Blood-red Milk
in
Woman
by
Thomas Whitelaw, M.B. (1687)
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June 11, 1891

Dear Sir,

I send you my separate parcel of my thesis "Blood-red Milk in Woman" or rather conforming to the requirements of the University.

Yours truly

[Signature]

Professor Turner
Dean of the Faculty of Medicine
Edin University

I have to report to you the rapid progress being made in interesting modes of her finished works, warranting to the student an easy and light access to her. Many life-long ideas from the ordinary perhaps more or less with in the life. Some become explainable, for whatever his theory of evolution, there appears to be little difficulty as to its value in explaining much that, without it, was previously dark and incomprehensible.

If one turns his attention to...
Blood-red Milk

in

Woman

Notwithstanding the rapid progress that has been, and is being, made in unravelling the curious and interesting modes by which nature presents her finished works, it is often almost discouraging to the student to find constantly cropping up some anomaly that at first sight seems to impair the results of frequent life-long researches. These deviations from the ordinary course of nature are perhaps more particularly startling when met with in the higher forms of animal life. Many of them, no doubt, have become explainable through the genius of Darwin; for whatever view one may take of his theory of evolution, there appears to be little doubt as to its value in explaining much that, without it, was previously dark and incomprehensible.

If one turns his attention to...
man in his onward march in civilization, he will find that it bears a striking resemblance to what may be found in tracing the lower forms in both the vegetable or animal world up to the more specialised and perfect specimens. For instance, we have but to examine even curiously the slow progressive steps shown in the development of instruments of peace or of war, of government, or of social life, to convince that, as in nature, the primitive stage exhibits simplicity itself. As we ascend the scale both in civilization, or in the vegetable or animal kingdom, specialisation is everywhere observable. But the analogy between the works of man and those of nature, does not end here; for, year after year, and again, some archaologist brings forward some instrument or custom of former days in support of the old saying that there is nothing new under the sun. Likewise the observer of nature is constantly bringing before the world some curiosity to excite the attention and interest of his fellow-citizens.
It would be out of place here to go further to the analogy existing between the workings of man and of nature, the only object in doing so at all being to emphasize the fact that in both there seems to be an universal tendency to specialization, and to a regression to things and conditions that exist, or have existed in times past. The reference, however, appears to be necessary, as the subject of this paper will be found to have done, though it may be considered distant, connection with what is to be seen from time to time, namely, a regression in the condition of man to that existing in the lower types of animal life.

With what may be called an universal law existing, whose tendency is toward specialization, it is not surprising to find that there is not merely specialization of members of the vegetable and animal world, but likewise of the individual parts of these with special functions to perform. Of the latter, none perhaps are more interesting...
or more imperfectly understood than those concerned in secretion. In the
Nettle, we have probably the simplest form of specialization, the secreting apparatus
consisting of a single closed cell. Other
examples in the vegetable kingdom exhibit a high type, in which there is not merely
the secreting cells, but channels for the
outlet of their products. Turning to the
animal world, we can trace a gradually
increasing elaboration of structures devoted
to secretory functions. Thus in the Alleghany
in the Homarus vulgari we find specialized
structures for the secretion of a protective
material. As we ascend the scale of
animal life, we find the specialization of
parts for secretion becomes more complicated
until the highest forms are reached in the
mammals.

The matter secreted may serve,
as the structures producing it. This protective
mixture; in others it is what may be
called attractice, as for example the nectar
of honey; or it may be nutritious like that
of the mammary glands. The last is often of great importance in the case of women, the secretion affecting largely the health of the children. Thus it follows that anything abnormal in the anatomical arrangement, or in the function of these glands, must of necessity arrest the attention of the physician, and demand every consideration at his hands.

Abnormalities in the quantity and quality of the secretion of the human breasts are not of common occurrence. There may be the condition of galactorrhea, or there may be entire, or almost entire absence of milk after confinement. But what is often of much greater importance, from the physician's point of view, is the occurrence of an altered state of the constituents of the secretion, of the relative proportions of these, or of the component elements of the fluid. As to the first, we may have, for instance, the fat globules abnormally small; as to the second, fat may be increased, rendering
digestion difficult. In regard to the last, we may find abnormal substances present in cases where the mother is under medicinal treatment, or where there is inflammation of the mammary, secretions also be when blood and pus corpuscles may be found.

It seems to be rare, however, as far as literature reveals, to find blood in the human milk in such quantity as to give the secretion the same robust, such a condition, no doubt, or to be found at times in the case of cows; but, so far as my researches have gone, there does not appear to be any recorded case of such an abnormality having been observed in woman.* It will be of interest therefore to glance at the particulars of a case that came under my care, in which the mammary secretion resembled more that of the red milk sometimes obtained from cows. The following contains the

* See Appendix p. 111
6 Dec 1889. Asked to see a young married woman (M. R.) who was pregnant for the first time, from whose breast 'fluid' had been oozing for some time. On calling I found her to be a well-formed woman, above the average height, very dark-complexioned, with a somewhat sanguine temperament. Her health was in every way satisfactory, her only complaint being the flow of 'fluid' from the mammae. All her organs appeared to be in a healthy condition. She stated she expected to be induced in a few days, and that the last time she had been unwell was in March last. 'Blood began to ooze from the breasts in June.'

I took a specimen of the fluid from the breasts, which resembled milk in consistency, but whose colour was like that of venous blood diluted with a liquid of a water-like consistency.

7 Dec 1889. Was called to see M. R. about
about 9 P.M., the labour pains had set in. I immediately attended, and on arriving found labours progressing fairly well, but the pains were not close. The progress, however, became slow, and ultimately the pains almost ceased. At 11 A.M. applied the forceps, and delivered a full-formed and well-developed fetus. It never showed any signs of life. In fact, there were evidences of decomposition having begun, the child having been apparently dead for at least a week. The placenta was removed without difficulty and an exceptionally small amount of blood was lost. On examining the placenta, I found many points of fatty degeneration and clear evidences of recent haemorrhage into it. This led to inquiries as to the feelings of the patient prior to her confinement. This checked the fact that in some weeks previously she had had "shiverings" on an average of one a week, the last occurring a week before the birth of the child. Probably the shiverings amended.
coincided with haemorrhage into the placenta. There were no grounds for suspecting asphyxia.

The lying-in period was not marked by anything unusual, beyond an occasional slight rise in the temperature. On the day of confinement, after the birth of the child, patient had a blading at the nose.

While this case presented no very special features from the purely statistical point of view, yet the unusual presence of a form of what may fairly be called "Blood-Red Breath" induced me to investigate as far as possible the family history of the patient, as well as that of her own. The result of my inquiries are hereunto given.

**Family History**

**Father.** Alive - Age 50 - Widower. Always been healthy, but has been subject to bleedings from nose.

**Mother.** Died at age 42 of Pneumonia. During illness had no haemorrhages.

**Children.** Three of a family, all alive.
Two daughters and one son.

Son. Age 30. Healthy. When young was subject to attacks of free bleedings from nose.


Patient. Age 28. Has always been healthy. At 15 began to menstruate, after which bleedings at once became of frequent occurrence. A week before period one often lost a great deal of blood from nose, the temperature of which fell at one time unusually high, at another time peculiarly low. Right breast shows a scar, said to be the result of a wound from a spike when a child. Urine free from albumen.

Since confinement has experienced from time to time a "breezy" feeling, passing from the legs up to the back.

Menstruation lasts 3 or 4 days.

She could not give me any information as to the cause.

Aunt. Sister of the father. She used to bleed yearly at once before her marriage but has not done so since. She has exhibited
no abnormality in the way of lactent 

decretum.

The fluid

Only a passing notice has been 
made relative to the fluid itself. Many now 
however, with advantage direct attention not 
only to its appearance macroscopically and 
microscopically, but to its characters as revealed 
by chemical analysis.

The first specimen (consisting of fluid 
from both breasts) was taken on the 17th day 
preceding the confinement. It cannot 
be better be described than by the word "brunilé", 
its colour approaching that of venous blood 
that has been diluted by some lightercoloured 
fluid. Its consistence appeared to be much 
the same as that of rich cow's milk, differing 
in this respect from the watery appearance 
usually presented by human milk. 

Specimens taken subsequent to 
confinement showed a gradually lessening 
darkness of colour. Latterly the colour

more
more nearly resembled that of milk obtained
from cows immediately after calving, but still
retaining more or less the tinge of Renton's
renneted blood. This latter condition was, no
doubt, due to the presence of a
greater proportion of the natural secretion
of the breasts.

An examination of the fluid by
the microscope revealed the presence of fat
globules and colostrum cells as usually found in
milk. There was nothing abnormal in these,
either as regards form or outline. In addition
blood corpuscles could be made out, but only
in limited numbers, and showing no tendency
to form masses. This occurred, however, only
in the earlier specimens; for, in the later while
the reaction of blood was still with the texture
of leucineum and other, no blood corpuscles
could be seen in the field of the microscope.
In this connection, it is to be kept in view that
the above test is by no means reliable in
milky fluids.

So far as a permanent record
of the appearances presented under the
microscope
microscope, I had several of the specimens photographed. Unfortunately, owing to an unusual pressure of work in my practice, caused by the epidemic of influenza (1889-1890), I was unable to arrange to have the earliest specimens photographed at once. Thus the samples of the fluid taken on 1 December 1889 and 23 December 1889 were not photographed for some time afterward. In consequence, the photographs of these now form opinions must be considered almost valueless, but they are inserted for what they are worth. They are numbered 1 and 2 respectively. The other photographs, numbered 3 to 5, give an excellent representation of the appearance of the specimens under a lens of 250. No 3 is from a specimen of the secretion taken from both breasts on the 14th March 1890, when the photograph was obtained. No 4 & 5 are from the same specimen; but in these, the specimens were mounted in Ehrlich's medium, as, by means of the latter, I thought a clearer outline of the objects would be left. The result has justified the experiment, and
and there is no evidence of the fact being acted on by the medium.

The examination and analysis of human milk seem to have had less attention paid to them by obstetricians than the importance of the subject demands. Numerous cases must be within the knowledge of most practitioners where children did not thrive when fed exclusively on the breast, not from an inadequate supply of milk, simply, but from some cause or other that appeared inexplicable. The cause, however, might possibly have been found to be frequently due, not to any peculiarly of the digestive organs, or idiopathy in the child, but to some abnormality in the quality of the milk. To give one striking example that occurred in my own experience shortly before the case here dealt with came under my care may not be out of place. A woman in perfect health was delivered of a healthy child quite normally. A few days later, she had an abundance of milk; but, from the day she began to
more the child, it became pale and steadily lost flesh. As there appeared to be no disease about the child, I directed my attention to the mother's milk, examining it microscopically, and not being satisfied with its appearance, I had it analysed—see Table I p. 16. The latter examination revealed the fact that the constituents were not in the proportions usually found in normal milk. Following on this, the child was partly fed by the bottle. Still the child did not do well. Then the maternal nursing was entirely stopped with the most satisfactory results, the child growing rapidly, and becoming plump and firm. The importance may be stressed on the point that the case indicates the importance of careful examination of a mother's milk in doubtful cases of nutrition, and still more the necessity for a thorough investigation of milk which presents to the naked eye some abnormality. Thus in this third red fluid, an analysis was absolutely essential for guidance in the rearing of the child, which, however, unfortunately
# Milk Analyses

## Table I.

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<th>Normal</th>
<th>Abnormal</th>
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<tr>
<td></td>
<td>Two hours after Birth</td>
<td>Ten weeks after Birth</td>
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<tr>
<td>Fat</td>
<td>3.11</td>
<td>2.27</td>
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<tr>
<td>Albuminates</td>
<td>9.12</td>
<td>2.16</td>
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<tr>
<td>Sugar</td>
<td>3.44</td>
<td>4.12</td>
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<td>Ashes, Organic Bodies</td>
<td>2.14</td>
<td>2.62</td>
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<tr>
<td>Mineral Matter</td>
<td>0.46</td>
<td>0.33</td>
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<td>Water</td>
<td>84.17</td>
<td>38.50</td>
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<table>
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<tr>
<th></th>
<th>Fat</th>
<th>Albuminates</th>
<th>Sugar</th>
<th>Ashes, Organic Bodies</th>
<th>Mineral Matter</th>
<th>Water</th>
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<tr>
<td>Newborn Milk</td>
<td>2.444</td>
<td>3.36</td>
<td>0.48</td>
<td>1.76</td>
<td>0.69</td>
<td>67.27</td>
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<td>Milk one hour after Birth</td>
<td>2.46</td>
<td>14.10</td>
<td>2.86</td>
<td>1.20</td>
<td>0.49</td>
<td>70.34</td>
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<td>Milk one hour before Birth</td>
<td>0.11</td>
<td>12.07</td>
<td>Trace</td>
<td>1.18</td>
<td>0.08</td>
<td>65.76</td>
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## Table II.

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<th>Louis Milk</th>
<th>Milk as Reported</th>
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<tr>
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<td>Fluids at Birth</td>
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<tr>
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<td>Before Birth</td>
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<tr>
<td>Phosphoric Acid</td>
<td>0.03%</td>
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</tr>
<tr>
<td>Ash</td>
<td>0.09%</td>
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</tr>
<tr>
<td>Nitrogen</td>
<td>0.71%</td>
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Note: These analyses were made by Mr. W. Simon, M.R.C.V., Lecturer in Chemistry and Analytical Chemist, Surgeon's Hall and New Veterinary College.
The samples submitted to Mr. W. Grann Macadam were taken within twenty four hours of the woman's confinement. As the full particulars of this single analysis would afford little guidance in the consideration of such a case, I give two tables of analyses in words, that a comparison may be made of the differences in the constituents of samples. In the first, a comparison is shown of the analysis of a normal human milk, and of one whose relative proportions of the elements appeared to be such as to suggest that the child fed on it deteriorated in health. In the second, analyses are given of an's milk taken sometime after calving, and immediately after parturition.

Taking Table I, we find that fat is in large proportion in normal human milk immediately after birth; while, in both specimens of abnormal milk, this substance is relatively small in amount, especially in the blood-red milk. Again the albuminates of the milk in the examples...
prove show a large proportion both in the normal and abnormal. In the abnormal specimen, however, the amount is quite exceptional and approaches that of the milk of the cow at a similar period—see Table II. Sugar, on the other hand, appears to be smaller relatively immediately after confinement, and also in the immediate case before as likewise, though it is not the last tenth of that the sample was taken a few hours before the birth. The difference, however, is so small that it seems scarcely to involve the comparison. It is very striking that in the blood-red milk there should be merely a trace of sugar. But it is no less remarkable to find the small proportion of mineral matters in both abnormal specimens.

The differences here shown between normal and abnormal milk are exceedingly interesting, but I am unable to offer an explanation of them either practically or theoretically. No doubt in the case of the milk containing blood, one would both from a qualitative and from milk in a normal condition.
Even with this before us, it is difficult to account for the small proportion of fat and of sugar. Still, the presence of blood due to acute inflammation has a great extent the success of Alburninates.

Information as to the abnormality under discussion is so entirely absent that one turns gladly to the lower animals for some light on the subject. In doing so, one feels not altogether unrewarded. Thus, in the case of cow's milk, more attention has been paid to its analyses, notwithstanding its importance as an article of diet. Looking, therefore, at Table II, we find the constituents of the milk, just shortly after calving, presenting a condition not unlike that of the woman's case receiving attention. In examining the figures given, we see that fat in the milk just taken from a cow after calving is in a much larger proportion than in that of a woman.

The figures exactly with that of normal human milk (see Table I p. 16), while the proportion of the fat in the colostrum milk of the woman is exceptionally small. In the
other hand, if we compare the proportions of the albuminates and sugar, we find a marked analogy between the constituents of milk of the cow and that of this woman. In the former (albuminates), there is greatness, and in the latter (sugar), a marked deficiency. In this case it is not unusual to find that in the "Beastings," which may explain the large amount of albuminates present. Blood in "Beastings" is attributed to acute temporan, but in the woman's case, such an explanation does not suffice. The other items surely call for remark.

The value of these analyses will not be questioned; while, on the other hand, it must be admitted that they do not throw much light upon the causes of such a condition in women as that reported. They may indicate, however, a field of inquiry where more information may.

* Analysis of milk, condensed milk, and infants' milk.  
  Milk store - Dr. Lister - New York 1872.  
  J. B., quoted from England.
may not be obtained. Still, while this woman's condition in so many respects resembles a similar and not infrequent one in the law, the explanation of it in the latter part of veterinary works does not altogether apply to the woman. The acute angina cited as the cause in this case might have been accepted had the blood-red fluid of the woman only appeared at, or near her confinement. It follows, accordingly, that another cause other than acute angina must be looked for.

Probable Causes

I. Constitutional.

In endeavouring to unravel the pathological condition of a case so rare as the subject of this paper, there is perhaps nothing to which we more readily turn for information than to the hereditary predisposition of the family. Here, however, there is little to guide us; for, while we have a history ofpageTitle

[Signature]
than a negative opinion. As regards pathosis, it may be dismissed without comment.

With regard to nasal haemorrhage, however, a moment's consideration is necessary as the possibility of haemophilia recurring as a hereditary trait requires to be looked into. In the particular case, there is evidence of a slight haemorrhagic diathesis, but it is confined to the nasal mucous membrane, there being no other indication of such a peculiarity. Besides this there is to be noted the fact that it is comparatively rare to find the female exhibiting the symptoms of such a diathesis, though curiously enough inheriting the power of its transmission to her offspring. Briefly, therefore, appears to offer one little aid.

It may be suggested that we have here a case of hermicious anaemia to deal with. But the possibility of this may, I think, be disposed of without difficulty. The patient was entirely devoid of the appearance which a person suffering from hermicious anaemia usually presents, and was besides in the assigned
of what could not be called other than good health.

II Local Pathological

Turning now from the possibility of an explanation in constitutional disease to that of local pathological conditions, we are met with a variety of notable cases. These may be taken as an illustration.

Nothing of the nature of her erosions were found on the breasts.
In regard to ulcers, there was no evidence of either past or present.

The breasts afforded nothing objective nor subjective symptoms of mastitis.

The preceding views may be laid aside as throwing no light upon the subject.

There is a pathological condition found in the mammae of women, in which blood at times can be pressed from the nipples. Not we find what are called Retention Cysts. These cysts differ in character and in the cause from me to them. In the simple retention cyst, a familiar example
of which we have in the fallopius tube, there is a gradual dilatation of either the hemi
or of the ducts. In this class of cysts, there is nothing that would account for the
phenomena of the case before us, and accordingly
further amount upon them would be useless.
In the other division of external
ects, however, we have what are called
Luminal cysts (Brickley, R. T. 1874, p. 178), the
cause very likely to which is to some extent
drawn. There may be single or multiple,
and are said to be often caused by injury.
According to Burton they occur in women
above 35 years of age, who have borne children
the exciting cause of which frequently appears
to be a allows in the breast. These cysts are
lined with epithelium, varying in form
with their site, and containing fluid which
may be either serous or blood-like in character.
Within these cysts there may be intra-epithelial
growths, consisting of delicate branching papillae,
very vascular, and covered by epithelium
similar to that lining the first walls. It is when
these papillae are present that we find
the
the antiseptics of the exuto of the nature of blood. Where we find the presence of these
cysts, with intramural fibroses, we may also
have blood oozing from the nipples, or it may
be possible to attain this symptom only on
pressure. Now the question arises, but these in
this pregnant woman's breasts a series of these
cysts with their subjacent fibroses? So far
an external examination revealed at the time
(eight months after confinement) there was no
evidence to be detected that could lead us to
suspect their presence. Referring to the history
of the case, it will be seen that there existed
the fact of an injury to one of the breasts
only. While the knowledge as to the cause
of nodular degeneration is not precise,
not what there is of it points to its occurrence
in those who have borne children, and who
have reached an age beyond 30. In the
case before us, we have a woman, pregnant
for the first time, 28 years of age, and with
a history of having received an injury twice
one breast. It must be conceded, however, that
this is quite compatible, notwithstanding the negative
evidence
Evidence adduced, that multiple glandular cysts, with internal vascular capsulae, might account for the presence of blood and milk. At the same time it appears strange that a condition, by no means rare, should not have manifested itself more frequently, and thus have led to its being noted. Admitting, one would look, as in the possible pathological condition, for the presence of epithelial cells in the fluid, seeing that the source of the fluid would be the precapsulae, covered by epithelial cells. Weighing all the evidence for and against the possibility of such a condition explaining the phenomenon of blood and milk, it is difficult, with the information at one's disposal, to do otherwise than admit that this departure from health might account for it.

It would be that the condition above referred to may, in some cases, be the starting point of malignant growth. When it does so, we have a cancer, with cysts containing intracytoplasmic

* Gullet Vol II 1884 p 733
intensive growths, which present symptoms not unlike those found in the benign form, but with, in addition, the character and features presented by the malignant form. However, there were no indications of malignancy in the case, reference to the possibility of such is insufficient.

III. Congenital

Surgery vice to such a condition as that under review, we may suppose the presence of one of three possible defects. First, an abnormally large blood supply. Second, some physiological defect in the function of the secretory tissue. Third, an incompleteness in the cells in certain parts of the Azioni which are concerned in the production of the natural secretion of the mammary.

Surgery there was present an unusually rich blood supply, what might one naturally look for as indicative of such a circumstance. In this first place, from the excessive pulsation, we might expect that these would be not merely degeneration of the secreting cells.
cells, but possibly also proliferation of these. This would not lessen the congestion, but would rather tend to its aggravation. The sequence in this we can imagine to be thearbon well of the capillaries, or of the venous vessels. With the escape of the blood, however, we should expect to find a breaking down of the epithelial cells, and the presence of these in the fluid among from the breasts capable of demonstration. Determination of the secretion was repeatedly subjected to microscopic examination, but with entirely negative results. From the photographs of some of these — Dec 13, — it will be seen that there is no evidence of these cells. While it is difficult to put one's mind of congestion from a free blood supply forming the main element as productivity or curing a state of matters, yet the evidence, so far as produced, negates the idea of its being the principal factor.

With regard to the second

Defective

Physiological

Function

Potable defect, one is met with the same

reactive proof as regards the presence of epithelial cells in the fluid. One can imagine the

secreting activity of the cells of the patients mammary

being
Long less than normal, and prone to a congested state from their inability to deal
with even a normal supply of blood. There is a semblance of probability
that such a condition may exist in this woman's case, as her constitution is somewhat
of the phlegmatic type. But, as in the preceding,
when the congestion became so great as to force
rise to the offensive of blood, we should certainly
expect to find epithelial cells in the secretion as
evidence of the condition. Of the absence of
these factors despoils of the possibility of an
increased blood supply, it must be likewise
held to be sufficient a negative any conclusion
that this possible defect (deficient protoplasmic
function) explains the presence of the blooded
fluid.

There is considerable difficulty in
discerning the third possible abnormality, as
information is entirely wanting as to whether
such a defect has or has not existed. But it has
frequently happened that what are just assumed
as a hypothesis to arrive at an explanation of
phenomena has eventually been found to be a fact.
and thus valuable data for future observations
been obtained. It does not seem in this case
therefore, to be training and imagination too far
to assume the possibility of the absence of
some of the cells specially concerned in the
cellulation of the milk secretion of the breasts.
Now, supposing such a defect to exist, in
what way may it throw light upon this subject
that the blood supply to the mammae is
large, and exceptionally so in pregnancy as well
enough known, but the knowledge as to its
distribution around the areola is far from
being as exact as one would desire when
dealing with an unusual abnormality.* Having
for present, however, that such areolae is literally
culled with blood by means of the finer

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*Since this was written, I have had an
opportunity of seeing some beautiful sections of breasts, showing
the blood supply to be very complete. In these one could
see the vessels beside the basement membrane on
which the epithelium of the areola rested. For this I have
to thank Mr. Wells, assistant to Professor Chance.
I. Stems of Mammary Gland during Secretion of Milk

II. Stems of Mammary Gland with Apparent Deficiency in the Cellular Lining.
vessels and capillaries, one may be able, by looking at a section of an acinus, to see how it may be possible that a milk secretion may be mixed with blood. In the accompanying rough diagram of an acinus during an active state, we see that the whole interior is lined by the cells concerned in the production of milk. If, instead of a continuous lining of these secreting cells, a condition occurred in which the acini were only partially supplied with such cells, we would then have an anatomical arrangement of the secreting apparatus that might lead to the presence of blood in the milk produced. Again, using the same diagram, but omitting the cells in the half, we have an acinus only partially lined, but with, we will suppose, a normal blood supply. So what would perhaps meet the case, imagine an acinus here and there entirely devoid of its cellular lining; for, in the case here supposed, the dark-coloured fluid came from only some of the openings in the ruffles. In either of the conditions supposed, when the activity of the
the mammary gland excised, as in pregnancy, a full supply of blood reaches it as in a normal breast. But here where there is an anatomical deficiency, there would be at the same time a physiological one. The quantity of the blood required in the elaboration of the milk would not be utilised, and we would have congestion taking place in the region not anatomically perfect. The congestion that might arise would more probably take place in the venous vessels, as stagnation would more readily occur in them than in the vessels carrying the arterial supply. We would then have a condition in which an escape of blood might occur, which would bring the natural secretion formed in parts where the secreting tissue was complete. Now, were we to attempt such a fluid to microscopic examination, we would not expect to find any evidence of the presence of epithelial cells. The fluid of the erupted case entirely answers such a state of matters; for while there is clear proof of blood being present in
Milk Abnormalities in Cow

Inquirers may be interested, if not interested, to learn of some of the abnormalities found in the lactation secretion of the cow, whose milk, at times, presents characters not dissimilar to those under consideration. This seems the more necessary when one reflects upon the frequency with which observations have been made pointing to the occurrence of a disease of type in a higher form of life than existing in a lower.

In looking into the veterinary literature on this subject, there are to be found references to pathological conditions in the horse, bitch, goat, sheep, cat, and cow, in which the milk of these is so altered as to present an appearance not unlike that of the woman whose case has been given in detail. The conditions are most frequently met with in the cow, but this may be due to the great attention paid to this animal's secretion.
the case there are four pathological states, in which there is found marked alteration in the secretions of the lactent seeretum. These are all of an inflammatory nature, with the exception of one, which is designated "Pathological Congestion of the Mammarial". This, however, coincides more nearly with the case underlined, differing in the material fact that, while blood is present in the milk, there are also epithelial cells to be found in the fluid.

Inflammation of the Mammary are divided into three classes, viz:  

1. Catarrhal  
2. Phlegmonous  
3. Parenchymatos  

It is unnecessary to deal in detail with these types. In the first and third, there is a blood-tint in the secretion, while in the second the secretion is almost suspended, there being only a serum-like fluid put.

* Armstrong's Cattle Sect - Edt 1884 - p. 607  
Veterinary Statistics (Heming) - Edt 1878 - p. 680
the catarrhal and parenchymatous forms, the milk in microscopic examination exhibits the presence of epithelial cells. While, therefore, we have conditions in the lower animals closely simulating the case before us, there are characters in these that present their being accepted as sufficient explaining of the affection giving rise to the blood-red fluid of the human. First, in what is called "Pathological Lameness of the Mammals," we have a state that does not usually last more than forty-eight hours, in which streaks of blood are only rarely found in the milk, and in which the presence of epithelial cells can at times be demonstrated. Secondly, in the catarrhal and parenchymatous inflammations, there are the symptoms of acute inflammation in most cases. Besides this, there is the important fact of epithelial cells being present in the secretion.

Before concluding the remarks upon the abnormalities in cow's milk, it may not be without some benefit to again refer to the "Beautys" - Sep 19. A tree has already been made use of the resemblance between
there, and that of the blood-red fluid of sperm. The fact of these resemblances occurring in an animal whose form of pregnancy as a rule coincides with that of a woman cannot but arrest attention. Can it be that in this woman we have a reversion of type, modified by the peculiar characteristics peculiar to the human female? At the most, one can only admit the bare possibility of such a circumstance; for the information bearing on the case is unfortunately not only extremely limited, but equally indefinite.

General Review

While some interesting facts have been brought forward in connection with the subject under review, it is exceedingly unsatisfactory to have to admit that, after all of them have been fully considered, so little can be legitimately deduced in support of a positive conclusion as to the nature of the
the condition give rise to what I have called "blood-bred thickamen". It is often a question whether we have not here something more than a single determining cause. Probably there is a combination of factors at work in the production of the phenomenon. There appears, for instance, to be a slight hereditary taint of the haemorrhagic habit in the family of the woman whose case has been enumerated, and the herd might be almost closed as a blood of the third degree. If to this predisposition be added the presence of glandular leucocytes (evidence of which is, however, absent), one might be disposed to say that it was unnecessary to search further for an explanation of the abnormality. But the acceptance of this is surrounded by objections which have already been referred to. And, on the other hand, the theory advanced of a defective cellular lining of the wall of the humerus has hitherto met with favour which seem to carry some weight, while the objection to the want of even collateral evidence is support.
Support of it, cannot be ignored. Again, the possibility, though it may be a supposition, that the condition is more or less dependent upon a previous injury should not altogether be lost sight of.

In conclusion, it may be remarked that in the treatment of the subject there has been nothing in the literature relative to the manœuvre other to aid or direct the action. There is the more remarkable leaning to the importance of the manœuvre, and to the difficulty one has in believing that in such a condition has not previously been observed and recorded.

TREATMENT

But as more information has been gathered on the unusual condition, all treatment must be more or less empirical. It may be considered under two heads —
1. **Mother** -
   (a) During pregnancy
   (b) After confinement

2. **Child** -

I. **Mother** -

 Were a case of the kind to come under the care of the obstetrician sufficiently early, it is quite possible that something might be done to modify the tendency in the fact of haemorrhages having taken place into the placenta in the case reported, we have an indication of what might possibly be of service in controlling the symptoms. From the good results so frequently obtained by the liberal use of chlorate of potash in placental haemorrhages arising from other causes, it seems justifiable to suppose that an equally satisfactory effect might be produced upon administration here. With it might be combined both iron and arsenic. It might be thought desirable by some to put the patient under a course of mercury; but unless there was some suspicion of syphilis, the treatment does not appear to be one demanding
recommendation.

The treatment after confinement can scarcely be a subject of dispute if the lacteal secretion retains its abnormal character. Suppression of the secretion as early as possible should be aimed at, and the attainment of this will probably be best obtained by the local application of some preparation of belladonna. If this is not sufficient, atropine would on moderate doses intravenously combined with some ataraxia, might be found useful.

As an experiment, the child might be put to the breast in the hope that the mammae would perform their function naturally when created without physiologically.

II. Child.

The management of the child is indicated in the preceding. It seems far from probable that a child would thrive on a secretion similar in character to that of which an analysis has been given. It met more and
therefore be necessary, failing which, the child would require to be reared on the bottle.

J. Chalmers

A.B.M. (1877)

June 1890.
Appenidix

Since the present was written, the following has appeared as an annotation in the 'Journals of 19 July 1890, p. 140-

"Secretion of Blood instead of Milk"

"Dr. Huber of Witzel, Austria, reports in the Allgemeine Medizinische Central-Gesellschaft on a case of the secretion of blood in the breasts. The patient was a young married woman, who, when she had been pregnant with her first child about six months, consulted Dr. Huber as to whether the fetus was alive. She noticed some blood-stains in her linen in the neighborhood of her breasts, and on examination found that some of her blood could be expressed. She stated that the bleeding had begun when she was five months pregnant, and she did not know that it was an unusual occurrence, and therefore had not mentioned it. Among the rest of the pregnancy, the phenomenon
Phenomena continued, and the patient suffered besides from two or three attacks of chills. Two days before labour came on, the bleeding ceased, but it reappeared in increased amount the day after. The patient was very anxious to nurse the child, but as it drew nothing but blood, this had to be put a stop to. In the fourth day the colour of the secretion began to change, and by the eighth it had all the characters of ordinary colostrum. The child was then allowed to take the breast, and nothing further abnormal observed. It should be mentioned that the woman was perfectly healthy; there were no traces of foul hæmatitis, or of hæmorrhagic diseases.