

# THE LANCET.

VOL. I.] LONDON, SATURDAY, JANUARY 23, 1841.

[1840-41.]

## LECTURES

ON

## AMPUTATION,

AND ON THE

*Nature, Progress, and Terminations of the Injuries for which it is required.*

(Delivered at Sydenham Coll. Med. School.)

By RUTHERFORD ALCOCK, K.C.T., &c.

### LECTURE V.

*Observations continued, on the nature, progress, and frequency of diseased actions, supervening on complicated injuries, and destroying life by their development.—On the influence of site and degree of injury.—On the influence of the external and collateral circumstances under which the treatment is conducted.*

THE last lecture was devoted to the consideration of those diseased actions which, supervening during the treatment of severe injuries, *destroy life* by their development. This part of the subject remains to be concluded, before the diseased actions, causing *amputation*, can, with advantage, be considered; nor is it possible to bring out the whole of the details of such an inquiry as the one through which I have engaged to conduct you, or to certain well-founded and distinct results capable of important practical application, to the higher branches of surgery, without a closeness of reasoning and analysis, in some danger of wearying those who, eager for results, bestow little thought upon the steps by which alone such fruit can be attained.

It was shown in the last lecture, that in 192 cases submitted to treatment, the proportion of deaths while under treatment were in the proportion of 1 in 5.052, exclusive of the number dying after secondary or intermediary amputations, performed during the period of treatment; that the causes of death might be divided into one class where fever was the predominant action, and in this more than one-half were included; and into a second, where irregular and accidental

actions seemed to predominate, forming more than one-third of the whole.

I further remarked, that taking the whole series of fatal cases, the majority of deaths were found to arise by the development of actions, leaving no trace of structural or physical lesions; the patients appearing to die by impressions on the nervous system, and the circulation deranging, or even suddenly arresting vital functions.

Having before us these collective results, it becomes an object of some interest to determine the influence of physical circumstances, particularly the *degree and extent of injury*, and the *site*; and, lastly, of the *external and collateral circumstances* under which treatment takes place.

#### 1. In-reference to the Degree and Extent of Injury.

The Returns, Nos. VI., VII., VIII., of cases of fractures not implicating joints, have been framed to show the influence of different degrees of injury in complicated fractures of bones of the extremities; they represent three degrees:—1. Cases of favourable nature for treatment. 2. Doubtful cases. 3. Injuries so severe as to present cases altogether unfavourable for treatment. Although these are arranged in reference to modifications of external circumstances, I shall only refer at present to the two points in question, viz., the degree and extent of injury and its site.

The Return VI. of *favourable* cases for treatment, comprehends the cases where, of course, the degree and extent of injury is the least: these, under three varieties of external circumstances, show the results to be 44 cures, and only two deaths, in forty-six cases treated without amputation. As gunshot fractures for the femur can never be justly classed among favourable cases for treatment, none are here included; the two deaths were caused by supervening fever in fractures of the leg; the type of one was not ascertained; the other was of the remittent form, with secondary abscess of lungs and liver. Fifty-five favourable cases were treated altogether, and amputation was required during the period of treatment in nine, of which number five died: these amputations being all of arm or forearm.

No. VI.—Results of *Favourable* Cases for Treatment of *Complete* Compound Fractures, not involving Joints.—Series of Cases included in No. 3.

Site—Cause—External and Collateral Circumstances.	Intermediary Amputations.			Secondary Amputations.			Treatment only.			General Results.			Mortality.
	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	
HUMERUS. Musket { Favourable..... Partially unfav.. Unfavourable..... Total.....	1	..	1	1	..	1	..	..	..	2	..	2	0.
	..	1	1	..	..	..	2	..	2	2	1	3	3.000
	..	..	..	..	..	..	3	..	3	3	..	3	0.
	1	1	2	1	..	1	5	..	5	7	1	8	8.000
TIBIA and FIBULA. Musket { Favourable..... Partially unfav.. Unfavourable..... Total.....	..	..	..	..	..	..	2	..	2	2	..	2	0.
	..	..	..	..	..	..	7	1	8	7	1	8	8.000
	..	..	..	..	..	..	2	1	3	2	1	3	3.000
	..	..	..	..	..	..	11	2	13	11	2	13	6.500
RADIUS and ULNA. Musket { Favourable..... Partially unfav.. Unfavourable..... Total.....	1	1	2	1	..	1	14	..	14	16	1	17	17.000
	..	1	1	..	..	..	..	..	..	..	1	1	1.000
	..	1	1	..	..	..	10	..	10	10	1	11	11.000
	1	3	4	1	..	1	24	..	24	26	3	29	9.666
HANDS and FEET..... { Favourable..... Partially unfav.. Total.....	..	1	1	..	..	..	2	..	2	2	1	3	3 0
	..	..	..	..	..	..	2	..	2	2	..	2	0.
	..	1	1	..	..	..	4	..	4	4	1	5	5 0
General total.....	2	5	7	2	..	2	44	2	46	48	7	55	7.557
Total of doubtful cases..	3	5	8	4	1	5	10	1	11	17	7	24	3.428
Total unfavourable ....	1	3	4	2	3	5	..	13	13	3	19	22	1.157
Total.....	6	13	19	8	4	12	54	16	70	68	33	101	3.063

No. VII.—Results of Treatment in *Doubtful* Cases of *Complete* Compound Fractures, not involving Joints.

Site—Cause—and External Circumstances.	Intermediary Amputations.			Secondary Amputations.			Treatment only.			General Results.			Mortality.
	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	
FEMUR. Musket { Favourable..... Unfavourable..... Total.....	..	..	..	1	..	1	..	..	..	1	..	1	0.
	..	..	..	..	..	..	..	1	1	..	1	1	1.0
	..	..	..	1	..	1	..	1	1	1	1	2	2.0
HUMERUS. Musket { Favourable..... Partially unfav.. Unfavourable..... Total.....	2	..	2	..	..	..	..	..	..	2	..	2	0.
	..	..	..	..	..	..	3	..	3	3	..	3	0.
	..	1	1	..	..	..	1	..	1	1	1	2	2.0
	2	1	3	..	..	..	4	..	4	6	1	7	7.0
TIBIA and FIBULA. Musket { Cannon—Favourable..... Favourable..... Partially unfav.. Unfavourable..... Total.....	..	..	..	1	..	1	2	..	2	3	..	3	0.
	1	1	2	..	1	1	2	..	2	3	2	5	2.50
	..	..	..	..	..	..	1	..	1	1	..	1	0.
	..	3	3	..	..	..	1	..	1	1	3	4	1.333
1	4	5	1	1	2	6	..	6	8	5	13	2.600	
RADIUS and ULNA. Musket—Favourable..... Total.....	..	..	..	1	..	1	..	..	..	1	..	1	0.
	..	..	..	1	..	1	..	..	..	1	..	1	0.
HANDS and FEET. Musket—Favourable..... Total.....	..	..	..	1	..	1	..	..	..	1	..	1	0.
	..	..	..	1	..	1	..	..	..	1	..	1	0.
Total.....	3	5	8	4	1	5	10	1	11	17	7	24	3.427

VIII.—Result of Treatment in *Unfavourable* Cases of Complete Compound Fractures, not involving Joints.

Site—Cause—External Condition.	Intermediary Amputations.			Secondary Amputations.			Treatment only.			General Results.			Mortality.
	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	Cured.	Died.	Total.	
FEMUR. { Cannon—Partially unfav.... { Favourable..... { Partially unfav.... { Total.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	1.0
	.....	.....	.....	2	2	4	.....	.....	.....	2	2	4	2.
	.....	.....	.....	.....	.....	.....	7	7	.....	7	7	7	1.0
	.....	.....	.....	2	2	4	.....	8	8	2	10	12	1.200
HUMERUS. { Cannon—Favourable..... { Favourable..... { Unfavourable..... { Total.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	1.0
	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	1.0
	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	1.0
	.....	.....	.....	.....	.....	.....	.....	3	3	.....	3	3	1.0
RADIUS and ULNA. Musket—Unfavourable..... Total.....	.....	1	1	.....	1	1	.....	1	1	.....	3	3	1.0
	.....	1	1	.....	1	1	.....	1	1	.....	3	3	1.0
TIBIA and FIBULA. Cannon—Favourable..... Musket { Favourable..... { Unfavourable..... { Total.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....	1	0.
	.....	1	1	.....	.....	.....	.....	.....	.....	.....	1	1	1.0
	.....	1	1	.....	.....	.....	.....	1	1	.....	2	2	1.0
	.....	1	2	3	.....	.....	.....	1	1	1	3	4	1.333
Total.....	1	3	4	2	3	5	.....	13	13	3	19	22	1.157

In the Return VII. of *doubtful cases*, 10 were cured, and 1 died; the death occurring in a case of fractured femur from effusion in the chest and vomicae in the lungs. Twenty-four doubtful cases (the number treated); 13 amputations were required, of which number 6 died.

In the Return No. VIII., comprising *unfavourable cases*, none were cured; the whole 13 died: 8 of these were fractures of the femur; 3 of the humerus; 1 of the leg; 1 of the forearm. The affections causing death were the following; the average term of development, exclusive of the one at 3 years, was 33½ days:—

- 1 By complicated wounds, in other parts, patient exhausted with hectic and purulent deposits in lungs.
- 2 By shock, both cannon-shot, and 1 with wound of chest also.
- 1 Secondary hæmorrhage; ligature of femoral; sphacelus.
- 1 Bilio-remittent fever, and spasmodic disease.
- 2 Hectic, with sloughing, and gangrenous action.
- 1 Hectic; chest symptoms supervening two days before death.
- 2 Hectic, with diarrhoea.
- 2 Febrile; 1 with chest symptoms; cavities not examined.
- 1 At end of three years, fracture of neck of thigh-bone; immediate cause of death not known.

The supervening actions in 9 are decidedly of febrile character; very few, however, not complicated by some more physical and material lesion, either in the structure of the limb, such as gangrene; or in some distant organ.

In reference to the site, we see all the 3 deaths, which occurred in favourable and doubtful cases, were injuries of the lower extremity: 1 of the femur; 1 of the fibula; 1 of both tibia and fibula. Of the unfavourable cases, 8 are of the femur; 3 of the humerus (2 of these, however, complicated with wounds of the chest, 1 of the patients sinking in 24 hours from the shock); 1 of the forearm. The site, then, it may be safely affirmed, as well as the degree of an injury, exercises a most important influence in the two first classes of degrees of injury. In favourable cases, we find that in 31 of the upper extremity no death occurred, whereas in 13 only of the leg, 2 deaths resulted. So striking a difference plainly points to the site as an influencing cause, the injuries in each class being considered of equal gravity. In the doubtful cases, neither the leg nor the arm furnish any deaths, the only fatal case being of the femur. In like manner, no ground for comparison is afforded by the unfavourable cases, since all were fatal; but from this we may surely draw a practical conclusion of great importance, viz., that wherever the injury be situate, whether in the upper or the lower extremity, the attempt to save a limb, when the injury is of such gravity or extent as to render it a highly unfavourable case for

No. IX.—Result of Amputations, and of Cases treated without Amputation. — *Injuries involving Articulations.*—*Lateral View*

Site—Cause of Injury.	Amputations—(see Return No. IV.)										Cases Treated without Amputation in Return No. II.										Mortality.										
	No. of Cases.					Cured.					Died.					No. of Cases.						Cured.					Died.				
	P.	I.	S.	Total.	P.	I.	S.	Total.	P.	I.	S.	Total.	P. I.	S. I.	Total.	P. I.	S. I.	Total.	P. I.	S. I.		Total.	P. I.	S. I.	Total.	Cured	Died.	Total.			
HIP.....	1			1				1																	1	1	2	0.			
Musket.....	1			1				1																	1	1	2	0.			
KNEE.....	4	1	6	11	3	3	6	3	3	5	3	8	3	5	8	1	3	4	4	4	4	4	4	10	9	19	2,111				
Musket.....																									1	1	2	0.			
Cannon.....					3	3	6	3	3	5	3	8	3	5	8	1	3	4	4	4	4	4	4	10	9	19	0.				
ANKLE.....	1	1	1	3	1	1	2	2	1	1	2	2	1	1	2	1	2	3	2	1	1	1	2	2	2	2	0.				
Musket.....					1	1	2	2	1	1	2	2	1	1	2	1	2	3	2	1	1	1	2	2	2	2	0.				
Cannon.....	1	1	1	3	1	1	2	2	1	1	2	2	1	1	2	1	2	3	1	1	1	1	2	1	1	3	0.				
SHOULDER.....	3	1	4	8	3	3	6	3	3	5	3	8	3	5	8	3	5	8	3	3	5	3	5	12	12	24	0.				
Musket.....					3	3	6	3	3	5	3	8	3	5	8	3	5	8	3	3	5	3	5	12	12	24	0.				
Cannon.....	3	1	4	8	1	1	2	2	1	1	2	2	1	1	2	2	4	4	2	2	2	2	2	5	5	10	0.				
ELBOW.....	2	1	3	6	2	2	4	4	1	1	2	2	1	1	2	2	4	4	2	2	2	2	2	5	5	10	0.				
Musket.....	2	1	3	6	1	1	2	2	1	1	2	2	1	1	2	2	4	4	2	2	2	2	2	5	5	10	0.				
Cannon.....					1	1	2	2	1	1	2	2	1	1	2	2	4	4	1	1	1	1	1	1	1	1	2	0.			
WRIST.....	12	3	15	24	11	2	13	13	6	19	1	3	5	11	13	24	6	12	18	5	1	6	37	11	48	4,363					
Musket.....	12	3	15	24	11	2	13	13	6	19	1	3	5	11	13	24	6	12	18	5	1	6	37	11	48	4,363					
Total.....	41	16	57	94	28	13	41	41	17	29	11	20	30	45	113	24	45	69	6	16	22	38	11	48	225						
Total partially unfavourable.....	4	1	5	10	4	1	5	5	4	6			9	10	3	3	3	6	1	7	7	8	15	7	16	2,285					
Total unfavourable.....	12	4	16	32	8	4	12	12	17	24	11	20	30	45	15	45	25	45	7	22	30	37	22	59	30	1,363					
Total.....	28	8	36	72	28	13	41	41	49	69	29	57	77	113	15	113	77	113	18	40	54	77	40	94	2,350						

No. X.—Result of Amputations, and of Treatment for Injuries involving Articulations, under Circumstances *partially Unfavourable.*

Site—Cause of Injury.	Amputations included in Return IV.										Cases Treated without Operation in Return II.										Mortality.										
	No. of Cases.					Cured.					Died.					No. of Cases.						Cured.					Died.				
	P.	I.	S.	Total.	P.	I.	S.	Total.	P.	I.	S.	Total.	P.	I.	S.	Total.	P. I.	S. I.	Total.	P. I.		S. I.	Total.	P. I.	S. I.	Total.	Cured	Died.	Total.		
HIP.....	1	1		2																						2	2	4	1.		
Musket.....	1	1		2																						2	2	4	1.		
Cannon.....																													0.		
ANKLE.....	1	1		2	1	1	2	2	1	1	2	2	1	1	2	2	1	1	2	1	1	2	2	1	1	2	2	4	0.		
Musket.....					1	1	2	2	1	1	2	2	1	1	2	2	1	1	2	1	1	2	2	1	1	2	2	4	0.		
Cannon.....	1	1		2																									0.		
SHOULDER.....	2	1	3	6	2	2	4	4	1	1	2	2	1	1	2	2	1	1	2	1	1	2	2	1	1	2	2	4	0.		
Musket.....	2	1	3	6	2	2	4	4	1	1	2	2	1	1	2	2	1	1	2	1	1	2	2	1	1	2	2	4	0.		
Cannon.....																													0.		
ELBOW.....	1	1		2																									0.		
Musket.....	1	1		2																									0.		
Cannon.....																													0.		
WRIST.....	4	1	5	10	4	1	5	5	1	1	2	2	9	10	3	3	6	9	1	7	9	16	7	9	25	16	41	2,285			
Musket.....	4	1	5	10	4	1	5	5	1	1	2	2	9	10	3	3	6	9	1	7	9	16	7	9	25	16	41	2,285			
Total.....	21	7	28	56	14	5	19	19	11	11	16	27	24	24	15	24	15	24	9	15	16	25	16	25	41	28	69	2,353			
Total frac. not involv. joints.....	2	2	4	8	1	1	2	2	1	1	2	2	2	2	4	4	1	1	2	1	1	2	2	1	1	2	2	4	0.		
Total.....	6	3	9	18	5	1	7	7	2	2	4	4	3	3	6	6	1	1	2	1	1	2	2	1	1	2	2	4	0.		

treatment, is equally fatal to life, and that an incurable injury of the forearm is likely to prove as disastrous as a similar injury in the lower extremity.

This is a conclusion which I can assure you, from ample opportunities of observation, will, if acted upon, lead to a considerable saving of human life and suffering. No one would feel more strongly disposed to reprobate the needless amputation of a limb than I should, but the error of young practitioners is rather on the other side, and the injudicious attempt to save, not only does not succeed in regard to the limb, but is full of peril to life.

In reference to the *nature* of the affections, however, I do not trace any very distinct influence from the site or degree of injury. In regard to the degree, probably, the number of deaths in favourable and doubtful cases is too small to admit of much comparison; in unfavourable cases, the supervening actions were nearly equally divided between the two classes of "Febrile" and "Irregular or Accidental." It will be seen by reference to the Tables, that if we exclude the gunshot fractures of the femur, which I am disposed to consider as generally fatal, if amputation be not resorted to either primarily or secondarily, the mortality, according to *degree* of injury, will stand thus:—

	No. of Cases.	Died.	Mortality.
Favourable cases treated without amputation .....	46	2	1 in 23.0
Doubtful ditto .....	10	0	0
Unfavourable ditto ..	5	5	1.

This you will understand to be the result merely as regards the number of deaths in cases conducted to their termination without resorting to amputation: when these prove fatal, the necessity had not seemed evident, or not until the state of the patient forbade it.

The influence of external and collateral circumstances under which the treatment is conducted, I shall now proceed to show you is not less direct and evident. The Tables from IX. to XV. inclusive, give the whole of the numerical results under this mode of viewing them, and in considerable detail. When we have determined the influence of this class of physical causes, we shall be enabled to draw certain conclusions in reference to the combined action and influence of site and degree of injury, and of the external circumstances under which their treatment is carried out.

## LECTURES ON DISEASES OF THE SKIN.

By ERASMUS WILSON, Esq.,

Consulting Surgeon to the St. Pancras Infirmary;  
Lecturer on Physiology, Pathology, and Anatomy,  
in the Middlesex Hospital Medical School.

### LECTURE III.

#### *Alopecia, or Baldness.*

GENTLEMEN:—In my last lecture we were engaged in considering the various remedies which had been recommended for the local treatment of alopecia.\* I observed that they were all referrible to the class of stimulants, and that the object to be fulfilled by their employment was the healthy excitation of the capillary plexus of the skin. There is, however, one remedy to which I have now to invite your attention, that would appear to effect the same end, but differently from the common class of stimulants; I allude to iodine, which I have employed experimentally in many diseases of the skin, and seen employed by others with the most unexpected and pleasing results. In the second stage of alopecia, when it presents the pimply appearance, which I have described as characteristic of that period, the tincture of iodine, applied with a camel's-hair brush three times in the course of the day, has produced the most marked benefit. In the earlier stage, while the morbid process is still advancing, and, indeed, from the moment when the fall of the hair is first perceived, a more stimulating application than the simple tincture is desirable; and in such cases I have been in the practice of employing the following combination of iodine with the chloride of antimony:—

℞ *Iodine*, ʒj;  
*Tincture of iodine*;  
*Chloride of antimony*; of each, ʒss.

Applying the compound to the morbid surfaces either by means of the camel's-hair brush, or with slight friction by the finger.

Besides the preceding, numerous other stimulant remedies, such as mustard, horseradish, walnut leaves, &c., have had their praises vaunted by those who have used them; but I need not detain you to enumerate any more of such medicaments, as every stimulant application, judiciously employed, may be effective of useful results in the treatment of this disease; although, on the other hand, in some instances it may be very desirable to have at hand a list of such means, that in the event of failure from the use of one others may be resorted to.

\* *Αλωπηξ*, vulpes, from the observation that the fox is liable to become bald in old age.