On

The Ergot of Wheat.

With a short account of the natural history and therapeutic use of Ergot generally.

by

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1858.
In modern obstetrical practice, there is perhaps no substance so generally used, and of whose nature soluble is known by the majority of our profession as the ergot of rye. That it is a disease condition of the placenta that it produces, or even uterine contraction, since that it is a safe agent to employ for this purpose, when, administrated according to certain rules, at certain times, seems sufficient for all practical purposes, to most medical men, but with regard to its natural history, the laws which govern its peculiar physiological action, or even the comparative measure of the value of different samples, most men not excepting even our drug merchants, remain in a state of comparative ignorance.

Surely, it cannot be an unimportant matter for us, even if we neglect the more scientific, though never abstruse study of its action, to have some acquaintance with the natural history of a medicine, the employment of which is so extensive and the effects of which so beneficial. To know why one dose should be powerful while another...
is used as nearly so— to be able in short
to purchase an agent whose action will not
disappoint us, while we reject another which
from its appearance we can undeniably
pronounce to be bad.

But before employing
any substance whatever as a medicine it
would be well for ourselves, and well for our
patients, if we only were those of whose phys-
iological actions we were well acquainted.
And it is therefore much to be regretted that
this as well as many other drugs have been,
used in an improper manner, that prejudice-
ing the minds of many of our more tradi-
tional practitioners against its use, though fre-
quently causing credit to accrue to those who
employ it by chance successfully, but without
knowing why they have succeeded.

With this object
in view. Therefore, we propose in the following
papers briefly to enquire into the subject, and
endeavour in the first place to prove by a—
short summary of its natural history and ther-
aputical action, that it is a medicine of
great value when of good quality and in—
A proper state of preservation... Secondly, to point out the disadvantages under which we labor by employing for medical purposes, an ergot so unstable in its nature, and unequal in its virtues as the ergot of rye; and thirdly, to bring under notice the ergot of another grain, the same which possessing essentially properties is more the less, better adapted for general use than that which we usually employ.

What is ergot and how is it produced? Naturolly it is mostly agreed upon the point, that this body is an alteration of the grain, but much diversity of opinion has prevailed among them, respecting the cause of this alteration. By some it is ascribed to circumstances local or atmospheric, as heavy rains, or unwholesome dews or fogs. By others it is believed to be produced by the puncture of certain insects. Díez Surpasse that he could produce ergots artificially by puncturing with a very fine needle the brood tubes of certain insects of this order of certain class of type. At the present time generally subscribe to the opinion of De Candolle and Paulet who regarded ergot as a disease of the grain produced by an
parasiticus fungus. Mr. Leviti, however, much
careful attention to the study of this parasite, and
in 1826 his researches were published by the Lin-
naean Society of Paris. The observations of M.
Leviti, which throw much light on this im-
portant drug, show that the disease, principally
manifest itself in the summer, after heavy rain,
accompanied by thunder, and that it is de-
veloped in the grain itself between the integu-
ments and the pericarpse. Invisible at first, the
fungus soon increases in size, and at last bursts
the envelopes of the grain. The pericarpse, which
was at first of minute size, once white, becomes
elongated, hard, and brittle, and of a yellow co-
lour, emerges from between the husks, and just
before it the fungus, which may now be found,
at the extremity of the grain. This fungus, when examined,
its found to be of a yellow colour, soft, of a dis-
agreeable fishy odour, and a sweetish taste. In
structure it appears to be formed of several tubes,
limited towards the centre, and its surface present
small concretions, like those of the grain. If a
small particle of this body be put on the pole of
a microscope, and touched with a drop of wa-
ter, it will be seen to dissolve in part, and that
the water contains an immense number of little
grains or spherule, which are infinitely small in an-
real form, and transparent. It is likely received that
we meet with this spherule in the reports of our
medical practice. Owing to its extremely fragile
nature it generally becomes detached prior to its col-
lection. The remains of it however may be gathered
seen on the surface of the liquid as a coating of
yellowish colour, which readily dissolves or is
washed off when exposed into water. Is it to the
or to the proper substance that the liquid owes its pe-
culiar properties? No experiments have as yet
been made sufficiently convincing to settle this que-
tion; but if this theory be the correct one, we can
very easily explain why it is that the liquid of
Pyre, is so often found insipid and uncertain
in its results; and if this is the true explanation
we ought to expect those liquids whose surface is
smooth and glossy, as well as those which are
broken into fragments, the former having been
exposed of its more active parts by friction,
while the latter has been altered by inherent or sus-
cipive heat; and that kind alone selected
which either still carries the fumes at its sur-
face or is at least entire and covered with a
dusty coat.
The physiological action of ergot is now too well established to admit of a doubt. Nevertheless, many have ascribed its effects to imagination, in the same manner as the eagle stones, tying the skin of an acute source the patient leg, and many other chances have been known to produce or lessen uterine contraction.

In reality, however, ergot produces a strong muscular contraction of the uterus, often dangerous to the child if the labour is accelerated by the continuous pressure exerted on it. The contractions induced by its use differ materially from those which occur during labour. The normal contractions of the uterus are intermittent. The organ is thrown into a violent spasm, which is followed by a period of rest. But all who have used the ergot know that the contractions which succeed its employment have a peculiar and especial character. The contraction continues permanent so long as the influence of the drug has begun to be felt. Your hand be placed over the abdomen of our patient at this moment of the va...
will be found to be in a state of complete pain.

Patients themselves recognize the difference if they have previously borne children without assistance. Their countenance exhibits a different expression, having more of intense suffering and less of effort depicted in it than in an ordinary pain. In general they bear their suffering more impatiently in consequence of the unceasing nature of the contractions. The action generally commences 10 to 15 minutes after the administration of the drug, and continues about an hour and half after it has begun.

It will therefore be readily understood how dangerous to the life of the infant must the prolongation of the contraction to any extent, for the violent contraction of the muscular fibres of the uterine cannot but endanger the fate placental functions by impairing the circulation in the vessels which permeate its substance. Hence should never be administered therefore but in cases where we can foresee a possible termination of the labour. It is consequently contraindi-
Where any mechanical obstruction tends to the expulsion of the child. It is from the violation of this rule, that any untoward result has happened. And that the convented approach has been gained for it.

"Pulvis est parturient, pulvis est parturientem".

That the Yonge subject has the power of circulating contractions of the uterus when they have been suspended. I think no one now denies. Have it also the power to create them when they have not previously existed?

Experiments with a view to settle this question were made at the Convicts de la Faculte at Paris by Paul Balles in 1837, which indicated that gentleman to answer it in the negative. Since then new experiments have had the effect of modifying this opinion; and he now holds that in certain cases, Yonge may be used for the purpose of inducing premature labor.

Mr. Bignam still holds a contrary opinion (Traité de la naissance, p. 541). He maintains that the experiments were not sufficiently numerous to define the question, and affects that in some cases the effect appears to produce abortion, in others it proves a complete failure.
He also adduces in support of this argument the fact that in three countries, where the breed of the inhabitants frequently contains quantities of Ergot, abortion is not a more common occurrence than in other places. But he forgets that habit may modify its action.

Dr. J. H. Renneloth has published in the Medical Gazette for parts 4th and 14th 1854 a Table of 55 Cases in which it was used for the induction of premature labour, comparing it with 36 cases in which the means were employed, where while it sufficiently proves that Ergot possesses the power of causing uterine contractions, also demonstrated the fact that it is not a trustworthy method of inducing premature labour; for of the 55 children born after the administration of the medicine, though 53 were born alive, 5 were in convulsions speedily after birth. Now in this country the death of a child in convulsions within a few hours after its birth, is a very rare occurrence, and if we take into consideration the fact, that in those countries and seasons where Ergot has raged as an epidemic, convulsive seizures as well as gangrene
of the extremities, have been every common
symptoms, almost constant symptoms, we can
not withhold our opinion that the deaths
of these children so soon after their expul-
sion, can be fairly laid to their being in-
terior the preterm while in utero, and its con-
tinuing to produce its beneficial effects on this
organization, and to develop its especial
influence even at a time when they were
no longer subject to its immediate operation.

were the operation completed, successful in
establishing premature labour, a fatal ten-
to its general employment would exist in
the fact, that cases of premature labour are more frequent
in premature labour, whether spontaneous
or artificial, than in full term pregnancy.
In 74 cases given by Dr. Herriman in the
premature labour, out of 150 of the chil-
dren presented prematurely, and only one
of these was saved. Of 45 cases of premature
labour (not induced) occurring during last
winter session (1857) at the Hospital Clinique
at la faculte Paris, 8 presented by the breech
or lower extremity, and 3 were cases with pre-
ium 11 postnatal presentations, or a propor-
tion of nearly one to four.
The increased danger to the child to the mother when any other part but the head presents has been already seen.

Another important use to which the ergot has been applied is in cases of post-partum hemorrhage. It is immaterial to us who employ it, whether it acts in such cases by causing contractions of the uterus, or by a more direct influence on the blood itself; it is an effectual remedy to this evil as such, is largely depended on. Perhaps the true explanation of its action of its action however, may be formed by adopting the theory that it is a coagulator of the blood. After destruction the veins and sinuses of the uterus being full of blood, while the circulation is more languid, coagulation slowly takes place; hence the muscle contracts to expel the blood from its substance. It is an erroneous idea to suppose that the ergot has a specific action on the uterus. On the unimpregnated uterus it has no action. It has utterly failed me as an oxytocic agent, even if pregnancy be of 3 or 4 months duration it has no perceptible action. That it has the power of coagulating the blood is shown by
Modification of the parts most distant from the heart, being the effects when taken for any length of time.

While attending the clinic of Mr. Bouchard at the Hotel Dieu of Paris, I had an opportunity of seeing this remedy tested in a case of Hemiplegia, which had resisted the usual remedies of lead and opium, Sulphuric acid etc. The forgot was administered in grain every 4 hours. On the second day after the commencement of this treatment, all distressing symptoms had disappeared, and under a tonic treatment with wine and nutritious diet, the patient rapidly convalesced, and was able to resume his employment in a few weeks. Now in this case it cannot be denied that the forgot showed itself as possessing considerable virtues and almost of a specific character and there is one recommendation to its use in such cases that must not be overlooked, that it is neither a stimulant nor an exaltant.

Forgot has also been employed in the treatment of paralyses, there never seen it employed for this purpose, but the following
Are these instances related by Dr. Caneva, of the Hotel Dieu, Marseilles, in support of its efficacy?

Case I. A man aged 59 of strong constitution, after having looked for some time in a damp situation, was attacked with paralysis. The paralysis was complete during 18 months accompanied with incontinence of urine, but it then commenced to clear up. The patient, to walk a few steps, though with dragging of the limbs and irregular gait. The affection had lasted four years and the treatment had been various. On January 2, half a gramme of legot was administered, and the dose was daily increased to 2½ grammes (38.75 grs.). In the course of February there was marked improvement. On March 15 the patient walked to the bath without aid. Toward the end of April the incontinence of urine had disappeared, and on May 31st he was out—vested.

Case II. A man aged 49 addicted to spirits and liquors, had trembling and anesthesia of the lower limbs, he recovered under the same treatment in two months.

Case III. A man aged 23 had been exposed in Algeria to damp during 4
days. This was followed by fever and delirium which lasted for a fortnight. During
convalescence, he found that he had paralysis of the right arm. When the limb moved
the right leg became affected and then the left. He had paralysis and incomplete anal
sensation in both thighs. After various modes of treatment had been tried in vain for three
months, ergot was given in the same doses as above mentioned. In 29 days there was
marked improvement, and the cure was complete in three months.

Ergot is also an
admirable remedy in sexual affections &
setting pure paralytics. D'Allen of Man-
signy published a paper on the use of er-
got, in the treatment of divers kinds of dis-
tension of urine, in which gives as his
experiments, that he has found it invaluable
in paralytics of the bladder resulting from
the distention (B) in paralytics resulting from
central hemorrhage (B) in incontinence of
urine.

There is only one other use to which er-
got has been applied viz. in removing the
caterpillar of the puppy, produced by the
bites of the
I have seen Dr. Desmarches employ it for this purpose in a patient of his and succeeded in removing a dilation, which had been for some days excessive, and had caused the employment of various colligia. The Ergot was prescribed to be taken as snuff. Might it not be used with advantage in cases in which dilated pupil occurs arises from other causes?

With these facts before us therefore we cannot withhold the conclusion that Ergot is a substance of incalculable service in many forms of disease, independent of its oxytocic property. How comes it then that so much scepticism exists in the profession as regards its action; and how does it happen that so many have discontinued its employment, though persuaded of its virtues in re-animating uterine contraction? It is inconstant in its effects. Every one who has been in the habit of using it and almost every author who has written
On the subject, we have reason, in the opinion of Linnet, that it rapidly loses both its medicinal and poisonous properties, and that to keep it in a proper state of preservation requires many precautions. Exposed to the air, says Bauge, “the ergot quickly becomes dry and loses the greater part of its poison and therapeutical properties, whereas the necessity of preserving it in bottles, hermetically stoppered, of preserving it at the time of use, and of only using such as has been collected within a year.”

But even with these precautions we are not secure against losing a worthless variety, according to Mr. Kleije of Berlin. “The action of the ergot of rye collected when the grain is in the ear is very energetic while that collected during the harvest is almost null.”

It is but right hence to state that the action of time upon the ergot has been esteemed by some authors of eminence,
In the Materia Medica of M. Rousseau occurs the following opinion. "M. Bonyuen affirms, que l'oeuf blanc à l'intérieur est aussi inerte que celui, qui est vitale, l'oeuf réduit vermoulu, pulvérise, meun, et élevé à l'air, après longtemps, n'a rien perdu de ses qualités."

M. Millet seems to hold the same opinions, for he says "Avec le temps, il ne perd ni ses propriétés médicinales, ni ses propriétés toxiques, et la poudre preparée depuis longtemps, les conserve également bien."

These are the only two authorities of any eminence who hold that it is not injured by time. The majority of writers on Materia Medica as well as Accoulers, agree that it is comparatively weak, if kept more than a single season. But whatever be the cause of this uncertainty in its action, that such uncertainty does not exist, cannot be the slightest doubt.

The statistics of its operation in France according to my respected teacher.
Mr. Pajot are as follows. In 1176 cases published by 62 authors it succeeded completely in 1851, moderately in 114, and failed entirely in 131. This does not appear at first sight to indicate a large amount of failure, but it must be borne in mind, that the Egyptian in France, is of a better quality and that greater precautions need to be taken to preserve it properly than in this country. It is this account enjoys a much higher reputation than among us. And these statistics have been collected from authors who are favorable to its employment. Mr. Delaporte, professor of medicine in the medical school of Grenoble, gives as the proportion of failure one to five. The Egypt of Grenoble is justly esteemed the best in France. And Mr. Delaporte, average of failures is therefore very high indeed.

In this country I have been unable to collect statistics of its success, but judging from experience I am led to say that the failures with the preservation ought considerably exceed the successful cases. I have been...
more successful with the Egypt, but ever since I have found useless and unsatisfactory, and the generally received opinion among country practitioners (who must necessarily labour under disadvantages with regard to their supply of medicine) seems to be that if another eyphic tonic could be found, more reliable than the Egypt of Aug, it would generally adopted.

The Egypt of Wheat which so far as I am aware has not as yet been tried on this side the Channel has long enjoyed a deserved supremacy over that of Aug in France, more especially in the more southern departments. In the department of Aug it is Diverse, in particular, it has been greatly substituted by the medicine and accustomed for the Egypt of Aug, not from anything that has been written or said in its favour by distinguished authorities, but simply from a tacit understanding that it is a more trustworthy medicine, and that therefore the Egypt of Aug should never be used.
When the best of Wheat can be procured.
This of course cannot always be done, because never having been made the object of a special industry, it can only be had in irregular quantities. At Claremont Fer-
"tain, however, the manufacture of mac-
aroni and macaronelle is carried on
to a considerable extent. In the circum-
stances already mentioned, when speaking of the development of the recipe, it not infrequently manifests itself in the com-
mon use in this manufacture, which before coming into the hands of the Miller is sub-
jected to a careful assortment by women
appointed for this purpose, by whom at-
long with other impurities it is first nice.

The fact of there being a necessity for
this assortment of the grain, shows, that
the appearance of best among the wheat
is not a casual circumstance but a
 habitual occurrence. I have not been able
to ascertain from what time or why the
pressing of the grain became necessary
but I think that the fact may be taken
as inferential evidence of its toxic properties. Rather, as I am able to state how long the women charged with this occupation have sold the root, which they recognize by its dark color and elongated form, to the midwives and physicians of the province. All that can be said on the subject with certainty is that it has been sold for many years in Blackburn and other parts of the province. What is known about its existence is that it is only known by its existence from its being set by various chemists as a better price of physic. Many of the midwives who come to study the materia medica or clinical practice of the various departments, express astonishment that there should be any difficulty in finding it in the capital, but this is very easy becoming top soil, as several chemists now habitually obtain the extract of wheat or such as white flour mixed with the extract of rye with advantage to this last as a medicine.

The character of the extract of wheat can well mark the use, and its easily recognizable, even when mixed with the other extract. If we compare this...
grain for grain, the difference between the
two sorts, will appear in so evident a man-
ner, that the most inexperienced, cannot
fail to distinguish them. The following are
the most prominent differences:

I. Form. — The Escut of rye is elongated
and oval-shaped, generally curved and mottled
with longitudinal strie of unequal depth
and length.

The Escut of Wheat approaches
more nearly to the natural form of the grain.
The longitudinal strie are unequal in
length and some are deeper than others.

II. Length:

<table>
<thead>
<tr>
<th>Grain</th>
<th>Average length</th>
<th>Length of the shortest specimen</th>
<th>Longest specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rye</td>
<td></td>
<td>3 lines</td>
<td>13 lines</td>
</tr>
<tr>
<td>Wheat</td>
<td>Seldom surpasses two lines</td>
<td>longest specimens 3 lines</td>
<td>shortest, somewhat under 2 lines</td>
</tr>
</tbody>
</table>

III. Breadth. — At first sight, the wheat
seems to be the broader of the two, but this is
owing to the greater length of the rye.

IV. Colour. — Externally they are nearly
similar in colour, but the interior of
the kernel of wheat is of a darker hue than that of rye. Both bear with a yellow
like flame, but that of the kernel of wheat has a reddish tinge, which the other do
not possess. Moreover it is more difficult to ignite.

II. Paste. Difference if any not appreci
able.

II. Smell. Nothing less nauseous than the kernel of rye.

Microscopical features of the two kernels. I. Dust obtained from the surface.

This appears to be composed of porous, having different shapes, some being elong
ated, and others being irregular, in form, but whether different in kind or merely
fragmentary, it is difficult to say. The dust appears to be alike in both kernels.

II Section in the long axis.

Wheat. This presents a
triginted appearance, under the know-
scope, of black streaks, on a yellowish
ground.

Rye. A uniform white
surface without any approach to the stri-
ated appearance described above.

This appearance
in the two ergots is constant and may be seen by the naked eye.

If the surface of this section be scraped and examined, it will be found to be composed of the two ergots of different kinds of granules. In the wheat they will be found to be identical with those described as the dust obtained from the surface, whilst in the ergs they are regularly spherical and have to all intents the appearance of starch granules.

Action of Iodine.

With the ergot of wheat iodine gives no apparent reaction; while the ergs show a perceptible bluish tinge.

The active principle of ergot is said to be contained in an oil, but more properly can only be considered as having a similar constitution to curara. It is obtained in a similar manner.

The ergot of wheat differs little from that of erg; both are miscible in water, but the wheat imparts a pinkish, while the erg gives a yellowish tinge to the solution.
Action of Time on the Eregt.

As regards the effects of time on the Eregt of ry and the precautions necessary for its preservation, I have already spoken. Nothing similar has as yet been seen in the Case of the Eregt of wheat. It is neither acted on perceptibly by time, nor has the same precautions required to be adopted for its preservation.

I regret that I am unable to give here any facts bearing on this important property as the result of my own experience, beyond that I have used it many times in testing labours with less having been disappointed in its action.

Mr. Porcher, the principal medical man at Blackwell, has employed the Eregt of wheat at least 250 times, and has never found that irregularity in its action so much to be complained of in the Eregt of ry. Although he has not received his supply since the autumn of 1853—during which year the disease seems to have been more prevalent among the crops, than usual.
In conclusion, allow permit me to quote the following statement in its favour from the gazette des hopitaux, because coming from so high an authority as Dr. Robert de Lambal, it may be justly regarded as the best possible testimony in its support.

The medicinal and physiological properties of the Eryg are as incalculable as those of the Eryg of life, and its effects are as powerful, as direct and as great.

Its hemostatic action appears at all times certain. I have administered it several times against abundant discharge of blood after labor, and it has instantly and fully succeeded in arresting if not completely arresting the hemorrhage, and this without appearing to produce any stimulating action on the uterus.

Gaz. des hop. Aug. 1835

This finishes what I have to say respecting the Eryg of Wheat. The remarks I have made are necessarily crude and imperfect, and I am not disposed to place upon them more importance than they really deserve. They can lay no claim to brevity, except in so far as they attempt to give a faithful, I would hope also an accurate description of a medicine which I believe was never known to Decky, but cannot fail always to repay the pains