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ORDINARY, MS.

Public DEPARTMENT.	
G.O., DATED	20. 5. 93
No.	403.
	404.

INDEXED.

When given for copying.

[Despatch Abstract.]

Directing that copies
of letter from the Surge
General reporting on
Dr Mueller's method
of treating snake-
bite by injections of
strychnine be for-
warded to the Govt
of India & the
Surge General to
submit a further
report at the close
of the current year.

FURTHER PAPER, No. 486

OF 18

READ AGAIN ORDER OF GOVERNMENT, DATED
18, No. MISCELLANEOUS.

ENCLOSURES

CURRENT No.

STATEMENT WITH DITTO.

ORDER OF GOVERNMENT.

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESTROY
IN ORIGINAL (NOT PAGED).

N.B.—
A = Copy in full.
B = Not to be copied.
P = Copy abstract only.
Q = Copy heading only.

Public (1893) DEPARTMENT.

CURRENT NO. 1360

From

SURG. MAJOR-GEN. W. F. DEFAECK, M.D.,

SURGEON-GENERAL WITH THE

GOVERNMENT OF MADRAS,

Madras,

Ottacamund.

No. 476

Dated 10th

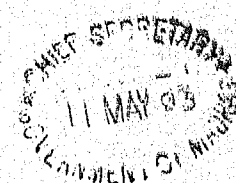
Recd. 11th

Regd. 12th

May 1893

No.

Enc. 1.



Subject.

Submitting report on Dr.
Muller's method of treating
snake-bite by injections of
strychnine and returning
his Enst. No: 325 of 17th Feb 93

Madras Office

Please put up paper 12

Submit to S.A.

12/5

With a word

Cnos 465 & 1360

20th May 1893.

No. 403.

order

Copy of the Surgeon General's
letter read above will be forwarded for
information of the Govt. of India.
2. The Surgeon General will be
requested to submit a further report
at the close of the current year with
reference to para 3 of the letter from the
Govt. of India.

18/5/93

DEPARTED

2. The Surgeon General.

Letter. No. 404, 20th May 1893.

To The Secretary to the Govt. of India
Home Department

Sir, with reference to para 2 of Mr.
Melius' letter of the 4th February 1893
No 1000. I am directed to forward
the accompanying letter from the Surgeon
General with this Govt. reporting on Dr.
Muller's method of treating snake-bite
by injections of strychnine and to say
that the further report called for in para
3 will be submitted in due course.

18/5/93

The Surgeon General's letter has been
sent to the Govt. of India for their
consideration.

by the original poison, but as such it ranks
very far indeed below a pure antidote.
Stygeine in fact is just such an antidote
to cobra poisoning as asid and some other
drugs are to opium poisoning. What helps
to stimulate the vital powers which are
depressed by one poison must to a certain
extent be looked on as an antidote to that
poison.

I have the honor to be,
Sir,

Your most obedient servant.

W. H. Jackson
S. M. Gent

Surgeon General
with the Govt. of Madras

inside and outside to keep up the animal
heat. The poison is I think undoubtedly
a "blood poison" and the result will depend
on whether the respiration and circulation
by careful treatment can be kept up
till the system can throw off the poison by
natural means, i.e. the excretory organs.
The result will therefore depend largely
on the amount and violence of the poison
injected at the time of the bite and the
condition of the patient. Any attempt to
rely on the simple injection of a supposed
antidote should be discouraged, active
means alone should be depended on; and
where the bite is very recent and on a limb
where the circulation can be stopped without
danger to the rest of the body, these means
alone in severe cases offer a hope of cure.
On account of the nature of the
affection, the different degrees in the urgency
of the symptoms and the different ways in
which the poison affects different persons,
various remedies have been vaunted as a
cure; but all Indian experience points to the
cobra poison being of quite a different nature
altogether to that of a simple alkaloid like
strychnine. Cobra poison is an animal
poison of a complex nature and has
no proper antidote. In my opinion
strychnine ranks with ammonia, atropine,
and other simple physiological antidotes
as helps to counteract the symptoms produced
by

by a poisonous snake. In all 45 specimens of Lig. Styracine were injected and the condition of the patient appeared to improve and he slept fairly well. Next morning however intense local symptoms developed and the man absconded from Hospital and died 10 days after at his own village. The District Surgeon notes that although a large quantity of Styracine was injected within a short time, no toxic symptoms due to the drug were observed.

6. The District Surgeon Bellary reports that no cases applied for treatment though 65 deaths were certified from snake bite in his District. He further says "that in a large series of experiments conducted by him some years ago the use of Styracine as an antidote was proved to be valuable in cases of Cobra bite."

7. The number of cases in which an opportunity to try the drug occurred is too small to generalize on. From a consideration of them however, there was nothing to show that the cases that recovered would not have recovered under ordinary treatment - ammonia to stimulate the circulation, injection of atropine for the respiration & warm in

below, extracts from the others regarding the treatment by Styracine and the success attending it.

3. The District Surgeon North Arcot reports that only 5 cases of poisonous snake bite applied for treatment in his District (Punganur Dispensary) In one case Lig. Styracine was tried by the Hospital Assistant, 10 minims being hypodermically injected, the dose being repeated every 10 minutes till half a grain of the drug was administered. This patient died. It was a case of Cobra bite presenting all its local and general symptoms. Four other cases of snake bite reported to this Medical Subordinate, two of them being Cobra bite but he says he treated them successfully by other remedies.

The District Surgeon Coimbatore reports that 3 cases came under the treatment of the Hospital Assistant at Bhavany but they recovered under ordinary treatment, Styracine not having been used.

The District Surgeon Anantapur reports that a case was admitted into the Municipal Hospital 4 hours after being bitten by a supposed Cobra. There were 2 bites on the patient who presented the symptoms of having been bitten by

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1891	
Author.....	Dept.....
Title.....	
No.....	

Encl. on 2 lists to 13th

3. This ill advised course emanates from the erroneous idea that the effects of snake poison and strychnine are identical on dog and man, whereas this supposed identity amounts only to an imperfect analogy. A dog under the influence of snake poison, counteracted by a corresponding quantity of strychnine, is very apt to be thrown into violent and fatal convulsions, unless the antidote is most carefully administered, in fact, even the snake poison alone usually produces convulsions in dogs, and these are aggravated by strychnine injected both in too small or too large a quantity. It is only when by a lucky chance the exact quantity required is administered to a dog, that he will pass scatheless through the ordeal. In man, on the other hand, convulsions are of rare occurrence. Even when strychnine has been required in doses and quantities that would be absolutely fatal in the absence of the counteracting ophidian venom, convulsions are never ushered in violently as in dogs, but are always preceded by harmless spasms about the neck and face, which are looked for as a signal that the snake poison is conquered, and the antidote for the time being no longer required. It is only when this signal is disregarded and the strychnine injections are continued that tetanic convulsions set in, but they are never as in dogs, and usually pass away quickly.

Your Majesty will have no difficulty in drawing your own conclusions from these facts, and will probably agree with the writer when he asserts, that experiments on animals are not only misleading, but also totally uncalled for with regard to the strychnine treatment of snake-bite on man. Its efficacy has now been so thoroughly proven by a severe two years' test at the hands of medical men in all parts of Australia, and even laymen have in emergency cases administered it with so much success, that the proposal to revert it once more to test experiments on animals, which have always been the bane of research on this subject, is simply ridiculous.

There is no reason to doubt that the writer's treatment will be as successful in India as it is in Australia. In the "Lancet" of the 26th of May last, Dr. Bannerjee, Medical Officer at Pachbhadra Salt Mines, Rajputana, has published seven cases of viper and krait bite treated by him in his hospital with strychnine injections. Some of the persons were in an apparently hopeless state when admitted, but all were discharged cured within a week.

Brilliant results like these must necessarily pave the way for the general adoption of the treatment in India, but this process will be a slow one if left to itself, and still more so if retarded by experiments on animals. Vigorous measures on the part of the authorities are required to stem the fatal tide that now flows at the rate of two millions of human beings in a century. Of the twenty-two thousand that perished last year again, many, no doubt, would have been saved if the writer's appeal to the authorities had not been left unheeded. In this appeal good and sufficient reasons were given to justify the authorities in issuing circulars making strychnine injections in cases of snake-bite compulsory. Cases containing antidote hypodermic syringe and directions for use, together with a stout ligature to apply above the bite and a sharp pair of scissors to cut out the bitten skin, such as are now being sold in large quantities in Australia, might also have been given with perfect safety into the hands of one or two officials in every village, to be available where medical aid is not quickly enough procurable. Your Majesty's Indian subjects are unfortunately not in the position to protect themselves against their insidious enemies, the snakes, as has been done by the Australian colonists, especially in the sparsely populated interior, where no settlement hardly is now without its antidote case, and it therefore devolves on Your Majesty's Indian Government to initiate the measures here indicated.

Your Majesty's long and beneficent reign has been marked by numerous acts on Your Majesty's part, that will ever shed a bright lustre around Your Majesty's throne. To this "royal diadem of noble deeds" another gem may now be added by Your Majesty bestowing the great boon of comparative immunity from snake-bite on your Indian subjects. Even now, whilst scores of animals are being tortured uselessly at Calcutta, thousands of Your Majesty's Indian subjects, entrusted by Divine Providence to Your Majesty's care, are again perishing from snake-bite. One word from Your Majesty, one single exercise of your royal authority, can save thousands of human lives. It would be high treason to doubt for a moment that this word will not be spoken by Your Majesty readily and joyfully. To overcome official perverseness and prejudice now standing in the way Your Majesty's personal intervention is necessary. To assure Your Majesty that it can be granted not only with perfect safety, but also with absolute certainty of success, it is only necessary to refer to Dr. Bannerjee's cases. They were bites inflicted by *Bungarus coerules*, a deadly colubrine snake, and next to the cobra the most destructive to human life, and by *Echis carinata*, and equally deadly viper. Dr. Bannerjee administered the antidote boldly, giving as much as three and four grains of strychnine to one person, and, when discharging his patients cured within a few days, could not detect a trace of either of the two powerful poisons in them, both having neutralised each other and been thrown out of the system. Even a larger quantity of the antidote will be required to cope successfully with desperate cases of cobra bite, but the victory of the antidote is assured in every case in which it is administered in Dr. Bannerjee's fearless manner, irrespective of the quantity that may be required of it.

The importance and urgency of this subject must be the writer's excuse for infringing so largely on Your Majesty's time. Now that the snake season has again commenced in India more than one hundred persons are perishing every day in Your Majesty's Indian dominions from snake-bite. Thousands of these may yet be saved if Your Majesty orders vigorous action on the lines laid down in this letter to be taken at once.

May the wisdom and the benevolence that characterize all Your Majesty's actions also guide Your Majesty in this important matter, involving the life or death of thousands of Your Majesty's subjects. This is the firm trust and the devout prayer of

YACHANDANDAH (VICTORIA), }
The 6th September 1892. }

Your Majesty's loyal and humble Subject,
AUGUSTUS MUELLER, M. D.

Dated Yachandandah (Victoria), the 22nd December 1892.

From—DR. A. MUELLER.

To—The Secretary to the Government of India, Home Department, Calcutta.

I have the honour to inform you that in a Despatch dated 10th November last, which His Excellency the Governor of Victoria has received from the Right Honourable the Secretary of State for the Colonies and of which His Excellency has caused copy to be forwarded to me with regard to a memorial addressed by me to Her Majesty the Queen, praying for the introduction of the strychnine treatment of snake-bite in India, it has been intimated to His Excellency that any suggestions I may deem it advisable to make with regard to the contemplated trials of my method in India, may be forwarded by me direct to you.

Following out this intimation at the advice of His Excellency, I have now the honour to suggest—

- (1) That experiments on the lower animals with snake poison and strychnine should be altogether dispensed with, since the motor-nerve-centres of these animals (dogs, cats, guinea pigs, etc.) frequently break down under the combined influence of the two poisons and thus misleading results are obtained.
- (2) That in the case of a human being manifesting the symptoms produced by snake poison, the strychnine should be injected regardless of the total quantity of it that may be required to subdue these symptoms, and that in the event of their returning after a shorter or longer interval, the antidote should again be resorted to.
- (3) That the doses of the latter should never be less than one-tenth of a grain increased in urgent cases to one-sixth and even one-fourth of a grain, and repeated every 15 or 20 minutes, until the symptoms of snake poison are removed.
- (4) That in certain very acute cases of snake-bite caused by one or both poison fangs having perforated into a vein, the hypodermic method of injection might with advantage be exchanged for the intravenous one, the antidote thus poured into the bloodstream in large doses and at short intervals being capable of turning the scale of life in favour of persons, when already pulseless at wrists and having ceased to breathe, more especially if assisted by artificial respiration.
- (5) That the effect of strychnine when used as an antidote to snake poison is not cumulative, as it is when otherwise administered, and that even when muscular spasms or slight convulsions supervene in the course of the treatment, they are always harmless and can be easily subdued.
- (6) That on the other hand the snake poison, when only partially subdued by an insufficient use of the antidote, overpowers the motor-nerve-centres often very insidiously, as soon as the effect of the antidote has worn off, and that therefore the danger of the strychnine treatment lies not in too free but too sparing a use of strychnine. Wherever this drug is freely and fearlessly injected, both the viperine and colubrine poison must necessarily yield to it in all ordinary cases of snake-bite in India.

Trusting that these suggestions, which if carefully observed will ensure the success of the treatment, may be freely circulated.

No. 112 (Revenue), dated India Office, London, the 10th November 1892.

From—The Right Honourable the Earl of KIMBERLEY, K.G., Her Majesty's Secretary of State for India.

To—His Excellency the Most Honourable the GOVERNOR GENERAL of India in Council.

I forward, for the information of Your Excellency's Government, a memorial*

* Memorial, dated 6th September 1892. from Dr. Augustus Mueller, concerning the expediency of introducing into India his method of treating snake-bites by injection of strychnine.

2. In September 1890 Dr. Mueller addressed my predecessor, through His Excellency Lord Hopetoun and the Colonial Office, on the subject of his remedy for the bite of poisonous snakes. It appeared that Lord Hopetoun had at the same time addressed your Government on the matter, and therefore no action was taken here. Dr. Mueller claims that the success of his treatment has been widely admitted in Australia, and he quotes cases (reported on page 1183 of the London "Lancet" for 28th May 1892) in which Dr. Bannerjee of Pachbhadra in Rajputana tried the strychnine treatment with complete success on six occasions.

3. Sir Joseph Fayrer, whose interest in the subject is well known, advises me that an antidote, supported in this way by the positive assertion of a man of science like Dr. Mueller ought to be tried, though he adds that his own experience does not warrant an expectation that the antidote will be successful in the case of the Najidæ.

4. I gather from the Home Department Proceedings of your Government, for the months of September 1890 and May 1892, that you intended to have Dr. Mueller's method tested in Bengal, but that for different reasons the experiments were not carried out.

5. Seeing that the mortality from snake-bite in India is very large, I commend to your Government the suggestion that careful trials of Dr. Mueller's methods should be held under the supervision of a competent medical Committee in Calcutta, and also at selected hospitals like Dr. Bannerjee's at Pachbhadra.

ENCLOSURE.

To Her Most Gracious Majesty Victoria, by the Grace of God, Queen of the United Kingdom of Great Britain and Ireland, and Empress of India.

MAY IT PLEASE YOUR MAJESTY,—The undersigned, who during a career of 37 years in Australia has made snake poison his special study, who has succeeded in constructing the first irrefutable scientific theory of its action, and guided by that theory has discovered in strychnine, administered in large doses by hypodermic injections, an infallible antidote to snake poison, seeing the great mortality from snake-bite among Your Majesty's Indian subjects, and being perfectly confident that this lamentable loss of human life can be greatly reduced by the introduction of his treatment, which has been universally adopted in Australia, most humbly prays for Your Majesty's gracious intercession and powerful aid in bringing about and hastening on this most desirable consummation. His reasons for approaching Your Majesty on this subject are as follows:—

1. Your Majesty's Indian Government has been twice appealed to in vain, first by letters addressed by the undersigned to the Right Honourable the Secretary of State for India and His Excellency the Viceroy of India respectively, and forwarded through His Excellency, the Governor of Victoria, and a second time by a letter from His Excellency the Governor of New South Wales to His Excellency the Viceroy of India, written at the special request of the Honourable Dr. Creed, Editor of the *Australasian Medical Gazette*.
2. The Calcutta medical authorities, to whom the subject had necessarily to be referred by His Excellency the Viceroy of India, have declined to move in the matter, alleging as their reason the unfavourable result of certain experiments made years ago with snake poison and strychnine on dogs, results which, as the writer will show presently, are most fallacious and misleading when applied to man. Nevertheless, the Calcutta authorities have resolved to subject the well and amply proven value of the strychnine treatment on man once more to the test of experiments on animals, more especially dogs, and are apparently labouring under the delusion that this test will be final.

No. *1000*
60

FROM

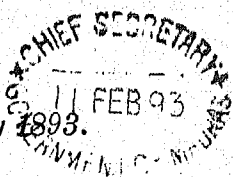
P. G. MELITUS, Esq.,
Under Secretary to the Government of India.

To

The Chief Secretary to the Government of Madras.

Home Department.
Medical.

Calcutta, the *14*th February 1893.



SIR,

In continuation of the endorsement from this Office No. *577*, dated the *5th September 1890*, I am directed to forward a copy of a Despatch from Her Majesty's Secretary of State for India No. 112, dated the 10th November 1892, and enclosure, in which it is requested that careful trials should be made in India of Dr. Mueller's method of treating snake-bite by injections of strychnine. I am also to enclose a copy of a communication dated the 22nd December 1892, received from Dr. Mueller on the subject.

2. I am to enquire whether any action was taken under *the orders of His Excellency the Governor in Council*, with a view to having Dr. Mueller's method tested by the medical officers serving in *the Madras Presidency* after the correspondence of 1890 above referred to was communicated to *the Government of Madras*, and, if so, to request that the Government of India may be informed of the results of any trials that may have been made on persons or animals bitten by poisonous snakes.

3. I am also to request that the Government of India may be informed at the end of the current year (1893) of any action which may be taken on the correspondence now forwarded.

I have the honour to be,

SIR,

Your most obedient Servant,

P. G. Melitus

Under Secretary to the Government of India.

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P. G. MELITUS, Esq.,

Under Secretary to the Government of India.

TO

Home Department.
Medical.

Calcutta, the February 1893.

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In continuation of the endorsement from this Office No.

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with a view to having Dr. Mueller's method tested by the medical officers serving in after the correspondence of 1890 above referred to was communicated to and, if so, to request that the Government of India may be informed of the results of any trials that may have been made on persons or animals bitten by poisonous snakes.

3. I am also to request that the Government of India may be informed at the end of the current year (1893) of any action which may be taken on the correspondence now forwarded.

I have the honour to be,

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Your most obedient Servant,

P. G. MELITUS,

Under Secretary to the Government of India.

No.

FROM

P. G. MELITUS, Esq.,

Under Secretary to the Government of India.

To

Home Department.
Medical.

Calcutta, the February 1893.

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To—His Excellency the Most Honourable the GOVERNOR GENERAL of India in Council.

I forward, for the information of Your Excellency's Government, a memorial*

* Memorial, dated 6th September 1892. from Dr. Augustus Mueller, concerning the expediency of introducing into India

his method of treating snake-bites by injection of strychnine.

2. In September 1890 Dr. Mueller addressed my predecessor, through His Excellency Lord Hopetoun and the Colonial Office, on the subject of his remedy for the bite of poisonous snakes. It appeared that Lord Hopetoun had at the same time addressed your Government on the matter, and therefore no action was taken here. Dr. Mueller claims that the success of his treatment has been widely admitted in Australia, and he quotes cases (reported on page 1183 of the London "Lancet" for 28th May 1892) in which Dr. Bannerjee of Pachbhadra in Rajputana tried the strychnine treatment with complete success on six occasions.

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4. I gather from the Home Department Proceedings of your Government, for the months of September 1890 and May 1892, that you intended to have Dr. Mueller's method tested in Bengal, but that for different reasons the experiments were not carried out.

5. Seeing that the mortality from snake-bite in India is very large, I commend to your Government the suggestion that careful trials of Dr. Mueller's methods should be held under the supervision of a competent medical Committee in Calcutta, and also at selected hospitals like Dr. Bannerjee's at Pachbhadra.

ENCLOSURE.

To Her Most Gracious Majesty Victoria, by the Grace of God, Queen of the United Kingdom of Great Britain and Ireland, and Empress of India.

MAY IT PLEASE YOUR MAJESTY,—The undersigned, who during a career of 37 years in Australia has made snake poison his special study, who has succeeded in constructing the first irrefutable scientific theory of its action, and guided by that theory has discovered in strychnine, administered in large doses by hypodermic injections, an infallible antidote to snake poison, seeing the great mortality from snake-bite among Your Majesty's Indian subjects, and being perfectly confident that this lamentable loss of human life can be greatly reduced by the introduction of his treatment, which has been universally adopted in Australia, most humbly prays for Your Majesty's gracious intercession and powerful aid in bringing about and hastening on this most desirable consummation. His reasons for approaching Your Majesty on this subject are as follows:—

1. Your Majesty's Indian Government has been twice appealed to in vain, first by letters addressed by the undersigned to the Right Honourable the Secretary of State for India and His Excellency the Viceroy of India respectively, and forwarded through His Excellency, the Governor of Victoria, and a second time by a letter from His Excellency the Governor of New South Wales to His Excellency the Viceroy of India, written at the special request of the Honourable Dr. Croed, Editor of the *Australasian Medical Gazette*.
2. The Calcutta medical authorities, to whom the subject had necessarily to be referred by His Excellency the Viceroy of India, have declined to move in the matter, alleging as their reason the unfavourable result of certain experiments made years ago with snake poison and strychnine on dogs, results which, as the writer will show presently, are most fallacious and misleading when applied to man. Nevertheless, the Calcutta authorities have resolved to subject the well and amply proven value of the strychnine treatment on man once more to the test of experiments on animals, more especially dogs, and are apparently labouring under the delusion that this test will be final.

3. This ill advised course emanates from the erroneous idea that the effects of snake poison and strychnine are identical on dog and man, whereas this supposed identity amounts only to an imperfect analogy. A dog under the influence of snake poison, counteracted by a corresponding quantity of strychnine, is very apt to be thrown into violent and fatal convulsions, unless the antidote is most carefully administered, in fact, even the snake poison alone usually produces convulsions in dogs, and these are aggravated by strychnine injected both in too small or too large a quantity. It is only when by a lucky chance the exact quantity required is administered to a dog, that he will pass scatheless through the ordeal. In man, on the other hand, convulsions are of rare occurrence. Even when strychnine has been required in doses and quantities that would be absolutely fatal in the absence of the counteracting ophidian venom, convulsions are never ushered in violently as in dogs, but are always preceded by harmless spasms about the neck and face, which are looked for as a signal that the snake poison is conquered, and the antidote for the time being no longer required. It is only when this signal is disregarded and the strychnine injections are continued that tetanic convulsions set in, but they are never as in dogs, and usually pass away quickly.

Your Majesty will have no difficulty in drawing your own conclusions from these facts, and will probably agree with the writer when he asserts, that experiments on animals are not only misleading, but also totally uncalled for with regard to the strychnine treatment of snake-bite on man. Its efficacy has now been so thoroughly proved by a severe two years' test at the hands of medical men in all parts of Australia, and even laymen have in emergency cases administered it with so much success, that the proposal to revert it once more to test experiments on animals, which have always been the bane of research on this subject, is simply ridiculous.

There is no reason to doubt that the writer's treatment will be as successful in India as it is in Australia. In the "Lancet" of the 26th of May last, Dr. Bannerjee, Medical Officer at Pachbhadra Salt Mines, Rajputana, has published seven cases of viper and krait bite treated by him in his hospital with strychnine injections. Some of the persons were in an apparently hopeless state when admitted, but all were discharged cured within a week.

Brilliant results like these must necessarily pave the way for the general adoption of the treatment in India, but this process will be a slow one if left to itself, and still more so if retarded by experiments on animals. Vigorous measures on the part of the authorities are required to stem the fatal tide that now flows at the rate of two millions of human beings in a century. Of the twenty-two thousand that perished last year again, many, no doubt, would have been saved if the writer's appeal to the authorities had not been left unheeded. In this appeal good and sufficient reasons were given to justify the authorities in issuing circulars making strychnine injections in cases of snake-bite compulsory. Cases containing antidote hypodermic syringe and directions for use, together with a stout ligature to apply above the bite and a sharp pair of scissors to cut out the bitten skin, such as are now being sold in large quantities in Australia, might also have been given with perfect safety into the hands of one or two officials in every village, to be available where medical aid is not quickly enough procurable. Your Majesty's Indian subjects are unfortunately not in the position to protect themselves against their insidious enemies, the snakes, as has been done by the Australian colonists, especially in the sparsely populated interior, where no settlement hardly is now without its antidote case, and it therefore devolves on Your Majesty's Indian Government to initiate the measures here indicated.

Your Majesty's long and beneficent reign has been marked by numerous acts on Your Majesty's part, that will ever shed a bright lustre around Your Majesty's throne. To this "royal diadem of noble deeds" another gem may now be added by Your Majesty bestowing the great boon of comparative immunity from snake-bite on your Indian subjects. Even now, whilst scores of animals are being tortured uselessly at Calcutta, thousands of Your Majesty's Indian subjects, entrusted by Divine Providence to Your Majesty's care, are again perishing from snake-bite. One word from Your Majesty, one single exercise of your royal authority, can save thousands of human lives. It would be high treason to doubt for a moment that this word will not be spoken by Your Majesty readily and joyfully. To overcome official perverseness and prejudice now standing in the way Your Majesty's personal intervention is necessary. To assure Your Majesty that it can be granted not only with perfect safety, but also with absolute certainty of success, it is only necessary to refer to Dr. Bannerjee's cases. They were bites inflicted by *Bungarus coeruleus*, a deadly colubrine snake, and next to the cobra the most destructive to human life, and by *Echis carinata*, and equally deadly viper. Dr. Bannerjee administered the antidote boldly, giving as much as three and four grains of strychnine to one person, and, when discharging his patients cured within a few days, could not detect a trace of either of the two powerful poisons in them, both having neutralised each other and been thrown out of the system. Even a larger quantity of the antidote will be required to cope successfully with desperate cases of cobra bite, but the victory of the antidote is assured in every case in which it is administered in Dr. Bannerjee's fearless manner, irregardless of the quantity that may be required of it.

The importance and urgency of this subject must be the writer's excuse for infringing so largely on Your Majesty's time. Now that the snake season has again commenced in India more than one hundred persons are perishing every day in Your Majesty's Indian dominions from snake-bite. Thousands of these may yet be saved if Your Majesty orders vigorous action on the lines laid down in this letter to be taken at once.

May the wisdom and the benevolence that characterize all Your Majesty's actions also guide Your Majesty in this important matter, involving the life or death of thousands of Your Majesty's subjects. This is the firm trust and the devout prayer of

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To—The Secretary to the Government of India, Home Department, Calcutta.

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Following out this intimation at the advice of His Excellency, I have now the honour to suggest—

- (1) That experiments on the lower animals with snake poison and strychnine should be altogether dispensed with, since the motor-nerve-centres of these animals (dogs, cats, guinea pigs, etc.) frequently break down under the combined influence of the two poisons and thus misleading results are obtained.
- (2) That in the case of a human being manifesting the symptoms produced by snake poison, the strychnine should be injected regardless of the total quantity of it that may be required to subdue these symptoms, and that in the event of their returning after a shorter or longer interval, the antidote should again be resorted to.
- (3) That the doses of the latter should never be less than one-tenth of a grain increased in urgent cases to one-sixth and even one-fourth of a grain, and repeated every 15 or 20 minutes, until the symptoms of snake poison are removed.
- (4) That in certain very acute cases of snake-bite caused by one or both poison fangs having perforated into a vein, the hypodermic method of injection might with advantage be exchanged for the intravenous one, the antidote thus poured into the bloodstream in large doses and at short intervals being capable of turning the scale of life in favour of persons, when already pulseless at wrists and having ceased to breathe, more especially if assisted by artificial respiration.
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Trusting that these suggestions, which if carefully observed will ensure the success of the treatment, may be freely circulated.

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DEPARTMENT.

Paper taken out of the Records from the charge of the Referencer. •

Press
Miscellaneous No. _____, dated _____ 189
Routine

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4/11/99	Pub. Secs.				7/11/99	
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