

A letter on suspended animation, containing experiments shewing that it may be safely employed during operations on animals, with the view of ascertaining its probable utility in surgical operations on the human subject, addressed to T.A. Knight, Esq / [Henry Hill Hickman].

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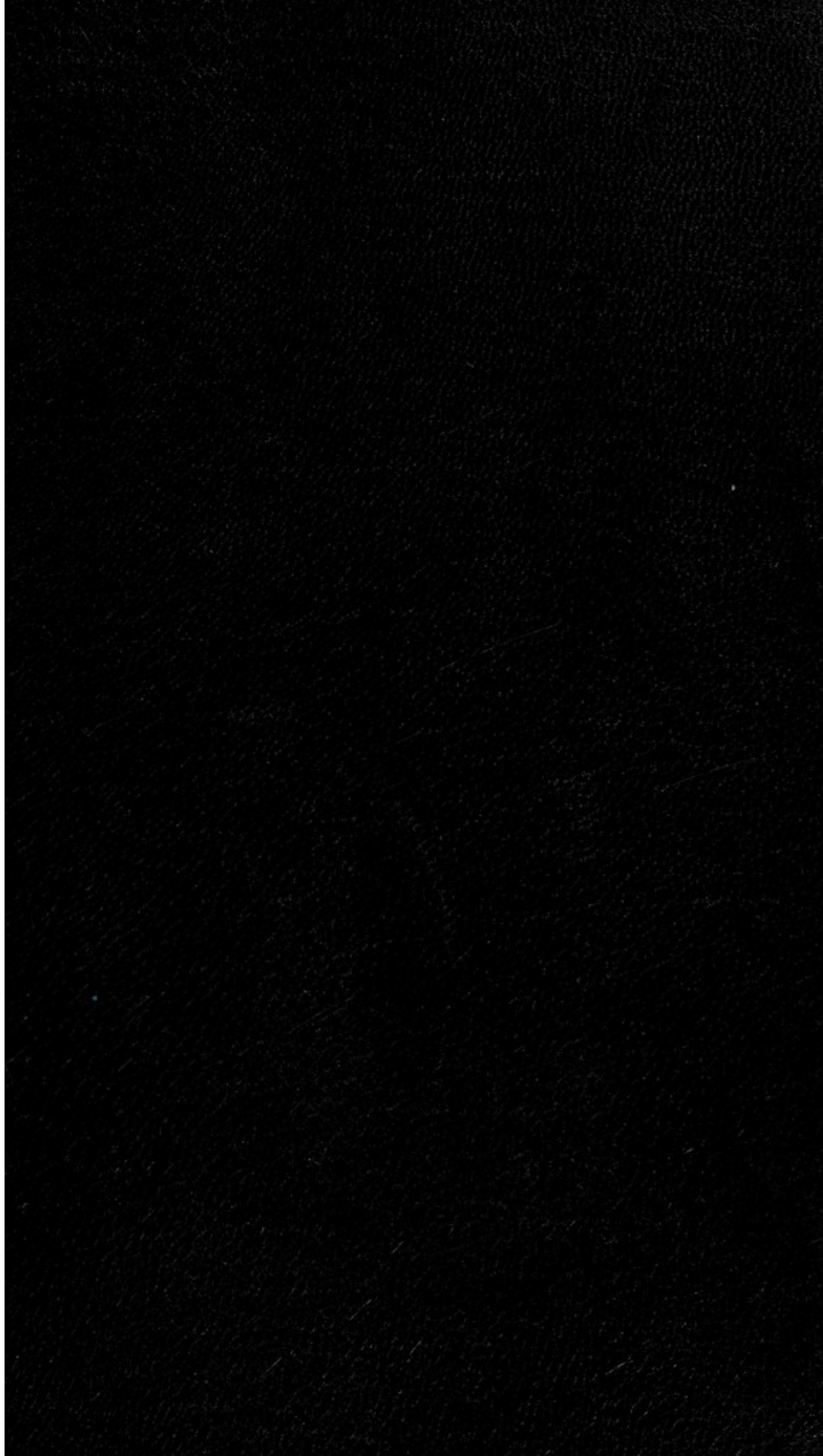
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B. L. Thompson.

Please return to
Miss B. S. Thompson
Netley Park Hill
Moreland.



A
LETTER
ON
SUSPENDED ANIMATION,
CONTAINING
EXPERIMENTS

Shewing that it may be safely employed during
OPERATIONS ON ANIMALS,

With the View of ascertaining
ITS PROBABLE UTILITY IN SURGICAL OPERATIONS ON THE

Human Subject,

Addressed to
T. A. KNIGHT, ESQ. OF DOWNTON CASTLE,
Herefordshire,

ONE OF THE PRESIDENTS OF THE ROYAL SOCIETY,

~~AND ALSO MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH~~

BY DR. H. HICKMAN,
OF SHIFFNAL;

Member of the Royal Medical Societies of Edinburgh, and of
the Royal College of Surgeons, London.

IRONBRIDGE: Printed at the Office of W. Smith.

1824.

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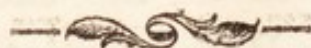
AT the particular request of gentlemen of the first rate talent, and who rank high in the scientific world, it is, that the author of the following letter is induced to lay it before the public generally, but more particularly his medical brethren; in the hope that some one or other, may be more fortunate in reducing the object of it beyond a possibility of doubt. It may be said, and with truth, that publications are too frequently [the vehicles of self-adulation, and

as such, suffer greatly from the lash of severe criticism; but the author begs to assure his readers, that his views are totally different, merely considering it a duty incumbent on him, (as a medical practitioner, and servant to the public), to make known any thing which has not been tried, and which ultimately may add something towards the relief of human suffering, arising from acute disease. The only method of obtaining this end, is, in the author's opinion, candid discussion, and liberality of sentiment, which, too commonly is a deficient ingredient in the welfare of so important a profession, productive of serious consequences, not only to the parties themselves, but to the patient whose life is entrusted to their care. The duty and object, however, of the Physician and Surgeon, is generally considered to be the relief of a fellow-creature, by applying certain remedies to the cure of internal affections, or cutting some portion of the body, whereby parts are severed from each other altogether, or relieving cavities of the aggravating cause of disease. There is not an individual, he be-

lieves, who does not shudder at the idea of an operation, however skilful the Surgeon, or urgent the case, knowing the great pain that must necessarily be endured; and it is frequently lamented by the operator himself, that something has not been done to tranquilize fear, and diminish the agony of the patient. With this view of the subject then, it is, that he submits his observations and experiments to the public in the brief form of a letter to a private gentleman of the highest talent as a man of science, who with others, thought them worthy to be laid before the Royal Society; and if one grain of knowledge can be added to the general fund, to obtain a means for the relief of pain, the labours of the author will be amply rewarded.



A LETTER, &c.



Sir,

THE facility of suspending animation, by carbonic acid gas, and other means, without permanent injury to the subject, having been long known, it appears to me rather singular that no experiments have hitherto been made with the object of ascertaining whether operations could be successfully performed upon animals whilst in a torpid state; and whether wounds inflicted upon them in such a state would be found to heal with greater or less facility than similar wounds inflicted on the same animals

whilst in possession of all their powers of feeling and suffering. Several circumstances led me to suspect that wounds made on animals whilst in a torpid state, would be found, in many cases, to heal most readily; and the results of some experiments which I have made, lead me to think that these conjectures are well founded, and to hope that you will think the results sufficiently interesting to induce you to do me the honor to lay them before the Royal Society. The experiments were necessarily made upon living animals, but they were confined to animals previously condemned to death; and as their lives were preserved, and their suffering very slight, (certainly not so great as they would have sustained if their lives had been taken away by any of the ordinary methods of killing such animals) I venture to hope that they, in the aggregate, rather received benefit than injury. Subjects of different species were employed, chiefly puppies of a few weeks or months old, and the experiments were often repeated, but as the results were all uniform, and as my chief object is to attract the attention of other medical men to

the subject, I wish to do little more than state the general results.

EXPERIMENT 1st. Dogs of about a month old were placed under a glass cover, surrounded by water, so as to prevent the ingress of atmospheric air, where their respiration in a short time ceased, and a part of one ear of each was then taken off; there was no hemorrhage, and the wounds were healed at the end of the third day, without any inflammation having taken place, or the Animals having apparently suffered any pain or inconvenience from the operation.

EXPERIMENT 2d. After the same animals had fully recovered their powers of feeling, a similar part of the other ear of each was taken off; a good deal of blood now flowed from the wounds, and some degree of inflammation followed, and the wounds did not heal till the fifth day.

EXPERIMENT 3d. An experiment was made similar to No. 1, in every respect, except that the suspension of animation was

much more suddenly brought on by the agency of sulphuric acid and carbonate of Lime. The results in this case were not so satisfactory; some blood escaped from the wounds, and a slight degree of inflammation followed, and the wounds did not heal so rapidly as the first experiment.

EXPERIMENT 4th. Mice, having been confined in a glass tube of a foot long, were rendered insensible by carbonic acid gas slowly introduced in small quantities, and one foot from each was taken off; no hemorrhage took place upon the return of sensation, and the wounds appeared quite healed on the third day, without the animals having apparently suffered pain, when they were given their liberty.

EXPERIMENT 5th. An adult dog was rendered insensible by means similar to the preceding, and the muscles and blood-vessels of one of its legs were divided. There was no hemorrhage from the smaller vessels; a ligature which secured the main artery came away on the fourth day, and the ani-

mal recovered without having at any period shewn any material symptom of uneasiness. In this experiment animation was suspended during seventeen minutes, allowing respiration occasionally to intervene by means of inflating instruments.

EXPERIMENT 6th. A dog was rendered insensible by the means employed in experiment first, and an incision was made through the muscles of the loin, through which a ligature was passed, and made tight ; no appearance whatever of suffering occurred upon the return of animation, nor till the following day, when inflammation came on with subsequent suppuration. The ligature came away on the seventh day, and on the twelfth the wound was healed.

As the recital of such experiments as those preceding must be as little agreeable to you, as the repetition of them has been to ~~to~~ myself, I shall not give a detail of any others, but shall only state the opinions which the aggregate results have led me to entertain. I feel perfectly satisfied that any

surgical operation might be performed with quite as much safety upon a subject in an insensible state, as in a sensible state, and that a patient might be kept with perfect safety long enough in an insensible state, for the performance of the most tedious operation. My own experience has also satisfied me that in very many cases the best effects would be produced by the patient's mind being relieved from the anticipation of suffering, and his body from the actual suffering of a severe operation; and I believe that there are few, if any Surgeons, who could not operate more skillfully when they were conscious they were not inflicting pain. There are also many cases in which it would be important to prevent any considerable hemorrhage, and in which the surgeon would feel the advantages of a diminished flow of blood during an operation. I have reason to believe that no injurious consequence would follow if the necessity of the case should call for more than once suspension of animation; for a young growing dog was several times rendered insensible by carbonic acid gas, with intervals of about

twenty-four or forty-eight hours, without sustaining, apparently, the slightest injury. Its appetite continued perfectly good, and I ascertained, by weighing it, that it gained weight rapidly. I am not, at present, aware of any source of danger to a patient, from an operation performed during a state of insensibility, which would not operate to the same extent upon a patient in full possession of his powers of suffering, particularly if he were rendered insensible by being simply subjected to respire confined air. I used inflating instruments in one experiment only, and therefore am not prepared to say to what extent such may be used with advantage; but I think it probable that those and the Galvanic fluid would operate in restoring animation in some cases. I was prepared to employ the Galvanic fluid if any case had occurred to render the operation of any stimulant necessary, but all the subjects recovered by being simply exposed to the open air; and I feel so confident that animation in the human subject could be safely suspended by proper means, carefully employed, that, (although I could not con-

scientifically recommend a patient to risk his life in the experiment,) I certainly should not hesitate a moment to become the subject of it, if I were under the necessity of suffering any long or severe operation.

I remain, Sir,

Your obedient Servant,

H. H. HICKMAN.

Shiffnal, Aug. 14th, 1824.

FINIS.

