On the best method of obtaining the more powerful vegetable preparations for medical use / by Edward Bentley.

ON

A NEW METHOD

OF

TREATING CERTAIN DISEASES

OF THE

CERVIX UTERI.

BY

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LONDON:
G. COX, KING WILLIAM STREET, STRAND.
1852.

LONDON: PRINTED BY W. CLOWES AND SONS, STAMFORD STREET,
AND CHARING CROSS.

ADVERTISEMENT.

THE principal novelty claimed in the following pages is the surgical application of electric heat to the cauterisation of the diseased cervix uteri. The instrumental arrangements for this purpose are extremely simple, and have been described in such a manner, as, it is believed, to render them generally intelligible to the medical profession. The Author would therefore express the hope, that the method he has here proposed will receive a full and careful trial, since the means of putting it into operation are at the command of every medical man.

63 *Sloane Street, July* 1852.

ON A NEW METHOD OF TREATING CERTAIN DISEASES OF THE CERVIX UTERI.

THE attention of the medical profession has been so powerfully directed of late years to the existence of a large amount of hitherto unsuspected cases of uterine disease, and these are of such continual recurrence in medical practice, that any contribution towards a speedy and successful treatment of them will be received with interest. And if it appears to offer advantages over the ordinary method, it will undoubtedly be tried with patience and skill. Such is the object of the present publication; and in calling the attention of the profession to a method of operating in such cases, of the value of which extensive experience has been had, it may be hoped that the treatment here successfully adopted may be equally effectual in the experience of others interested in this department of practical midwifery.

It is a source of regret that hitherto a distinct classification of the varieties of forms of disease affecting the neck of the uterus has not been made. It is apparently a result of this want that the opinions of many members of the medical profession on the subject of diseases of the cervix uteri are at present in so unsettled a state; some believing the existence of local disease to be of extreme rarity, and others of extreme frequency. I feel compelled

to acknowledge that I have been most strongly impressed with the prevalence of this class of diseases. Some years since, when this subject first began to attract the attention of the profession in this country, cases of diseased cervix uteri were repeatedly introduced to my attention during the period that I filled the capacity of assistant to the Physician Accoucheur of University College Hospital; and since that period many have presented themselves before me. It deserves notice, however, that in few of these cases was the existence of local disease even suspected. I am consequently unable to reconcile the opinion that a diseased condition of the uterine cervix is of rare occurrence with the results of actual observation. That disease in this situation is generally so masked by its complications as to mislead both the sufferer and the medical man, is a notorious fact; but that there should be a question as to its existence when digital or ocular examination are not refused, appears to constitute a complete anomaly in medical practice. That the diagnosis is not unattended with difficulty depends upon the general neglect of ocular inspection, rather than upon the want of sufficient and sufficiently distinct physical evidence of the existence of disease. As the practice of uterine surgery improves, the fullest and clearest recognition of every form which disease in this locality assumes will be a necessary result.

This is not the place to discuss the nature of the diseases affecting the cervix uteri, some forms of which have—perhaps in some instances incorrectly—received the name of Ulceration. And in the following pages I have carefully avoided the indiscriminate use of this term. That an extensively diseased, granular, and pus-secreting

condition of the mucous lining within and around the cervix uteri, has existed in all the cases I have treated, and that this has been accompanied by various phases of induration and hypertrophy of the cervix itself, with great debility and extensive disturbance of the general health, is certain,—nor less so, the fact that a healthy local condition, and a corresponding constitutional improvement, have resulted from the treatment (almost exclusively local) I have adopted.

The value of the application of escharotics to a diseased condition of this portion of the uterus has long been known in medical practice, but until of late it has only in France been fully and entirely carried out. The use in uterine or vaginal diseases of astringent injections and such like has been the common practice in England,—the direct instrumental application of the solid and fluid caustics has been that in France. Among these applications the solid nitrate of silver, and astringent substances, formed the slighter kinds of local dressing—the acid nitrate of mercury, the Vienna paste, potassa fusa, and the actual cautery the more severe. The common practice in England is at this moment to use the solid nitrate of silver in all slighter cases, the mineral acids and the acid nitrate of mercury in more severe forms, and the potassa cum calce,* in very obstinate cases. The actual cautery appears to have been scarcely used in English practice.

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* For a very simple and ingenious method of using this powerful but somewhat dangerous substance, the medical profession is indebted to Dr. J. H. Bennett, whose contributions to the pathology of uterine disease constitute valued additions to medical knowledge.

The surgical value of this most energetic agency, the actual cautery, has, however, been long known, though in our own country at least it has been little used. Dr. Bennett, in his work on Diseases of the Uterus, gives a good summary of the facts generally known relating to the employment of the actual cautery as a means of treatment of what he denominates ulceration or inflammatory induration of the neck of the uterus. Celsus, he observes, recommends ulcers of the prolapsed uterus to be cauterised with the actual cautery, and some modern surgeons have proposed the same means of treatment, as, for instance, Percy and Baron Larry. It does, not, however, appear that their suggestions were ever acted upon until adopted by M. Jobert de Lamballe, the surgeon to the Hôpital St. Louis, Paris, who has for many years resorted with great success to this mode of treating diseases of the neck of the uterus.

The manner in which M. Jobert applies the cautery is by employing a conical ivory speculum as a protection from the radiant heat of the instrument—ivory being a bad conductor of caloric. One, two, or three olive-shaped cauteries heated to whiteness are then extinguished on the part of the cervix which has to be cauterized. But little pain is experienced by the patient either at the time or subsequently,—the eschar falling from the ninth to the tenth day according to its depth. M. Jobert believes that he has obtained better and more satisfactory results under this course of treatment than by the employment of the more powerful chemical escharotics—which, as I propose again to observe, are certainly open to some serious objections.

As may be readily conceived, the application of the actual cautery in the manner above described, would naturally excite great trepidation and fearful anticipation in the mind of the patient. The presence of the furnace for heating the instruments, and the inevitable confusion and bustle attendant upon their rapid removal from it, created a most undesirable degree of apprehension, although the actual pain experienced was probably not more than that of an ordinary dressing with the nitrate of silver. In private practice it would appear almost impossible to adopt this method, in the absence of the facilities afforded to the hospital surgeon. It is therefore easy to understand that however beneficial in its influence over the disease, other means would be, and have been sought, so that the use of actual cautery in diseases of the cervix has been chiefly confined to the practice of the surgeon in question. For my own part, rather than subject my patient to the intense alarm likely to be excited by such causes as are above described, I should prefer to exhaust the list of escharotics in the search of a substitute. If we add to all these the risk of a misdirection of the instrument in the hurry of seeking to apply it while yet glowing to the diseased surface, enough will have been said to indicate its unsuitability for general practice, however successful in the skilful hands of M. Jobert.

Yet I am fully convinced of the value of cauterization by caloric in almost every form of disease of long standing of the cervix uteri—if only a means could be adopted to which the above objections do not apply. What is required (if such treatment is to be adopted) is an instrument capable of being heated to whiteness without a furnace,—without

fire in short, which could be applied even in a cold state, the heat being developed at the will of the operator, being instantly under his control, and the instrument being of the ordinary dimension of the caustic holder. The fulfilment of all these conditions might seem at first sight impossible; yet I am enabled to show not only that it is really possible, but that I have extensively and with success used such an arrangement.

For some time before I could reduce the idea to a practical form, it appeared to me that in the incandescence of a heated wire, by the resistance it offers to the electro-galvanic current, a most valuable aid to the surgeon was promised, and I rejoice to find that on the Continent, and partially also in England, a wire thus heated has been used as a substitute for the knife, in the division of soft parts and in the cure of fistulous sinuses.* Having several cases of obstinate disease of the cervix uteri at that period under treatment, I determined to apply a wire thus heated to small parts of the diseased surface, and to observe its effects. For this purpose I obtained two small lengths of wire insulated by a coating of gutta-percha, which I twisted together so as to form a rod, leaving the ends free and bifurcated. The lower ends were then connected with a good galvanic battery, and a twisted platina wire connected the upper ends, which I contemplated applying to the diseased cervix. On completing the circuit, the platina wire was instantly heated to whiteness, and on breaking the connection with the battery, it was as quickly

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* I would particularly refer with pleasure to the publication of Mr. Marshall on the uses of electric heat in surgery.

cooled again. Such was the rude form of instrument I first adopted. On practically applying it to the cases in question, I became fully convinced of the value of the principle, however imperfect the means, and in a short time I was equally satisfied as to its influence in hastening forward the progress to cicatrization of some very intractable forms of disease. The minute surface touched by the heated wire rendered it necessary to apply it several times in succession over even a small area of disease, and it became evident that for any practical value it was necessary to increase the heated surface, and also to prolong slightly its intensity of action, since the wire was instantly quenched on touching the granulations of the sore. It was also necessary to have the heat so thoroughly under control that by the simple pressure of the finger it would be turned on or off at will. I believe the following simple instrument which may be made without difficulty at home, will be found to answer every purpose for the cauterization of disease of the neck of the womb. At least it has been constantly used by me in many cases, and as yet I have seen little occasion to desire a better.

The instrument consists essentially of two conductors of the current electricity, the lower ends of which are connected with a battery, and the upper are united by a platina wire coiled around a porcelain tube. A good-sized silver catheter, straightened out and the end cut off, forms the body of my instrument. At the upper end it was slit open and broached so as to form a socket for the porcelain cauterizer, and also to admit the internal wire to pass out. Within the silver tube a piece of stout copper wire, clothed with an insulating covering—an old elastic catheter answers

every purpose—is contained, and appears at the upper extremity, where the wire is left bare for about half an inch for the attachment of the platina wire. On connecting the lower end of this wire with one wire of the battery, and the surface of the silver tube with the other, we have a very firm, simple, and compact arrangement of the two poles. At the upper end, where the heat is to be developed, these poles are separated by a tube of porcelain, a little thicker than the ordinary stick of nitrate of silver. The object of this tube is to support the coil of platina wire intervening between the two extremities of the poles, that is to say, between the end of the silver tube and that of its contained copper wire. But it fulfils a far more important purpose—it serves as a reservoir of heat, and gives, in short, to the instrument all its novelty and value in a surgical sense. About a foot of thin platina wire is made into a coil, and the one end being firmly connected to the internal copper wire, and the other to the upper end of the silver tube, the circuit is thus completed, and the electric current in passing from the copper wire to the silver tube, heats to incandescence the platina wire through which the connection is made. As this is coiled round the tube of porcelain,* its heat is imparted to that, and a body of intensely heated material is thus obtained over an extent of about three-quarters of an inch in length. Immediately that the circuit is broken by removing the wire from the battery from its contact

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* A piece of the stem of a common tobacco-pipe, about an inch and a half in length, answers very well, and is of a convenient size for general use.

with the surface of the silver tube, the heat disappears,—reappearing instantly on making contact again.

With the description above given, it may be hoped the reader will find no difficulty in fabricating a similar arrangement for his own use. It would not be difficult to give this instrument a more complicated aspect, and perhaps, in some respects, to increase the convenience of its use, by a somewhat different arrangement of the battery wires, and of the means for making and breaking contact. But in the simple form above described its efficiency is complete, and the advantages of simplicity and economy of construction are not sacrificed. Should any medical man find any difficulty in obtaining such an apparatus, and feel desirous of having an instrument made after the model of my own, I would be happy to place it in the hands of any competent surgical instrument-maker for that purpose.

The battery power I generally employ is a good Grove's battery of five cells, which, if in good working order, is generally sufficient alone, and a cast-iron, or "Maynooth" battery, of four cells. For every purpose two Grove's batteries, of four cells each, give a sufficient intensity of current electricity to heat to whiteness the cautery I have recommended. It is very desirable to have a full supply of battery power: the cautery should always be white hot to be of practical value. The conducting wires may be of copper wire rope, which is very flexible, and thus easily adapted to the position of the patient; but they should be sufficiently thick to offer no resistance to the passage of the electric current, otherwise a portion of the power of the batteries is absolutely lost. In order to obviate the

annoyance of the nitrous fumes evolved, and not less importantly the apprehension found to be occasioned by the sight of two batteries in work, I generally arrange them outside a window, and altogether out of sight, the wires alone entering the apartment where I operate.

The cylindrical form of cautery is perhaps the most universally useful, but when necessary, small olive-shaped pieces of porcelain may be used, which can be made to order at the potter's. Such olives should have a cylindrical stem, to fit into the socket formed by the upper part of the silver tube.

The pain of this operation is generally less than that of applying the solid nitrate of silver to the cervix uteri. This will not appear surprising to those who are familiar with the application of the electrically-heated wire to the relief of toothache. The instantaneous operation of the cautery appears to destroy the sensation of the parts to which it is applied. If a lower degree of heat were used, it might then be somewhat more painful. In the great majority of instances in which I have used it, the persons have said they felt little or no pain, and they have generally considered the simple operation of dressing with nitrate of silver a more serious one (in regard of the sensations experienced) than the application of the actual cautery. So little apprehension has arisen in the minds of those on whom I have used this instrument, that in no instance where it might have been proposed have they expressed a fear of the repetition of its use.

It is necessary to remind the reader that, however painless the operation may comparatively appear, it is nevertheless one which requires prudence and discretion in its

performance, for the agency employed is one of intense activity and power. The heat of the cautery above described is different from that of an ordinary cautery in this important respect, that it is a *self-maintained* heat, and is consequently capable of producing a far deeper eschar than that of the common cautery. This cautery is also distinguished by the important advantage of being capable of instant ignition and of extinction at the will of the operator. Its use must consequently be under the guidance of a skilled experience,—a remark, it may be observed, applicable in equal proportion to every other operation on these organs. Yet I believe that less risk is actually incurred in its employment than in that of the potassa fusa, and other violent chemical escharotics.

An important advantage of this cautery is the precise limit capable of being assigned to its effects. If the potassa fusa run over the edge of the cervix uteri on to the vaginal walls, it may cause very serious mischief, and at the least, troublesome sores are produced in perfectly healthy parts. Such is the case even when the milder acid-nitrate of mercury, is employed. There is a constant risk of extension of injury to healthy parts, and although in skilful hands this may be greatly or wholly obviated, the risk still remains. From this disadvantage the cautery I have contrived is entirely free. With a good supply of battery power it might even be laid *cold* on the diseased surface, and instantly heated to the necessary degree at the operator's discretion. There is no risk of directly affecting other parts than that desired to be destroyed, and the depth of the eschar is absolutely determinable by the prolongation or otherwise of the application, or of the contact

of the conducting wire with the surface of the silver tube. The small size of the instrument—the instrument used by me is not thicker in any part than a quill of small diameter—is also a great advantage, since even when a very small speculum is used, it may be guided by the eye precisely to the seat of mischief.

The following is the method I have adopted in its application. The patient, in ordinary cases, is placed in the usual obstetric position, on the left side, in a good light (daylight). I believe that to be the best position for this, and indeed for almost all the common operations on the cervix uteri; and by a little tact, a very complete view of the disease can be gained without unnecessary exposure of the person or removal of the apparel. A cylindrical speculum of glass, protected by caoutchouc or gutta percha, is then introduced, and the diseased surface is fully placed in the field of the instrument. This may almost always be accomplished by rolling the speculum round, when the indurated cervix quickly protrudes into its upper part. The glass being a bad conductor, does not permit the heat to be felt by the patient, and as the whole operation is very quickly done, there is not the smallest risk of its fracture—at least, I have used the same instrument constantly without injury to it. But if a fear were entertained as to its use, then an ivory speculum may be used, or the ordinary bivalve instrument, the lateral openings being protected by a slip of metal. Contact is then made between the wires, and the porcelain is almost instantly heated to the fit temperature. In this state it should be steadily and quickly introduced through the speculum and laid on the diseased surface for a second or two, or if a deeper eschar

s required, for about three or four seconds; the contact is hen broken, and the instrument withdrawn. Sometimes here may be a little hæmorrhage, but this always yields o the application of the solid nitrate of silver. As a eneral rule, I apply the nitrate of silver after the appli- ation of the cautery, since it is possible that some portion f the diseased surface, either externally or within the ervix, may have escaped its action. The patient is then irected to keep in bed for two or three days, and to reserve a recumbent posture as far as possible for a week r ten days, until the separation of the eschar. This I onsider to be an almost indispensable condition to the omplete success of the operation.

After the operation, for two or three days pain may be lt, and there may be some local tenderness. There is ften, also, a coloured discharge. This, however, is cer- inly not unsalutary when confined within due limits, lieving, as it does, the congested condition of the blood- essels in the diseased organ. In about a week the patient covers her usual condition, and from that time the im- rovement in her state is pretty constant. The after eatment consists simply in the application, occasionally, the nitrate of silver for a few weeks, until complete catrisation has taken place. The patient not unfre- uently considers herself to be worse on the separation the eschar, and the purulent discharge following that rocess appears to confirm this supposition. In a little hile, however, this discharge diminishes and soon ceases holly, and the corresponding constitutional amendment proportionably rapid.

With regard to the time occupied in the cure I may

here state, as a general fact, that cases can be cured much more rapidly by this method, if it is skilfully and intelligently used, than by the ordinary means.

In the after treatment I would attach great importance to the thorough employment of injections. Among the poor this is a point to which much attention ought to be directed, for the price of any instrument of efficiency is often beyond their means. For such cases I have contrived a very simple and economical instrument. It consists of a piece of gutta-percha tube half an inch in diameter, and six feet in length, the lower end of which is curved upwards. To the upper end is attached a small piece of vulcanized caoutchouc tube, and when the instrument is to be used this is slipped over the mouth of a tea-kettle into which the injection (or cold water) is poured. On the latter being placed on the shelf and the other end being introduced to the seat of disease, a constant and pretty forcible stream may be obtained by tilting the kettle forward. A siphon of the same kind has also been recommended, but it is less easily understood and used than the simple tube above described.

From the progress made by many of my patients after the application of the electrical cautery, I am disposed to believe that in many instances the cure might proceed from that time without further remedial assistance. But the time occupied would be undoubtedly longer than if the nitrate of silver were steadily applied, so as to preserve a healthy character in the granulations of the sore.

I have applied this method of treatment to a very considerable number of undoubted cases of disease of the cervix uteri, and I can conscientiously affirm that in no single

stance has it ever been followed by any bad results. On the contrary, intractable disease has rapidly assumed a healthy character, induration and even inflammatory hypertrophy have gradually disappeared, and an amount of progressive and rapid amendment has taken place which I have never been able to secure with the most diligent employment of ordinary escharotics.

I append a few notes of some cases in which I have successfully used this plan of treatment, some of which are of an interesting nature, and which I trust to have the opportunity of illustrating on another occasion at greater length.

S. H., aged 50, an unmarried person. Her most prominent symptoms were a distressing sinking at the chest, with atonic dyspepsia, pain in the side, and a muco-purulent discharge streaked with blood, attended with bearing down, and irritation of the bladder and rectum. There was inflammatory induration, and an extensively diseased condition of the cervix. The use of the cautery was followed by some hæmorrhage, and much purulent discharge. She rapidly got better, and the constitutional amendment was as striking a result as any obtained. The duration of this patient's previous illness and local disease, extended to seven or eight years.

S. H., aged 40, a married woman; had borne several children. Attention being directed by the patient herself to the existence of uterine disease, a partially prolapsed and greatly hypertrophied and diseased cervix was revealed on examination. The effects of the cautery in resolving the indurated condition of the diseased part were very distinctly marked.

E. R., aged 24, married, but without children. The irritation of the bladder in this case was so intense as to occupy all the patient's attention, and until it was suggested to her that the uterine malady was the probable cause of this distressing symptom, she had not entertained even a suspicion of the fact. She had frequently to rise many times in the night to relieve herself. Her face wore that peculiar expression so often found to be characteristic of uterine disorder. The local and general symptoms were all rapidly relieved after cauterisation of the diseased cervix; and the patient was cured of a disease, which for five or six years had been a continual burden.

J. L., aged 37, married, had borne six children. Pain in the back, left side, and prolapse of the uterus, were her chief causes of complaint, and were all referrible to a retroverted, and generally diseased state of the cervix uteri. The cauterisation was followed by a temporary increase of her former pains, but these yielded very quickly to an injection of laudanum into the rectum. The disease assumed a much more healthy aspect, and was in progress of recovery when the patient was last seen.

M. S., aged 21, married, had one infant. Palpitation, general debility, much muco-purulent discharge streaked with blood and pain shooting down the legs and at the bottom of the stomach, were her most prominent indications of the existence of the local malady. The use of the cautery was followed by marked improvement, not less in the condition of the sore than in that of the general appearance.

S. P., aged 41, a widow, had borne ten children. Long-standing disease of the cervix had reduced her to a state of

reat debility, and her mental condition was very deplor-
ble. Other means failing, the cautery was used with
ltimate marked benefit and speedy amendment. The
nlarged cervix diminished quickly in size, and the
eneral state of the health quickly improved.

C. C., aged 45, had borne four children, had one mis-
arriage. This was a case of disease of the cervix attended
ith the appearance of white membranous patches over
he diseased surface. It proved very intractable; but
horough cauterisation alone was capable of modifying the
haracter of the disease, and reducing it to a healthy form.

M. A. D., aged 38, married, had borne seven children,
nd had four miscarriages. The mental anguish and trouble
f this patient was very striking. She had the constant
orror of a fear of the commission of suicide. The cervix
teri was very distinctly ulcerated and hypertrophied, and
ll the usual symptoms of disease were present. In about
month after the use of the cautery the most distinct
mendment took place, and the decline of the mental dis-
rbance was simultaneous. After the separation of the
schar the patient imagined her local ailment worse, but
n examination a few weeks after she was found nearly
ell! Her own words were, that she now felt "quite
omfortable in her mind." She was perfectly cured.

S. L., aged 37, had borne one child, but had suffered
ven miscarriages. The diseased condition of the cervix
lly explained the fact stated. This disease had existed
r at least thirteen years, reducing the sufferer to a state
f great debility and misery. The cervix was greatly
nlarged and most extensively diseased. The constant
yspepsia and sinking of the chest, with the inability to

walk or exert herself, rendered her life miserable. The cautery was used on two occasions with great benefit, and when she was last seen, her local disease was almost well.

It is not necessary to extend this list (which, however, might be easily done), as my object is simply to show the variety of circumstances under which the patients have been labouring upon whom this method of treatment has been adopted by me. The connection of repeated abortion with uterine disease in the last case is very deserving of notice. The instances of its successful use above given, will at least show that cauterisation by the method I have introduced has been made on a scale sufficiently large* to give good results as to its value, and with this view principally has the list been here produced. Some of the cases in which I have used the cautery remain still under treatment, but not one in which its application has not been followed by results more or less encouraging.

I have used this method of cauterisation in other diseases to which women are subject, and particularly in that of vascular tumour of the urethral orifice—a disease which has latterly, through the able investigations of my friend Mr. H. B. Norman, received much attention. In one instance I destroyed the tumour with the same instrument which I have used for disease of the cervix uteri. On seeing the patient some time after, she expressed in the strongest manner her sense of the relief and comfort she

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* I have applied this method of cauterization by electric heat to about twenty-one distinct cases of diseased cervix uteri. The application of the old method by the actual cautery to so considerable a number of cases has probably not yet been attempted in this country.

ow enjoyed,—contrasting it with the sufferings of pre-
ious years. I have also applied it to tubercular disease of
he tongue, and to the destruction of unhealthy granu-
ations of ulcers of long standing. The results I have
btained have satisfied me as to its real practical value
o the surgeon, in all instances where the vitality of
ranulating surfaces requires to be thoroughly modified.
ought, perhaps, expressly to disclaim all intention of
ttributing therapeutical importance to the electricity of
he heated wire; it is unquestionably its incandescence
lone which renders it valuable as a means of treating
iseases of granulating surfaces, or being employed in any
ther instances where the actual cautery might be used.
For the common diseases of the neck of the womb, the
esults I have obtained by the method I have intro-
luced, and here attempted to advocate, appear to me to
warrant a high estimation of the value of cauterisation
n the manner I have here described.

I express a candid conviction, resulting out of a
houghtful cousideration of the cases which I have treated
n the principles laid down in these pages, when I state
ny belief that cases of diseased cervix uteri may be more
effectually and rapidly cured by this method than by any
f those adopted in ordinary practice. I may also be
llowed to give expression to the hope that, if this plan is
dopted, its employment will be accompanied by all those
precautions which are necessary to the successful per-
formance of any surgical operation.

LONDON: PRINTED BY W. CLOWES AND SONS, STAMFORD STREET,
AND CHARING CROSS.