz and in Musht in the Elephant. In the Camel in general debility and in Diarrhoea; but seldom used for this animal.

DOSE.—In the Elephant from $0\frac{1}{8}$ to 1 Tola.
In the Camel from $0\frac{1}{12}$ to $0\frac{1}{2}$ Ditto.

گودالہی اود۔—*Caodalee Oodh.* *Palingee Sambranee.*

No. 30.—BENZOIN.

OPERATION.—Tonic, Astringent and Detergent.

USE.—In Kuthlay, Zaarbald, Sooka Zaarbald, Dhoobla, Diarrhoea, Eeray Sangranee, Keed ka Murz and Vahee ka Durudh. Externally to cleanse wounds, ulcers, bruises, burns and in diseases of the skin. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

چاول۔—*Chavul.* *Arisee.*

No. 31.—ORYZA SATIVA, RICE.

OPERATION.—Demulcent.

USE.—Boiled and given in Zaarbald, Nunj, Agin Bhao, Gunruss, Kuthlay, Koossum and in affections of the bladder. In the Camel in Diarrhoea, violent purging after medicine, in Dysentery, Bhao, Dhundee, Zillay baaz, Agin Bhao and in general Debility.

DOSE.—In the Elephant from 4 to 12 Seers.
In the Camel from 2 to 6 Ditto.

چرائی۔—*Cheraytha.* *Nella Vemboo.*

No. 32.—CREYAT.

OPERATION.—Tonic.

USE.—In the Elephant in Zaarbald, Sangranee, Daaka Murz, Nunj, Chowrung and Dhoobla. In the Camel in Diarrhoea, after Papesa ka Murz and in Dhoobla.

DOSE.—In the Camel from 1 to 4 Tolas.
In the Elephant from 2 to 8 Ditto.

چکنی سپاری۔—*Chicknee Suparee.* *Kullee Pauk.*

No. 33.—A DESCRIPTION OF BETEL NUT.

OPERATION.—Astringent.

USE.—Chiefly used externally to harden the soles of the feet in the Elephant and in ulcerations of the feet in the Camel.

چل بینچہ — *Chilbeenj.* *Thethaun Cotay.*

Sp. 4.—Strychnos Potatorum.

No. 34.—CLEARING NUT.

OPERATION.—Cooling and Astringent.

USE.—In the Elephant to affections of the eyes previous to the application of Escharotics, to burns and other irritable sores. In the Camel in Zillay baaz as a lotion.

چوکی — *Choke,*—کوشٹ or *Kohsht.* *Koshtum.*

No. 35.—ARABIAN COSTUS.

OPERATION.—Excitant, Tonic and Detergent.

USE.—In the Elephant in Zaarbahd, Nunj, Bhao, Surdhgurum, Sangranee, Lungun, Dhummay, Gunruss and Surdhee. In the Camel seldom given for Surdhee and general Debility. Externally in itch and other affections of the skin of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 0½ to 2 Tolas.
In the Camel from 0½ to 1 Ditto.

چنپا گوند — *Choonen-Gohondh.* *Vellawn Pishin.*

No. 36.—GUM ARABIC.

OPERATION.—Refrigerant and Demulcent.

USE.—In the Elephant in Agin Bhao, Vahee Golah, Kuthlay, Zaarbahd, Nunj, Papesa ka Murz, Dhummay and Koossum. In the Camel in Koossum, Dhundee, Zaarbahd, Diarrhoea, Dysentery, Koodkay, Soolee and Gaasha. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 4 Seers.
In the Camel from 0½ to 2 Ditto.

چوپ چینے — *Chope Chinee.* *Paringhee puttay.*

No. 37.—SMILAX, CHINA, ROOT OF

OPERATION.—Tonic and Astringent.

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كوزي.—*Cowdee.* *Palagaray.*

No. 41.—KOWRY SHELLS.

OPERATION.—Tonic, Refrigerant and Detergent.

USE.—In Agin Bhao, Zaarbahd, Kuthlay, Koossum, Sangranee, Modah, Joolaub and Surdhgurum in the Elephant and Camel. Externally in ulcerations and in some affections of the eyes. The substance is burnt, previous to use internally.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Camel from $0\frac{1}{4}$ to 1 Ditto.

كباب چيني.—*Cubaub Chinee.* *Seroo Nagapoo.*

No. 42.—PIPER CANINUM.

OPERATION.—Tonic, slightly Excitant and Carminative.

USE.—In Agin Bhao, Kuthlay, Dhoobla and Zaarbahd in the Elephant. In the Camel in Zillay baaz, Pensee ka Murz, Jennuk Vahee, Mulole, Kapalee, Surdhee and in debilitated animals. In the Bullock in Burra Azar and Bhao.

DOSE.—In the Elephant from ... 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

دار چيني.—*Dhal Chinee.* *Lavunga puttay.*

No. 43.—CINNAMON BARK.

OPERATION.—Tonic, Carminative and slightly Excitant.

USE.—In the Elephant in Kuthlay, Agin Bhao, Gunruss, Chowrung, Vahee Golah, Zaarbahd and Lungun. In the Camel in Vahee ka Durudh, Mulole, Soole, Diarrhoea, Mohdee and in Dhoobla. In the epidemic diseases of the Bullock, namely, Burra Azar, Bhao and Komaree.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Camel and Bullock from $0\frac{1}{2}$ to 1 Ditto.

دارو.—*Dharoo,*—شرف or *Sheraafe.* *Sharayum.*

No. 44.—ARRACK.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Surdhee, Kuntay Bhao, Dhummay, Budda Bhao, Dhudkay, Daaka Murz, Dhoobla, Vahee ka Durudh and Lutchuk. In the Camel in Surdhee, Koodkay, Mulole, Jenuk Vahee, Dhad ka Murz, Diarrhoea and Debility. Externally in bruises and contusions.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Camel from $0\frac{1}{4}$ to 1 Ditto.

دهنورا.—*Dhatooray Peelah.* *Brcmah Dhundee.*

No. 45.—THE PERUVIAN POPPY.

OPERATION.—Tonic, Excitant, slightly aperient and detergent.

USE.—In Dhoobla, Sooka Zaarbahd and Vahee Golah. With common salt it operates as a purgative in the Elephant and Camel. In the former after Lungun; and the latter in Mulole, Guttud and Soole. Externally it forms a useful application for foul and irritable wounds, ulcers and bruises in the Elephant, Camel and Ballock. Common salt augments its purgative and detergent properties.

DOSE.—In the Elephant from 1 to 4 Seers.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

کالا دهنورا.—*Dhatooray, Kala.* *Karee Oomathay.*

No. 46.—BLACK THORN APPLE.

OPERATION.—Excitant and Tonic.

USE.—Its juice is used in cases of Musth, in Zaarbahd, Nunj, Daaka Murz, Surdhee, Dhummay and Dhoobla in the Elephant. In the Camel in Koodkay, Choodee, Cuppray, Debility, Diarrhoea, Soole and Surdhee. The leaves and bark form, with the addition of Uldhee and Neemuck, a useful and efficient application to expedite the process of suppuration in sloughly and irritable wounds, ulcers, &c.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

دهين.—*Dheighn.* *Thycroo.*

No. 47.—TYRE.

OPERATION.—Refrigerant and Diuretic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Zaarbaid, Bhao, Dysentery, and in diseases of the urinary organs. In the Camel in profuse purging from whatever cause produced. In Agin Bhao, Zaarbaid, Dysentery, Diarrhoea, Dhundee, Phudmooth and in Emaciation, given in boiled rice and onions. Externally applied to the skin in eruptions of Agin Bhao, in the Elephant and Camel. In the Bullock in acute diseases as Burra Azar, Dysentery, Bhao, with raggy flour.

DOSE.—In the Elephant from 2 to 8 Seers.
 In the Camel from 2 to 6 Ditto.
 In the Bullock from 2 to 4 Ditto.

دمي مرچي.—*Dhoomkee Mirchee.* *Vahl Melogoo.*

No. 48.—CUBEBS.

OPERATION.—Tonic, Excitant and slightly Diuretic.

USE.—In Agin Bhao, Kuthlay, Gunruss, Zaarbaid, Dysentery, Lungun, Sooka Zaarbaid and Koosum in the Elephant. In the Camel in Debility, Surdhee, Koodkay, Moorghee, Cumaum, Diarrhoea, Dysentery and Dhadbundh. In the Bullock in Burra Azar.

DOSE.—In the Elephant from 2 to 8 Tolas.
 In the Camel and Bullock from 1 to 4 Ditto.

ديكي عالي.—*Dikkamulee.* *Dikkamulee.*

No. 49.—

OPERATION.—Tonic and Excitant.

USE.—In the Elephant in Zaarbaid, Vahee Golah, Vahee ka Durudh, Lungun, Nunj, Chowrung and Surdhee. In the Camel in Mulole, Soole, Surdhee, Cummaun, Moorghee and Diarrhoea. Externally in the Bullock in Moopaung, ulcers, wounds, bruises, &c. and other diseases of the skin.

DOSE.—In the Elephant from 2 to 8 Tolas.
 In the Camel from 1 to 4 Ditto.

دهنيا.—*Dhunyah.* *Kothamillee.*

No. 50.—CORIANDER.

OPERATION.—Tonic and Carminative.

USE.—In the Elephant in Gunruss, Bale ka Murz, Vahee Golah, Pate ka Durudh, Papesa ka Murz, Lungun, Mookundha and Zaarbahd. In the Camel in Mulole, Soole, Surdhgurrum, Kapalee, Dhoobla and in diseases of the urinary organs of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 1 to 3 Seers.
In the Camel and Bullock from $0\frac{1}{2}$ to 2 Ditto.

هيراكس.—*Eerakuss.* *Unabaydhec.*

No. 51.—SULPHATE OF IRON.

OPERATION.—Tonic and Excitant.

USE.—In Zaarbahd, Bhao, Ghutt Bhao, Dhudkay, Daaka Murz, Dhoobla, and Surdhee in the Elephant. In the Camel in Diarrhoea, Dysentery, Bhao and Papesa ka Murz. Externally to bring down fungous flesh. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Camel from $0\frac{1}{2}$ to 1 Ditto.

ايلاجي.—*Elachee.* *Yalarasee.*

No. 52.—CARDAMOMS.

OPERATION.—Tonic, Excitant and Carminative.

USE.—In the Elephant in Kuthlay, Vahee Golah, Dhadbundh, Gunruss, Chowrung, Surdhee Lungun and Mookundha. In the Camel in Koodkay, Diarrhoea, Mulole, Dhundee, Soole and Phudmooth. In the Bullock in Burra Azar, Komaree and Colic. Externally in affections of the skin.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Bullock and Camel from $0\frac{1}{4}$ to 1 Ditto.

ايروندي كي كوپليان.—*Erundee ka Coplee.* *Amanak Kolindhoo.*

No. 53.—THE TENDER STALK OF THE CASTOR TREE.

OPERATION.—Slightly Purgative and Tonic.

USE.—In the Elephant after Lungun, in Mookundha, Vahee Golah, Vahee, Nunj and Zaarbahd. In the Camel in Mulole, Papesa ka Murz, Cumaun, Guttud, Surdhee, Diarrhoea and Dysentery.

DOSE.—In the Elephant from 2 to 4 Seers.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

ایرونڈیکا تیل.—*Erundee ka Thale.* *Amanak Yennay.*

No. 54.—CASTOR OIL.

OPERATION.—In the Elephant after Lungun, in Mookundha, Vahee Golah, Sekum Durudh, Pate ka Durudh, Zaarbahd, Nunj, Bale, Bhao, Ghutt and Dhudkay. In the Camel in Mulole, Soole, Budda Bhao, Kaleeja, Kapalee, Dysentery and Guttud. In the Bullock in Dropsy, Dysentery and Burra Azar.

DOSE.—In the Elephant from 2 to 6 Seers.
In the Bullock and Camel from 1 to 4 Ditto.

گالنی لون.—*Gahnelone.* *Korojenum.*

No. 55.—GALL STONE.

OPERATION.—Supposed by Cattle attendants to be excitant, and much used by them, but appears to be nearly inert.

USE.—In Zaarbahd, Bhao, Dhudkay, Daaka Murz, Surdhee, Dhummay, Vahee Golah, Gunruss, Chowrung and Dhoobla in the Elephant. In the Camel in Budda Bhao, Papesa ka Murz, Surdhee, Dhadkund and Hydrophobia. In the Bullock in Burra Azar.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Tolas.
In the Camel and Bullock from $0\frac{1}{4}$ to 1 Ditto.

گاجنہ.—*Gahnja.* *Gunjah.*

No. 56.—HEMP.

(*Its stalk.*)

OPERATION.—Excitant, Tonic, Narcotic and Antispasmodic.

USE.—In the Elephant in Zaarbahd, Nunj, Bhao, Budda Bhao, Ghutt, Dhudkay, Vahee, Vahee Golah, Pate ka Durudh, Dhummay, Hydrophobia, Dhadbundh, Surdhee and Debility. In the Camel in Diarrhoea, Dysentery, Mulole, Papesa and Hydrophobia, usually given by the attendants on the line of march with other stimulating substances. In the Bullock in Burra Azar and Hydrophobia.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Tolas.

In the Camel from $0\frac{1}{8}$ to 1 Ditto.

In the Bullock from $0\frac{1}{4}$ to 1 Ditto.

گیرو.—*Gayroo.* *Kaveekul.*

No. 57.—PEROXIDE OF IRON WITH SILICA.

OPERATION.—Refrigerant and Astringent.

USE.—Externally in swelling and inflammations of the joints from bruises, sprains, &c. Sometimes in diseases of the eyes in the Elephant. Never used in the Bullock.

گیہونلا.—*Geonalah.* *Kadoo ka Pinjee.*

No. 58.—THE TENDER GALL NUT.

OPERATION.—Tonic, Excitant and Astringent.

USE.—In the Elephant in Gunruss, Kuthlay, violent purging after Lungun, and in Zaarbahd in the Camel. The tree yielding this article may be used with impunity as fodder, in weak and debilitated animals of either class.

DOSE.—In the Elephant from 2 to 8 Tolas.

گیہون کا آٹا.—*Geong ka Attah.* *Godoomce Mahv.*

No. 59.—WHEAT FLOUR.

OPERATION.—Tonic and Nutritive.

USE.—In the Elephant in Zaarbahd, Vahee Golah, Kuthlay, Gunruss, Chowrung, Budda Bhao, Ghutt Bhao, Dhudkay, Ahren Bhao and Papesa ka Murz. In the Camel in all acute diseases. In the Bullock in Burra Azar.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Seers.

In the Camel from $0\frac{1}{2}$ to 2 Ditto.

گندی.—*Gendugh*, (*Arculsaree*.) *Gendagum*.

No. 60.—SULPHUR, 1st SORT.

OPERATION.—Excitant, Tonic and Alterative.

USE.—In the Elephant in Zaarbahd, Nunj, Sekum Durudh, Papesa ka Murz, Dhoobla and Lungun. In the Camel, for Surdhee, Koodkay, Bhao, Moorghee, Mulole, Zaarbahd, Diarrhoea and Ghuttud. Externally in affections of the skin and ulcerations of the foot, and in Hæmorrhages after wounds, &c. It forms the basis of a very useful application in the itch of Camels. In the Bullock in Bhao.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

روغن.—*Ghee*. *Neyee*.

No. 61.—GHEE.

OPERATION.—Excitant and Tonic.

USE.—In Sekum Durudh, Eeray Sangranee, Pate ka Durudh, Bhao, Dhudkay, Dhadbundh, Sangranee and Dhoobla. In the Camel in Ookahl ka Murz, Mulole, Soole, Diarrhoea, Zaarbahd, Musht and Dhoobla. In the Bullock in Pahdoo, Bhao and Diarrhoea.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 3 Seers.
In the Bullock and Camel from $0\frac{3}{8}$ to 1 Ditto.

گہوتی سپاری.—*Gotee Suparee*. *Kotaypauk*.

No. 62.—ARECA NUT.

OPERATION.—Tonic and Astringent.

USE.—Externally in ulcerations of the back and foot of the Elephant and Camel. In the latter animal it is given internally in Diarrhoea, Ookahl, Zillay Baaz, Surdhee and Dhoobla. In the form of decoction it is useful as fomentation in extensive contusions, swellings, &c. In the Bullock it is used externally in Moopaung.

DOSE.—In the Camel from 1 to 4 Tolas.

گودے.—Goode. Veylum.

No. 63.—JAGURY.

OPERATION.—Tonic.

USE.—In the Elephant in Worms after Lungun, Vahee Golah, Bhao, Dhudkay, Mookundha, Zaarbahd and Dhoobla. In the Camel in Koodkay, Surdhee, Kaleeja, Ookahl, Bhao, Diarrhoea, Dysentery and Dhoobla. It is sometimes given to cover the taste of nauseous and acrid remedies.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Seers.
 In the Camel from $0\frac{1}{4}$ to 2 Ditto.
 In the Bullock from $0\frac{1}{4}$ to 3 Ditto.

گوگل.—Googul. Kongilium.

No. 64.—BDELLIUM, (IMPURE.)

OPERATION.—Tonic and Astringent.

USE.—In the Elephant in Vahee Golah, Vahee ka Durudh, Gunruss, Mookundha, Zaarbahd, Sooka Zaarbahd and Debility. In the Camel in Surdhee, Koodkay, Soole, Papesa ka Murz, Kaleeja, Pensee, Joolaub and Dhoobla. In the Bullock in Diarrhoea and Burra Azar. Externally it expedites the suppurative process of abscesses, &c.

DOSE.—In the Elephant from 1 to 6 Tolas.
 In the Bullock and Camel from $0\frac{1}{2}$ to 3 Ditto.

گجکاکا چارولے.—Gudjakah Charolee. Gudjka Varay.

No. 65.—THE SEED OF THE BONDUC NUT.

OPERATION.—Tonic, Excitant and Astringent. Externally, Discutient.

USE.—In the Elephant in Zaarbahd, Dhoobla, Surdhee, Bhao, Thorang, Ahren, Ghutt, Vahee, Vahee Golah, Gunruss, Worms and Lungun. In the Camel in Dhoobla, Zaarbahd, Surdhee, Bhao, Mulole, Diarrhoea and Dysentery. The leaves are useful in the Bullock in Diarrhoea and Debility. Externally, the seeds are grounded and applied to inflammation and swellings of the joints of the Elephant and Camel.

DOSE.—In the Elephant from 2 to 8 Tolas.
 In the Camel from $0\frac{1}{2}$ to 4 Ditto.
 In the Bullock from (Leaves) $0\frac{1}{4}$ to 2 Seera.

گندیبہر.—*Gunbeede.* *Indhopoo.*

No. 66.—MURIATE OF SODA WITH A TRACE OF SULPHUR.

OPERATION.—Tonic and Refrigerant.

USE.—In the Elephant in Lungun, Vahee Golah, Zaarbahd, Nunj, Surdhee, Agin Bhao, Kuthlay, Sangranee and in affections of the urinary organs. In the Camel in Mulole, Soole, Mohdee, Koodkay, Moorghee, Cumaun, Ookahl and in general debility. Never used in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Camel from $0\frac{1}{4}$ to 1 Ditto.

ہیرا بول.—*Heera bohl.* *Balathce bohlum.*

No. 67.—MYRRH.

OPERATION.—Tonic and Discutient.

USE.—Internally in Vahee Golah, Zaarbahd, Papesa ka Murz, Surdhee and Dhoobla. In the Camel in Diarrhoea, Dhoobla, Surdhee and Papesa ka Murz. Externally to foul ulcers. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

ہنگ.—*Hing.* *Perungayum.*

No. 68.—ASAFETIDA.

OPERATION.—Excitant, Antispasmodic, Tonic and Errhine.

USE.—In the Elephant in Zaarbahd, Pate ka Durudh, Surdhee, Dhummay, Vahee, Vahee Golah, Lungun, Mookundha, Chowrung, Bhao, Ghutt, Thorung, Ahren and Dhadbundh. In the Camel in Surdhee, Koodkay, Mulole, Moorghee, Jolay ka Murz, Cumaun, Gaasha, Ghuttud and Debility. In the Bullock in Colic, Diarrhoea and Bhao. Externally as a decoction in severe sprains and contusions.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

هريسي.—*Hirbisee.* *Perriah nerri Vishum.*

No. 69.—*THALICTRUM FOLIOLOSUM.*

OPERATION.—Excitant and Narcotic.

USE.—In the Elephant in Bhao, Thorung, Ahren, Ghutt, Zaarbahd, Nunj, Musht, Gunruss, Vahee ka Durudh, Vahee Golah, Surdhee and Papesa ka Murz. In the Camel in Papesa ka Murz, Soolfay and Surdhee. Never given in the diseases of the Bullock.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Tolas.
In the Camel from $0\frac{1}{8}$ to 1 Ditto.

اندرجوٹ.—*Inderjoathe.* *Vepaul Arisee.*

Gen. 2. *Wrightia*, Spec. 1.

No. 70.—*ANTIDYSENTERICA.*

OPERATION.—Excitant, Carminative and Astringent.

USE.—In the Elephant in Worms, Lungun, Mookundha, Zaarbahd, Surdhee, Dhummay, Nunj, Sangranee, Eeray Sangranee, Dhoobla, Vahee Golah, Vahee ka Durudh, Daaka Murz and Jolay ka Murz. In the Camel in Surdhee, Koodkay, Mulole, Soole, Kapalee, Surdhgurram, Jolay, Ookahl and Dhoobla. In the Bullock in fever.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Bullock from $0\frac{1}{4}$ to 2 Ditto.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

اندراون.—*Indrayen.* *Thoomootee Kahee.*

No. 71.—*COLOCYNTH OR BITTER APPLE.*

OPERATION.—Excitant and Cathartic.

USE.—In the Elephant in Lungun, Zaarbahd, Mookundha, Vahee ka Durudh, Vahee Golah, Worms and Surdhee. In the Camel in Papesa ka Murz, Budda Bhao, Mulole, Cumaun, Moorghee, Jolay, Soole, Soolfay and Zaarbahd. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from ... $0\frac{1}{4}$ to 2 Ditto.

ہیور کی چھال.—*Imwur ka Chall.* *Vaylum puttay.*

No. 72.—

OPERATION.—Excitant, Tonic and Astringent.

USE.—In the Elephant in Worms and after Lungun, Mookundha, Chowrung, Vahee Golah, Surdhgurrum, Surdhee, Papesa ka Murz, Daaka Murz, Sangranee and Dhoobla. In the Camel in Dhoobla, Diarrhoea and Ookahl. In the Bullock in Surdhee, Dhoobla and Moopaung. For the latter in the form of a wash.

DOSE.—In the Elephant from 2 to 6 Seers.
In the Camel from 1 to 3 Ditto.
In the Bullock from $0\frac{1}{2}$ to 2 Ditto.

ہنگن کا پھل.—*Inghun ka phool.* *Inghana Kahee.*

No. 73.—

[The Fruits, Flowers and Bark are used.]

OPERATION.—Excitant, Tonic and Discutient.

USE.—In the Elephant in Worms and after Lungun, Mookundha, Surdhee and Dhoobla. In the Camel in Papesa ka Murz, Surdhee, Soolfay, Koodkay and Dhoobla. Externally in swellings of the joints and in severe sprains.

DOSE.—In the Camel from 2 to 8 Tolas.
In the Elephant from 4 to 12 Ditto.

جا پھل.—*Jahphul.* *Jahdheekae*

No. 74.—NUTMEG.

OPERATION.—Tonic, Narcotic and Discutient.

USE.—In the Elephant in Zaarbahd, Nunj, Bhao, Dhudkay, Ahren, Ghutt Bhao, Musht, Vahee Golah, Vahee ka Durudh, Jolay, Pate ka Durudh, Eeray Sangranee, Sangranee and Sekum Durudh. In the Camel in Kapalee, Surdhee, Papesa ka Murz, Diarrhoea, Moorghee, Modah, Mulole, Soole, Cunaun ka Murz and Dhadbundh. In the Bullock in Burra Azar, Colic and Dysentery. Externally a good application to abscesses and painful tumours.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
In the Bullock and Camel from $0\frac{1}{4}$ to 2 Ditto.

جیرا سفید.—*Jeera, Suffadhe. Nurseragum.*

No. 75.—CARAWAY SEEDS.

OPERATION.—Tonic and Carminative.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Bhao, Dhudkay, Budda Bhao, Surdhee, Zaarbaid, Surdhgurrum, Eeray Sangranee, Sangranee, Vahee ka Durudh, Vahee Golah, Koosum, and in all affections of the urinary organs. In the Camel in Agin Bhao, Jolluk ka Gudday, Surdhgurrum, Kapeelah, Soole, Mulole, Cumaun ka Murz and Dhundee. Externally to affections of the eyes of the Elephant and Camel. In the Bullock in Burra Azar, Chellay, Colic and Moopaung.

DOSE.—In the Camel from $0\frac{1}{4}$ to 1 Seer.
 In the Elephant from $0\frac{1}{2}$ to $1\frac{1}{2}$ Ditto.
 In the Bullock from $0\frac{1}{2}$ to $0\frac{3}{4}$ Ditto.

جیرا کالی.—*Jeera, Kala. Karven Seeragum.*

No. 76.—CUMIN SEEDS.

OPERATION.—Tonic and Carminative.

USE.—In the same diseases of the Elephant, Camel and Bullock as Jeera, Suffadhe.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
 In the Camel and Bullock from $0\frac{1}{4}$ to 1 Ditto.

جوتری.—*Jowathree. Jahputhree.*

No. 77.—THE ARILLUS OR MACE OF THE NUTMEG FRUIT.

OPERATION.—Excitant, Carminative and Narcotic.

USE.—In the Elephant in Worms, Vahee Golah, Surdhee, Papesa ka Murz, Kalleeja, Sekum Durudh, Vahee ka Durudh, Dhadbundh, Sangranee and Dhoobla. In the Camel in Koodkay, Surdhee, Moorghee, Cumaun, Dhadbundh, Mulole, Diarrhoea and Jolay. In the Bullock in Burra Azar, Palsy and Colic.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
 In the Bullock and Camel from $0\frac{1}{4}$ to 2 Ditto.

جمال گوتہ۔—*Jamaul Gottah.* *Narevalum.*

No. 78.—CROTON SEEDS.

OPERATION.—Excitant and powerfully Cathartic.

USE.—In the Elephant in Budda Bhao, Dhudkay, Ahren, Zaarbahd, Nunj, Dhadbundh, Dhumma and Surdhee, and in all diseases where an active purging is necessary. In the Camel in Bale, Kapalee, Moorghee, Jolay, Papesa ka Murz, Kaleeja, Guttud, Mulole, Soole, Zaarbahd and Kunduk. This has a purgative effect on the Bullock, but generally is too irritating to be given in diseases of this animal.

DOSE.—In the Bullock from $0\frac{1}{2}$ to 2 Tolas.
 In the Elephant from 2 to 6 Ditto.
 In the Camel from 1 to 2 Ditto.

جس۔—*Juss.*—روپ جس or *Rupejuss.* *Thoothoonahgum.*

No. 79.—METALLIC ZINC.

OPERATION.—In combination with other articles, Excitant.

USE.—Its preparations are used in all inflammatory and acute diseases of the Elephant, never in the Camel or Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to $0\frac{1}{2}$ Tola.

جٹا ماسی۔—*Juttah Mahsee.* *Juttah Mahsee.*

No. 80.—THE FIBRES OF THE RHIZOME OF CYPERUS,
 JUNCIFOLIUS, (OR VALERIAN.)

OPERATION.—Tonic and Refrigerant.

USE.—In the Elephant in Agin Bhao, Gunruss, Kuthlay, Chowrung, Dhoolba and Koossum. In the Camel in Kupalee, Koodkay and Soole. Some use it as an Errhine with other ingredients in Surdhee. In the Bullock it is never used.

DOSE.—In the Elephant from 1 to 6 Tolas.
 In the Camel from $0\frac{1}{2}$ to 3 Ditto.

کازي کهار.—*Kahdee Kahr. Kahdee Kahrum.*

No. 81.—NITRATE OF SILVER.

OPERATION.—Escharotic.

USE.—In the Elephant, externally, in diseases of the eyes as Mothea beenj, Dulkah; in Kahudi, Bumboode, Kuthlay; in sloughy ulcerations of the back and tail. In the Camel in Rahfay, Choodee, Pensee, Tahkee, Bale, &c. In the Bullock in fleshy growth of the eyeball, and in ulcerations of the back and feet. Never given internally in any disease of the Cattle.

کاني پهل.—*Kaheepul. Kaheepalum.*

No. 82.—COLUMBO ROOT.

OPERATION.—Tonic, Astringent and Errhine.

USE.—In the Elephant in Zaarbahd, Dhoolba, Sangranee, Lungun and Eeray Sangranee. In the Camel in Dhoolba, Bale, Zillaybaaz, Diarrhoea, Dysentery, Kapeelah, Surdhee, Rahfay and Bumbnee. In the Bullock in Diarrhoea, and externally in Moopaung, bruises, &c., but seldom used for that animal. In the Camel it is used as Errhine in Surdhee.

DOSE.—In the Elephant from 1 to 6 Tolas.
In the Camel and Bullock from $0\frac{1}{2}$ to 3 Ditto.

کپيلا.—*Kapeelah. Kapeelah.*

No. 83.—ROTTLERA TINCTORIA.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Vahce Golah, Surdhee, Papesa ka Murz, Dhummay, Zaarbahd, Mookundha, Lungun, Gunruss and Dhoolba. In the Camel in Mulole, Soolfay, Zaarbahd, Koodkay, Moorghee, Budda Bhao and in debility. Never used in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 6 Tolas.
In the Camel from $0\frac{1}{4}$ to 4 Ditto.

کاک ماري کي بينچہ.—*Kakmarree ka beenj. Kahknavaray.*

No. 84.—COCCULUS INDICUS.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Worms and after Lungun, in Vahee Golah, Pate ka Durudh, Surdhgurum and Surdhee. Externally in the Elephant and Camel, in Kahudi, Bumboode, ulcerations of the ears and tail, in Kahreesh, wounds, bruises, ulcers, &c.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Tolas.

ڪا کوسنگي.—*Kakud Singhee*,—هلدي ڪا پھول or *Ulday ka phool*. *Kadookahee Poo*.

No. 85.—INK NUT, FLOWERS OF

OPERATION.—Tonic and slightly Astringent.

USE.—In the Elephant in frequent Lungun, in Sangrance, Eeray Sangrance and Zaarbahd. In the Camel in Papesa ka Murz, Diarrhoea and Debility. Externally in ulcerations of the foot. Never given in diseases of the Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.

In the Camel from 1 to 4 Ditto.

ڪالا بچھوا.—*Kala Bitchwa*. *Kareyen Navee*.

No. 86.—HELLEBORE, BLACK.

OPERATION.—Excitant and Narcotic.

USE.—In the Elephant in Zaarbahd, Nunj, Dhoobla, Bhao, Dhudkay, Ahren, Gunruss, Vahee ka Durudh, Sekum Durudh, Jolay and Dhadbundh. In the Camel in Surdhee, Koodkay, Mulole, Soole, Joolaub, Cumaun, Moorghee, Dhadbundh and Musht. It is never given in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Tolas.

In the Camel from $0\frac{1}{2}$ to $0\frac{3}{4}$ Ditto.

ڪالي مرچي.—*Kala Mirchee*. *Melagoo*.

No. 87.—BLACK PEPPER.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Dhudkay, Vahee, Vahee Golah, Lungun, Zaarbahd, Nunj, Surdhee, Chowrung and Pate ka Durudh. In the Camel in Surdhee, Soole,

Zaarbahd, Mulole, Diarrhoea and Dhoobla. In the Bullock in Barra Azar, Diarrhoea, Colic and Debility.

DOSE.—In the Elephant from	2 to 8 Tolas.
In the Camel from	2 to 4 Ditto.
In the Bullock from	1 to 4 Ditto.

کالی سچی.—*Kalee Sujjee.*

No. 88.—

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Zaarbahd, Vahee Golah, Lungun, Gunruss, Dhoobla, Surdhee, Pate ka Durudh and Sekum Durudh. In the Camel in Bhao, Surdhee, Kapalee, Vahee, Zaarbahd and Diarrhoea. Never given in the Bullock.

DOSE.—In the Elephant from	0½ to 6 Tolas.
In the Camel from	0½ to 2 Ditto.

کاپور.—*Kapoor. Karpoorum.*

No. 89.—CAMPHOR.

OPERATION.—Excitant, Narcotic and Detergent.

USE.—In combination with wheat flour it is given to Elephants after Lungun, and when motions are foetid and hard; also in Vahee Golah, Sekum Durudh, Pate ka Durudh and Mookundha. In the Camel in Soole, Mulole, Diarrhoea, Dysentery, Cumaun, Moorghee, Jolay and Dhoobla. In the Bullock in Barra Azar, Moopaung and Colic. Externally it forms a very efficient application to all wounds, bruises, ulcers and other affections of the skin.

DOSE.—In the Elephant from	2 to 8 Tolas.
In the Camel and Bullock from ..	0½ to 3 Ditto.

کیل.—*Keel. Keel.*

No. 90.—PITCH.

OPERATION.—Detergent.

USE.—Externally in Pahdrogah, Gunruss, Thullee and extensive wounds, bruises, contusions, whitlow and ulcers, both of the Elephant and Camel.

کچلیکا بینچہ.—*Koochlay ka beenj.* کچلیکا چہال.—*Koochlay ka chall.*
Yettie varay. *Yettie puttay.*

No. 91.—NUX VOMICA, SEEDS AND BARK OF

OPERATION.—Excitant, Tonic and Narcotic.

USE.—In the Elephant in Zaarbahd, Nunj, Ahren, Thorung, Budda Bhao, Ghutt, Amasgaii, Gunruss, Daaka Murz, Surdhee, Papesa ka Murz, Vahee ka Durudh, Pate ka Durudh, Sangraanee and Dhoobla. In the Camel in Surdhee, Soolfay, Daak, Mulole, Soole and general debility. Externally the bark is useful in all painful swellings, tumours, wounds, bruises, &c. It relieves pain and subdues inflammation. This substance is generally used by the Elephant and Camel attendants during the march, when their animals have been much exposed to cold or wet or have been hard worked. It is sometimes used to bring on Musht either on the Elephant or Camel. Never given in the Bullock.

DOSE.—In the Elephant from 0½ to 4 Tolas.
 In the Camel from 0½ to 2 Ditto.

Koothee. — *Kadogoroganee.*

No. 92.—

OPERATION.—Excitant, Tonic and Anthelmintic.

USE.—In the Elephant in Sangraanee, Zaarbahd, Nunj, Surdhee, Mookundha, Chowrung, Agin Bhao, Kuthlay, Daaka Murz, Vahee Golah, after Lungun, Pate ka Durudh and in Dhoobla. In the Camel in Surdhee, Papesa ka Murz, Soolfay, Budda Bhao, Bale and Mulole. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
 In the Camel from 1 to 4 Ditto.

کچی.—*Koopee.* *Koopamaynee.*

No. 93.—ACALYPHA INDICA.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Surdhee, Dhummay, Zaarbahd, Agin Bhao, Kuthlay, Dhoobla and Eeray Sangraanee. In the Camel in Surdhee, Surdhgurum, Pate ka Durudh, Diarrhoea and Debility. The juice is added to metallic preparations of remedies for the Elephant. In the Bullock in Ague and Debility.

DOSE.—In the Elephant from 0½ to 3 Seers.
 In the Camel and Bullock from 0½ to 2 Ditto.

كلنجي.—*Kolunjun. Payrurthay.*

No. 94.—ALPINIA GALANGA, ROOT OF

OPERATION.—Excitant.

USE.—In the Elephant in Dhummay, Papesa, Surdhee, Ghutt Bhao, Sangraanee, Nunj, Dhadbundh, Jolaub, Jolah, Vahee ka Durudh and Debility. In the Camel in Kapalee, Surdhee, Soolfay, Cumaun, Moorghee, Surdhgurum and Dhoo-bla. In the Bullock in Pahdrogah and Bhao.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 4 Tolas.
In the Camel and Bullock from $0\frac{1}{2}$ to 2 Ditto.

خوراساني اجوان.—*Korasane Ujwan. Korasane Omum.*

No. 95.—HYOSCYAMUS SEED.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Surdhgurum, Zaarbahd, Vahee ka Durudh, Bhao, Ahren, Thorung, Kuntay Bhao, Surdhee, Papesa ka Murz, Vahee Golah, Mookundha, Lungun, Pate ka Durudh and Dhoo-bla. In the Camel in Surdhee, Budda Bhao, Soolfay, Dhadbundh, Choodee, Cuppray, Mulole, Bahd Golah, Diarrhoea, Cumaun and Dhoo-bla. In the Bullock in Burra Azar, Colic, Pahndoo and Debility.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

كل كهوپري.—*Kulcopree. Madal Thoothum.*

No. 96.—IMPURE CARBONATE OF ZINC.

OPERATION.—Slightly Escharotic and Detergent.

USE.—Externally in the Elephant and Camel in affections of the eyes and ulcerations of the foot. In combination with other articles it is useful in pale and flabby looking ulcers, fungous sores, &c.

كل لي كا چونا.—*Kullee ka Choonah. Chunambo Kulloo.*

No. 97.—LIME STONE.

OPERATION.—Refrigerant, Diuretic and Detergent.

USE.—In the Elephant lime water is frequently used in Zaarbahd, Agin Bhao, Kuthlay, Thorung, Ahren Bhao, Ecray Sangraanee, Vahee Golah, Lungun and

Gunruss, and in diseases of the urinary organs. In the Camel in affections of the urinary organs only. Externally, the powder, mixed in bruised leaves of Thorn Apple, is used in large sloughy and irritable ulcers, wounds and bruises of the Elephant and Camel. The lime water is also useful in affections of the eyes of the Elephant.

DOSE.—In the Elephant from (Water) 1 to 6 Seers.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

کتھا سفید.—*Kuthah Suffadhe.* *Kuthakambo.*

No. 98.—WHITE CATECHU.

OPERATION.—Astringent, Tonic and Discutient.

USE.—In the Elephant in Zaarbahd, Daak, Pate ka Durudh, Lungun, Sooka Zaarbahd and Debility. In the Camel in Diarrhoea, Modah, Ookahl and Dhoobla. Externally, in affections of the skin, in ulcerations of the foot, in wounds, whitlow, &c. Decoction is used as fomentations in extensive swellings of joints, &c., of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Seers.
In the Camel from $0\frac{1}{8}$ to 1 Ditto.

کچھ ہلدی.—*Kutchay Uldhee*—سوکا ہلدی and *Sooka Uldhee.* *Munjul.*

No. 99.—TURMERIC.

OPERATION.—Excitant, Tonic, Carminative and Discutient.

USE.—In the Elephant in Thorung, Ahren, Ghutt Bhao, Zaarbahd, Sooka Zaarbahd, Vahee Golab, Pate ka Durudh and after Lungun, Sangranee and Dhoobla. In the Camel in Surdhee, Soolfay, Surdhgurrum, Jolay, Mulole, Bale and Dhoobla. In the Bullock in Fever, Cold, Dropsy and Colic. Externally to remove swellings from sprains, &c.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

کتھا کالا.—*Kutha kala.* *Kashkuttee.*

No. 100.—BLACK CATECHU.

OPERATION.—Astringent, Tonic and Detergent.

USE.—The same as Suffadhe Kutha.

DOSE.—The same as Suffadhe Kutha.

لونغ.—*Lahvung.* *Lahvungum.*

No. 101.—CLOVE.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Sooka Zaarbahd, Debility, Lungun, Vahee Golah, Vahee, Surdhee, Jolay, Kuntay Bhao, Gunruss, Agin Bhao, Pate ka Durudh and Pucksool. In the Camel in Agin, Surdhee, Mulole, Soole, Badh Golah, Soolfay, Budda Bhao and Debility. Externally as Errhine in Kapeelah and Surdhee of the Camel.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Bullock from 1 to 4 Ditto.
In the Camel from 1 to 6 Ditto.

لعل كنير.—*Laul Cunare.* *Alarce.*

No. 102.—OLEANDER.

OPERATION.—Excitant, Tonic and slightly Narcotic.

The root, bark and flowers are used by Cattle attendants in internal and external affections of the Elephant, Camel and Bullock.

USE.—In the Elephant in Musht, Dhoobla, Lungun, Mookundha, Chowrung, Sangranee, Gunruss, Jolay, Dhadbundh, Bhao and Surdhee. In the Camel in Surdhee, Soolfay, Dhoobla, Vahee ka Durudh and Jolay. In the Bullock, sometimes given in Pahndoo and Burra Azar. Externally, in irritable and sloughy wounds, bruises and burns, in the form of a poultice.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Bullock and Camel from $0\frac{1}{4}$ to 2 Ditto.

لعل مرچي.—*Laul Mirchee.* *Molaghae.*

No. 103.—CAPSICUM.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Dhudkay, Surdhee, Vahee ka Durudh, Thorung, Ghutt Bhao, Zaarbahd, Nunj, Vahee Golah, Lungun, Mookundha, Sooka Zaarbahd and Dhoobla. In the Camel in Budda Bhao, Kapalee, Koodkay, Soolfay, Surdhee, Diarrhoea and Debility. In the Bullock in Naralee, Cold, Mumps and Dhoobla. Externally to Thullee and other affections of the skin of the Elephant and Camel.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

لعل سومول.—*Laul Soomul.* *Geovree Pashanum.*

No. 104.—THE BISULPHURET OF ARSENIC OR REALGAR.

OPERATION.—Excitant, Tonic and Alterative.

USE.—In the Elephant in Zaarbahd, Nunj, Bhao, Thorung, Ahren and Ghutt Bhao, Papesa ka Murz, Sekum Durudh, Eeray Sangranec, Sangranee, Gunruss and Bale. In the Camel, with other articles, in some diseases of the skin, as Rahfay, Bale ka Murz and Tumours. Externally in obstinate ulcerations of the ear and tail.

DOSE.—In the Elephant from $0\frac{1}{8}$ to 1 Tola.
In the Camel from $0\frac{1}{16}$ to $0\frac{1}{8}$ Ditto.

لوسون.—*Lussoon.* *Velli poondoo.*

No. 105.—GARLIC.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Camel in Zaarbahd, Budda Bhao, Mulole, Guttud, Surdhee, Cumaun ka Murz, Soole and Kapalee. In the Elephant in Zaarbahd, Thorung, Dhudkay, Ahren Bhao, Kuntay Bhao and Dhoobla, also in Pate ka Durudh and Lungun. In the Bullock in Ague, Debility, Colic and Diarrhoea. Externally in suppurative boils.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Bullock and Camel from 1 to 4 Ditto.

معل كنگني.—*Mahl Kungnee.* *Pahwuttum Kahee.*

No. 106.—COLASTRUS NUTANS, SEEDS OF

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Bhao, Budda, Ahren, Thorung, Dhudkay, Surdhee and Dhoobla. In the Camel in Kapalee, Budda Bhao, Surdhee, Soolfay and Dhummay. In the Bullock in Cold and Burra Azar.

DOSE.—In the Elephant from $0\frac{1}{4}$ to $1\frac{1}{2}$ Seers.
In the Camel and Bullock from $0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.

معيطيل.—*Mahpul. Mashekahee.*

No. 107.—GALL NUT.

OPERATION.—Astringent, Tonic and Errhine.

USE.—In the Elephant in Daaka Murz, Lungun, Sangranee, Eeray Sangranee, Sooka Zaarbahd and Dhoobla. In the Camel in Diarrhoea, Dysentery and Debility. As an Errhine in Surdhee and Kupalee. Externally in affections of the feet of the Elephant, and in wounds and ulcerations of the Camel. In Moopaung of the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
In the Camel from $0\frac{1}{4}$ to 2 Ditto.

ميتهي.—*Maythee. Vendiyum.*

No. 108.—DILL SEED.

OPERATION.—Tonic and Carminative.

USE.—In the Elephant in Vahee Golah, Nunj, Zaarbahd, Agin Bhao, Kuthlay, Gunruss, Chowrung and in diseases of the urinary organs. In the Camel in Dhoobla, Agin Bhao, Zaarbahd and to fatten animals; for the latter purpose it is given in ghee and common salt. In the Bullock in Fever, Burra Azar, Pahndoo, Kundamahlay, Naralee and affections of the kidneys.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Seers.
In the Camel and Bullock from $0\frac{1}{4}$ to $1\frac{1}{2}$ Ditto.

ميتي.—*Missee. Dahshenpodee.*

No. 109.—THE NATIVE TOOTH POWDER.

[Consisting of Galls, Ink Nut, preparations of Iron, &c.]

OPERATION.—Astringent.

USE.—In the Elephant and Camel to diseases of the foot and to ulcerations of the trunk and fauces, to wounds, bruises and burns. In the Bullock in Moopaung.

ميتا تيل.—*Mittah Thale. Nulunnay.*

No. 110.—GINGILI OIL.

OPERATION.—Laxative, Demulcent, Errhine and Detergent.

USE.—In the Elephant in Zaarbahd, Nunj, Bhao, Dhoobla, Sekum Durudh, Lungun, Mookundha, Vahee Golah, Pate ka Durudh and Eeray Sangranee. In the Camel in Bhao, Zaarbahd, Cumaun, Jolay, Kapalee, Choodee, Mulole, Kaleeja and Modah. In the Bullock in affections of the chest, with saffron and eggs. Externally as liniments with other articles to reduce swellings and sprains of joints, and to form certain ointments in affections of the Bullock. As an Errhine in Kapalee and Surdhee.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Seers.
In the Bullock and Camel from $0\frac{1}{4}$ to 2 Ditto.

ميٹھا لکڑی.—*Mittah Lukdee.* *Ahdhimudurum.*

No. 111.—LIQUORICE ROOT.

OPERATION.—Tonic.

USE.—In the Elephant in Agin Bhao, Zaarbahd, Koodkay, Vahee Golah, Lungun, Surdhee, Daaka Murz and Dhoobla. In the Camel in Soolfay, Jolay, Ookahl and Bale ka Murz. In the Bullock in Dhoobla.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Bullock and Camel from $0\frac{1}{4}$ to 1 Ditto.

موم.—*Mohme.* *Molakoo.*

No. 112.—BEE'S WAX.

OPERATION.—Depiccative and Cleansing.

USE.—Externally in the Elephant in Thullee, Peet and Dhadbundh. In the Camel in wounds and burns. Never used in the Bullock.

مسمبر.—*Moosumber.* *Moosambrum.*

No. 113.—ALOES, EXTRACT OF

OPERATION.—Excitant, slightly Purgative and externally Astringent.

USE.—In the Elephant in Zaarbahd, Sekum Durudh, Lungun, Mookundha, Chowrung, Dhadbundh, Surdhee, Papesa ka Murz, Vahee Golah and Dhoobla,

also in Bhao, Thorung, Ahren and Ghutt. In the Camel in Surdhgurum, Kapalee, Moorghee, Cumaun, Surdhee, Soolfay, Budda Bhao, Mulole and Guttud. Externally in ulcerations of the ears and back, and to harden the tender feet of the Elephant. In the Bullock in Fever, Pahndoo, Colic, affections of the Liver, Lungs and Spleen, in Rheumatism and Constipation.

DOSE.—In the Elephant from 1 to 12 Tolas.
 In the Camel from $0\frac{1}{2}$ to 6 Ditto.
 In the Bullock from $0\frac{1}{2}$ to 6 Ditto.

مردار سنگ.—*Moordharsing.* *Moordharsingee.*

No. 114.—LITHARGE OR THE SEMIVITRIFIED OXIDE OF LEAD.

OPERATION.—Excitant, Tonic and Suppurative.

USE.—In the Camel in Surdhee, Kapalee, Soolfay, Mulole, Dhoobla and Budda Bhao. In the Elephant it is in frequent use in acute and chronic diseases, namely, in Zaarbahd, Nunj, Thorung, Ahren, Ghutt, Surdhgurum, Gunruss, Lungun, Daaka Murz, Pucksool and Papesa ka Murz. Never given in the Bullock, externally in tumours, suppurative boils and in ulcerations of the back and the foot.

DOSE.—In the Elephant from 2 to 6 Tolas.
 In the Camel from $0\frac{1}{2}$ to 2 Ditto.

منگي کا چھال.—*Moongay ka Chal,*—منگويکا چھال or *Sageway ka Chal.*
Moorungaputtay.

No. 115.—MORINGA PTERYGOSPERMA, THE BARK OF

OPERATION.—Excitant, Tonic, Carminative, Discutient and Detergent.

USE.—In the Elephant in Zaarbahd, Surdhgurum, Surdhee, Dhummay, Jolay, Vahee, Gunruss, Dhoobla, Sooka Zaarbahd, Lungun, Mookundha, Pate ka Durudh and Sangrance. In the Camel rarely used in Surdhee, Kapalee, Budda Bhao and Mulole. A decoction of this article forms a good fomentation to swellings from severe contusions. It is also employed in sloughy wounds and ulcers of the Elephant, Camel and Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
 In the Camel from $0\frac{1}{4}$ to 1 Ditto.

مورثووثا.—*Morethcootha.* *Thoothum.*

No. 116.—SULPHATE OF COPPER.

OPERATION.—Excitant and Tonic. Externally Escharotic and Detergent.

USE.—In the Elephant in Ahren, Thorung and Ghutt Bhao, Dhudkay, Dhadbundh and Dhoobla. In the Camel it is never given internally. Externally it forms an efficient application in ulcers of the Elephant, Camel and Bullock. It is used as a lotion in diseases of the eyes when there is copious lachrymation.

DOSE.—In the Elephant from $0\frac{1}{2}$ to $0\frac{1}{2}$ Tola.

منسيل.—*Munseel.* *Manoselay.*

No. 117.—A MIXTURE OF RED AND WHITE ORPIMENTS.

OPERATION.—Excitant, Tonic and Alterative.

USE.—In all acute and inflammatory affections of the Elephant, also in Ghutt Bhao, Eeray Sangranee, Dhummay, Chowrung, Mookundha and Dhoobla. In the Camel in Soolfay, Kaleeja, Bale ka Murz, Kutchwah, and in diseases of the skin. Never used in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 1 Tola.

In the Camel from $0\frac{1}{2}$ to $0\frac{1}{4}$ Ditto.

موزكا جز.—*Mouze ka jud.* *Valah kelungoo.*

No. 118.—THE PLANTAIN TREE.

OPERATION.—Refrigerant and Diuretic.

USE.—In the Elephant in diseases of the kidneys and bladder, sometimes in Agin Bhao, Kuthlay, Lungun, Gunruss and Eeray Sangranee, also in Musht, when the animal is wild and unmanageable. In the Camel in affections of the urinary organs and during Musht as in the Elephant.

DOSE.—In the Elephant from 3 to 8 Seers.

In the Camel from 1 to 4 Ditto.

مولى.—*Moolee.* *Moolanghee.*

No. 119.—RADISH.

OPERATION.—Diuretic.

USE.—In the Elephant in affections of the urinary organs, in Agin Bhao, Kuthlay, Gunruss and Zaarbahd. In the Camel in Phudmooth, Koossum, Dhundee and sometimes in Diarrhoea and Dysentery. In the Bullock in Burra Azar and Moopaung.

DOSE.—In the Elephant from 3 to 12 Seers.
In the Camel and Bullock from 1 to 6 Ditto.

موز بيلي.—*Mudode pullee.* *Valumbooveree kahee.*

No. 120.—SCREW TREE.

OPERATION.—Tonic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Dhoobla and Dhummay. In the Camel in Zaarbahd, Vahee ka Durudh, Jolay ka Murz, Cumaun, Papesa ka Murz, Budda Bhao and Dhoobla. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

مٹی کا تیل.—*Muttee ka Thale.* *Munyennay.*

No. 121.—MINERAL TAR.

OPERATION.—Excitant.

USE.—In the Elephant in swellings of the joints from Rheumatism and severe sprains, &c. In the same cases as the above for the Camel.

مید الکوی.—*Mydha Lukdee.* *Vembadum kuttay.*

No. 122.—THE WOOD OF THE TETRANTHERA ROXBURGHII.

OPERATION.—Excitant and Tonic.

USE.—In Zaarbahd, Sangrancee, Surdhee, Dhudkay, Daaka Murz and Dhoobla in the Elephant. In the Camel in Kapalee, Surdhee, Dhadbundh and Dhoobla. The decoction forms a useful fomentation in severe contusions, sprains, &c., in the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 1 to 6 Tolas.
In the Camel from $0\frac{1}{4}$ to 3 Ditto.

नाग चम्पा.—*Nahg Chumpah.* *Rahehur Alaree.*

No. 123.—*ASCLEPIAS VOLUBILIS.*

OPERATION.—Excitant, externally Escharotic, Suppurative and Detergent.

USE.—In the Elephant and Camel an efficient remedy in all foul and sloughy ulcers, wounds, bruises and burns, also to expedite the process of suppuration of tumours and abscesses. It is also a good application to ulcerations of the feet of the Bullock, called Kooshtum.

नागवुरी ازگند.—*Nahgoorree Uzgun.* *Amookoona Kelungoo.*

No. 124.—*PHYSALIS SOMNIFERA.*

[*A species of Winter Cherry, the root of*]

OPERATION.—Excitant, Tonic and slightly Narcotic.

USE.—In Surdhee, Chowrung, Zaarbahd, Lungun, Daaka Murz, Ghutt Bhao, Vahee Golah, Pate ka Durudh, Jolay, Thorung and Ahren in the Elephant. In the Camel in Surdhee, Budda Bhao, Zaarbahd, Mulole, Soole, Moorghee, Cumaun and Dhoobla. Never given in the Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

नागमूठा.—*Nahgur Mootha.* *Koray ke lungoo.*

No. 125.—*THE RHIZOME OF CYPERUS JUNCIFOLIUS.*

OPERATION.—Slightly Excitant and Tonic.

USE.—In the Elephant in Lungun, Vahee, Vahee Golah, Gunruss, Surdhee, Pate ka Durudh, Agin Bhao, Kuthlay, Jolay, Chowrung, Bale ka Murz, Dhudkay and Bhao. In the Camel in Zillay Baaz, Gaasha, Surdhee, Dhoobla and Cumaun ka Murz. Externally in the Bullock in ulcerations of the foot, &c.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

नीलबूटी.—*Neelbuddee.* *Neelum.*

No. 126.—*INDIGO.*

OPERATION.—Excitant and Errhine.

USE.—In the Elephant in Zaarbahd, Vahee ka Durudh, Surdhee and Papesa ka Murz. Externally in diseases of the eye, in ulcers, wounds, &c. In the Camel as Errhine, in Kapalee and Surdhee.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.

निंबोका रस.—*Nemboo ka russ.* *Yelimichum chahr.*

No. 127.—LEMON JUICE.

OPERATION.—Refrigerant.

USE.—In combination with other ingredients in Zaarbahd, Nunj, Thorung, Ahren, Ghutt Bhao, Agin Bhao, Kuthlay, Gunruss and Daaka Murz in the Elephant. In the Camel it is added to all mercurial and other metallic preparations in use in the diseases of this animal and also of the Elephant. Externally to ointments used for affections of the eyes and other eruptions of the skin of the public Cattle.

DOSE.—In the Elephant from 4 to 8 Tolas.
In the Camel from 2 to 4 Ditto.

نمک.—*Neemuck.* *Oopoo.*

No. 128.—SALT, COMMON.

OPERATION.—Tonic, Purgative and Detergent.

USE.—In the Elephant in Lungun, Vahee Golah, Mookundha, Pate ka Durudh, Pucksool, Surdhee, Dhummay, Zaarbahd and Nunj, also in Sooka Zaarbahd and Dhoobla. In the Camel in Dhoobla, Zaarbahd, Mulole, Guttud, Moorghee and Surdhee. In the Bullock in weak and ill-conditioned animals. Externally it forms a good application, with other articles, to foul and irritable ulcers, bruises, &c. of all Cattle.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Seers.
In the Camel and Bullock from $0\frac{1}{2}$ to $1\frac{1}{2}$ Ditto.

نربسي.—*Nirbisec.* *Chinarce vishum.*

No. 129.—BALANOPHORA GIGANTICA.

OPERATION.—Excitant, Narcotic and Tonic.

USE.—In the Elephant in Zaarbahd, Ahren, Thorung, Ghutt Bhao, Sangraanee, Vahee and Jolay ka Murz. In the Camel, but rarely used, in Musht, Budda Bhao, Surdhee and Moorghee, also in Dhoobla. It is an acrid vegetable poison.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Camel from $0\frac{1}{6}$ to 1 Ditto.

نون ساگر.—*Newsagur.* *Navacharum.*

No. 130.—SAL AMMONIAC.

OPERATION.—Refrigerant.

USE.—In the Elephant and Camel externally in hard tumours, severe sprains and in affections of the eyes. Sometimes used in the Bullock for Moopaung.

نرکچور.—*Nurkachoor.* *Kahcholum.*

No. 131.—

OPERATION.—Excitant, Tonic, Carminative and slightly Narcotic.

USE.—In the Elephant in Lungun, Mookundha, Dhoobla, Vahee Golah, Surdhee, Nunj, Zaarbahd, Thorung, Ahren and Ghutt Bhao. In the Camel externally in Kahreesh and other affections of the skin. As an Errhine in Kapalee and Surdhee.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.

اود.—*Oudth.* پٹھانی.—*Puttancee.* سفید.—*Suffade,*—کوزلی and *Kaoodalee.*
Palingee Sambrancee.

No. 132.—BENJAMIN, (1ST, 2ND AND 3RD VARIETIES.)

OPERATION.—Tonic, externally Detergent.

USE.—In the Elephant in Sooka Zaarbahd, Dhoobla and in all cases of Debility after severe illness. In the Camel in the same cases, but rarely used internally. Externally in irritable ulcers, wounds, bruises, &c. It is used with country soap, onions and common salt.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.

اودودھ.—*Oodoodh.* *Oolundhoo.*

No. 133.—A SPECIES OF BLACK GRAM.

OPERATION.—Tonic and Nutritive.

USE.—In the Elephant in the latter stages of Zaarbahd, in Pucksool, Eeray Sangranee, Sangranee, Sooka Zaarbahd and Dhoobla. In the Camel in all acute diseases where fodder may be considered injurious, especially in Diarrhoea, Dysentery, Mulole, Soole, Papesa ka Murz, Dhabundh and Zaarbahd. In the Bullock in Burra Azar and Debility.

DOSE.—In the Elephant from (Pucka) 1 to 4 Seers.

In the Camel and Bullock from $0\frac{1}{2}$ to 2 Ditto.

پارہ.—*Parah.* *Russum.*

No. 134.—QUICKSILVER.

OPERATION.—Not used in a metallic state. In preparations it is Excitant, Alterative and Tonic.

USE.—In the Elephant in Zaarbahd, Papesa, Pucksool, Pate ka Durudh, Thorung, Ahren, Dhudkay, Ghutt Bhao, Surdhee, Dhummay, Vahee Golah, Mookundha, Sangranee and Lungun. In the Camel in Budda Bhao, Papesa ka Murz, Kaleeja, Ghuttud, Mulole, Jolay and Modah. In the Bullock it is used in the form of Calomel in some acute diseases of the Liver, Lungs and Spleen. Externally in diseases of the eyes.

DOSE.—In the Bullock from.....

In the Elephant from $0\frac{1}{8}$ to 1 Tola.

In the Camel from $0\frac{1}{16}$ to $0\frac{1}{4}$ Ditto.

پارہ کی خاں.—*Para ka kahh.* *Russapuspum.*

No. 135.—CALOMEL.

OPERATION.—Excitant, Alterative and Deobstruent.

USE.—In the same cases as the former, (namely, Parah,) in the Elephant, Camel and Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.

In the Camel from $0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.

In the Bullock from $0\frac{1}{16}$ to $0\frac{3}{4}$ Ditto.

پالاس پاپدا.—*Palas pupada.* *Moorkum varay.*

No. 136.—BUTEA FRONDOSA, SEED OF

OPERATION.—Excitant, Tonic and Anthelmintic.

USE.—In the Elephant in Worms, after Lungun, Zaarbahd, Nunj, Thorung, Ahren Bhao, Dhudkay, Vahee Golah and Dhoobla. In the Camel in Surdhee, Papesa ka Murz, Inflammation of the Liver, Mulole, Soole, Soolfay, Zaarbahd, Diarrhoea, Moorghee, Cumaun, Dhadbund and Worms. In the Bullock with other articles, as a laxative, in Pahndoo.

DOSE.—In the Elephant from 2 to 4 Tolas.
 In the Camel from 1 to 2 Ditto.
 In the Bullock from 1 to 4 Ditto.

پپاز.—*Peeaz.* *Vengayum.*

No. 137.—ONIONS.

OPERATION.—Refrigerant and Diuretic.

USE.—In the Elephant in Zaarbahd, Nunj, Agin Bhao, Kuthlay, Gunruss, Ghutt, Ahren, Thorung, Bhao, Eray Sangrance, Sangranee, Lungun, Mookundha, Koossum and other affections of the urinary organs. In the Camel in Surdhgurrum, Budda Bhao, Ahren Bhao, Dhudkay, Mulole, Modah and in diseases of the urinary organs. In the Bullock in Fever, Burra Azar, Colic, Moopaung, Diarrhoea and Dysentery. Externally it forms with other ingredients an efficient application to sloughy and irritable ulcers, wounds, bruises and burns in the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 1 to 5 Seers.
 In the Camel and Bullock from 0½ to 3 Ditto.

پپلی.—*Piplee.* *Tipili.*

No. 138.—LONG PEPPER.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Zaarbahd, Surdhee, Bhao, Dhudkay, Daaka Murz, Vahee ka Durudh, Sooka Zaarbahd, Dhoobla, Pate ka Durudh and Vahee Golah. In the Camel in Budda Bhao, Ahren Bhao, Surdhee, Ookahl, Papesa ka Murz, Soolfay, Moorghee, Dhoobla and Mulole. In the Bullock in Pahndoo, Adapaun, Gendamalay and Colic. Externally in obstinate ulcers with Peeaz.

DOSE.—In the Elephant from 2 to 8 Tolas.
 In the Camel and Bullock from 1 to 4 Ditto.

پیچلا مور — *Piplamohule.* *Dasahvarum.*

No. 139.—ROOT OF LONG PEPPER.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Lungun and Chowrung, and in the same cases as the former in this animal, and in those of the Camel and Bullock.

DOSE.—Same as the former for the Elephant, Camel and Bullock.

پھولیل کا تیل — *Phoolale ka Thale.* *Poonyenay.*

No. 140.—A PREPARATION OF JINGILI OIL AND JASMINE FLOWERS.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Vahee ka Durudh, Vahee Golah, Zaarbahd, Dhoobla, Pate ka Durudh and Pucksool. In the Camel as Errhine in Surdhee, Kapalee, Papesa ka Murz, Dhoobla, Mulole and Soole. In the Bullock in Pahndoo, Colic and Rheumatism. Externally to foul and irritable looking ulcers, &c.

DOSE.—In the Elephant from 1 to 4 Tolas.
In the Camel and Bullock from 0½ to 2 Ditto.

پوسٹ — *Pohsht.* *Kussakassa.*

No. 141.—POPPIES, CAPSULES OF

OPERATION.—Tonic and slightly Narcotic.

USE.—In the Elephant in Lungun, Pate ka Durudh, Sangranee, Eeray Sangranee, Bhao, Dhummay, Zaarbahd, Gunruss, Vahee Golah and Dhoobla. In the Camel in Vahee ka Durudh, in affections of the urinary organs, Mulole, Soole, Soolfay, Zaarbahd, Agin Bhao, Cumaun, Moorghee, Dhadbundh and Dhoobla.

DOSE.—In the Elephant from ... 0½ to 2 Seers.
In the Camel from 0¼ to 1 Ditto.
In the Bullock from 0½ to 0¾ Ditto.

پودینا — *Poodhinah.* *Pudhina.*

No. 142.—SPEARMINT.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Zaarbahd, Nunj, Surdhee, Pucksool, Dhoobla, Vahee Golah, Pate ka Durudh and Sangraanee. In the Camel in Papesa ka Murz, Kaleeja, Surdhee, Mulole, Soole and Dhoobla. In the Bullock it is sometimes employed in Diarrhoea, Debility and Colic.

DOSE.—In the Elephant from $0\frac{1}{2}$ to $1\frac{1}{2}$ Seers.
In the Camel and Bullock from $0\frac{1}{4}$ to $0\frac{1}{2}$ Ditto.

پچکا پور.—*Putchkapoor.* *Putcha karpoorum.*

No. 143.—

[*A mixture of Castor, Musk, Camphor, &c. used by the Native practitioners, and sold at a high price in the Bazars.*]

OPERATION.—Slightly Excitant and Tonic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Bhao and Dhoobla. Never used in the Camel and Bullock. The most useful application of it is for affections of the eye, externally applied.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 1 Tola.

پدیکاری.—*Putuckdee.* *Padikarum.*

No. 144.—ALUM.

OPERATION.—Astringent and Detergent.

USE.—In the Elephant and Camel externally in diseases of the eyes, of the skin and those of the feet, combined with other articles.

راہیان.—*Rahyan.* *Kadoogoo.*

No. 145.—MUSTARD.

OPERATION.—Excitant, Tonic and Purgative.

USE.—In the Elephant in Zaarbahd, Jolay, Ahren, Thorung, Ghutt Bhao, Vahee ka Durudh, Chowrung, Kuntay Bhao, Surdhee, Dhoobla, Pate ka Durudh and Mookundha. In the Camel in Zaarbahd, Soolfay, Soole, Surdhee, Jolay, Moorghee, Cumaun, Mulole and Guttud. In the Bullock in Colic and affections of the Spleen. Externally as fomentations in swellings and sprains.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Bullock and Camel from 1 to 4 Ditto.

ريول چيني.—*Ravul Chineee.* *Ravul Chinee.*

No. 146.—RHUBARB.

OPERATION.—Refrigerant and Tonic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Koossum and other affections of the urinary organs; in Dhoobla, Sooka Zaarbahd, Zaarbahd, Vahee ka Durudh, Pate ka Durudh, Vahee Golah and after Lungun. In the Camel in Agin Bhao, Budda Bhao, Diarrhoea, Mulole and Dhoobla. Never given in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 1 Seer.
In the Camel from $0\frac{1}{4}$ to $0\frac{1}{2}$ Ditto.

ريهال.—*Reeahl*,—ريهال or *Rahl.* *Kongilium.*

No. 147.—DAMAR.

OPERATION.—Externally Astringent.

USE.—In the Elephant, Camel and Bullock, in diseases of the eyes, in ulcers, wounds, &c. Applied in the form of paste in copious discharge of the eyes and in extensive swellings of the joints.

ريتهه.—*Reetah.* *Pooam Cottay.*

No. 148.—SOAPNUTS.

OPERATION.—Refrigerant, Tonic and with other articles, Purgative.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Surdhgurum, Sooka Zaarbahd, Dhoobla, Vahee Golah and Lungun. In the Camel in Soolfay, Mulole, Soole, Guttud and Dhoobla. As a purgative in the Bullock in Colic and Constipation.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
In the Camel from $0\frac{1}{4}$ to 1 Ditto.
In the Bullock from $0\frac{1}{2}$ to $1\frac{1}{2}$ Ditto.

رسيندر.—*Ruschendoor.* *Russachendoorum.*

No. 149.—CINNABAR—SULPHURET OF MERCURY—ARTIFICIAL.

OPERATION.—Excitant, Alterative and Tonic.

USE.—In the Elephant in Dhudkay, Bhao, Ghutt, Ahren, Thorung, Papesa ka Murz, Sekum Durudh, Pate ka Durudh, Zaarbahd, Surdhee, Gunruss and Nunj. In the Bullock and Camel it is never used.

DOSE.—In the Elephant from $0\frac{1}{2}$ to $0\frac{1}{2}$ Tola.

روسکاپور.—*Ruskapoor.* *Russakurpoorum.*

No. 150.—A MIXTURE OF CALOMEL AND CORROSIVE
SUBLIMATE.

OPERATION.—Escharotic.

USE.—It is chiefly used externally for affections of the eyes, for ulcers, wounds, &c., with the addition of other ingredients in the Elephant, Camel and Bullock.

صابون.—*Sahboone.* *Sahookarum.*

No. 151.—COUNTRY SOAP.

OPERATION.—Anthelminthic and Detergent.

USE.—In the Elephant in Worms and after Lungun, Pate ka Durudh, Pucksool and Eeray Sangranee. It is said to remove slime from the bowels, when combined with mustard, common salt and aloes. In the Camel in Mulole, Guttud and Modah. Externally, it forms a useful application with Peeaz, Uldhee and Neemuck, in sloughy and irritable ulcers, wounds, &c., of the public Cattle.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Camel from $0\frac{1}{4}$ to 1 Ditto.

سیندر.—*Shendoor.* *Segapoo Chendoorum.*

No. 152.—SESQUIOXIDE OF LEAD.

OPERATION.—Slightly Excitant, Astringent and Detergent.

USE.—Externally in the Elephant, Camel and Bullock in diseases of the skin, in ulcerations of the feet, &c. It is also used to stop hæmorrhages from bleeding vessels after wounds, and the cutting of tusks, horns, &c. Never employed internally.

سمیل.—Soomul, —سکیا سمول Suckyah Soomul, —سفید سمول Suffadhe Soomul,
—سمیل کھار and Soomul Kahr. Velli Pashanum.

No. 153.—WHITE ARSENIC, (OFTEN ADULTERATED WITH CHALK.)

OPERATION.—Excitant, Alterative and Antispasmodic.

USE.—In the Elephant in Zaarbahd, Bhao, Ahren, Thorung, and during Musht, and in Dhadbundh. In the Camel and Bullock it is never given internally. Externally in indolent ulcers, &c.

DOSE.—In the Elephant from 10 to 30 Grains.

شامبرلون.—Shamberlone.

No. 154.—ROCK SALT.

[Has the same virtues as common salt,—see Neemuch.]

OPERATION.—Slightly Purgative and Detergent.

USE.—Same as common salt, but seldom used externally.

سیند کا کوپلیان.—Shend ka Coplee. Kullee Kooroothoo.

No. 155.—EUPHORBIIUM, TENDER STALK OF

OPERATION.—Excitant and slightly Cathartic.

USE.—In the Elephant in Zaarbahd, Bhao, Thorung, Ahren, Ghutt, Mookundha, Chowrung, Pate ka Durudh, Surdhee, Papesa ka Murz and Vahee Golah. In the Camel in Surdhee, Soolfay, Budda Bhao, Mulole and Guttud. It is never given in the Bullock. When employed for the purpose of a Cathartic, it is given with Aloes, Lussoon and Wheat flour, but the Elephant sometimes refuses taking it.

DOSE.—In the Elephant from 1 to 3 Seers.

In the Camel from $0\frac{1}{4}$ to $1\frac{1}{2}$ Ditto.

سیندیکا گاہا.—Shendhee ka Gahbah. Eeckum Kooroothoo.

No. 156.—THE STALK OF THE DATE FRUIT.

OPERATION.—Refrigerant and Diuretic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Gunruss, Chowrung and in affections of the urinary organs. It is a good remedy in this animal in all cases where a cooling treatment is necessary. It is also given in affections of the urinary organs, in Agin Bhao, Zaarbahd, Jolaub and Modah of the Camel, but seldom employed by the Camel attendants, Tyre being in general practice in such cases. In the Bullock in the same cases as for the Camel, viz., in Burra Azar, Pahndoo, Diarrhoea and Dysentery.

DOSE.—In the Elephant from 3 to 15 Seers.
 In the Camel from 2 to 8 Ditto.
 In the Bullock from 3 to 12 Ditto.

شهد.—*Shath.* Thane.

No. 157.—HONEY.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Surdhee, Papesa ka Murz, Ahren, Thorung, Ghutt Bhao and Dhoobla. In the Camel in Dhadbundh and Bhao. It is chiefly given in other articles to cover the taste of acrid substances; or to induce vicious animals to take their medicine quietly. It is seldom used for diseases of the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 2 Seers.
 In the Camel from $0\frac{1}{4}$ to 1 Ditto.

شيكاي کائي.—*Shika kae*,—جنگلي شيكاي کائي or *Junglee Shika kae.* Seeakah.

No. 158.—JUNGLE SOAPNUTS.

[*There are two species of the above, both of which are used for medicinal purposes in the Cattle.*]

OPERATION.—The two species are Refrigerant, Diuretic and slightly Purgative.

USE.—In the Elephant in Zaarbahd, Nunj, Agin Bhao, Kuthlay, Chowrung, Gunruss, in diseases of the urinary organs, Pate ka Durudh, Vahee Golah, Daaka Murz and Eeray Sangrance. In the Camel in Zaarbahd, Dhundee, Koosum, Papesa ka Murz, Guttud, Mulole, Soole and Surdhee, and in all cases where a purgative is required. In the Bullock in Fever and affections of the kidneys and in Burra Azar.

DOSE.—In the Elephant from 1 to 2 Seers.
 In the Bullock and Camel from $0\frac{1}{2}$ to 1 Ditto.

صیتا پھل کا پتہ.—*Sithapul ka puttha.* *Seethapulee Yellay.*

No. 159.—CUSTARD APPLE, LEAVES OF

OPERATION.—Tonic and Cathartic.

USE.—These act powerfully on the bowels of the Camel when they are taken in large quantities mixed up with their fodder. About 300 leaves will purge the animal; and for practical purposes a less number may be given in Mulole, Guttud ka Murz and Budda Bhao. Small quantities are used with other ingredients as Tonic.

DOSE.—In the Camel from 100 to 350 leaves.

سیا مصلیٰ.—*Siah Mooslee*, سفید مصلیٰ or *Suffadhe Mooslee.* *Nelli panakelungoo.*

No. 160.—ROOT OF THE BOMBAX MALABARICUM.

OPERATION.—Tonic.

USE.—In the Camel in Budda Bhao, Bale ka Murz, Jolay, Cumaun, Vahee ka Durudh and Dhoobla. In the Elephant in Agin Bhao, Kuthlay, Gunruss, Bhao and Dhoobla. Sometimes in Papesa ka Murz, Dhummay and Vahee ka Durudh. Never used in the diseases of the Bullock.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 1 Seer.
In the Camel from $0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.

شنگرف.—*Shemruf.* *Jadeelingum.*

No. 161.—CINNABAR, NATIVE, OR RED SULPHURET OF MERCURY.

OPERATION.—Excitant, Tonic and Alterative.

USE.—In the Elephant in Zaarbahd, Nunj, Vahee Golah, Vahee ka Durudh, Jolay, Dhadbundh, Budda Bhao, Thorung, Ahren, Ghutt Bhao, Dhudkay, Pate ka Durudh, Lungun, Mookundha, Papesa ka Murz, Surdhee and sometimes in Dhoobla. In the Camel rarely in Budda Bhao, Papesa ka Murz, Mulole, Ghuttud and Soole. Externally in obstinate and irritable affections of the skin of the public Cattle.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 2 Tolas.
In the Camel from $0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.

شورا.—*Shorah.* *Pohle Oopoo.*

No. 162.—SALTPETRE.

OPERATION.—Refrigerant, Diuretic and Detergent.

USE.—In the Elephant in Agin Bhao, Kuthlay, Kuntay Bhao, Musht and affections of the urinary organs; sometimes in Lungun and Vahee Golah. In the Camel in Dhundee, in bloody urine, Agin Bhao, Modah and in excessive thirst during any acute inflammatory disease. Externally in affections of the eyes and other irritable ulcers, &c. It is never used in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Camel from $0\frac{1}{4}$ to $1\frac{1}{2}$ Ditto.

سونف.—*Sonfe.* *Solmboo.*

No. 163.—ANISEED.

OPERATION.—Refrigerant, Tonic and Carminative.

USE.—In the Elephant in Koosum, Agin Bhao, Kuthlay, Gunruss, Chowrung, Lungun, Vahee Golah, Vahee ka Durudh, Kuntay Bhao, Dhudkay, Ahren, Thorung Bhao, Pate ka Durudh and Dhoobla. In the Camel in Kupalee, Surdhgurum, Mulole, Soole, Surdhee, Dhoobla and Guttud. In the Bullock in Chellay, Thorupoo, Diarrhoea, Colic and Dhoobla.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Seers.
In the Camel and Bullock from $0\frac{1}{4}$ to $1\frac{1}{2}$ Ditto.

سونت.—*Sonte.* *Sookoo.*

No. 164.—DRIED GINGER.

[See Uddaruk.]

سواجا.—*Sohagah.* *Vellikahrum.*

No. 165.—BORAX.

OPERATION.—Tonic, Suppurative and Detergent.

USE.—In the Elephant in Zaarbahd, Nunj, Lungun, Vahee Golah, Surdhee, Agin Bhao, Kuthlay, Gunruss, Dhoobla and Eeray Sangranee, sometimes in Balok ka Murz. In the Camel in Surdhee, Papesa ka Murz, Zaarbahd, Mulole, Soole and Soolfay. Externally in hard tumours, indolent and foul ulcers, &c., and in affections of the eyes of the Elephant. Large doses purge the Camel. Never given internally in the Bullock.

DOSE.—In the Elephant from 1 to 6 Tolas.
In the Camel from $0\frac{1}{2}$ to 3 Ditto.

سرمدہ.—*Surmah. Unjunakulloo.*

NO. 166.—ANTIMONY.

[*That sold in the Bazars under this name, is usually Sulphuret of Lead.*]

The Sulphuret of Antimony may be known by the following processes and used together in a common native crucible, a portion, say half an ounce, of the substance supplied as Sulphuret of Antimony, with half its weight of Iron filings. If it be Sulphuret of Antimony, a button of Metallic Antimony will be found at the bottom of the crucible, easily distinguishable from lead by its brittleness, as it flies to pieces under the hammer.

OPERATION.—Tonic, Alterative and Detergent.

USE.—In the Elephant in Dhoobla, Sooka Zaarbahd, Agin Bhao, Kuthlay, Surdhee, Pucksool, Vahee ka Durudh, Lungun, Pate ka Durudh, Bhao, Eeray Sangranee and Zaarbahd. In the Camel in Soolfay, Kupalee, Jolay, Moorghee, Modah, Mulole and Guttud. In the Bullock in Burra Azar, Pahndoo and Kundamalay. Externally in diseases of the eyes and in obstinate ulcerations of the back and feet of the public Cattle.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
In the Bullock and Camel from $0\frac{1}{6}$ to 1 Ditto.

سرمدہ کی خاک.—*Surmah ka kahk. Unjuna Kulloobuspum.*

NO. 167.—SULPHURET OF ANTIMONY.

OPERATION.—Tonic and Alterative.

USE.—Same as *Surmah*.

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سنگ جیرا — *Sungjeera*. *Kulnahr*.

No. 171.—ASBESTOS.

OPERATION.—Said to be Tonic, slightly Refrigerant and Detergent, but it is inert as an internal remedy.

USE.—The Natives use it in the Elephant in Zaarbahd, Nunj, Surdhee, Pucksool, Papesa ka Murz, Agin Bhao, Kuthlay, Gunruss, Eeray Sangrancee, Lungun and Dhoobla. To old and ill-conditioned animals in the Camel. Externally in contusions, hard Tumours, ulcerations as in Rahfay, Bale ka Murz, Kahreesh and in diseases of the feet. Never used in the Bullock.

DOSE.—In the Elephant from 1 to 8 Tolas.
In the Camel from $0\frac{1}{2}$ to 2 Ditto.

سنگ پلینا — *Sungpaleetha*. *Kulmuddhum*.

No. 172.—CHLORITE SCHIST.

OPERATION.—Slightly Excitant. In other respects same as Sungjeera.

USE.—Same as Sungjeera, and is equally inert as an internal remedy.

DOSE.—Same as Sungjeera.

سنگه — *Sunk*. *Shungoo*.

No. 173.—SEA SHELLS, (BURNT BEFORE USE.)

OPERATION.—Slightly Escharotic and Detergent.

USE.—Chiefly used in affections of the eyes, as in opacity of the cornea, &c., both in the Elephant and Camel. Never used in the Bullock.

سمندر پھل — *Samunder pul*. *Samoodrapulum*.

No. 174.—SP. BARRINGTONIA ACUTANGULA.

OPERATION.—Tonic, slightly Astringent and Suppurative.

USE.—In the Elephant in Dhoobla, Zaarbahd, Daaka Murz, Lungun, Sangrancee, Eeray Sangrancee, Gunruss and Surdhee. In the Camel in Vahee ka Durudh,

Jolay, Cumaun, Diarrhœa, Dhoobla, Kupalee and Surdhee, as an Errhine in the latter two diseases. Externally in Suppurative Tumours and in sloughy and indolent ulcers. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from 1 to 2 Ditto.

ثبابير.—*Thabasir.* *Moongul Oepoo.*

No. 175.—

[*A Siliceous Concretion found in the female bamboo. It is composed of Silica 70 and Potash 30 per Cent.*]

OPERATION.—Refrigerant and Tonic.

USE.—Frequently in Agin Bhao and Kuthlay, sometimes in affections of the urinary organs, Chowrung, Gunruss, Zaarbald, Bhao and Eeray Sangranee. In the Camel in Agin Bhao, Surdhgurrum, Zaarbald and Dhoobla, but appears to be inert. Never given in the Bullock.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 4 Tolas.
In the Camel from $0\frac{1}{8}$ to 1 Ditto.

تازك مسري.—*Thahd ka Misree.* *Punum Kulcondoo.*

No. 176.—PALMYRA SUGAR.

OPERATION.—Tonic.

USE.—In the Elephant in Bhao, Zaarbald, Gunruss, Agin Bhao, Kuthlay and affections of the urinary organs. In the Camel in Dhoobla, Zaarbald and affections of the urinary organs. In the Bullock in Burra Azar and Pahndoo.

DOSE.—In the Elephant from 4 to 12 Tolas.
In the Camel from 2 to 8 Ditto.
In the Bullock from 2 to 8 Ditto.

تال مكا.—*Thahl Mukanah.* *Neermollee.*

No. 177.—EURYALE FEROX.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Zaarbahd, Ahren, Thorung, Ghutt Bhao, Kuntay Bhao, Surdhgurum, Surdhee, Papesa ka Murz, Pucksool, Lungun, Vahee Golah and Vahee ka Durudh. In the Camel in Koosum, Surdhee, Budda Bhao and Dhoobla. Never used in the Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel from 1 to 4 Ditto.

ثوروزکا چہال.—*Thudwud ka Chall.* *Ahvarum puttay.*

No. 178.—THE CASSIA AURICULATA, BARK OF

[*The leaves and root are also in use among the Cattle attendants.*]

OPERATION.—Tonic, Astringent and Detergent.

USE.—In Zaarbahd, Surdhee, Papesa ka Murz, Dhummay, Vahee Golah, Vahee ka Durudh, Daaka Murz, Sangranee, Lungun, Gunruss and Dhoobla in the Elephant. In the Camel in Surdhee, Soolfay, Budda Bhao, Jolaub and in affections of the urinary organs. In the Bullock in Dropsy, Scrofula, Affections of the Liver and Lungs, Burra Azar, Diarrhoea and Moopaung. It is extensively employed as an application to sloughy and indolent ulcers, wounds, bruises, burns, &c., combined with Turmeric and common Salt. The leaves, flowers and root may also be used for the same purposes, and all possess the same properties.

DOSE.—In the Elephant from 2 to 6 Tolas.
In the Camel from 1 to 3 Ditto.
In the Bullock from $0\frac{1}{2}$ to $1\frac{1}{2}$ Ditto.

تعباکو.—*Thumbakoo.* *Pogay Yallay.*

No. 179.—TOBACCO, LEAVES OF

OPERATION.—Narcotic and Purgative.

USE.—In the Elephant in Vahee ka Durudh, Sooka Zaarbahd, Lungun, Mookundha, Ahren, Thorung, Ghutt Bhao, Pate ka Durudh, Pucksool and Surdhee. In the Camel in Mulole, Soole, Budda Bhao and Guttud ka Murz. It is usually given in combination with other articles. In the Bullock in Surdhgurum, Colic and Constipation. Externally to affections of the feet of the Elephant.

DOSE.—In the Elephant from $0\frac{1}{8}$ to $0\frac{1}{2}$ Tola.
In the Camel and Bullock from $0\frac{1}{12}$ to $0\frac{1}{4}$ Ditto.

اُدُرُی.—*Uddaruk.* سُونَت.—*Sohnte.* *Injee.* *Sookoo.*

No. 180.—GINGER, GREEN AND DRIED.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant in Zaarbahd, Surdhee, Surdhgurum, Ahren, Thorung, Dhadbundh, Vahee Golah, Jolay, Pucksool, Dhoobla, Zaarbahd, Vahee, Pate ka Durudh, after Lungun, Mookundha, Lutchuk and Bale ka Murz. In the Camel in Budda Bhao, Zaarbahd, Surdhee, Kapalee, Mulole, Soole and Guttud. In the Bullock in Bhao, Colic and Diarrhoea.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 1 Seer.
In the Bullock and Camel from $0\frac{1}{8}$ to $0\frac{1}{4}$ Ditto.

اِجْوَان.—*Ujwan.* *Oomum.*

No. 181.—SWEET FENNEL SEEDS, (BISHOP'S WEED, SEED OF)

OPERATION.—Slightly Excitant, Tonic and Carminative.

USE.—In the Elephant in Zaarbahd, Nunj, Ahren, Thorung and Ghutt Bhao, Kuntay, Dhadbundh, Surdhee, Dhoobla, Vahee Golah, Vahee ka Durudh, Gunruss, Mookundha, Pate ka Durudh and Jolay. In the Camel in Kapalee, Surdhee, Papesa ka Murz, Kalecja, Budda Bhao, Dhadbundh, Choodee, Cuppray, Mulole, Soole, Bahd Golah, Gaasha, Bale and Guttud ka Murz. In the Bullock in Diarrhoea, Colic, Burra Azar, Surdhgurum and Dhoobla.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

اِجْوَان.—*Ujwan.* چَوْرِي.—(*Shoree.*) *Choree Ujwan.*

No. 182.—THE CLEOME VISCOSA OF AINSLIE.

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the Elephant, Camel and Bullock given in the same diseases as Ujwan.

DOSE.—In the Elephant from 2 to 8 Tolas.
In the Camel and Bullock from 1 to 4 Ditto.

ازمود اجوان.—*Ujcan*, (*Uzmoodha*.) — *Uzmoodha Oomum*.

No. 183.—HENBANE, SEEDS OF

OPERATION.—Excitant, Tonic and Carminative.

USE.—In the same cases as Ujwan in the Elephant, Camel and Bullock.

DOSE.—In the Elephant from 2 to 8 Tolas.

In the Camel and Bullock from 1 to 4 Ditto.

عقلقورا.—*Ukulkurrah*. — *Uherakahrum*.

No. 184.—PELLITORY ROOT.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Zaarbahd, Nunj, Surdhee, Jolay, Vahee ka Durudh, Vahee Golah, Ahren, Thorung, Ghutt Bhao, Dhoobla and Sooka Zaarbahd. In the Camel in Surdhee, Kapalee, Papesa ka Murz, Soolfay, Zaarbahd, Budda Bhao and Dhoobla. As Errhine in Surdhee and Kapalee. Sometimes used in the Bullock in Chellay and affections of the Lungs.

DOSE.—In the Elephant from 1 to 6 Tolas.

In the Camel and Bullock from 0½ to 2 Ditto.

آملي.—*Umbli*. — *Poolee*.

No. 185.—TAMARIND PULP.

OPERATION.—Refrigerant, Diuretic and slightly Purgative.

USE.—In the Elephant in Eeray Sangranee, Agin Bhao, Kuthlay Sangranee, affections of the urinary organs, Zaarbahd, and Lungun. In the Camel in Agin Bhao, Modah, affections of the kidneys and bladder. In Mulole and Soole, given in combination with common salt. In the Bullock in Pahndoo, Constipation and in affections of the urinary organs.

DOSE.—In the Elephant from 0½ to 3 Seers.

In the Camel and Bullock from 0½ to 1½ Ditto.

انگوري نمک.—*Ungooree Neemuck.* *Dhrachoopso.*

No. 186.—CREAM OF TARTAR.

OPERATION.—Refrigerant and Diuretic.

USE.—In the Elephant in Agin Bhao, Kuthlay, Zaarbahd and in affections of the urinary organs. In the Camel in Modah, Diarrhœa, Agin Bhao, Budda Bhao and Zaarbahd. In the Bullock in Dropsy and affections of the kidneys.

DOSE.—In the Elephant from $0\frac{1}{4}$ to 1 Seer.
In the Camel and Bullock from $0\frac{1}{8}$ to $0\frac{3}{4}$ Ditto.

هوٽال.—*Urthal.* ورتي هوٽال.—*Urthal wurkee.* *Ahroodahlum.*

No. 187.—1, SULPHURET OF ARSENIC,—2, ORPIMENT SESQUISULPHURET OF ARSENIC.

OPERATION.—Excitant and Tonic.

USE.—In the Elephant in Zaarbahd, Nunj, Ahren, Thorung, Ghutt Bhao, Surdhee, Kuntay Bhao, Dhadbundh, Papesa ka Murz, Pucksool, Vahee Golah, Vahee, Eeray Sangrahee and Sangrahee. In the Camel in Budda Bhao, Ahren Bhao, Papesa ka Murz and Kaleeja. It is never used in the Bullock externally with other articles in sloughy and indolent ulcers and eruptions of the skin in the two former animals.

DOSE.—In the Elephant from $0\frac{1}{2}$ to 3 Tolas.
In the Camel from $0\frac{1}{8}$ to $0\frac{1}{2}$ Ditto.

زنگال.—*Zungaul.* *Vengala putchay.*

No. 188.—VERDIGRIS.

OPERATION.—Escharotic and Astringent.

USE.—In the Elephant in diseases of the eyes and indolent ulcerations of the feet. In the Camel it is sometimes employed in Rahfay, Bale ka Murz, Kahndi and other affections of the skin. Never used in the Bullock.



