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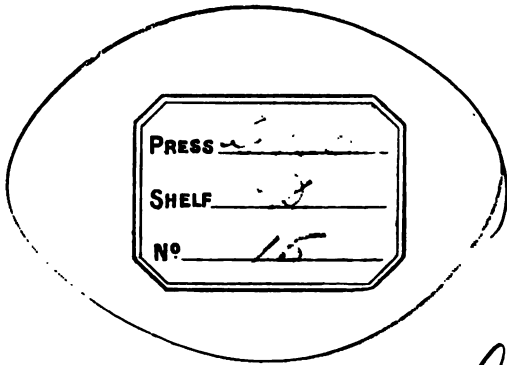
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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This not only helps in tracking expenses but also ensures compliance with tax regulations. The document further outlines the steps for organizing these records, such as categorizing them by date and amount, and storing them in a secure and accessible location.

In the second part, the author provides a detailed guide on how to reconcile bank statements with the company's financial records. This process involves comparing the bank's records of deposits and withdrawals with the company's internal ledger. Any discrepancies should be investigated immediately to identify errors or unauthorized transactions. The document also includes a checklist of items to verify during the reconciliation process, such as ensuring that all bank fees and interest charges are properly recorded.

The final section of the document focuses on the importance of regular financial reviews. It suggests that management should conduct monthly reviews of the company's financial performance to identify trends and areas for improvement. This involves analyzing the profit and loss statement, balance sheet, and cash flow statement. The document provides a framework for these reviews, including key performance indicators (KPIs) to track and a list of questions to ask during the analysis.



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A  
TRANSLATION  
OF THE  
EIGHT BOOKS  
OF  
AUL. CORN. CELSUS  
ON  
MEDICINE.



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SECOND EDITION,  
CAREFULLY REVISED AND IMPROVED.

BY  
G. F. COLLIER, M. D.

OF THE ACADEMY OF LEYDEN; OF MAGDALEN HALL, OXFORD; AND  
OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

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LONDON:  
SIMPKIN AND MARSHALL.

1831.

4



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PRINTED BY A. J. VALPY, RED LION COURT, FLEET STREET.

## ADVERTISEMENT

TO

### THE SECOND EDITION.

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[*The Translator to his Readers.*]

SIXTEEN months had scarcely elapsed when the last edition of this work was announced to be out of print. It then became my interest, as it had already been my inclination, to carefully revise and republish, with such amendments as should render it more deserving of public approbation. I do not affect to conceal my belief that the present edition is extremely accurate; and while I have endeavoured to be as literal as common sense would permit, let such of my readers as are desirous of having a closer translation bear in mind, that I never undertook first to murder Celsus, and then to subject him to minute dissection, in order that a few dead fibres of his mangled corse might be submitted to the inspection of "cruel examiners;" but to transfer him to their notice physically and essentially, body and soul, with so much spirit infused into the translation as might at least give a faint idea of the living original. Celsus still lives in his own work, and against the dissection of

the bodies of the living he has recorded his abhorrence, giving as a reason (which, alas! has not been sufficient to insure his own safety,) that “nothing can be more absurd to imagine a man the same when deprived of his spirit as he was when alive;” and again, that “all such dissectors gain is the having cruelly mangled their subject without having acquired any adequate notion of the living man.”

Sympathising, however, with that class of medical students who need every encouragement, I have prepared an “*ordo verborum*” for the first and third books, after such a method that

“he who runs may read:”

which I shall direct the booksellers to supply separately at little more than the cost of print and paper.

32, *Spring Gardens*,  
October, 1831.

## TRANSLATOR'S PREFACE

TO

THE FIRST EDITION.

---

WE will not wait to make an invidious comparison between ancient and modern medical practitioners; although doubtless we have ample reason to exult in our own superiority: "oportet autem neque recentiores viros in his fraudare, quæ vel reppererunt vel recte secuti sunt; et tamen ea, quæ apud antiquiores aliquos posita sunt, auctoribus suis reddere." The works of the ancients assist us in tracing the origin and progress of science; every fragment lost, is a link broken in the chain which connects us with creation.

Aulus Cornelius Celsus flourished in the golden age, that is to say, in the reigns of the Emperors Augustus and Tiberius. That he wrote in the reign of this last tyrant is evident, from what he says, when speaking of Themison, one of the successors of Asclepiades; on which occasion he uses the word "nuper," to determine the period at which the former of these two physicians seceded from the Asclepiad doctrine. Now it is known for certainty that Themison lived in the reign of Augustus.

That our author possessed a diversity of talent, which led him to treat on a variety of subjects, is evidenced by the notice taken of him in the writings of his contemporaries, as well as in those of his successors. By them we are informed that he composed works on the military art, on rhetoric, and on agriculture: and that this last immediately preceded his treatise on medicine, may be inferred from the initial lines of his preface, "ut agricultura &c., sic medicina &c."

Both by his countrymen, in his own time, and in every succeeding age, his merits as an author have been variously estimated. If it be possible to infer the character of an author by the perusal of his works, sure I am, Celsus would have been better satisfied with the moderate compliment paid to him by Quintilian, than with the bombastic titles of "medicorum deus," "mirabilis in omnibus."

Whether he was an actual practitioner or a mere compiler of other men's improvements, has long been subject matter of dispute; nor is it as yet determined to the satisfaction of the learned: "*hæc per magnæ contentionis disputationes sæpe tractata sunt atque tractentur.*" If I may be allowed to record my opinion, I would venture to say, his own work and the habits of his order would go to prove he was not a money making physician, for he severely condemns wholesale dealers in disease, and declares it to be impossible for any one person to attend and do justice to a great number of patients: he was not a Hospital Physician, for he animadverts likewise upon that class of practitioners as deficient in care and discernment; neither was he a servile imitator of the practice of his contemporaries, for he authoritatively recommends several modes of treatment which he declares to be in his time universally neglected.

What was he then? A literary charlatan, who compromised the interests of posterity, by authoritatively laying down precepts concerning the life and death of his fellow-creatures, without having repeatedly put those precepts to the test of experience? He could not do it. He would have been the laughing-stock of Rome. Let us examine the following passages: "*Ego autem medicamentorum dari potiones, et alvum duci non nisi rarò debere, concedo.*" Lib. iii. cap. vi. What! Concession upon a practical point, emanating from a man who never practised? It must have been a modest concession with a vengeance! "*Ego tum hoc puto tentandum, quum parum cibus*" &c. Lib. iii. cap. xi. If not a practitioner, of what consequence was it to the physicians of Rome,

what he thought? "Ego utique, si satis virium est, validiora; si parùm imbecilliora auxilia, præfero." Lib. iii. cap. xxiv. On what could he have grounded his preference, if not on his own practical results in a number of cases? "Ego experimentis quemque in se credere debere," &c. Lib. iv. cap. xviii. "Ego eundem quidem hominem posse omnia ista præstare concipio." Lib. vii. Præf." If not a practitioner, he would not have formed such a conception. "Ego autem cognovi, qui, succisâ linguâ," &c. Lib. vii. cap. xiii. sect. 4. "Ego sic restitutum esse neminem memini." Lib. vii. cap. vii. sect. 6. It were easy to subjoin fifty such passages; let these suffice.

Now could he write so at Rome, where it must be notorious whether he really practised or not? Or can it be conceived any man could write so exactly upon medical and surgical subjects without being versed in practice?

A word or two with regard to the arrangement and contents of this work.

Celsus finding medicine already divided into three departments, the dietetical, pharmaceutical, and surgical, arranges his treatise accordingly. The four first books embrace dietetical treatment, the fifth and sixth are appropriated to the pharmaceutical; and the two last to the surgical. Commentators have wasted much time in objecting that as even in the first book, he begins to treat on pharmaceutical agents, he cannot therefore be said to have adhered to the order which he proposes in his preface: incorrectly, for he tells us in the preface of his fifth book, "omnes medicinæ partes ita annexæ sunt, ut EX TOTO non separari possunt." He was no advocate for pharmaceutical medicine. Diet and the digestive organs were his watchwords. Let our modern Celsus candidly confess his early obligations to the Roman, and save future historians the pain of inflicting censure: it would be a most righteous retribution, redounding to the honour of both.

Should my readers look for notes illustrating those passages in which I have thought fit to render our au-

thor differently from my predecessors, I would wish them to know that these discrepancies are so numerous and perpetual, that such notice would be tedious in the extreme. The candid scholar will discover, and appreciate them, without my catching at his attentions by a pompous display of the research which they necessarily imply. He will see too, my motive for having so frequently sacrificed elegance of style, and roundness of periods, to the convenience of the medical tyro.

In conclusion, I will take occasion to express my regret, that Celsus, whose precepts are remembered with delight by all the learned, no matter of what profession, in every other academy in Europe, should in our English Universities be little known and less read; that men of literature, who have most need of dietetic precepts should disregard an author, than whom no sage of antiquity can more aptly, more elegantly inform them, "QUO MODO CAVENDUM EST, NE IN SECUNDA VALETUDINE, ADVERSÆ PRÆSIDIA CONSUMANTUR."

32, *Spring Gardens*,  
Nov. 12th, 1829.

REMARKS  
ON THE  
LIFE AND CHARACTER  
OF  
CÆLŒSUS.

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AULUS CORNELIUS CÆLŒSUS, whose work is here presented to the English reader, was a learned Roman, who, according to the best authorities, flourished in the Augustan æra. He was the author of treatises on rhetoric, history, jurisprudence, agriculture, the military art, and medicine; on all which subjects he acquitted himself so as to gain the applause of after ages. Of these works the last is the only one now extant. The learned have wondered at the versatility of his talent, and many have doubted whether it was possible for one man to be practically versed in the several subjects which he adorned; forgetting how much more wonderful it would be, had he erected such an elegant superstructure on the flimsy basis of compilation. The fixed purpose of his life seems to have been to gain useful knowledge and to transmit it to posterity. In imbibing knowledge he followed the precept inculcated by his fellow-countryman and contemporary: he first PRACTICALLY, and with curious and patient minuteness, inquired into every particular, and then made it the subject matter of his treatise.

“Scribendi recte, sapere est et principium et fons.”

In transmitting it, he discharged his duty in the mode which the illustrious Bacon has declared to be



the most perfect,—“ Neither too hasty in affirming, nor loose and sceptical in doubting, he has raised up all particulars to the places assigned them by their degree of evidence and proof;” and he has employed such language as appeared to him to be best defended against the ravages of time. Having made this the institute of his life, he most probably followed up every department practically and theoretically; practically, not as a livelihood, for it may be inferred from his preface, where he submits to our notice the conflicting opinions of sectarians, that, as regards himself, he was free from the bias of an education exclusively medical, and that his sole object in canvassing the opinions of others was to discover the truth “ sine ambitione;” which is conjectured by this translator to mean, without making his treatise a step-ladder to practice, or a buttress to fame already acquired as a practitioner: for no one can carefully peruse the few sentences which precede the delivery of his own judgment on their several merits, without perceiving that he considered (which is very correct, and has been in all ages the greatest obstacle to the advancement of medical science,) that the exclusive study of medicine is a profession calculated to render even the greatest geniuses dogmatical, and to deceive the best regulated mind into a belief that it is arguing for TRUTH, when ASCENDANCY is the prize at which it is aiming.

His treatise on medicine supplies few materials even to the most ingenious biographer; for his rare and admirable modesty has thrown an almost impenetrable veil over his history. The mind, however, even in this dearth of information, busies itself in supplying the deficiencies; and as we become familiar with his work, (thus has it happened to all his commentators,) he becomes known to us as “ a right noble gentleman,” possessing the genuine spirit of philosophy, urbane without foppery, gentle but firm of purpose, cautious in dealing out either censure or praise, capable of the greatest conceptions, as is proved by his having been bold enough to commence his six books of the arts,

afterwards styled by Columella a perfect system of knowledge; and possessing the greatest industry, as may be inferred by his having completed so vast an undertaking: one who entertained the most elevated notions of his duties to his fellow-citizens and to posterity; the impressive inculcator of justice, candour, magnanimity, and a bold course of independence in the exercise of the medical art; "a steady observer of the first entrance of truths into errors, and of errors into truths," with all the wary circumspection of the philosopher, "in admiring or despising any thing."

Among the ancients who bear testimony to his merits, or cite him as authority, are Columella in *Re Rustica*, II. 2. IX. 2. VI. 9. III. 17. IV. 8. I. 1. Quinctilian *Inst. Orat.* XII. 11. X. 1. Pliny *Hist. Nat.* X. 53. XX. 4. XIV. 2. Some conjecture, perhaps vaguely, that he is the Celsus lamented in one of Ovid's *Epistles*. Vide *Epist. Ovid. Ex Ponto* I. 9. v. 39., and the Celsus Albinovanus (?) of Horace. To collect the innumerable testimonies of the moderns would be superfluous. What Celsus said of medicine may now be said of his own fame,

"Hæc nusquam quidem non est."

G. F. C.

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#### EXPLANATION OF THE PLATES.

Figure 1. Represents the order of a Roman Bath.

2. The Laconicum.
3. The Solium.
4. The Strigils.
5. The Roman Semipes.
6. The Cucurbital or cupping instrument.
7. The Forfex.

8, 9, and 10. The various kinds of Vulsella.

**Roman Measures of Capacity for things Liquid, reduced to English Wine Measure, the wine pint holding 28½ solid inches.**

No. I.

					Pints.	Sol. in dec.	
Ligula . . . . .					0,18	0,117½	
4	Cyathus . . . . .				0,1½	0,469½	
6	1½	Acetabulum . . . . .			0,½	0,704½	
12	3	2	Quartarius . . . . .		0,¼	1,409	
24	6	4	2	Hemina . . . . .	0,¼	2,818	
48	12	8	4	2	Sextarius . . . . .	1	5,636

Possibly No. I. may be better understood in the following form.

No. II.

Ligulae.	Cyathi.	Acetab.	Quart.	Hem.	Sext.	Eng. w. pt.	Sol. inch.
48	or 12	or 8	or 4	or 2	= 1	= 1.	and 5.636
24	or 6	or 4	or 2	= 1	—	= 0.	17.255½
12	or 3	or 2	= 1	—	—	= 0.	8.627½
6	or 1½	= 1	—	—	—	= 0.	4.313½
4	= 1	—	—	—	—	= 0.	2.875½
1	—	—	—	—	—	= 0.	0.718½

**Roman Measures of Capacity for things Dry, reduced to English Corn Measure, the English corn pint holding 33½ inches.**

No. III.

					Pints.	Sol. in. dec.
Ligula . . . . .					0,18	0,01
4	Cyathus . . . . .				0,1½	0,04
6	1½	Acetabulum . . . . .			0,½	0,06
24	6	4	Hemina . . . . .		0,¼	0,24
48	12	8	2	Sextarius . . . . .	1,	0,48

The same Table in another form.

No. IV.

Ligulæ.	Cyathi.	Acetab.	Heminæ.	Sextarius.	Eng. c. pt.	Sol. inch.
48 or	12 or	8 or	2 =	1 =	=	1. and 0.48
24 or	6 or	4 =	1 —	—	=	0. 17.04
6 or	1½ =	1 —	—	—	=	0. 4.26
4 =	1 —	—	—	—	=	0. 2.84
1 —	—	—	—	—	=	0. 0.71

Note. The tables No. I. and No. III. are exactly copied from Dr. Arbuthnot, No. XII. and XIII. I have here gone no higher than the *sextarius*, as that is the greatest measure mentioned by Celsus; it has its name from making the sixth part of the Roman *congius*.

I would have taken the table of weights from Dr. Arbuthnot also, if he had given one accommodated to Celsus; but as he has not, I have composed the following, No. VI. according to the division of Celsus himself, who tells us, Lib. v. cap. 17. that he divides the *uncia*, or *ounce*, into *seven denarii*, and the *denarius* into *six sextantes*.

Besides these, in several compositions our author uses *semuncia* and *sesuncia*, that is, *half an ounce* and *ounce and half*; and to save the reader the trouble of reduction, I have given them also a place in the table.

The accurate Mr. Greaves, in his *Dissertation on the Denarius*, from repeated experiments concluded the Roman *denarius* to contain 62 grains English *Troy weight*, from which the proportions of the other weights are determined.

No. V.

Grains.	Scruples.	Drachms.	Ounces.	Pound Troy.
gr.	ʒ	ʒ	ʒ	lb
5760 or	288 or	96 or	12 =	1
480 or	24 or	8 =	1	
60 or	3 =	1		
20 =	1			
1				

Celsus's Weights compared with Apothecaries' Weights.

No. VI.

Gr. of Troy wt.	Sextant.	Denar.	Semunc.	Unc.	Sescun.	Libr.	Apothecaries'.
							ʒ 3 ʒ gr.
5208 or	504 or	84 or	24 or	12 or	8 =	1 =	10 : 6 : 2 : 8
651 or	63 or	10½ or	3 or	1½ =	1 —	—	1 : 2 : 2 : 11
434 or	42 or	7 or	2 =	1 —	—	—	0 : 7 : 0 : 14
217 or	21 or	3½ =	1 —	—	—	—	0 : 3 : 1 : 17
62 or	6 =	1 —	—	—	—	—	0 : 1 : 0 : 2
10½ =	1 —	—	—	—	—	—	0 : 0 : 0 : 10½
1 —	—	—	—	—	—	—	0 : 0 : 0 : 1

Note 1. The Romans divided all integers, as they did their *as*, into twelve equal parts called *uncia*. Thus the *sextans* was the sixth part of the *as*, containing *two of these uncia*, *quadrans* one fourth, or *three uncia*, *triens* the third part, or *four uncia*, *semis* one half, or *six uncia*, *bes* or *bessis*, two thirds, or *eight uncia*, *dodrans*, three fourths being *nine uncia*. The weight of these then differs as the integer is the *libra*, the *uncia*, or *dena-*

rius, which the attentive reader will easily reduce, if he is disposed to calculate the quantities, observing that they are not to be taken for aliquot parts of the denarius, but when they follow the mark of the denarius. The integer preceding, and the nature of the composition will be the best explanation.

Note 2. The denarius mark was X or ꝥ, as containing originally ten small asses. This by the copiers has been often confounded with X, denoting the number of *ten denarii*; so that after all the pains of critics and commentators, the proportions of the ingredients in several compositions seem to be irrecoverably lost. For this reason I suppose the later editors have thought fit to change it for the common asterisk.

Note 3. The characters for quantities are variously marked in different authors, and the same note has several values. There is one of this uncertainty in Celsus, that is Z, which we are told expresses the *libra*, the *sexuncia*, the *sextans* of a pound, the *denarius*, and the *sextans* of a denarius, Rhodius de Ponderib. et Mensur. Cels. Which of these different values it bears in any particular place must be determined by the connexion. When it follows the mark of the *denarius*, it can mean no more than the *sextans* of a denarius.

Note 4. p. stands for *pondo*, which is an indeclinable word, and when joined with numbers, signifies *libra*, or a *pound*; when with other weights, stands for no more than *pondus* or *weight in general*.

For an example of the reduction of Celsus's weights to ours, the following may serve.

Lib. v. cap. 19. No. 7. Philotas's plaister contains:

No. VII.

	3	3	3	3	gr.
Of Eretrian earth, chalcitis, of each					
p. iv. *	=	½	:	0	: 0 : 8 viz. 3i. gr. ii.
myrrh, calcined copper, of each					multiplied by
p. x. *	=	1	:	2	: 1 : 0 4—and so with
isinglass p. vi. *	=	0	:	6	: 0 : 12 all the rest.
rasile verdigrise, round alum,					
crude misy, birthwort, of					
each p. viii. *	=	1	:	0	: 0 : 16
copper scales p. xx. *	=	2½	:	0	: 2 : 0
male frankincense p. ii. *	=	0	:	2	: 0 : 4
oil of roses, bitter oil, of each three cyathi, or 1 quartarius = between ¼ and ½ of an English pint.					
vinegar a sufficient quantity.— <i>Vide Greaves' Celsus.</i>					

ROMAN APOTHECARIES' WEIGHT.

One pound	}	makes	{	Twelve ounces.
One ounce				Seven denarii.
One denarius				Six Sextants=3 scruples.
One scruple				Two sextants=2 oboli.

ROMAN LIQUID MEASURE.

One Sextans	}	makes	{	Two heminae.
One hemina				Two quartarii.
One quartarius				Two acetabula.
One acetabulum				A sesqui-cyath.
One cyath				Four ligulae.

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# A. CORNELIUS CELSUS,

## UPON MEDICINE.

### BOOK I.

---

#### THE AUTHOR'S PREFACE.

As Agriculture to those who are in health, holds out the expectation of aliment, so Medicine promises to the sick a recovery from disease. There is not a spot on the habitable globe where the healing art has not some footing; for even the most uncivilized tribes have some knowledge of herbs, and other remedies easily procured for the relief of wounds and diseases. It has been advanced by cultivation, however, among the Greeks more than among other nations; nor with them from their first origin, but a few centuries only before our own time; for *Æsculapius* is celebrated as its most ancient author, and was deified for having more ingeniously cultivated a science, which, up to his time, had been devoid of arrangement and in low estimation. His two sons, *Podalicus* and *Machaon*, followed in the train of *Agamemnon*, the commander of the Trojan expedition, and afforded no inconsiderable assistance to their fellow soldiers in arms: not that *Homer* mentions them as curing the plague, or as treating any of the various kinds of disease; but describes them as in the habit of treating wounds only, by operations and medicine. So that it is manifest they practised these departments exclusively, and that they are the most ancient. We learn from the same author, that at that period diseases were ascribed to the anger of the immortal gods, and that from them relief was usually solicited; nor is it improbable that, notwithstanding the deficiency of remedies, a good state of health universally prevailed among nations, whose

habits were simple, and whom as yet neither sloth nor luxury had corrupted : for it was among the Greeks primarily, and afterwards among ourselves, that these vices exerted their depressing influence. Hence, Medicine, complicated as it now is, and neither requisite in olden time, nor now among some nations, barely conducts a few of us to the confines of old age. So that even after the time of the individuals just mentioned, no illustrious characters practised medicine, until literature came to be studied with greater ardour ; of all pursuits the most necessary to the mind, although injurious to the health of the body. At first, the healing art was viewed as a department of philosophy ; for both the treatment of diseases and the study of physics derived their origin from the same founders ; and with good reason, for they, most of all men, required the aid of medicine, who had diminished the energies of their constitutions by steadfast meditation, and the midnight lamp. Therefore it is, we learn by tradition, that many of the philosophers were skilled in it, and that the most celebrated were Pythagoras, and Empedocles, and Democritus, whose pupil, (as some believe) Hippocrates of Cos, was, of all those worthy of commemoration, the first to separate this study from that of Philosophy ; a man signally distinguished for his professional skill and for the eloquence of his style. Next came Diocles, the Carystian ; shortly afterwards Praxagoras and Chrysippus ; and then Herophilus and Erasistratus, who were not merely actual practitioners, but likewise the inventors of different modes of treatment. At this time medicine being divided into three departments, there was one professing to cure by diet, another by medications, and a third by manipulation. These the Greeks denominated by the terms, *διαιτητικὴν*, (*diatētikēn*), *φαρμακευτικὴν*, (*pharmakeutikēn*), *χειρουργικὴν*, (*cheirurgikēn*). But the originators of the dietetic plan being by far the most renowned, attempted to treat the subject more profoundly, arrogating to themselves a knowledge of physics ; as if, without that, medicine would be weak and imperfect. After their time, Serapion, declaring this theoretical education to be useless, contended that practice and experiment alone make the physician. His notions were pursued by Apollonius and Glaucias, and some time after by Heraclides, the Tarentine, who, from the nature of the doctrine, styled themselves Empirics. Here then was a schism in dietetics also, for some were advocating Theory, and others were for Prac-

tice only ; but from their time to that of Asclepiades, who effected great changes in the methods of curing disease, there was no novelty ; each man practising what he had learned from his predecessors. Among those who have succeeded Asclepiades, Themison not long ago effected many changes in the latter period of his life. Thus, by the labour of these worthies principally, was it, that the healing art arrived at the state in which we find it.

We will commence with that department which embraces the general treatment of disease, since of the three it is the most celebrated, and the most difficult of acquirement. Inasmuch as some advocate experimental knowledge exclusively, while others assert that practice is inefficient without a knowledge of the various constitutions and of physical agents ; and as this is the first point of dissection, it becomes my duty to state the arguments on both sides, that I may, with the greater facility, interpose my own opinion.

The THEORISTS say, that a knowledge of the occult or containing causes of disease, of the evident causes, of the natural functions, and lastly of the internal parts, are all indispensable prerequisites to practice. They call those occult causes, which comprehend an investigation into the elementary principles of our bodies, and the circumstances which contribute to health or disease. For their belief is, that no man can know how to treat disease, who is ignorant of its origin ; that it is an axiom not to be doubted, that one plan of treatment is requisite, if a superabundance or a want of either of the four principles have created disease, as some philosophers have said ; another, if all the fault be in the humours, as was the opinion of Herophilus ; another, if in the spirit, as Hippocrates believed ; again another, if the blood get into vessels adapted only for containing spirit, and excite inflammation, called by the Greeks, *φλεγμονήν*, (*phlegmonēn*,) and so produce febrile action, which was the opinion of Erasistratus ; and lastly, another, if Asclepiades be correct in his notion, that exhalant particles are arrested in their progress through the invisible pores, and produce obstructions there : but that he will succeed best in curing a disease, who is not mistaken in the cause of it. Nor do they deny the necessity of experiment, but they contend that without theory there is no avenue to experiment : that the ancients did not at random administer the first thing which occurred to them, but reflected on what was most proper ;

and, prompted by some conjecture, afterwards put their remedies to the test of experience : nor is it of any importance that most facts have originally been discovered by experiment, provided these, as is most usual, have been based on some conjectural reasoning : but that moreover new kinds of distempers often happen, touching which we do not stand informed by experience ; that it is necessary, therefore, to search for their origin ; short of knowing which, it is not in the power of man to discern why one remedy should be used preferably to another. And such are the reasons for pursuing occult causes.

They call those EVIDENT CAUSES, to which belongs the inquiry whether the disease has been occasioned by heat or by cold, by hunger or by excess in diet, and so forth : for they assert that a malady will be arrested by him who is acquainted with its origin.

By NATURAL ACTIONS they mean respiration, deglutition, digestion, and also nutrition.

They require to know moreover the cause of the contraction and dilatation of the arteries ; the nature of sleep and watching ; without which knowledge they presume no one can either check or cure diseases connected with derangement of these functions. As of all these, digestion seems the most important, they dwell upon it principally, and some, on the authority of Erasistratus, affirm it to be a process of trituration ; others, after Plistonicus, that it is effected by putrescency ; others, with Hippocrates, that it is the result of coction : then come the pupils of Asclepiades, who pretend that these ideas are superfluous inanities, and that the crude material, just as ingested, is distributed to all parts of the body. Although they disagree in these hypotheses, they all allow that a sick diet requires to be varied according as this or that notion may be the most correct. For if, say they, it be a process of trituration, that should be selected which is ground down most easily ; if of putrefaction, that which most easily passes into this state ; if of coction by heat, that which generates most heat ; but if there be in reality no coction of any kind, then, that none of these kinds of aliments are eligible, but that those ought to be employed which are the least liable to undergo change after digestion. And for the same reason, when breathing is oppressed, or when sleep or watchfulness harasses the patient, they are of opinion that he who understands these functions,

is the man to rectify their derangement. Besides, since we meet with pain and various kinds of morbid affections in internal parts, **THEIR OPINION IS**, that it is impossible to adapt remedies to these cases without a knowledge of such parts: that dissection of the dead subject, for the thorough examination of the intestines and other internal organs, is indispensably requisite; and they commend the plan adopted by Herophilus and Erasistratus, who dissected such criminals alive, as were delivered over to them from the prisons by royal sanction; carefully observing before they had ceased to breathe, those parts which are by nature concealed; together with their position, colour, form, size, relative situation, hardness, softness, smoothness, and connexion; next, the convexities and concavities of each, the insertions both complete and partial; for they argue, that no one can know the exact seat of an internal pain, if he have not previously made himself well acquainted with each organ and each intestine; that a diseased part cannot be cured by him who knows nothing about it; and that when internal parts are exposed by wounds, one who is ignorant of their healthy character, cannot know whether they are sound or unsound, and if unsound, cannot provide a remedy: that as even external remedies are applied with greater precision after examining the situation and form of internal parts, and ascertaining their extent, so the argument holds good in all the other instances before mentioned; and that it is not cruel, as many assert, to search for remedies for the innocent part of society in all ages, at the expence of torturing a few of the guilty.

On the other hand, those who attach themselves to experience, and from that circumstance style themselves Empirics, admit indeed the necessity of evident causes; but **CONTENTEND** that research after occult causes and the natural functions are superfluous, because in their nature incomprehensible: and that it is evident they are so, from the discrepancy of all discussions of the matter; since neither the philosophers nor the physicians can agree among themselves. For why should one believe Hippocrates rather than Herophilus? why him in preference to Asclepiades? They argue, that if one be inclined to be influenced by theories, all their seem plausible; if by cures, each has his successful cases. That therefore one's reliance should be servilely placed on no man's argument, on no man's authority; that if reasoning



makes the best physicians, the philosophers must be the best; but as the matter now stands, they are redundant in words, but deficient in the knowledge of the healing art. They submit that treatment must vary with climate; that one plan is required at Rome, another in Egypt, another in Gaul; that if the causes of disease were such as are every where the same, the remedies would be so likewise; that frequently the causes are manifest, the cause of lippitude for example, and that of a wound, and nevertheless the treatment is obscure; that if the doctrine of evident cause exert so little control over the cure, that of occult cause must possess still less. The last being uncertain and incomprehensible, they prefer grounding their expectations of cure on well-tried matters of fact; that is to say, like as in all other arts, upon those things which experience shall have taught us in the treatment of disease: for it is practice and not controversy that makes the husbandman and the pilot. And that these researches have nothing to do with treatment, they infer from this; that they who entertain different opinions touching these matters, are nevertheless equally successful in the cure of their patients, which they effect, not by deriving their plan of treatment from occult causes, or from natural actions, concerning which they disagree, but from the results of their individual experience. Pursuing the argument, they contend the origin of medicine is not to be ascribed to these researches, but to experiments; for some invalids, incited by a voracious appetite, took food immediately on the first days of a disease; while others loathing all nutriment, and therefore abstaining from it, experienced more relief. Some took food also in a febrile paroxysm, some a short time before, and others after its remission, and the results were in favour of the last; so again some at the commencement of their maladies used a full, others a meagre diet; and of these the hearty feeders experienced the most dangerous disease. Now as these and the like occurrences were happening every day, attentive characters noticed what plans answered the best; and afterwards delivered precepts for the sick. Hence, medicine accurately distinguishing the salutary from the pernicious, has arisen out of the experimental results from time to time collected in the recovery of some patients, and the death of others. That it was not until remedies had been discovered that men began to reason on their mode of action; nor was medicine invented after

theory, but that theoretical inquiries were secondary to the invention of the healing art. They require to know whether or not theory leads us to the same results as experience ; if it does, it is useless ; if it does not, it is even injurious. At first, say they, it was necessary to investigate remedies with the greatest caution, but now their properties are known : and as no new maladies are met with, so no new remedies are required. But admitting the occurrence of some unknown distemper ; the physician ought not, therefore, to meditate on obscure causes, but immediately to have recourse to that disease which it most nearly resembles ; and after making trial of remedies analogous to those which have repeatedly proved successful in the disease to which it is allied, by the similitude of the case, he will discover the cure. For they do not say, a physician ought not to reason, or that an irrational animal can practise this art ; but that speculating on occult matters is not to the purpose, since it matters not what causes disease, but what removes it ; nor is it of any consequence to understand how digestion is performed, but to know what aliments are most easy of digestion, no matter what may be the cause of this process ; whether it is one of concoction, or simple digestion. They think we ought not to inquire how we respire, but what renders respiration slow and oppressed ; not what produces disturbance in the circulation, but what the different kinds of pulse portend ; a species of knowledge only to be acquired by experience. That in all reasonings of this kind there are two sides of the question, so that he who has most ingenuity and eloquence has the best of the argument ; although it is not by fluency of speech, but by remedies that diseases are cured, which in the hands even of a dumb man, well informed by experience, would prove more successful than with the most polished orator without it. That the things already mentioned are simply useless ; but now remains to be examined the cruelty of opening the abdomen and præcordia of the living, and of thus converting an art intended for the preservation of mankind to an instrument of destruction the most atrocious ; especially, since so far from such violent barbarity being requisite in the research of these matters, some are altogether out of the reach of our knowledge, and others can be learned without inhumanity. For, that colour, smoothness, softness, hardness, and the like, are not in a wounded body what they were before that

body was wounded ; since in bodies which have received no wound, fear, pain, hunger, indigestion, fatigue, and many other inconsiderable affections often effect changes ; much more probable is it, that interior and much more tender parts, to which even light itself is new, should undergo changes under wounds the most severe, even under butchery itself. They think it the last piece of folly, to expect that the parts of a dying or dead man should present the appearances of living organs ; for that the abdomen, which is of minor importance, may be opened while the man is yet breathing ; but as soon as the knife reaches the præcordia, and the transverse membranous partition separating the upper parts from the lower, and denominated by the Greeks *διάφραγμα* (diaphragma), is divided, death takes place immediately ; so, in fine, it is not until the sufferer is no more, that the præcordia and all the viscera are presented to the view of the assassin-like physician ; and these too impressed with the characters of death, not with those of life. Therefore, the physician has gained no knowledge of the nature of the viscera of the living body, but the privilege of cruelly butchering a fellow-creature. Again, admitting in such dissections one can observe anything useful while as yet the man breathes, it amounts to no more than what casualties throw in our way in practice. For, that sometimes the gladiator on the stage, or the soldier in battle, or the traveller encountered by robbers, is so wounded, that some internal part may be exposed, and so again different parts in other cases ; thus the prudent physician informs himself of their situation, position, arrangement, figure, with other particulars relating to them, and, prompted by compassion, learns that which the others cannot have discovered but by cruelty the most appalling. Duly weighing these circumstances, they are of opinion that even the dissection of the dead may be dispensed with ; for, although not cruel, it is repugnant to nature ; whilst almost all the parts are different after death, and as much as can be known during life may be acquired in the treatment of the wounded.

As physicians have written volumes on these matters, which have, and may again be, the subject of much warmly-contested argument, it is proper to subjoin certain remarks which appear to be most correct : these not slavishly adapted to the one opinion, nor diametrically opposed to the other, but such as would seem proper for an author to make,

who, as in this instance, is impartially investigating the truth. Of the cause of health and disease, as of the manner in which respiration, deglutition, and digestion are performed, not even the philosophers themselves have any certain knowledge, but they reason only from conjecture. Now, conjecture concerning a thing of which we have no certain knowledge, cannot be the means of discovering a remedy; and it is true that nothing contributes more than experience to the perfection of a rational method of cure. Although, therefore, there are many things not exclusively belonging to the arts, yet by stimulating the genius of the artist they assist him in his studies; so also the contemplation of natural things, although it does not make the physician, nevertheless renders a man more qualified for practice. Furthermore, Hippocrates and Erasistratus, with others, who, not content with treating on fevers and ulcers, advanced to the study of nature, most probably were not absolutely made physicians by such studies, but most undoubtedly greater physicians. But theoretical inquiry is requisite in treatment; and, although not always, yet often is so in obscure causes and natural actions. For this is a conjectural art; nay, not only conjecture, but experience fails to answer its purposes; so sometimes fever, food, and sleep are subject to many varieties. Every now and then, although rarely, new diseases occur; that such never occur is clearly false; for in our own time a female was attacked with a prolapse of flesh from her genitals, which afterwards became arid, and so she died within a few hours without the physicians comprehending the nature of the malady, and without their finding a remedy for it. I suppose, as she was a person of high rank, no one would personally risk his reputation by a conjecture, lest, if he should not succeed, he might appear to have destroyed her; and so on that account they tried nothing. It is more than probable but that for such timidity, some one might have hit upon a remedy, which subsequent experience would have confirmed. In cases of this kind analogy does not always bear us out; and when it does, still it is the province of theory to determine, by a comparison of a number of other diseases and their remedies, what medicine is most likely to prove beneficial. Upon such occasions, therefore, the physician's duty is to invent something which may answer, not uniformly perhaps, but yet generally. He will ground his indications not on occult matters, which are dubious and

uncertain, but on things which admit of investigation ; that is to say, on evident causes. For it is of importance to know whether fatigue has brought on a complaint, or thirst ; whether it has been occasioned by cold, or heat, or watchfulness, or hunger, or by excess in food, wine, or venery. The physician ought to know the patient's constitution ; whether it is more disposed to the moist temperament or the dry, whether weak or robust, frequently or rarely subject to disorder, and whether his attacks are usually severe or slight, of short or long duration ; his kind of life : whether laborious or idle, luxurious or frugal. For from the consideration of these and such-like particulars, a new method of treatment may frequently be deduced. Nevertheless, even these matters are not to be passed over as if incontrovertible ; "for," said Erasistratus, "it is not from these things that diseases arise ; since, under such circumstances, some have no subsequent fever, and others who are affected, nevertheless, at other times endure the same things without the slightest bad consequence."

Some physicians, who would fain be considered as having Themison for their authority, contend that the doctrine of cause is foreign to treatment, and that it is sufficient to regard certain general characters of diseases ; since of these may be enumerated three kinds : one of constriction, another of relaxation, and a third partaking of the nature of both. For that in some cases, excretion is deficient, in others excessive ; in some, scanty from one organ, and from another superabundant ; that diseases are sometimes acute, sometimes chronic ; that they sometimes advance, are sometimes stationary, and at others decrescent. Ascertaining therefore to which kind it belongs, if the body be constipated, it ought to be relaxed ; if relaxed, it must be braced ; if the disease be of a mixed character, we must from time to time relieve the more urgent symptom. One plan is to be adopted with acute, another with chronic affections ; we must diversify our treatment according as diseases are increasing, stationary, or verging to a cure. They think the observation of such matters as these constitutes medicine, and define it a manner of proceeding, which the Greeks called "Method ;" as if contending that it is its province to contemplate certain things common to disease. And they neither wish to be ranked among the Theorists, nor the Empirics ; because they dissent from the one party, in not admitting that a

knowledge of occult causes constitutes medicine, and from the latter, inasmuch as they believe the observation of experiments to constitute but an inconsiderable part of the art. But reverting to Erasistratus; in the first place, evidence itself is repugnant to his opinion, for disease seldom occurs unless consequent upon some of the causes already mentioned; and in the next place, it does not follow that what fails of affecting one individual, may not affect another; and that that which is innoxious at one period, may not at another prove injurious. For certain states accrue to a body from weakness, and some are consequent on other diseases, which are neither to be met with in other constitutions, nor in that particular body except when arising from such causes; and although these conditions do not independently produce diseases, they nevertheless predispose to them. Now, had his conception of the study of physics, for which the physicians are such unqualified advocates, been sufficiently correct, he would have known THAT NO ONE THING IS A SOLE CAUSE, BUT THAT THAT IS TAKEN FOR THE CAUSE, WHICH APPEARS MAINLY TO HAVE CONTRIBUTED TO AN EFFECT. THAT WHICH SINGLY HAS NOT THE POWER OF EXCITING DISTURBANCE, MAY, CONJOINTLY WITH OTHER CAUSES, DO SO IN THE HIGHEST DEGREE. Besides, not even Erasistratus, who says fever is caused by a transflux of blood into the arteries, arising from plethora, could discover why of two persons equally plethoric, one should fall into a distemper, while the other remains healthy; a circumstance occurring to one's notice daily. So that it may be inferred, admitting there is a real transfusion, it does not happen simply from plethora; but from the superaddition of some of the causes before enumerated.

But the Themisonians, if they hold their maxims to be of universal extent, are of all men the most decided Theorists. For although one may not admit the whole of another's tenets, he needs not search for a new professional title, provided, which is the essential point, he relies not on memory only, but on reasoning likewise. If THE MEDICINAL ART ADMITS SCARCELY ANY PRECEPTS OF GENERAL APPLICATION, which is nearer the truth, then the Themisonians differ not from the Empirics; for even the veriest simpleton can tell you whether the disease has constricted or relaxed the patient; but if a train of reasoning be pursued, in order to ascertain what relaxes a constricted frame,

or constricts a relaxed one, then indeed the physician is a Theorist: if, as he must confess as an abdicator of theory; he collect his knowledge from experience only, he is an Empiric. In this manner, with him knowledge of disease is without science, and medicine mere practice. Nay, instead of adding, they subtract from the profession of the Empirics; who do at least attend to a great number of things, but they to the easiest and most common. For even cattle-doctors, since they cannot learn the idiosyncracies of dumb animals, insist nevertheless on general observations; so it is with foreign hordes who have no scientific knowledge of medicine; and so again, those who have the fostering care of hospitals, because they have not patience to consult warily what is best for each case, have recourse to this plan of generalization. Nor, indeed, can there be a shadow of doubt, that the ancients understood this method: but general remarks did not satisfy them. So even Hippocrates, that most ancient author, has said—"It is proper to treat diseases with reference both to what is common to all, and to what is peculiar to each."

Nor are these Themisonians by any means consistent with their own declarations; since, in truth, there are various kinds of diseases of constriction and relaxation; which is more particularly manifest in fluxes. For it is one thing to vomit blood, another to vomit bile, another to vomit food; one thing to suffer from a diarrhœa, another to have a dysentery; one thing to be dissolved by sweat, and another to be wasted by consumption. Eruptions of humour take place also partially in the eyes and ears; an affection from which no part of the body is free; nevertheless, all requiring a varied adaptation of remedies. Then immediately medicine descends from the common to the particular study of flux. Here also a knowledge of the idiosyncrasy is often necessary; because the same means do not yield relief to all, even under similar circumstances. True, there are certain things which in the majority constrict, and certain things which relax the body: there are found, nevertheless, in whom the same remedy produces very different effects. In such cases, an exclusive regard to general effects would be pernicious; to peculiar effects, salutary. Also a correct estimate of the cause of a malady often suffices for the cure of it. So it was that Cassius, a most shrewd physician of our own time, having learned that inebriation had caused the disease, gave

to a feverish patient cold water; after drinking which, he broke the force of the wine by dilution, and immediately discussed the fever by the sleep and sweat consequent thereon. The physician seasonably provided this remedy, not from the consideration of the constricted or relaxed state of the body, but by reference to the preceding cause. They descend to particulars again in the consideration of climate and season; for when they are treating on the plan which should be pursued by the healthy, their injunction is in sickly climates, and at sickly seasons, to avoid cold, heat, excess in diet, labour, venery; also, to take more repose in such climates and at such seasons, if one feel heavy; and neither to excite the stomach by a vomit, nor the bowels by a purge. These remarks are just, but in them they descend from the general to the particular; unless they would have us believe that it is our duty to consider climate or season as relating to the healthy alone, and not as relating to the sick: who have just so much more need of our care, in proportion as their weakness renders them more susceptible to morbid impressions. Furthermore, various are the peculiarities of diseases in the same men; and he who has not been cured by pursuing a method usually found to be the best, not unfrequently gets well under the use of that which might appear the worst. Many are the distinctions likewise, which are made the subject of investigation in the exhibition of food; of which take one example. A young man more easily endures hunger than a boy; better in a dense than a rare atmosphere; in winter than in summer; one accustomed to one meal a day, than he accustomed to two; a sedentary person more easily than one who takes much strong exercise. And it is often proper to administer food at an earlier period to one who less easily bears hunger. I conceive, therefore, that he who is not conversant with what is peculiar to diseases, ought to regard only what is common to them; he who is acquainted with what is proper, ought not therefore to neglect what is common, but to give his attention to both. On this account, where there is a parity in scientific acquirement, a physician who is an acquaintance is to be preferred to a stranger.

To return to the main point. I am of opinion that medicine ought to admit Theory; but its curative indications should be based on the evident causes of disease; all obscure causes being banished not from the thoughts of the artist, but from



the art itself. To open the bodies of the living is, moreover, cruel and useless ; but those who devote themselves to medicine, cannot dispense with the dissection of the dead : for they ought to know the position and the arrangement of the parts, which the dead subject shews to us better than the living and wounded one : and as to certain other facts only to be learned in the living, these the treatment of wounds will teach, somewhat more tardily indeed, but in a manner more conformable to humanity. Having said thus much, I will mention what plan of living the healthy ought to pursue ; and then pass over to the consideration of those matters which relate to the nature and treatment of disease.

I. The man who is free from disease, and vigorous in all his functions, ought not, provided he is his own master, to restrict himself to regimen ; or to require either the physician or the unction-doctor. He ought to vary his mode of living : sometimes to pass his time in the country, sometimes in town, but more frequently in the open fields ; to sail, to hunt ; sometimes to remain inactive, but more frequently to exercise himself ; for idleness enervates the frame, labour fortifies it : the first tends to produce premature old age, the last to perpetuate adolescence. It is advantageous also sometimes to use the warm bath, sometimes the cold waters ; sometimes to be anointed, and occasionally to neglect even that means ; to refuse no kind of food in popular use ; sometimes to attend public banquets, and at others to take his meals in retirement ; at one time to eat more than ordinarily, at another less ; to take food twice daily rather than once, and always to the extent of his appetite, provided he can digest as much. But although exercise and food on this plan be necessary, the training adopted by wrestlers is superfluous : both because when the training is interrupted by urgent business, the system becomes depressed ; and bodies brought in this way to a high condition, very soon age and fall into a state of disease.

SEXUAL INTERCOURSE is neither to be eagerly desired, nor too fearfully avoided ; when of rare occurrence, it excites the energies of the body ; when frequent, it enervates it. But since frequency in this particular is not to be estimated merely by its repetition, but by the nature of the person, with reference to age and constitution, one may know that that intercourse is safe which is neither followed by debility

nor by pain. It is more dangerous by day, unless immediately followed by refreshment; less so by night, unless labour and watching succeed to it.

These precepts are to be preserved by the healthy; and WE SHOULD TAKE CARE, WHILE AS YET WE ARE WELL, LEST THE BARRIERS AGAINST DISEASE BE DESTROYED.

II. But for the delicate, in which class may be enumerated the majority of persons living in large towns, and almost all literary characters, stricter precaution is necessary, in order that they may regain by vigilance what they lose from the very nature of their constitutions, places of abode, and occupation. Of such therefore, he who hath well concocted his last evening's meal, may safely rise early; he who hath but imperfectly performed this process, should remain at rest, and if obliged to rise early, go to bed again; but he whose concoction is suspended, should most rigidly observe absolute rest, and neither commit himself to labour, nor to exercise, nor to business. He who has crude eructations without pain in the præcordia, ought at intervals to drink cold water, and to keep no less quiet. He ought to dwell in a well-lighted house, having the advantage of the summer breezes, and the winter sun; to avoid the heat of noon, and the morning and evening cold; as well also the vapours of rivers and stagnant waters; and on no account should he expose himself to the sun expanding through a cloudy sky; lest the vicissitude from cold to heat prove injurious, which is the most frequent cause of gravedoes and destillations. But these things are to be more rigidly guarded against in unhealthy districts, in which they even produce a pestilence.

One may know the body is healthy, if the urine is daily observed to be pale early in the morning, and reddish afterwards: the first appearance indicates digestion to be going on, the second that it is complete. On awaking, one ought to stay in bed a little while; afterwards, unless in winter, to gargle the mouth with plenty of cold water: to take a nap before food in preference when the days are long, at other times after it. Throughout the winter it is preferable to rest the entire night: but if one is obliged to study by night, it is better to do so not immediately on a meal, but after concoction.

HE WHO IS DAILY OCCUPIED, WHETHER WITH PRIVATE OR PUBLIC AFFAIRS, OUGHT TO SET APART SOME

**PORTION OF HIS TIME FOR THE CARE OF HIS HEALTH.** Now the chief means of preserving this is exercise, which ought always to precede a meal, more severe with him who has been studying less hard, and whose concoction is perfect; gentle with him who is exhausted, and who has concocted but in part. Reading aloud, martial weapons, the ball, running and walking, are means of exercise convenient enough; the last is more beneficial on ground not too level; for a slight ascent and descent affording more variety to the motion of the body, is preferable, unless this be extremely weak. Exercise in the open air is better than that in a portico; better, if the head permit, in the sun than in the shade; better in the shade of walls and groves, than in that of a covered building; better in a straight than in a winding direction. Most generally it should be continued until some sweating ensues; or at least a lassitude not amounting to fatigue: sometimes to a greater, and sometimes to a less extent. For them, there are not, as with wrestlers, any certain rules, nor ought their exercise to be immoderate. Exercise is rightly followed up sometimes by inunction, whether in the sun, or near the fire; sometimes by the bath, but in a very lofty, well lighted, and spacious apartment. But in truth, neither of these ought uniformly to be practised; but this or that more frequently, according to the nature of the constitution: afterwards a little rest is necessary. When meal-times arrive, surfeiting never does good; excessive abstinence often harm; but if intemperance be committed, it is safer in drink than in food. It is better to begin a repast with salsaments, vegetables, and other things of that nature: then, meat should be taken, which is best roasted or boiled. All ragouts are pernicious, for two reasons; because they are taken to excess on account of their agreeable flavour, and because even in moderation they are digested with difficulty. A dessert does no harm to a strong stomach, but turns sour in a weak one. He, therefore, whose health is indifferent, more properly takes his dates, orchard fruit, and the like, at an early period of the meal. After drinking considerably more than thirst requires, one should eat nothing; after a surfeit, one should do nothing. Whenever a person has eaten too heartily, he will concoct more easily by concluding his meal with a draught of cold water, remaining a short time awake, and then taking a good nap. He who has fed too heartily,

ought neither directly afterwards to expose himself to cold nor to heat, nor to labour; for these things are not so hurtful when digestion is suspended, as they are on a full stomach. Therefore, when, no matter from what cause, it becomes expedient that we should fast, all labour should be avoided.

III. These remarks are almost of universal application; but the occurrence of fresh circumstances, sex, peculiarities of constitutions, age, and season demand particular consideration; for neither moving from a healthy to a sickly place, nor from a sickly to that which is healthy, is altogether safe. It is better to pass from a salubrious to a less healthy district at the beginning of winter; from the sickly to the healthy early in the summer.

Gorging after a protracted fast is improper; long fasting after a surfeit equally so. He who takes food immoderately once, as likewise he who takes it twice a day, contrary to his usual habits, does so at his peril. Neither a life of idleness suddenly ensuing upon habits exceedingly laborious, nor the reverse of this, can take place without serious injury. Therefore, when a person wishes to change his mode of living in any particular, he should inure himself to it gradually. Even a boy or an aged person bears all kinds of labour better than the middle-aged man who is unaccustomed to it; and on this account it is, that a life of extreme idleness is disadvantageous; for the time may come when labour shall be compulsory. If at any time one not habituated to it has been at hard work, or one accustomed to labour has worked more slavishly than usual, he ought to sleep on an empty stomach; more particularly if he have a bitter taste in his mouth, or his eyes be dim, or his bowels be out of order; for in that case he must not only sleep fasting, but persist in the same plan the day after, unless repose shall have quickly removed that affection. If it have, he should get up, and walk about gently for a short time; but although the labour has not been excessive enough to require sleep, yet the walking about for some time should be practised in the same manner.

In the next place, all who after fatigue have a mind to take food, after having walked a little, in default of a bath, should be anointed in a warm apartment, or in the sun, or near a fire, and perspire there. If there be a bath at hand, they should first sit in the *TEPIDARIUM*; after resting there a little, they should enter, and descend into the *SOLIUM*;

then be anointed, and gently rubbed with plenty of oil; go into the SOLIUM a second time, and afterwards gargle the mouth, first with hot water, subsequently with cold. A bath at a high temperature is not suitable to these cases; therefore, if any one have experienced fatigue to an extent menacing fever, the hip-bath, with a little oil in it, will be sufficient; and he should afterwards gently rub his body all over with oil, but more especially the parts which have been immersed, having previously mixed wine with the oil, and also a little coarsely powdered salt. After these precautionary means, it is proper that all who are fatigued should take food, and that of a moist quality; that they be content with water, or at most with wine diluted with water, and that kind in preference which excites the urinary secretion. It is right we should know, that a cold draught is exceedingly pernicious to one in a state of perspiration; and even after the subsidence of the sweating, it is hurtful to those who are fatigued by journeying. Asclepiades judged it also to be pernicious after just coming out of the bath; which is true as regards those whose bowels are moved easily, and not without risk; as well as regards those who have shiverings from slight causes; but does not apply to all cases, since it is rather natural than otherwise to adopt this expedient for cooling an over-heated gullet. But in laying down this rule, I am free to confess nevertheless, that this cause is not strong enough to warrant the drinking of any thing cold, by one who is sweating.

After partaking of various dishes, and drinking abundantly of thin potations, it is beneficial to vomit; and on the next day to lie late in bed, and then to take moderate exercise. He who is frequently oppressed with fatigue should drink water and wine by turns, and use the bath rarely. Variety in labour also lessens the fatigue of it; and he, whom some unusual labour has fatigued, finds relief by going back to that to which he is accustomed. That couch which is in daily use is the safest for one fatigued; for that which is contrary to habit, wearies, whether soft or hard.

There are certain precepts which apply particularly to him who is fatigued by walking. Frequent friction, even on his journey, will prove refreshing; so also sitting still after his journey, and then anointing; subsequent to which he should, while in the bath, foment the upper parts more than the lower with hot water.

Should any man be sun-scorched, he should, without loss of time, betake himself to the bath, and rub his trunk and head with oil; then go into a well-heated solium; then pour water freely over his head, first at a high temperature, and afterwards cold. But he who is suffering from excessive cold, should first sit wrapped up in the bath till he sweat, then, having been anointed and laved, he should take food in moderation, and his wine undiluted. He who after sea-voyaging is troubled with nausea, if he have vomited much bile, should entirely abstain from food, or take only some very small portion. If he have brought up acid phlegm, he ought certainly to take food, but lighter than usual; if the nausea has been unattended with vomiting, he ought either to abstain, or to vomit after his meal.

He who sits the day through, either in a vehicle or at the public spectacles, should not run, but walk slowly. It is usually serviceable also to linger in the bath, and to take a scanty supper. If any one be over-heated in the bath, he may refresh himself by holding vinegar in his mouth, or, in default of that, cold water.

**BUT, ABOVE ALL, EVERY MAN SHOULD KNOW THE NATURE OF HIS OWN CONSTITUTION;** for some are thin, others prone to obesity. There are those who are of a hot, and those who are of a cold temperament; some moist, and others dry; those who habitually have a relaxed, and those who have a confined state of bowels. It rarely happens that a man has no weak point about him. He who is of a spare habit ought to adopt a nourishing regimen; the plethoric subject to reduce his bulk; the hot to cool, the cold to warm his constitution; the moist to dry, the dry to moisten it; one of lax habit to constrict, but the costive subject to relax his bowels; in fine, we must always direct our relief to the part which is suffering most.

**BUT THE MEANS OF IMPLETION** are, moderate exercise, frequent repose, inunction, and, if after dinner, the bath, controlling looseness of the bowels, a moderate degree of cold in winter, sleeping soundly but not too long, a soft couch, tranquillity of mind, sweet and fat aliments whether solid or fluid, and food taken frequently to the utmost extent of digestion.

**THE ATTENUANTS** are—bathing in hot water, and more so if this be salt; the bath on an empty stomach, a scorching sun, and heat of every kind; care, watching, sleep, whether

of too short or too long duration ; having one's bed on the ground in summer, a hard couch in winter ; running, much walking, and strong exercise of every kind ; vomiting, purging, materials of an acid or austere nature, and such as are taken once a day ; together with the custom of drinking moderately cool wine on an empty stomach.

But since among the extenuants I have mentioned vomiting and purging, it is requisite to subjoin a few separate remarks concerning these.

I perceive that vomiting is rejected by Asclepiades, in that work which he composed "ON THE MEANS OF PRESERVING HEALTH ;" nor do I blame him, if he did it from a disgust towards those gormands who make daily vomiting subservient to the gratification of their voracity. But he has gone further than this ; for in that same volume he has excluded internal purgatives likewise ; and even these are pernicious, if effected by very drastic medicines.

But their complete exclusion is not free from exception ; for there are kinds both of constitutions and seasons which render them indispensable, provided they be exhibited in moderation, and only when occasion requires. Hence, since even he acknowledges what is corrupt must be expelled, his condemnation of them is not unqualified. Inasmuch as the cases requiring their use may be numerous, their administration requires so much the more careful discernment.

VOMITING is more beneficial in winter than in summer ; for that is the time phlegm is more abundant, and the head oppressed. It is injurious to the slender, and to those who have a weak stomach ; useful to full and bilious habits, after surfeiting or imperfect concoction. For if they have eaten more than can be digested, there is no necessity for risking the corruption of the aliment ; and if it be already corrupt, nothing is more to the purpose, than its expulsion by the readiest way possible. Therefore, whenever bitter ructations with pain and a sense of weight in the præcordia are present, to this ought we to have recourse. It is useful also to him who has heat in the chest, or a frequent flow of saliva with nausea, or a ringing in the ears, or weeping from the eyes, or a bitter taste in the mouth : so likewise to him who changes his climate or situation, and to those who have been troubled with pains of the præcordia, and have not vomited for several days. I am aware, that for these symptoms rest is enjoined ; but it is a remedy not always within the reach

of those who are obliged to work, neither is it successful in all cases. Therefore, acknowledging it improper as the instrument of gratifying luxury, I am induced by experience to believe it ought now and then to be practised as a means of preserving health ; with this precaution, however, that he who would be strong, and wishes to arrive at a good old age, ought not to make it a daily practice. He who readily vomits, if he wish to vomit after his meal, should first take warm water alone ; if he vomit with difficulty, he should add a little salt or honey. But if about to procure vomiting in the morning, he should first drink hydromel or hyssop, or eat radishes, then swallow the warm water, as mentioned above. All the other vomits prescribed by the ancients are noxious to the stomach. After vomiting, if the stomach be weak, a little suitable food may be eaten, and he may drink three cyaths of cold water, unless the operation have irritated the fauces. He who has vomited, ought, if in the morning, to walk, to be anointed, and afterwards to take his meal ; if after supper, the following day to bathe and sweat in the bath. His next meal ought to be moderate, consisting of yesterday's bread, undiluted austere wine, roast meat, and all very dry aliments. He who intends to vomit twice a month, will arrange the matter better by doing so two days successively, than after each fifteenth day ; unless such postponement should produce a sense of weight in the chest.

**PURGING** by the agency of medicine is desirable when costiveness produces flatulency, giddiness of vision, pains of the head, and other affections of the upper part of the body. For what benefit can we derive from rest and fasting, by which such symptoms are often aggravated? He who wishes to relax his bowels, should first use laxative food, and wine ; afterwards, if these fail, let him take aloes. But although purges are sometimes necessary, yet they are often dangerous ; for the body thus becomes inured to the receiving no nourishment ; whilst debility subjects it in the highest degree to all manner of diseases.

Unction, salt water, particularly if hot, all salt provisions, bitters, and flesh-meat, bathing, and drinking austere wine after food, are **CALEFACIENT**. **REFRIGERATION** is promoted by bathing and sleeping, if not too long on an empty stomach ; by all acids, by very cold water, and oil if mixed with water.

**HUMECTATION** is effected by labour somewhat more than



ordinary, frequent use of the bath, fuller diet, drinking copiously, and after these, by walking and watching. Long continued and brisk walking is of itself humectant; as also is morning exercise, unless food be taken too soon afterwards: so likewise are aliments derived from cold, rainy, and irri-  
guous places. On the contrary, EXSICCATION is promoted by moderate exercise, hunger, unction without mixing water to the oil, heat, insolation if not excessive, cold water, food immediately after exercise, and such as comes from dry and hot districts.

CONSTIPATION of the bowels may be produced by hard work, by sitting still, rubbing potter's chalk on the body, diminution of the customary food, and this too taken once, by him who is in the habit of taking it twice a day; by drinking little, and only with one's food, and by repose after food. On the other hand, walking and eating more than usual, motion after food, drinking from time to time when not at meals, relax the bowels. It is also expedient to know that vomiting binds the bowels when relaxed, and relaxes them when bound; so also that vomiting immediately after a meal constricts them, while that which supervenes tardily has a contrary effect.

As regards the PERIODS OF LIFE, fasting is endured most easily by men of middle age, less so by youths, least of all by children and old people. The frequency of taking food should be apportioned to the difficulty of supporting hunger; he that is growing requires it oftenest. The hot bath is adapted to infancy and old age. A weaker wine is suited to boyhood, a stronger to old age; but such as is flatulent, to neither. It matters less what food young men take, or what regimen they adopt. They who have habitual relaxation in the prime of life, are usually constipated in senescence; and the converse of this frequently occurs in those who are costive when young. Habitual laxity is more to be desired in youth; constipation in old age.

It is right also to observe the different seasons of the year.

In WINTER it is requisite to partake more freely of solid food, moderately drinking wine of a fuller body; to eat bread abundantly, boiled meat in preference, and vegetables in moderation; to take one meal a day, unless costive. If in the habit of taking dinner, it should consist of some trifle of a dry nature, excluding flesh meat and drink. All one's

food should be hot, or calefacient. Venery at this season is tolerably free from danger.

But in **SPRING** one should take less food, and more wine, although lowered by dilution; one should eat more freely of flesh meat and vegetables, gradually passing from boiled meat to roast. This is the safest period for coition.

In **SUMMER** the body requires a more frequent supply of food and drink; therefore dinners are then proper. Flesh meat and vegetables are now most suitable; wine highly diluted, so as to quench thirst, without producing excitement; cold bathing, roast meat, cold aliments, or such as are refrigerant. Since more frequent, so ought our meals to be more scanty.

**AUTUMN**, from the vicissitudes of temperature then experienced, is the most dangerous. Therefore it is improper to go out at this season without a cloak, or without shoes, and especially on cold days; nor should one sleep in the open air by night, or at all events one ought to be well covered. This is a time at which we ought to use a richer diet, and wine less diluted, but in small quantities. Some deem orchard fruit pernicious, because it is taken to excess at all hours in the day, without abatement of our more substantial food; therefore, the mischief accrues, not from the fruit merely, but from the indiscriminate mixture of all aliments; for thus abused, they are all equally pernicious. It should therefore be taken no oftener than other articles of food; and when superadded, these last should be proportionably diminished. Sexual indulgence is in truth neither good for the health in summer, nor in autumn; but it is less injurious in this last season; for in summer, if possible, it should be abstained from entirely.

IV. My next duty is to speak of such persons as have certain parts of their body constitutionally weak.

He who has an infirm head, should, if he has perfectly concocted, rub it gently in the morning with his own hands; never wear his cap, if it can be so managed; cut his hair close to the scalp; and it is proper to shun the light of the moon, particularly at that planet's conjunction with the sun; to go no where after food. He ought daily to comb his hair, if he have any on his head; to walk much, but, if practicable, not in a covered building, nor in the sun; for he ought especially to avoid the heat of the sun, and particularly after taking food and wine; to be anointed in preference to

bathing; never to be anointed at the heat of a flaming fire, but sometimes near a brasier.

On entering the bath, he should first excite sweating under a blanket in the *TEPIDARIUM*; there perform inunction; then he ought to pass into the *CALIDARIUM*; when he shall have perspired there, he ought not to descend into the *SOLIUM*, but to sluice himself from the head downwards, first with hot, then with tepid, and afterwards with cold water; pouring it longer on the head than elsewhere; then he should well rub it for some considerable time, and, lastly, wipe it dry and anoint it.

Nothing is so beneficial to the head as cold water. Therefore, he who has cephalic infirmity, will do well to hold his head under a full stream of water for some time every day throughout the summer. But uniformly, even if he have anointed without the bath, and cannot bear to chill his body entirely, he ought still to practise cold affusion on the head, and if he do not wish the rest of the body to be wetted, he should lower his head that the water may not descend down his neck; and throw it back as it flows down, so that it may not hurt the eyes or any other part. His food should be moderate and easy of digestion; and that, if fasting hurt his head, should be taken twice a day; otherwise, once in preference. It is better for him to drink frequently of a mild wine much diluted, than water merely; so that when his head shall have begun to feel out of order, he may have a remedy to fly to; and neither wine nor water is exclusively serviceable to him, while either, used alternately, becomes a remedy. It is requisite that he neither write, read, nor declaim loudly, especially after supper; after which not even intense thinking is quite free from its dangers; but of all things vomiting is most inapplicable.

V. Nor is it only to those whom an infirm head torments, that the use of cold water is serviceable; but to those also who are plagued with lippitudes, gravedoes, distillations and tonsillar affections. But for these not only is the head to be subjected to daily affusion, but the mouth is to be gargled abundantly with cold water; and it ought to be employed by all who find it beneficial, most especially when southerly winds have rendered the atmosphere unwholesome. And inasmuch as declamation and mental exertion are injurious to all persons immediately after food, in a much higher degree are they so to those who are accustomed to have

disease of the head, or of the trachea, or any other affections about the mouth. He who is subject to gravedoes and distillations, may avoid them by changing, as seldom as may be, his place of residence and the waters he is using; by covering his head in the sun, lest it be scorched, or lest a sudden chill, arising from a transitory cloud, disturb it; by shaving his head when fasting after concoction; and by neither writing nor reading after food.

VI. But he who is frequently troubled with diarrhœa, ought to bring the upper parts of his body into action, by playing at ball and such-like exercises; to walk fasting, to keep out of the sun, and to avoid constant bathing; to anoint without sweating, not to use mixed food, and by no means stewed meats or legumes, or such vegetables as rapidly pass through the stomach; but, in short, all he takes should be such as is slowly digested. Venison, fish of hard fibre, and the roasted flesh of domestic animals, are most useful. It is never proper to drink wine flavoured with salt; not though it be weak or sweet; but that which is austere and full-bodied, and not too old. If one must needs use hydromel, it should be prepared from boiled honey. Cold drinks are decidedly preferable, unless they disturb the bowels. If he finds any part of his supper has disagreed with him, he ought to vomit; and also to repeat that remedy the day after: on the third day, to eat a little bread soaked in wine, with the addition of potted grapes, or in DEFRUTUM, or some such liquor: afterwards to return to his usual habits. But after meals he should always keep tranquil and avoid mental exertion, nor should he be moved about even by the most gentle walking.

VII. But if the large intestine, which they call the colon, be wont to be painful, since that is only a kind of flatulence, one's aim should be to promote digestion; to be exercised by reading aloud, and by other means; to use the hot bath, hot food and drink; finally, to avoid all sweets, legumes, and every thing flatulent.

VIII. He whose stomach is infirm, ought to read aloud, and walk afterwards; to play at ball, or exercise himself with arms, or by any other kind of exercise which brings the upper part of the body into play; to drink no water, but hot wine on an empty stomach; to eat two meals a day, if he can digest as much; to use weak and astringent wine, and in preference, cold drink after his food. Pallor, emaciation, pain in the præcordia, nausea, involuntary

retching and head-ache while fasting, are indicative of a weak stomach; and his is strong who has not these symptoms. And most certainly we should not believe our patients, who, when they have a mind to drink wine or cold water, excuse the indulgence, by complaining of their stomachs without occasion. Such as have slow digestion, and are therefore subject to flatulency, or they who experience much night-thirst, arising from some heat in the body, ought, before they retire to rest, to imbibe to the extent of two or three cyaths through a small reed. Equally available against tardy concoction is reading aloud, and afterwards walking, anointing, and bathing; the constant drinking of cold wine; beverage in abundance after food, but, as I have above stated, through a syphon: after which he ought to conclude by drinking cold water. If his food become acescent, it is convenient to drink tepid water beforehand, and to vomit; but should that produce diarrhœa, he should in preference use cold drink after each stool.

IX. He who is used to have pain in the nerves, which is common to gout in the feet and hands, ought, to the utmost extent, to exercise the part, and to expose it to the effects of labour and cold; unless during a paroxysm, when quiet is the best remedy. Sexual commerce is always prejudicial to such subjects; digestion as in all other affections necessary, so in this likewise; for crudity is very pernicious, and whenever the body has been disordered, the faulty member feels it most sensibly. Now as concoction is good for all affections, so cold is serviceable to some, heat to others; and every man should pursue these remedies with a reference to the nature of his own habit. Cold is hurtful to the old and spare subject, to wounds, to the præcordia, intestines, bladder, ears, hips, shoulders, genitals, bones, teeth, nerves, the womb, and the brain: it renders the skin pale, dry, harsh, and dark-coloured: hence, shiverings and trembling. But it is serviceable to young men and to all full habits; the mind also is more active, and digestion more vigorous in cold weather, under the observance of due precaution. Cold affusion is beneficial to the stomach, as well as to the head; to joints also, and to pains unaccompanied by ulcer; so likewise to people who are ruddy to excess, if free from pain.

Heat remedies all those affections to which cold is hurtful; ophthalmies if without pain or illachrymation; contracted

nerves, and such ulcers principally as proceed from cold. It gives a good colour to the body, and promotes urine. If in excess, it debilitates the frame, softens the nerves, relaxes the stomach.

But in fact neither the sudden extremes of cold nor heat are free from danger to the unhabituated; for cold gives rise to pleurisies and other disorders; cold water induces struma. Heat impedes concoction, prevents sleep, disperses by sweating, and disposes the body to pestilential maladies.

X. There is a precaution also requisite in a pestilence to be used by him who although not yet affected, cannot however be perfectly secure. At such a time, therefore, he should travel by land or by sea. If that be not convenient, he ought to be carried about, to walk gently in the open air before the broiling heat; to be moderately anointed; and, as has been said above, to avoid fatigue, indigestion, cold, heat, and sexual indulgence; and to be much more guarded in his regimen, should he feel a heaviness in any part of his body. In that case, he should not rise in the morning, nor walk bare-foot, especially after a repast or the use of the bath; he should neither vomit fasting, nor after supper; nor ought his bowels to be relaxed; and even if they are so spontaneously, they should be constricted. It is better to be abstemious, if the body is somewhat plethoric; and also to avoid the bath, sweating, noon-day sleep, especially if preceded by food; this, nevertheless, is then more conveniently taken once daily; moreover, the quantity should be moderate, to prevent crudity. He ought to drink alternately, one day water, another wine. These precautions observed, he ought to vary his other habits as little as possible. Although, in point of fact, this plan ought to be pursued in every pestilence, yet most strictly so in that occasioned by southerly winds. And the same precautions are necessary to those who are travelling, if they have left their homes at a sickly season, or have arrived in unwholesome climates. And if anything prohibit our observance of the other rules, most certainly ought we to be abstemious; and to change from wine to water, from water to wine, in the manner mentioned above.

## BOOK II.

THE signs of approaching sickness are numerous ; and in explaining them I shall not hesitate to use the authority of the ancients ; but chiefly that of Hippocrates, since although the more modern physicians have effected some changes in treatment, they nevertheless acknowledge he has excellently well presaged these matters. But, prior to mentioning the preceding signs which warrant the apprehension of diseases, it does not appear inappropriate to set forth what seasons of the year, what sort of weather, what periods of life, what kinds of constitutions, are in the highest degree liable to disease, or secure from the same ; and what malady is chiefly to be expected in each. Not, but at all seasons, in all weather, men of every period of life, of every habit, may sicken and die from the effects of all kinds of diseases ; but because certain occurrences are more usual, and it is advantageous for every man to know against what, and when he should chiefly exercise caution.

I. Spring is the healthiest season : next after this, winter : summer more dangerous : autumn by far the most dangerous.

The best WEATHER is that which is the least vacillating, whether cold or hot : the worst, is that which is most variable : hence, autumn carries off the greatest number. For about noon, heat prevails ; night and morning, and likewise in the evening, it is cold. The body, therefore, relaxed by the previous summer, and from time to time by the noon-day heats, is suddenly encountered by cold. But although it happens principally at this season, so, happen when it may, it is hurtful. When the weather is equal, fine days are most salubrious : the rainy are preferable to the foggy or cloudy : and in winter, those are the best on which there is no wind ; in summer, those attended with a westerly breeze. If any other wind prevail, the northerly are more healthful than those blowing from the east or the south : but these matters are so precarious, that they are liable to be changed by peculiarity of climate. For in all parts land breezes are generally salutary,

those coming from the sea unwholesome; and not only is health less precarious during salubrious weather, but former diseases also, if any have been prevalent, assume a milder form and are more speedily terminated. That air is of all the most pernicious to a patient, which has produced the malady; so that in this case, a change even into an atmosphere naturally worse, contributes to his recovery. The middle period of life is the safest, for it is alike free from the inconveniences accruing from the heat of youth, and the frigidity of old age. This latter period of life is exposed to chronic, adolescence more to acute diseases. The square-built frame, neither spare nor fat, is the most favourable to retaining sound health, and to recovering from disease. For tallness of stature, although graceful in youth, is worn out by a premature old age: the slender frame is weak, the fat subject loose in fibre.

But in **SPRING** those diseases are usually dreaded, which are excited by commotion of the humours. This is the season, therefore, for lippitudes, pustulary eruptions, hæmorrhages, abscesses, called by the Greeks ἀποστήματα (apostemata), black bile, which they call μελαγχολίαν (melancholia), insanity, epilepsy, quinsy, gravedoes, and catarrhal fluxes. Those affections also which at one time harass the joints and nerves, and at another remain dormant, at this period principally, both originate and return afresh.

**SUMMER** is exempt from scarcely any of these affections; while to the train it adds fevers, continued, ardent, and tertian; vomitings, purgings, ear-ache, ulcers of the mouth, gangrene, occurring in other parts indeed, but in the genitals particularly; and, lastly, all maladies producing colliquative sweats.

There is hardly one of these affections that is not incidental to **AUTUMN**: and about this time also arise irregular fevers, affections of the spleen, anasarca, tabes, called by the Greeks φθίσις (phthisis); difficult micturition, which they denominate στραγγουρία (strangourian); diseases of the smaller intestines, termed by them εἰλεός (eileos); a disease they call λειεντερίαν (leienterian), proceeding from excessive lubricity of the intestines; sciatica and epilepsies. This season takes off those worn out by long-continued disorders, and those to whom the heat of the preceding summer has been oppressive; destroys some by fresh maladies; and others it affects with such as are tedious; particularly



with quartans, which may even last all the winter. Nor is any period more exposed to pestilence of all kinds, however various the forms in which it exerts its noxious influence.

But WINTER provokes head-ache, cough, and all affections which are contracted in the fauces, sides, and viscera.

As to THE WINDS, the north excites cough, inflames the fauces, binds the belly, suppresses urine, brings on shiverings, and also pains of the sides and chest; and yet it braces the healthy constitution, increasing its alertness and agility. The south obtunds one's hearing, retards sensation, excites head-ache and diarrhœa, rendering the body deficient in energy, moist, languid. The remaining winds predispose to this or that disorder, according as they more or less approximate to the former or to the latter of these two.

HEAT, again, of all kinds, both inflames the liver and spleen, enervates the mind, and produces faintings and hæmorrhage.

COLD sometimes occasions distensions, sometimes stiffness of the nerves; the former called by the Greeks *σπασμὸς* (spasmos), the latter *τέτανος* (tetanos); in ulcers it causes lividity, in fevers, shivering. In a drought, the prevailing diseases are acute fevers, lippitudes, dysentery, strangury, joint-pains: in rainy weather, tedious fevers, purgings, sore-throat, gangrenes, epilepsies, and resolution of the nerves, named by the Greeks *παράλυσις* (paralysis).

It is of importance, not only to regard the existing state of the weather, but also that which has preceded it. If in a dry winter the winds have been northerly, and the following spring brings us south winds with rain, then most commonly ensue lippitudes, dysenteries, fevers; and particularly in lax habits; for which reason they occur in females chiefly. But if southerly winds and rain have prevailed throughout the winter, and a cold dry spring follows, pregnant women near their confinement are in danger of miscarriage. And they who have offspring at the usual time, bring forth puny children, and such as have scarce a chance of surviving. Others are affected with dry lippitude, and, if somewhat advanced in life, with gravedoes and destillations. But if the southerly winds have continued from the beginning of winter to the end of spring, pleurisies, and phrenetic fevers, called by the Greeks *φρένησις* (phrenesis), very rapidly prove fatal. When the preceding spring and summer have been excessively hot, profuse sweating in fevers is the necessary consequence.

When in a dry summer the wind has been northerly, and the following autumn south winds with rain have prevailed, during the next winter arise coughs, destillations, hoarseness, nay, in some even consumption. But when autumn also turns out dry, and is attended with the same northerly winds, loose-fibred habits, such as I have stated those of females to be, enjoy a good state of health; while in the more robust subjects not only dry lippitudes, but fevers both acute and chronic, and atrabiliary disorders, may possibly manifest themselves.

With regard to AGE, infants and children just entering upon the period of puberty, are most healthy in spring and the early part of summer: elderly people in summer and at the commencement of autumn, the young and the middle-aged in winter. This last-mentioned season is more hurtful to the aged, summer to young people.

When there is any DEBILITY PREDISPOSING to disease, the chances are, that INFANTS in arms, and young children, will be affected with spreading mouth-ulcers, which the Greeks call *ἀφθας* (aphthas), with vomiting, night-watchings, ear-sores, and inflammations about the navel. The peculiar affections also of such as are teething, are ulcerations of the gums, convulsions, feverishness, purgings; particularly during the cutting of the canine teeth; severe trials to which every full and costive habit is exposed. When somewhat more advanced in years, children become subject to glandular tumours and spinal curvatures; to strumæ, to certain painful kinds of warts, which the Greeks term *ἀκροχορδόνας* (akrochordonas), and to various tubercles besides these. And in truth even at the commencement of puberty, many of the same diseases occur; also fevers of long duration and bleeding from the nose.

All children incur most risk about the fortieth day after birth; the seventh month; the seventh year; and, afterwards, about the age of puberty. Such diseases, moreover, as have happened in infancy, and are not terminated at the age of puberty, in boys by the commencement of sexual intercourse, in girls by the development of the menses, are commonly of long continuance; more frequently, however, protracted infantile disorders are terminated at this juncture.

ADOLESCENCE is most exposed to acute diseases; also to epilepsies and consumption; and it is the young also who are subject to the spitting of blood. After passing this period

of life, arise pleurisies and pneumony, lethargy, cholera, mania; and flux of blood apparently from the mouths of veins, which the Greeks call *αιμορροΐδας* (haimorrhoidas).

IN OLD AGE we have difficult respiration and strangury, gravedo, pains of the joints and reins, palsies, vitiated habit or cachexy, as the Greeks call it; night-watchings, chronic affections of the ears, eyes, and nostrils; very often diarrhœa, and its consequences; namely, dysentery, lientery, and other inconveniences accruing from alvine relaxations.

Furthermore, THE SLENDER are subject to consumptions, purgings, destillations, and also to intestinal and pleuritic pains. THE FAT are most frequently suffocated by acute diseases, and difficult respiration: they often die suddenly too, which occurrence in one of a less gross habit is rare.

II. Before an illness, as I have said, certain characteristic signs make their appearance; and in all cases the body feels different from what it did ordinarily, not merely for the worse, but even for the better. He, therefore, who has become lustier, is better looking, and of a more florid complexion than usual, ought to regard these advantages with suspicion; for since they cannot remain stationary, nor can further advance, they usually retrograde, and suffer a natural decay. But it is a worse sign to have become unusually thin, and to have lost one's colour, and healthful mien; for in the redundancy there is something for the disease to prey upon; in the deficiency, nothing to bear up against the disease itself.

Moreover, there is immediate reason to fear an attack, when the limbs become heavy, when ulcers frequently appear, when the body has become unusually hot, sleep unusually oppressive, and the dreams tumultuous; when the patient awakes oftener than usual, and soon falls asleep again; when, contrary to what he has before experienced, he has partial sweats during sleep, and especially if these occur about the breast, neck, legs, arms, or hips; if his spirits flag; if he find it irksome to speak and move about; if his body feel torpid; if he have pains in the præcordia or the whole chest, or, which happens in most cases, in the head; if his mouth be full of saliva, his eyes roll with difficulty, his temples be constricted, his limbs shivering, and respiration difficult; if the vessels about the forehead be tense and disturbed; if there be frequent yawning, if the knees be fatigued, or the whole body experience lassitude. The majority of these symptoms

often precede fever, and some never fail to do so. Nevertheless, it should first be taken into consideration, whether the patient have hitherto experienced any of these symptoms, without consequent disorder of the body. For there are certain idiosyncracies, without a knowledge of which, it is no easy matter to afford any certain prognostic. Naturally, then, he is free from apprehension under such manifestation of signs, who has before frequently escaped from them with impunity; while he ought to feel some anxiety, to whom they are new, or whose safety under them has depended on his own precautions.

III. When a fever has attacked a person, one may know he is in no danger, if he lie on either side, as best pleases him, with his legs a little drawn up; which is usually the position of a healthy subject; if he turn himself easily; if he sleep by night, and in the day-time keep awake; if he breathe easily, if he bear up against the disease without struggling; if the skin about the navel and pubes be plump; if the præcordia be equally soft on either side without any sense of pain. But if they be somewhat swollen, provided they yield to the pressure of the fingers, and be not painful, and some considerable extent of the body be equally soft and warm, and the febrile paroxysm be ended by sweating, the disease promises to be free from danger. Sneezing is a good sign, and a desire for food, which has either been experienced from the beginning, or has ensued after anorexy. Nor ought that fever to alarm us which is finished on the same day it began; nor that which, although it disappears after a longer interval, ceases entirely before another accession, so that the body becomes perfectly sound; a state denominated by the Greeks *ειλικρινές* (eilikrines). But if any vomiting happen, it should be mingled with bile and phlegm; and in the urine there ought to be a smooth, equable sediment; provided also, that if a cloudy matter float there, it be precipitated. But the bowels, in a person free from danger, yield soft, well-figured motions, and these at about the same time at which they were wont to do in health, and in quantity proportionable to the materials ingested.

Lax motions are more dangerous; nor ought even these to alarm us at first, if in the morning they be more solid, or if as the day advances they gradually become of a better consistence and tawny, and are not more fetid than healthy motions having the same appearance. So likewise the void-

ing of some round worms is not a dangerous sign. If inflammation have produced pain and swelling in the upper parts, borborygmus is favourable, and especially if the wind escape with the fæces.

IV. On the contrary, there is reason to apprehend a SEVERE DISEASE, when the patient lies in a supine position, with outstretched hands and legs; when he wishes to sit up in the very climax of a disease, and especially in pulmonary affections; when he is oppressed with night-watching, although by day he have sleep; of which, however, that is more dangerous which happens between the fourth hour and night, than that from the morning until the fourth hour. Nevertheless, the worst sign is to have no sleep either by day or night; for that cannot occur without incessant pain. But it is in truth quite as bad a sign, to be oppressed with more sleep than requisite; and it is more dangerous, proportionably as it lasts throughout both day and night. These are also the prognostics of a severe disease:—to breathe forcibly and frequently; to have begun to shiver after the sixth day; to spit pus; not to expectorate but with the greatest difficulty; to have incessant pain; to bear the disease with difficulty; to jactate the arms and legs; to weep involuntarily; to have a glutinous humour sticking to the teeth; the skin about the navel and pubes emaciated; the præcordia inflamed, painful, hard, swollen, tense; and more so, if these appearances be on the right, than if on the left side; but it is the most dangerous sign, when the vessels in that quarter are vehemently excited.

It is also a sign of a severe disease, to waste too rapidly, to have the head, feet, and hands cold, while the belly and sides are hot; or the extremities cold, in an acute disorder; or to shiver after sweating; to hiccough after vomiting, to have redness of the eyes, or loathing of food after craving it, or after protracted fevers; or to sweat profusely, and particularly to have cold or partial sweats, and such as do not terminate the fever; to have those fevers, which recur daily at the same hour, or which uniformly have similar paroxysms, without any alleviation of the fit on each third day; or those that continue after this manner; that while their accessions become more frequent, the febrile action merely abates in their decline, without at any time entirely ceasing. But it is the worst sign if the fever continue equally violent without any remission. A fever accruing upon

jaundice is likewise dangerous, especially if the præcordia have continued hard on the right side. So also when these parts are painful, every acute fever ought seriously to alarm us; and convulsions occurring in an acute fever, or after sleep, are always formidable. To awake with fright, is a mark of a bad distemper; as also is mental perturbation at a very early period of a fever, or paralysis of a limb; after which calamitous symptom, although he survive, that limb is most usually deprived of its strength.

Vomiting also of an unmixed phlegm or bile is dangerous; and the more so, if it be green, or black. But that urine is bad, in which a reddish, smooth sediment subsides; that is worse, in which there are, as it were, thin, white leaflets: that worst of all, which presents an appearance as of small clouds composed of bran. Thin and white urine is also morbid, but principally in the phrenetic.

It is also dangerous to have perfect alvine suppression; so likewise is that diarrhœa which during fevers does not allow the patient to remain quiet in bed; particularly if the dejection be very watery, white, or pale or frothy. Moreover those motions denote danger, which are scanty, sticky, smooth, white, or palish: if they be livid, or bilious, or cruentate, or unusually fetid. Those are unfavourable too, which, after fevers of long continuance, are of an unmixed quality.

V. After these indications it is desirable that the disease be of long continuance; for so it must, unless the patient die. Nor have we other hope of recovery in formidable affections, than that our patient may escape, by outlasting the impetus of the disease, and that it may be thus protracted long enough to afford time for treatment.

However, there are certain signs at the commencement, from which we may collect that a disease, although it may not prove fatal, will last a considerable time.

FOR EXAMPLE: when in chronic fevers cold sweat arises about the head and neck only; or when the body sweats without cessation of the fever; or when it is at one time cold, at another hot, and the complexion changes; or when abscess having occurred in fevers does not heal; or when the patient has wasted but little, for the time he has been sick: likewise, if the urine be at one time watery and clear, at another, have sediment in it; if this precipitate be smooth

and white or red; or if it present an appearance like small crumbs; or effervesce.

VI. But during these symptoms indeed, danger being announced, there is yet room for hope: the following testify that the case has in truth arrived at the very last extremity; the nose sharpened, the temples sunk, the eyes hollow, the ears cold, languid, and inverted at their lower margin, the skin about the forehead hard and tense, the complexion dark or deadly pale: and much more so, if these are present without having been preceded by watchfulness, or diarrhœa, or long fasting; from which causes such a manifestation of symptoms sometimes takes place, but are ended in one day: therefore, when lasting longer they are indicative of death. So likewise if they endure for three days in a disease of long standing, death is near: particularly if, in addition to such symptoms, the eyes cannot bear the light, and shed tears involuntarily; and that part of them which ought to be white, grow red; so likewise if their small vessels appear pallid, and the humour which glides over their surface, ultimately stick to the angles; if one be less than the other; if they be very much sunk or become swollen; if, during sleep, the eyelids be not closed, but between them some of the white of the eye be apparent, and a diarrhœa have not caused that symptom; and if the said lids be pale, and the same pallor bleach the lips and nose; and the said lips, the nose, eyes, eyelids, and eyebrows, or any of them, are distorted; and one can neither see, nor hear, on account of weakness. The same dissolution is foretold, when the patient lies supine, with his knees contracted; when he is gliding down from time to time, towards his feet; when he exposes his arms and legs, and throws them about in a disorderly manner, and when these are destitute of warmth; when he lies with his mouth wide open; sleeps incessantly; when one who is delirious, and is not accustomed to do so when well, grinds his teeth; when an ulcer, which has taken place before or during an attack of disease, becomes arid, and either pale or livid.

The following are also indicative of death: pale-coloured nails and fingers; cold breath; if one in a fever, and in an acute disease, or in madness, or in a peripneumony, or in an affection of the head, keep picking with his hands at the flock of the bed-clothes, or part their fringe, or catch at any

minute prominences that may be on an adjoining wall. Pains likewise about the hips and lower parts, provided they pass on to the viscera, and cease suddenly, shew death to be nigh, especially if the other symptoms accede. Nor can he be saved, who, becoming feverish without any tumour, is suddenly troubled with a sense of choking, or cannot swallow his saliva; nor he who having the same kind of fever, and the like state of body, has a wry-neck, so that he too can swallow nothing; nor he who has a continued fever, with the utmost prostration of strength; nor he who, without subsidence of the fever, has the surface of his body frigid, and internally has so much heat as to cause thirst; nor he who, while the fever continues as in the last case, is at the same time tormented with delirium and difficult respiration; nor he who is attacked with convulsions, after having drunk hellebore; nor he who has lost the faculty of speech, from drunkenness. For unless fever supervene, or he begin to speak, at such time as the effects of drunkenness usually go off, he will be destroyed by convulsions.

A pregnant woman also is readily destroyed by an acute disorder; so likewise that person with whom sleep aggravates the disorder; and in whom, at an early period in a recent affection, black bile manifests itself, whether upwards or downwards; or, in whom it disembogues itself in either way, when the system has been attenuated, and for a long time diseased.

A bilious or purulent sputum, whether separate or mixed, indicates peril of death. So likewise, if such have begun about the seventh day, the chances are that he will die about the fourteenth; unless other better or worse signs shall have acceded, which indicate an earlier or later dissolution, according as they have been more or less severe.

Cold sweating likewise in an acute fever is a fatal symptom, and in every disease vomiting of a matter of a mixed varicoloured nature; especially if this have a bad odour. To have vomited blood in a fever is equally inauspicious.

High-coloured and thin urine indicates considerable crudity; and often, before it has time to mature, it carries off the patient: therefore, if it continue in this state for some considerable time, it denotes danger. That, however, which is black, thick, and of a bad odour, is the worst and most deadly of all. But although such urine as this is the worst



in men and women, that which is thin and watery is most dangerous in children.

Stools which are of a mixed character, presenting the appearance of strigment, blood, bile, and a greenish matter, whether voided at different times, or all at once, and so mixed together that they may still be distinguished, constitute fatal prognostics. But the patient may survive after such motions as these for some little time longer; but when they are watery, dark, pale, or fatty, they announce the speedy approach of dissolution, especially if, moreover, they have a very fetid odour.

I know any person may ask me, how happens it, if the signs of approaching death may be relied upon, that patients given up by their physicians sometimes get well? and that some are reported to have revived, even during the funeral rites? Furthermore, Democritus, a man of well-merited celebrity, has asserted there are in reality no characteristics of death sufficiently certain for physicians to rely upon; much less did he concede, that there could be any sure prognostics of approaching death. In answer to whom, I will not avail myself of the argument that oftentimes cognate symptoms deceive not the skilful, but the unskilful physicians; that Asclepiades meeting a funeral knew that he was alive whom they were submitting to the ceremony of elation; and that the art ought not forthwith to be charged with the errors of its professors: but I will more temperately reply, that **MEDICINE IS A CONJECTURAL ART**, and such the nature of conjecture, that although in the long run it may more frequently have turned out to be right, it nevertheless may sometimes be fallacious. Nor are we therefore to have no faith in a symptom, when it scarcely fails for a considerable time in one person out of a thousand, and answers our expectation throughout cases innumerable. And I mention this, not as applying merely to the dangerous, but also to the favourable symptoms; for even our hopes are sometimes frustrated, and he dies, for whom at first the physician felt no apprehension; while the means devised to cure him sometimes aggravate his distemper: neither, amid such an endless variety of constitutions, is it possible for human imbecillity to avoid this. Still however, since more frequently, and in by far the greatest number of cases, it proves beneficial, on medicine is our reliance placed; nor ought we to be igno-

rant, that the signs indicative of recovery and of death are more fallacious in acute diseases.

VII. Now that I have mentioned those signs, which are wont to be general in every illness, I shall also proceed to point out the characteristic marks which any patient may chance to have in each kind of disease. But there are some before, and some during fevers, which shew what is going on internally, or what is about to occur.

If, before fevers, the head be heavy, or the eyes dim after sleep, or if sneezing be frequent, some attack from collection of humour about the head may be apprehended.

If there be an excess of blood, or of heat, it is probable that hæmorrhage will occur from some part.

If any one become emaciated without apparent cause, there is reason to dread lest he fall into a cachexy.

If the præcordia be painful, or an oppressive flatulency be present, or the urine be discharged in an unconcocted state throughout the entire day, it is obvious there is a crudity.

They who, without jaundice, have a bad complexion for some considerable time, are plagued with pains of the head, or have a morbid appetite for earth.

They who for a long time have a pale and bloated countenance, either suffer in the head, or the viscera, or the intestines.

When in a continued fever a child has no motions, and his complexion is altered, and he has no sleep, but is constantly moaning, convulsion is to be dreaded. A frequent catarrhal running in a thin and tall subject, testifies danger of a consumption. When no alvine discharge has taken place for several days, it teaches us that a sudden purging, or a slight fever is at hand.

When the feet swell, purgings are of long continuance : when pain occurs in the lower part of the abdomen and in the hips, anasarca is hard behind : but this kind of malady commonly arises from the ilia. The like danger also impends over those, who having an inclination for stool void nothing, unless with difficulty and in a consolidated state ; and have swelling in the feet, and the same occurring alternately in both sides of the abdomen. But this affection would appear to arise from the liver. A sense of twisting about the navel, which the Greeks call *στροφους* (strophous), and permanent hip-pains, which are terminated neither by

time nor remedies, are precursory marks of the same disease.

But pain of the joints, as for example that of the hands or feet, or any other part, provided the nerves there be contracted, or the part when fatigued by slight exercise, suffer alike from heat and cold, indicates the approach of gout in the feet, hands, or other joints in which that sensation is experienced.

Those who have nasal hæmorrhage in childhood, and not after that æra of life, must necessarily be troubled with head-ache, or have severe ulcerations in the joints, or even have their strength broken down by an attack of some disease.

Women who have suppressed menstruation, are necessarily subject to severe pains of the head, or are infested with disease of some other part. The like dangers await those, who have disorders of the joints attended with pains and swelling, appearing and disappearing, without having gout or other diseases resembling it: especially if their temples be painful and they have night-sweats. If the forehead itch, lippitude is to be feared. If a woman have strong pains after a labour, and no other bad symptoms besides, hæmorrhage will break out from the nostrils about the twentieth day, or some abscess will happen in the lower parts.

Also, whoever shall have intense pain about the forehead and temples, will get rid of it in one or other of these two ways; if a young person, by hæmorrhage; if older, by a suppuration. But that fever which suddenly ends in an unaccountable manner, without having manifested favourable signs, usually returns again.

An ulcer in the nares or fauces will be found to be the cause of these last being filled with blood by day and by night; provided neither cephalic nor præcordial pains, nor cough, nor vomiting, nor febrile action have preceded.

If, in a female, fever supervene upon inguinal enlargement, without manifest cause for it, there is an ulcer in the uterus.

But thick URINE, from which there is a whitish deposit, portends pain about the joints and viscera; and affords ground for fearing some disease. The same, when of a greenish hue, serves to prove that a dangerous pain and enlargement of internal organs is about to ensue, or at all events that the body is not sound; and if blood or pus be in

the urine, ulceration has taken place either in the bladder or kidneys. If, when turbid, it contain some small caruncles, or a matter like hair, or if it effervesce, and scent strongly, and carry with it a matter sometimes resembling sand and sometimes blood; and if the hips and parts between these and the pubes be painful, and if frequent ructations, and sometimes bilious vomiting accrue; and if the extremities grow cold, and micturition become difficult though frequently desired; and if the urine which is voided be watery, or tawny, or pale, and slightly alleviate the symptoms, while much wind is discharged along with the motions; then, beyond all doubt, there is disease in the kidneys. But if it trickle slowly, or if blood be discharged with it, together with a cruentate matter, and this with great difficulty, and if the part about the pubes be painful, the disease is in the bladder.

**CALCULOUS CASES** are known by the signs following: The urine is discharged gradually and with difficulty; sometimes also it trickles involuntarily: it is sandy: sometimes either blood, or a cruentate or purulent matter is voided with it; and some discharge it more readily when standing; some, and especially those in whom the calculi are large, while lying on their backs; some in an inclined posture; and by drawing out the penis, they ease the agony. There is, moreover, a sense of uneasiness in that part, which is increased by running, and by every kind of motion. Some also, when they are agonized, alternately cross their feet, often changing their position. But females are frequently compelled to scratch the margins of the labia pudendi: sometimes, if they have applied the finger, they feel the calculus, when it is resting against the neck of the bladder.

They who expectorate frothy blood, have disease in the lungs. Immoderate purging in a **PREGNANT** woman may produce abortion. If she have a flow of milk from her breasts, her fœtus is weak. Hard breasts show that it is healthy.

Frequent and unusual **HICCOUGH** denotes an inflamed liver.

If the swelling surrounding ulcers have suddenly disappeared, and that have happened on the hinder part of the body, convulsions or tetanus may be apprehended; if on the fore part, pleurisy or insanity; sometimes also diarrhœa su-

pervenies after such a symptom, which is the safest of all these consequences.

If the mouths of vessels accustomed to pour out blood be suddenly stopped, anasarca, or tabes, will be the result. Tabes ensues also, if an imposthume in a pleurisy be not in a healing condition within forty days. But if for a long time depression of spirits, with fear and watchfulness, have existed, an atrabiliary disorder is at hand.

They who often have nasal hæmorrhage, either have swelling in the spleen, or head-ache, which is followed by an imaginary appearance of spectral objects passing before the eyes. But such as have enlarged spleens, have bad gums, fetid breath, or hæmorrhage in some part: or, in the absence of these symptoms, bad ulcers necessarily happen in the legs, and dark cicatrices form after them.

THOSE WHO HAVE CAUSE OF PAIN AND NO SENSE OF IT, LABOUR UNDER MENTAL ALIENATION. If blood have collected in the ventral cavity, it is there converted into pus. If pain migrate from the hips and lower parts into the chest, although there be no other untoward symptom, there is danger of a suppuration in that place. They who have pain without fever, or who have itching with redness and heat in a part, will have suppuration there. Likewise, urine slightly turbid, is, in a healthy person, the forerunner of some suppuration near the ears.

But, inasmuch as these symptoms, even without a fever, carry with them marks characteristic of latent and future events, much more certain are they, when a fever has also accrued; and then also the signs of other diseases become developed.

Wherefore MADNESS is immediately to be dreaded, when a person's delivery becomes more hurried than it was wont to be in health. And there is a strain of loquacity and boldness in his conversation which is unnatural to him; or when he breathes slowly and forcibly, and has vascular excitement, with hard and tense præcordia. Frequent motion of the eyes, also, and a sense of darkness spread over these during head-ache; privation of sleep without pain, and watchings continuing both night and day; or lying upon the belly contrary to habit, provided a pain in the bowels have not driven the patient to that position; and an unusual grinding of the teeth without debility, are all signs premoni-

tory of insanity. Also, if an abscess have occurred in any part, and before suppuration could be completed it have subsided, while the usual fever yet remains in the body, it first brings with it the peril of insanity, and afterwards that of dissolution. So, likewise, an acute pain of the ear, with continued and violent fever, often unsettles the mind; and under such symptoms, younger subjects die within the seventh day; and the elderly more slowly, because they neither experience so high a state of febrile action, nor do they rave so much; thus they last out till the disease ends in suppuration. A suffusion of blood in the breasts of a female, likewise announces the approach of madness.

But those who have fevers of long duration will be troubled with abscesses or joint-pains. Convulsions threaten those against whose fauces during a fever the breath is dashed with violence at each expiration. If a quinsy cease suddenly, the affection translates itself to the lungs; and that often proves fatal in seven days; but if this be not the result, it follows that suppuration must take place somewhere.

Again, after long-continued purgings, dysenteries accrue, and after these, lientery. After excessive distillations, consumption: after a pleurisy, diseases of the lungs: after these, insanity: after great heats of the body, tetanus or convulsion: after wounds of the head, delirium: after a distressing watchfulness, convulsion: and after excessive action in the blood-vessels above an ulcer, hæmorrhage.

But SUPPURATION is, indeed, produced by various diseases; for if chronic fevers, unattended by pain, remain without manifest cause, that affection settles upon some organ, that is to say, in young people only; for in elderly patients, disease of this kind usually gradates into the quartan type.

Suppuration happens also, if a hardness and tensity of the præcordia after remaining for twenty days have not destroyed the man, and a nasal hæmorrhage have not happened, and generally in young people; more especially if there have been dimness and head-ache from the commencement; but in that case the abscess occurs in the lower parts.

Or if there be a soft tumour in the præcordia, and it remain for sixty days with concomitant fever during the whole of that time; but then abscess will take place in the upper

part of the body; if not in the viscera, it will break out about the ears. And, inasmuch as every slow tumour mostly looks towards suppuration, so one occurring in the præcordia has more tendency that way, than one in the belly; one above the navel, more than one below it. If in a fever there be a considerable sense of lassitude, abscess may take place in the jaws, or the joints. Sometimes also the urine is discharged for a long time in a thin and crude state, although the other signs are favourable; after that symptom abscess takes place below the transverse septum, called by the Greeks *διάφραγμα* (diaphragma).

PERIPNEUMONY, if neither removed by expectoration, nor by blood-letting, nor by diet, is sometimes productive of vomica, occurring either about the twentieth, or thirtieth, or fortieth, nay, sometimes the sixtieth day. But we should reckon from that day on which the patient began to be feverish, or to have a shivering fit, or to feel a sense of weight in the part. These vomicæ sometimes happen in the lung, sometimes in the parts opposed to it. Suppuration excites pain and inflammation in the part affected with it; there is greater heat in that place, and if one lies on the sound side, it appears to oppress it as if with some heavy weight.

Also every SUPPURATION not yet visible, may be thus detected: the fever does not leave the patient, but remits by day, and increases at night; the sweat is copious; there is an inclination for coughing, and scarce any expectoration; the eyes are hollow, the cheeks flushed; the veins under the tongue grow pale; the finger-nails curved; the fingers, especially the ends of them, are dry with heat; there are swellings in the feet; respiration becomes difficult, the appetite fastidious, and pimples arise over the whole body. But if pain, and cough, and difficult respiration, have been present from the very commencement, the vomica will break either before or about the twentieth day; if these symptoms have begun later, they must necessarily go on increasing; but in proportion as they are slow in their development, they are tardy in their subsidence. In a very severe distemper, also, it is not unusual for the feet, toes, and nails, to become black; and if death ensue not, and the rest of the body recover, yet the feet fall off.

VIII. It follows next, that I explain the characteristic marks in each kind of disease, indicating hope, or danger.

After the BLADDER has been painful, if the urine come

forth purulent, and there be a smooth white sediment in it, it takes away our alarm.

In a **PERIPNEUMONY**, if the pain be relieved by the matter expectorated, although that be purulent, provided the patient breathe easily, expectorate easily, and if he bear the disease without distress, he may recover. Nor ought we to be alarmed, because, at the very beginning, the sputum is mixed with a tawny matter, and with blood, so long as it is freely discharged.

**PLEURISIES**, in the event of a suppuration being cleansed within forty days, are terminated.

If a **VOMICA** form in the **LIVER**, and pure white pus be discharged from it, the recovery is not difficult: for that malady is in the membrane.

But those suppurations are least dangerous which point outwardly. Of those which proceed inwards, they are more favourable which do not affect the skin opposed to them, but leave it free from pain, and of the same colour as that of the surrounding parts.

Pus also, from whatever part it emanate, is not alarming, provided it be bland, white, and uniform; and if, after its discharge, the fever have subsided, and the thirst and loathing of food have ceased to be troublesome. If also at any time a suppuration fall into the legs, and the sputum of that same patient have become purulent instead of reddish, the danger is lessened.

But, if a patient be to recover from a **CONSUMPTION**, his sputum should be white, perfectly equable, of an uniform colour, unmixed with phlegm: and what distils from the head into the nostrils, should be of the same character. It is by far best that he have no fever: it is favourable, that there be so little, as not to prevent his eating, nor to create frequent thirst. That state of bowels is safe in this disease, in which they discharge well-figured stools, in a quantity proportionable to the materials ingested; that subject is safe, who is by no means thin, has a broad hairy chest, and whose pectoral cartilage is small and fleshy.

If a female have suppressed menstruation supervening upon consumption, and the pain about the chest and shoulders have still remained, and blood have suddenly issued, that disease is usually relieved: for not only is the cough lessened, but the thirst and feverishness altogether cease. But



in such cases the vomica usually breaks, unless the flux return ; and the more cruentate the discharge, the better.

ANASARCA, commencing without having been preceded by other disease, is by no means formidable : neither is that accruing upon a long-continued disorder ; especially if the viscera be sound, if respiration be easy, if there be no pain, if the body be cool, and equably lean in its extremities ; if the abdomen be soft, if there be no cough, or thirst : if the tongue do not become parched during sleep ; if there be desire for food ; if the bowels yield to medicine ; if they spontaneously excrete soft, well-figured motions ; if the size of the belly be reduced ; if the quality of the urine change with the alteration of one's wine, and by the medicine which is drunk ; and lastly, if the body be free from lassitude, and endure the disease without difficulty : for he who has all these symptoms, is most decidedly safe ; he who has several of them, has good ground for hope.

But affections of the JOINTS, as foot and hand-gout, when attacking those who are not advanced in life, provided they have not induced chalk-stones, may be cured : and especially are they assuaged by dysentery or other kinds of ventral flux.

So again the EPILEPSY of infancy is cured without difficulty ; likewise is that in which there is a sensation in some part indicating its approach. It is best that this sensation originate from the hands, or from the feet ; that from the sides is next favourable ; that from the head worst of all. And in these cases, also, purgations are most serviceable.

But a DIARRHŒA itself is harmless, when unaccompanied with fever ; when it soon terminates ; when there is no crepitus produced by roughly handling the abdomen ; and when wind escapes at the latter part of each stool.

Neither is a DYSENTERY dangerous, although blood and strigment are passed, so long as fever and other the usual concomitants of this disease do not supervene : so that even a pregnant woman may not only be preserved, but her fœtus likewise. In this disorder, if the patient be not very young, it is all the better.

On the contrary, a LIENTERY is more easily got rid of in infancy ; especially if urine be voided, and the system begin to be nourished. The same age is favourable in pains of the hip and shoulders, and in all kinds of paralysis : of these,

the hip is soon cured, if there be no numbness and its coldness be slight, even though attended with great pain; and a paralytic limb may become sound, provided it be still not less nourished.

PARALYSIS of the mouth is ended by a loose state of bowels: and every purging is beneficial to one having ophthalmia.

But a VARIX arising, or a sudden hæmorrhage from the mouths of veins, or a dysentery, removes madness.

Pains in the upper arms, tending to the shoulders or hands, are finished by the vomiting of black bile; and every pain that tends downwards is more easy of cure.

SINGULTUS is removed by sneezing.

Tedious DIARRHŒAS are checked by vomiting.

HÆMATEMESIS in a female is relieved by the menstrual flux.

If EPISTAXIS occur to a female who does not menstruate, she is in no danger.

She who has HYSTERIA, or difficulty in parturition, is relieved by sneezing.

The SUMMER QUARTAN is usually of short duration.

DELIRIUM is salutary to him who has HEAT and TREMBLING.

DYSENTERIES are beneficial to those whose spleens are disordered.

Indeed, FEVER itself, which may appear very surprising, is often a REMEDIAL AGENT. For it discusses pains of the præcordia, if these are without inflammation; affords relief in hepatic pains; and entirely removes convulsions and tetanus, provided it have supervened upon these: if it elicit the urine by the heat it occasions, it alleviates that disease of the smaller intestine which owes its origin to strangury.

But that head-ache to which accedes dimness of sight, and a flush, together with a certain itching of the forehead, is removed by hæmorrhage, whether fortuitous or elicited. If such pains of the head and forehead originate in wind, or cold, or heat, they are terminated by a gravedo, and by sneezing.

A sudden fright discusses the ardent fever called by the Greeks *καυσώδη* (kausode). If in a fever, the hearing be dull, if nasal hæmorrhage occur, or the bowels be relaxed, the distemper entirely ceases.

Nothing avails so much against DEAFNESS as bilious stools.

They who have petty incipient abscesses in the urethra, which the Greeks call *φύματα* (phumata), get well after pus has flowed from that part.

SINCE MOST OF THESE OCCURRENCES HAPPEN SPONTANEOUSLY, ONE MAY UNDERSTAND THAT BY GIVING EFFECT TO THE MEANS EMPLOYED BY ART, NATURE IS OF MORE AVAIL THAN THE REMEDIES THEMSELVES.

It is a very bad and fatal sign, ON THE CONTRARY, if the head be painful in a continued fever, and yet discharge nothing; and it is especially dangerous to children from their seventh to their fourteenth year.

In peripneumony, if there have been no expectoration on the first days, and yet this begin on the seventh, and again last beyond the seventh day, it is dangerous; and the most intimately the colours are blended, so as not to be distinguished, the worse it is for the patient. Nevertheless, there can hardly be a worse symptom than the sputum being unmixed, whether reddish, or cruentate, or white, or glutinous, or pale, or frothy: and yet the very worst is that which is black. In the same disease, cough and catarrhal flux are dangerous; so also sneezing, which is otherwise accounted salutary: and it is most dangerous for a sudden purging to follow these. Now, for the most part, symptoms which are wont to be favourable or unfavourable in peripneumony, are likewise found to be so in pleurisies.

If cruentate pus proceed from the liver, it is fatal.

Those are the worst suppurations which, while they point inwards, discolour the external integument; and of those which break externally, the largest and flattest are the most unfavourable. But if the fever have not subsided after the bursting of the vomica, the evacuation of the pus, or if after ceasing it recur; if there be thirst, loathing of food, and liquid stools; if the pus be livid and pale, and if the patient expectorate nothing, save a frothy phlegm; then indeed the danger is certain. And while it is from pulmonary suppurations that elderly persons die, the younger suffer from the other kinds.

But in a TABES a mixed purulent sputum, and an incessant fever which leaves no periods for food, and torments with thirst, if occurring in one of spare habit, indicate dan-

ger. If likewise in the same disease the patient has lingered for a considerable time, and the hair falls off; if the urine shews a sediment like cobwebs, and its odour is fetid; and especially if after these symptoms a diarrhœa ensues, he soon dies; chiefly in autumn, in which season dissolution takes place in those who have lasted through the rest of the year. To have first expectorated pus, and then to have entirely ceased to do so, is a fatal symptom. Even in young persons vomica and fistula are wont to arise from this disease; and do not readily heal, unless numerous signs of convalescence manifest themselves. With regard to others, young women, and those who have had suppressed menstruation accruing upon tabes, are most easily cured.

But he must of necessity die within the seventh day, who, having been previously in health, is suddenly attacked with head-ache, and afterwards falls into a deep sleep; has stertorous breathing, and does not awake; especially if the bowels have not been previously in a relaxed state, and the white of the eyes be visible between their half-open lids; unless, indeed, the disease be discussed by febrile action.

But that ANASARCA which has originated from an acute disorder, seldom admits of cure; especially if followed by symptoms the opposite of those which have been before mentioned as favourable in this disease. Here too a cough deprives us of hope; so likewise does hæmorrhage whether upwards or downwards, and so again a collection of the water in the middle of the body. Some have swellings in this disease, which afterwards subside and then re-appear. Such persons are safer than those just mentioned, if they are cautious; but they are generally the victims of their own confidence of recovery.

Any one has good reason to wonder how it happens that some things which distress the body, are likewise in some measure the safeguards of it. For when the skin is bloated with anasarca, or when a considerable portion of pus has been collected in a large abscess, to discharge it all at once is quite as dangerous to the invalid, as an exhausting hæmorrhage consequent upon a wound would be to a person in health.

But those joints are never cured which are affected to such an extent that callous tubercles form upon them; and such disorders of these parts as attack old persons, or such as have endured from adolescence up to this last period of life,

although they may be sometimes assuaged, can never be entirely removed.

**EPILEPSY** also is cured with difficulty when commencing after the twenty-fifth year; still less easily when it has begun after the fortieth; so that at this period of life there is indeed some hope in nature, scarce any in treatment. In the same disease, if the whole of the body be affected simultaneously, and there be no previous sensation admonitory of the approaching fit, but the patient fall down completely unawares, be his age what it may, his recovery is almost impossible: while, if his mind be impaired, or palsy have occurred, medicine is out of the question.

In purgings, if fever, or hepatitis, or inflammation of the præcordia, or gastritis accede; if the thirst be excessive; if the disease be of long continuance; if the stools be varicoloured and painful; there is every reason to apprehend a fatal termination: and the rather, if together with these symptoms the dysenteric action have begun to be inveterate. And this disorder carries off children chiefly to their tenth year; at other periods of life it is endured with less difficulty. A pregnant woman also may be snatched off by a disease of this kind; and even should she recover, yet she miscarries. Furthermore a dysentery arising from black bile is fatal: so likewise is the suddenly voiding of black stools in this complaint, when the body is already much emaciated.

But a **LIENTERY** is more dangerous when the motions are frequent and occur at all hours, whether discharged with, or without flatus; if as much by night as by day; if these be crude and dark, and also smooth and fetid; if the thirst be urgent; if, after drinking, no urine be secreted; which happens because all the liquor which should pass to the bladder, descends into the intestines; if the mouth be ulcerated, the face flushed, and marked as though with patches of all colours; if the belly appear puffed, fat, and disposed in wrinkles; and if there be no appetite. Although the existence of these symptoms manifests approaching dissolution, much more apparent is that sequel, if the disease have long subsisted; especially in an aged person. But if it be situated in the smaller intestines, the unfavourable symptoms are vomiting, hiccough, convulsions, and delirium.

Induration of the liver in **ICTERUS** is very pernicious.

If **DYSENTERY** have seized persons affected with spleen-

disease; and if it have turned to anasarca or lientery, it is scarcely in the power of medicine to rescue them from jeopardy.

DISEASE of the SMALL INTESTINE destroys within seven days, unless it terminate by resolution.

IN CHILDBED a woman is in danger who is oppressed by fever accompanied with violent and constant pains of the head.

If there be pain and inflammation in those parts which contain the viscera, hurried breathing is a bad symptom.

If without apparent cause there have been a long-continued pain of the head, and this pass to the shoulder and neck, and again mount up to the head; or if, after having been in the head, it be extended to the neck and shoulders, it carries danger with it: unless it induce a vomica terminating in the expectoration of pus, or hæmorrhage in some part, or much prurigo in the head, or pustules over the whole body. It is equally dangerous when numbness and prurigo fly about the system, at one time in the head, at another in some other part, or when there is a partial sensation as if of cold in the head, and that reaches to the surface of the tongue. And although, in cases of this kind, abscesses are beneficial, yet recovery becomes more difficult in proportion as these have less frequently ensued.

But in hip-pains, if the numbness be considerable, and the thigh and hip altogether cold; if there be no motions except such as are elicited, and the excrement be of a mucous nature; and if the patient's age have already exceeded forty; the affection will be very tedious, and will last a year at least; nor can it be got rid of, unless it be either in the spring or the autumn.

Equally difficult is the cure of that disease, in which, at the same period of life, there is an affection of the shoulders tending towards the hands, or the shoulder-blades; and which, while it creates numbness and pain, receives no alleviation from the vomiting of bile.

No matter what limb be PARALYSED, provided it have no motion, and it become withered, it does not return to its former condition; and the chances of recovery will be diminished in the ratio of the longer continuance of the disease, and the more advanced age of the patient. Autumn and winter are unfavourable to the treatment of palsy of all kinds: there may be some hope in spring and summer; and

this disease when moderate is cured with difficulty, but when violent is altogether incurable. Also every pain moving upwards is less under the influence of treatment.

If the breasts of a PREGNANT WOMAN have become wasted, there is danger of abortion. If one who has neither recently had a child, nor is pregnant with one, has milk, her menses are defective.

An AUTUMNAL QUARTAN is generally chronic; especially that which commences at the approach of winter.

If raving with convulsion follow hæmorrhage, there is danger: and also if convulsion oppress one who has been already purged with medicines, and is yet empty; or if the extremities be cold during excessive pain. Nor is he resuscitated, who, after hanging, has been taken down with his mouth foaming.

Dark stools like to black blood, whether with or without fever, if suddenly voided, are fatal.

IX. Having acquainted ourselves with the signs which afford the consolation of hope, or strike us with alarm, it is our duty to pass on to the treatments of disease. Of these some are general, others particular: general, which are for the relief of several diseases; particular, which are adapted to one only. I shall in the first place speak of the general; some of which appertain to the preservation of health, as well as to the cure of disease; while some are employed exclusively in sickness.

Now every remedy does in fact abstract from, or add to the material of the body; or draws it out; or represses, or cools, or heats, and at the same time hardens or softens it; acting not in one mode only, but in two not contrary to each other.

DEPLETION is effected by general blood-letting, by cupping, purging, vomiting, friction, gestation, and all kinds of bodily exercise, by abstinence, and by sweating; of all which I will treat without delay.

X. Blood-letting, by the incision of a vein, is no novelty: but it is new to employ it as a remedy in almost all diseases. To bleed young people and women not pregnant, is an old practice: not so the using of the same remedy for infants and aged people: for the ancients were of opinion that the first and the last periods of life were not able to bear it; and they had persuaded themselves that a pregnant woman so treated would miscarry. But afterwards experience shewed

that none of these rules are universal, and that we ought, in preference, to have recourse to other observations by which to determine our indication of cure. FOR THE QUESTION IS NOT WHAT THE AGE; NOT WHETHER THERE BE PREGNANCY, BUT IN WHAT STATE IS THE STRENGTH. Therefore if an adult be weak, or a woman not pregnant be in a languid state, blood-letting is improper; for the energies, if any were remaining, thus abstracted, are utterly extinguished :- whilst a strong child, a robust old person, and a vigorous pregnant female, are treated in this way without danger.

Nevertheless in these particulars an unskilful physician may be greatly deceived, because there is most usually a diminution of vigour at the last-mentioned periods of life, and because a pregnant woman, even after undergoing the necessary treatment, requires strength, not for herself only, but prospectively for the support of her child.

One ought not to banish every thing that requires reflection and prudence; since here lies the chief excellence of our art, which neither exclusively numbers the patient's years, nor regards conception merely, but estimates the powers of life, and thence infers whether there be sufficient left to sustain a child, or an old person, or two systems in the same female. There is a difference likewise between a strong and a fat body; between that which is spare, and that which is weak; the spare habit has more blood, the fuller subject more flesh. The former therefore more easily bear this kind of depletion, while he who is too fat is more rapidly distressed by it. Wherefore the strength of the body is more correctly estimated from the state of the vessels, than from its external appearance.

Neither are these matters alone to be considered, but we must likewise regard the nature of the disorder. Whether a redundancy or a deficiency of matter have been hurtful; whether the body be corrupted or sound. For if the material be deficient, or if it be sound, this remedy is hurtful: but if it abound to its own hurt, or be corrupt, there is not any more ready means of relief. Therefore a high fever, when the surface of the body is red, and the vessels turgid, requires blood-letting: so also diseases of the viscera, paralysis, tetanus, and convulsion; in a word, all diseases which strangulate the fauces, by occasioning difficult respiration; those too which suddenly suppress the voice; every insup-



portable pain, and internal ruptures or bruises, from whatever cause occurring; likewise bad habit of body, and all those acute diseases which, as I have said, are injurious, not from a deficiency, but from an excess.

It may be, the disease itself may require, while the body seems scarce able to bear it—yet if no other remedy be apparent, and the patient be about to die, unless relieved by a bold expedient, it is the physician's duty in this case to shew there is no hope without bleeding, and to confess the extent of danger attending it; then, at last, to bleed if required so to do. It is useless to hesitate upon this point, for A DOUBTFUL REMEDY IS BETTER THAN NONE. And more especially ought it to be practised when paralysis has occurred; when the patient has suddenly become speechless; when he is choked with a quinsy; when a former paroxysm has almost destroyed him, and there is every likelihood of a similar one ensuing, although his strength appears inadequate to sustain it.

Although bleeding is by no means proper for one whose blood is as yet crude, yet this rule, too, admits of exception, for circumstances do not always permit our waiting for concoction. Therefore, if any one have fallen from an eminence, if he have been bruised, if from some sudden injury he vomit blood, admitting he has recently taken food, nevertheless blood should be withdrawn, lest if it retreat inwards, it distress the system: and the same rule will apply to other sudden cases endangering suffocation. But where the nature of the disease admits of delay, it should be performed when at length there no longer remains any suspicion of crudity; and therefore the second or third day of the disease seems best adapted to that purpose. Although it is sometimes necessary to draw blood on the first day, yet this is never useful after the fourth: because merely by the duration of the disease, the material has by this time been exhausted, and has corrupted the body; so that depletion may render it weak, cannot make it sound. But if a violent fever be present, to bleed in the height of the accession, is tantamount to murder. We should wait, therefore, for the remission: and should there be none, still if it no longer increase, and we despair of a remission, even this single occasion, although less favourable, is not to be omitted.

It were generally preferable, when this remedy is necessary, so to apportion it that the blood may be drawn on two

distinct days; for it is more prudent first to relieve the patient, and afterwards to completely cleanse him, than to risk his destruction by abstracting his energies all at once. But if this holds good in the evacuation of pus from an abscess, or serum from anasarca, with how much more certainty does it apply to the loss of blood?

Now if the object be to relieve the whole body, it ought to be drawn from the arm; if to relieve a part, then from that part itself, or certainly from that nearest to it; for it cannot be let from every part, but only in the temples, arms, and near the ankles.

Neither am I ignorant that some say it ought to be drawn as far as possible from the disordered part; for that on this plan the revulsion will be effected, while on the other, the course of the blood will be directed to that part which is distressing the system. But this is incorrect; for it first draws out the circumjacent blood, and, afterwards, the blood flows from parts more distant only proportionally to the loss of it: and when the bleeding is stopped, it comes there no more, because it is no longer drawn to that quarter.

It seems that experience has taught us, that in fractures of the skull blood is preferably abstracted from the arm; taking it from the opposite extremity, if there be any lesion of the arm itself: I believe this is done, because, in the event of accident, parts already diseased are more susceptible of injury. Sometimes also the blood is diverted, when, while it is issuing forth from one part, we draw it away from another. For the flux thus ceases in the quarter where we would not have it, styptics being applied for that purpose, and another passage being provided.

**BUT ALTHOUGH BLOOD-LETTING IS THE EASIEST OF ALL OPERATIONS TO ONE PRACTISED IN IT, NEVERTHELESS TO THE UNSKILFUL IT IS EXCEEDINGLY DIFFICULT:** for the vein is in apposition with arteries, and these last with nerves. If therefore the lancet should touch the nerve, convulsions ensue, and miserably destroy the man. But a wounded artery neither unites, nor heals; nay, sometimes induces violent hæmorrhage. If, again, the vein have been completely divided, its ends are compressed, and they do not bleed. But if the lancet be timidly introduced, it lacerates the skin, without dividing the vein: sometimes the vein lies concealed, and is not easily detected. So

many things concur in rendering that difficult to the unskilful, which is very easy to the scientific operator.

The vein is to be divided at its middle. As the blood issues from it we ought to observe its colour and condition. For if thick and black, it is bad, and therefore usefully withdrawn; if red and clear, it is sound; and such bleeding, so far from advantaging, may prove injurious. But that cannot occur with the physician who knows from what kind of body it ought to be taken. It more commonly happens, that on the first day it flows equally black throughout the entire bleeding: and even if this be the case, if it have flowed sufficiently, it ought to be staunched; and one should always leave off on this side fainting. Having laid on a compress expressed from cold water, the arm is to be bound up, and on the day following, the vein is to be struck with the middle finger, that its recent union may be dissolved and it may bleed afresh. But whether the blood which at the beginning had flowed thick and black, begin to look red and clear on the first or on the second day, a sufficiency has been abstracted, and what remains is pure: therefore the arm should immediately be tied up and kept in that state, until the cicatrix be firm, which in a vein is soon completed.

XI. Now of CUPPING INSTRUMENTS there are two sorts; one made of brass and one of horn. The brazen is open at one end, and closed at the other; that of horn is in like manner open at one end, but at the other has a small hole: burning lint is thrown into the brazen one, and in this state its mouth is adapted to the body, and there pressed on until it adhere. That of horn is applied to the body without this addition; and after the air has been drawn by the mouth at that part where the hole is, and this foramen has been closed with wax at the upper part, it sticks on as well as the other. Both may suitably be made, not only of these materials, but of any other; and if nothing else be at hand, even a small cup, or puls bowl, with a mouth somewhat narrow, will conveniently answer the purpose. When it has adhered, if the skin have been previously incised with a scalpel, it draws blood; but a spirit only, if the skin be whole. Therefore, when a noxious matter exists internally, it ought to be applied after the former plan; when there is inflation, on the latter. But the chief advantage of the cupping instrument, is when the disease is not in the

whole body, but in a part, and when to exhaust this part is sufficient for the re-establishment of health. And this proves, that when our object is to relieve a limb, even though we use the lancet with the cucurbit, the blood should be drawn in preference from the part affected; for no one applies it to a different part, but to that only which is the seat of pain, and which it is his object to relieve; unless for the sake of effecting a revulsion. The cupping instrument may be useful also in chronic disorders, although they have continued for some considerable time, provided there is a corrupt state of the humours, or a bad condition of the spirits; so in acute diseases, if the body require to be unloaded, and the strength be not sufficient to bear general bleeding. As this kind of remedy is less violent, so is it more safe; nor is it at any time dangerous, even if employed in the height of a febrile paroxysm, or during crudity. And therefore, when the abstraction of blood is requisite, if opening a vein be attended with imminent danger, or if the disease be partial, this must be our resource; with this proviso, that we bear in mind, that though a safe, it is a less powerful aid; nor can active diseases be checked except by active remedies.

XII. 1. The ancients were in the habit of effecting PURGATION by various medicines, and by frequently clystering the bowels, nearly in all cases: and it was their custom to exhibit black hellebore, or fern, or copper scales, called by the Greeks *λεπίδα χαλκοῦ* (*lepida chalkou*), or the milk of the sea-spurge; one drop of which added to bread purges abundantly; or after having thrown a little salt into asses' milk, or to that from the cow or the goat, they boiled it down, and made their patients drink the serous portion left after the removal of the curds. But physic is generally hurtful to the stomach: and when the bowels are much relaxed, or when frequently opened by clysters, the patient is weakened. Therefore in sickness, medicines ought never to be given with that view, unless where the disease is unaccompanied with fever; as when hellebore is given to those distressed with black bile, or with melancholy madness, or to those who have had paralysis in some part. But when fever is present, it is more prudent to take such foods and drinks as will at once nourish the patient and obviate costiveness; and there are some kinds of sickness, to which purgation by milk is well suited.

XII. 2. But for the most part, however, the bowels are preferably relieved by **CLYSTER**; a remedy which is, I observe, in our time generally neglected, while even by Asclepiades its use, though restricted, was still not banished: The limitation which he seems to have adopted, appears to me to be very proper; for although this remedy ought not to be used frequently, so neither ought it to be omitted to be performed once, or at most twice, when the head is heavy; when the eyes are dim; if there be disease of the larger intestine, denominated by the Greeks *κόλον* (*kolon*); if there should be pain in the lower belly or hips; if bilious collections take place in the stomach; or phlegm also, or any aqueous humour form there; if the breathing be difficult; if the patient have no natural motions; especially if the *fæces* being in the rectum should still be retained there; if being costive he detect a *fæcal* odour in his own breath; if the stools appear corrupted; or if the first fasting have not removed febrile action; or if either when bleeding is necessary, the strength will not allow it, or it be too late to employ this remedy; or if the patient should have drunk to excess before falling sick, or if one who has often had spontaneous or accidental purging, suddenly experience alvine suppression.

But the following precautions are to be observed:—that clysters be not used before the third day; not during crudity; not in a system which is infirm and exhausted by protracted sickness; not for that patient whose bowels excrete sufficiently every day, or who has liquid stools; not in the climax of an accession, because what is injected at that time is retained within the bowels, and being thrown back upon the head augments the danger.

On the preceding day the patient ought to abstain, that he may be in a fit state to use this remedy; to drink warm water on the same day for some hours previously, in order to moisten the upper parts. After taking these precautions, if content with a simple medicine, we should inject pure water into the bowels; if one somewhat stronger be required, mulse; if a mild one, that in which *fœnugreek*, or ptisan, or mallows have been boiled; if an astringent clyster be wanted, it may be prepared from vervains. That made with sea-water alone, or conjoined with other salt, is acrid; and both are better when boiled. It becomes still more drastic by the addition of oil, or nitre, or honey; and the

more acrid it is, so much the greater is its effect, but it is less easily endured. That which is injected should neither be cold nor hot; lest in either way it prove hurtful.

After the injection, the patient ought to remain in bed as long as he can, and not immediately indulge his first inclinations for a motion: when necessitated, then at length ought he to go to stool. And most commonly, matter thus withdrawn mitigates the distemper by unloading the upper parts. When he has fatigued himself by retiring as often as occasion has required, he ought to repose for some time; and lest his energies fail, on that day at all events he should take nourishment; whether more or less must be decided by the nature of the expected accession, or by the circumstance of none being apprehended.

XIII. But as VOMITING, even in health, is necessary for bilious persons, so likewise is it useful in those diseases which are occasioned by the bile. Hence it is expedient for all who are distressed with rigour or tremour before fevers; also for all who are suffering from cholera; for all who have that species of insanity which is attended with a high flow of spirits; and for the epileptic. But if the disease be acute, as in cholera; or if there be fever, such as that which occurs between shivering fits; the rougher medicines are not requisite, as has been remarked above, in reference to purging; and in such cases it is sufficient, in order to produce vomiting, that such medicines be taken as I have declared proper for people in health.

But for long-standing and violent diseases unaccompanied with fever, such as epilepsy or insanity, white hellebore ought also to be used. This last medicine ought not to be given either in winter or in summer; it answers best in spring; tolerably well in autumn. Whoever is about to administer it, ought to try to increase the quantity of fluid in the patient's system. It is fit one should know, that remedies of this kind given as a potion, are none of them uniformly beneficial to the sick, while to the healthy they are invariably hurtful.

XIV. Now concerning FRICTION Asclepiades, as its inventor, has discoursed so largely in that volume to which he gave the title of "COMMON AIDS," that while he mentions but three, namely, this, water, and gestation, he nevertheless appropriates to the first the greatest part of his work.

It is incumbent upon us not to defraud the moderns of their inventions or their judicious imitations; but with re-

gard to those discoveries which have originated with the ancients, it is barely an act of justice to surrender them, to their true founders.

Nor can it admit of doubt that Asclepiades has taken a wider range, and shewed more perspicuity, in laying down precepts regarding the period and the method of employing friction; and yet he discovered nothing but what had been comprehended by Hippocrates in a few words: who has told us, that violent rubbing hardens the body; that which is gentle, softens it; that by much rubbing it is depleted, by that which is moderate it is impleted. So then it ought to be used when our aim is to constringe a relaxed body, or soften a harsh one; or produce dispersion in that which is injured by superfluity; or nourish that which is spare and infirm. All which species nevertheless, if carefully examined, which is not now the province of the physician, will readily be understood to depend upon one cause, namely, depletion. For we constringe by the removal of that matter whose interposition was the cause of relaxation; we soften by abstracting that which was creating the hardness; and we implete not directly by the friction itself, but by that nutriment which finds its way to the skin, after this last has been relaxed by the dispersion. The cause of these different effects depends on the method adopted in its use.

There is a considerable difference between UNCTION and FRICTION. For one may anoint and lightly rub the body even in acute and incipient disorders; provided this be done in the remission and before food: but it is not proper to employ long-continued friction, either in acute or increasing disorders, except when we wish to procure sleep for the phrenetic. This remedy suits protracted and declining illness. Nor am I ignorant that some say that all remedies are in request when diseases are becoming aggravated, and that when on the decline these last terminate of their own effort. But this is not the case. For even if a disease be to terminate spontaneously, it is removed the sooner by the intervention of a remedy, which becomes necessary for two reasons; both in order that convalescence may take place at the earliest possible period; and that the disease, while yet remaining, may not be exasperated from a cause however slight. The disease being mitigated and yet not entirely cured, certain lingering relics may yet loiter in the system which a remedy would discuss. But although fric-

tion is properly enough employed in a mitigated sickness, it never ought to be used when fever is increasing; but if practicable, in a perfect intermission; otherwise, at all events in a remission. It should sometimes be general; for example, when an infirm habit requires impletion; sometimes partial, when the feebleness of that same, or of some other part may demand it. For friction alleviates old-standing head-aches, provided it be not used in the height of the paroxysm; and the strength of a paralysed limb is sometimes re-established by it. But when one limb is rubbed for the relief of another, it requires to be done more frequently; and particularly when we wish to draw out the material from the upper or middle parts of the body; and in that case we rub the extremities. Nor are those to be listened to, who limit the number of the frictions whenever a patient requires to be rubbed. For we must infer this particular from the person's strength; and if very infirm, fifty times may be sufficient; if more robust, he may require two hundred; and so we are to vary the number intermediately according to the strength. Hence it happens that the strokes are to be fewer in a female than a male; fewer in a child or in an old person, than in a young man. Lastly, if a particular limb be to be rubbed, the friction should be smart and considerable. For the whole body cannot quickly be reduced by a part, and much of the material requires to be dispersed in this way, whether it be our object to relieve that limb, or some other through the same. But when debility of the whole system requires the universal employment of this remedy, it ought to be of shorter continuance, and more gentle; so that by softening the surface of the skin only, we may render it more capable of receiving the new material eliminated from fresh nutriment. I have stated above, the patient is in a bad way when the surface of his body is cold, while internally he has heat with thirst. But in that case also our sole trust is in friction; which, provided it bring out the heat, may give us the opportunity of using other means.

XV. GESTATION also is very well suited to chronic and declining diseases; and in like manner is useful to those who have no fever, and yet cannot be exercised by their own efforts; and to those in whom the lingering relics of disease are still present, and cannot otherwise be expelled. Asclepiades said we should use gestation even in a recent and violent fever, and especially in an ardent one, to the intent



that we may discuss it ; but that is done with some risk ; and an attack of this kind is better sustained by repose. If, however, any one should have a mind to try it, let him have recourse to it when the tongue is not rough, when there is no swelling, no hardness, no pain, either in the viscera, the head, or the præcordia. Furthermore, it decidedly ought never to be employed when either the entire body, or only part of it is suffering from pain ; unless the nerves alone be affected ; not at any time during the increase, but during the remission of fever.

Now there are several kinds of gestation ; and these are to be employed with a due regard both to the strength and pecuniary resources of each patient ; lest they over-exhaust him who is feeble, or be not within the reach of him who is poor.

The gentlest is that in a ship, whether in harbour or in a river : sailing out at sea is a rougher means, and so also is the sedan ; but carriage exercise is still more violent. Nay, each of these may be rendered more or less gentle. Should neither be convenient, a hammock ought to be suspended and swung from side to side ; and if that be impracticable, a prop having been placed under one foot of the bed, it ought in this manner to be moved backwards and forwards by the hand.

Doubtless the mild kinds of exercise are suitable to the infirm ; the stronger kinds to those who have already been freed from fever for some days ; so likewise for those who, though not as yet feverish, manifestly feel the approach of severe distempers, which happens both in tabes, in diseases of the stomach, in dropsies, and sometimes also in jaundice, and in other maladies not accompanied with fever : and again in certain diseases which, although unattended with fever, are of tedious duration, such as epilepsy and insanity. In the last affections, such kinds of exercises are necessary as we have comprehended in that part of our work, where we laid down a plan of regimen for those who, though in health, are nevertheless infirm.

XVI. There are two kinds of ABSTINENCE ; one when the patient fasts altogether, another when he takes only what is absolutely requisite. First, the commencement of diseases renders hunger and thirst indispensably requisite ; afterwards, these same diseases require regimen, so that nothing but what is suitable be ingested, and not too much even of that. For immediately after fasting, satiety is improper. But if it

be prejudicial even in health, when necessity has occasioned hunger, how much more hurtful is it in a body already diseased? **NOR IS THERE ANY THING MORE USEFUL TO AN INVALID THAN WELL-TIMED ABSTINENCE.** There are intemperate individuals among us who, with regard to the periods of taking food, dictate to those who are attending them. Others again surrender the periods to the arbitration of the physician, while they claim the privilege of determining the quantity. Some believe they are acting very liberally, who leave every thing else to the decision of the attendant, provided they are left free to select the kind of aliment which best pleases them; as though the question were, what should be the extent of the physician's licence in these particulars, and not what is proper for the invalid, who is seriously injured as often as he commits a fault either as regards the periods, the quantity, or the nature of the food he takes.

**XVII.** But **SWEATING** is elicited in two ways; either by a dry heat or by the bath. Now by a dry heat, I mean that of hot sand, and that afforded by the laconicum, the clibanum, and certain species of natural sweating places, such as those above Baïæ in the myrtle groves, where the hot vapour which arises out of the earth is inclosed in a building. Besides these, it is produced by the heat of the sun, and by exercise. These last kinds are useful, whenever there is a peccant matter within the body, which ought to be dispersed. Certain affections of the nerves likewise are thus best treated. Now the others may be proper for weak people: insolation and smart exercise only for the robust; who, although they have no fever, are nevertheless beginning to sicken, or are under the influence of severe diseases. But we must, if the patient be attacked with fever or with crudity, be cautious how we have recourse to either method.

The **BATH** has a two-fold virtue in it; for sometimes after the resolution of fevers, it is the fore-runner of a fuller diet and a stronger wine for promoting convalescence; and sometimes it dissipates even the fevers themselves; and it is usually employed when it is expedient that the cutaneous surface be relaxed, that the corrupt humour be drawn forth, and the habit of body changed.

The ancients used it with more reserve; Asclepiades with greater boldness. Nor is there anything alarming in it, if it be employed on proper occasions: it is its unseasonable use that is hurtful. Whoever, after being freed from fever, expe-

riences no return of it for a whole day, may securely bathe himself the day following, after the time of the accession shall have gone by. If the fever have been in the habit of observing the tertian or quartan course, the bath is safe on the days free from the accession. But when fevers are still remaining, provided they be lingering, and although mitigated, distress the patient a long time, this remedy is used with propriety; with this proviso nevertheless, that the præcordia be not hard or swollen, or the tongue rough; and that there be no pain either in the trunk or head, and that the fever be not on the increase at that juncture.

But there are two periods proper for using the bath in those fevers which return at regular intervals, the one before the shivering, and the other at the conclusion of the paroxysm: those who are a long time infested with lingering fevers, should employ it after the accession has completely passed off; or if there be no intermission, certainly after it has been mitigated, and when the body has now become as free from febrile action as it is wont to be in that sort of sickness.

A weakly subject, when about to enter the bath, ought to avoid exposing himself previously to cold; and when he has arrived there, he should remain quiet a little, and observe whether his temples be constricted, and whether he begin to perspire: if the former occurrence have taken place, and the latter have not accrued, the bath on that day becomes injurious; therefore he is to be gently anointed and taken away; and to avoid cold as much as possible, and to practise abstinence. But if his temples be not thus affected, and sweat first arise there, and then in other parts, he should foment his mouth with hot water; next sit in the solium, and there also observe whether on first coming in contact with the hot water the surface of his skin becomes constricted: this however can hardly occur, if things have gone on so far favourable; but it is a sure sign of the bath being injurious.

Whether one should be anointed before or after the hot bath, may be known by reference to the state of the health. Generally, however, unless where expressly ordered to be done afterwards, some sweat having been excited, the body is to be gently anointed, and then immersed in the hot bath. And here also regard is to be had to the strength, and we ought not to allow a patient to faint from heat, but have him taken out in good time, and carefully wrapped up in vest-

ments, so that the cold may not affect him; and while in this state he ought to sweat before he takes any thing.

There are also hot fomentations, formed of millet-seed, or of salt, or of sand, by heating and throwing either of these into a linen cloth; or if a lower temperature be wanted, even the linen alone; if a higher, quenched brands enveloped in rags and applied in that state. Besides these, bottles are used, filled with hot oil; and water poured into earthen vessels called, from their shape, "lentils;" salt also is put into a linen bag, and, after being immersed in very hot water, is adapted to that part which requires to be fomented. Again two irons are put into the fire, broad at their extremities; one of these is introduced into the salt just mentioned, and water lightly sprinkled upon it; when it has begun to cool, it is put to the fire again, and the same use is made of the other, and of both by turns; during which process the saline and hot juice trickles downwards through the cloth, and this is beneficial to nerves contracted by disease. All these have the power of dissipating that material which is loading the præcordia, or strangulating the fauces, or producing local mischief. But at what time each ought to be employed, will be mentioned under the particular kinds of distempers.

XVIII. Inasmuch as mention has been made of those things which are useful by effecting depletion, we must now approach those which nourish us, that is to say, food and drink. But these are not merely the resources of disease, but of health also: and it is essentially requisite to be acquainted with the properties of all nutritious substances: first, that when in health we may know how to make proper use of them; and in the next place, that it may be in our power, while tracing the treatment of disease, to subjoin the species of food which ought to be eaten, and so it may not be incumbent on us, from time to time, to name them individually.

It is therefore proper to know that all legumes and such grains as are made into bread, are of the **STRONGEST CLASS**. I call that the strongest in which there is most nutriment: also every domestic quadruped; all the large sorts of game, such as the caprea, the stag, the boar, the wild ass; all large fowl, as the goose, the peacock, and the crane; all sea monsters, among which is the whale, and those of a similar nature; also honey and cheese; so that it is not

so surprising that pastry is very strong, since that is made of grain, lard, honey, and cheese.

Among the INTERMEDIATE materials ought to be enumerated those vegetables whose roots or bulbs form articles of food; among quadrupeds, the hare; all birds, from the smallest down to the phœnicopterus: also all kinds of fish which are either not salted, or salted whole.

But the WEAKEST materials are, all the stems of vegetables, and whatever grows upon a stem, such as a gourd, the cucumber, and the caper; all orchard fruit, olives, periwinkles, and also conchs. But, although these are so distinguished, there is a great difference even in those which belong to the same class; and one is either more or less substantial than another. Although there is more nourishment in bread than in any thing else, yet wheat is stronger than millet-seed; this itself, than barley; and even of wheat, siligo is the most substantial, simila next, and then that from which no portion is removed, called by the Greeks *αὐτοπυρον* (autopuron); that from pollen is weaker; but bread made of bran, weakest of all.

But of the legumes the bean and lentil are stronger than the pea. Of herbaceous vegetables, rapes and turnips, and all kinds of bulbs (among which I number the onion also and garlic) are stronger than the *pastinaca*, or than that which by way of distinction is called the radish; the brassica, beet, and the leek, than the lettuce, or the gourd, or the asparagus.

But of the fruits which grow on twigs, grapes, figs, nuts, and dates are stronger than those fruits properly called poma; and of these same the juicy have more substance than those which are mealy.

Of the birds which are in the middle class, those are more nutritious which use their feet more than their wings; and of the latter, those of large size are stronger than the small; as the beccafico and thrush. So also water-fowl yield a lighter nutriment than those which cannot swim.

But among domestic quadrupeds the lightest meat is pork; the strongest, beef: and of wild animals also, the larger the size, the more substantial. Of fish of the middle class, which we most use, the heaviest are those which may be made into salsaments, such as the lacertus; next, those which, although more tender, are nevertheless of hard fibre, as the *aurata*, the *corvus*, the *sparus*, the *oculata*; together

with the flat fish ; after which, still lighter are the lupi and mulli, and next to these all rock-fish.

Nor is the difference only in the classes, but in the articles—according to their age, the part, the soil, atmosphere, condition. For every quadruped, if unweaned, affords less nutriment : so also the younger a coop chicken, the less aliment it contains ; and so again fish, which are of middle age and half grown. Then of the hog, the feet, head, ears, and brain ; of the lamb, or the kid, the entire head with the pettitoes are considerably lighter than the other parts ; so they also may be ranked in the middle class. The necks and wings of birds are with propriety ranked with the weakest.

But as regards soil, that grain which is grown in a hilly, is stronger than that grown in a flat country : fish found about rocks lighter than those delighting in sand or mud : so it is that the same species become heavier when procured from pools, lakes, or rivers : those living in deep water are lighter than those caught in the shallows. Every wild animal is lighter than those domesticated ; and all produced in a moist atmosphere less nutritious than those in a dry.

In the next place, all kinds of food when fat, afford more nutriment than the same when lean ; fresh meat, more than salt ; newly killed, more than that which is stale. So again the same food is more nutritious stewed, than roasted ; more nutritious roasted, than when boiled. Hard-boiled eggs are of the strongest class, soft or fresh eggs of the weakest. And although all bread-grain is very nutritious, yet certain kinds after being washed, as alica, rice, ptisan, or gruel made of these, or pulticula, and also bread moistened with water, may be ranked with the weakest sort.

But with regard to drinks, all those prepared from grain ; also milk, mulse, defrutum, passum, wine, whether sweet or strong, or must, and very old wine, are of the most nutritious class. While vinegar, and wine a few years old, whether austere or rich, belong to the middle class, and therefore no other ought to be given to the infirm.

Water is the weakest of all liquors. All drinks formed from grain have a strength proportionate to the quality of that grain : those are stronger prepared from wine produced from a good, than that from a poor soil ; made from that coming from a temperate climate, than from that which is the produce of an atmosphere too moist or too dry, exces-

sively cold, or excessively hot. Mulse is stronger, by how much the more honey it contains; defrutum the longer it is boiled; passum, the dryer the grape.

Rain-water is the lightest; next, that from the spring; then, that from a river; and fourthly, that from a well; after these; that from snow or ice; lake-water is heavier than these; marsh-water is the heaviest of all.

By those who are desirous of ascertaining its quality, such knowledge is as easily obtained, as it is useful. For that which is light, becomes manifest by weighing it; and of those whose weights are equal, that is preferable which most rapidly becomes hot and cold again, and in which legumes are cooked within the shortest period.

Generally indeed it happens, that the stronger the material, the less easily is it concocted; but if concocted, it is the more nutritious. Therefore we must use that which is adapted to the strength; and the quantity of each substance must be determined by its nature. Thus such as are least nutritious, are required for weakly persons; the middle class best support the moderately vigorous; while the strongest are best suited to the robust. Again one should eat more freely of the lighter kinds of food; while with regard to the strongest, one ought to exercise greater moderation.

XIX. Nor are these the only differences requiring notice; for some aliments are of a good juice, others of a bad; these the Greeks call *εὐχύλους* (euchulous) or *κακοχύλους* (kakochulous); some are bland, some acrid; some generate within us a thicker, some a thinner phlegm; some are proper, others improper for the stomach: some also cause flatulency, others have no such effect: some are of a heating, others of a cooling nature; some readily turn sour in the stomach, others are not easily corrupted; some relax, others bind the bowels: some excite, others retard the urinary secretion; some procure sleep, others rouse the senses. All these things require to be known, because food requires a varied adaptation to the kind of constitution and the state of the health.

XX. The aliments of a good juice, are wheat, winter wheat, alica, rice, amyllum, tragum, ptisan, milk, soft cheese, venison of all kinds, all birds of the middle class, and of the larger those I have mentioned above: of fish, those between the tender and hard, as the mullet and lupus:

the spring lettuce, the nettle, the mallow, the gourd, fresh eggs, purslane, periwinkles, dates : of fruits, such as are neither rough nor sour : wine, either sweet nor mild, passum, defrutum, olives preserved in either of these two last liquors : the wombs, cheeks, and feet of swine ; in fine, every species of fat, or glutinous flesh, and all kinds of liver.

XXI. The aliments whose juice is bad are millet, panicum, barley, legumes, the flesh of domestic animals, if very lean, all salt meat, all salsaments, fish-pickle, old cheese, skirret, radishes, rapes, turnips, bulbs, cabbage, especially the sprouts ; asparagus, beet, cucumber, leek, herb rocket, cresses, thyme, catmint, savory, hyssop, rue, dill, fennel, cumin, anise, water-dock, mustard, garlic, onion ; the spleens, kidneys, and entrails of animals ; all acid or acerb fruit ; vinegar, every thing acrid, acid, or acerb ; oil, rock-fish, and all those which are very tender, or very hard and strong-flavoured, as is the case with those which live in pools, lakes, or slimy rivers, or those which have grown to an immense size.

XXII. The mild articles are gruel, pulticula, pancake, starch, ptisan, fat meat, and that which is glutinous : which quality is generally found in all domestic animals, but more especially in the feet and cheeks of the hog, in the feet and heads of kids, calves, and lambs, and in the brains of all animals : also those vegetables which are exclusively designated bulbs ; milk, defrutum, passum, pine-nuts. The acrid articles are all those which are excessively austere ; all acids, all salted food, and even honey, especially if good ; also garlic, onion, rocket, rue, cresses, cucumber, beet, cabbage, asparagus, mustard, radish, endive, basil, lettuce, and the majority of pot-herbs.

XXIII. Those which generate a thicker phlegm, are fresh eggs, alica, rice, starch, ptisan, milk, bulbs, and almost every thing of a glutinous nature. The attenuants are all salted and acrid, and acid substances.

XXIV. The materials best adapted to the stomach, are all austere and acid substances, and such as have been moderately salted : also unleavened bread, washed alica, or rice or ptisan ; birds and venison of all kinds, roasted or boiled. Amongst the domestic animals, the flesh of the ox : if any other be employed, that which is lean is preferable to that which is fat : of the swine, the heels,



cheeks, ears, and sterile wombs: among the pot-herbs endive, lettuce, parsnip, boiled gourds, skirret: of orchard fruit, the cherry, the mulberry, the sœrb, the mealy pear, such as the Crustumian or Nævianian: also the Tarentine and Signine pears, which are used for preserving: the round apple, or the Scandianian, or Amerinian, or the quince, or the pomegranate: jar raisins, soft eggs, dates, pine-nuts, white olives preserved in strong brine, or the same steeped in vinegar, or the black kind when they have thoroughly ripened on the tree, or those which have been kept in passum or defrutum: austere wine; although grown rough, also resinated wine; hard-fibred fish of the middle class, oysters, cockles, aurices, purpuræ, periwinkles; food and drink, whether hot or cold: wormwood.

XXV. The articles offensive to the stomach are all things tepid, or salted, every thing jurulent, all sweet substances, every thing fat, gruel, fermented bread, and the same, whether prepared from millet or barley; oil, the roots of pot-herbs, and whatever herbs are eaten with oil or fish-pickles; honey, mulse, defrutum, passum, milk, cheese of all kinds, fresh grapes, figs both green and dry, all legumes, and whatever vegetables are of a flatulent quality: thyme, catmint, savory, hyssop, cresses, water-dock, nipplewort, and walnuts. Hence it may be understood that articles of a good juice do not necessarily agree with the stomach, and that every thing which agrees with the stomach is not consequently of a good juice.

XXVI. The substances which have a flatulent quality, are almost all legumes, all fat, and sweet and jurulent substances, musk, and also that wine which has as yet acquired no age: of the pot-herbs, garlic, onion, cabbage, and all roots, except skirret and parsnip; bulbs, figs, even though dry, but the green more particularly; green grapes, all nuts, except pine-nuts, milk and cheese of all kinds; and lastly, whatever has been taken only half boiled. The least flatulent are venison, wild-fowl, fish, fruit, olives, conchs, eggs, whether soft-boiled, or fresh; old wine. But fennel and dill even relieve flatulence.

XXVII. The CALIFACIENTS are pepper, salt, all stewed meat, garlic, onion, dry figs, salsament, wine, and the more so in proportion to its strength. The refrigerants are those greens whose stalks are eaten raw, as endive and lettuce;

also coriander, cucumber, boiled gourd, beet, mulberries, cherries, rough apples, mealy pears, boiled flesh, and vinegar particularly, whether food or drink be taken with it.

XXVIII. The articles which are easily corrupted in the stomach, are fermented bread, and any other sort except that made from wheat, milk, honey; and therefore all milky nutriment, and all pastry; tender fish, oysters, greens, cheese, whether new or old, coarse or tender flesh, sweet wine, mulse, defrutum, passum; and lastly, whatever is jurulent, or too sweet, or too much diluted. The materials which are the least liable to be corrupted in the stomach, are unleavened bread, birds, especially those of harder fibre, hard fish, not only the aurata and the scarus, but also the calamary, the lobster, the polypus; also beef and all hard flesh, especially if lean and salted; and all salsamenta, periwinkles, muriceæ, purpuræ; austere or resinated wine.

XXIX. The substances which relax the bowels, are fermented bread, particularly the coarsest sort, and that made of barley; cabbage, if imperfectly boiled, lettuce, dill, cresses, basil, nettle, purslane, radishes, capers, garlic, onion, mallows, dock, beet, asparagus, gourds, cherries, mulberries; all mild orchard fruit, also dry figs, but the fresh especially; fresh grapes, small birds when fat, periwinkles, fish-pickle, salsament, oysters, pelorides, urchins, muscles, and almost all conchs, especially their juice; rock and all tender fish, the liquor of the cuttle-fish; meat if eaten when fat, and the same either stewed or boiled; water-fowl, crude honey, milk, every thing of a milky nature; mulse, sweet or salt wine, water; every thing soft, tepid, sweet, fat, boiled, stewed, salt, diluted.

XXX. The alvine astringents are, bread prepared from siligo or simila, particularly if without yeast, or if burnt, and this quality is augmented if twice boiled; pulticle, whether made from alica, panicum, or millet; and gruel prepared from these same; especially if they have been previously fried; lentils, to which has been added beet, or endive, or succory, or plantain, and these also the rather, if previously fried; endive also, either alone or fried with plantain or succory; the small pot-herbs, cabbage twice boiled, hard eggs, particularly if roasted; small birds, the blackbird, the ring-dove, particularly when boiled in posca; the crane, all birds which run more than they fly; the hare, the caprea, the liver of such animals as have suet, and beef-liver

particularly, and so likewise suet itself : cheese, which has become stronger by age, or by that change which we observe in the foreign sort, or new cheese boiled with honey, or with mulse ; also boiled honey, unripe pears, sorbs, and more especially those called " torminalia ;" quinces and pomegranates, white or very ripe olives, the myrtle, dates, purpuræ, murices, either resinated or rough wine, and that undiluted ; vinegar, mulse which has been boiled ; also defrutum, passum ; water whether tepid or very cold, hard water, that is to say, that which keeps longest without spoiling, and therefore particularly rain-water ; every thing hard, lean, austere, rough, grilled, and of the same meat, that which is roasted, rather than that which is boiled.

XXXI. The diuretics are, all the odoriferous tribe growing in gardens, as parsley, rue, dill, basil, mint, hyssop, anise, coriander, cresses, rocket, fennel ; besides these, asparagus, capers, catmint, thyme, savory, nipple-wort, parsnip, and especially the wild variety, radish, skirret, onion ; of game, particularly the hare ; small wine, round and long pepper, mustard, wormwood, and pine-nuts.

XXXII. The articles adapted for procuring sleep, are the poppy, the lettuce, especially the summer variety, at the time when its stalk is full of milk ; mulberries, and leeks ; catmint, thyme, savory, hyssop, pennyroyal : rue and onions do, on the contrary, excite the senses, and pennyroyal especially.

XXXIII. The epispastic remedies are numerous ; but since they consist principally of foreign drugs, and are used more for affording relief in other cases, than for those affections in which dietetic regimen suffices, I shall for the present defer them ; but I shall mention those which, being easily procured, and by their nature adapted to those diseases concerning which I am now immediately about to speak, erode the surface, and thus extract from it that which is faulty. The seeds of rocket, cresses, and radish, have this quality, but most of all mustard. The same property is in salt and figs.

The medicines which both repress and act as emollients, are greasy wool, moistened with vinegar, or with wine, to which oil has been added ; pounded dates, bran boiled in salt water, or in vinegar. The cooling repriments are the wall-herb, which they call *παρθένιον* (parthenion) or *περδικιον* (perdikion), wild thyme, penny-royal, basil, the blood-herb,

which the Greeks call *πολύγονον* (*polugonon*), purslane, poppy leaves, vine-tendrils, coriander leaves, henbane, moss, skerrit, parsley, garden night-shade, which the Greeks call *στρώχρον* (*struchnon*), cabbage leaves, endive, plantain, fennel seeds, bruised pears or apples, particularly the quince apples, lentils, cold water, and especially rain-water, wine, vinegar; so also, if moistened by these, may be enumerated bread, or meal, or sponge, or ashes, or greasy wool, or even linen, cimolian chalk, gypsum, quince oil, myrtle oil, oil of roses, acerb oil; leaves of vervains bruised with their tender stalks, of which kind are the olive, cypress, myrtle, mastich-tree, tamarisk, privet, rose, bramble, laurel, ivy, and pomegranate.

The articles which repress without cooling, are boiled quinces, pomegranate-rind, hot water in which vervains have been boiled as before mentioned, powder of the lees of wine, or of myrtle leaves, bitter almonds.

But the calefacients are poultices made of meal of all sorts, whether from that of wheat, or of far, or of barley, or vetches, or darnel, or millet, or panicum, or lentil, or beans, or lupines, or linseed, or fœnugreek, being first boiled and then applied hot.

But all kinds of meal are rendered more efficient for this purpose by being boiled in mulse, than if prepared with water. Furthermore, cyprine oil, or that called *irinum*, marrow, adeps from the cat, common oil, the rather if it be old, or have salt in it, nitre, git, pepper, cinquefoil. And for the most part, the powerful repriments and refrigerants have a hardening quality, while the calefacients are digestive and emollient, and a cataplasm formed of lin, or fœnugreek seed, more especially possesses this last property.

Such then are the different remedies which physicians employ, simple or compounded; each one following his own notions, rather than any fixed rules established on experience.

## BOOK III.

I. **HAVING** already considered all those matters which relate to diseases in general, I shall now approach to the treatment of them individually. Now the Greeks divided diseases into two kinds: one they termed acute, the other chronic; and since these did not, from time to time, regularly happen in the same form, those very diseases which some have placed among the acute, others have referred to the chronic. Hence it is manifest that there are several kinds of them. For some are of short duration, and acute, which either soon destroy the patient, or are themselves soon terminated: some are chronic, under which there is neither a speedy recovery, nor a speedy death; and there is a third kind, consisting of those which are sometimes acute, at other times chronic; and this happens not only in fevers, in which it is a very frequent occurrence, but in other diseases likewise. But besides these, there is a fourth description, which cannot be denominated acute, for they do not destroy; and are certainly not chronic, because if remedies be seasonably employed, they are easily cured. When I come to treat of these individually, I shall point out to what class each belongs. But I shall divide them all into those which would seem to occupy the whole body, and those which are merely local. I shall commence with the former, first offering a few remarks by way of preface concerning all.

**TO CONFESS THE TRUTH, THERE IS NO DISEASE OVER WHICH CHANCE EXERTS LESS INFLUENCE THAN ART: FOR WITH NATURE AGAINST US, OUR TREATMENT IS OF NO AVAIL.**

Greater allowances are, however, to be made to the physician who fails in affording relief in acute, than in chronic diseases. For in the former there is a brief space, within which, if treatment avail not, the patient is carried off; in the latter there is time for deliberation and for a change of remedies, so that if called in at an early period of the disease, a submissive patient rarely falls a sacrifice, unless

through some mismanagement of his physician. A chronic disease, however, when deeply rooted, is, in point of difficulty, as bad as one which is acute: acute diseases are cured with less difficulty, when protracted, but the chronic when more recent. There is another circumstance of which we ought not to be ignorant; that the same curative agents do not suit all patients. Hence it has happened, that the best writers have exclusively defended the reputation of different remedies, according to the results of their own individual experience. It is meet therefore, when a remedy fails, to place a higher estimate on the patient's life than on the writer's authority, and to make trial of a second and a third; with this qualification, nevertheless, that a remedy which appears to be doing no good, be changed in acute diseases without loss of time; while in the chronic, which are both slowly established and as slowly removed, those means which have not directly proved serviceable, are not to be hastily condemned; much less should that be discontinued which has at least been of some little benefit; because by time its utility becomes decided.

II. Now even at the very commencement, it is easy to know whether the disease be acute or chronic: not only in those affections in which there is an uniformity, but in those likewise which are marked by variety. For when severe accessions and pains distress the patient without intermission, the disease is acute: when the pains are moderate, the paroxysms less severe, and the intermissions prolonged; and when those signs accede which have been mentioned in our last book, it is clear that the disease is about to be chronic. We ought to observe also, whether the disease be increasing, stationary, or on the decline: for some remedies are proper for increasing disorders, many for those which are abating; and such as are proper for the increasing kind, ought preferably, provided the disease be acute, to be had recourse to in the remissions.

But a disease is becoming aggravated so long as the pains and accessions grow more violent, and these last return earlier and cease later than the preceding. And even in chronic diseases not having these characteristic marks, one may know the malady is becoming augmented when sleep is interrupted, concoction more imperfect, the stools more fetid, the senses more obtuse, the mind more inactive; when a sense of chill or heat pervades the body, and it becomes

more pallid than heretofore. The signs directly opposed to these, are the marks of a departing malady.

Moreover in acute distempers the patient ought to have nutriment given to him at a later period, and not until the decline; so that this early privation may break the violence of the disease: in chronic maladies it should be administered earlier, in order that the patient may sustain the duration of the approaching disease.

But even when the malady is not in the whole body, but in a part only, it is more to the purpose to aim at increasing the strength of the whole system, than to remedy diseased parts exclusively. It also makes a wide difference, whether the patient has from the commencement been treated properly, or improperly: for treatment is less beneficial to those with whom much time has been wasted in vain attempts. If any one after imprudent treatment survive with his energies unimpaired, by instituting a proper method of cure he is soon restored to health.

But since I began by recounting the signs which are characteristic of that time at which sickness is on the point of setting in, I shall commence the treatments also by directing my attention to that same period. When, therefore, either of the before-mentioned circumstances occurs, nothing is so serviceable as rest and abstinence; if the patient must have drink, let it be water; and sometimes it will suffice to pursue this plan for one day only; sometimes, when the alarming appearances still continue, for two: the day after abstinence, food should be taken sparingly, and the drink should be water: on the next day he may even take wine; and thenceforth he ought to drink alternately wine one day, and water another, until there be no further cause for alarm: for by these means a severe disease is often discussed at its first approach. Many persons deceive themselves, while they hope on the first day at once to get rid of languor by exercise, by the bath, by purging, by vomiting, by sweat, or by wine. Not but that such a consequence may happen sometimes, and may answer our expectation, but that more frequently it is fallacious; while by abstinence simply, a remedy is supplied, without the slightest risk; for one can always regulate this last according to the extent of the alarm, and if the signs be of a lighter character, abstinence from wine alone may suffice: if somewhat more severe, it will be easy, in addition to water-drinking, to subtract flesh from

our food : besides, sometimes one ought to eat less bread than usual, and rest satisfied with moist aliment and particularly vegetables : so again, perfect abstinence from food, wine, and all corporeal exercise is necessary, when signs strongly characteristic of mischief have excited much apprehension. Neither can there be a doubt, that few become sick who have by such measures seasonably encountered an approaching disease, and have not practised dissimulation.

III. These, then, are the precautionary means to be attended to by those who are well, and only apprehensive of disease. But now follows the treatment of fevers, a kind of disease which occupies the whole body, and is extremely common.

Of these there are the quotidian, the tertian, and the quartan : sometimes indeed they return after a longer interval, but this is a rare occurrence : we shall essentially comprehend the diseases and their treatment by describing the former only.

The quartans are of a more simple character. They usually commence with shivering ; then heat breaks out, and after the conclusion of the fit there is an intermission of two days : so that it returns on the fourth.

Of tertians there are two sorts. One commencing and terminating like the quartan, with this difference only, that it allows one day's interval, and returns on the third : the other, far more dangerous, returning, it is true, on the third day, but generally occupying by the accession six-and-thirty out of the forty-eight hours, sometimes also more, or less ; nor does it entirely subside in the remission, but only becomes mitigated. Almost all physicians have denominated this species the semi-tertian.

But the quotidians are many and various. For some, from the very first, begin with heat, others with a sense of chilliness, others with shivering. By the term chill, I mean that state in which the extremities become cold : by shivering, I mean a shaking of the whole body. Again, some so entirely cease, that perfect intermission ensues ; others in such a manner, that although there be considerable diminution of the fever, yet certain relics remain even up to the next accession, while not infrequently there are some which remitting slightly, or not at all, are in fact continued. So again, some are accompanied with considerable, others with an inconsiderable degree of heat : some have similar pa-



roxysms, others dissimilar; and are, alternately, on one day moderate, on another severe: some, on the following day, return at the same hour; others, later or earlier: some occupy a day and night in the accession and decession, others less, others more: some in going off produce sweating, others have no such effect; and at one time after this sweating a perfect intermission ensues; while at another, the body is only rendered weaker. Sometimes one paroxysm only takes place each day, at others two, or even more: so that it often happens, that there are several accessions and remissions on the same day; in this order nevertheless, that each answers to some one which has preceded it. Now and then, indeed, the fits also are so confused, that neither their commencement nor their duration can be remarked.

Nor is that true which is stated by some, that there is no irregular fever except that which is the result of a vomica, or of inflammation, or of an ulcer: for were this true, the treatment would be uniformly more easy. But that which is the effect of evident causes, may likewise be produced by obscure causes. Nor do they dispute upon the subject matter, but upon words only, who, because the febrile paroxysms recur variously in the same disease, contend that they return not irregularly, but that fresh fevers are successively arising from time to time; but this, even if true, has nothing to do with the method of treatment. The remissions also are sometimes considerable; while at others there are scarce any at all.

IV. And such, indeed, is for the most part the nature of fevers. But the methods of cure are as various as the authors from whom they have originated. Asclepiades says it is the duty of the physician to cure safely, quickly, and agreeably. This is desirable; but generally excessive haste and indulgence are wont to prove dangerous. What regimen ought to be adopted in order that these three points may be accomplished to the fullest extent possible, (the patient's health being always made the first consideration,) remains to be considered when treating of the cures in detail. And before all other inquiries, it is asked in what manner the patient is to be restrained on the first days of the disease. The ancients tried to promote concoction, by exhibiting certain medicines; because crudity was what they chiefly dreaded: afterwards they removed that which they considered the offending material, by frequently clystering the

bowels. Asclepiades banished all internal medicines; yet he ordered clysters in every disease, although not so repeatedly; but he professed to use the fever itself as the chief remedial agent of its own cure. For his opinion was, that the strength of the patient required to be weakened by light, by watchfulness, and by thirst so intense, that he did not even suffer the mouth to be rinsed. Hence they are the more deceived, who conceive his practice to have been agreeable in all respects. For, it is true, on the latter days of illness, he sanctioned the luxury of the invalid; but in the first, he played the part of a torturer. Now I CONCEDE that medicinal potions, and clystering, ought to be had recourse to but seldom; yet am I of opinion, that our aim ought not to be to exhaust the strength, for it is from weakness that the greatest peril arises. Hence, then, the excess of material alone should be got rid of, which is naturally dispersed when there is no new accession of it. And, therefore, the patient ought to abstain from food, to be kept in the light during the day, unless he be infirm, for this also is a means of dissipating the humours; and he should lie in a very spacious apartment. As regards thirst and sleep, it should be so managed that he may keep awake by day, and, if possible, sleep by night, and he should neither drink copiously, nor be too much distressed with thirst. His mouth may be rinsed out both when it is dry, and when he has a disagreeable taste in it; although that is not a fit juncture for drinking; and Erasistratus has pertinently remarked, "the mouth and fauces lack moisture when frequently the inner part does not require it, neither can it be of any service to ill-treat the patient." Upon such a plan, then, is he to be restrained at the commencement. Now, in truth, THE BEST MEDICINE IS FOOD SEASONABLY ADMINISTERED: the question is, when ought it to be given: most of the ancients were in the habit of giving it at a late period, and the nature of the climate in Asia, or in Egypt, perhaps admits of that practice. Asclepiades, when for three days he had wearied out his patient by every expedient, allotted the fourth day for food. But not long since, Themison's practice was to regard the cessation, or certainly the remission of the paroxysm, and not its commencement: so reckoning from that period, after waiting for the third day, if then there was no accession of fever, he gave food immediately; if

there was, he gave it after this had subsided; or, if it did not subside, when it appeared to be on the decline. But neither of these rules is exactly universal. For the first food may be to be given on the first day, on the second, or on the third, or not until the fourth or fifth; again after the first, or after two, or after several accessions. For much depends on the nature of the disease, the constitution, climate, age, and season of the year: nor can any general precept be laid down with regard to time, touching matters which admit of so much discrepancy. In that disease which is of a more debilitating nature, food is to be administered at an earlier period: so, likewise, in that atmosphere which has a more dissipating quality: hence, in Africa, patients cannot with propriety be restrained from food, even for a day. It ought to be supplied sooner to a boy than to a young man; sooner in summer than in winter. There is one thing which may be observed at all times, and in all countries; the physician being in constant attendance, ought to regard the patient's strength; and so long as there is a sufficient surplus, he should contend by means of abstinence; but directly he perceives imbecility, he should afford nourishment. For it is his business to see that the patient be not burdened with unnecessary food, or weakened by hunger. And this also I find in the writings of Erasistratus, who, although he has taught us but little with regard to the time when the bowels or the system at large may be in a state of inanition, has nevertheless, by inculcating the necessity of attending to these matters, and of giving food when the body stands in need of it, sufficiently proved that it ought not to be supplied so long as there is a surplus of strength, although it is proper to guard against debility.

From these considerations it may be understood, that many persons cannot be treated by one physician; and that he, provided he be skilful, is the eligible attendant, who does not much absent himself from his patient. But they who are the slaves of lucre, inasmuch as more is to be made by being a popular practitioner, willingly embrace precepts which do not exact sedulous attendance; as is the case in this last example. For it is easy for those even who visit their patients but rarely, to keep count of the days and accessions; while he must attend assiduously who desires to observe (which is the sole and essential task) the period

when the patient must necessarily become weak, unless he receive sustenance. Nevertheless, in most instances, the fourth day is usually most suitable for the first nutriment.

But another point of doubt arises, touching the days; for the ancients preferred those which were unequal; and as if at such periods a prognosis could be afforded concerning the fate of the sick, they called them *CRITICAL*. These were the third, fifth, seventh, ninth, eleventh, fourteenth, and twenty-first; attaching paramount importance to the seventh, next to the fourteenth, and next to the twenty-first. Therefore they adopted such a regimen with their patients, that, after waiting for the days on which the accessions were unequal, they then exhibited food, this being the period when they had to look forward to the milder accessions: so that when a fever chanced to disappear on any but an unequal day, Hippocrates dreaded a relapse. Asclepiades justly condemned this as a chimerical notion, and asserted that the days being equal or unequal did not increase, or diminish the patient's danger in the least.

For sometimes the odd days turn out to be the worst, and food is in that case more seasonably administered after the accessions of these days shall have terminated. Sometimes also, the routine of the days becomes altered in the same disease, and that which was the more severe, becomes the milder of the two. Besides the fourteenth itself, which the ancients confessed to be very important, is an even day.

Inasmuch as they argued that the eighth day resembles the first, because the second seven days begin from that, they were inconsistent in neither assigning the eighth, nor tenth, nor twelfth day as the more influential; for they attributed more importance to the ninth and eleventh. Having done this without any plausible reason, they passed on, not to the thirteenth, but to the fourteenth. We find moreover, in Hippocrates, that "the fourth day is the most severe with him whom the seventh is to liberate." So we have it on his authority, that the fever may be severer on an even day, and may exhibit marks decidedly prognostic. And with regard to both these last events, the same author regarded every fourth day as most pregnant with importance; that is to say, the fourth, seventh, eleventh, fourteenth, and seventeenth; in saying which, he passes from the odd to the even mode of reckoning: nay, he does not constantly preserve this last order, for, calculating from the seventh day, the eleventh is

not the fourth, but the fifth. So that it is evident, in whatever light we regard the calculation, there is in this respect no consistency even in this author. But, to confess the truth, it was the Pythagorean numbers, at that time in high repute, which deceived the ancients. Although in a matter like this the physician ought not to number the days, but to regard the accessions, and from these last to surmise the proper periods for affording food.

Another important point to be known is, whether it ought to be given after the vessels have become completely tranquil, or while some relics of the fever still remain. The ancients were in the habit of administering aliment during perfect intermission from fever: Asclepiades, while the fever, although on the decline, was yet remaining. He based this practice on an unsound theory: not that food ought not at times to be given earlier, if we dread the premature approach of the next paroxysm; but still, that period ought to be selected for its administration, at which we notice the body to be most completely free from febrile action. For that suffers less corruption which is ingested while the body is entire. Nor is it true, as Themison thought, that if the patient has an intermission of two hours, it is more prudent to give it at that juncture, in order that it may in preference be distributed for assimilation during the apyrexial state. For could it be assimilated so rapidly, it were the best practice; but since so short a space of time is not sufficient, it is better that the first stage of the process of nutrition should commence after the termination of one paroxysm, than that the latter stages be encountered by the beginning of another accession. If, for example, the intermission be considerable, it should be given in a perfect state of apyrexia; if short, then, even before the complete subsidence of the paroxysm. This applies not only to perfect apyrexia, but also to the remissions which happen in continued fevers.

And another question is also raised; whether we are to wait the same number of hours as have been occupied by the paroxysm, or whether it may suffice to suffer part of them to elapse, in order that the food may better agree with those patients whose intermission is sometimes too short to allow of waiting the whole period. However, it is the safest plan to allow the entire period of the accession to pass by: although when the paroxysm has been of long continuance, the patient may be indulged somewhat earlier, but not until

the lapse of at least one half of the time. And that is to be done not only in that fever of which we have been treating, but in all others likewise.

V. These last remarks are universally applicable to all kinds of fevers: I shall now proceed to their particular species.

When, therefore, there has been only one accession, which has afterwards subsided, and this has arisen from inguinal tumour, or from lassitude, or from heat, or any thing similar, so that no internal cause affords ground for alarm, on the day following, when the time it should recur has elapsed without vascular disturbance, we may administer food. But if the heat have originated from a deep-seated source, and a sense of uneasiness either in the head or præcordia ensue, the cause of the disturbance not being manifest, even although the accession be followed by a perfect apyrexia, yet, as we may fear a tertian, we should wait for the third day; and after the period for the accession has passed, food may be given, but in small quantities, for a quartan may be apprehended: but if on the fourth day the body be free from fever, then at length we may use it with confidence. However, if there be a return of fever on the next, or on the third or fourth day, we may understand that that disease has established itself. Now it is easy to treat tertians and quartans in which there is a regular course, a well-defined termination, and ample intermissions; concerning which I shall treat in their proper place. But my present task will be to explain such as have quotidian accessions.

In these therefore it is better to supply nutriment every third day, so that one day may serve for the diminution of the fever, and the other for supporting the strength. When quotidianas are of that sort which have perfect cessations, food should be given at the commencement of the intermission: but when although the paroxysms do not follow each other in immediate successions, these nevertheless are connected by febrile action, are daily gaining ground, and have remissions without any perfect intermissions, it should be postponed till the arrival of the greater remissions. Should the accession be more violent one day, less another, it should be given after the more violent. Most commonly indeed a more favourable night follows, and consequently, a worse night precedes the severer paroxysm.

But with regard to the season for giving it, supposing the

fever to continue uniformly violent, there is considerable discrepancy. Some give it in the morning, because that is generally the easiest time with invalids. But when this plan is beneficial, it must be so, not because it is morning, but because at that time patients experience some slight remissions.

But when there is no alleviation even at this last mentioned period, it is the more unseasonable; because although it ought in its nature to be more favourable, it turns out to be less so, in consequence of the severity of the disorder; besides, next comes mid-day, after which, since nearly every patient becomes worse, there is reason to fear lest he be even worse than usual. Hence it is that to such patients some administer nutriment in the evening: but because at that juncture invalids most usually find themselves at the worst, there is reason to fear lest if we excite any disturbance, the accession may be aggravated. On account of these objections MY PRACTICE IS TO LEAVE IT TILL MIDNIGHT, for then it is that this worst juncture is ended, and the next is at the farthest possible distance; while the hours before dawn are in expectancy, during which most men have some sleep, and next follows morning, in its nature the most favourable portion of the day.

But if the paroxysms be erratic, inasmuch as there may be reason to fear that they may ensue immediately after food, it should be taken without delay after the patient has experienced some alleviation of the paroxysm. If several fits occur on the same day, one should remark whether they are similar in every respect, (which is barely possible,) or dissimilar. If similar, nourishment should in preference be received after that fit whose termination does not happen between noon and evening: if dissimilar, one should observe in what the difference consists. For if one be violent, the other gentle, it should be given after the former: should one be long, the other short, after the longer: should one be more severe, the other of longer continuance, we should consider whether the former distresses more by its severity, or the latter by its duration, and give it accordingly. It is evidently of the greatest importance to mark the extent and nature of the remissions between the fits. For should the vascular disturbance remain after one paroxysm, and entirely subside after another, the apyrexial state will be the proper season for nourishment.

If a slight degree of fever be continually present, yet if one remission be longer than another, that should be selected in preference; so that if the fits follow each other in immediate succession, nutriment ought to be taken directly after the first accession begins to decline. For, to allot the periods for food at the greatest possible distance from an approaching paroxysm, is an universal object to which all our plans should be directed; and with this qualification, to administer it when the system is most completely free from febrile action; which rule ought to be observed, not only after the patient has had two paroxysms, but after a greater number.

Although it is most expedient to give food every third day, yet, if the system be weak, it should be administered daily; and if the paroxysms continue without remission, it will be more necessary in proportion as these debilitate the system; or when two or more fits occur on the same day. This last occurrence renders the daily exhibition of food indispensably requisite, even from the very commencement, provided there be sudden cessation of the febrile action; and it should be supplied repeatedly on the same day, when, during several paroxysms, there is an occasional failure of the strength of the body. Nevertheless, in these cases, it is to be borne in mind, that less food should be given after such paroxysms; since, but for the state of the body, none whatever would be given. Inasmuch as every fever has its stage of approach, commencement, increase, acme, and decline, and, after its decline, either remains in a diminished degree, or is altogether terminated; we may now perceive that the most favourable season for food is at the end of a paroxysm: next, when it ceases to decline; thirdly, if requisite, after its departure; and that all the other periods are dangerous.

If, however, on account of weakness, there be any urgent necessity, it is more prudent to give some little when the paroxysm is no longer on the increase, than when it is increasing: when it is about to begin, rather than when it has begun; with this qualification, that there is no period at which he who is sinking from exhaustion may not be nourished.

And most undoubtedly the physician ought not merely to regard the paroxysms, but the state of the whole body also, and direct his treatment accordingly; observing whether there be a surplus or a deficiency of strength, and whether



any other affections supervene. But, since it is always advantageous that patients be tranquil, so that their sufferings may not be mental as well as corporeal, this is especially desirable after food. If, therefore, any occurrence have taken place calculated to disturb their equanimity, it is better to conceal it till they recover: if that be impracticable, to withhold it after a meal until their sleeping time, and to communicate it after they have awaked.

VI. The management of patients with regard to food is not so difficult, for the stomach often rejects even when inclination leads them to take it: but the grand struggle is for drink, and that proportionately to the severity of the fever. For it is this last which excites thirst, and they require water most importunately, at the very crisis at which it is most dangerous. Now the patient ought to be apprised that the thirst will subside with the fever; and that as the taking of the slightest aliment will prolong the accession, he will soonest cease to be athirst, who has abstained from drinking. Nevertheless, as persons in health more easily sustain hunger than thirst, we ought the rather to indulge our patients in drink than in food. But certainly on the first day no fluid should be allowed; unless the vessels have become so tranquil, that food also is admissible: but on the second, as also on the remaining days on which food cannot be conceded, some drink may be allowed. And not without reason has Heraclides the Tarentine observed, that when either bile or crudity disorders the patient, it is expedient, by the ingestion of moderate quantities of fluid, that fresh material be mingled with the corrupt. Care is to be taken that the same periods which are selected for giving food, be observed also when drink only is to be taken; or we should give it when we wish him to sleep, which thirst usually prohibits. Moreover, that much drink is hurtful to all feverish patients, and particularly so to females who have fever after delivery, is sufficiently agreed upon by all parties. But, although the nature of the paroxysm and its remission point out the proper season for food and drink, it is no easy matter to know when the patient is feverish, when better, and when his strength is failing; without knowing which, these cannot be seasonably administered. We, indeed, pin our faith chiefly on the state of the vessels, which is very deceptive; for pulsation is often rendered more or less frequent by age, sex, and temperament; and generally, even though the

health be tolerably good, if the stomach be weak, or sometimes even at the commencement of the paroxysm, the pulse is small and indistinct; so that he may appear to be weak, who is in truth quite strong enough to bear up against a severe fit. On the contrary, it often becomes quick and full from the effects of the sun, the bath, exercise, fear, anger, and any other mental emotion; so that when first the physician approaches, the patient's anxious solicitude to know what opinion is entertained of his case, may of itself create disturbance. On this account a scientific physician ought not to take hold of the arm, directly he comes into the room, but first to sit down with a cheerful countenance, and ask the patient how he finds himself; and if he appear alarmed, he should soothe him with plausible observations, and then feel his pulse. Now if the sight of the medical attendant disturb the vessels, how easily may a thousand things have the same effect! The temperature of the body, which is another criterion on which we rely, is equally fallacious; for this, also, is excited by the heat of the weather, by labour, sleep, fear, anxiety. Therefore, although it is requisite to regard these circumstances, it is not right to place implicit reliance upon them.

We may know at once that he is not feverish, whose pulse is regular, and who has the warmth natural to health: though we are not so readily to infer the existence of fever, from the presence of increased heat and vascular excitement; but we are justified in so doing, if the surface of the skin be partially arid; if there be heat in the forepart of the head, and it arise from the bottom of the præcordia; if the breath from the nostrils be hot; if an alteration take place in the complexion, whether to an unusual redness or pallor; if the eyes be heavy, or very dry, or rather moist; if, when a sweat breaks out, it be partial: if the pulsations do not take place at equal intervals. Hence the physician ought not to take his seat in a dark part of the room, or at the head of the bed, but in a light place, opposite to the patient, so that he may observe all the signs which are marked on his countenance, just as he lies.

But when a paroxysm has taken place, and is on the decline, we ought to notice whether the temples or any other parts begin to grow slightly moist, which is the forerunner of a sweat: and if we perceive such mark, that is the time to give hot water to drink; the effect of which will be salutary

if it render the sweating general over every part of the body. To promote this, the patient ought to keep his hands under a considerable quantity of clothes, and in like manner cover his legs and feet : by a similar weight of clothing many harass their patients in the height of the paroxysm, particularly when the fever is of the ardent kind. When the body has begun to perspire, it is requisite to warm a linen cloth, and to wipe each part gently. But when the sweating has entirely ceased, or in the event of there being none, when the patient appears in the most favourable state for receiving food, he is to be anointed gently under the clothes, then to be deterged, and afterwards to have food.

Now the most appropriate food for fever-patients, is that which is liquid, or certainly approaching to a liquid consistence, especially such as is but slightly nutritious, particularly gruel ; and even this last, after febrile paroxysms, should be given very thin. To render it more nutritious, clarified honey is with propriety added : but if it disagree with the stomach, it is injurious : and so also is the gruel itself. But instead of this last, we may give that grated preparation of bread, called *INTRITA*, mixed with hot water, or washed alica : if the stomach be strong and the bowels costive, with mulse ; but with posca if the former be weak, or the latter relaxed.

This will suffice for the first meal : but for the second there must be some addition, and this also from the same class of material ; as, for example, vegetables, conch-fish, or orchard fruit : and so long as the fever is increasing, this is the only proper food ; but when ended or alleviated, although we ought always to begin with the lightest material, yet, provided we from time to time pay due regard to the strength of the patient and the state of the fever, we may make some addition from the middle class. According to the precept of Aesclepiades, various kinds of food are to be placed before the patient, provided he be distressed with loss of appetite, and his strength fail ; so that by tasting a little of each, he may escape being famished : but if there be neither the power nor the inclination, the patient ought not to be enticed by any variety, lest he take more than he can digest. Neither is that a just remark of his, "that a mixed food is more easily digested." True, it is more readily eaten : but the kind and quantity of the material determine the facility of digestion. The patient cannot safely be allowed to eat freely

during severe pains, or during the increase of a disease; but directly the state of his health begins to improve.

There are other observations requisite in treating fevers. And we are also to observe, (which some inculcate as the sole essential,) whether the body be in a state of constriction or of relaxation; of which two, the one suffocates, the other wastes by dispersion. For if constricted, the bowels are to be opened by clysters, the urine to be promoted, and sweat to be elicited by every means possible. In disease of this nature it is beneficial to let blood, to agitate the body by rough gestation, to keep the patient in the light, and to enjoin hunger, thirst, and watching. It is also useful to put him into a bath, first immersing him in the solium; then to anoint, again to return to the solium, and to foment the groins freely with water; occasionally to mingle oil with the hot water in the solium; to have recourse to food at a later period, and less frequently, and that meagre, unmixed, soft, hot, and small in quantity; particularly vegetables, such as sorrel, nettle, mallows, or the juice of conchs, muscles, or lobsters; nor should any flesh meat be given, unless boiled. But he may drink more freely before, during, and after food, and to a greater extent than his thirst requires; rich and sweet wine also may be allowed after bathing; and once or twice that called *Græcum salsum* may be interposed.

On the other hand, if the body be suffering from flux, the sweat should be restrained, and repose had recourse to, leaving him in the dark and allowing him to sleep as often as he likes: the body is to be agitated only by the easiest gestation, and we should adapt our remedies to the nature of the malady. If the flux be from the bowels, or the stomach be incontinent, as soon as the fever shall have subsided, we should let him drink freely of tepid water, and induce vomiting; unless either the fauces, or the *præcordia*, or the side be painful, or the disease be inveterate. But if there be colliquative sweats, the skin requires to be hardened with nitre, or salt, mixed up with oil: if the affection be slight, with oil only; if more violent, with rose-oil, oil of quince, or myrtle-oil, with the addition of rough wine. Furthermore, every patient under flux should, on coming to the bath, first be anointed, and then immersed in the solium. If the affection be in the skin, he had better use cold water in preference to hot. When he takes food, it should be highly nutritious, cold, dry, unmixed, and such as is least suscep-

tible of corruption ; toasted bread, roasted meat, austere or certainly subaustere wine ; hot, if the flux be ventral ; cold, if it be sweating or vomiting.

VII. 1. The method of treating PESTILENTIAL FEVERS demands our particular attention. Here it is of no use to resort to hunger, or to internal medicines, or to glystering. If THE STRENGTH PERMIT, BLOOD-LETTING IS THE BEST REMEDY ; and particularly if the fever be attended with pain : but if this be not sufficiently safe, when the fever becomes mitigated, it is proper to cleanse the chest by vomiting. It is requisite to put the patient in the bath at an earlier period in this, than in other diseases ; to give him wine, hot, and undiluted, and every thing glutinous ; and among the rest, meat of the same nature. For the more rapidly pestilences of this kind destroy, the more promptly, and even with some risk, are we to have recourse to remedies.

But if an infant be suffering from it, and have not strength to bear blood-letting, we must, in that case, use the cupping instruments, clyster with water, or the cream of ptisan, and afterwards support him with light nutriment. Children require a treatment altogether different from grown persons. Therefore, in this disease, as in any other, we must be moderate in the use of our remedies ; we must not be too ready to bleed or clyster, or torment by making them endure watching, or hunger, or excessive thirst ; nor are we to treat them with wine. Vomiting should be elicited after a paroxysm, and then very light food should be given ; afterwards he should be allowed to sleep ; and on the next day, if the fever remain, he should practise abstinence ; on the third, return to the same kind of food. And interposing a well-timed abstinence between the seasonable exhibition of food, and laying aside every thing else, we are to exert ourselves to nourish the patient.

2. But when an ARDENT fever is consuming the patient, no medicinal potions are to be given, but he is to be cooled in the accessions with oil and water, mingled by the hand until they turn white : he should be kept in a chamber where he can inhale plenty of pure air ; he should not be half suffocated with bed-clothes, but covered very lightly. Also vine-leaves steeped in cold water may be applied upon the stomach. He is not to be harassed with excessive thirst. He is to receive nourishment somewhat

ooner, that is to say after the third day; and before taking food, he should be anointed all over with the liquids above mentioned. If there be a collection of phlegm in the stomach, directly the accession is on the decline, he should be forced to vomit; then cold vegetables should be given, or such fruit as agrees with the stomach. If the stomach continue dry, the cream of ptisan or of alica, or of rice, with fresh lard boiled in it, ought to be forthwith administered. But when the disease is at its height, but certainly not until the fourth day, provided great thirst have preceded, cold water is to be abundantly supplied, so that he may drink even beyond the desire for it; and when his belly and præcordia shall have been bloated with it, and sufficiently cooled, then he ought to vomit.

Some do not provoke vomiting, but employ the cold water itself as a remedy, giving it to satiety. When either of these two plans is adopted, he should be well covered with bed-clothes, and placed in a position favourable for inducing sleep. By making the patient drink so large a quantity of water immediately after excessive thirst and watching, we subdue the heat, and afterwards sound sleep ensues; during which, sweat is copiously effused, which is attended with immediate relief: but this, however, applies to those cases in which, along with this burning heat, there are no pains, or swelling in the præcordia; nothing counter-indicating either in the thorax, or the lungs, or the fauces; no ulcer, no exhaustion, no alvine flux. But should the patient have a slight cough in this kind of fever, he is neither to struggle with excessive thirst, nor to drink cold water; but to be treated on the plan laid down for other fevers.

VIII. But there is need of much attention in that species of tertian which physicians call *ἡμιτριταῖον* (hemitritiaion), lest its true nature escape our notice. For it generally has accessions and decessions so much more frequent, that it may appear to be a different disease: and the paroxysm is prolonged to the extent of from twenty-four to six-and-thirty hours; so that that which is in truth the same, may not appear to be so. And it is highly necessary that no food be given except in a genuine remission; but when such an one occurs, that it be administered without delay; for from either of these mistakes of the attendant, many suddenly fall a sacrifice.

Unless some circumstances strongly contra-indicate, blood-

letting is proper at the commencement ; afterwards such food should be given as may sustain the duration of the fever without exasperating it.

IX. Sometimes also SLOW fevers infest the body without any remission, so that there is no time afforded either for food or physic. In this case it should be the physician's care to change the action of the disease ; for perhaps it will thus become more susceptible of treatment. For this purpose cold water with oil is to be frequently applied to the body, by lightly tracing the hand over its surface ; for in this way it sometimes happens that shivering is induced, and this constitutes the beginning of a new action ; after which, when the body has become hotter, a remission also follows. In these cases also, friction with oil and salt appears serviceable.

But if for a considerable time there be chilliness and torpor, with jactitation of the body, it is not improper to give three or four cyaths of mulse even during the paroxysm, or well-diluted wine with the food. For frequently in this way also the febrile action is augmented, and the great heat which arises at once removes the previous untoward symptoms, affords hope of remission, and of a cure during that remission.

And, most assuredly, that is no new method of treatment, pursuant to which in our time certain persons occasionally cure patients committed to their charge, by remedies the reverse of those which had previously been employed by more cautious physicians : since, among the ancients also, before the time of Herophilus and Erasistratus, and just after that of Hippocrates, there was one Petro, who, on receiving the care of a febricitant, was in the habit of covering him with a large quantity of bed-clothes, to the intent that he might both excite great heat and thirst : then, when the fever had partially remitted, he gave him cold water to drink ; and when he had excited sweating, he judged he had put the patient in a fair way of recovery : but if he failed to do this, he administered more cold water, and then made him vomit. When in either mode he had got rid of the fever, he immediately gave the patient roast pork and wine : if he did not succeed, his plan was to boil salt in water, and to make him drink it, that he might cleanse the system by purging the bowels.

And this comprised his whole practice ; not less satisfac-

tory to those whom the disciples of Hippocrates had failed of curing; than it is in our time to those whom the followers of Herophilus and Erasistratus have not cured, after a tedious course of treatment. Yet, this does not make the practice a jot the less imprudent: for if adopted from the first, in the majority of cases it proves destructive. But since the same remedies do not suit all habits, temerity benefits those whom reason has failed of curing; and on this account **QUACKS SUCCEED BETTER WITH OTHER MEN'S PATIENTS THAN WITH THEIR OWN.** Still it is the duty of a circumspect practitioner occasionally to try a new method, and both to aggravate the disease and exasperate the fever; because when the existing action is not susceptible of cure, the one about to be substituted may be so.

X. It also requires due consideration, whether the fevers be alone, or whether other affections supervene upon them; whether, for example, the head be painful, the tongue cracked, or the præcordia tense. When pains of the head are present, it is right to mix rose-oil with vinegar, and to apply it to the head; next, to have two pledgets of the length and breadth of the forehead; constantly keeping one in the rose-oil and vinegar, and the other on the forehead: or to apply, steeped in these, wool not deprived of its natural grease. If the vinegar be unpleasant, we may use pure rose-oil; if this also be disagreeable, acer boil. Should these be found of no use, dried orris, or bitter almonds, or any of the refrigerant plants may be powdered; and either of these, applied with vinegar, has the power of diminishing the pain, but more so in some cases than in others. Bread also is serviceable, laid on with poppies; or ceruss, or litharge, with rose-oil; nor is it altogether useless to smell wild thyme or dill.

But when there is inflammation and pain in the præcordia, repressing cataplasms are to be used first; lest the hotter kind determine more humour there: directly the inflammation is diminished, we advance to the hot and humid sort, to discuss the relics of the disease. Now the characteristics of inflammation are four; **REDNESS AND SWELLING, WITH HEAT AND PAIN:** wherefore, Erasistratus was greatly mistaken in saying there is no fever without inflammation. If, therefore, there be pain without inflammation, nothing need be applied externally, because the fever will of itself discuss it. But when there is neither inflammation nor fever, but merely a



pain in the præcordia, we must immediately have recourse to hot and dry fomentations. If the tongue be dry and foul, first it should be cleansed with a penicillum, dipped in hot water, and then anointed with a mixture of rose-oil and honey. Honey is a detergent, rose-oil represses, and prevents it getting dry. But if it be not foul, but dry only, after it has been deterged with the penicillum, it ought to be smeared with rose-oil, to which a little wax has been added.

XI. CHILLINESS is also common before fevers, and a very troublesome kind of affection it is. When it is expected, the patient is to be entirely prohibited from all sorts of drink; for when taken just before the paroxysm, it considerably aggravates the symptom. He is sooner to be covered up with bed-clothes: dry and hot fomentations are to be applied to those parts where we apprehend mischief, in such a way that the violent heats may not come on all at once, but gradually. Such parts also are to be well rubbed with the hands anointed with old oil, to which some of the calefacients have been added; and some physicians rest satisfied with one friction, no matter with what kind of oil. Some in the remissions of these fevers exhibit three or four cyaths of gruel, while as yet the febrile action is remaining: afterwards, when that is completely at an end, they refit the stomach with cold and light food. I AM OF OPINION that this plan ought to be tried, when food exhibited once, and that too after the paroxysm, proves of little service. But we are to watch carefully, lest the period of the remission deceive us: for frequently in this kind of disease also, the fever appears to be diminished, and is again suddenly augmented. We are, therefore, to trust to that remission which is not transient, and which diminishes the jactitation and that particular fætor of the mouth which the Greeks call *ὀσμή*. It is not disputed that, provided the accessions are daily equal, some little food should be given daily: that if unequal, it should be given after that which is the more violent, and hydromel after the lighter paroxysm.

XII. But SHIVERING is usually the fore-runner of those fevers which observe a regular course, and have perfect intermissions; and which are therefore the safest and most curable. For when the stages are irregular, neither alviduction, nor the bath, nor wine, nor any other remedy, can be had recourse to with precision; for the accession is uncertain:

hence, if it approach suddenly, the greatest mischief may accrue from that which has been invented as a remedy; and all that can be done is to enjoin the patient to abstain on the first days; and after the decline of that paroxysm which is the severest, to let him take food.

But when their course is regular, all these remedies are more easily tried; since we can form a more correct estimate of the order in which the fits and intervals will succeed each other. Moreover, when these fevers have lasted a considerable time, fasting is of no service: it is only on the first days that this ought to be had recourse to as a means of opposing the disease: then the curative indication becomes two-fold, first to relieve the shivering, and afterwards to remove the fever.

For this reason, at the commencement of the shivering, and also in the hot stage succeeding it, it is requisite to give the patient warm water with a little salt in it, and to make him vomit; for shivering is almost always occasioned by a collection of bile in the stomach. The same method should be pursued, if it return with the succeeding accession; for thus it is often discussed, and by that time we shall have detected the species of the fever. Wherefore, just before we expect the approach of the succeeding paroxysm, he is to be brought to the bath, and we should take care that he be in the solium during the shivering fit. Although he feel the same sensation in the bath, he should nevertheless adopt the same plan when expecting the fourth fit; because, in this way it is often removed. When the bath is of no service, he should eat garlic, or drink hot water with pepper just before the accession; for these taken internally excite a heat, which prevents the shivering. Afterwards, before the shivering commences, he should be covered up just as was directed when treating of chilliness: and it is proper at once to apply the more powerful sort of fomentations over the entire body; particularly extinguished bricks and cinders wrapped up in cloths.

If, notwithstanding these precautions, shivering ensue, he should be anointed freely under the bed-clothes with heated oil, to which in like manner any of the calefacients may be added; friction may be employed as strong as he can bear it, chiefly in the hands and feet; and he should hold in his breath. Nor are we to desist even though the shivering

continue, for oftentimes the perseverance of the attendant overcomes the malady.

If he has vomited, tepid water should be given, and he is again to be made to vomit; and we must employ the remedies already mentioned till the shivering has ceased. But in addition to these, if the shivering be slow in subsiding, clysters must be used, for they do good by unloading the system. After these, the last resources are gestation and friction. Furthermore, the food which ought to be given in such diseases is that which is laxative; the flesh meat that which is glutinous; the wine, if any, that which is austere.

XIII. These remarks apply to all fevers, no matter what may be the nature of their course: nevertheless they are to be distinguished according as each requires a different method of treatment. In a quotidian, it is highly expedient to abstain the first three days; then to take food every other day. When the disease has been of long continuance, it is right, after the paroxysm, to make trial of the bath and to give wine; particularly when the febrile action remains after the removal of the shivering.

XIV. But in tertians and quartans with perfect intermissions, it is proper on the intermediate days to walk and to use other kinds of exercise, and to anoint. Cleophrantus, one of the more ancient physicians, was accustomed, in this kind of disease, to pour warm water over his patient's head, long before the accession, and then to administer wine.

Although Asclepiades observed most of this man's precepts, this he very properly neglected: for it is hazardous.

This latter writer tells us that if the fever be a tertian, it is proper to clyster the bowels every third day after the fit; on the fifth after the shivering, to induce vomiting; then to give, on the plan of Cleophrantus, food and wine to those who remain hot after the paroxysm: on the sixth day to keep them in bed, for in this way there will be no accession on the seventh.

That this may frequently answer is very probable: nevertheless it is safer to observe the following order; to make trial of the three remedies, vomiting, clystering, and wine, three several days, that is to say, the third, fifth, and seventh: but not to drink wine on the seventh day until after the accession. But should the disease not have been removed on the first days, and thus become inveterate, on

the day that the paroxysm is expected, the patient should keep his bed, be rubbed after the fit, and drink water after his food; on the next day free from febrile action, he should refrain from exercise and unction, and rest satisfied with water: and this indeed is the best plan. But if weakness be urgent, it will be requisite for him, both to take wine after the paroxysm, and a little nourishment on the intermediate day.

XV. The same method is to be adopted in the QUARTAN. But inasmuch as this is very slowly terminated unless removed at the commencement, we should from the first be more energetic in laying down our plan of treatment. Therefore if a paroxysm come on with shivering, and then cease, the patient ought on that, on the next, and on the third day, to practise restraint, and on the first day after the paroxysm to drink hot water only; for the next two days, if possible, not even that. Should the fever return on the fourth day with shivering, he ought to vomit, as before enjoined; then after the fit to take a moderate quantity of food, with a quadrant of wine; on the next day, and on the third also, to fast, taking merely hot water in the event of being thirsty; on the seventh day to anticipate the cold stage by the bath; should the fever return, to open the bowels by clyster, and in the next intermission, to be rubbed smartly in the process of anointing; to take food and wine in the manner before mentioned; the two following days to abstain, attending to the friction. On the tenth day he should try the bath again; and, in the event of another fit, be rubbed as before, taking wine more copiously; and on this plan it is probable that repose for so many days, and abstinence along with the other measures which have been inculcated, may remove the fever. But should this not be the case, we are to pursue a method of cure diametrically opposite; and our chief object should be to enable the system to bear up against that affection which it must necessarily endure for a considerable time. Wherefore the plan of treatment recommended by Heraclides the Tarentine is less worthy of approbation; for he said that the bowels are to be relaxed by clysters on the first days, and afterwards, that abstinence should be observed till the seventh. Now even granting any one could sustain this, yet when freed from the fever, he would scarcely have strength enough to admit of refection: thus, should the fits be frequent, he would sink. Therefore, should the disease

remain after the thirteenth day, we ought not to have recourse to the bath, either before or after the paroxysm; unless now and then after the breaking up of the cold stage. We must contend with the shivering, by means of the remedies already mentioned. Immediately after the fit, unction and strong friction will be requisite, and he should take food of a nourishing quality and without scruple, with as much wine as he likes: on the next day, after the requisite repose, he should walk, be exercised, anointed, and smartly rubbed, and take food without wine: on the third he should observe abstinence.

But on the day he expects the fit, he should previously get up, and be exercised, and try so to arrange the matter, that he may be exercising at the time the fit returns; for thus it is often discussed: but if it has made its attack while he is exercising, he should desist. In this kind of sickness the remedies are oil, friction, exercise, food, and wine. If the bowels be constipated, they should be relaxed.

Although the most robust easily endure these remedies, yet when there is considerable debility, gestation should be substituted for exercise: and in cases in which not even this can be borne, yet friction may be employed; should this, when violent, annoy him, we must limit our measures to repose, unction, and food; and be careful lest crudity convert the affection into the quotidian type. For a quartan never proves fatal; while, should the disease gradate into a quotidian, the patient is in danger, a catastrophe which never occurs unless through the fault either of the patient or his medical attendant.

XVI. But if it be a case of double quartan, and the exercises already mentioned cannot be had recourse to, he should either rest entirely, or, if that be impracticable, walk gently; sit quiet, with his feet and head carefully wrapped up; take food and wine in moderation after each paroxysm; abstaining in the interim, unless the weakness be urgent. While in the event of the two fits being all but continuous, he should take food after each, and afterwards in the intermission gently move about, and take food after unction. But since an inveterate quartan is seldom stopped except in spring, at that time we are to be particularly attentive, lest any thing occur to impede recovery. It will be useful also, in an old quartan, occasionally to change the mode of living, passing from wine to water, from water to wine, from bland

to acrid food, from acrid to bland; to eat radishes and then to vomit; or to open the bowels with chicken broth; to add some of the calefacients to the oil used in friction; to absorb before the fit either two cyaths of vinegar or one of mustard, with three of the wine called *Græcum salsum*, or pepper, castor, *assafœtida*, and myrrh, mixed in equal proportions and diluted with water. For the body requires to be stimulated by these and the like remedies, that the existing action may be changed. After the subsidence of a fit, one ought for a long time to bear in mind its paroxysmal period; and on that day to avoid cold, heat, crudity, and lassitude. For in every case it is readily reproduced, unless guarded against for some considerable time.

XVII. But when a quartan ague has gradated into a quotidian, inasmuch as this is the result of some mismanagement, it is requisite to abstain for two days, to practise friction, and in the evening to allow him water only for his drink. It often happens that there is no fit on the third day: but be this as it may, food ought to be exhibited after the period of the accession shall have elapsed; and if the disease remain, abstinence as rigid as can possibly be enjoined, is to be employed, together with daily friction.

XVIII. And here ends my exposition of the treatment of fevers: still, however, other affections supervening upon these remain to be considered; of these I shall immediately subjoin such as cannot be assigned to particular parts. I will begin with insanity, approaching to the consideration of that first species of it, which is an acute disease, occurring in a fever, and denominated by the Greeks *φρένησις* (*phrenesis*). It is of paramount importance to know that sometimes patients are delirious, and talk incoherently at the commencement of the accession. This is a dangerous symptom, and cannot happen except in a violent fever: nevertheless, it is not at all times equally dangerous: for it is usually transient; and when the violence of the paroxysm has abated, the senses soon return. Nor does this kind of affection require any other remedy than that already prescribed in the treatment of fever.

But *PHRENESIS* is present when the raving is continual, or when, although the patient still have his reason, he forms certain chimerical notions: it is complete when the mind becomes addicted to those notions. Now there are several kinds of it; for some phrenetic patients are merry, others

melancholy : some, whose madness is confined to language, are easily kept under restraint ; others break out into open acts of violence : of these last some attack openly without art, and others display every appearance of sanity in seizing opportunities of doing mischief, but are ultimately detected. Now it is unnecessary to distress those whose ravings are limited to discourse, or to slight acts of violence, by adopting a rougher plan of coercion : but it is expedient to bind those who conduct themselves more violently, that they may neither injure themselves nor others. Nor are we to believe a phrenetic patient, who when bound and desirous of being loosed, talks in a rational and moving strain ; for this is the trick of madness. The ancients generally kept such patients in the dark, because it is not in their nature to be frightened ; while, on the other hand, they conceived that even darkness assisted in producing mental composure. But Asclepiades said they ought to be kept in the light, inasmuch as darkness affrights them. Neither of these rules is unexceptionable ; for light is most annoying to some, darkness to others, and cases are found in which no difference can be observed either way.

It is therefore best to try both plans, and to keep the patient in the light if he dread darkness ; in the dark, if light be offensive to him. But that patient in whose case no such distinction can be observed, provided he have strength, should be kept in a well-lighted room ; if weak, in a dark one. Now to employ remedies when the raving is at its climax is useless ; for the fever increases simultaneously. Wherefore, just at that time, the patient is merely to be kept under restraint : but as soon as it is practicable, we should, without loss of time, proceed to offer relief. Asclepiades said, that blood-letting in these cases is as bad as murder ; pursuing this method of reasoning, that there is no insanity except in the height of the paroxysm, while blood cannot be drawn except in the remission. But even his plan in such cases was to elicit sleep by long-continued friction, although the increase of the paroxysm impedes sleep, and friction is not useful except in the remission. Hence to be consistent he ought to neglect this last remedy likewise. What then is to be done? **THERE ARE MANY REMEDIES ADOPTED WHEN DANGER IS URGENT, WHICH AT OTHER TIMES OUGHT TO BE OMITTED.** So also continued fever has certain periods, at which, although it does not remit, yet it does not

increase : and this is the next, although not the most eligible period for the trial of remedies. But if the patient's strength permit, he ought to be bled. The use of clysters requires less consideration. After interposing one day, it is proper to clip the head down to the scalp, and foment it with water, in which vervains have been boiled with some of the repressing remedies ; or to foment it first and clip it afterwards, and then to foment it again ; and lastly to saturate the head and nostrils with rose-oil : to proffer rue also to the nostrils, rubbed up with vinegar, and to excite sneezing by medicines possessing that property. Such is the plan which ought to be adopted in cases in which there is no deficiency of strength. If however weakness be manifest, the head should be kept moistened with rose-oil, to which wild thyme or some similar herb has been added. Night-shade and the wall-herb are also two others which are useful in any state of the strength, provided the head be saturated with the juice expressed from either of them. When a remission has taken place, friction should be employed ; although more sparingly in those who have an overflow of spirits than in those who are melancholy. But with regard to the management of the minds of all patients who are thus delirious, it is necessary to adopt a treatment according to the nature of each case. For the groundless fears of some patients are to be alleviated ; which was done in the case of a very wealthy person who dreaded starvation, and to whom feigned bequests were from time to time announced. The audacity of others demands coercion : as happens in those persons, to restrain whom even flagellation is had recourse to. The unmeaning laughter of others is to be checked by reproof and threatening ; and there are cases in which a melancholy train of thought requires to be banished : to accomplish which, symphonies, cymbals, and other noisy music are employed with advantage. Nevertheless, we are oftener to give assent to their opinions, than to oppose them ; and the mind is thus to be brought gradually, and insensibly, from an irrational to a rational method of discourse. Sometimes we are to endeavour to elicit exertion of the mind ; which plan is adopted with the studious, to whom a book is read in a proper style when they are pleased with it, and awkwardly when that itself is displeasing to them : for they thus begin to turn their attention to correcting it. Furthermore, they should be pressed to recite any thing they can remem-



ber. Some have been induced to take food, who had previously no inclination for it, by seating them in the midst of persons engaged at a banquet. To all labouring under such affections, sleep, though with difficulty procured, is in the highest degree beneficial; for after it, there is in most people a visible amendment. Saffron-ointment with orris-oil, applied to the head, is useful for this purpose, and also for tranquillizing the state of the mind. When, nevertheless, they continue wakeful, some try to obtain sleep by giving a decoction of poppies, or henbane: others, by placing mandrake apples under the pillow: others, by applying on the forehead amomum, or the tears of sycaminum. I find this last name occurs among physicians: but although the Greeks call the mulberry *συκάμινον* (sukaminon), yet this tree has no tear. In fact the term is expressive of a tree growing in Egypt, which they in that part denominate *μοροσύκον* (mosukon). There are many who boil the bark of poppies in water, and with this decoction foment the head and face by means of a sponge. It was the opinion of Asclepiades that these remedies are inappropriate, inasmuch as they often convert the malady to a lethargy. Moreover his injunction was, that on the first day the patient be restrained from food, drink, and sleep; that in the evening he be allowed to drink water; after which, that friction be employed without pressing on hard with the hand engaged in rubbing; that on the evening of the next day, after repeating the same remedies, gruel and water be administered to him, and friction be again resorted to, as the surest means of producing sleep.

And, doubtless, it sometimes has this effect; and to such an extent, that as he himself confesses, excessive friction also may endanger lethargy. But in the event of no sleep accruing on this method, it is to be procured by the former expedients, with a due regard to that moderation which is here necessary, lest, desirous of putting the man to sleep, we may afterwards be unable to awake him. A waterfall from an artificial fountain near the patient's room also tends to induce sleep; or gestation employed after food, and in the night; and especially the motion of a slung hammock.

Nor is it improper, if blood have not previously been extracted, to apply the cupping instrument to the incised occiput, provided there have been no sleep, and delirium be present; for if it mitigate the disease, it may also occasion

sleep. A just medium ought to be observed likewise with regard to food; for the patient ought not to have too much nourishment, lest he rave; and most decidedly should not be tormented with hunger, lest through weakness he fall into that asphyxial condition denominated cardiacum. The food should be of that sort which is the least nutritious, and particularly gruel; his drink hydromel; and of this it will be sufficient to give three cyaths, twice in winter, four times in summer.

There is a species of insanity of longer duration, differing from the last inasmuch as it begins without fever, and afterwards excites slight shiverings. It is confined to a depression of spirits, which seems to arise from black bile. Here blood-letting is serviceable: should any thing counter-indicate this, abstinence is the remedy most important, vomiting and purging by white hellebore the next. After either of these remedies, friction should be employed twice a day; if he be tolerably strong, frequent exercise also: and vomiting on an empty stomach. Wine being excluded, his food should be of the middle class of materials; although as often as I use this last expression, I wish it to be understood that some of the least nutritious sort may be given, provided he do not use that exclusively: while it is only the most nutritious which is inadmissible.

Besides these precautions, it is proper to keep the bowels as free as possible; to dispel terrors, and inspire hopes: delectable entertainment must be sought for from comedies, and those diversions with which the patient was wont to be most fascinated before he became insane; works of his performing, if any, are to be warmly extolled, and placed within his view; his groundless melancholy should be blamed in mild terms; and he is occasionally to be admonished that the very circumstances which gave him anxiety, ought to create rejoicing rather than solicitude. When fever also supervenes, it requires to be treated like other fevers.

There is a third kind of insanity, the most chronic of these three, not necessarily tending to shorten life, and usually met with in a robust subject. Of this again there are two species; for some, without mental alienation, are deceived by unreal phantoms, such as the poets represent to have been seen by the raving Ajax, or by Orestes: others are disordered in their judgment. When phantoms mis-

lead the judgment, our first consideration should be to observe whether they be sad, or gay. In sadness, black hellebore ought to be given as a purgative; but when there is an overflow of spirits, white hellebore, to excite vomiting; and if he cannot take it in a liquid form, it should be mixed with bread, that he may take it unwittingly: for thorough purgation will in a great measure alleviate the disease. Wherefore, if one exhibition of the white hellebore have produced but little effect, after some interval it should be given again. One ought not to be ignorant that madness, attended with an excess of spirits, is milder than that accompanied with depression. It is an universal rule applicable to all diseases, that if the patient be about to be purged downwards, his bowels ought previously to be kept in a lax state; if upwards that they should be confined. But where the patient is destitute of self-control, or rule of action, the disease is most successfully treated by punishments. When the patient has said or done any thing amiss, he must be coerced by hunger, chains, and flagellation. He must be made to fix his attention, to learn something by rote, and to retain it in his remembrance: for in this way it will be effected, that he will gradually, through fear, be led to consider what he does.

To produce sudden and violent fright in this distemper is also beneficial; and so is any thing which causes violent perturbation in the mind: for some change may ensue after the mind has been rid of its old condition. It is likewise of importance to discriminate whether the patient has repeatedly an unmeaning laugh, or is sad and dejected: for raving mirth is more properly treated by inspiring the terrors above mentioned: but excessive sadness is benefited by gentle but long-continued friction, performed twice daily; also by cold affusion on the head, and immersion of the body in water and oil. These which follow are general rules: that maniacs ought to be violently exercised; to use long-continued friction; not to take fat meat or wine: after purgation to use the lightest of the middle class of nutriments: that they ought not to be left alone, or among strangers, or those whom they may despise or disregard; that they should change the climate, and, when reason returns, be exercised by an annual tour.

Rarely, but yet sometimes, insanity is the result of fright. Such patients have the same symptoms, and require

the same mode of living, with the exception that this is the only kind of insanity in which wine can be administered with propriety.

XIX. That which the Greeks call καρδιακὸν (kardiakon,) is of a very different nature to these last diseases, although phrenetic cases often gradate into this affection: for while in them there is mental alienation, in this there is no instability of the mind. Now it is nothing else than excessive debility of the body wasted by immoderate sweating, the stomach being languid. One may know it is present, when the pulse is small and weak; when sweats break out unusually, both as regards their quantity and periods, from the entire chest, neck, and head, while the feet and legs remain dry and cold. This kind of disease is acute. The first part of the treatment consists in the application of repressing poultices to the præcordia: the second in restraining the sweat. Acerb oil has that effect, or rose, or quince, or myrtle oil; with either of which the body should be gently anointed; and then a cerate applied, prepared from any one of them. If the sweat still prevail, the patient should be rubbed over either with gypsum or litharge, or cimolian chalk; or his body should be sprinkled from time to time with the powder of these substances. The powder prepared from the triturated leaves of dried myrtle, or bramble, answers the same purpose; so likewise that of the dry dregs of austere and sound wine: and there are many other similar remedies, but if these be not at hand, any road-dust thrown on has a tolerably good effect. In addition to such measures, to diminish the sweating, the body is to be lightly clad, to be kept in a cool room, and the windows left open to admit the breezes.

A third remedy is to succour the patient's weakness with food and wine. Although nutriment ought not to be supplied in considerable quantities, yet it should be given frequently, both during the night and day, that it may nourish without proving burdensome. It ought to be of the weakest kind, and such as is likely to agree with the stomach. Unless there be urgent necessity, it is not proper to hasten to the use of wine. If there be reason to fear exhaustion, then indeed INTRITA may be given along with it; or the wine itself, provided it be austere, small, and slightly diluted, is now and then freely to be administered with the chill off; and if the patient take but little food, POLENTA

may be added ; and the wine selected for this last purpose should not be destitute of strength, and yet not very strong ; and in the course of the day and night the patient may advantageously drink three heminæ ; if he be of a larger make, even more than this. If he have no inclination for food, it is proper to practise cold affusion with a previous inunction, and then to proffer it. Should the stomach be so enfeebled that it does but imperfectly retain its contents, he ought to vomit both before and after food, and after the vomiting again to take nourishment. If this last also fail to remain, it will be requisite to drink a cyath of wine, and after the lapse of an hour to take another. If the stomach reject this also, the entire body is to be rubbed over with pounded bulbs, which, after they have grown dry, cause the wine to be kept on the stomach ; and afterwards the natural warmth returns to the body, and the vessels recover their energy ; but the last resource is to inject the bowels with the cream of ptisan, or alica ; for this also supports the strength. Neither is it inappropriate to hold rose-oil and wine under the nostrils of a patient oppressed with heat ; and in the event of the extremities becoming cold, to warm them by rubbing with one's hands anointed, and hot.

Now, if by these measures we succeed in diminishing the violence of the sweat, and thus prolong life, time itself at length becomes a remedy. After the patient is to all appearance out of danger, we are still to fear a sudden relapse into the former state of weakness : therefore, excluding wine only, he ought daily to take stronger food, until the body regain sufficient strength.

XX. There is yet another malady otherwise opposed to the phrenetic. In phrensies, sleep is procured with difficulty, and the mind is ready for any act of temerity ; but in the disease of which we have now to treat, there is drowsiness, and an almost insurmountable necessity of sleeping. The Greeks term it *λήθαργον* (lethargon). And this also is an acute disease, and, unless relief is afforded, quickly proves fatal. Some endeavour from time to time to excite such patients by sternutatories ; and by remedies which stimulate by their fetid odour ; such as crude pitch, uncleansed wool, pepper, white hellebore, castor, vinegar, garlic, and onions. So also they burn galbanum near them, or hair, or hartshorn : or if that be not at hand, any other horn ; for these when burnt emit a fetid odour. Tharrias

says the affection is the result of the paroxysm, and becomes alleviated when that has gone off; and that therefore they who repeatedly rouse such patients, ill-treat them to no purpose. But it is of importance to know whether the patient awakes in the decession, or whether the sleep oppresses him, both when the paroxysm is not alleviated, and when it is so. For if he awake, it is needless to treat him as one in a deep sleep; for he gets no better by keeping awake; while if better, he keeps awake spontaneously. But when the sleep is continual, most decidedly he ought to be aroused: and this when there is least fever, so that he may excrete somewhat, and take nourishment. Now the sudden affusion of cold water is certainly a very powerful excitant; therefore after the remission, the body having been freely anointed with oil, should have three or four amphoræ of water poured upon it, from the head downwards. But this we may employ, when the patient's respiration is regular, and his præcordia soft: in other cases, those means are preferable which have been above comprehended. So far as regards the sleep then, this is the best plan of treatment. But for the cure of the malady, the head should be shaved, and then fomented with posca, in which bay or rue has been boiled: on the next day castor ought to be applied, or rue pounded with vinegar, or bay berries, or ivy with rose-oil and vinegar. And mustard applied to the nares is a good remedy for arousing the patient; and placed on the head or forehead, contributes to the removal of the disease. Gestation is also beneficial in this disease; so especially food given at seasonable times, that is to say, during the completest remission that can be observed. Now gruel is very proper, until the disease is on the decline: therefore if a severe fit occur daily, it may be given daily; if every other day, gruel is eligible after the severer, hydromel after the milder paroxysm. Wine also is highly beneficial, if given with seasonable food. But should this kind of torpor ensue after long-continued fevers, we are to practise all the measures already mentioned; and three or four hours before the fit, to give castor, mixed with scammony if the bowels be bound, and otherwise, with water merely. If the præcordia be soft, a fuller diet may be used; if hard, he should be confined to the slops already mentioned, and apply to the præcordia some remedy which may at once repress and soften the part.

XXI. This last is an acute disease: but that in which

there is a collection of water under the skin may become chronic, unless cured at an early period: the Greeks call it ὑδρωπα (hudrōpa): and there are three species of it. For sometimes, the belly being very tense, there is a frequent rumbling internally, from the motion of air: sometimes the body is unequally swollen by tumours arising all over it: at other times, the water is collected within the abdomen, and moves along with the motion of the body, so that its fluctuation is visible. The Greeks have called the first τυμπανίτην (tumpanitēn); the second λευκοφλεγματίαν (leuco-phlegmatian), or ὑπὸ σάρκα (hupo sarka); the third, ἀσκήτην (askitēn). A superabundance of humour is common to them all; and hence ulcers do not readily heal in such patients. But this malady often begins spontaneously; often supervenes on some other chronic distemper, and particularly on quartan ague. It is more readily removed in slaves than in free men: for since it requires hunger, thirst, a thousand other unpleasantries, and much patience, it is less difficult to relieve those who are easily put under restraint, than those to whom liberty proves disadvantageous. Nay, even those who are under another's direction are not cured unless they can exercise perfect self-command. Therefore was it, that a physician of some repute, a disciple of Chrysippus, residing at the court of king Antigonus, contended that a friend of this monarch's could not possibly be cured, although but slightly affected with this malady. And when another physician, Philip of Epirus, guaranteed his cure, the former one's answer was, "You look to the patient's disease, I to his habits." Nor was he deceived in the event. For, although the patient was guarded by the utmost diligence, both on the part of the physician and the king, yet by swallowing his own malagmata, and drinking his own urine, he hastened his own destruction. At an early period, however, the disease is not difficult, provided repose be enjoined, together with thirst and fasting; while if the affection have become inveterate, it is not removed but with the greatest difficulty.

They say, however, that Metrodorus, a pupil of Epicurus, when affected with this malady, and unable to endure the necessary thirst patiently, made it his practice first to drink, and then to discharge by vomiting. Now, if what is ingested be thus discharged from the stomach, it considerably diminishes the distress; if retained, it augments the malady,

and therefore ought not to be tried in every case. But if fever also be present, this in the first place requires to be removed by the methods which have been declared proper for its relief: if the malady be not attended with fever, that is the time to proceed to the usual means for curing the dropsy itself. And with regard to this disease also, whatever the species, if it have not taken too strong a hold, there will be need of the remedies aforesaid: he should walk much, sometimes run; and the upper parts especially are to be rubbed, while he is holding in his breath: sweat is to be elicited, not solely by exercise, but also by hot sand, or by the lacinicum, or clibanum, and other like means: the natural and dry sweating places are also particularly useful, such as we have above Baiæ, in the myrtle-groves. The warm bath and moisture of every kind is hurtful. Catapotia, consisting of two parts of wormwood and one of myrrh, may be given with propriety on an empty stomach. The food should be of the middle class, but yet of the harder sort: no more drink should be given, but just barely sufficient to sustain life; and that is the best which provokes the urine: although it is better to produce that effect by food than by physic. If, however, circumstances render it necessary, some of the diuretic herbs are to be boiled, and their decoction administered as a drink. This property would appear to reside in orris, nard, saffron, cinnamom, amomum, cassia, myrrh, balsamum, galbanum, ladanum, the wild vine, panaces, cardamom, ebony, cypress seed, staves-acre, which the Greeks call *σταφίδα ἀγρίαν* (staphida agrian); southernwood, rose-leaves, sweet-flag root, bitter almonds, goat-marjoram, styrax, costum, the seed of the square and round cyperus: the Greeks call the former *κῦπειρον* (kupeiron), the latter *σχοῖνον* (schoinon): as often as I introduce these terms, I would be understood to mean those species which are imported with other aromatics, and not the indigenous kinds. But in the first place the mildest of these are to have a fair trial; such as rose-leaves or spikenard. A rough-flavoured and very weak wine is beneficial. It is advantageous to measure the abdomen daily with a string, and mark the extent of the enlargement, observing from day to day whether the body is becoming fuller or extenuated: for extenuation shews the medicine is effective. Nor is it a bad plan to measure his drink and urine; for when the quantity of excreted fluid exceeds that which is ingested, then, at last,



there is some hope of recovery. Asclepiades has recorded, that in a patient who lapsed into a dropsy from a quartan ague, he employed abstinence and friction for two days; and that on the third, when he had got rid both of the fever and the water, he administered food and wine.

Thus far the treatment may be laid down as universally applicable to every species of the disease: when the affection is more violent, our method of cure requires distinctions accordingly.

Therefore if the case be TYMPANITIS, and from that there be frequent pain, some benefit is to be derived from vomiting after a meal, every, or every other day; and dry, hot fomentations are to be employed. If the pain be not ended by these remedies, dry cupping is necessary: and if the patient's sufferings be not removed even by this, the skin is to be lanced, and cupping to be resorted to a second time. Where this proves of no service, our last resource is to inject plenty of hot water into the bowels, and allow it to escape again. Furthermore, it is expedient to employ smart friction three or four times a day, with oil and some of the calefacients; but not over the abdomen. Upon this last part mustard should be applied at different times, until it erode the skin: and in several places ulcers ought to be established on it, by means of hot brands; and to be kept open for a considerable time. Boiled squills also are advantageously taken as a linctus; but long after these tympanies, all flatulent food should be avoided.

But when the disease is of that kind called *λευκοφλεγματῖα* (leucophlegmatia), it is proper to expose the swollen parts to the sun; though not too much, lest it excite fever: when the sun is more powerful, the head should be covered; and friction employed with the hands moistened only with water, to which salt, nitre, and a little oil have been added; employing for this purpose those of children, or women, since theirs is the softer touch; and should the strength permit, it may be continued for a whole hour before noon, and half an hour in the afternoon. Repressing cataplasms also are serviceable, and especially in delicate habits. An incision is to be made above the inner ankle to the extent of about four digits, so that for some days humour may be abundantly discharged; it is also proper to make free incisions in the tumours themselves; to agitate the body with much gestation; and when the wounds have cicatrized, to

augment the patient's exercise and food, till his system return to its former healthy condition. His food ought to be of a nutritious and glutinous nature, and principally flesh: his wine, if the stomach permit, tolerably sweet; and that not taken constantly, for he should alternately drink for two or three successive days, at one time water, at another wine. The seed of the *lactuca marina*, which grows of a large size near the sea-coast, is useful, with water as the vehicle of its administration. If the patient be robust, he may take boiled squills in the form of *linctus*, as I said before. And there are many authors who would have the tumours beat with inflated bladders.

But when the disease is of that kind in which much water is collected within the abdomen, it is proper to walk, although more moderately: to apply a discutient malagma; and to bind upon it a napkin three times folded, with a bandage not too tight: a measure which originating from *Tharrias*, I observe to be still continued by many. Should it be manifest that the liver or spleen is affected, it is expedient to apply over it a bruised mellow fig, with the addition of honey. If by such means the abdomen is not dried, but still abounds with water, it is fit to afford relief in a more summary method, so that it may be discharged by the belly itself. Neither am I ignorant that this method of cure did not please *Erasistratus*: for he thought the affection arose from the liver; that this organ therefore should be cured; and that it was useless to discharge water, which, so long as the liver remains faulty, will accumulate again and again. But, in the first place, it is not a disease of this one viscus exclusively; for it happens in affections of the spleen, and in universal cachexy. And, in the next place, admitting that to be its origin, yet, if the water which is preternaturally collected there, be not evacuated, it proves noxious both to the liver, and to other internal organs. And even then it is equally proper that the body be treated generally. For tapping does not cure the disease, but gives us the opportunity of using medicine, which the accumulated fluid prevents. It is not disputed that this is not a method of cure suitable to every case: but for the robust and younger subjects, who have no fever, or at least have ample and evident remissions. For they who have a diseased stomach, or have become dropsical from black bile, or are cachectic, are not fit subjects for this mode of practice. Now

on the day the fluid is first discharged, food is improper, unless the strength fail: on the ensuing days both that and undiluted wine ought to be given, although sparingly, and the patient to be submitted gradually to exercises, frictions, sun-heat, sweatings, fatigue, and suitable food until his recovery be complete. The case requires the bath to be used but rarely: vomiting on an empty stomach more frequently. In summer, sea-bathing is advantageous. Even long after convalescence, indulgence in venery is injurious.

XXII. CONSUMPTION is a malady which often endures for a long time and is still more dangerous. And of this also there are several species. There is one in which the body not being nourished, and nothing being substituted for the repair of the continual waste to which we are naturally subject, the utmost emaciation takes place, and, unless checked, proves destructive. This the Greeks call *ἀρροφίαν* (atrophian). It usually proceeds from two causes. For either from excessive caution, the patient takes less, or, from avidity, more than he ought: and thus either the deficiency debilitates, or the superfluity becomes corrupt. There is another species, which the Greeks call *καχεξίαν* (cachexian), in which, in consequence of a depraved condition of the body, all the aliments are corrupted. This last species occurs when the body, vitiated by a long continued disease, is too weak even when at length free from it, to admit refecation: or arises from the use of improper medicines; or from the want of the common necessities of life: or from eating strange and pernicious food, and from the like causes. In this case, besides the wasting, it sometimes happens that the skin is continually disfigured with ulcers, or that some parts of the body grow tumid. The third, and by far the most dangerous species, is that which the Greeks have called *φθίσιν* (phthisis). It usually begins in the head, and then falls upon the lungs; to this accedes ulceration, and upon that a slight fever supervenes, which, though it subside, yet is sure to recur: there is a frequent cough; pus is expectorated, and sometimes a cruentate matter. The expectorated matter, if thrown on the fire, emits a fetid odour: hence they who have their doubts of the disease, resort to this experiment.

These being the kinds of consumption, it is expedient first to discern under which species the patient is suffering.

This being attended to, if it be only a case in which the system appears to receive no nourishment, we ought to mark its cause, and if the patient have been in the habit of taking less food than requisite, he should make some addition to it, but gradually; lest he suddenly overload the system with an unusual quantity, and impede concoction. But if any one be accustomed to take more food than requisite, he ought to abstain for a day; then begin with a small portion, daily making some addition to it, until he arrive at a proper quantity. Besides these measures, he ought to walk in places, where, avoiding the sun, he may be least subject to cold; and also to be exercised so as to employ the hands: if weaker, he ought to be submitted to gestation, unction, universal friction performed with his own hands if possible, and frequently each day, both before and after food, until he sweat; occasionally adding calefacients to the oil used for that purpose. It is beneficial to lay hold of the skin in many parts while he is fasting, and to draw it, that it may be relaxed; or to produce the same effect by the alternate application and withdrawal of resin. Sometimes also the bath is advantageous, provided it be used after a spare meal: and some food may be properly taken in the solium, or after the friction, when this last is employed without the bath. Now the food ought to be of that sort which is easily digested, and highly nutritious. Hence the use of wine also is necessary, provided it be austere. The urine is to be elicited.

But if a CACHEXY be present, the first thing to be inculcated is abstinence; afterwards the bowels are to be opened by clyster; and then food should be given by degrees, adding to these measures exercises, unctions, and frictions. For these last cases, the bath is to be employed frequently, but on an empty stomach, and to the extent of sweating. But the food should be abundant, various, of a good juice, and such also as does not easily become corrupt; and the wine austere. If other remedies prove of no avail, blood is to be drawn; but gradually, and daily, for several successive days, with this qualification, that the other remedies be employed in the same manner.

But if the mischief be more serious and a TRUE PHTHISIS be present, it is necessary to oppose it at its very onset: for when it has become inveterate, it is not easily subdued. If the strength permit, there will be need of long voyaging and

change of climate, from a rare atmosphere to one more dense: and therefore the transition from Italy to Alexandria is very suitable. And usually at the commencement, the body ought to be able to support such a voyage, since this disease generally arises at the most vigorous period of life, that is to say, from eighteen to thirty-five. If one's weak state of frame admit not of this last measure, gestation, by means of short water-excursions, is extremely useful: if there be any thing which renders this impracticable, he should be moved about in a sedan, or by some other mode. Under such circumstances he is to abstain from business, and from every thing calculated to produce mental anxiety; to indulge in sleep; to avoid catching cold, lest any alleviation effected by our attention may be neutralized by the irritation thereupon ensuing; hence crudity ought to be avoided; so also the two extremes of sun-heat and cold: the face should be veiled, the throat wrapped up, and the cough removed by suitable remedies: and as long as there are febrile paroxysms, they are to be treated by abstinence, and occasionally by the well-timed exhibition of food; and, at such periods, the drink should be water. Milk also, which in head-aches, acute fevers, and in the excessive thirst consequent thereon, as likewise in præcordial tumours, bilious urine, and hæmorrhage, is as bad as poison, is on the contrary beneficially exhibited in phthisis, and all chronic and tediously slow fevers. But if as yet the fever have not attacked, or have already remitted, we should have recourse to moderate exercises, particularly walking; and to gentle frictions. Bathing is inappropriate. The food at first ought to be acrid, such as garlic, leeks, and these last with vinegar; or with this same fluid, endive, the herb basil, and lettuce: and afterwards it should be mild, as gruel made of ptisan, or alica, or starch with the addition of milk. Rice, or even far, if nothing else be at hand, answers the same purpose. Then these opposite sorts of food are to be used reciprocally; adding to them some of the middle class and the brains of those of the first; or small fish and similar articles. Meal also mixed with mutton or goat-suet and then boiled, is medicinal. His wine should be light and austere: Thus far the disease is opposed without any extraordinary exertions; but if the injury be more considerable, and there be neither fever, nor cough, and the body appear extenuated; there is need of stronger remedies. Ulcerations are to be

induced with the actual cautery, under the chin for one place, another in the neck, two at both breasts; also at the lower margin of the scapulæ, which the Greeks call ὀμοπλάτας (ōmoplastas); in such manner that we may not suffer them to heal, unless after the cessation of the cough, which evidently requires a distinct treatment. Then the extremities are to be strongly rubbed three or four times a day; the hand must be passed lightly over the chest; and one hour after a meal, both the legs and arms are to be rubbed: after an interval of ten days, the patient is to be immersed in the solium, prepared with hot water and oil: on the other days, water is to be his drink; then wine may be given cold, if he have no cough; but otherwise, with the chill off. It is advantageous, also, that food be given daily during the remissions: that frictions and gestations be employed in the same manner: that he take the acrid articles before mentioned, on the fourth or fifth day, and eat blood-wort or plantain macerated in vinegar. The juice of plantain by itself, or that of horehound boiled with honey, is used as a remedy; in such a manner, that a cyath of the first may be supped, and of the latter a table-spoonful may be taken gradually in the form of linctus; or one part resin of turpentine and another of honey and butter, mixed and boiled together. But the chief of all these remedies are food, carriage-exercise, sailing, and spoon-meat. Diarrhœas are especially to be avoided. Frequent vomiting in this disease is dangerous, and especially when blood is ejected. He who begins to be a little better, ought to increase his exercises, frictions, and food: then rub himself, while he holds in his breath: and for a long time to abstain from wine, the bath, and venery.

XXIII. Among the most common diseases is that called the comitial, or greater; that is to say, EPILEPSY. The person suddenly falls down, and foams at the mouth; then after some time comes to himself, and rises by his own efforts. This disorder more frequently attacks men than women; and indeed is usually chronic, continuing throughout life, without hastening dissolution; nevertheless, when recent, it sometimes destroys a patient; and when remedies have failed of a cure, in boys the commencement of sexual intercourse, and in girls a first menstruation, often removes the disease. Sometimes the patient falls with, and sometimes without, convulsions. Some endeavour to arouse such

patients by the remedies used for the lethargic, which is very improper; both because not even lethargy is cured in this way; and whereas one in a lethargy may possibly never awake, and so perish for want of food: the epileptic patient is sure to come to himself. When any one thus falls, if there be no convulsions, he ought certainly to be blooded: if these accede, he ought as certainly not to lose blood, unless other symptoms indicate its propriety. But it is necessary to clyster the bowels, or purge with black hellebore, or if the strength permit, to do both: then to clip his hair close, and anoint his head with oil and vinegar: in three days, to allow him food, but after the hour at which he fell. But neither are gruels suitable, nor other spoon-meats, nor very light nutriments, nor flesh, and least of all pork; but those of the middle class: for there is a deficiency of strength, and crudities are to be avoided. With these he ought to avoid sun-heat, bathing, the fire, and every thing heating: also cold, wine, venery, the sight of a precipice, and of all frightful objects, vomiting, lassitude, anxieties, and business of every kind. When food has been given on the third day, he should take none on the fourth, but afterwards, every other day; observing the same hour for his meal, for fourteen days. Should the disease exceed this space, it has laid aside its acute character, and, if it remain, it is now to be treated as a chronic affection. But when the physician has not begun to attend on the day it first occurred, but one accustomed to fits has been delivered over to his care, adopting without delay that regimen which has been above comprehended, the day of the fit is to be awaited; and then we must resort either to bleeding, or to clystering, or to black hellebore, as has been already inculcated: afterwards, on the ensuing days, he is to be nourished by the before-mentioned aliments, avoiding all such things which I have mentioned to require caution. If by these means the disease be not brought to a termination, we are to resort to white hellebore, and use it for three or four times at shorter intervals; not repeating the remedy, unless he have another fit. But on the intermediate days his strength must be supported, adding some other aliments to those above prescribed. When he awakes in the morning, his body is to be gently anointed with old oil, including his head, and excluding his abdomen: he should walk as far, and in as straight a direction as possible: after the walk,

he should be rubbed in a warm apartment briskly and for a long time, and with not less than two hundred movements of the hand, unless he be weak : then cold water should be freely affused, allowing it to fall from the head ; he should take a little food, and repose awhile ; repeat his walk before night ; again be strongly rubbed, so as to touch neither his abdomen nor his head ; afterwards sup, and at intervals of three or four days take acrid food for one or two days running.

If he have not been freed even by these means, let him shave his head : let him be anointed with oil, adding vinegar and nitre ; let him be perfused with salt water ; let him drink castor with water, on an empty stomach : let him use no water for drink except such as has been boiled. Some have freed themselves from this disease by drinking the hot blood of a slain gladiator ; such a wretched remedy is made tolerable by a still more wretched disease. Now as regards the physician's province, the last remedy is to draw a little blood from both legs, near the ankle ; to lance the occiput, and apply the cupping instrument : to burn in two issues with the actual cautery, one in the occiput, and another below it, at that part where the uppermost vertebra is connected with the head, so that the pernicious humour may escape. If the disease be not brought to an end by these means, it is probable that it will be perpetual. To mitigate it, one should merely employ much exercise, friction, and the foods above mentioned ; and especially avoid every thing which we have declared to be inadmissible.

XXIV. Equally well known is that affection which they sometimes call ARQUATUS, sometimes the ROYAL disease, or JAUNDICE ; of which Hippocrates says, " if it accrue after the seventh day, while the patient is yet feverish, he is safe, provided the præcordia remain soft : " Diocles, that if it arise after a fever, it is even beyond dispute salutary ; if the fever after the jaundice, that it destroys. Moreover the complexion betrays the disease, especially that of the eyes, in which what ought to be white, becomes yellow. It is usually accompanied by thirst, headache, frequent hiccough, induration at the right side of the præcordia, and during violent motion of the body, by difficulty of breathing, and even with paralysis. After this malady has lasted for some longer period, the whole body becomes bleached with a kind of pallor. On the first day



one ought to fast, on the second to purge by clyster: then, if fever be present, to discuss that by regimen; if there be no fever, to give scammony in the form of potion, or white beet tritulated with water, or bitter almonds, wormwood, and anise with hydromel; the anise constituting the smallest proportion.

Asclepiades, rejecting diuretics, made the patient drink even salt water, and that for two days, by way of purging him. Some, omitting the use of the articles mentioned above, say they can produce the same effects by diuretics, and extenuant food. I MOST DECIDEDLY PREFER the stronger remedies when there is a sufficiency; the milder, when there is a failure of the strength. If purging have been used, he ought, for the first three days afterwards, moderately to take food of the middle class; and to drink the wine called Græcum salsum, that the lax state of bowels may be permanent: then for the next three days to eat more nutritious food, and some flesh also, and to keep to water: then to return to the former plan of diet, with this difference, that he may feed more heartily; omitting the Greek wine, he ought to drink that which is sound, and austere; and so to vary these matters, that he may at one time interpose acrid food, and at another return to salt wine. But throughout the whole course, he should use exercise and friction; if in winter, the bath, if in summer, cold swimmings; his bed and chamber more ornamented; games, mirth, diversions, and frolics, by which the mind is exhilarated; whence, as it should seem, it is called the royal disease. A digesting malagma applied on the præcordia is serviceable, or dried figs applied there, if the liver or spleen be affected.

XXV. The disease which the Greeks call *ἐλεφαντίασιν* (elephantiasin), is almost unknown in Italy, although in some countries very frequent; and is ranked with the chronic. The entire frame is so affected that even the bones may be said to be diseased. The surface of the body has crowded blotches and tumours; their redness is gradually changed to black; the surface of the skin in different spots is irregularly thick and thin, hard and soft, and rough as though with scales; the body grows emaciated, the mouth, calves, and feet grow tumid: when the disease is of long standing, the fingers and toes are hid under the swelling; slight fever arises, which readily destroys

one overwhelmed with so many afflictions. Therefore at the commencement blood ought immediately to be drawn on two successive days, or the bowels purged with black hellebore, during which period fasting should be had recourse to, as rigid as can be sustained: then his strength should be in some degree reinforced, and his bowels clystered; and when after these measures the body has experienced some relief, we should employ exercise, and especially running: sweat is to be elicited first by corporeal exertion, and then also by the dry sweating rooms: friction ought to be employed; and a proper medium regarded, that the strength may be preserved. Bathing should not be frequent; the food should contain nothing fat, or glutinous, or flatulent: it is proper to allow wine, but not on the first days. Plantain bruised, and smeared on, appears to be a conservative to the body.

XXVI. We likewise seldom meet with cataleptic cases, in which there is a stupor both of body and mind. Sometimes they happen from a thunder-stroke, sometimes from disease; this last the Greeks call *ἀποπληξίαν* (apoplēxian). Such patients are to be bled and purged, either with white hellebore, or by clystering. Then frictions are to be employed, and the leanest food of the middle class; so also the acrid nutriment; and they should abstain from wine.

XXVII. 1. But resolution of the nerves is a frequent occurrence in every country; although sometimes it affects the whole, sometimes parts of the body. Ancient authors have denominated the former *ἀποπληξίαν* (apoplēxian), the latter *παράλυσιν* (paralysin). I perceive they are both now called paralysis. Now they who have a violent resolution in all their members, are wont to be rapidly carried off; but if not suddenly destroyed, they last a long time, it is true, but yet rarely get well, and even their memory being lost, they most generally drag on a miserable existence. But when partial it is never acute, often of long continuance, generally curable. When there is a violent resolution of all the limbs, blood-letting either destroys or cures; while scarcely any other plan of treatment ever restores health; often only delays death, and in the interim increases the miseries of life. If after bleeding neither motion nor reason return, the case is hopeless; while if they do, there is even a prospect of recovery. But when the resolution is partial, blood is to be drawn, or the bowels

purged by clyster, according to the strength of the body and the violence of the disease. With regard to other means, they are the same in both cases; for it is of the last importance to avoid cold, and gradually to return to exercises; yet so that, if able, he may at once resort to walking; if weakness in his legs prevent that, he may be carried, or agitated by moving his bed; at these times the affected limb should in some degree be moved of itself, if possible; otherwise by the aid of another, that it may thus, in some degree, be forced to return to its usual actions. To irritate the surface of the skin of the palsied member, is also serviceable; beating it with nettles, or applying mustard for this purpose, so that this last be removed when the skin shall have begun to grow red. Bruised squills, or bulbs bruised with frankincense, form a proper application. Nor is it inexpedient a long time to vellicate the skin every third day, by means of resin, and that, too, in several places; sometimes to apply the cupping instruments without making incisions. Old oil is best for unction, or nitre mixed with vinegar and oil. Furthermore, it is very necessary to foment with hot sea-water, or if that be not at hand, at least with some salt water. Swimming baths also of the same kind, whether natural or artificial, if conveniently situated, are to be used in preference; and the limbs which are the weakest, ought chiefly to be brought into play; but, however, in default of these, the common bath is serviceable. The food ought to be of the middle class, particularly venison; the drink hot water, without wine; but when the disease has been of long continuance, the wine called *Græcum salsum* may be interposed every fourth or fifth day, by way of purgation. Vomiting after supper is useful.

2. But sometimes also a PAIN of the NERVES is wont to occur. In this case one ought not, as some inculcate, to vomit, or to excite the urine by medicine, or sweating by exercise. Water should be drunk twice a day. The body ought to be gently rubbed over, while in bed, for some considerable time, afterwards keeping in the breath; even in exercise, the upper parts are in preference to be put in motion; the patient should use the bath but seldom, and change his climate from time to time by travelling. Where pain is present, the part is to be thoroughly anointed with nitre and water without oil; it is then to be wrapped up, and held over sulphur in a brasier, at a gentle heat, and

thus fumigated; and this is to be done for some time, but while he is fasting, and after he shall have perfectly concocted. The cupping instruments are also frequently to be applied to the painful part, and it ought to be gently struck with inflated ox-bladders. It is useful likewise to make a mixture of suet and the bruised seeds of the henbane and nettle, in equal proportions, and to apply this; also to foment with water in which sulphur has been boiled. Bottles filled with hot water are likewise properly placed on, or bitumen mixed with barley meal: and violent gestation is preferably employed, even during the pain, which in other pains is exceedingly hurtful.

3. Moreover, a TREMOR of the nerves is in like manner aggravated by vomiting and diuretics. The bath and dry sweatings are likewise prejudicial to it. The patient's drink should be water: he ought to employ smart walking; also unctions and frictions; and these principally performed by himself: the upper parts are to be brought into play by the ball and similar exercises: he may use what food he likes, but with due and especial regard to concoction: after meat he must avoid solicitude; and he should indulge in sexual intercourse very seldom; but if he have erred in this particular, then gently, and for a length of time he ought to be thoroughly rubbed with oil, and that by the hands of boys rather than by those of men.

4. When INTERNAL SUPPURATIONS have been detected, it is of the first importance to try by repressing cataplasms to prevent a hurtful collection of matter; afterwards, should these fail, to aim at its dissipation by discussing malagmata. If we do not accomplish this, it follows, that it be promoted; and then allowed to maturate: afterwards, the termination of every vomica is a bursting; and a discharge of pus, either from the mouth or anus, is a proof of this occurrence. But we ought to do nothing which may impede the free exit of all the pus. One should principally use gruels and hot water. When the pus has ceased to be discharged, we may pass to food easy of digestion; but to such as is more nutritious and cold, and to cold water, beginning however with tepid food. At first some nutriments may be eaten with honey, as pine nuts, or Greek nuts, or filberts; afterwards even these must be withdrawn, so that the cicatrix may be the sooner formed. The juice of leek, or horehound, taken internally, is a remedy for the

ulcer in that stage ; and leeks ought to be added to all his food. Furthermore, it will be requisite to employ friction in those parts which are not affected. Also easy walking : and when ulcers are in a healing condition, one should avoid exasperating them, either by wrestling, or running, or by any other means ; for vomiting of blood is in this disease attended with fatal consequences, and therefore in every way to be avoided.

## BOOK IV.

I. THUS far those kinds of diseases have been investigated, which are so seated in the entire body, that no particular situations can be assigned to them: now I shall speak of those which are partial. But the diseases of all internal parts, and their cure, will be better understood when I shall have previously pointed out their relative situations.

The HEAD therefore, and parts contained in the mouth, are not merely bounded by the tongue and palate; but also by the external visible parts. To the right and left of the throat are large veins, which they call *σφαγίτιδες* (sphagittides); and arteries also, which they call *καρωτίδας* (karotidas), taking their course upwards, are continued beyond the ears. But in the neck itself glands are seated, which sometimes become painfully enlarged.

Then begin two passages: one they call the *arteria aspera* (or TRACHEA), the other the *ÆSOPHAGUS*. The trachea being external, reaches to the lungs; the *œsophagus* internal, goes to the stomach: the former is for the reception of air, the latter for that of the food. Now, since these passages are distinct, just where they meet, there is a small tongue upon the trachea, at the entrance of the fauces, which is elevated while we breathe, but, when we are in the act of taking food, or drink, closes up the trachea.

Now the TRACHEA, being hard and cartilaginous, rises in the throat, and retreats in the remainder of its course. It is made up of certain circles, arranged in the form of the vertebræ of the spine; in such way, however, that it is rough externally, and internally smooth like the *œsophagus*; and taking a direction downwards towards the *præcordia*, it is connected with the lungs.

The LUNG is spongy, and therefore capable of containing air; and being connected to the spine posteriorly, is divided into two portions, in the manner of an ox's hoof. Attached to this is the HEART, which is of a muscular nature, situated in the chest under the left breast; and it has, as it

were, two ventricles. But below the heart and lungs there is a transverse septum formed of a strong membrane, separating the abdomen from the præcordia, being of a tendinous structure, and having a number of vessels dispersed on it: it separates not only the intestines, but the liver and spleen from the upper parts. These viscera are in proximity with it, but have their position below, on the right and left. The LIVER, commencing on the right side under the præcordia, and immediately below the septum, is internally concave, externally convex; this being prominent, slightly rests on the stomach, and is divided into four lobes. Inferiorly the GALL BLADDER adheres to it: but the SPLEEN on the left, being connected with the intestines, and not with the same septum, is of a soft and exceeding porous structure, and of a moderate length and thickness; and emerging slightly from beyond the margin of the ribs into the abdominal cavity, is principally buried under them: and these three organs are joined. But the KIDNEYS are separate, adhering to the loins below the last ribs, rounded at the margin opposed to the ribs, and crooked at the other side: they are vascular, have small cavities, and are invested with tunics. And such are the relative situations of the bowels. The ŒSOPHAGUS, which is the beginning of the intestines, arises nervous from the seventh vertebra of the spine, and is united with the stomach about the præcordia. But the STOMACH, which is the receptacle of the food, is made up of two coats, and is situated between the spleen and the liver; each of these last extending somewhat over it. There are also thin bands, by which these three parts are connected together, and joined to that septum, which I have above described as transverse. Then, the lower part of the stomach turning a little to the right, is narrowed till it forms the uppermost intestine. This junction the Greeks denominate *πυλωρόν*, (*pulōron*.) because it allows of the escape of the egesta into the parts below, in the manner of a portal. From that begins the jejunum, which is an intestine moderately convoluted, and so called because it never retains what it receives, but immediately transmits it to the parts below. The next is the slenderer intestine, highly convoluted, each convolution being connected with those which are more internal to it by means of slight bands; which being turned towards the right side, and ending in the region of the right hip, do nevertheless

principally occupy the upper part. Afterwards, this intestine is joined by another thicker transverse one, which commencing at the right side, is pervious and long towards its left, but not so towards its right side; and is on this account denominated cæcum. But that part which is pervious being of large compass, sinuated, less nervous than the upper intestines, disposed in flexions on either side, but occupying the left more than the right, touches the liver and the stomach: it is then connected by small membranes which proceed from the left kidney, and making a curve to the right, it is directed downwards, where it empties itself, and on that account there takes the name of "intestinum rectum." Now the omentum covers all these organs, being smooth and narrow at its lower, and softer at its upper portion: and fat also forms on it, which is of an insensible nature, like the brain and marrow. But from either kidney single vessels of a whitish colour take their course to the bladder: these the Greeks call *οὐρητῆρας* (*ouretēras*), from the notion that the urine, descending through them, distils into the bladder. The bladder, nervous and double at its fundus, but full and fleshy at its cervix, is connected by veins to the intestines, and to that bone which lies under the pubes; while in itself it is detached and free; not having the same situation in males as in females: for in males it is in juxtaposition with the rectum, inclined somewhat to the left side; in females it is placed above the genital organs, and is supported as it hangs by the uterus itself. Again, in males the urethra is longer, and narrower from its neck to the penis; in females it is shorter and wider, and shows itself above the neck of the womb.

In virgins the WOMB is exceedingly small; nay, even in married women, unless when they are pregnant, it does not exceed a hand's grasp. It arises opposite to the middle of the belly, being provided with a straight and narrowed neck, and has a slight inclination towards the right hip; then, advancing over the rectum, it is connected at its side to the woman's ilia. The ilia themselves are situated between the hips and pubes, at the lower part of the belly. From these and the pubes, the abdomen reaches upwards to the præcordia; externally, it is covered by the skin which is visible; internally, it is lined by a fine membrane, called by the Greeks *περιτόναιος* (*peritonaios*), which is connected to the omentum.



II. 1. Having, after a fashion, afforded a view of these parts so far as is necessary to the practitioner, I shall recount the remedies for the disorders of each, commencing with the head; which last term I confine to so much of it as is covered with hair: for disorders of the eyes, the ears, the teeth, and the like, remain to be explained elsewhere. Now the head is subject to an acute and dangerous disease which the Greeks call *κεφαλαίαν*; the characteristic marks of which are strong shivering, nervous relaxation, dimness of sight, delirium, vomiting, together with a suppression of the voice; or nasal hæmorrhage, with coldness of the body, and fainting: besides these symptoms there is a violent pain, chiefly about the temples or occiput. Moreover, sometimes a chronic weakness of the head endures for a person's life, although neither severe nor dangerous: sometimes the pain is of a severer kind, but temporary, and not of a fatal character; which last is contracted by indigestion, or by cold, or by heat, or by insolation. And all these pains occur sometimes with, and sometimes without fever; sometimes in the whole, and sometimes in part of the head; and sometimes excruciate also the most contiguous part of the face.

In addition to these, there is yet another kind met with, which may be chronic: in this a humour distends the skin, so that it swells, and yields to the pressure of the finger: the Greeks call it *ὑδροκέφαλον* (*hydrokephalon*). Now with regard to the second of these, I said, when recounting the means to be adopted by sound persons in partial weakness, how that ought to be treated. So again I have explained the proper remedies for head-ache with fever, in that part where the treatment of fevers has been expounded. It is now my business to speak of the others. That which is acute, and that which is unusually violent, and that which, arising from some sudden cause, is violent without being fatal, should first be treated by blood-letting. But that measure, unless the pain be insupportable, is unnecessary: and it is more prudent to abstain from food, and if possible from drink also; or if this be impracticable, to drink water. Should the pain remain on the day following, one ought to give a clyster, to excite sneezing, and to take nothing but water; for on this plan, one or two days often bring all the pain to a termination; especially should it have arisen from wine or from crudity. When these means afford small

relief, the patient's hair should be clipped down to the scalp: and it is our next duty to consider what has caused the pain. If heat, it is expedient to sluice the head with an abundance of cold water; to apply a hollow sponge, squeezed occasionally from cold water; to anoint with rose-oil and vinegar; or to apply, in preference, succid wool, steeped in these, or some refrigerant cataplasms. But if cold have been the noxious cause, it is proper to sluice the head with hot sea, or at any rate with salt water, or with a decoction of laurel; then to rub the head stoutly, and afterwards to saturate it with hot oil, and to wear a cap over it. Some also bind it up, others load it with neckcloths and vestments, and in this way experience relief; and others are benefited by hot cataplasms. Therefore even when the cause is not known, it is right to observe whether refrigerants or calefacients afford most alleviation, and to use those which experiment seems to sanction. But if but little be known with regard to the cause, one ought to sluice the head first with hot water as before mentioned, or with salt water, or decoction of laurel; and then with cold posca. The following means are of universal application to every chronic head-ache: to excite sneezing, to rub the lower parts smartly, to gargle with sialagogues, to cup the temples and occiput, to draw blood from the nostrils, repeatedly to vellicate the temples with resin, and to blister the affected parts with mustard, lint being first placed under it, lest it corrode too violently; or to ulcerate the painful part by means of the actual cautery, and to take food very sparingly, with water: after the pain has been alleviated, to go into the bath: first to have plenty of hot water affused over the body, and then cold, allowing it to fall from the head. When the pain is entirely removed, again to return to the use of wine; but ever afterwards to drink water before any thing else.

That species in which there is a collection of fluid, is of a different nature. In it, the hair should be clipped close to the scalp: then we should put on mustard to produce exulceration; should that not answer, we should make incisions.

The following are the common means of curing dropsies: exercise, sweatings, strong frictions, and the taking of such food and drink as principally excite the wine.

2. There is a disease arising in the face, which the

Greeks call *κυνικὸν σπασμὸν* (*kunikon spasmon*). It generally comes on with an acute fever, the mouth being drawn aside by a singular motion; and it is therefore nothing else but a convulsion of the mouth. There is, moreover, a frequent change of colour in the face and entire body, and a disposition for sleep.

In this it is best to let blood; if the disease be not thus removed, to purge by clyster; and should that fail also, to vomit with white hellebore: it is necessary, moreover, to avoid insolation, lassitude, and wine. When not discussed by these remedies, we should employ running, friction, gentle and continued, for the part affected, and brief and violent, for the remaining parts. It is beneficial, likewise, to excite sneezing; to shave the head, and pour upon it hot water; either that from the sea, or at all events some containing salt, with the addition of sulphur: after the friction, again to be rubbed; to chew mustard; and, at the same time, to apply cerate to the affected parts, and mustard to the sound, until it blisters. The most eligible food is of the middle class.

3. But when the TONGUE is PARALYSED, so as to obstruct a person's delivery, which is sometimes a distinct affection, and at others arises from another disease, it is proper to gargle with a decoction of thyme, hyssop, or cat-mint; to drink water; to smartly rub the head, the mouth, the parts below the chin, and the neck; to smear the tongue itself with assafœtida; to chew very acrid substances, such as mustard, garlic, onions; to use his utmost efforts in pronouncing words; to be exercised while holding in his breath; frequently to employ cold affusion; sometimes to eat plenty of radishes, and then to vomit.

4. Sometimes a HUMOUR DISTILS FROM THE HEAD into the nose, which is unimportant; sometimes into the fauces, which is worse; and sometimes even into the lungs, which is the most dangerous. When it has distilled into the nose, a thin rheum flows from it, there is a slight pain, and a sense of weight in the head, and frequent sneezings: when into the fauces, it irritates them, and produces a slight cough: when into the lungs, besides the sneezing and cough, there is head-ache, lassitude, thirst, heats, and bilious urine.

GRAVEDO, although another affection, is not very different. It obstructs the nostrils, suppresses the voice, and ex-

cites a dry cough ; the saliva is salt ; there is a sounding in the ears ; the vessels of the head are excited ; and the urine is turbid. Hippocrates names these collectively κορύζαις (korusas). I observe this term is still retained among the Greeks, and that they call a distillation *κατασταγμὸν* (kataktagmon). As these affections are of short duration, so, when neglected, they usually become chronic. Neither of the species is dangerous except that which produces ulceration of the lungs. When we have experienced any of the above symptoms, we ought forthwith to abstain from going in the sun, from the bath, from wine, and from venery ; at the same time, we may use unction, and our usual food nothing the less. Smart walking exercise should alone be employed, but under cover, and after it the head and face should be rubbed above fifty times : and it rarely happens that the disease is not mitigated, provided we have practised restraint for two or three days at least. After some alleviation, when in a distillation the rheum has become thick, or when in a gravedo the nostrils become freer, the bath must be employed, and the face and head freely fomented, first with hot, and then with tepid water ; and after that wine may be taken, with a fuller diet. But if the rheum be quite as thin on the fourth day, or the nostrils appear no less obstructed, he should take austere Aminæan wine, and then water again, for two days ; after which he may return to the bath, and to his usual mode of living. It is not necessary, however, even on the days on which certain articles are to be omitted, to live like invalids, but to do every thing one was accustomed to do in health ; except in an individual whom the disease is wont to annoy for a longer period, and in a more violent degree, for whom a stricter regimen is requisite.

In this case, therefore, when the humour has distilled into the nostrils or fauces, besides the means before mentioned, he should walk much, even at the very beginning ; the lower parts should be strongly rubbed ; milder friction should be used for the chest and head ; his ordinary food should be diminished to one half ; he should take eggs, starch, and similar incrassants, and resist the thirst to the utmost of his power. When he has been thus prepared for the bath, and has employed that remedy, small fish or flesh may be added to his diet ; provided, however, he do not all at once take

his usual quantity of food : undiluted wine may be taken freely.

But when it distils into the lungs also, there is need of much more walking and friction, and of the same dietetic regimen. If their effect be not satisfactory, he should use a more stimulant diet, and indulge in sleep, and refrain from every kind of business : the bath should be tried occasionally, but at a later period.

But in a GRAVEDO, he ought, on the first day, to rest ; neither to eat, nor to drink ; to cover the head, and surround the throat with flannel ; on the next day to get up, and refrain from drink, or if necessity require, not to exceed a hemina of water ; on the third day to take a moderate quantity of the crumb of bread, with some small fish, or light flesh, and to drink water. When a person is unable to restrain himself from using a fuller diet, he ought to vomit : when he comes to the bath, he should foment his head and face with plenty of hot water, until he sweats, and then resume his wine. After employing these means, it is scarcely possible the inconvenience should remain ; but should it, we ought to employ cold, dry, light food, as little fluid as possible, and keep on with the frictions and exercises, which are necessary in every affection of this nature.

III. We pass from the head to the neck, which is subject to very severe diseases. Neither is there any disease more troublesome and acute than that which, by a certain rigour of the nerves, at one time approximates the head to the shoulders, at another the chin to the chest, and at another keeps the neck on the full stretch, erect and immovable. The Greeks call the first *ὀπισθότονον* (opisthotonon), the next *ἐμπροσθότονον* (emprosthotonon), the last *τέτανον* (tetanon), or TETANUS ; although some use these less scientifically as synonymous terms. They often prove destructive before the fourth day : if the patients live beyond that, they are safe. All these species are treated in the same way, and so far there is no dispute. But Asclepiades believed bleeding to be decidedly requisite : a remedy which some have said ought as decidedly to be avoided ; because at that time the system principally requires heat, and because this resides in the blood. But the last assertion is false ; for neither is it the nature of the blood to be peculiarly hot ; but this, of all the parts of which the frame is composed, most rapidly be-

comes hot and cold again. Whether it ought to be drawn, may be learned from the precepts which have been given with regard to blood-letting. But it is doubtless proper to give castor, and with it pepper or assafœtida: then a moist and hot fomentation is requisite: and hence most persons occasionally sluice the neck with plenty of hot water. That affords temporary relief, but renders the nerves more susceptible to cold, which should be especially avoided. It is therefore better first to anoint the neck with liquid cerate, then to apply ox bladders or bottles filled with hot oil, or a hot meal poultice, or round pepper bruised with figs. However, a fomentation with moist salt, after the method already described, constitutes the most useful application. When any one of these plans has been adopted, we ought to bring the patient near the fire; or if in summer, in the sun; and to thoroughly rub his neck, shoulders, and spine with old oil in preference: if that be not at hand, with Syrian: if not even that be near, with very old lard. Friction, though serviceable to all the vertebræ of the body, is particularly so to those of the neck: therefore this remedy ought to be resorted to by day and night, but with certain intervals; and during such intermission we should apply any malagma made from the calefacients. Cold is especially to be guarded against, and hence a fire ought to be constantly kept in the patient's bed-room, especially just before dawn, when the cold is most intense. Nor will it be without service to keep the head close clipped, and to moisten it with hot orris oil, or that of cypress, and to cover it by putting on a cap; sometimes to make him descend entirely into the hot oil, or into hot water in which fœnugreek has been boiled, and a third part of oil added. Purging by clyster also often relaxes the upper parts: but when the pain has grown more violent, the neck should be cupped, after being previously scarified; and the same part should be burnt with the actual cautery, or corroded with mustard. When the pain has been alleviated, and the neck has begun to be moved, we may know that the disease is yielding to the remedies. But food requiring mastication ought to be for a long time avoided. He should use gruels, and also fresh or soft-boiled eggs; and some broth may be taken. When the case is going on favourably, and the neck appears to be in its natural state, we should begin with pulse or well-moistened intrita. He may, however, even chew bread at an earlier

period than he can taste wine ; for the use of this last is highly dangerous, and therefore to be deferred for a long time.

IV. 1. Now as the last affection occurs in the entire neck, so another, equally dangerous and acute, is wont to happen in the fauces. Our countrymen call it angina, or quinsy : the Greeks name it according to the species ; for sometimes there is no evident redness or tumour ; but the body is arid, the breath fetched with difficulty, the limbs debilitated : this they call *συνάγχην* (sunancheen). Sometimes the tongue and fauces are swollen and red, the voice suppressed, the eyes turned, the face pallid, and there is hiccough : this is called *κυνάγχη* (kunanche). Both have these following symptoms in common : the patient cannot swallow food or drink ; and his breathing is obstructed.

There is a slight affection in which there is tumour and redness only, without the other consequences : this they call *παρασυνάγχην* (parasunancheen). Whichever the species, if the strength permit, blood should be drawn ; if there be no abundance of it, the next thing is to purge by clyster. It is right to apply a cucurbital also below the chin, and in the vicinity of the throat, that it may draw forth the suffocative matter. Afterwards moist fomentations are requisite ; for dry ones embarrass the breathing. Therefore we ought to apply sponges, which had better be dipped occasionally into hot oil, in preference to hot water ; and for this purpose also hot brine is very efficacious. Then it is proper to boil down hyssop, or catmint, or thyme, or wormwood, or even bran, or dry figs, in hydromel, and to gargle with it ; afterwards to anoint the palate with ox-gall, or with that remedy which is prepared from mulberries. Pepper-dust is also fitly applied. The last remedy, when these means have been of little service, is to make tolerably deep incisions at that part which is just below the jaw, above the neck, and in the palate about the uvula, or in those veins which are under the tongue, that the disease may have vent through the wounds. When by these the patient is not relieved, we may know that he is subdued by the malady.

But when the disease is thus mitigated, and the fauces at last admit food and air, his convalescence is easy. And sometimes Nature also lends her assistance, by the disease passing from a narrower to a more spacious situation : and

therefore, when thus redness and swelling appear in the præcordia, we may know that the fauces are freed.

Whatever has produced the alleviation, the patient should begin with liquids, and especially hydromel : then take soft bland food, until the fauces return to their original state. I hear it commonly reported, that if one take a young swallow, he remains free from angina for a whole year ; and that if that be salted and burnt when one is afflicted with the disease, and its ashes sprinkled into hydromel be administered as a drink, it proves beneficial. And since this fact is creditably reported, and can be attended with no danger, although I have not read of it in medical records, I believe myself bound to give it insertion in my work.

2. There is also an affection about the fauces, variously named by the Greeks, according to its intensity. It is entirely confined to a difficulty of breathing : but so long as this is moderate, and produces no sense of constriction, it is called *δύσπνοια* (duspnōia) ; when more violent, so that the patient cannot breathe without noise and anhelation, *ἄσθμα* (asthma) ; and when he cannot respire except with the neck erect, *ὀρθόπνοια* (orthopnōia). Of these, the first is usually of long continuance, the two following acute.

The symptoms common to these are, a hissing sound, on account of the narrowness of the respiratory passage, a recurrent pain in the chest and præcordia, and sometimes in the shoulders ; to these accedes cough. The remedy, unless when any thing contra-indicates, is blood-letting. Nor does that suffice, but the belly should be kept lax with milk. The bowels are to be purged ; sometimes also to be clystered ; by which means the body being extenuated, he begins to breathe with less difficulty. Moreover, the head should be kept high up in the bed : the chest assisted by fomentations and hot cataplasms, either dry or moist : afterwards a malagma is to be applied, or at any rate cypress cerate, or orris ointment. After that, hydromel ought to be taken as a common drink, in which hyssop, or bruised capers, have been boiled. Either nitre, or white cresses are usefully taken in the form of linctus, first fried, then bruised and mixed with honey : honey, galbanum, and resin of turpentine are boiled together, and when incorporated, a quantity, of the size of a bean, is daily dissolved under the tongue : or of crude sulphur  $\text{p. } \times . \text{ =}$ , of southernwood,  $\text{p. } \times .$  are rubbed with a cyath of wine, and supped up,



with the chill off. Nor is it a groundless opinion that a fox's liver, after being dry, and deprived of its juice, ought to be bruised, and the polenta from it sprinkled in the drink; or that its lung ought to be eaten roasted as fresh as possible, having been cooked without using iron in that process. Besides these, he should resort to gruels and bland aliments, sometimes to weak austere wine, now and then to vomiting. Benefit is also derived from whatever excites the urine; but from nothing in a greater degree, than from walking at a slow pace, until almost fatigued; and from much friction, especially of the lower parts, either in the sun or at the fire, both by his own exertion and by that of others, to the extent of sweating.

3. But sometimes in the inner part of the fauces ulceration is wont to occur. In this affection most persons use hot poultices and moist fomentations externally: they are desirous also that hot steam be taken into the mouth: others say that these means mollify the parts, and bring them more under the influence of the existing disease. But if cold be properly avoided, these remedies are safe; while, if there be any reason to be apprehensive of this, they are inapplicable.

But to rub the throat is decidedly dangerous, for it increases the ulceration. Nor are diuretics of any service, because, as they pass, they may attenuate the phlegm there also, which had better be suppressed. Asclepiades, the excellent author of many methods which we ourselves pursue, says, that very sour vinegar should be supped, for that by this the ulcers are constringed without any injury. Although that may suppress the blood, it cannot cure the ulcers. For this last purpose lycium is a better remedy, and this he equally approves: or the juice of leek, or horehound, or sweet almonds bruised with tragacanth and mixed with passum; or linseed bruised and mixed with sweet wine. The exercise of walking and running is also necessary, and strong friction over the whole of the lower part of the body from the chest downwards. The aliments ought neither to be too acrid nor rough; honey, lentils, tragum, milk, ptisan, fat flesh, and above all leeks, and such mixed dishes as contain these. The drink should be as scanty as possible: it should be water, either simple, or with pomegranates, or dates boiled therein. Mild gargles are also serviceable; or should these be less efficient, such as are

oppressing. This kind of disease, though not acute, may possibly be of no long continuance; yet it requires a diversified treatment, to prevent it becoming a violent and tedious affection.

4. But COUGH generally arises from excoriation of the fauces, which is contracted in many ways. Hence when their healthy condition has been restored, the cough itself is brought to an end. Sometimes, however, it is a distinct affection, and when inveterate, is got rid of with difficulty. Sometimes it is dry, sometimes excites a discharge of rheum. It is requisite to drink hyssop every second day; to run with the breath held in, but by no means in the dust; to read aloud, which at first is impeded by the cough, but afterwards gets the better of it: then to walk: afterwards to be exercised also by the hands, and to rub the chest for a long time: after these, to eat three ounces of the richest figs, boiled over a brasier. Besides, if the cough be moist, strong frictions with certain of the calefacients are serviceable, in such a manner that the head may also be well rubbed at the same time: also dry cupping the chest; mustard applied to the external fauces until it slightly excoriates; a drink made of mint, sweet almonds, and starch; and taking at first bread and afterwards any mild food. But if the cough be dry, and that be exceedingly troublesome, the taking of a cyath of austere wine assists it, provided that be done at intervals, and not oftener than three or four times: it is requisite also to eat a small portion of the very best assafoetida; to take the juice of leek or of horehound; squills as a linctus; to sip vinegar of squills, or certainly acrid vinegar, or two cyaths of wine with a clove of bruised garlic.

A cough is benefited by travelling, long voyaging, residence at the sea-side, swimmings; by sometimes taking bland food, as mallows and nettle; sometimes that which is acrid, as garlic boiled in milk; by gruels, to which assafoetida has been added, or in which onions have been boiled to wasting; by fresh eggs with sulphur; and by first giving water to drink, and then this and wine, in their turns, varying them every other day.

5. There is reason to be more alarmed when one spits blood; although that is at one time attended with less, and at another with more danger. Sometimes it proceeds from the gums, sometimes from the mouth; and from the

latter sometimes even copiously, although without cough, without ulceration, and without any disease of the gum, so that there is nothing hawked up. In fact, as it sometimes issues from the nostrils, so likewise from the mouth. Again, sometimes true blood flows, at others a matter resembling water in which flesh has been recently washed. But sometimes it proceeds from the upper part of the fauces, and occasionally with ulceration in that part; sometimes, even without an ulcer, it proceeds from the open mouth of a vessel, or it issues from tubercles which have arisen in these parts. When this is the nature of the case, neither food nor drink occasions pain, nor is any matter excreted from the ulcer. But sometimes the throat and bronchiæ being in a state of ulceration, a frequent cough expels blood also: while it is wont sometimes to be given off even from the lungs, or the chest, or the side, or the liver: women who have no regular menstruation frequently spit blood.

There are medical authors who say that hæmorrhage proceeds from an eroded, or from a ruptured part, or from the open mouth of a vessel. They call the first *διάβρωσιν* (*diabrōsin*); the second, *ῥῆξιν* (*rhēxin*); the third, *ἀναστόμωσιν* (*anastomōsin*). The last is the least, and the first the most hurtful; and it often happens that pus is discharged after the blood. Now, sometimes he who has stopped the bleeding has done sufficient for the recovery. But when ulcers ensue, or if there is pus, or a cough, the disorders are various and dangerous, according to their situation. When merely blood is discharged, both the remedy and the termination is expeditious. Nor ought we to be ignorant, that to those who have an habitual hæmorrhage, or to those who have pains in the spine or hips, or after strong exercise or walking, so long as there is no fever, a moderate flux of blood is not prejudicial; that when voided with the urine, it even removes lassitude; nay, that it is not alarming in one who has fallen from an eminence, if nothing else unusual be observed in his urine; that vomiting of blood carries no danger with it, even when recurrent, when the body has time to regain strength and flesh; and that there is not the slightest danger, when it occurs in a robust habit, without being excessive, and without exciting cough, or increased heat. These remarks apply to all the species. I now come to the parts above named. When it proceeds from the gums, it is sufficient to chew purslane;

when from the mouth, to hold pure wine in it; or if that fail, vinegar. If, during the use of these remedies, the blood bursts forth alarmingly, inasmuch as it may destroy the person, the best plan is to avert its course by applying the cupping cucurbital to the back of the head, after scarification. When it occurs to a female who has no menstruation, it is fit, after making incisions into the groins, to apply the same instrument. When it has proceeded from the fauces or internal parts, there is both more ground for apprehension, and greater care required. Blood should be abstracted; and if it still flow from the mouth, this should be repeated a second and a third time, and some little drawn away daily: he ought, without delay, to sup vinegar, or the juice of plantain or leek with thus; and unclesaned wool, moistened with vinegar, should be applied over the affected part, and should be kept cold by means of a sponge. Erasistratus tied ligatures on the legs, thighs, and arms of such patients, in several places. Asclepiades asserts that this, so far from being beneficial, is even injurious. Yet do experiments testify that it often answers very well. Neither is it necessary that the ligatures be applied in many places: it is sufficient that it be done below the groins, above the ankles, at the top of the shoulders, and also on the fore-arms. Then, if fever be urgent, gruel should be given, and water for his common drink, in which has been boiled any one of the alvine astringents: if there be no fever, either washed alica, or bread soaked in cold water, and soft boiled eggs may be given; and as to his drink, he may either have that above prescribed, or sweet wine, or cold water: although drink should be regulated by our knowledge of the benefits derivable from thirst in this malady. In addition to these means, repose, security, and silence are necessary. His head should be elevated when lying down, and properly clipped of its hair. The face should be often bathed with cold water. But injury results from wine, bathing, venery, taking oil with his food, all acrid substances, also from hot fomentations, a hot and close chamber, piling much clothes on his body, and also from friction. When the hæmorrhage has completely ceased, then, at last, we may begin by rubbing the fore-arms and legs; letting alone the chest. In this case, during the winter, it is necessary to reside near the coast; during summer, in inland districts.

V. Just below the fauces is the stomach, in which several chronic affections not unusually occur : for sometimes there is a great heat, and sometimes a flatulency affects it ; at others, inflammation or ulceration ; sometimes phlegm, and at others bile arises there ; but the most frequent malady of this part is that in which it is resolved ; nor is there any affection by which it is more disturbed, or in its turn produces greater disturbance of the whole body. Now, the remedies for this organ are as diversified as its diseases. When affected with HEATS, it is from time to time to be bathed externally with rose-oil and vinegar ; and powdered rose-leaves mixed with oil may be applied ; and those cataplasms which at once both repress and mollify.

If there be nothing to prevent it, cold water may be given to drink. If there is FLATULENCY, cupping is serviceable, but without incision ; dry and hot, but not very strong fomentations do good. Abstinence should be interposed. A potion of wormwood, or hyssop, or rue, taken fasting, is often of service. At the first gentle, and then smarter exercise ought to be employed ; and that in preference which brings into action the upper parts, which sort is best suited to all diseases of the stomach. After exercise, it is necessary to employ unction and friction ; sometimes the bath, though rarely ; sometimes clystering ; afterwards food of a hot nature, and such as is not flatulent ; and hot drinks in the same mode, first water, and then, when the flatulence has subsided, austere wine. In all maladies of the stomach, directions should be given that the PATIENT, WHEN WELL, CONTINUE THAT REGIMEN BY THE USE OF WHICH HE HAS REGAINED HIS HEALTH : for his weakness returns, unless the health be defended by the same means by which it has been restored. But when any INFLAMMATION is present, which is usually followed by swelling and pain, the chief remedies are repose and abstinence, surrounding the part with sulphurated wool, and taking wormwood fasting. If a burning heat afflict the stomach, it should be bathed from time to time with vinegar and rose-oil, and food should be taken moderately ; and such remedies applied externally as may at once both repress and soften : afterwards, these being withdrawn, we must employ hot meal cataplasms, to discuss the relics of the disease : occasionally the bowels should be clystered : exercise must be resorted to, and a fuller diet. But if ulceration

affects the stomach, nearly the same means are to be adopted as have been ordered for ulcerated fauces. Exercise and friction of the lower parts are to be resorted to; bland and glutinous food should be used, but not to satiety; all acrid and acid substances are to be withdrawn: he may use sweet wine if there be no fever; but even if that produce flatulency, he may certainly take some of a mild nature; but neither very cold nor too hot.

When the stomach is filled with phlegm, vomiting becomes necessary, sometimes on an empty stomach, at others after a meal: benefit is derived from exercise, gestation, sailing, and friction: nothing is to be eaten or drunk except what is warm; those things only being avoided which are wont to collect the phlegm. When the stomach is disordered with bile, it is a more troublesome affection. Now, they who are thus affected, after an interval of some days, usually vomit it up; and sometimes they vomit black bile too, which is the most dangerous. In these cases purging by clyster is proper; wormwood potions are given; gestation and sailing necessary, and vomiting from the nausea occasioned thereby: crudity should be avoided: such food should be taken as is easy of digestion, and suitable to the stomach; the wine austere. The most common and the worst affection of the stomach is relaxation; which is that state in which it does not retain aliment, and in which the system, ceasing to be nourished, is thus consumed by a *tabes*. The bath is very prejudicial in this case; loud readings and exercise of the upper part of the body necessary; so also inunctions and frictions. Such patients ought to be sluiced with cold water, and to swim in it; to subject even the stomach to streams of the same, and particularly as far as from the shoulders downwards to that part which is opposite to the stomach: to remain for some time in cold and medicated fountains is salutary, such as those of *Cutiliæ* or *Sambruinæ*. Also cold food should be taken, and such as is digested with difficulty rather than that which is easily vitiated; therefore, most persons can digest beef who can digest nothing else. Hence it may be inferred that neither birds, nor venison, nor fish ought to be given, unless of the harder sort. Cold wine is most suitable as a drink; or otherwise at all events that which is very hot and undiluted; such as *Rhetic* and *Allobrogic*, or any other which is both austere and has been seasoned with resin: if there be none

of that, some as rough as possible, and particularly the Sagine. When the food is not retained, water should be given, and more perfect vomiting elicited, and again food must be given; then the cucurbitals are to be applied two digits below the stomach, and kept on there for two or three hours. If at the same time there be both vomiting and pain, unclesed wool is to be applied to the stomach, or a sponge out of vinegar, or a cooling poultice; while the fore-arms and legs are to be rubbed strongly, but not for any long time, and to be warmed. When there is more pain, we should dry-cup four digits below the præcordia, and immediately give bread out of cold posca: if it should not stay after the vomiting, either of the light aliments which are not unfit for the stomach: if it should not retain even that, wine may be given by cyaths, every hour, till the stomach be continent. Radish juice is also a powerful remedy; that of the sour, with a like quantity of the sweet pomegranate, still more powerful; with the addition also of the juice of the endive and mint; but with this last in the smallest proportion; with which it is best to mingle as much cold water as equals the quantity of all these put together; for that avails more than wine for composing the stomach. But spontaneous vomiting should be suppressed, even if nausea be present; although, when the food has become acedent, or putrid internally, both of which are manifested by ructation, it is to be ejected, and the stomach refitted by the means which I mentioned last. When immediate danger has been removed, we ought to resume what has been ordered above.

VI. The stomach is bounded by the sides, and in these also violent pains not unusually happen; and they take their origin either from cold, or from a blow, or from immoderate running, or from disease. But occasionally the affection is limited to pain: and that is sometimes slowly, sometimes rapidly brought to an end; now and then it is even of a fatal character, and an acute disease arises, which is called by the Greeks *πλευριτικός* (pleuriticos). To this accede pains of the side, fever, and cough: and by this last, when the disease is moderate, phlegm is expectorated; when violent, blood. Sometimes also the cough is dry, and forces up nothing: that symptom is more dangerous in the first affection, and less so in the second. But the remedy for a violent and recent pain is blood-letting: although, when the case is slighter, or of long standing, that aid is either superfluous

ous, or too late; and our resource must be cupping, after scarification of the skin. Also mustard with vinegar is properly applied upon the chest, until it excites ulcers and pustules; and then a medicament which may draw forth the humour. One ought moreover to surround the side with a bottom of sulphurated wool; afterwards, when the inflammation has somewhat abated, to use dry and hot fomentations. After these, we must proceed to malagmata. Lastly, when the pain is of longer standing, it is discussed by applying resin. Hot food and drink should be used; cold avoided; and, at the same time, it is not inappropriate to rub the extremities with oil and sulphur. When the cough is mitigated, he should read gently, and now take both acrid food and undiluted wine. Such are the remedies prescribed by physicians; although, without these, the herb germander, drunk in water, would appear to be a sufficient remedy for our rustics. These means are generally applicable to every pleurisy; if the disease is of an acute character there is more difficulty. In this case, besides the rules above mentioned, the following are to be observed: that the food be as thin and bland as possible, especially gruel, and that in preference which is made of ptisan; or chicken boiled into broth with leeks, and not administered oftener than every third day, unless the state of the strength require it more frequently; and that the drink be hydromel, in which hysop or rue has been boiled. The proper periods for the exhibition of these last will become manifest, by paying due regard to the increase and decline of the fever; for they should be given in the greatest remission: with this provision, however, that we bear in mind that in this kind of cough the fauces should not be left to get dry; for often when there is nothing to be expectorated, it is continued, and has a suffocating tendency. For which reason, I said that a cough which brings up nothing, is worse than that which detaches the phlegm. Now in this case, the very nature of the disease does not allow wine to be supped as above ordered: so instead of it, the cream of ptisan is to be taken. But although the patient ought to be supported by these things during the impetus of the disease, yet when it has abated somewhat, a fuller diet, and also some wine may be given, provided nothing be exhibited which may either refrigerate the body, or exasperate the fauces. Should the cough remain during the process of recruiting his strength



also, it will be expedient to leave off for a day; and on the next to take a little more wine with his food. So again, at the commencement of the cough, as I have stated before, it will not be improper to drink wine by cyaths: but in this kind of malady, sweet, or at any rate bland wine, is more suitable. When the disease is inveterate, the body must be strengthened by athletic training.

VII. From the frame of the body we pass to the viscera; and first to the LUNGS: here a violent and acute disease arises, which the Greeks call περιπνευμονικόν (*peripneumonikon*). The nature of it is as follows: the whole of the lungs is affected; upon this state ensues a cough, carrying with it bile or pus; a weight of the præcordia, and of the entire chest; difficulty of breathing, severe febrile paroxysms, constant watching, loathing of food, and tabes. This kind of malady is more dangerous than painful. It is proper to bleed, if the strength be sufficient; if insufficient, to dry-cup the præcordia; then, to disperse by gestation, if the patient be strong enough for it: if not, yet to move him about in the house. It is fit to give a potion of hyssop, with which dry figs have been boiled; or hydromel, boiled down with hyssop, or rue; to use friction for a very long time at the shoulders, and afterwards in the fore-arms, feet, and legs; to rub gently over the region of the lungs; and to do that twice daily. But as to the diet, neither salt, nor acrid, nor bitter articles are proper for him, nor those which bind the bowels; but some of a blander nature. Therefore, at the beginning, gruel should be given, made from ptisan, or alica, or rice, with new lard boiled in it; and along with this, raw eggs, pine nuts with honey, and bread with washed alica, or hydromel; afterwards, for his drink, not merely pure water, but also tepid, or in summer cold mulse, unless any thing prohibit. But in the increase of the disorder, it is sufficient to give these every second day; when it no longer increases, he should abstain from every thing, as far as is practicable, except lukewarm water. When the strength fails, it should be sustained with hydromel. The application of hot fomenta, or of those which both repress and mollify, proves of service against the pains; so also well-powdered salt, mixed with cerate, and applied to the chest; for it slightly erodes the skin and derivates that matter by which the lung is distressed. A poultice made of those articles which have a drawing quality, is also beneficial. Nor is it

improper, while the disease is oppressing, to keep the patient's chamber windows shut; when somewhat relieved, to admit a little air three or four times a day, by partially opening the windows: then, during refection, to abstain for several days from wine; to use gestation and friction; to allow, besides his gruels and former aliments, from the pot-herbs, leeks; and of flesh, the heels, and tendroons; small fish likewise, with the precaution, that for a length of time nothing be taken except what is soft and mild.

VIII. There is a disease also of another viscus, that is of the LIVER, which is in like manner prone to be sometimes chronic, and sometimes acute; the Greeks call it *ἥπαρικόν* (hepatikon). There is a violent pain under the right præcordia, reaching up to the thorax, and to the throat, and upper arm of the affected side: sometimes also the right hand is tormented with pain; there is a strong shivering: when it is severe, bile is vomited up; sometimes hiccough almost strangulates the patient. And these are the symptoms of the disease when acute. When there is suppuration in the liver, it is of a more chronic character; the pain is now ended, and now becomes more intense; the right præcordia become hard and swollen; there is greater difficulty of breathing after food; and some resolution of the jaws accedes. When the disorder has grown inveterate, the belly, legs, and feet begin to swell; the chest, upper arms, and parts about the throat, on both sides, become extenuated. At the commencement, the best remedy is blood-letting; then the bowels should be relaxed, and if other means fail, by black hellebore; cataplasms are to be applied externally; first such as may repress, then the hot and discutient, to which orris or wormwood may be added; and after these a malgma. Gruels should be given: all his aliments should be warm and slightly nutritious, and, generally, such as are eligible in pneumony; likewise those articles which excite the urine, together with potions having that property. In this disease thyme is useful, so also savoury, hyssop, catmint, starch, sesamum, bay berries, pine flowers, blood-herb, mint, quince-pulp, pigeon's liver, fresh and uncooked. Some of these may be eaten alone, and some added to the gruel or drink, but they should be taken sparingly. Neither is it improper to swallow wormwood bruised with honey and pepper, and of that a catapotium daily. He

must especially abstain from every thing cold, for nothing is more hurtful to the liver. He should use frictions for the extremities; all labour, all violent motion must be avoided: he should not even keep in his breath long together. Anger, trepidation, heavy weights, blows, and running are inimical. Copious affusion of the body is serviceable, with warm water, in winter; if in summer, with that which is tepid; plentiful unction also, and sweating in the bath. But when the liver is suffering from an abscess, the same means are to be adopted as in other internal suppurations. Some also make a counter-opening with a lancet, and cauterise the vomica.

IX. But when the SPLEEN is affected, it swells, as does likewise the left side; and this last is hard and renitent: the bowels are tense: there is also some tumidity in the legs: the ulcers either do not heal at all, or certainly cicatrise with difficulty: in active walking and running there is a pain, with some sense of uneasiness. Rest aggravates this disorder, and therefore exercise and labour are requisite; moderation however being observed, lest these, if carried too far, produce fever. Unctions, frictions, and insudations are necessary. All sweets are hurtful; as are also milk and cheese: but acids are most suitable. On this account it is expedient to sup acrid vinegar alone, and more particularly vinegar of squills. Salsaments ought to be eaten, or olives preserved in hard brine; lettuces steeped in vinegar, and endive in the same; beets with mustard; asparagus, horse-radish, wild parsnip, heels, cheeks, lean birds, and venison of the same kind. Wormwood-decoction ought to be given for a drink on an empty stomach; but after food, forge-water, in which the smith has from time to time extinguished his irons; for this last remedy has, in an especial degree, a coercive effect upon the spleen, as has been observed in certain animals which, when reared on the premises of smiths, have small spleens. Thin austere wine may also be given, and every thing which is diuretic, both in the form of food and drink. Trefoil seed is of particular service, or cumin, or parsley, or wild thyme, or cytisis, or purslane, or catmint, or thyme, or hyssop, or savoury; for these seem most effectually to draw the humour from it. An ox's spleen is also advantageously allowed as an article of food with advantage; and rocket and cresses are particularly active in extenuating the spleen. Palliatives also should be

applied externally. That the Greeks call *μυροβάλανον* (mu-robalanon) may be made of ointment and dates; or of linseed and the seed of cresses, with the addition of wine and oil; or of green cypress and dry figs; or of mustard with a fourth part of the fat taken from a goat's kidneys, rubbed in the sun and applied without delay. Capers are very fit for this purpose in many ways; for they may both be eaten with meat, and their briny liquor may be supped. Furthermore, it is expedient to apply the bruised root, or the rind of it with bran, or the caper itself rubbed up with honey. Malagmata also answer the same purpose.

X. But when the KIDNEYS have been affected, they remain disordered for a long time: and it is a worse case when bilious vomiting accedes. One should rest quiet; sleep on a soft bed; relax the bowels; if other means fail, by clysters also: frequently sit in hot water: neither take cold food nor drink: abstain from every thing salt, acrid, and acid, and from orchard fruit: drink freely: add sometimes to the food and sometimes to the drink pepper, leek, ferula, and the white poppy, which are the most decided diuretics. A suitable remedy for renal ulcers, if they still require to be cleansed, is formed of sixty blanched cucumber-seeds, twelve kernels of the *pinus silvestris*, as much anise as can be taken up with the three fingers, and a little saffron; all triturated together, and taken in two doses with mulse. But if it be the pain only that requires to be mitigated, thirty cucumber-seeds, twenty of the aforesaid kernels, five sweet almonds, and a little saffron, may be pounded together, and administered with milk as a drink. And some of the malagmata are with propriety laid over the part; and especially such as draw forth the humour.

XI. From the VISCERA we come to the INTESTINES, which are liable both to acute and chronic distempers. Cholera must first be mentioned; because that would appear to be a disease common to the stomach and intestines. For there is at the same time both purging and vomiting: and besides these there is flatulency, the intestines are griped, there is an eruption of bile both upwards and downwards, at first like water, and afterwards appearing as though recent flesh had been washed therein; sometimes white, at others black or vari-coloured. Hence the Greeks have named this disease *χολέραν* (cholera). Besides the symptoms above mentioned, the legs and hands are also often contracted;

there is urgent thirst, and fainting : nor is it surprising that, under such an assemblage of symptoms, sudden death ensues. Nevertheless, there is no malady in which relief is afforded with less difficulty. Therefore, without delay, when these symptoms have occurred, the patient ought to drink as much tepid water as he can, and vomit. Vomiting by this means is almost sure to accrue ; and even if it should not, benefit ensues from having mixed fresh matter with the corrupt ; and to stop the vomiting constitutes one half the cure. When the vomiting has been stayed, he should forthwith abstain from all drink. But if gripes be present, it is proper to bathe the stomach with cold and moist fomentations ; or with tepid, if the abdomen be painful, assisting the belly itself by remedies of a tolerably warm nature. But when vomiting, and purging, and thirst, are violently tormenting the patient, and the vomited egesta are somewhat crude, it is not yet the proper season for wine ; water should be given, and even that not cold, but with the chill off : and pennyroyal steeped in vinegar must be applied to the nostrils ; or polenta sprinkled with wine, or mint is a convenient application. But when the crudity has been removed, then there is still more reason to apprehend fainting. That, therefore, is the season for resorting to wine. It ought to be weak, aromatic, and mixed with cold water ; or it is proper to take it with polenta, or honey added thereto ; and as often as the stomach or bowels discharge, so often by these remedies should he recruit the strength. Erasistratus said that the drink should be at first mixed with three or five drops of wine, and that, afterwards, it should be gradually given more undiluted. If he gave the wine from the commencement under a dread of crudity, he was in the right so to do : if he thought a violent weakness could be benefited by three drops of wine, he was in the wrong. But if the patient be suffering from inanition, and his legs be contracted with spasm, a wormwood potion should be given at intervals. If the extremities be cold, they should be anointed with hot oil to which a little wax has been added, and cherished with hot fomentations. When a tranquil state has not been produced even under the use of these remedies, a cupping-glass should be applied externally opposite to the stomach itself, or mustard laid on there. When this organ has become composed, he should sleep ; on the next day certainly abstain from drink ; on the third, go into the bath : and gradually recruit him-

self by aliments; and by sleep, to which there is a natural tendency, avoiding lassitude and cold. If slight febrile action remain after the suppression of the cholera, it is necessary to purge the bowels by clyster, and then to use food and wine.

XII. Now this disease is in fact of an acute character; and, since it is both situated in the intestines and the stomach, it is no easy matter to say to which part it chiefly belongs. But that which is called by the Greeks *κοιλιακός*, (*koiliakos*), is seated at the pylorus of the stomach, and is usually chronic. Under this affection, the abdomen becomes indurated, and pain is felt there. The bowels void nothing, not even wind; the extremities become cold; the breath is expired with difficulty. It is particularly useful, at first, to apply hot cataplasms entirely over the abdomen, in order to assuage the pain: to vomit after food, and so to empty the belly; afterwards, on the next days, to dry-cup the abdomen and hips: to keep the bowels open by giving milk and salt wine, cold; and green figs also, if the season permit, providing that neither the food nor drink be given all at once, but gradually. Wherefore at intervals it suffices to administer two or three cyaths of drink, and food in proportion: a cyath of water, mixed with a cyath of milk, and so exhibited, answers conveniently enough: inflating and acrid aliments are the more useful; therefore bruised garlic may be also rightly mixed with the milk. But in process of time gestation becomes necessary, especially that by sailing; the patient should be rubbed three or four times a day, adding nitre to the oil: he should have warm water poured on him after food; then apply mustard over all his limbs, except his head, until they be excoriated and reddened; and especially if the frame be solid and robust: afterwards he should gradually pass to the use of medicines which bind the bowels. Roast meat should be given, such as is nutritious and not easily corrupted; for his drink boiled rain-water, but in the quantities of two or three cyaths. When the disease is inveterate, he should swallow a piece of assafœtida, equaling the size of a pepper-corn; drink wine, or water, every other day; occasionally sup wine by cyaths; clyster with tepid rain-water; and especially when the pain remains in the lower parts.

XIII. There are two distempers whose seat is limited to the intestines themselves; the one to the smaller, the other

to the larger. The first is acute, the last may be chronic. Diocles, the Carystian, named the disease of the smaller gut *χόρδαψον* (chordapson), that of the larger *εἰλεόν* (eileon). I observe that by most persons the former is now called *εἰλεόν*, the latter *κολικόν* (kolicon). Now the first sometimes excites pain above, and sometimes below the umbilicus. Inflammation occurs in either part: neither stools nor wind is passed downwards: if the upper part be affected, food is voided by the mouth; if the lower, fæces: if both, the case is inveterate. The danger is aggravated by a bilious vomiting of a bad odour, whether various or black. The remedy is bleeding, or cupping in several places; but not incising every place: for it is sufficient to do that in two or three parts, while dry-cupping the others is all that is required. It is then expedient to ascertain what part is affected: for over that there is usually swelling. And if it be above the umbilicus, alviduction is of no service; if below, it is best, according to the opinion of Erasistratus, to purge by clyster; and that remedy is frequently sufficient. Now this is effected by the strained cream of ptisan with oil and honey, without further addition. When there is no swelling, it is proper to place both hands upon the upper part of the abdomen, and to draw them down gradually: for the seat of the disease will thus be detected by its being renitent; and then it may be decided whether or not the bowels ought to be clystered. The following are general remedies: to apply hot cataplasms, and to put them from the breasts as far as the groins and spine, changing them frequently; to rub the fore-arms and legs; to immerse the patient in hot oil; and if the pain do not cease, also to inject into the bowels three or four cyaths of the same. When by these means we have obtained a transmission of wind downwards, we should proffer for drink warm mulse, but not largely; for previously, all drinking should be guarded against with the utmost precaution. Should this last remedy prove satisfactory, we ought to add gruel. When the pain and fever have subsided, then at last we ought to use a fuller diet; but that not of a flatulent, or hard, or strong nature, lest the intestines be injured while they are as yet in a weakly condition. No drink should be given, except pure water: for such as are vinous and acid, are alike injurious. And he should subsequently avoid bathing, walking, gestation, and all other motions of the body. For the affection is very liable to re-

turn; and exposure to cold or any jactitation brings on a relapse, unless the strength has been completely restored.

XIV. Now the malady which is situated in the larger intestine, generally happens in that part which I have described as the cæcum. There is great flatulency; severe pain, especially in the right side; the intestine, which seems to be inverted, almost deprives the patient of the power of breathing. In most cases, it arises after chills and crudities, and afterwards subsides; and frequently recurring in the course of one's life, it embitters, without shortening it. When the pain has commenced, it is requisite to apply dry and hot fomentations; but at first mild, and afterwards stronger; and at the same time, by friction, to evocate the matter to the extremities, that is to say, to the legs and arms: if not thus removed, the painful part should be dry-cupped. There is also a remedy prepared for the purpose, which is called the *κολικόν* (*kolikon*). Cassius used to boast that he invented it. It is more useful when given as a drink; but even as an external application it alleviates the pain, by dispersing the wind. Unless the anguish be removed, neither food nor drink ought to be taken. I have already mentioned the diet proper for these cases. The medicinal preparation, which is called *κολικόν* (*kolikon*), consists of the following: of costum, anise, castoreum, of each p. ℥. III. parsley p. den. III. long and round pepper, of each p. ℥. II. of poppy-tears, round cyperus, myrrh, nard, of each p. ℥. VI. all mixed together with honey. Now this may both be swallowed, and taken in hot water.

XV. Next to these is a common affection of the intestines, called GRIPES, and by the Greeks *δυσεντερία* (*dysenteria*). The intestines are ulcerated internally; cruentate blood flows from them; and that sometimes with fæces uniformly liquid; at others with mucous excretions: occasionally also some fleshy matter comes away: there is frequent desire for stool, and pain in the anus: with this pain there is some trivial excretion; and by that also the anguish is increased: this after a time is somewhat alleviated, and there is a slight interval of ease: sleep is interrupted; some fever arises; and when the disease has grown inveterate, it either destroys the patient, or, even though it be cured, torments for a considerable time. It is of the last importance to rest quiet, for all agitation exulcerates; then to take, while fasting, a cyath of wine, with the root of cinquefoil: to apply repressing



poultices to the abdomen, which in the previously mentioned diseases are inexpedient; and as often as the patient goes to stool, he ought to bathe his posteriors with a warm decoction of vervains: to eat purslane either boiled, or pickled in strong brine; and to take food and drink of an astringent quality. When the disease is chronic, it is proper to clyster with the tepid cream of ptisan, or with milk, or melted fat, or deer-marrow, or oil, or butter with rose-oil, or the raw white of eggs with this last, or with a decoction of linseed; or if no sleep ensue, to use the yolks with a decoction of rose-leaves: for these alleviate the pain, and mitigate the state of the ulcers; and are particularly useful, in the event of a loathing of food. Themison has recorded his opinion that strong brine should be used in the same way. But the food should be such as may gently bind the bowels. Diuretics when they have their proper effect, are useful by determining the humours to another part: if they fail of their effect, they augment the malady: hence they must not be employed, except in habits susceptible of their operation. If fever be present, pure warm water should be given; or that which is itself astringent: if that be not at hand, light, austere wine. If for several days the remedies have afforded no relief, and the affection be now inveterate, the drinking of very cold water constricts the ulcers, and lays the foundation of recovery. But when the purging has been checked, he should immediately return to the use of warm water. Sometimes also a putrid sanies descends, excessively fetid: and a flux of pure blood is not unusual. In the former case, the bowels should be clystered with hydromel, and then should be injected the remedies above comprised. A lump of minium powdered with a hemina of salt is effective against gangrene of the intestines, if mixed with water and used as a clyster. But when there is a flux of blood, the food and drink should be of an astringent quality.

XVI. After dysentery sometimes a LIENTERY arises; in which the intestines can retain nothing, and quickly discharge in an undigested state whatever has been eaten. This is sometimes of long continuance, and sometimes rapidly destroys. In this it is decidedly proper to employ remedies which are calculated to check discharge, in order that we may increase the retentive power of the intestines. Therefore both mustard should be applied over the breast, and after the skin is ulcerated, a malagma, to draw out the hu-

mour; the patient should sit in a decoction of vervains; take such food and drink as may bind the belly; and use cold affusions. It is expedient however to be on the lookout, lest by applying these remedies, the contrary affection arise, through immoderate flatulencies.

Therefore the intestines will require to be strengthened gradually by daily increasing the nutriment; and since, as in every ventral flux, it is expedient not to go to stool as often as one has the inclination, but as often as one is compelled, so in this also is it especially necessary, in order to habituate the intestines to bear their burden. There is another rule which applies to all similar affections, and here requires a particular observance; that, as those things which are beneficial are disagreeable, such as plantain, and bramble-berries, and all mixtures of pomegranate bark, those which the patient likes best should be given in preference; but if he loath them all, that something more grateful, even though less useful, be interposed, to excite the appetite. Exercises and frictions are necessary also in this disease; and with these, insolation, heat, the bath, and vomiting; and this last too, according to Hippocrates, excited, if other means fail, by white hellebore.

XVII. Moreover WORMS also sometimes infest the bowels; and these are sometimes discharged downwards, and, what is more disgusting, sometimes by the mouth; and sometimes we observe them to be broad, which are the worst; and sometimes round. When they are broad, a decoction of lupines or mulberry bark may be given for a drink; or bruised hyssop, or an acetabulum of pepper, or a little scammony. Or on one day he may vomit after eating garlic, and on the next collect the fine roots of pomegranate to the extent of a handful; boil them when bruised in three sextarii of water, down to one-third; add a little nitre, and drink the decoction on an empty stomach. Then after the interval of three hours, let him take two draughts of such decoction, or the same with strong brine added to it: then let him go to stool, hot water being placed in the vessel beneath. And when they are the round sort, which principally infest children, the same remedies may be given, together with some more gentle; as the bruised seed of the nettle, or of cabbage, or of cumin with water, or mint in the same, or a decoction of wormwood, or hyssop in hydromel, or the seed of cresses bruised up with vinegar. It is also

serviceable to eat lupines and garlic; or to use oil as a clyster.

XVIII. There is again another affection, which the Greeks call *τεινισμόν* (*teinesmon*), slighter than either of those recently spoken of. It can neither be ranked with the acute, nor with the chronic diseases, since it is easily removed, and never of itself destroys life. In this, as in dysentery, there is a frequent inclination for stool, and equal pain attending evacuation. But matter resembling phlegm and mucus is discharged downwards, and sometimes a matter slightly cruentate, although mixed with some natural fæces. He ought to sit down in hot water, and frequently lubricate the anus; for which purpose several medicines are proper; as butter with rose-oil, acacia dissolved in vinegar, the plaster which the Greeks call *τετραφάρμακον*, melted with rose-oil; alum wrapped up in wool, and thus applied; and the same remedies which are beneficial in dysentery, used in the form of clysters; so also decoction of vervains to foment the lower parts. But he should take alternately, on one day water, and on another light and austere wine. His drink should be barely lukewarm; his plan of diet the same as that prescribed for dysentery.

XIX. DIARRHŒA is a trivial disorder, when recent; in this there is a lax state of the bowels, and the motions are more frequent than usual: sometimes the pain is moderate, at others very severe; and this last is the worst. A diarrhœa of one day's continuance is often salutary: so it is when existing for several, so long as there is no fever, and it subsides within seven days. For thus the system is cleansed, and a matter advantageously discharged, which would otherwise have been injurious. But long continuance of this disorder is dangerous; for it sometimes excites dysentery, and slight febrile paroxysms, and so consumes the strength. On the first day it is sufficient to rest quiet, without checking the looseness. When it ceases spontaneously, to use the bath and take a little nutriment. Should it continue, to abstain not only from food but from drink also. The day after, if nevertheless the bowels be lax, to rest in like manner, and to take a little astringent food. On the third day to use the bath, to rub the whole body powerfully, except the abdomen, to bring the loins and shoulders near the fire; to use food, but that of a binding nature, and wine in small quantities undiluted. If the flux remain on the next

day, to eat more, but to vomit also. On the whole, to oppose it by thirst, fasting, and vomiting until it subside: for it can scarce happen that, after observing this plan, the bowels should remain unrestrained. Another method, when you may wish to constrict, is to sup and then vomit: next day to lie in bed: in the evening to be anointed, but gently: then to take about half a pound of bread in undiluted Aminæan wine; then some roast meat, particularly birds; and afterwards to drink the same wine mingled with rain-water: and having done so till the fifth day, again to vomit. Asclepiades, contrary to former authors, affirmed that the drink ought to be constantly cold; nay, as cold as possible. I AM OF OPINION that every one ought to confide in his own personal experience, in deciding whether he should use it hot or cold. Furthermore it sometimes happens that this malady, when neglected for several days, becomes more difficult to cure. He ought to commence with a vomit: on the evening of the following day to be anointed in a tepid apartment; to take food in moderation, and the roughest wine without dilution; to keep rue with cerate on the abdomen. But when the body is thus affected, there is no need of walking, or of friction: carriage exercise is beneficial; riding on horseback still more so; for nothing is more strengthening to the intestines. But when medicines are also to be used, that is the fittest which is prepared from pomeaceous fruit. In the vintage season, pears and crab-apples are to be thrown into a large vessel; or when these are not to be had, green Tarantine or Signine pears, or Scandianian or Amerinian apples, or the fruit called myrapia; and to these should be added quinces and pomegranates with their peel, the service fruit, and particularly that sort called the torminalia, so that these last fill one-third of the pot: then, after that, it should be filled with must, and boiled, until all the ingredients, having been dissolved, become incorporated. This is not ungrateful to the palate; and taken moderately, whenever need requires, it restrains the bowels, without any injury to the stomach. It suffices to take two or three spoonsful in the day. Another more powerful remedy is prepared by gathering myrtle-berries, expressing the vinous juice therefrom, and boiling it down till a tenth part remain: the dose is a cyath. A third, which can always be made, is prepared by scooping out a pomegranate; and, having removed all the seeds, we are again to put in the

interstitial membranes: then to pour in raw eggs, and mix with a small rod: then put the quince itself upon a chafing-dish, which is not burned, so long as there is any fluid in it: when it begins to dry, it is requisite to remove it, and to eat the contained extract with a spoon. It acquires greater efficacy by the addition of some other things: for this reason, it is thrown into pepper-vinegar, and mixed with salt and pepper, and something may be eaten with them. Pulticula, with which a little old honeycomb has been boiled, lentils boiled with pomegranate peel, bramble-tops boiled in water, and eaten with oil and vinegar, are efficacious; and so likewise is the drinking of that water in which either dates, or quinces, or dry sorbs, or bramble-berries have been boiled: which kind I mean, as often as I say that astringent drink ought to be given. A hemina of wheat also is boiled down in austere Aminæan wine; and that wheat is given to the patient, when fasting and thirsty, and the wine drunk afterwards; which may justly be ranked among the most efficacious remedies. So also Signine wine is given as a drink, or the austere resinated, or any other which is austere. And pomegranate is bruised with its rinds and seeds, and mingled with wine of the same sort: and the patient either drinks that neat, or mixed. But the use of medicines is superfluous, except in bad cases.

XX. 1. In females, a violent disease arises in the womb also; and, next to the stomach, THIS PART IS MOST SYMPATHETICALLY AFFECTED BY, AND MOST SYMPATHETICALLY AFFECTS THE REST OF THE SYSTEM. Sometimes also it so completely takes away the senses, as to occasion the patient to fall, as if in epilepsy. The case, however, differs in that the eyes are not turned, nor does froth issue forth, nor are there any convulsions: there is only a deep sleep. The affection in some women returning frequently, becomes permanent. When it has occurred, if there be sufficient strength, blood-letting is of service; if insufficient, the cucurbitalis are to be applied to the groins. When the patient lies in this state for some considerable time, and has otherwise been used so to do, it is expedient, in order to rouse her, to apply an extinguished lamp-wick to her nose, or any of those articles I have described to be of a disagreeable odour. The affusion of cold water has the same effect: and also rue triturated with honey is an auxiliary, or cerate with cyprine oil, or any hot and moist poultice applied to the ex-

ternal parts of generation, as high up as the pubes. Meantime it is proper to rub the hips and hams. Then, when she comes to herself, wine is to be interdicted for a whole year, even though the same disorder should not return: daily and universal friction must be employed, but chiefly of the abdomen and hams: food of the middle class should be given: mustard applied upon the lower belly every third or fourth day, until the surface of the body be red. When there is a hardness left there, night-shade, steeped in milk and then bruised, appears serviceable as an emollient: so also white wax and deer's marrow with orris-oil, or beef or goat suet mixed with rose-oil. Castor, or git, or dill should be given in the form of drink. If her system require cleansing, she should be purged with cypress. But if the womb be exulcerated, a cerate should be formed of rose-oil; and fresh hogs'-lard and white of egg may be mixed and applied; or white of egg, mixed with rose-oil, with the addition of powder of rose-leaves, to give it a consistence. But when the womb is suffering pain, it ought to be fumigated with sulphur. When excessive menstruation is deranging a female's health, the remedy is to scarify and cup the groins, or the part immediately below the breasts. When the discharge is malignant, it is requisite to subjoin

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White olives also produce this effect, and the dark poppy, taken with honey: so also gum dissolved with powdered smallage seed, and administered with a cyath of passum. In addition to these remedies, in all affections of the bladder, aromatic potions are useful, such as those made of spikenard, saffron, cinnamon, cassia, and the like; a decoction of the pistacia lentiscus or mastich tree, is equally effectual. Nevertheless, when the pain is insupportable, and when there is hæmorrhage, blood-letting is also proper; the application of the cupping instruments to the hips, after scarifying the skin.

2. When an excessive flow of urine, disproportionate to the quantity of the fluids drunk, and discharged without pain, is producing emaciation and endangering life, if it be limpid there is need of exercise and friction; and that, especially out in the sun, or near the fire: the bath ought to be seldom employed, and without loitering in it: the food astringent, the wine undiluted and austere, cold in summer, in winter lukewarm; but in the smallest proportion. The

lower belly is either to be clystered, or purged with milk. When the urine is thick, the exercise and friction ought to be somewhat more vehement; his stay in the bath longer; the food and wine both tender. In either affection, all things are to be avoided which usually excite the urinary discharge.

XXI. There is also an affection in the generative organs; an excessive seminal discharge, which is given off without sexual intercourse, without nocturnal dreams, to such an extent, that in time it destroys the person by a tabes. In this affection, very strong frictions, affusions, and very cold swimming baths are useful: nor should any food or drink be taken except cold. He ought, moreover, to avoid crudities, and all flatulent food: to take none of that kind which seems to collect the semen; such as winter wheat, simila, eggs, alica, starch, all kinds of glutinous flesh, pepper, rocket, bulbs, pine-nuts. Nor is it inexpedient to foment the lower parts with a decoction of the astringent ver-vains: to cover the lower part of the abdomen, and the groins, with some cataplasms of the same herbs, and especially of rue with vinegar; and to avoid sleeping in a supine position.

XXII. It remains that I come to the extremities, which are connected by means of joints. I will begin with the hips. A pain not unusually occurs in these; and that often debilitates the patient, and some it never quits. This last kind is difficult of cure, because a malignant force, for the most part the consequence of chronic disorders rushes to this quarter, and, liberating other parts, here fixes itself.

We must first foment with hot water, and afterwards use hot cataplasms. That which seems most useful is the sliced bark of the caper, mixed with barley meal, or with figs boiled in water; or the meal of darnel boiled in diluted wine, and mixed with dry lees: and since these are apt to get cold, it is better to apply the malagmata at night. Also the root of elicampane bruised, and then boiled in austere wine, and extensively applied over the hips, is one of the most efficacious remedies. Should these not have removed the pain, hot and moist salt must be used. If the pain have not been removed even by this means, or if swelling accrue, cupping glasses are to be applied after incising the skin; the urine is to be promoted; the bowels, if bound, to be clystered. The last and most efficacious remedy in obstinate cases, is to establish three or four ulcers above the hip, by

means of the actual cautery. We should likewise employ friction, especially in the sun, and several times in the same day, so that the hurtful collection of matter may be dispersed: and that too on the hips themselves, when there is no ulceration there; when there is, it should be employed on other parts. Now since ulceration by the actual cautery is often required to be performed, to the intent that nocent matter may be elicited, it is a general rule, not to heal such ulcers as readily as one can; but to keep them open, until that affection subside, which it is our object to relieve.

XXIII. Next in succession to the hips come the knees; in which pain is wont sometimes to occur. Our relief is in the cataplasms and cucurbitalis aforesaid; as it is also in pains of the humeral and other joints. Riding on horse-back is of all things most hurtful to one who has pains of the knees. Furthermore, all affections of this kind, when inveterate, scarce admit of cure without cauterization.

XXIV. ARTICULAR diseases in the hands and feet are more frequent, and of longer continuance; such for example as usually occur in the foot and hand. These rarely attack eunuchs, or boys before a first sexual intercourse, or women, except those who have a suppressed menstrual discharge. When such pains are first felt, blood should be drawn; for that done at the very commencement, often insures health for one year, and sometimes for life. Some also, by cleansing their systems with asses' milk, have escaped ever after. Some by refraining a whole year from wine, mulse, and venery, have rendered themselves secure all their lives; and this plan should most decidedly be followed, even after the fit has subsided. But if the disease have become habitual, although the patient may be safer at those seasons in which the pain remits, yet at the periods of its recurrence, which are usually spring and autumn, he ought to be more careful. Now when the pain is violent, he ought in the morning to use gestation; then to be carried, to move himself about by gentle walking, and if it be foot-gout, to walk and sit alternately, at short intervals.

Before he takes his food, he ought to be gently rubbed in a hot place without going into the bath; to sweat; to be sluiced with tepid water; afterwards to take aliments of the middle class, and in the intervals some of the diuretics; and as often as his habit becomes full, to vomit. When the pain is violent, it makes a difference whether it is without



tumour, or whether there be swelling with heat, or whether the tumour has already grown callous. For when there is no tumour, hot fomentations should be used. It is proper to heat sea-water, or strong brine; then to throw it into a basin, and when the man can bear it, therein to immerse his feet, throw his cloak over, and cover up with a blanket; afterwards gradually pouring in some of the same liquor near the lip of the vessel, to keep up the temperature; and then, at night, to put on calefacient poultices, particularly the root of mallows boiled in wine. But when there is swelling and heat, refrigerants are more beneficial, and the joints ought to be kept in very cold water; but not every day, and not long together, lest the nerves be injured. Again, a cooling cataplasm must be applied; nor must this plan be continued long, but a transition made to those applications which are at once repressing and emollient.

When the pain is more violent, the rind of the poppy is to be boiled in wine, and mixed with a cerate made of rose-oil; or an equal quantity of wax and hogs'-lard may be melted together, and wine mixed with these: afterwards, when that portion which has been applied grows hot, it should be removed, and more from time to time substituted. But when the tumours have grown callous and painful, the application of a sponge frequently expressed from oil, or vinegar, or cold water, affords alleviation; or pitch, wax, and alum, in equal portions. There are also several malagmata proper for the hands and feet. But when the pain will not permit of anything being laid on, if the part be not swollen, we may foment with a sponge dipped in the decoction of poppy-rinds, or of the root of the wild cucumber, and then put saffron with poppy juice and sheep's milk on the joints. When there is tumour, we ought to foment with a tepid decoction of mastich, or other repressing vervains: to apply also a medicament made of bitter almonds triturated with vinegar; or of cerussa with the juice of bruised bloodwort. A stone also which eats away the flesh, and which the Greeks call *σαρκοφάγον* (sarcophagon), hollowed out to admit the feet, relieves them when in pain, if therein introduced and retained. Hence, in Asia, the Assian stone is most esteemed. When the pain and inflammation have abated, which happens in forty days, unless it be the patient's fault, he should resort to moderate exercises, abstinence, mild inunctions, rubbing the joints with acopum, or

liquid cypress cerate. Riding on horseback is improper for the gouty. Moreover, they who have joint-pains periodically, ought by a careful diet to obviate an useless superfluity of the humours of the body, both by vomiting, and if there be anything alarming in the state of the system, either by clystering, or purging with milk. This last Erasistratus rejected in the cure of the gouty, lest the derivation downwards might render the feet plethoric: although it is clear, that by purgation of every kind, not merely the upper but also the lower parts of the body are depleted.

XXV. But from whatever disease a patient is recovering, when his convalescence is slow, he ought to awake at break of day; nevertheless to lie still in bed: about the third hour to rub his body gently with anointed hands: then, by way of amusement, to walk as much as he pleases, without attending to any business: to use gestation for a long time: much friction: frequently to change his abode, his climate, and his food: after drinking wine for three or four days, alternately to take water for one, or two. For thus it will happen, that he will not fall into affections conducive to tabes, but soon regain his strength. When perfectly recovered, any sudden irregularity or alteration will be dangerous.

He should, therefore, in returning to an unrestrained mode of living, gradually omit to observe the dietetic precepts just mentioned.

## BOOK V.

I HAVE mentioned those diseases which are benefited principally by regimen : it is now my duty to pass over to that department of medicine which opposes disease by medicinal compositions chiefly. Ancient authors, as well Erasistratus, as also those who styled themselves empirics, attached much importance to such agents : above all, however, Herophilus and his followers ; for they used them in the treatment of every disease. Much has been recorded relative to the properties of medicaments ; such, for example, as those of Zeno, or of Andreas, or of Apollonius, who was surnamed Mys. Asclepiades, with some show of reason, got rid of their use in great part ; and inasmuch as all physic usually has an injurious effect on the stomach, and is of a bad juice, he preferred giving his whole attention to regimen. Though it is true this last plan is more useful in the majority of diseases, yet many affections are wont to occur in our bodies, which cannot be cured without medicaments. One thing above all ought we to know, that THE DEPARTMENTS OF MEDICINE ARE SO INTERWOVEN, THAT THEIR PERFECT SEPARATION IS IMPOSSIBLE ; but that they receive their designation from the particular source from which they principally derive their remedial agents. Hence it happens that that part which cures by regimen, occasionally employs physic, and that which opposes disease chiefly by medicinal compositions, ought also to embrace regimen ; which last is productive of very important effects in all diseases. But since all medicines have their peculiar properties, and are serviceable oftentimes as simples, and often in the form of compounds, it should seem proper first to mention their names, virtues, and compositions, that there may be the less delay in the investigation of the treatment of disease.

I. The medicines which SUPPRESS hæmorrhage are green copperas, which the Greeks call *χάλκαιθον* (*chalkanthon*), *chalcitis*, acacia, lycium with water, olibanum, aloes, the

gums, burnt lead, leek, blood-herb, chalk both Cimolian and potter's, misy, cold water, wine, vinegar, alum from the isle of Melos, iron and copper scales; and of this last also, there are two species, one of copper merely, and one of red copper.

II. The medicines which AGGLUTINATE a green wound are myrrh, olibanum, the gums, and especially gum-arabic; flea-wort, tragacanth, cardamoms, bulbs, linseed, cresses, white of egg, glue, isinglass, the white vine; snails bruised, shells and all; boiled honey; a sponge expressed from cold water, or wine, or vinegar; succid wool with the same liquids, and, if the wound be trivial, spider's web. The repriments are alum, both the scissile, which is called *σχίστρον* (schiston), and the liquid Melinian; orpiment, verdigrease, chalcitis, copperas.

III. The substances which CONCOCT and excite the PUS are nard, myrrh, costum, balsamum, galbanum, propolis, styrax, the soot and bark of the olibanum tree, bitumen, pitch, sulphur, resin, suet, fat, oil.

IV. The medicines which seem to open the mouths of wounds, are that which the Greeks call *στόμα* (stoma), cinnamon, balsamum, panaces, juncus quadratus, pennyroyal, flower of white violet, bdellium, galbanum, turpentine and pine resin, propolis, old oil, pepper, pellitory, chamæpitys, stavesacre, sulphur, alum, seed of rue.

V. The DETERGENTS are verdigrease, orpiment, called by the Greeks *ἀρσενικόν* (arsenikon), (which has, in all respects, the properties of sandarach, only stronger), copper scales, pumice, orris, balsam, storax, olibanum, olibanum bark, pine and liquid resin, wild vine, lizard's dung, the blood of the pigeon, ring-dove, and swallow; ammoniacum, bdellium, which has the same properties as ammoniacum, but is stronger; southernwood, dry figs, the Gnidian berry, ivory dust, omphacium, radishes, coagulum, especially that of a hare, which, although it has the same properties as other coagula, is decidedly stronger; ox-gall, raw yolk of egg, hartshorn, glue prepared from the ox, raw honey, misy, chalcitis, saffron, stavesacre, litharge, nut-galls, copper scales, blood-stone, minium, costum, sulphur, crude pitch, suet, lard, oil, rue, leek, lentils, vetches.

VI. The CORROSIVES are alum in solution, especially the round sort, verdigrease, chalcitis, misy, copper scales, particularly the red, calcined copper, sandarach, Sinopian

minium, galls, balsamum, myrrh, olibanum, and the bark of its tree, galbanum, moist turpentine, resin, both kinds of pepper, but the round more so; cardamom, orpiment, lime, nitre, and aphronitre, smallage-seed, narcissus root, omphacium, bastard sponge, oil of bitter almonds, garlic, crude honey, wine, mastich tree, iron filings, ox-gall, scammony, stavesacre, cinnamon, styrax, hemlock-seed, resin, seed of narcissus, gall, bitter almonds and their oil, green copperas, chrysocolla, hellebore, ashes.

VII. The medicines which exert the power of eating away the flesh, are acacia-juice, ebony, verdigrease, copper scales, chrysocolla, Cyprian ash, nitrum, cadmia, litharge, hypocistis, diphryges, salt, orpiment, sulphur, hemlock, sandarach, salamander, bastard sponge, flower of copper, chalcitis, green copperas, ochre, lime, vinegar, galls, alum, milk of the wild fig, or of sea spurge, which is called by the Greeks *τιθύμαλλος* (*tithumallos*), animal gall, soot of olibanum, spodium, lentils, honey, olive-leaves, horehound, bloodstone, and also the Phrygian, Assian, and scissile stones, misy, wine, vinegar.

VIII. The caustics are orpiment, green copperas, chalcitis, misy, verdigrease, lime, burnt paper, salt, copper scales, calcined lees, myrrh, the dung of the lizard, pigeon, ring-dove, and swallow; pepper, Gnidian berry, garlic, diphryges, both the milks mentioned in the last chapter, white and black hellebore, cantharides, coral, pellitory, olibanum, salamander, herb rocket, sandarach, stavesacre, chrysocolla, ochre, scissile alum, sheep-dung, *cenanthe*.

IX. The same medicines usually produce a crust on ulcers, as if burnt by fire: but the chief of these are chalcitis, (and the more so when it has been boiled,) flower of copper, verdigrease, orpiment, misy; and the effect of this last also is increased by boiling.

X. **ESCHARS** may be **DETACHED** by wheat-flour with rue, or leeks, or lentils, to which some honey has been added.

XI. The most efficacious **DISCUTIENTS** for local collections are southernwood, elicampane, sweet marjoram, white violet, honey, lily, Cyprian sampsucus, milk, mellilot, wild thyme, cypress, cedar, iris, purple violet, narcissus, roses, saffron, passum, *juncus quadratus*, nard, cinnamon, cassia, ammoniacum, wax, resin, stavesacre, litharge, styrax, dry figs, goat-marjoram, seed of lin and narcissus, bitumen, dust

from the gymnasium, pyrites-stone, or mill-stone, crude yolk of egg, bitter almonds, sulphur.

XII. The **EVOCANT** and **DRAWING** medicines are ladanum, round alum, ebony, linseed, omphacium, gall, chalcitis, bdellium, turpentine and pine resin, propolis, dried figs boiled, pigeon's dung, pumice, darnel-meal, unripe figs boiled in water, elaterium, bay-berries, nitre, and salt.

XIII. The substances which have the effect of smoothing any part which is rough, are spodium, ebony, gum, white of egg, milk, tragacanth.

XIV. Pine resin, ochre, both that called **ATTICE** and that called **ASTERACE**, wax, butter, are incarnants, and fill up ulcers.

XV. The **EMOLLIENTS** are calcined copper, Eretrian earth, nitre, opium, ammoniacum, bdellium, wax, suet, fat, oil, dry figs, sesamum, mellilot, both the root and seed of narcissus, rose-leaves, coagulum, raw yolk of egg, bitter almonds, marrow of all kinds, antimony, pitch, boiled snails, hemlock-seed, dross of lead, which the Greeks call *σκορίαν μολύβδου* (skorian molubdou), panaces, cardamom, galbanum, resin, stavesacre, styrax, orris, balsam, dust from the gymnasium, sulphur, butter, rue.

XVI. Honey has the power of cleansing the skin; but it is more efficacious when mixed with galls, or vetches, or lentils, or horehound, or orris, or rue, or nitre, or verdi-grease.

XVII. 1. Having set forth the properties of drugs in their simple state, we have next to treat of the method of mixing, and of the preparations made from them. Now they are mixed variously, and without any set method: for some of the simples may be removed, and others added; and when the same ingredients are retained, the proportion of their weight may be altered. Hence it happens, that although the substances which possess medicinal properties are not very numerous, yet their mixtures are innumerable: and even though the whole could be here embraced, yet would it be superfluous. For all the required effects may be accomplished by a few compositions, and after gaining a knowledge of their virtues, it is very easy to vary them at pleasure. I shall therefore be content to mention such as I find most esteemed.

But in this book I shall explain such as seem supplementary to the former, or appertaining to those cures of which I

shall here immediately treat, at the same time, however, subjoining those which are more commonly employed. Such as are accommodated to one disease only, or even to a few, I shall defer for insertion in their proper places. But I would previously have it understood that one ounce contains seven denarii; that I divide each denarius weight into six parts or sextants; that I have the same in a sextant of a denarius, as the Greeks have in that which they call *ὀβολόν* (obolon). That, reduced to our weights, makes little more than half a scruple.

2. Now malagmata and plasters, and pastils, which the Greeks call *τροχίσκους* (trochiskous), although in many respects similar, differ, in that malagmata are chiefly formed of flowers, and even from their stalks; plasters and pastils more from certain minerals. Again, malagmata become soft enough by being bruised; for they are applied to sound skin: the ingredients from which plasters and pastils are prepared, are diligently powdered, that they may not prove hurtful to wounds when applied thereto. Moreover, there is this distinction between a plaster and a pastil, that a plaster for a certainty contains some melted ingredient; in a pastil the dry ingredients are combined by means of some liquid. Then, as to the mode of preparation; in forming a plaster the medicines are powdered separately; and to these, when mixed, either vinegar is poured, or any other fluid ingredient not of an oily nature, and these are again rubbed together: meantime, the liquescent ingredients are melted together near the fire, and when oil is required in the mixture, that article is now added. Occasionally, also, some one of the dry ingredients is previously boiled with the oil. When those processes have been performed which require to be done separately, all the articles are intermixed.

But the method of making a pastil is as follows: the dry medicaments having been pulverized, are incorporated with the wine, vinegar, or other non-oleaginous fluid, and are again boiled to exsiccation: when required for use, they are diluted with some similar fluid. Furthermore, plasters are laid on, pastils are rubbed in, or else mixed with some softer preparation, such as cerate.

XVIII. 1. These particulars having been considered, I shall first subjoin the malagmata, which have been for the most part invented not for the sake of cooling, but of heating. There is one, however, which is refrigerant, suited to

the hot gout of the feet. Its component parts are of galls, as well the unripe as also the other sort, of coriander-seed, of the dry juice of hemlock, of gum, of each a full acetabulum; of washed cerate, called by the Greeks *πεπλυμένον* (*peplumenon*), half a pound. The others are mostly calefacient; but some are dispersents, some attractive, and therefore called *ἐπισπαστικά* (*epispastika*): most of them are best suited to particular parts of the body.

2. When matter is required to be drawn out, as in a dropsical patient, in a pleurisy, in an incipient abscess, and even in a moderate suppuration, that is a suitable malagma which consists of dry resin, nitre, ammoniacum, galbanum, of each a pound, of wax a pound. Or that which contains the following: of rasile verdigrease, of olibanum, of each p. ℥. II. sal-ammoniac p. ℥. VI. of copper scales, wax, of each p. ℥. VIII. dry resin p. ℥. XII. and of vinegar a cyath. The meal of cumin-seed with struthium and honey has the same effect.

3. When the LIVER is painful, that is proper which contains tears of balsam p. ℥. XII. of costum, cinnamon, cassia bark, myrrh, saffron, round cyperus, balsam-seed, Illyrian orris, cardamom, ginger, nard, of each p. ℥. XVI. to which nard ointment is added until it arrives at the consistence of a cerate. And this is used while fresh; but if it be to be preserved, turpentine-resin p. ℥. XVI. wax p. ℥. X. are bruised together in mild wine, and then mixed with it.

4. But when the SPLEEN is the seat of pain, the bark of the acorn, which the Greeks call *βάλανον μυρεψικῆν* (*balanon murepsikēn*), and nitre, are bruised together in equal proportions, and are sprinkled over with the strongest vinegar: when it possesses the consistence of a cerate it is spread upon lint previously moistened with cold water, and thus applied; and barley meal is laid over it: but it ought not to remain on more than six hours, lest it should waste the spleen; and a second or third repetition of the remedy is more prudent.

5. From the following articles Lycias composed a malagma to be employed in common for the liver, spleen, abscesses, struma, parotid swellings, and for joints; for heels, whether suppurating or otherwise affected, and also for promoting concoction: of opopanax, styrax, galbanum, resin, of each p. ℥. II. ammoniacum, bdellium, wax, beef-suet, dry orris, p. ℥. IV. with an acetabulum of cachrys and



forty grains of pepper, triturated together and mixed up with orris ointment.

6. The composition of Apollophanes is for pleurisies; it has of turpentine-resin, soot of olibanum, of each p.  $\times$ . iv. of bdellium, ammoniacum, orris, veal-suet, or that taken from the kidneys of a goat, and of viscus, of each p.  $\times$ . iv. Now these last mentioned alleviate pain of every kind, mollify indurations, and are moderately calefacient.

7. The malagma of Andreas has the same virtues; but it likewise relaxes, draws out humour, maturates pus, and when that is mature, breaks the skin, and promotes cicatrization. It is advantageously applied both to small and large abscesses: also to the joints, and therefore useful in pains of the hip and feet: it also restores any part of the body that is bruised; softens the præcordia when hard and inflated; draws out splinters, and, in a word, is efficacious in all cases which are benefited by warmth. In it there is of wax p.  $\times$ . xi. of viscus, of the juice of sycamine, which others call sycamore, of each p.  $\times$ . i. of round, and long pepper, of ammoniacum-thymiama, bdellium, Illyrian orris, cardamom, amomum, xylobalsam, male frankincense, myrrh, dry resin, of each p.  $\times$ . x. of pellitory, Gnidian berry, of aphonitre, sal-ammoniac, Cretan birthwort, root of wild cucumber, liquid turpentine-resin, of each p.  $\times$ . xx.; to which is added a sufficient quantity of orris ointment to soften and incorporate the ingredients.

8. But the grand malagma for effecting a resolution in constricted parts, softening indurations, and dispersing collections, is that which is attributed to Polyarchus. It contains equal proportions of juncus quadratus, cardamom, soot of frankincense, amomum, wax, and liquid resin.

9. That of Nileus is for the same: of saffron-magma, which is as it were the recrement of that herb, p.  $\times$ . iv. ammoniacum-thymiama, wax, of each p.  $\times$ . xx.: of these the two first are triturated with vinegar: the wax is dissolved in the rose-oil, and the whole afterwards incorporated.

10. That which is assigned to Moschus is exclusively employed as an EMOLLIENT to INDURATIONS. It contains of galbanum an ounce, soot of olibanum p.  $\equiv$ . of wax, ammoniacum-thymiama, of each a triens, of dry pitch p. ii. of vinegar three heminæ.

11. There is one reported by the author Medus to possess

the power of dispersing collections: it contains of wax p. =. panaces p. ℥. s. copper scales, of round, and of scissile alum, of each p. ℥. I. of calcined lead p. ℥. I. s.

12. Panthemus for the same purpose used of lime p. s. powdered mustard, fenugreek, and alum, of each p. I. beef-suet p. II. s.

13. 14. Against STRUMA I find there are many malagmata. I believe that the more malign that distemper is, and the greater the difficulty of curing it, so the more numerous have been the remedies tried, and that the results have been various in different persons. The following admixture originated with Andreas: of nettle seed, p. ℥. I. of round pepper, bdellium, galbanum, ammoniacum-thymiana, dry resin, of each p. ℥. IV. of liquid resin, wax, pellitory, long pepper, seed of the sea-lettuce, crude sulphur called *ἀπυρον* (apuron), of residuary dregs of vinegar, of aphronitre, sal-ammoniac, mustard, cardamom, wild cucumber-root, resin, of each p. ℥. VIII. these are all beat up together with mild wine.

15. There is a readier one for the same purpose, consisting of the seed of viscus, of dung, of resin, of crude sulphur, equal parts. And another in which there is of sulphur, p. ℥. I. pyrites-stone, p. ℥. IV. of cumin an acetabulum. Also that consisting of one part of the same stone, two parts of sulphur, and three of turpentine-resin.

16. There is, moreover, that invented by a certain Arab for resolving STRUMA, and the rising TUBERCLES called *φύματα* (phumata). It contains myrrh, sal-ammoniac, thus, liquid, and dry resin, saffron-magma, wax, of each p. ℥. I. pyrites-stone p. ℥. IV. to which some add p. ℥. II. of sulphur.

17. Also that prepared as follows is useful in STRUMA, and those tubercles which are with difficulty brought to suppurate, and also in those called *καρκινώδη* (karkinōde); of sulphur p. ℥. II. of nitre p. ℥. IV. of myrrh p. ℥. VI. of soot of frankincense p. s. sal ammoniac p. =. wax p. I.

18. Moreover, for PAROTID SWELLINGS, and those TUBERCLES which are denominated *μελικήρια* (melikeria), that is, honeycombs, or *φύματα* (phumata), as well also for bad ulcers, Protarchus was in the habit of mixing pumice, liquid pine-resin, soot of olibanum, aphronitre, orris, of each p. ℥. VIII. with p. ℥. IX. of wax, and to these he added one cyath and a half of oil.

19. But in the affection called PANIS, just at its commencement, which in its incipient stage the Greeks call φέγελον (phugethon), and for every tubercle called phyma, the ochre called ATTICE is mixed with two parts of simila; and to these, while they are beat up, honey is gradually added until it acquires the consistence of a malagma.

20. Phymata are likewise discussed by the following: of lime, aphronitre, round pepper, of each p.  $\chi$ . I. galbanum p.  $\chi$ . II. salt p.  $\chi$ . IV. incorporated with cerate prepared from rose-oil.

21. Incipient abscess is checked by that containing of galbanum, bruised beans, of each p.  $\chi$ . I. of myrrh, thus, rind of capparid-root, of each p.  $\chi$ . IV. Murex calcined and thoroughly triturated, with the gradual addition of vinegar, answers well enough for dispersing all abscesses.

22. But in a considerable extravasation of blood, a proper application is that which is also efficacious against phymata. It consists of the following: of bdellium, styrax, ammoniacum, galbanum, dry, and liquid pine-resin, mastich, olibanum, and orris, of each p.  $\chi$ . II.

23. Carcinoid phymata are conveniently mitigated by the following: of galbanum, viscus, ammoniacum, turpentine-resin, of each p.  $\chi$ . I. of beef-suet p. s. burnt lees, as much as can be added without making the mixture too dry for a malagma.

24. The following composition, applied both by night and day, removes the livid appearance occasioned by contusions in the face: of birthwort, thapsia, of each p.  $\chi$ . II. of bdellium, styrax, ammoniacum-thymiama, galbanum, dry resin, and the liquid mastich-resin, male thus, Illyrian orris, wax, of each p.  $\chi$ . IV. The application of beans is also beneficial.

25. There are also certain malagmata which the Greeks call *στωματικά* (stomōtika), from their power of opening. Such as that which consists of the following: of long pepper, aphronitre, of each p.  $\chi$ . II. erysimum p.  $\chi$ . IV. mixed up with honey. They are likewise adapted to promote the opening of strumous swellings. Of the same kind, but stronger than the last, is that containing of lime, p.  $\chi$ . IV. of pepper six grains, nitre, wax, of each p.  $\chi$ . X. of honey p.  $\bar{\omega}$ . of oil a hemina.

26. There is also Mico's, which is resolvent, aperient, and cleansing. It contains, in equal proportions, bastard

sponge, sulphur, nitre, pumice, with enough of pitch and wax to give it the consistence of a cerate.

27. That of Aristogenes for the bones is thus prepared : of sulphur p.  $\times$ . I. turpentine-resin, aphonitre, inner part of squill, washed lead, of each p.  $\times$ . II. soot of thus p.  $\times$ . VIII. of the dry mellowest figs, of beef-suet, of each p.  $\times$ . VIII. of wax p.  $\times$ . XII. of Macedonian iris p.  $\times$ . VI. of fried sesamum an acetabulum.

28. A malagma is a convenient form for the nerves, and for the joints. That of Euthycleus is both proper for the joints, and for pain of every description, that of the bladder inclusive, and also for joints contracted by a recent cicatrix, which the Greeks denominate ἀγκύλας (ankulas); it contains of soot of olibanum an acetabulum, of resin the same quantity, of galbanum without its stalks an ounce and a half, ammoniacum, bdellium, of each p.  $\equiv$ . wax p. s. There is also another consisting of iris, ammoniacum, galbanum, nitre, of each p.  $\times$ . XIV. liquid resin p.  $\times$ . VI. wax p.  $\times$ . XVI.

29. That of Sosagoras for pains of the joints consists of calcined lead, opium, bark of henbane, styrax, peucedanum, suet, resin, and wax, equal parts.

30. There is that of Chrysippus: of liquid resin, sandarach, pepper, of each p.  $\times$ . XII. with the addition of a little wax.

31. Ctesiphon's: of Cretan wax, turpentine-resin, the reddest nitre, of each p. s. of oil three cyaths. But the nitre is previously rubbed for three days, water being dropped into it; and is then boiled with a sextarius of water, until all the moisture is evaporated. Besides, this composition is efficacious against tubercles, phymata, struma, and for softening humid collections of all kinds.

32. For the joints, one may with propriety apply part of a dry fig mixed up with catmint; or stavesacre, deprived of its seeds, with pennyroyal.

33. The compositions just mentioned are useful for the gout; and so also is that of Ariston, containing nard, cinnamon, cassia, chamæleon-thistle, long round cyperus, of each p.  $\times$ . VIII. goat-suet melted in orris-oil, p.  $\times$ . XX. orris p.  $\times$ . I.: these should lie in very strong vinegar for twenty days. Furthermore, it is also effectual for the discussion of recent phymata, and pains of every kind.

34. For foot pains, Theoxenus's plan was to mix one-

third of kidney-suet with two parts of salt, and these he spread upon thin leather : he then put over it ammoniacum-thymiama, dissolved in vinegar.

35. But Numenius for softening gout, and joints otherwise indurated, employed the following : of southernwood, dry roses, opium, of each p. ℥. III. of turpentine-resin p. ℥. IV. thus, aphronitre, of each p. ℥. VIII. orris, birthwort, of each p. ℥. XII. of wax p. III. with the addition of one cyath of cedrus, three of laurel-oil, and a sextarius of acerb-oil.

36. Dexius has instructed us to use the following for callous concretions of the joints ; of lime p. ℥. IV. ceruse p. ℥. VIII. pine-resin p. ℥. XX. pepper grs. XXX. wax p. =. to which, while bruised, a hemina of mild wine is added.

XIX. But of plasters, none are more useful than those used for fresh wounds : these the Greeks call *ἐραιμα* (enaima). For they keep down inflammation, unless where great violence renders this a necessary consequence, and even then they diminish its violence : after that, they agglutinate the wounds, and promote cicatrization in such as admit of it. As they are composed of substances not of a fatty nature, they are called *ἀλιπαινη* (alipaine).

1. The best of them is that called *Barbarum*. It contains of rasile verdigrease p. ℥. XII. litharge p. ℥. XX. of alum, dry pitch, dry pine-resin, of each p. ℥. I. with the addition of a single hemina of oil and vinegar.

2. Another for the same purpose, called *Coacon*, contains of litharge p. ℥. c. of dry resin the same quantity : but the litharge is previously boiled with three heminæ of oil. These two plasters are black, which is usually the colour of such as are made of pitch and resin : but that made from bitumen is very black ; that from verdigrease, or copper scales, is green ; that from minium red ; that from ceruse white.

3. There are very few compositions in which the variety of the mixture alters the appearances : hence that called *basilicon* is also black. It contains of panaces p. ℥. I. galbanum p. ℥. II. pitch and resin, of each p. ℥. X. oil half a cyath.

4. But that which is a deep green is called *smaragdinum* : it contains of pine-resin p. ℥. III. wax p. ℥. I. verdigrease p. s. soot of olibanum p. =. a like quantity of vinegar

and oil, so that the soot and verdigrease may be incorporated.

5. There is one of a reddish colour, which appears rapidly to effect the cicatrization of wounds. It contains of thus p. ℥. I. of resin p. ℥. II. copper scales p. ℥. IV. litharge p. ℥. XX. wax p. ℥. C. and of oil a hemina.

6. Again, there is that which, from its agglutinating power, they call παρακολλητικήν (parakollētikēn). It is composed of the following: bitumen, scissile alum p. ℥. IV. litharge p. ℥. XL. old oil a hemina.

7. There are besides certain of the same kind, which, because they are best suited to broken heads, are called by the Greeks κεφαλικά (kephalika). The composition of Philotas contains of Eretrian earth, chalcitis, of each p. ℥. IV. of myrrh, calcined copper, of each p. ℥. X. of isinglass p. ℥. VI. of rasile verdigrease, round alum, crude misy, birthwort, of each p. ℥. VIII. of copper scales p. ℥. X. of male thus p. ℥. II. of wax p. I. of rose-oil and acerb-oil three cyaths, and enough vinegar to rub up the dry ingredients.

8. There is another of the like efficacy, of a green colour: of calcined copper, copper scales, myrrh, isinglass, of each p. ℥. VI. of crude misy, rasile verdigrease, birthwort, round alum, of each p. ℥. VIII. wax p. ℥. I. with a hemina of oil, and a sufficient quantity of vinegar.

9. But for promoting suppuration, there is none better than one, very easily prepared, called by the Greeks τετραφάρμακον (tetrapharmakon). It contains equal portions of wax, pitch, resin, and beef-suet, or, if that be not at hand, veal-suet.

10. There is another, for the same purpose, called ἐννεάφάρμακον (enneapharmakon), which is more detersive. It is composed of nine articles; wax, honey, suet, resin, myrrh, rose-oil, deer or veal or beef marrow, œsypum, and butter, mixed together in equal proportions by weight.

11. Now there are certain plasters which possess both properties: these, when both indications are to be considered, are preferable; but are to be rejected when we have plenty of choice, using those in preference which exclusively produce the required effect. I shall mention two for example's sake. There is, therefore, the Attalum plaster for wounds: it contains of copper scales p. ℥. XVI. soot of thus p. ℥. XV. ammoniacum the same quantity, liquid turpentine-resin p. ℥. XXV. beef-suet the like quantity, vi-

negar three heminæ, and of oil a sextarius. With regard to those which are adapted to a broken head, some esteem that which is assigned to Judæus. It consists of the following: of salt p. ℥. iv. red copper scales, calcined copper, of each p. ℥. xii. ammoniacum-thymiama, soot of olibanum, dry resin, of each p. ℥. xvi. Colophonian resin, wax, veal-suet cured, of each p. ℥. xx. of vinegar a cyath and a half, with somewhat less than a cyath of oil. What we call cured, the Greeks denominate *τεθεραπευμένα* (tetherapeumena); as when suet, for example, or any other medicinal substance, is carefully freed from its stringy portion.

12. There are also certain plasters famous for drawing, and therefore called *ἐπισπαστικά* (epispastika): such as that called *διὰ δαφνιδῶν* (dia daphnidōn), from its containing laurel-berries. It consists of turpentine-resin p. ℥. x. of nitre, wax, dry pitch, laurel-berries, of each p. ℥. xx. with a little oil. Whenever I mention berries or nuts, or anything of that nature, it should be understood that their outer pellicle is to be removed before weighing.

13. There is another, used for the same purpose, and also as a suppurative. It is made of equal parts of veal-suet, ammoniacum-thymiama, pitch, wax, nitre, laurel-berries, dry resin, birthwort, and pellitory.

14. Again, we have that of Philocrates, containing of sal-ammoniac p. ℥. vii. of birthwort p. ℥. viii. of wax, turpentine-resin, soot of frankincense, of each p. ℥. xv. of litharge p. ℥. xxxii. To these are added, in order to promote suppuration, of orris-root p. ℥. iv. galbanum p. ℥. vi.

15. The best drawing plaster, however, is that which, from its resemblance to sordes, the Greeks call *ῥυπῶδες* (rupōdes). It contains of myrrh, saffron, orris, propolis, bdellium, pomegranate-heads, alum, both scissile and round, misy, chalcitis, boiled green copperas, panaces, sal-ammoniac, viscus, of each p. ℥. iv. birthwort p. ℥. viii. copper scales p. ℥. xvi. turpentine-resin p. ℥. lxxv. of wax, and of beef or goat suet, of each p. ℥. c.

16. Hecatæus is also the author of a plaster of a similar nature, prepared from the following: of galbanum p. ℥. ii. of soot of thus p. ℥. iv. of pitch p. ℥. vi. of wax, and turpentine-resin, of each p. ℥. viii. with the addition of a little orris ointment.

17. The green Alexandrian possesses the like efficacy,

It contains of scissile alum p. ℥. viii. sal-ammoniac p. ℥. viii. =. copper scales p. ℥. xvi. of myrrh and thus, of each p. ℥. xviii. of wax p. ℥. cl. of Colophonian or pine-resin p. ℥. cc. of oil one hemina, of vinegar a sextarius.

18. Some plasters have the power of eating away the flesh; these the Greeks call *σηπτά* (sēpta): of this kind is that which contains of turpentine-resin, soot of thus, of each p. =. copper scales p. ℥. i. of ladanum p. ℥. ii. of alum the same quantity, litharge p. ℥. iv.

19. That which has the power of rapidly corroding the body, dissolving even the bones, and restraining luxuriant granulation, has in its composition of litharge, copper scales, of each an ounce; of nitre not calcined, of Assian stone, of birthwort, of each a sextant; of wax, turpentine-resin, of thus, old oil, green copperas, sal-ammoniac p. s. of rasile verdigrease p. a bes, vinegar of squills a hemina, of Aminean wine the same quantity.

20. There are also some plasters provided against bites; of this kind is the black one of Diogenes, containing of bitumen, wax, dry pine-resin, of each p. ℥. xx. of litharge p. ℥. c. of oil a sextarius. Or that in which there are of copper scales p. ℥. iv. of ceruse and rasile verdigrease, of each p. ℥. viii. ammoniacum p. ℥. xii. of wax and pine-resin, of each p. ℥. xxv. of litharge p. ℥. c. with a sextarius of oil. Or that containing copper scales p. ℥. xiv. galbanum p. ℥. vi. ceruse and rasile verdigrease, of each p. ℥. viii. of ammoniacum p. ℥. xii. of wax and pine-resin, of each p. xxxv. boiled with litharge.

21. The red, or Ephesian, as it is called, is also a suitable plaster for the like cases. It contains of turpentine-resin p. ℥. ii. of galbanum p. ℥. iv. Sinopian minium p. ℥. vi. of soot of olibanum p. ℥. vi. of wax p. ℥. viii. of litharge p. ℥. xxxvi. of old oil a hemina.

22. So also the following: of copper scales, soot of olibanum, of each p. ℥. iv. galbanum p. ℥. vi. sal-ammoniac p. ℥. xii. =. of wax p. ℥. xxv. with three heminae of oil. But this last is also proper for other green wounds.

23. There are, besides, mild white plasters; the Greeks call them *λευκά* (leuka); generally used for slight wounds, and especially in old subjects: such is that which contains of ceruse p. ℥. xxxii. of prepared veal-suet, and of wax,



of each p. ℥. XLVIII. of oil three heminæ, in which last the ceruse is boiled.

24. There is another consisting of ceruse p. ℥. XX. of wax p. ℥. XXXV. of oil a hemina, of water a sextarius. Whenever these two last are added to ceruse and litharge, it should be understood that they are to be boiled with them. But this, from its being a very white composition, is called *ἐλεφαντίνη* (elephantinē).

25. There are also certain mild plasters which the Greeks usually denominate *λιπαράς* (liparas); that, for example, which contains of minium p. ℥. IV. litharge p. ℥. XXV. wax, and hog's lard, of each p. ℥. XXXVII. and the yolk of four eggs.

26. There is another composition of the same kind; of wax, turpentine-resin, of each p. ℥. VI. of ceruse p. ℥. VIII. of litharge, dross of lead, called by the Greeks *σκωρία μόλυβδου* (skōria molubdou), of each p. ℥. XX. castor-oil, and myrtle-oil, of each a hemina.

27. A third is referred to Archagathus: of boiled misy, calcined copper, of each p. ℥. IV. of boiled ceruse p. ℥. VIII. of turpentine-resin p. ℥. X. of litharge p. ℥. VI.

28. And there is yet another of the same kind: of litharge, wax, hog's lard, of each p. ℥. XXVII. four boiled yolks of eggs, and a hemina of rose-oil. Or that consisting of three parts cerate made with myrtle-oil, one part hog's lard, and a small quantity of the dross of lead. Or half a pound of litharge boiled in one hemina of oil, and another of salt-water, until ebullition shall have ceased; to which may be added a small portion of wax. Or equal portions of wax, suet, stibium, litharge, and ceruse.

XX. 1. PASTILS also have various properties. For they are suited to the agglutinating and healing of green wounds: of this kind is that which contains of chalcitis, misy, aphronitre, flowers of copper, galls, scissile alum moderately boiled, of each p. ℥. I. of calcined copper, pomegranate-heads, of each p. ℥. III. It is requisite to dilute this composition with vinegar, and to apply it in this state when a wound requires to be agglutinated. But if the part be of a tendinous or muscular structure, it is more convenient to mix the pastil with cerate, in the proportion of eight parts of the first to one of the last.

Another for the same purpose consists of the following:

of bitumen, scissile alum, of each p. ℥. I. of calcined copper p. ℥. iv. of litharge p. ℥. xi. with a sextarius of oil.

2. But by far the most celebrated, is that of Polybius : it is called *σφραγίς* (sphragis), and contains scissile alum p. ℥. i. =. of green copperas p. ℥. ii. of myrrh p. ℥. v. of aloes a like quantity, of pomegranate-heads, ox-gall, of each p. ℥. vi. all rubbed together, and mixed with austere wine.

3. The following is for sordid ulcers and blackness in the ears, nose, and genitals, and in inflammation of the same parts : of chrysocolla p. ℥. i. of green copperas, of scissile alum, of each p. ℥. ii. of winter cherry-bark p. ℥. iv. of minium p. ℥. vi. of litharge p. ℥. xii. of ceruse p. ℥. xvi. ; these are incorporated with vinegar, and diluted as use may require.

4. But Andro's is for inflamed uvulæ, for foul ulcers, and also for gangrene in the obscene parts : of galls, green copperas, myrrh, of each p. ℥. i. of birthwort, scissile alum, of each p. ℥. ii. of pomegranate-heads p. ℥. xxv. incorporated by means of passum, and diluted with vinegar or wine, just as required for use, and according as the affection to be treated is more or less violent.

5. There is one expressly prepared for fissures of the anus, for the mouths of vessels effusing blood, or for gangrene : of verdigrease p. ℥. ii. of myrrh p. ℥. xii. of antimony, opium, acacia, of each p. ℥. xvi. ; these are triturated with wine, and are dissolved in the act of being used.

6. The following pastil seems proper for bringing away a stone of the bladder along with the urine : equal parts of cassia, saffron, myrrh, costum, nard, cinnamon, liquorice-root, balsamum, and hypericum, are powdered ; mild wine is then poured in, and pastils formed, each weighing p. ℥. =. : one is given every morning fasting.

XXI. 1. Now these three kinds of compounds, malagmata, plasters, and pastils, are most extensively and variously employed. But there are also other useful forms ; such, for example, as those used inferiorly for females : the Greeks call them *πεσσοὶς* (pessous). Their peculiarity is as follows : the compounded medicines are embodied with soft wool, and this wool is introduced into the vagina.

To provoke menstruation, p. ℥. i. of nitre is added to two small figs, or the seed of garlic is powdered, and a little myrrh added, and these are mixed with Susine ointment ;

or the pulp of the wild cucumber is diluted with woman's milk.

2. To mollify the womb, yolk of egg, fenugreek, rose-oil, and saffron, are mixed together. Or of elaterium p.  $\mathcal{X}$ .  $\text{=}$ . of salt the same quantity, stavesacre p.  $\mathcal{X}$ . VI. incorporated with honey.

3. Or that invented by Boethus: which is a mixture of saffron, turpentine-resin, of each p.  $\mathcal{X}$ . IV. of myrrh p.  $\mathcal{X}$ .  $\text{=}$   $\text{=}$ . of rose-oil p.  $\mathcal{X}$ . I. of veal-suet p.  $\mathcal{X}$ . I.  $\text{=}$ . of wax p.  $\mathcal{X}$ . II.

4. But the best composition against inflammation of the womb, is that of Numenius, containing of saffron p.  $\mathcal{X}$ .  $\text{=}$ . of wax p.  $\mathcal{X}$ . I. butter p.  $\mathcal{X}$ . VIII. goose-fat p.  $\mathcal{X}$ . XII. two boiled yolks of eggs, together with less than a cyath of rose-oil.

5. When a foetus has died in the womb, to facilitate its expulsion, pomegranate-bark is to be rubbed up with water, and so used.

6. If a female be accustomed to have hysteric fits, snails should be burnt, shells and all; and after being well triturated, honey should be added to them.

7. If she do not conceive, she should use lion's fat softened with rose-oil.

XXII. 1. There are some medicinal compositions which we use in a dry state, without beating them into a mass; so that they are either sprinkled over a part, or they are previously mixed with some liquid, and thus smeared: of this nature is that used to consume luxuriant flesh, containing of copper scales, soot of olibanum, of each p.  $\mathcal{X}$ . I. of verdigrease p.  $\mathcal{X}$ . II. In composition with honey it cleanses ulcers, and with wax fills them up. Misy and galls mixed in equal proportions also consume the flesh; and one may either sprinkle them over dry, or apply them incorporated with calamine cerate.

2. Honey mixed with lentils, or with horehound, or with olive-leaves previously boiled in wine, restrains putrid flesh; prevents the disease from spreading, and acts as a mild corrosive: so likewise melilot boiled in mulse, and afterwards triturated; or lime with cerate; or bitter almonds and garlic, in the proportion of one-third of the latter, with a little saffron; or that which contains of litharge p.  $\mathcal{X}$ . VI. burnt ox-horn p.  $\mathcal{X}$ . XII. of myrtle-oil, and of wine three cyaths; or that consisting of pomegranate-flowers, green

copperas, and aloes, of each p. ℥. II. of scissile alum, thus, of each p. ℥. IV. of galls p. ℥. VIII. of birthwort p. ℥. X. Orpiment with chalcitis, or with nitre, or with lime, or with burnt paper, produces the same effect, but more violently, and so as even to act as a caustic: so also salt with vinegar, or a composition containing of chalcitis, pomegranate heads, aloes, of each p. ℥. II. of scissile alum and thus, of each p. ℥. IV. of galls p. ℥. VIII. of birthwort p. ℥. X. with sufficient honey to form a mass; or of cantharides p. ℥. I. of sulphur p. ℥. I. of darnel p. ℥. III. to which is added a sufficient quantity of liquid pitch to effect an union; or chalcitis with a mixture of resin and rue; or diphryges with resin; or stavesacre with liquid pitch. Both burnt wine-lees and equal portions of lime and nitre have the like properties; or of scissile alum p. ℥. = =. of thus, sandarach, nitre, of each p. ℥. I. of galls p. ℥. VIII. of birthwort p. ℥. X. with a sufficiency of honey.

3. There is also Hera's composition, containing of myrrh, chalcitis, of each p. ℥. II. of aloes, thus, scissile alum, of each p. ℥. IV. of birthwort, unripe galls, of each p. ℥. VIII. of pomegranate-bark powdered p. ℥. X.

4. That of Judæus contains two parts of lime with one of the reddest nitre, mixed up with the urine of a young boy, until it is of the consistence of strigent. But the part to which it is applied should be frequently moistened.

5. Jollas made a mixture of burnt paper and sandarach, p. ℥. I. lime p. ℥. II. with a like quantity of orpiment.

6. When blood flows from that membrane which is over the brain, yolk of egg should be applied after having been burnt and powdered; when the hæmorrhage is elsewhere, it is requisite to sprinkle over the part, of orpiment, copper scales, of each p. ℥. I. sandarach p. ℥. II. calcined marble p. ℥. IV. This same composition also checks gangrene. To induce a cicatrix one may use of copper scales, soot of thus, of each p. ℥. II. of lime p. ℥. IIII. and the same for restraining luxuriant granulations.

7. Timæus for herpes and gangrene used the following: of myrrh p. ℥. II. of olibanum, green copperas, of each p. ℥. III. of sandarach, orpiment, and copper scales, of each p. ℥. IV. galls p. ℥. VI. calcined ceruse p. ℥. VIII. These are either sprinkled dry, or are equally efficacious mixed with honey.

8. Sneezing is excited either by introducing into the nos-

trils white hellebore, or struthium, or a mixture of the following : of pepper, white hellebore, of each p.  $\times$ . = . castor p.  $\times$ . I. aphronitre p.  $\times$ . I. struthium p.  $\times$ . IV.

9. Washes are used either to smooth, or to repress, or to evocate. Those which have the power of smoothing are milk and the cream of ptisan or of bran : the repriments are decoction of lentils, or of roses, or of brambles, or quinces, or dates : the evocants mustard and pepper.

XXIII. 1. Antidotes are rarely, but yet sometimes highly necessary ; because they afford relief in the worst cases. They are administered with propriety in severe bruises, whether from blows, or from falling from an eminence ; or in pains of the viscera, sides, fauces, and internal parts : but they are particularly desirable against poisons, which have been introduced into the system by bites, or with the food or drink. There is one consisting of opium p.  $\times$ . = = . of acorus, malabathrum p.  $\times$ . v. Illyrian orris, and gum, of each p.  $\times$ . II. anise p.  $\times$ . III. Gallic nard, dry rose-leaves, cardamom, of each p.  $\times$ . IV. parsley p.  $\times$ . IV. = = . of trifolium p.  $\times$ . v. of black cassia, of silis, bdellium, of balsam seed, of white pepper, of each p.  $\times$ . v. = = . of styrax p.  $\times$ . v. = = . myrrh, opopanax, Syrian nard, male thus, juice of hypocistis, of each p.  $\times$ . VI. of castor p.  $\times$ . VI. costum, white pepper, galbanum, turpentine-resin, saffron, flowers of round cyperus, of each p.  $\times$ . VI. = = . of liquorice-root p.  $\times$ . VIII. = = . mixed up with honey or passum.

2. There is another, which Zopyrus is reported to have composed for king Ptolemy, and to have called ambrosia ; the following are the ingredients : of costum, male thus, of each p.  $\times$ . v. white pepper p.  $\times$ . = . flowers of round cyperus p.  $\times$ . II. cinnamom p.  $\times$ . III. black cassia p.  $\times$ . IV. Cilician saffron p.  $\times$ . IV. = . myrrh, which they call *στακτῆν* (staktēn), p.  $\times$ . v. Indian nard p.  $\times$ . v. = . : these are powdered and incorporated with boiled honey ; afterwards, when used, a quantity equal to the size of an Egyptian bean is dissolved in a draught of wine.

3. But the most celebrated of all is that of Mithridates, which was taken daily by that monarch, to render his system proof against poison : it contains of costum p.  $\times$ . z. = . of acorus p.  $\times$ . v. of hypericum, gum, sagapenum, acacia-juice, Illyrian orris, cardamom, of each p.  $\times$ . II. anise p.  $\times$ . III. Gallic nard, gentian-root, dry rose-leaves, of each p.  $\times$ . IV. opium, parsley, of each p.  $\times$ . IV. = . cassia, silis,

polium, long pepper, of each p. ℥. vi. styrax p. ℥. v. =. castor, thus, juice of hypocistis, myrrh, opopanax, of each p. ℥. vi. leaves of malabathrum p. ℥. vi. flowers of round cyperus, turpentine-resin, galbanum, seed of the Cretan carrot, of each p. ℥. vi. =. of nard, opobalsam, of each p. ℥. vi. =. of thlaspis p. ℥. v. =. Pontic root p. ℥. vii. of saffron, ginger, cinnamon, of each p. ℥. viii. These, when powdered, are incorporated with honey, and against poison, as much as equals the bulk of an almond is given in wine: but in other affections, the bulk of an Egyptian bean, or a vetch, according to their violence.

XXIV. 1. ACOPA are also good for the nerves: such is that which is made with flowers of round cyperus p. ℥. ii. =. of costum, juncus quadratus, laurel-berries, ammoniacum, cardamom, of each p. ℥. iv. =. of myrrh, calcined copper, of each p. ℥. vii. Illyrian orris, wax, of each p. ℥. xiv. Alexandrian reed, round cyperus, aspalathum, xylobalsam, of each p. ℥. xxviii. suet p. i. orris ointment a cyath.

2. There is another, which they call *εὐώδες* (euōdes), prepared in this manner: wax p. =. oil just as much, of turpentine-resin as much as equals the size of a walnut, are boiled together: they are then powdered in a mortar, and an acetabulum of the best honey is from time to time instilled: and afterwards three cyaths of orris ointment, and rose-oil.

3. But the Greeks denominate the liquid preparations *ἔγχριστα* (enchrista): there is one of this kind for cleansing and filling up ulcers, and particularly those situated near tendons; it consists of equal parts of butter, veal-marrow, veal-suet, goose-fat, wax, honey, turpentine-resin, rose-oil, and oil of castor: these are all separately dissolved, then mixed in a liquid state, and afterwards rubbed together. This last is more of a cleansing nature, but it is rendered emollient by substituting oil of cypress for rose-oil.

4. As an application for herpes, litharge p. ℥. vi. calcined ox-horn p. ℥. xii. are rubbed together, adding by turns wine properly so called, and myrtle wine, until the two make up three cyaths.

XXV. 1. There are also many boluses prepared to fulfil various indications. Such as alleviate pain by procuring sleep they call *ἀνώδυνα* (anōduna): TO USE ANODYNES, EXCEPT IN URGENT CASES, IS BAD PRACTICE, for they

are composed of powerful medicines, and of such as are injurious to the stomach. There is one, however, which even promotes digestion; it contains of opium, galbanum, of each p.  $\times$ . I. myrrh, castor, pepper, of each p.  $\times$ . II.; of these, a portion equal to the bulk of a vetch is sufficient for a dose.

2. There is another, more efficacious for producing sleep, but more offensive to the stomach; it is made from mandrake p.  $\times$ . =. apium seed, and seed of henbane, of each p.  $\times$ . IV. bruised up with wine, and taken in the dose above mentioned.

3. But in head-ache, ulcerations, lippitude, tooth-ache, dyspnœa, ileus, inflammation of the womb, pains of the hip, or liver, or spleen, or side, or in case of any female falling into a fit of hysteria, and losing her speech, a bolus like that which follows, aided by repose, remedies the evil. Of silis, acorus, wild rue-seed, of each p.  $\times$ . I. castor, cinnamon, of each p.  $\times$ . II. of opium, root of panaces, dried mandrake apples, flowers of round cyperus, of each p.  $\times$ . III. pepper gr. LVI. These, having been separately powdered, are again rubbed all together, passum being from time to time dropped in, till the consistence be that of sordes. A small quantity is either taken as a bolus, or diluted with water, and given in the form of draught.

4. Moreover, a handful of the papaver sylvestris, when it is just ready for collecting its tear, is put into a vessel, and as much water poured thereon as suffices to cover it; and it is thus boiled. When this handful has been thoroughly boiled, its juice having been expressed into the same vessel, the refuse is rejected; with this juice, a like quantity of passum is mixed, and allowed to boil until it acquires the consistence of sordes. After it has cooled, boluses are made of it, as large as our native bean; their use is multifarious. For they procure sleep, whether taken alone or with water: with the addition of a small portion of rue-juice and passum they alleviate ear-ache: dissolved in wine they check dysentery: mixed with cerate, prepared from rose-oil, with the addition of a little saffron, they check inflammation of the womb: and applied to the forehead, with water, they stop a flux of humour in the eyes.

5. Also, when pain of the womb prevents sleep, a mixture is formed of saffron p.  $\times$ . = =. of anise, myrrh, of each p.  $\times$ . I. of opium p.  $\times$ . III. of hemlock-seed p.  $\times$ .

VIII. ; these are mixed and made into a mass with old wine, and a quantity equal to a lupine is dissolved in three cyaths of water. This, however, cannot be given safely when there is fever.

6. To heal the liver, nitre p.  $\times$ . = . saffron, myrrh, Gallic nard, of each p.  $\times$ . I. are incorporated with honey; the bulk of an Egyptian bean suffices for a dose.

7. To cure pleurisies, a mass is formed from equal parts of pepper, birthwort, nard, and myrrh.

8. For pains of the thorax, nard p.  $\times$ . I. thus, cassia, of each p.  $\times$ . III. myrrh, cinnamon, of each p.  $\times$ . VI. saffron p. VIII. turpentine-resin a quadrant, honey three hemina.

9. For a cough, there is Athenion's : of myrrh, pepper, of each p.  $\times$ . I. castor, and opium, of each p.  $\times$ . I. ; these having been separately bruised, are afterwards incorporated, and two boluses of the size of our own country-bean are administered in the morning and two at bed-time.

10. If cough produce watchfulness, the bolus of Heraclides the Tarentine will relieve both : of saffron p.  $\times$ . = . myrrh, long pepper, costum, galbanum, of each p.  $\times$ . = . cinnamon, castor, opium, of each p.  $\times$ . I.

11. But when ulcers in the fauces of patients labouring under cough require cleansing, a mixture is to be made by triturating together panaces, myrrh, turpentine-resin, of each an ounce, galbanum p.  $\times$ . = . hyssop p.  $\times$ . = . to these a hemina of honey should be added, and as much as can be taken up on the finger is to be swallowed.

12. The colice of Cassius is made as follows : of saffron, anise, castor, of each p.  $\times$ . III. parsley p.  $\times$ . IV. long and round pepper, of each p.  $\times$ . V. opium, round cyperus, myrrh, nard, of each p.  $\times$ . VI. incorporated with honey. It may either be swallowed as a bolus, or taken in warm water.

13. Sal-ammoniac p.  $\times$ . I. or dittany of Crete p.  $\times$ . I. taken in a draught of water, expels a dead fœtus, or the secundines.

14. In difficult labour hedge-mustard should be given in warm wine, on an empty stomach.

15. The voice is strengthened by p.  $\times$ . I. of thus given in two cyaths of wine.

16. In strangury : long pepper, castor, myrrh, galbanum, opium, saffron, costum, of each an ounce, styrax, turpentine-resin, of each by weight a sextant, of honey and of wormwood-seed, of each a cyath : of this mixture as much



as equals the bulk of an Egyptian bean ought to be given in the morning and after supper.

17. Arteriace is thus prepared: of cassia, orris, cinnamon, nard, myrrh, olibanum, of each p. ℥. i. saffron p. ℥. i. ℥. and thirty grains of pepper are boiled down with three sextarii of passum, to the consistence of honey; or saffron, myrrh, olibanum, of each p. ℥. i. are thrown into the same quantity of passum, and boiled down in a similar way: or three heminæ of passum are boiled, until, on taking out a drop, it is observed to harden spontaneously: to this is added p. ℥. i. of powdered cassia.

XXVI. 1. Now that I have recounted the properties of medicines, I shall mention the kinds of injury to which the body is liable. These are five: lesion from without, as in wounds: local corruption internally, as in gangrene: local accretion, as in calculus of the bladder: enlargement; of a vein, for example, thus converted into a varix: and local defect, as when a part is maimed.—Of these there are some in which medicinal applications, others in which manual operations prove most useful. Therefore, postponing the consideration of those which chiefly demand the knife and the hand, I shall, for the present, speak of such as require medicaments.

I shall arrange this department of treatment as I did a former one; first treating of those kinds which may befall any part of the body, and next of those which infest particular parts. I shall commence with wounds.

Now in these the physician ought above all things to be able to distinguish what are incurable, what difficult, and what are easy of cure. For, in the first place, a prudent man will not meddle with a patient whose recovery is impossible; nor take upon himself the odium of having killed one, whom his own destiny has carried off: and in the next place, when the case is very dangerous, although not altogether desperate, he will seasonably apprise the patient's friends that the difficulty is considerable; lest, in the event of the malady prevailing over art, he may appear to be ignorant, or to have practised deception. But although this is a line of conduct worthy a prudent man, so, on the other hand, TO GIVE UNDUE IMPORTANCE TO A TRIVIAL CASE, THAT ONE MAY SEEM TO HAVE ACCOMPLISHED WONDERS, IS TO PLAY THE PART OF A MOUNTEBANK. It is but just that our acknowledgment of the simplicity of a

case should act as a stimulus to circumspection, lest that which is in itself trivial, become serious through the neglect of the medical attendant.

2. Death is the necessary consequence of wounds of the base of the brain, the heart, the œsophagus, the portæ of the liver, and the spinal marrow; so likewise of wounds in the middle of the lungs, jejunum, ilium, the stomach, or kidneys; or after division of the great veins and arteries about the throat.

3. Persons are rarely cured after wounds in any part of the lungs; in the thick part of the liver; in the investing membrane of the brain; in the spleen, or womb, or bladder, or in any intestine, or in the diaphragm. They are also in jeopardy, in whom the point of the weapon has penetrated the deep-seated large vessels of the arm-pits and hams. Wounds near large vessels are also dangerous wherever situated, because they may exhaust by hæmorrhage: this occurs not merely in the arm-pits and hams, but also in those vessels which go to the anus and testicles. Moreover every wound in the arm-pits or inner thighs, in cavities, or in joints, or between the fingers and toes, is bad:—also any wound attended with lesion of a muscle, or nerve, or artery, or membrane, or bone, or cartilage. Flesh wounds are the safest.

4. These are, moreover, of a severer or milder character, according to their situation: but every extensive wound carries danger with it.

5. Something there is too in the sort and figure of the wound: for that which is contused, is worse than a simple incision; and hence it is better to be wounded by a sharp weapon than a blunt one.

A wound is likewise worse where there is loss of substance, or where the flesh is cut away in one part, and hangs pendulous in another. Circular wounds are the worst; rectilinear the safest. The danger is greater or less according as the wound approximates to the former, or latter of these two figures.

6. Age, temperament, manner of living, and the season of the year, also render the treatment of wounds more or less difficult: an infant, or adult, recovers more rapidly than one advanced in years; a robust more rapidly than an infirm subject; one neither too thin nor too plethoric, than one who happens to be either of these; a sound habit,

sooner than one corrupt; an active, sooner than a lazy person; one sober and chaste, sooner than one addicted to wine and women. Spring, or at all events that weather which is neither hot nor cold, is the most favourable for their cure: for an excess, whether of heat or cold, is hurtful to wounds; but especially the vicissitudes of these; and hence autumn is the most pernicious.

7. Most wounds are exposed to our view, and their situations are thus self-evident, as we have elsewhere shewn, in describing the situations of internal parts. Nevertheless, because there are some which have a strong resemblance, and it is of importance whether a wound is superficial, or whether it has penetrated deeply, it is necessary to subjoin the characteristic marks by which we may tell what part is wounded, and whether the case be hopeful or desperate.

8. To begin then: in a wound of the HEART there is great hæmorrhage; the vessels are collapsed, the complexion pale; there are cold dew-like sweats, of a disagreeable odour; and the extremities becoming cold, death soon follows.

9. When the LUNG is wounded, the breathing is embarrassed; blood is discharged, frothy by the mouth, florid from the external wound, and with a sonorous puffing of air: the patient likes to lie on the wound: some rise up in a state of delirium: many are able to speak if lying on the wound; if on the opposite side, they remain dumb.

10. The signs denoting wounds of the LIVER are profuse hæmorrhage just below the right side of the præcordia; the præcordia drawn in towards the spine; the relief afforded by lying on the belly; prickings, and intense pains striking up to the clavicle and scapula; to which, sometimes, bilious vomiting also accedes.

11. When the kidneys are wounded, there is a pain descending towards the groin and testicles; the urine is voided with difficulty, and is cruentate, or blood itself is discharged.

12. In a wound of the spleen, dark blood issues forth from the left side; at the same part, the præcordia and stomach become indurated; great thirst arises, and the pain shoots towards the clavicle, as in wounds of the liver.

13. But when the womb is wounded, the pain is felt in the groins, hips, and inner part of the thighs; the blood de-

scends partly through the wound, and partly by the vagina : bilious vomiting ensues ; some lose the power of speech ; some their reason ; some, who retain self-possession, declare they are oppressed with pain of the nerves and eyes ; and in dying, their sufferings are the same as in a case of wound of the heart.

14. But if the BRAIN or its membrane receives a wound, blood flows by the nostrils, and, in some cases, by the ears ; most usually, bilious vomiting accrues ; with some, there is a loss of sense, and when called, they are not cognisant ; the countenance of some is fierce ; the eyes appear, so to speak, to have lost the power of self-control, and are moved to and fro ; and, generally, on the third or fifth day, delirium supervenes ; many are convulsed ; before death, most of them tear off the bandages with which their heads are bound up, and expose them to the cold.

15. After wounds of the GULLET there is hiccough and vomiting ; if any food or drink be ingested, it is immediately rejected ; the pulse becomes languid ; watery sweats come on, and the extremities consequently become cold.

16. Now, the symptoms denoting wounds of the JEJUNUM, and those denoting a wound of the STOMACH, are alike ; for the meat and drink escape through the wound, the præcordia become hard, and bile is sometimes discharged by the mouth ; but the jejunum is situated below the stomach. The other intestines, when wounded, emit either fæces, or fæcal odour.

17. Wounds of the spinal MARROW are followed by paralysis, or convulsions ; there is loss of sense, and the semen, urine, and even the fæces, are shortly afterwards discharged involuntarily.

18. But, if the DIAPHRAGM be wounded, the præcordia are drawn upward : the spine is painful ; respirations few ; and frothy blood is discharged.

19. In wounds of the BLADDER there is pain of the groins ; tension over the pubic region ; instead of urine, there is a discharge of blood, while urine issues from the wound : the stomach is affected, and therefore there is either vomiting or hiccough ; thereupon ensues coldness, and afterwards death.

20. Having gained a knowledge of these matters, others yet remain to be learned, relating to all kinds of wounds and ulcers, of which we are about to treat. Now the com-

mon discharges from these are blood, sanies, and pus. The characters of blood are known to all; sanies is thinner, of various consistence, glutinous, and coloured; pus is very thick and white, and more glutinous than blood or sanies. **BLOOD PROCEEDS FROM A RECENT WOUND, OR FROM ONE JUST BEGINNING TO CICATRIZE; SANIES IN THE INTERVAL BETWEEN THESE TWO PERIODS; PUS FROM AN ULCER IN A HEALING CONDITION.** Furthermore, both sanies and pus are subdivided into certain species expressed by terms from the Greek. For there is one kind they call *ἰχώρ* (ikōr) or *μελίκηρα* (melikēra); and one which is called *ἐλαιῶδες* (elaiōdes). Ichor is thin and whitish, and proceeds from a bad ulcer, especially where inflammation has ensued upon a wounded nerve. Melicera is thicker, more glutinous, whitish, and somewhat like pale honey. This also proceeds from ill-conditioned ulcers, where nerves have been wounded in the vicinity of joints, especially the knees. That called *ἐλαιῶδες* appears in extensive healing ulcers; it is thin, whitish, unctuous, and from its colour and fatty quality not unlike white oil.

That blood which is too thin, or too thick, of a lurid or black colour, or mixed with pituita or particoloured, is ill-conditioned: the best is that which is hot, red, moderately thick, and not glutinous. Hence, even from the first, a wound emitting healthy blood is more easy of cure; and in the after-stages the prognosis is more favourable in those which yield discharges of a healthy character. Now that sanies which is copious, excessively thin, livid, or pale, or black, or glutinous, or fetid, or that which corrodes the ulcer itself and circumjacent skin, is unhealthy: that is better which is scanty, moderately thick, reddish, or inclining to white. But ichor is bad when copious, thick, inclined to livid or palish, glutinous, black, hot, and fetid; it is more favourable when inclined to white and possessing the other contrary qualities. Melicera is bad when copious and extremely thick: better when thinner and less abundant. Pus of a consistence between these two is the best: while that which is abundant, thin, and diluted, is of a bad quality, particularly if it have been so from the beginning; and also if its colour resemble serum; if it be pallid, livid, or fæculent; furthermore, if it be fetid, unless the odour be natural to the part. The more scanty, the more thick, and the whiter it is, the more favourable: and also if smooth, in-

odorous, uniform. It ought, however, to be in quantity proportionate to the size and age of the wound: for naturally more is discharged from a larger wound, or while inflammation is still existing. Ἐλαιῶδες (elaiōdes) also is much the worse for being copious and meagre; the more scanty and fatty it is, the better.

21. Due attention being paid to these matters, when a person has been wounded, but not desperately, one should immediately take precautions against two consequences; fatal hæmorrhage, or fatal inflammation. If the hæmorrhage be alarming, which may be known by the situation and size of the wound, and from the violence of the bleeding, the wound is to be filled with dry lint, and a sponge squeezed from cold water is to be pressed firmly on it by the hand.

If the bleeding do not subside by these means, the pledgets are to be frequently changed, and if not sufficiently powerful whilst dry, they are to be moistened with vinegar. This last is a powerful agent for suppressing hæmorrhage; and on that account some pour it into the wound. But here again it is to be feared that the matter being powerfully retained there, may subsequently produce high inflammation. It is this which prevents one using corrosives, or those applications which by their caustic quality induce an eschar, although most of them check hæmorrhage: however, if one in a way we do have recourse to such, the mildest are preferable. But should these means fail also, the bleeding vessels should be taken up, and ligatures having been applied above and below the wounded part, the vessels are to be divided in the interspace; that thus they may retract, while their orifices yet remain closed. When the case does not even admit of this measure, the vessels should be cauterized. Although the loss of blood may have been considerable from a part destitute of nerve or muscle, (as in the forehead or vertex,) it is, nevertheless, very expedient to apply a cucurbital to an opposite part, to counter-derivate the stream.

22. Such then are our means for checking hæmorrhage when excessive; although, to prevent inflammation, it is best to allow the wound to bleed. Now inflammation may be apprehended when injury has been done to bone, nerve, cartilage, or muscle; or when the hæmorrhage has been scanty in proportion to the size of the wound. Under either of these circumstances, one ought not prematurely to stop

the blood; but to suffer it to flow within the limits of safety; nay, if it appear too scanty, one may even bleed in the arm; especially in a system that is young, robust, and used to exercise; and this is much more expedient if inebriety have preceded the wound.

But if a muscle be observed to be wounded, it must be cut completely through: for when partially wounded, it is followed by fatal consequences; completely divided, it admits of cure.

23. After having checked the bleeding, if excessive, or drawn more blood, if enough should not have flowed spontaneously, it is by far best that the wound be agglutinated. This may be accomplished in wounds in the skin; or even in those of the flesh, provided they are not followed by any other untoward occurrence: so also in flesh hanging loose, but still attached, provided it remain sound, and it be nourished through the medium of such attachment. There are two methods of treating wounds which admit of agglutination: for, if the wound be in a soft part it ought to be sewed; and especially in wounds of the lower part of the ear, or nose, and those of the forehead, cheek, eyelids, lips, skin about the throat, or belly. If the wound is in the flesh, and the edges gape so wide as not to be easily approximated, suture is useless: but clasps (called in the Greek ἀγκτῆραι (anktērai)) are to be placed over the wound, in order to draw the lips somewhat closer, and thus lessen the width of the subsequent cicatrix. Hence it may be learnt whether a flap pendulous, but yet attached and in a sound state, requires the suture or the clasp. Of these neither ought to be employed until the internal surface of the wound has been cleansed, lest clotted blood be left there. For it becomes converted into pus, and by exciting inflammation impedes the agglutination of the wound. Not even the lint, which has been introduced to check the bleeding, should be allowed to remain there: for that also inflames it. It will be necessary not merely to include the skin in the suture or fibula, but if any, some portion of the subjacent flesh likewise; that it may have a better hold, and not break through the skin. Both are preferably made of soft thread, not too much twisted, so that they may stay in without exciting irritation. The stitches in both are not to be too far distant, nor too near. If at too great distance, they will not hold: if too near, they produce serious effects; because the

oftener the needle pierces the substance, and the more numerous the points irritated by the thread, so much the higher is the inflammation; and especially in summer. In the use of either of these, no greater force should be employed than just sufficient to draw the skin forwards, without putting it on the stretch. Now the fibulæ usually allow of the wound remaining open: the suture approximates the edges; but to insure a vent for any humour that may be collected, these ought not to touch quite close. If the wound admit not of either of these, it ought, nevertheless, to be cleansed. Afterwards over wounds of all kinds, one ought in the first place to apply a sponge squeezed out of vinegar; or if the vinegar prove too strong, wine may be used. In a slight wound some benefit is also derived from the application of a sponge expressed from cold water. But that, in whatever way applied, is only useful so long as it remains moist; therefore it should not be allowed to grow dry.

One may cure a wound without the use of exotic, and expensive and complex medicaments. But if one have not confidence in this simple method, he ought to apply a composition, prepared without suet, from any of those articles which I have mentioned to be proper for green wounds: if in the flesh, particularly that called barbarum; if in the nerves, or cartilage, or any prominent parts such as the ears or lips, the sphragis of Polybus. The green Alexandrian is also suited to the nerves; and, for the prominent parts, which the Greeks call *ράπτουσαν* (raptousan).

It is common also in bruises for the skin to be a little broken. Now when this happens, it is not improper to dilate it with a lancet, unless muscles and nerves be in juxtaposition, for these ought by no means to be cut: when the wound has been sufficiently dilated, the dressing should be applied. But when a contused wound requiring dilatation cannot be enlarged, and this measure is rendered impracticable on account of the vicinity of nerves or muscles, those medicines should be applied which gently draw forth the humour; and especially that which I mentioned to be called *ρुπῶδες* (rupōdes). Neither is it inexpedient in severe wounds, to surround the part with succid wool moistened with vinegar and oil; or if in soft parts, with a gently repressing poultice; if nervous or muscular, with an emollient one.

24. The very best bandage for a wound is a linen roller;



and this ought to be wide, so that one turn of it may cover not only the wounds, but include somewhat of the circumjacent parts on both sides. If the flesh be retracted more to one side, it is better to draw the roller from that direction: if equally on both sides, it ought to include the lips transversely; or if the nature of the wound will not admit of this, the middle of it is first to be applied, that it may afterwards be rolled from both directions. It should be bound tight enough to give support, without stopping the circulation. If it fail to give firm support, it will slip off: if too tight, there is danger of gangrene. One ought to roll more bandage round the wound in winter; in summer no more than is absolutely necessary: the end of it should be stitched with a needle and thread, for a knot hurts the sore, unless it be at some distance from it.

It is fit that no one be ignorant, that the viscera above mentioned demand a distinct method of treatment. For an external wound is to be treated by external means, whether by sewing, or by any other kind of remedy. With regard to the viscera, nothing is to be disturbed; although, in the event of some portion of the liver, spleen, or lung hanging by a small attachment, it may be cut away. With this exception the same regimen and the same medicines are applicable for the cure of an internal wound, as in a former book I mentioned to be suited to each of the viscera.

25. Such measures having been adopted on the first day, the patient is to be put to bed, and if his wound be severe, he ought, before inflammation sets in, to practise abstinence to the utmost his strength will permit; to drink hot water till he has quenched his thirst; or even cold water, if in summer, and neither fever nor pain be present. However, one can lay down no universal precept, but must always be regulated by the strength of the system; so that excessive weakness may render food necessary from the very first; that is to say, such as is meagre and in small quantities, so as to be barely sufficient to support life. So, again, there are many who, when sinking from hæmorrhage, require to be supported with wine, before any other means can be adopted; which is otherwise exceedingly hurtful to a wound.

26. Excessive tumefaction in a wound is dangerous; the absence of tumefaction is dangerous to the last degree: the former is a proof of high inflammation; the latter, of a sys-

tem dying from exhaustion. One may know, at an early period, that a wound will maturely heal, provided the senses are retained, and no fever accedes. Nor ought we to be alarmed even though fever should continue throughout the inflammatory stage, accompanying a large wound. That, however, is dangerous which either supervenes upon a slight wound, or outlasts the inflammation, or excites delirium: or when it does not put an end to a tetanus, or to convulsions, which have supervened on a wound. Involuntary bilious vomiting also, either occurring immediately after a wound, or during the stage of inflammation, is an unfavourable symptom in those persons only in whom nerves or nervous structure has been wounded. It is not bad practice to elicit vomiting; especially with those who make this their custom: but, then, it must neither be done directly after a meal, nor when inflammation has just commenced, nor when the wound is in the superior parts.

27. The wound having been thus treated for two days, on the third it requires to be opened, and the sanies having been washed away with cold water, the same dressings are to be introduced. On the fifth day the inflammation is at its height. Then it is that, uncovering the wound, it becomes our duty to consider its colour: if livid, or pale, or varicoloured, or black, one may know that it is a bad wound; and whenever such an appearance is noticed, there is just ground for alarm. It is most favourable that a wound be white or ruddy. A hard, thick, painful skin denotes danger; but when it is free from pain, thin, and soft, it is a good sign. But if the wound be agglutinated, or if it be but slightly swollen, the same applications are to be continued as were first employed: if the inflammation be severe, and there be no hope of agglutination, suppuratives are to be applied. And now also hot water becomes useful, that it may dissipate the matter, mollify the hardness, and excite the pus. Its temperature should be so regulated that it may be agreeable to the hand; and its use persisted in till it appears to have diminished the swelling, and to have rendered the sore of a healthier colour. After the fomentation, if the wound be not very wide, a plaster should be applied immediately; and, if a large wound, the tetrapharmacum in preference; if in the joints, phalanges, or cartilaginous structure, the rhyodes; but if of considerable width, this same plaster ought to be dissolved in orris-oil, and to be applied

spread on lint over the wound; then, over that the plaster, and next the sordid wool, the bandages being now bound less tight than at first.

28. There are some peculiarities demanding our notice with respect to joints. In these, if their connecting strings have been divided, there follows a weakness of the part. If that be doubtful, and the wound have been inflicted with a sharp weapon, it is more easy of cure when in a transverse direction; if with a blunt and heavy instrument, the figure of it makes no difference; but we are to notice whether the pus forms above the joint, or below it. If below, and it is discharged for a long time white and thick, it is probable that a nerve has been divided; and this probability is increased in proportion to the severity of the pains and inflammation, and their earlier development. But even though the nerve be not divided, yet, if the surrounding tumescence continue for a long time, the ulcer will necessarily be long in healing; and even when healed, the swelling will remain: the result of which will be that the motions of extension and flexion in the limb will be retarded. The power of extension is recovered more slowly after the joint has been kept bent, than that of flexion in a limb which has been preserved straight throughout the whole course of the cure. The position of the injured limb also requires some method, for if agglutination be our object, it should be elevated: when in the inflammatory stage, it should not be inclined either way; when the pus has begun to flow, it should be in a depending posture. Rest is also an excellent remedy; for motion and walking are only proper for people in health. These, however, are not so pernicious to such as have received wounds in the head, or arms, as they are to those who have been wounded in the lower extremities. Furthermore, walking is least suited to wounds of the thigh, leg, or foot. The patient's chamber should be warm. Bathing, before the wound is pure, is one of the very worst things that can be done: for it makes it humid and foul, and then gangrene is usually the consequence. Gentle friction is an appropriate means of cure: but it must be employed in those parts which are situated a considerable distance from the wound.

29. After the subsidence of inflammation the wound is to be cleansed. Lint steeped in honey, is the best application for this purpose: and over it, the plaster mentioned before,

or the enneapharmacum. An ulcer may be considered pure, when it has become red, and is neither too moist nor too dry. But all ulcers are impure which are devoid of sensibility, or have morbid feelings, and which are either too dry, or too moist; or white, pale, livid, or black.

30. After having obtained a clean wound, then follows the process of incarnation. And now hot water becomes useful so far as it contributes to detach the sanies. Succid wool is at this time improper: it is better to surround the wound with such as has been washed. Now, as there are certain applications which act as incarnants, it will not be amiss to employ them; as for example, butter with rose-oil and a small portion of honey, or tetracharmacum with the rose-oil, or lint steeped in the same: nevertheless a moderate use of the bath, and the allowing a generous, and at this stage, a more plentiful diet, while at the same time all acrid substances are excluded, prove much more beneficial. So that now birds, and venison, and boiled pork may be given. Wine in all cases is improper, so long as there is fever or inflammation: nay, if the nerves or muscles have been wounded, or even the flesh deeply, it is inadmissible throughout, even to the stage of cicatrization. But if the wound be free from danger, and merely skin-deep, wine given in moderation, provided it be not very old, may also promote the incarnation. If a part be required to be mollified, which is necessary in nervous and muscular structures, one should also apply cerate upon the wound. But to repress a superfluous growth of flesh, dried lint, or, what are stronger, copper scales are useful. If more luxuriant, corrosives still more powerful are to be employed. After all these means, lycium diluted with passum, or with milk, or even dry lint of itself, is a convenient means of effecting cicatrization.

31. Such, then, are the gradations of the healing process when favourable. But certain untoward circumstances are by no means unusual. Sometimes an ulcer having become chronic, acquires a callous surface with thick edges; and when this state is established, the dressings are of little service: this is most commonly the result of negligent treatment: for some times, either from excessive inflammation, or from immoderate heat, or from severe cold, or from too tight bandaging, or from old age, or from a bad habit of body, gangrene ensues. This affection is divided by the

Greeks into species, but not so in our language. Now every gangrene not only corrupts the part on which it first seizes, but uniformly extends itself; and can then be discriminated by symptoms which are various. For sometimes a redness with inflammation surrounds the ulcer, and is painful and spreading; the Greeks call it *έρυσιπέλας* (*eruspelas*.) Sometimes the ulcer is black from the flesh being corrupted, and that, when the sore is moist, and there is pale and fetid fluid distilling from it, becomes aggravated by the process of putrefaction; so that portions of dead flesh, nay, even nerves and membranes, are detached; and the probe, when introduced, descends either laterally or directly downwards: the bone also is sometimes vitiated. Sometimes the affection is of that kind which the Greeks call *γάγγραιναν* (*gangrainan*.) The first species occurs in all parts of the body; the last in the prominent parts, that is to say, the nails, arm-pits, or groins; and usually, in elderly subjects, or in such as are of a cachectic habit. THE ULCERATED FLESH IS BLACK OR LIVID, DRY AND WITHERED; THE SKIN IMMEDIATELY ADJACENT IS GENERALLY COVERED WITH DARK PUSTULES; THEN THE CIRCLE NEXT TO THIS IS PALE, OR LIVID, AND USUALLY WRINKLY AND INSENSIBLE; AND BEYOND THIS THERE IS A CIRCLE OF INFLAMMATION: ALL THESE ADVANCE SIMULTANEOUSLY; THE ULCER ENCREACHING PASSES ON TO THE PUSTULOUS PART, THE PUSTULES TO THAT WHICH IS PALE OR LIVID, THE PALLOR OR LIVOR TO THAT WHICH IS INFLAMED, AND THE INFLAMMATION TO THE SOUND SKIN. During these symptoms high fever arises, together with intense thirst, and, in some cases, delirium: those who retain their senses stammer in their speech, and are scarcely intelligible: the stomach begins to be affected; the breath becomes fetid. Although this disorder is curable at its commencement, yet, when thoroughly rooted, medicine is of no avail, and most commonly the patient dies in a cold sweat.

32. Such are the dangers attending wounds. But an old ulcer should be scarified with a scalpel, and its edges cut away, and incision should be made likewise in the livid part beyond these. If there be a small varix in it which impedes the cure, that too is to be cut out. Then, when blood has been emitted, and the sore has thus been converted into a green wound, the same curative means are

to be employed as in other recent wounds. If one be unwilling to use the knife, the ladanum plaster may perhaps restore it to a healthy condition; and, when the old ulcer has been eaten away, that which promotes cicatrization.

33. That affection, which I stated to be called *έρυσιπέλας*, (*eruspelas*,) not only supervenes upon a wound, but occurs without one, and sometimes carries with it considerable danger; especially if it fix itself near the neck or head. If the strength permit, it will be expedient to let blood: the next measure is to apply poultices at once repressing and refrigerating; particularly ceruse with the juice of nightshade, or Cimolian chalk mixed up with rain-water, or flour incorporated with the same, to which may be added cypress, or, if the part be tender, lentils. Whatever is employed should be covered with a beet-leaf, and laid upon a piece of linen rag moistened with water. If refrigerants are not sufficiently efficacious alone, a mixture is to be made as follows: of sulphur p. ℥. i. ceruse and saffron, of each p. ℥. xii. s.; these are to be triturated together with wine, and used as an unction: or, if the part be less tender, the powdered leaves of nightshade are to be mixed with hogs-lard, and applied over the part spread on linen. But if there be a blackness which has not yet begun to spread, mild corrosives are to be applied; and the ulcer, when clean, is to be nourished as in any other case. When there is a higher degree of putrescency, and it advances and spreads, more powerful corrosives are necessary. If these fail to subdue the malady, the part ought to be cauterized until moisture no longer flow from it; for sound flesh when burnt becomes dry. After the cauterization of a putrid ulcer such applications are to be used as may detach the sloughs, or eschars, as the Greeks call them. When these shall have fallen off, the ulcer must be cleansed, and that, preferably, by honey and resin: although it may also be deterged by other medicines used for dressing suppurating surfaces, and healed by the same method.

34. When gangrene has not as yet manifestly taken possession, but is only incipient, it is not very difficult to cure it; especially in a young subject; and the chances are still more favourable if the muscles be sound; if there be altogether no, or only slight lesion of the nerves, and neither of the large joints denuded; or if the diseased part be not fleshy, and consequently have but little substance that

can become putrid ; and if the malady be stationary, which it mostly is when occurring in the finger. In this disease the first thing to be done, if the strength permit, is to let blood : after that, entirely to cut away such parts as are arid, and disposed to implicate the surrounding surface, as far as to the sound parts. While the disease is extending itself, no suppurative applications should be employed, and, therefore, not even hot water. Heavy dressings also, although repressing, are improper ; the lightest ought to be employed ; and for the inflamed part we ought to use refrigerants. If the disease still spread, the line between the sound and diseased part should be cauterized : and in gangrene especially, we are to derive our aid not merely from medicaments, but from regimen also ; for this malady never occurs, save in a corrupt and vitiated habit. Hence, at an early period, unless weakness prohibit, abstinence should be practised : then we ought to administer, in the form of food and drink, such articles as tend to brace the alimentary canal, and thus, secondarily, the whole system likewise ; such articles should be of a light quality. Afterwards, if the affection become stationary, the same applications are requisite as have been prescribed for a putrid ulcer. And then also a fuller diet of the middle class is admissible, provided it consist of such articles as have a drying effect both on the bowels and the entire body : and the drink should be cold rain-water. Bathing, unless convalescence be no longer doubtful, is injurious : because the wound softened by this means is attacked with a renewal of the same malady. It not unfrequently happens that all remedies prove unavailing, and the gangrene spreads in spite of opposition : when it comes to this, there is still one sad, solitary remedy — amputation of the perishing limb for the safety of the body corporate.

35. Such is the treatment of the severest wounds. Nor ought those to be neglected in which the internal flesh is bruised, while the integument remains entire ; or such as are grazed, or attended with loss of substance ; or those proceeding from a splinter fixed in the flesh ; or when though the wound is small, it is nevertheless deep. In the first case the best plan is to boil pomegranate bark in wine, to triturate its inner portion, and, having mixed it with a cerate made with rose-oil, to lay it over the part : then, for a rase of the skin, one should use some mild application, such

as lipara. But when there is not merely excoriation, but loss of substance, the tetrpharmacum plaster ought to be applied, the quantity of the food diminished, and wine relinquished. Wounds of this kind, although superficial, are not to be treated lightly, for they often give rise to gangrene. Still, however, when slight and of small extent, we may rest satisfied with the mild application just mentioned. It is our duty to extract a splinter, if possible, either by the hand, or with a forceps. If it be broken, or if it have penetrated too deeply to admit of extraction, it must be drawn out by a medicinal application. The root of a reed answers best as a drawing application, bruised at once without preparation, if soft; but if hard, previously boiled in mulse; to this honey should invariably be added; or birthwort with honey. The worst splinter is that of a reed, because it is rough: and there is the same mischievous property in the fern likewise: but experience has shewn that each of these, bruised and applied externally, is a remedy against the effects of the other. All medicines which have a drawing quality, exert that power also against all kinds of splinters: such remedies are very well adapted for deep and small wounds. Philocrates' plaster is the best for the former case; that of Hecateus for the latter.

36. In wounds of every kind when it is our object to promote cicatrization, (a process which becomes necessary after the ulcers have been thoroughly cleansed, and incarnated,) we are first to apply lint dipped in cold water, so long as granulation requires to be promoted; afterwards, when our object is to restrain it, the lint is to be put on dry, until the cicatrix be induced: it will then be proper to bind over it white lead, to keep down the cicatrix, and to assimilate its colour to that of the healthy integument. Wild cucumber root has the same virtue so also a composition containing of elaterium p. ℞. I. of litharge p. ℞. II. of simple unguent p. ℞. IV. incorporated with as much turpentine resin as may serve to give them all the consistence of a plaster.

But black cicatrices are mildly cleansed by means of equal portions of verdigrease and washed lead, incorporated with resin; whether used as an unction, which may be practised for the face, or, what is more convenient for the other parts of the body, applied in the form of plaster. But if the cicatrix be elevated, or if it be hollow, it is unwise to sub-



mit to the pain of a second cure, merely for the sake of studying appearances: otherwise there is a remedy for both these cases: for either cicatrix may be converted into a wound by the knife, or, if one prefer medicine, by any of the caustic compositions. After the skin has been thus ulcerated, corrosives are to be laid over the prominent flesh, and incarnants over that surface which is concave, until both are on a level with the sound skin; and afterwards they are to be cicatrized.

XXVII. 1. I have spoken of such wounds as are principally inflicted by weapons: it follows, that I treat of such as are the effects of bites; these sometimes of the human species, sometimes of an ape, frequently of a dog, occasionally of wild beasts, or of serpents. NOW EVERY BITE HAS MOST COMMONLY SOME VENOM IN IT. THEREFORE IF THE WOUND BE SEVERE, A CUPPING GLASS SHOULD BE APPLIED: if of a slighter character, a plaster is to be immediately laid over it, and especially that of Diogenes; if that be not at hand, any of those which I have proposed for bites, or, in the absence of these, the green Alexandrian; if not even that can be procured, any one, not of a fatty nature, selected from those which are suited to green wounds. Salt also is a remedy in these cases, and especially for the bite of a dog, provided the hand be placed on the wound, and just above, it be struck with the two fingers of the opposite hand: for it draws out the sanies. So also salsament is a proper application, bound over the wound.

2. IN THE BITE OF A MAD DOG, IT IS INDISPENSABLY REQUISITE THAT THE VIRUS BE DRAWN OUT BY MEANS OF THE CUPPING CUCURBITAL: in the next place, if the part be neither nervous nor muscular, the wound should be cauterized; and if that be impracticable, it is expedient to bleed the patient. Then over the wound, if cauterized, such dressings are to be applied as are used in other burns; but if not cauterized with the actual cautery, the most powerful caustic medicaments.

After these measures, the wound is to be incarnated and healed, not by any new method, but by that already laid down above. Some, after the bite of a mad dog, immediately immerse their patient in the hot-bath, and allow him to sweat away there as long as his strength will permit, enlarging the wound to allow of a freer escape of the virus:

this measure they immediately follow up by the exhibition of plenty of undiluted wine, which is an antidote to all poisons. After persisting in this plan for three days, the patient is considered to be out of danger. But from this kind of wound, if ineffectually treated, a dread of water is the usual result: the Greeks call it *ὕδροφοβία* (hydrophobian), a most heart-rending malady, in which the patient is at once tormented with thirst, and a dread of water. When thus afflicted, there is scarcely a shade of hope. The sole remedy consists in throwing him unawares into a pond; and if he cannot swim, he should be allowed to drink in the water as he sinks, and to be elevated alternately; if he can swim, he should be repeatedly kept under water, that he may be compelled to drink: for this is the way to remove both the thirst and the hydrophobia. But then another danger awaits him, lest his weak frame, disturbed by the cold water, be destroyed by convulsions. To obviate this, he is to be immediately transferred from the pond into a bath of hot oil. If the dread of liquids have not yet manifested itself, an antidote should be administered in water; and that in preference, which I first enumerated, or in default of that, some other; and, if the taste be offensive, honey is to be added; if that symptom have already acceded, it may be taken in the form of bolus.

3. The bites of serpents also require a treatment not very dissimilar; although the ancients had so many various methods for such cases, that they have laid down a distinct plan of cure for each kind of snake; some adopting one plan, and some another. But the same remedies are generally efficacious for all kinds. In the first place, then, a ligature is to be tied round the limb, above the wound; not too tight, lest it be benumbed: then the poison ought to be drawn out. NOTHING ACCOMPLISHES THIS SO EFFECTUALLY AS THE CUPPING CUCURBITAL: and it is a good plan previously to make incisions round the wound with a scalpel, that more of the vitiated blood may be extracted. If there be no cucurbital at hand, a contingency scarcely possible, one may use any thing else calculated to answer the same purpose: and if there be no kind of apparatus, a person should be engaged to suck the wound. Nor indeed have the *Psylli*, as they are called, any peculiar skill, but a boldness confirmed by experience. For the poison of a serpent, like certain poisons used by the Gauls in hunting, do

not prove noxious by the mouth, but when introduced into a wound. Hence an adder may be eaten with impunity: its bite is mortal. And if the animal have been lulled into a state of stupidity, (which itinerants effect by means of certain drugs,) should one put his finger into its mouth, and be not wounded, no harm results from the saliva. CONSEQUENTLY, WHOEVER, IMITATING THE PSYLLI, SUCKS THE WOUND, IS NOT ONLY SAFE HIMSELF, BUT SAVES HIS FELLOW CREATURE. It will be expedient, however, that he observe whether he have any ulcers in the gums, palate, or any part of the mouth. The patient should afterwards be laid in a warm room, in such a manner that the wounded part may be in a depending posture. If there be no one to suck the wound, and no cucurbital at hand, it will be proper for him to absorb goose, or mutton, or veal broth, and then to vomit: furthermore, one should cut a live fowl through the middle, and instantly apply it over the wound, while yet hot, so that its inner surface may be in contact with the patient's flesh. A kid or a lamb ripped up, and its reeking flesh immediately applied to the wound, is equally efficacious: so likewise are the plasters above mentioned: and the fittest is the Ephesian, or that which follows it. Some of the antidotes are also powerful remedies. But if these be not at hand, it is expedient that the patient drink off a draught of strong wine with pepper, or any thing else that is calefacient, and unfavourable to the coagulation of the blood within the body: for most poisons destroy by the cold they produce. Also all diuretics are beneficial, inasmuch as they attenuate the fluids.

4. Such are the common remedies for bites of every kind: experience, however, has taught us that one who has been wounded by an asp, ought to drink vinegar in preference. This remedy is reported to have been accidentally discovered by a lad who, when bitten by this reptile, and distressed with a thirst, partly the effect of the wound, and in part arising from the excessive heat of the weather, not being able to find any other fluid, drank all the vinegar which he chanced to have with him, and was thus saved: as I believe, because although it is a refrigerant, it nevertheless has also the faculty of dissipating. Hence it is that earth, when sprinkled with it, effervesces. Therefore it is very probable that by this same property the internal fluids of the patient are dissolved, and a recovery thus effected.

5. Against the poison of some other reptiles, there are sundry sure remedies sufficiently known : for the scorpion is a most excellent remedy for its own bite. Some drink it bruised with wine : some, having bruised it in like manner, lay it over the wound : some, having laid it over a brasier, thus fumigate the wound, a blanket being thrown over it, to prevent the escape of the fumes ; afterwards they bind its residuary coke over the wound. Furthermore, the seed of the solar herb, called by the Greeks *ἡλιοτρόπιον* (heliotropion), or, at any rate, its leaves should be quaffed with wine. Over the wound, bran, moistened with vinegar, or wild rue, are proper applications, or fried salt with honey. However, I have been acquainted with practitioners who, for the sting of a scorpion, adopted no other measure than blood-letting.

6. For the sting of a scorpion, as well also as for that of a spider, it is proper to mix garlic with rue, and to apply these bruised with oil.

7. But in wounds inflicted by the serpent called CERASTES, or by the DIPSAS, or the HÆMORRHOIS, as much of the dried asphodel as is equivalent to the bulk of an Egyptian bean, is to be divided into two doses, and administered with a little rue. Trefoil also, and wild mint, and panaces with vinegar, are equally efficacious. Costum, cassia, and cinnamon taken in some liquid, form an appropriate remedy.

8. Against the wound of a chersydrus, panaces, or assa-fœtida in the dose of three scruples and a half with a denarius, or leek juice with a hemina of wine should be taken, and savoury eaten abundantly. But over the wound goat-dung boiled in vinegar is to be applied, or barley-meal with the same ; or rue, or catmint, powdered with salt, and mixed with honey. This last remedy is of equal efficacy in the wound of the cerastes.

9. But when the injury is inflicted by the phalangium, besides the surgical part of the cure, the patient is to be frequently immersed in the solium, and to take an equal quantity of myrrh and stavesacre in a hemina of passum ; or radish seed, or root of darnel in wine : and bran boiled in vinegar should be applied over the wound, repose being strictly enjoined.

10. Now these kinds of reptiles are exotic, and very dangerous, and are principally generated in hot countries ; Italy and the colder climates are more salubrious in this respect

also, that they produce snakes less formidable. Against our snakes an effectual relief will be derived from betony, or Cantabrica, or centaury, or argemone, or trixago, or personina, or the marine pastinaca, taken singly, or any two of them powdered and both exhibited as a potion with wine, and used as a local application to the wound. It is necessary to know that the wounds of all reptiles are more dangerous if inflicted when either the animal itself, or the wounded person is in a fasting condition: hence they are most pernicious during incubation; and it is highly useful, when one is apprehensive of encountering snakes, not to go out with an empty stomach.

11. To afford relief in cases of poison ingested with the food or drink is more difficult: first, because the patients have not, as when wounded by a snake, an immediate cognizance of the injury, and, therefore, cannot immediately employ the remedy; and next, because the mischief begins not from the skin, but from internal parts. However, the best plan is, directly one perceives the accident, to swallow large draughts of oil, and to vomit; then, having emptied the stomach, to drink an antidote, or, in default of that, neat wine.

12. There are certain remedies appropriated to particular poisons, and particularly the less active ones. For if one has swallowed cantharides, panaces ought to be exhibited, bruised in milk, or galbanum with wine, or milk by itself.

13. If hemlock, hot neat wine with rue should be drunk as largely as possible; vomiting should then be procured, and assafœtida, exhibited in wine: if free from fever, the patient should be put into a hot bath; if not free, he is to be anointed with calefacients. Afterwards repose is indispensably requisite.

14. If he has taken henbane, he should drink hot mulse, or milk of any kind, but particularly that of asses.

15. If ceruse—juice of mallows, or walnuts bruised with wine are most serviceable.

16. If a leech has been swallowed, vinegar with salt in it, is to be drunk. If milk has curdled on the stomach, the remedy is passum, or coagulum, or assafœtida with vinegar.

17. If one has taken noxious mushrooms, he should eat radishes, either with posca, or with salt and vinegar. These may not only be distinguished from the wholesome kind, but by a peculiar method of dressing may be rendered fit for

the table. For after they have been boiled in oil, or if a twig of pear-tree be boiled with them, they become innocent.

18. Burns also may be ranked among the effects of external violence, and it would, therefore, appear proper that I here discourse of them.—Now they are best treated by the leaves either of lily or of hound's tongue, or of beet, boiled in old wine and oil: and one of these immediately applied has the power of healing them. The treatment may be divided into that stage in which are employed substances slightly corrosive and repellent to prevent pustules, and stimulate the surface, and that stage embracing the use of mild dressings to complete the healing process.

Of the former is the meal of lentils with honey, or myrrh with wine, or Cimolian chalk powdered with the bark of thus, worked into a paste with water, and diluted with vinegar, as occasion may require. Of the latter kind are any of the lipara: though the most suitable is that containing the dross of lead, or the yolks of eggs. Another plan of treating burns consists in the constant application of lentils with honey, during the inflammatory stage; and after that has subsided, meal with rue, or leaks, or horehound, until the crusts fall off: then vetches with honey, or orris, or turpentine-resin, until the ulcer is clean: and last of all, dry lint.

XXVIII. 1. From external injuries we are next to proceed to consider such as arise internally from corruption of some internal part. Of these there is none worse than a carbuncle. It is characterized by a redness, over which there are pustules not very numerous, mostly black, occasionally somewhat livid, or pale; these seem to contain a sanies: below, the colour is black: the surface itself is dry, and preternaturally hard; and about it there is a sort of crust encircled with inflammation; the skin at that part cannot be elevated, but remains as it were fixed to the flesh below: there is somnolency, and sometimes shivering fits, or fever, or both. The affection spreads, pushing forth radicles at its base, sometimes rapidly, at others slowly; and advancing at its surface it grows white: it then becomes livid and surrounded with small pustules: and when it occurs about the œsophagus or fauces, it not unfrequently produces sudden suffocation. The best plan is to cauterize without loss of time. Nor is this a severe operation, for the flesh being dead is insensible; and when the pain is felt at every

part of the tumour it will be proper to desist. The wound is afterwards to be treated like any other burn : for a crust ensues upon the use of corrosive medicines, which, when entirely separated from the living flesh, draws along with it whatever was corrupt ; and now the clean ulcer may be treated with impleting dressings. If the disease be in the surface of the skin, corrosives, or even caustics, may afford relief ; our treatment being more or less active in proportion to the emergency of the case. Whatever the application, if efficacious, it will soon detach the sloughy parts from the sound ; and we may generally rest fully assured that the corrupt flesh will decay on all sides, wherever the corrosive has exerted its action. Should that not happen, the disease is too powerful for the remedy, and immediate cauterization is most decidedly requisite. Furthermore, in this kind of malady one should abstain from food and wine, and drink water freely ; especially, if there be likewise an accession of fever.

2. A carcinoma is not so dangerous, unless exasperated by imprudent treatment. This affection chiefly occurs in the upper parts, about the face, nose, ears, lips, and the breasts of females. It also occurs in the liver and spleen. In the vicinity of the part, pricking pains are felt ; the tumour is immoveable, and irregular ; occasionally also it is insensible. In the vicinity of the part the veins appear inflated and tortuous, and are either pallid or livid ; occasionally also they are, in some subjects, concealed from view ; and the part with some is painful to the touch, with others not so : sometimes harder or softer than natural, without being ulcerated : not unfrequently ulceration accedes to the symptoms already enumerated : now and then it has no well-marked characteristic symptoms : at other times, with regard to size and asperity, it is not unlike those tumours which the Greeks call *condylomata* : its colour is red, or approaching to that of lentils : nor is it safe to give it a blow ; for paralysis or convulsion is the immediate result. Oftentimes, on receiving a blow on the part, the person loses the power of speech, and faints away. In some cases, even if pressure be applied on the tumour, the circumjacent parts become tense and swollen. Hence this disease is one of the very worst description. Its first stage is that denominated *cacoethes* : after that there is cancer without ulceration ; then the ulcer ; and from that a thymium. The *cacoethes* is the only

one that is curable : treatment only serves to exasperate the others, and the more so in proportion to its activity. Some have employed caustics, some the actual cautery, some the knife ; and all without avail : for cauterization has immediately produced high irritation, and they have gone on increasing in size to the destruction of the patient ; after having been extirpated by the knife, nay, after they have been completely healed, they have returned again and proved fatal : while on the other hand, by declining all active treatment for the removal of the affection, and employing lenient dressings merely, which exert a soothing power, in the majority of cases there is nothing to prevent the patients arriving at a good old age. Time and experiment afford us the only means of discerning a curable cacoethes from an incurable cancer. Therefore, on the first observance of the malady, caustics ought to be applied. If these yield relief, and the symptoms abate, the cure may proceed to excision and cauterization : but if irritation be the immediate consequence, we may infer, that it is a true cancer ; and all acrid and strong dressings are to be excluded. But if there be a local induration without an ulcer, an application consisting of a very rich fig, or the rhyodes plaster will suffice. If the ulcer have an even surface, it should be dressed with cerate of rose-oil, with the addition of a powder formed from the bruised shells which have been used at a forge for quenching hot iron. If the surface be excrescent, one should try copper scales, the mildest of the caustics, till the sore be on a level with the surrounding skin ; provided, however, that it does not exasperate : for otherwise we must rest content with the cerate aforesaid.

3. There is also an ulcer which the Greeks call *θηρίωμα* (therioma). It both comes of itself, and supervenes on an ulcer arising from some other cause : its colour is either livid or black ; its odour disagreeable ; its discharge copious, and like mucus ; the ulcer itself is insensible both to the touch and to medicines ; its only sensation is an itching : but around it there is pain and inflammation : sometimes also fever arises : sometimes there is hæmorrhage from the wound ; and this disease likewise has a tendency to spread. All these symptoms often become aggravated, and give rise to the ulcer which the Greeks have termed phagedenic ; because rapidly spreading, and penetrating even to the bones, it devours the body. This last sore is unequal, resembling dirt ;



and there is in it a glutinous humour, of an intolerable odour, with an inflammation greater than is usual in an ulcer of that size. Both species, like gangrenes of all kinds, happen most frequently in old persons, or in cachectic habits. The method of cure is the same in either case, but more active in proportion to the severity of the symptoms. The first step must consist in establishing a strict regimen: the patient should rest in bed, abstain from food during the first days, drink copiously of water, and have his bowels opened by clyster: then, after the inflammation, he should take food of a good juice, avoiding every thing acrid; drink as much as he pleases, provided he occasionally rests satisfied with water; although with his supper he may drink moderately of austere wine. Fasting, however, is not to be pushed to the same extent in the phagedenic case as in the theriomatous. So much for diet. But over the ulcers dry aloes is to be sprinkled, or œnanthe; and if these be not effective, chalcitis: and if the nerve be denuded, by the flesh being eaten away, that it may not be burnt by this last remedy, it should be previously covered with lint. Should there be need of still stronger remedies, we must advance to those compositions which are more powerfully caustic; such as are sprinkled on dry, ought to be insinuated into the wound from the broad end of a probe. Over these should be laid pledgets of lint besmeared with honey, or olive-leaves boiled in wine, or horehound: these are to be covered with linen dipped in cold water, and afterwards thoroughly expressed; and all around, when there is tumour from inflammation, repressing cataplasms are to be applied. If under the use of this no benefit accrue, the part should be seared with the actual cautery; previously covering the nerves with care, if any be in sight. That every part which has been burnt, whether by medicines or the cautery, requires first to be cleansed, and then incarnated, must, from what has been already said, be self-evident to every person.

4. The *IGNIS SACER* ought also to be enumerated among malignant ulcers. There are two species of it. One is reddish, or pale red, and its surface roughened by continuous pustules, of an uniform size, numerous and very small. These generally contain pus, and are red and hot, and the affection goes on spreading, while the part first vitiated begins to heal: or sometimes becoming ulcerated, there is one continuous ulcer formed by the bursting of the pustules, and

a discharge which seems to partake of the nature of sanies and pus. It mostly occurs in the breast, or sides, or extremities, and especially in the soles of the feet.

The other kind consists of an ulceration of the surface of the skin, superficial, broad, somewhat livid, but irregularly so; and while it heals in the middle, it spreads at the extremities, and often when it seems to have become sound, it again ulcerates: the adjacent skin, when about to become implicated in the affection, is somewhat swollen and hard; and is of a red colour inclining to black. Elderly persons, or such as are of a bad habit of body, are most usually the subjects of this complaint also; but it chiefly occurs in the legs. Now every *ignis sacer*, although the least dangerous of the disorders which spread, is of all nearly the most difficult of removal. An ephemeral fever may act as a fortuitous remedy by consuming the nocent humour. The thicker and whiter the pus, the less the danger. It is beneficial also to promote the discharge of pus by making incisions below the mouth of the ulcers, and thus to extract the matter by which the flesh is corrupted. If, however, a slight fever come on, it will be requisite to practise abstinence, to rest in bed, and to purge by clyster. But in *ignis sacer* of every species, neither bland and glutinous, nor salt and acrid nutriments ought to be used; but those of an intermediate nature: such for example as unleavened bread, fish, flesh of a kid, fowl, and nearly all kinds of venison except the wild boar. If there be no such fever, not only is gestation serviceable, but likewise walking, and austere wine, and the warm bath. In this kind of affection also, the quantity of the drink ought to exceed that of the food. But the ulcers themselves, if spreading slowly, are to be fomented with hot water; if more actively, with hot wine: the whole of the pustules are then to be opened with a needle, and, afterwards, such dressings applied as may eat away the putrid flesh. After the inflammation has been removed, and the ulcer cleansed, a mild dressing ought to be applied. But in the former species, quinces bruised after being boiled in wine may prove beneficial: so may the plaster of Hera, or the tetrapharmacum with the addition of one-fifth of olibanum, or black ivy boiled in austere wine; so much so, that if the affection be spreading rapidly, no remedy is of more service. When the ulcer is confined to the surface of the skin, after mundification, mild dressings are all that is required to complete the healing process.

5. The ulcer named Chironium is large, and has hard, callous, swollen edges. A sanies is discharged from it, not copious but thin; there is no bad smell either in the ulcer, or in the fluid which proceeds from it: there is no inflammation, and the pain not excessive; it does not spread, and therefore is not dangerous, but it is not easily healed. Sometimes a thin cicatrix forms over it, and is afterwards broken, and the ulcer is renewed. It happens principally in the feet and legs. The proper application is one containing both something bland, something strong, and something repellent; such as the following: of copper scales, washed lead calcined, of each p.  $\times$ . IV. of cadmia, and of wax, of each p.  $\times$ . VIII. with a sufficient quantity of rose-oil to give these and the wax a proper consistence.

6. There are ulcers which are the consequence of the winter's cold; particularly in children, and in their feet and toes especially; sometimes in their hands also. There is redness with moderate inflammation; sometimes pustules arise, and afterwards ulceration: there is more itching than pain; sometimes there is discharge of humour, but not excessive, and it bears a resemblance to pus, or sanies. In the first place the part should be freely fomented with a decoction of rape, or if these be not at hand, of repressing vervains. If the ulcer be not as yet open, copper is to be applied as hot as the patient can bear it. If ulceration result from this, alum powdered with an equal portion of olibanum, and mixed with wine, forms a suitable application; or pomegranate boiled in water and afterwards bruised. If the outer pellicle has been removed, in this case also mild medicines are more serviceable.

7. Scrofula is a tumour in which certain concretions below the skin, consisting of pus and blood, arise like small glands: these are particularly troublesome to the medical attendant; for not only do they excite fever, but they scarcely ever maturate without difficulty; and whether treated by the knife, or by medicaments, they again make their appearance near the old cicatrix, but much more frequently after being treated by the last; add to these, they are of long continuance. They principally occur in the neck, but in the arm-pits also, the groins, and sides. Meges tells us he met with them in the breasts of females. In these cases white hellebore may be given with propriety, and that frequently, until the humours are dispersed; and with regard to local applications, those are to be used which draw out or dissi-

pate humour, of which mention has been made before. Some employ caustics also to corrode the part, and form an eschar, afterwards dressing it as an ulcer. Whatever the plan pursued, it is necessary, after the ulcer is thoroughly cleansed, that the system be exercised and nourished until the healing process be complete. While these are the methods laid down by physicians, it has been discovered by the experience of certain rustics, that one affected with a strume is freed from it by eating a snake.

8. A boil is a pyramidal tubercle, attended with inflammation and pain; and the more so, just as it suppurates. When it is opened, and the matter evacuated, part of the flesh appears to be converted into pus, and part is corrupted, and of a pale red colour; this last some call the sac of the boil. Even though no means be employed, this kind of tumour is not dangerous; for it maturates, and breaks spontaneously. Still, however, the severity of the pain renders any treatment more eligible, that may serve to hasten the cure. The proper application for it, is galbanum: although others have been mentioned in a former paragraph. If nought else be procurable, first, one ought to apply a plaster not of a greasy nature, to repress it: then, if that fail, some application calculated to promote suppuration; or if that be not at hand, resin, or yeast. Having squeezed out the pus, further treatment is unnecessary.

9. The term phyma belongs to a tubercle, resembling a boil, but rounder, flatter, and also frequently larger. For a boil seldom equals the magnitude of the half of an egg, and never exceeds it: the phyma is wont to be of greater extent, but attended with less inflammation and pain. When opened, the pus presents the same appearance, but no sac is found, as in the boil: for all the corrupted flesh is changed into pus. Furthermore, this tubercle originates more frequently, and is more easily cured, in children: in adults it occurs more rarely, and is less easily treated: while the rigidity of old age is altogether exempt from it. The medicines required for its discussion have been mentioned already.

10. A phygethlon is a superficial, broad tumour, upon which there is an appearance like pustules. The pain and tension are considerable; greater than in proportion to the size of the tumour: sometimes also there is a slight fever: the tumour maturates slowly, and is but partially converted into pus. It happens chiefly in the neck, arm-pits, and

groins. Our countrymen call it, from the resemblance in its shape, PANEM. The proper application for removing this also, has been before mentioned.

11. Although each of the foregoing is nothing else but a small abscess, yet this last word is used as a general term for every more extensive local affection having a tendency to suppuration. Abscess more commonly occurs in the sequel of fevers, local pains, and especially those which have infested the abdomen. More frequently it is visible, for the tumour is generally of some considerable extent, and of a figure resembling that which, as I just now said, is called phyma ; it is red and hot, and soon becomes hard, continually growing more mischievously painful, and producing thirst and watchfulness. Sometimes, however, these appearances on the skin cannot be detected ; especially where the suppuration is deep seated ; but certain pricking pains are experienced internally, together with thirst and watchfulness. It is more favourable that the induration be not sudden, and that the colour, if not red, be at all events altered from the natural appearance of the skin.

These last signs arise after the formation of pus, for, as to the redness and swelling, they begin long before. But if the part be soft, the collection of matter is to be arrested by repressing and cooling poultices ; such as I have mentioned, both in other parts of my work, and also a little way back, when treating of erysipelas. If it have become considerably indurated, we must proceed to the use of discutients and resolvents, such as dry figs bruised, or wine lees mixed with a cerate, which has been formed into a proper consistency with hogs-lard ; or the root of wild cucumber, added to twice its quantity of meal, previously boiled in mulse. We may also form a mixture of equal parts of ammoniacum, galbanum, propolis and viscus, adding by weight half as much myrrh as of each of the other ingredients. So likewise the plasters and malagmata before mentioned produce the same effects. That tumour which is not discussed by these means, must necessarily maturate : and to promote this object, a poultice of barley-meal, boiled in water, should be applied ; and to this, oil of Cyprus is a suitable addition. These same applications are proper also for the lesser abscesses, whose name and peculiarities I have afforded above. All require a similar treatment, but more or less active.

Now maturation is not perfect, so long as there is an increased vascular action of the part, with a sense of weight, heat, tension, pain, redness, and induration; or if, as in abscesses of larger extent, the shiverings and fever still remain: and where the suppuration is altogether obscure, if instead of the above signs, which the skin affords us in other cases, there be pricking pains. When all these symptoms have abated, and the part begins to itch, and when it turns of a colour somewhat livid, or pale, the suppuration is complete; and whether it break spontaneously, or whether it be lanced, the pus ought to be evacuated. If in the axilla, or groins, the wound should be dressed without lint. So also in other parts, if there be but one small wound, if the suppuration be but moderate and superficial, if not accompanied with fever, and if the patient be strong, lint is equally unnecessary: in other cases it should be applied sparingly, and only for large wounds. Lentils with honey, or pomegranate bark, boiled with wine, may be applied with advantage, either alone or mixed, and whether over the lint, or without it. If there be considerable induration around the tumour, either bruised mallows, or seed of fenugreek, or linseed boiled in passum, may be laid over it as emollients: then, as to the bandaging, the applications are not to be bound on tightly, but to be kept moderately secured. No one ought to be deceived as to the propriety of using cerate in this kind of malady. As regards the cleansing, incarning, and cicatrization of the ulcer, all other applications are the same as those mentioned for wounds.

12. Sometimes, after abscesses of this kind, and after other species of ulcers, *FISTULÆ* arise. This term is restricted to a deep, narrow, callous ulcer. It occurs in every part of the body; and each situation confers some peculiarity upon it. I shall first mention what is common to them, no matter where situated. There are several kinds of *fistulæ*; for some are superficial, others burrow more deeply: some take a rectilinear direction inwards; others, and these are far more numerous, run transversely: some are simple; others double or triple, begin from one orifice, and are divided into three or more sinuses: some are straight, others bent and tortuous: some end in the flesh, others penetrate to the bones or to the cartilage, or, when neither of these are adjacent, to internal cavities: and next, some are easy of cure, some difficult, and some even altogether incurable. It

is easy to cure a simple, recently contracted, fleshy fistula ; and especially in a young and robust constitution. The contrary circumstances are unfavourable : so likewise, if the fistula have disorganized bone, cartilage, nerve, or muscles ; if it have attacked a joint ; if it have burrowed to the bladder, or to the lungs, or to the womb, or to the large veins or arteries, or to the cavities, as the throat, œsophagus, or thorax. When it reaches to the intestines, it is always dangerous, and often mortal. The danger is aggravated in these cases, if the body be sickly, advanced in years, or of a bad habit.

The first step is to probe the fistula, that we may know its direction and depth ; and at the same time, on removing the probe, we shall immediately see whether it be moist or dry. If a bone be near, it may also be learned whether the fistula have reached it, and to what extent it has been injured ; for, should the part touched by the end of the probe be soft, the disorder is confined to the flesh : if it meet with greater resistance, the bone is diseased. Again, if the probe glide on its surface, there is as yet no caries ; if it will not slip over it easily, though resting on an even surface, caries exists, but in a slight degree : if it rest on an unequal and jagged surface, the bone is extensively corroded. Whether or not there is cartilage below, may be gathered from the situation : and that the fistula has reached it, may be known by its elasticity. Thus, then, may our inferences be deduced with regard to the seat, extent, and mischief of fistulæ. Whether single, or divided into several channels, may be known from the quantity of the discharge ; for if this seem to be more copious than is compatible with the surface of one sinus, it is manifest that there are several. And since in the vicinity there is usually flesh, nerve, and nervous structure, such as for the most part constitutes tunics and membranes, the nature of the pus will instruct us whether several deep-seated sinuses have corroded these various structures : for from flesh there is a copious discharge of bland and white pus ; that from nervous structure, although of the same colour, is, nevertheless, thinner, and more scanty ; that from a nerve is fat and oleaginous. Lastly, the posture of the body shews whether the fistulæ have burrowed in several directions ; for frequently, when the patient has shifted the position in which he was lying, and placed the limb differently, the pus, which had ceased

to flow, is again discharged; and proves, not only that there is another sinus from which it gravitates, but that that sinus has a different direction.

If it be both seated in the flesh, of recent formation and single, if it be neither tortuous nor deep, nor in a joint, but in a member not possessing independent motion, but only moveable with the rest of the body, the plaster which is applied to recent wounds will answer every purpose, provided it contain salt, or alum, or copper scales, or verdigrease, or any of the metallic substances; and of this a slightly conical tent ought to be formed, and introduced into the fistula, with its narrow part foremost, until pure blood shows itself; which method applies to all tents used in fistulas; then the same plaster should be laid on, spread on linen; over that a sponge dipped in vinegar; and it is sufficient to remove the dressings on the fifth day. The kind of diet to be used is that which is favourable to granulation. If the fistula be at some distance from the præcordia, at intervals it will be useful to eat radishes on an empty stomach, and to vomit. When of long standing, a fistula becomes callous. Now this no one can mistake; for it is hard, and white, or of a palish hue. Under such circumstances, stronger applications are necessary, such as that which contains of opium p. ℥. i. of gum p. ℥. iiii. =. of cadmia p. ℥. iv. of green copperas p. ℥. viii. worked up with water to form a tent; or that consisting of galls p. ℥. =. verdigrease, sandarach, Egyptian alum, of each p. ℥. i. of calcined green copperas p. ℥. ii. or that composed of chalcitis and limestone, with one half as much orpiment as of either of the other two, incorporated with honey. The readiest plan, however, is, after the prescription of Mezes, to powder rasile verdigrease p. ℥. ii. to dissolve p. ℥. ii. of ammoniacum thymiana in vinegar, and work up the verdigrease with that infusion; and this is one of the best applications. These applications are most efficacious; but if they cannot be conveniently procured, it is easy to corrode the callus by means of caustics; and for this purpose it will suffice to smear any of them over twisted papyrus, or upon a penicillum rolled tight, so as to form a tent. Squills, also, boiled and mixed with lime, destroy callus. Where the fistula is of greater extent and transverse, it is an excellent plan to introduce the probe as far as it will go, and having cut down upon its point, thus to introduce the tent at both ends. If we sup-



pose that the fistula has two or more sinuses, provided these be not deep, and be confined to the flesh, we ought not to use the tent; for though it heal one part, it may leave the rest unsound: but the same remedies which compose the tent, are to be put in the form of a dry powder into a quill, one end of which is to be adapted to the mouth of the wound; and we should blow through the other, so as to propel the medicine into these sinuses: or the same applications may be poured into the fistula, previously dissolved in wine; or if the sore be decidedly foul, in mulse; or if it have considerable callosity, in vinegar. Over whatever is thus introduced, refrigerant and repressing medicines are to be applied: for the parts about a fistula are generally somewhat inflamed. Nor is it a bad plan, on removing the dressings, previously to the introduction of fresh medicaments, to thoroughly syringe the fistula; if the pus be copious, with wine; if the callosity be considerable, with vinegar; and when at length the wound is clean, with mulse, or a decoction of vetches with the addition of a little honey. It generally happens, that the layer, which separates the hollow of the fistula from the sound parts, destroyed by the applications, comes away entirely, and thus there is a clean ulcer below it. When this has happened, agglutinants are to be employed; and in preference, sponge smeared with purified honey: I am aware that many like to introduce a tent of lint steeped in honey; but this kind of wound is more readily agglutinated, than incarnated. Nor need we fear, lest sound flesh in contact with sound flesh should fail to unite, when assisted by such dressings as are efficacious for that end; for unless we are extremely vigilant during the healing process, adhesion of the fingers frequently occurs as the consequence of ulceration there.

13. There is also a kind of ulcer, which, from its resemblance to a honeycomb, is denominated by the Greeks *κηρίον* (*kērion*), and there are two species of it. The one is of a whitish colour like a boil, only larger, and more painful. During the process of maturation, a number of small holes form on it, by which is discharged a glutinous and purulent humour; nevertheless, it does not perfectly mature. When lanced, corrupted matter presents itself to our view, in much larger quantities than in a boil, and more deeply situated. This species seldom occurs, except about the hair of the head. The other is of a smaller size, project-

ing on the top of the head, hard, broad, of a pale green colour, and more ulcerated: for its openings correspond with the roots of the hair, whence is discharged a fluid of glutinous quality, palish, in consistence resembling honey or birdlime, and sometimes like oil; and, on incision, the flesh within appears green: furthermore, the pain and inflammation are so considerable, that they also induce acute fever. Over that kind which is roughened by fewer apertures, dry figs and linseed boiled in mulse may be advantageously applied; or drawing plasters and malagmata, or the medicines before recited as applicable in such cases. Upon the other, in addition to these same medicines, meal boiled in mulse, and mixed with one half its quantity of turpentine-resin, or a decoction of figs in mulse, with the addition of a little powdered hyssop; or stavesacre with figs, in the proportion of one-fourth to three-fourths. Should these prove ineffectual, the whole ulcer should be shaved off down to the sound flesh. After the removal of the ulcer, first, suppuratives ought to be applied; then detergents; then medicines which incarn.

14. There are again certain tumours like warts, whose names are as various as their species. The Greeks give the term *ἀκροχρδόνα* (*akrochordona*) to a certain collection just below the skin; possessing considerable hardness, and sometimes asperity; being of an uniform colour, narrow at its base, broad near the skin, of a moderate size, seldom exceeding that of a bean. Such tumours seldom arise solitary, but are usually several in number, especially in children; they sometimes suddenly evanesce, occasionally excite some degree of inflammation, and may thus be converted into pus. But that is named a *θύμιον* (*thumion*), which, elevated above the surface of the body like a small wart, is narrow at the skin, broader above, and somewhat hard: superiorly it has a very rough surface, of the colour of the herb thyme, from whence its name; and being easily divided, it discharges a cruentate matter, and sometimes pure blood. It is generally of the size of an Egyptian bean, seldom larger, sometimes very small. Sometimes one, sometimes several, form in the palms or lower parts of the feet; though the worst occur about the genitals, and have more disposition to bleed there. Those called *myrmecia* do not rise so high as the thymium, and are more indurated: they strike in their roots more deeply, and are more painful: they

are broad below, but narrow at their apex; they discharge less blood, and never exceed the size of a lupine. These, in like manner, occur in the palms, and in the lower parts of the feet. But the clavus, although occasionally in other situations, most usually forms on the feet, and its principal cause is contusion, although it sometimes owns other causes: in the act of walking, if not at other times, it is sure to excite pain. Now, of these tumours, the acrochordon, and the thymium, are often cured spontaneously, and the more frequently so, the smaller they are: but the myrmecia and the clavi scarcely ever disappear without treatment. Cut out the acrochordon, and it leaves no roots, and therefore does not re-appear; do the same with the thymium and the clavus, the round root, which penetrates deep into the flesh, grows from below, and having been left in, now again shoots up: the myrmecia have attachment by very broad roots, and therefore cannot be excised without producing extensive ulceration. The best method of treating a clavus is to pare it, for thus, without any violence, it grows soft; and if it have bled a little, it often dies away. It may also be removed by first scraping its margin, and afterwards applying resin mixed up with mill-stone powder. The other kinds require caustics; the two first, that prepared from wine-lees; and the myrmecia, that made of alum and sandarach in preference. But the neighbouring parts are to be protected from exulceration, by leaves laid over them: and afterwards, lentils should be applied. Also a fig boiled in water has the power of removing a thymium.

15. PUSTULES break out in spring chiefly. There are many kinds of them. For sometimes there is a particular roughness general or local, consisting of pustules like those which are occasioned by nettles, or by the matter of perspiration: the Greeks call them *ἐξανθήματα* (exanthemata). Their colour is sometimes red, and at others not deeper than that of the skin. Numerous pustules arise, sometimes resembling vari, sometimes larger: they are livid, or pale, or black, or of some other preternatural colour; they contain a fluid: when broken, the contained flesh appears as though ulcerated: to these the Greeks assigned the term *φλύκταιναι* (phluctainai.) They are brought on by excessive cold, or heat, or by medicaments. The pustule called *φλυζάκιον* (phluzakion) is somewhat harder, whitish, and acute; and what is squeezed from it is moist. Pustules sometimes give

rise to ulcers either of a dry or humid nature, at one time attended with itching, at another with inflammation and pain also; and the discharge is either purulent or sanious or partaking of both these qualities. It happens chiefly in infancy; rarely on the trunk of the body; often in the extremities. The worst kind of pustule is that called *ἐπιρυκτις* (epinuktis.) It is usually of a colour either somewhat livid, or blackish, or white; it is surrounded by high inflammation, and when opened, a mucous ulceration is detected within it, of the same colour with that of its discharge. The pain is greater than what should seem proportionate to its size, for it is no larger than a bean. And this too occurs in the extremities, and generally during the night, whence the term imposed upon it by the Greeks. Now, uniformly in the treatment of pustules, the first point is to walk much, and to be well exercised; or, if any thing prevent that, to use gestation: the next, to diminish the quantum of food; to abstain from every thing that is acrid and extenuating; and nurses ought to do the same, if an infant so affected be suckled by them.

Moreover, he who is of a robust habit, provided the pustules be minute, ought to sweat in the bath; and when under that operation, to sprinkle nitre upon them, and to be anointed with a mixture of oil and wine; then to descend into the solium. If no benefit accrue from this, or if he be attacked with fuller sized pustules, lentils should be applied; and having thus removed the outer pellicle, we may proceed to the use of mild applications. The bloodherb, or the green coriander, is a suitable remedy for epinyctis, after the use of lentils. But the ulcers caused by the pustules may be cured by litharge and fenugreek-seed, provided rose-oil and endive-juice be alternately employed as an intermede, in a quantity sufficient to give them the consistence of honey. A suitable mixture for pustules common to infants is formed of p.  $\times$ . VIII. of the stone they call pyrites, with fifty bitter almonds, and three cyaths of oil. But prior to the ulcers being smeared with it, they should be rubbed with ceruse.

16. SCABIES is a certain degree of hardness of the skin, having a reddish appearance, with pustules, some humid and some dry. Some discharge a sanies, and occasion a continued prurient ulceration, which in certain cases rapidly spreads. With some persons it disappears for a permanency,

in others it returns at definite periods. The rougher and the more prurient the affection, the greater the difficulty of curing it. Hence the Greeks call this kind of case *ἀγρια* (agrian,) that is to say, wild. In this also the same regimen is required, as above delineated. A proper application for an incipient case is one formed from spodium, saffron, verdigrease, of each p.  $\times$ .  $\text{=}$ . of white pepper, omphacium, of each p.  $\times$ .  $\text{I}$ . of cadmia p.  $\times$ .  $\text{VIII}$ . But when ulcerated, that formed of sulphur p.  $\times$ .  $\text{I}$ . wax p.  $\times$ .  $\text{IV}$ . with a hemina of liquid pitch and two sextarii of oil. There is also one which is assigned to the author Protarchus. It contains one sextarius of lupine-meal, four cyaths of nitre, a hemina of liquid pitch, half a pound of liquid resin, and three cyaths of vinegar. A proper application is formed also from an admixture of equal quantities of saffron, lycium, verdigrease, myrrh, and ashes, all boiled together in passum; and this last has a decided effect in restraining humours of all kinds. And if nothing else be in readiness, oil-lees boiled down to one-third, or sulphur mixed with liquid pitch, as I stated in my treatise on cattle, afford relief to the human species likewise, when labouring under scabies.

17. Of IMPETIGO there are four species. The mildest resembles the scabies; for it is red, hardish, ulcerated, and corrosive. This is a very different species from the preceding, inasmuch as it is attended with more extensive ulceration, and with pustules similar to the vari: it presents an appearance of small bubbles, from which after a time scales are detached; and it is regularly periodic. The second kind is worse, generally like a papula, but rougher and of a redder colour, of various figures: scales fall off from the outer skin; the erosion is greater, and advances both more rapidly and more extensively, observing periodical returns of a character still more regular than the former species. It is called the red. The third is still worse, for it is thicker, harder, and more swollen; it causes fissure of the skin, and corrodes more actively: this also is squamous, but of a black colour, extends itself widely and with rapidity, and is still less erratic as to its coming and going, never being entirely removed. This is called the black. There is a fourth sort altogether incurable, differing in its colour: for it is whitish, and resembles a fresh cicatrix: it has small pale squamæ, some whitish, others like lentils; and on removing these, blood sometimes issues forth. Otherwise its

humour is white, the skin hard and chapped, and the affection of wider extent. Now all these kinds chiefly occur in the feet and hands; and also infest the nails. There is no medicinal application more efficacious than that I mentioned for scabies upon the authority of Protarchus: although Serapion used nitre p. ζ. II. sulphur ζ. IV. mixed up with plenty of resin.

18. Of PAPULÆ the species are two. One, in which an asperity of the skin is produced by small pustules, with redness and slight erosion: this kind is smoother towards its centre, spreads slowly, is usually circular at the commencement, and retains the same form as it advances. But the other is that which the Greeks call ἀγρίαν (agrian); attended with a like roughness of skin, but in a greater degree, and not only is there more active erosion, and a more intense redness, but the patient sometimes loses the hair of the part. That which is less perfectly round heals with more difficulty; and, unless removed, is converted into impetigo. A slight papula may be cured by anointing it daily with fasting spittle: a severer case is best got rid of by an application formed from the bruised wall-herb: but, if we must mention complex medicaments, that of Protarchus has more efficacy in the most simple cases. Myro's is another for the same affection: red nitre, olibanum, of each p. ζ. I. cantharides cleansed from impurities, p. ζ. II. of crude sulphur the like quantity, of liquid turpentine-resin p. ζ. XX. of darnel-meal, sext. III. git three cyaths, crude pitch a sextarius.

19. LEPROSY also, although in itself not dangerous, is nevertheless a loathsome disease, and arises from a bad habit of body. There are three species of it. That called ἀλφος (alphos) is of a white colour, usually roughish, and not confluent, looking as though scattered in drops: sometimes spreading more widely, and with interspaces. The μέλας (melas) is black, and shadowy, but in other respects like the last. The λευκή (leukē) is in some respects similar to the alphos, but whiter, and penetrates more deeply; and it has white downy hairs on it. All these spread, but in some cases more rapidly than in others. The alphos and melas both come and go at various periods. The leuce does not easily quit him whom it has once attacked. The two former are cured without very great difficulty: the last is all but incurable; and though the affection be in some degree less

sened, yet the natural colour is never restored. Whether any of these be or be not curable, may easily be gathered from experiment; for if blood flow on cutting the skin, or pricking it with a needle, (which it usually does in the two former species,) the case will admit of remedy; if a white humour be emitted, the cure is impracticable. Hence, then, in the last case we are to refrain from treatment. But in the curable species, lentils bruised with vinegar, and mixed with sulphur and olibanum, constitute a suitable application. There is another possessing the same virtues, referred to Ireneus. Equal quantities of bastard sponge, nitre, cumin, and dry fig-leaves, are bruised, and to these vinegar is added. With this the leprous surface is anointed in the sun; and it is soon afterwards washed off, lest the part be too much corroded. Some, on the authority of Myro, anoint the al-phoid lepers only, with the following; of sulphur p.  $\times$ . =. scissile alum p.  $\times$ . =. nitre p.  $\times$ . =. with an acetabulum of dry myrtle powdered: and after that, while the patient is in the bath, they sprinkle bean-flour over the leprous spots, again applying the composition just mentioned. But the melanoid are cured by a combination of the following ingredients, reduced to a powder; bastard sponge, olibanum, barley and beans: these, without being mixed with oil, prior to sweating, are sprinkled on while the patient is in the bath; and afterwards in this species the scales are detached by friction.

## BOOK VI.

I. I HAVE discoursed (in the preceding book) upon those affections which, occurring over the entire body, require the aid of medicinal applications: I shall now proceed to such as are merely local, beginning with the head.

The most effectual remedy for a falling-off of the hair, is frequent shaving: although a mixture of ladanum and oil, in some degree conduces to its preservation. I am now speaking of loss of hair after illness, since for that baldness which in some persons is the effect of age, we have no remedy.

II. In **PORRIGO**, scales forming between the hairs, become detached from the skin; and are sometimes moist, much oftener dry. This affection exists now without and now with ulceration; is sometimes preceded by a fetid odour, and sometimes not so. It generally occurs in the hair of the head, more rarely in the beard, now and then in the eyebrows. And neither does it take place except there be some disorder in the system, nor is it altogether without its beneficial effects, for it never appears during a perfectly healthy condition of the head; and when disease is existing there, it is advantageous; for it is better that the surface be occasionally corrupted, than that the nocent matter be translated to another part more essential to life.

The better plan therefore is to clear it away by repeated combing, and not to suppress it entirely. Should this, however, be noisome, (and a humid discharge, especially if fetid, may be so,) the head should be frequently shaved, and treated with any of the mildly repressing applications; such as nitre with vinegar, or ladanum with myrtle-oil and wine, or myrobalanum with wine. If these be not efficacious, those of a stronger nature may be employed, bearing in mind, that in a recent affection they are decidedly injurious.

III. There is also an ulcer, which, from its resemblance



to a fig, is denominated by the Greeks *σύκωσις* (*sukōsis*). It may be generally described as a fleshy excrescence. But it embraces two species. The one is a hard and circular ulcer; the other is moist and irregular. In that which is hard, the discharge is scanty and glutinous; in the humid it is copious and fetid. Both occur in parts covered with hair; but the callous and round ulcer principally in the beard; the moist one chiefly in the hair of the head. Both require an application, consisting of elaterium, or linseed powdered, and worked up with water, or a fig boiled in water, or the tetrapharmacum plaster beat up with vinegar. Eretrian earth dissolved in vinegar is also suitable, rubbed over the part.

IV. There are two kinds of *AREÆ*. Both agree in this particular, that from the decay of the scarf skin the hair is first thinned and then falls off altogether; and if the part be struck, blood flows, thin and of a disagreeable odour: in either species the progress is rapid in some persons, and slow in others. That is the more unfavourable kind which has rendered the skin dense, fatty, and perfectly smooth. The species denominated *ἀλωπεκία* (*alopekia*) spreads in all sorts of forms. It occurs both in the hair and in the beard. But that which, from its resemblance to a serpent, bears the name *ὀφθασις* (*ophiasis*), begins at the back of the head, does not exceed the breadth of two digits, and extends itself by two points of prolongation towards the ears; and in some cases as far as to the forehead, where they unite. The former affection is common to every period of life, the latter usually occurs in infants: so again the former scarcely ever terminates without medicine, the latter frequently undergoes a spontaneous cure. Some scrape these kinds of *areæ* with a scalpel; some anoint them with caustics mixed up in oil; and, chief of all, with burnt paper: others apply turpentine-resin with *thapsia*. But there is nothing better than daily shaving the part with a razor; because, when the cuticle has thus been gradually cut away, the roots of the hairs are laid bare, nor ought one to desist, until a thick growth of hair shall have made its appearance; when frequent shaving is had recourse to, it is sufficient to smear the part with common writing ink.

V. It is almost folly to adopt any method of cure for *vari*, *lentils*, and *ephelidæ*; but the fair sex are not to be divested of their natural anxiety for the preservation of their

personal charms. Now with regard to these various species of which I have made mention above, the *vari* and *lenticulæ* are commonly known, although that species is rare which the Greeks denominate *semion*; it is redder and more unequal than the *lenticula*. But the *ephelis* is known only to few; and is neither more nor less than a particular asperity and hardness, of a bad colour. The other species only occur in the face, and although the *lenticula* is, strictly speaking, a general affection, yet I did not think it worth while to make it a separate subject. *Vari* are best removed by an application of resin, with an equal portion of scissile alum, and a little honey. The *lenticula* may be got rid of by equal portions of galbanum and nitre, triturated with vinegar until they have acquired the consistence of honey. With these the surface is to be rubbed over, and after the lapse of several hours is to be washed in the morning, and slightly anointed with oil. Resin, with a third part of fossil salt, and a little honey, removes the *ephelis*. But that composition, which is referred to *Trypho* the father, is efficacious not in these cases only, but also for giving a proper colour to cicatrices. It is made of equal parts of the magma of myrobalanus, of light blue Cimolian chalk, bitter almonds, barley-meal, meal of vetches, white struthium, seed of melilot, all triturated together, and mixed up with the bitterest honey: this is rubbed on at night, and regularly washed off next morning.

VI. 1. These affections are of minor importance. But our eyes are liable to several severe diseases; and since these organs are mainly instrumental to the conveniences and enjoyments of life, they demand our utmost care.

Even on the first appearance of a *LIPPITUDE*, there are certain characteristic marks which enable us to form a prognosis with regard to its duration. For if *illachrymation*, *intumescence*, and a thick *pituita* have commenced simultaneously; if that same *pituita* be mixed with the tears, and these be not scalding; if the *pituita* be white and bland, and the tumour not hard, we have no reason to apprehend a long continuance of the disease. But, if the tears be copious and scalding—the *pituita* scanty—the tumescence inconsiderable, and the affection confined to one eye, the case will prove tedious, although not of a dangerous character. This last kind of *lippitude* is the least painful, but is scarcely ever removed before the twentieth day, sometimes lasts for

two months. Towards the termination, the pituita begins to get white, and blended with the tears. If the symptoms have attacked both eyes, the case may be of shorter duration, but there is danger of ulceration. That pituita which is dry and arid certainly excites more pain, but it is of shorter duration unless it have produced ulceration. Great swelling, if without pain, and not accompanied with discharge, is free from danger: if unattended with discharge, and at the same time painful, it most commonly exulcerates, and in this case an agglutination of the eyelid to the eye is the occasional consequence. We have reason to dread ulceration in the eyelids or pupils, when salt and scalding tears follow intense pain; as also when, after the subsidence of the swelling, the tears and pituita flow for a length of time. The case is still worse when the pituita is pale or livid, the tears hot and copious, the head hot, the pain darting from the temples towards the eyes, and the patient harassed with night-watchings: for under such an assemblage of symptoms, the eye is generally burst, so that it is to be greatly desired that the mischief may be confined to ulceration. A slight fever is of service, when the eye bursts inwardly; if, after bursting externally, it protrude, there is no remedy. If a portion of the dark part of the eye become white, it remains so a long time. But if it be rough and thick, some vestiges remain even after the best treatment. Now, that most ancient of all authors, Hippocrates, teaches us in his writings, that the eyes are to be treated by blood-letting, medicaments, the bath, and wine. But he has given no explanation of the proper times, or of the occasions which warrant their employment; which, in medicine, constitute the two most essential points. In many cases abstinence and alviduction are equally beneficial.

The eyes are sometimes attacked with inflammation; they are swollen and painful; a flux of humour ensues, sometimes more copious or possessing more acidity, sometimes more moderate in both these respects. In such a case the chief remedies are rest and abstinence. Hence, on the first day, the patient should lie in a dark room, and refrain from speaking: he should take no food, not even water if he can do without it; at all events as little as possible. But if the pains be severe, it is better that he should be bled on the second day: although in an urgent case it may even be done on the first, especially if the frontal vessels be tumid,

or if in a strong subject there be a redundancy of the fluids. But in milder attacks, requiring a milder treatment, the bowels are to be opened by clyster, but only on the second or third day. But in a slight attack of inflammation neither of these means are necessary; rest and abstinence are all that is required. Not, however, that long fasting is expedient for such patients, lest it render the pituita thinner and more acrid; but on the second day the lightest of the inconstant articles of diet ought to be allowed, such as soft boiled eggs; and in a less violent attack, panada or bread and milk. On the following days, in proportion as the inflammation abates, food is to be augmented, but this should still be of the same nature; every thing salt, acrid, and attenuant is to be most decidedly excluded; and water is to be the only drink. Such is the regimen most usually applicable. But even on the very first day it is requisite to inviscate p. ℥. i. of saffron, and p. ℥. ii. of the finest white flour in a sufficiency of white of egg to produce the consistence of honey, and to spread this upon a piece of linen rag, plastering it on the forehead, so that, by compressing the veins, it may restrain the impetus of the pituita. In the absence of saffron, olibanum answers the same purpose; nor does it matter whether it be spread on a pledget of linen, or on wool. The eyes ought to be anointed with a mixture containing as much saffron as can be grasped by three fingers, as much myrrh as equals the magnitude of a bean, and a piece of opium of the size of a lentil: these are to be rubbed up with passum, and applied to the surface of the eyes by means of a probe. There is another for the same purpose: myrrh p. ℥. i. mandrake-juice p. ℥. i. opium p. ℥. ii. rose-leaves, and hemlock-seed, of each p. ℥. iii. acacia p. ℥. iv. gum p. ℥. viii. These are used in the day-time: but at night, to favour repose, it is not irrelative to use an application made of crumb of white bread mixed up with wine; for it not only represses the pituita, but absorbs any discharge of tears, and prevents the agglutination of the eye. If the patient find this uneasy and hard, on account of the severity of the pain, the white and yolk of an egg is to be poured into a cup, and blended with a little mulse by stirring them with the finger; when thoroughly incorporated, soft well combed wool having been therein steeped, so as to take it up, should afterwards be laid over the eyes. This is light, and, by its refrigerant quality, restrains the course of

the pituita; and, as it does not get dry, prevents agglutination. Barley-meal boiled and mixed with a boiled quince is also a useful application. Nor is it irrational practice to prefer the use of a pledget, squeezed out of water, if the attack be slight; if severe, out of posca. The former applications are to be bound on with a roller, that they may not fall off during sleep; but it will suffice to place this last over the eyes, both because it can be replaced at the patient's own convenience, and when dry it requires to be repeatedly moistened. If the malady be considerable enough to prevent sleep for some considerable time, some one of the remedies which the Greeks call ἀνώδυνα (anōduna), ought to be administered, apportioning the size of a vetch for a boy, and for a man that of a bean. Injections into the eye itself on the first day, unless the inflammation be slight, are inadmissible, for the pituita is rather increased than diminished by such means. On the second, after bleeding or clustering, or when it is evident that neither of these is required, even a severe lippitude is correctly treated by injected medicines.

2. Now, multifarious as the authors from whom they emanate, are the various collyria adapted to cases of lippitude, and even now their compositions still admit of greater variety: for the mild and lenient repriments may be easily and variously mingled.

I shall describe those in greatest repute.

3. There is Philo's, containing of washed ceruse, spodium, gum, of each p. ℥. i. burnt opium p. ℥. ii. It is important to know, that in this process all the ingredients ought first to be powdered singly, and then triturated together, gradually adding either water or some other fluid: although gum possesses other properties, its chief excellence is that of its agglutinating and counteracting the friability of collyria after they have become dry by long keeping.

4. There is the collyrium of Dionysius: opium burnt till it becomes soft p. ℥. i. burnt olibanum, gum, of each p. ℥. ii. spodium p. ℥. iv.

5. Cleon's is very famous: of torried opium p. ℥. i. of saffron p. ℥. ii. of gum p. ℥. i. to which during trituration rose-juice is added. Another of his is still more powerful: of verdigrease, which they call στόμωμα (stomōma), p. ℥. i. saffron p. ℥. ii. spodium p. ℥. iv. lead washed and calcined p. ℥. vi. with a like quantity of gum. There is also the Attalian for the same complaint, and particularly in

cases attended with an excessive discharge of pituita : of castor p. ℥. —. aloes p. ℥. =. saffron p. ℥. I. myrrh p. ℥. II. lycium p. ℥. III. prepared cadmia p. ℥. VIII. with a like quantity of antimony, and p. ℥. XII. of acacia-juice. That which does not contain gum is kept moist in a small box. Theodotus added to this composition of toasted poppy tears p. ℥. I. copper calcined and washed p. ℥. II. twenty toasted date-kernels and p. ℥. XII. of gum.

6. But the proper collyrium of Theodotus, which by some is named *ἀχάριστρον* (achariston), is thus composed : of castor, Indian nard, of each p. ℥. I. of lycium p. ℥. =. opium in the same proportion, of myrrh p. ℥. II. saffron, washed ceruse, aloes, of each p. ℥. III. cadmia botryitis washed, calcined copper, of each p. ℥. VIII. gum p. ℥. XVIII. acacia-juice p. ℥. XX. and of antimony a like quantity ; to these rain-water is added.

7. In addition to these, there is a very common collyrium which some call *κῦθιον* (kuthion), some, from its cineritious colour, *τέφριον* (tephrion). It contains of starch, tragacanth, acacia-juice, gum, of each p. ℥. I. opium p. ℥. II. washed ceruse p. ℥. IV. washed litharge p. ℥. VIII. rain-water being employed as the intermede of incorporation in this case as it was in the last.

8. Euelpides, who was the greatest oculist of our age, was in the habit of using a remedy of his own composing : he called it *τρογγῶδες* (trugōdes). It contains of castor p. ℥. =. lycium, nard, opium, of each p. ℥. I. saffron, myrrh, of each p. ℥. IV. burnt copper p. ℥. VIII. cadmia and antimony, of each p. ℥. XII. acacia-juice p. ℥. XXVI. with a like quantity of gum.

The more violent any inflammation happens to be, the milder should be the application, adding to it either white of egg, or woman's milk. But either of these last, if neither a physician nor medicine can be procured, poured into the eyes by means of a penicillum, mitigates the disorder. When relief has been obtained, and the flux of humour has ceased, perhaps the slighter relics of the disorder will be got rid of by the use of the bath and of wine. Therefore the patient ought to bathe, having first been gently rubbed over with oil ; which last operation ought to be continued for a longer period in the legs and thighs : he should foment his eyes with hot water, and then be sluiced from the head downwards, first with hot, and afterwards with tepid water : after

bathing he must take every precaution against cold or draughts: subsequently, he should use a somewhat fuller diet than usual, avoiding every thing that is calculated to attenuate the pituita: he should drink a light wine, subaustere, moderately old, neither profusely nor too sparingly; so that without giving rise to indigestion, it may nevertheless produce sleep, and assuage the acrid humours that are lurking within. But if a patient, while in the bath, have experienced greater perturbation of the eyes than he had before he went into it, (which not unusually happens with those who have prematurely employed this remedy, before the cessation of the pituitous flux,) he ought immediately to quit it, to take no wine that day, and even less food than he eat the day before: afterwards, as soon as the flux has sufficiently stopped, he may again return to the use of the bath. Nevertheless, it now and then happens, either from some fault in the weather, or in the constitution, that for several days neither the pain nor the inflammation, and least of all the discharge, ceases. When this occurs, and the case has been rendered mature by time, we are to derive our relief from the remedies above mentioned, that is to say, from the bath and from wine. For these, although improper in recent affections, which may be aggravated, and even excited by them, in old cases, which have yielded to no other remedies, are usually efficacious; in fact, it is in this case as in others; when the most proper remedies have proved useless, some of a nature diametrically opposite have afforded relief. It is proper that the patient's hair be clipped close to the skin; next to foment his head and eyes in the bath with plenty of hot water: then to wipe these parts with a penicillum, and anoint the head with orris-ointment; to keep quiet in bed, until the heat acquired by bathing shall have subsided, and the sweat which necessarily accumulates about the head shall have ceased: he is then to proceed to the use of the food and wine above mentioned, drinking the latter undiluted; and he is to repose with his head covered up. For after these it often happens that a sound sleep, or a sweat, or a diarrhoea stops the course of the pituita. If the malady have abated, (and this is more usually the result,) it will be requisite to pursue the same plan for several days, until recovery be complete. If in the mean time he have no stool, a clyster should be administered, in order to insure the relief of the superior parts. But sometimes high inflam-

mation breaks out so violently, that it propels the eyes from their sockets; this the Greeks call *πρόπτωσιν* (*proptōsin*), because the eyes fall forwards. These cases, if the strength permit, most decidedly demand blood-letting; if that be impracticable, the bowels ought to be purged by clyster, and long fasting should be enjoined. The applications ought to be very mild: hence some use Cleon's collyrium, which, as has been mentioned before, is composed of two articles. But that the best is that of Nileus, is a point than which none is more universally conceded among authors.

9. It contains of Indian nard, opium, of each p. ℥. — of gum p. ℥. I. saffron p. ℥. II. fresh rose-leaves p. ℥. IV. beat up with rain-water or light subaustere wine. Nor is it a bad plan to boil pomegranate bark, or melilot in wine, and then to bruise it; or to mix black myrrh with rose-leaves; or leaves of henbane with the yolk of a boiled egg; or meal with acacia-juice, passum, or mulse; and the addition of poppy-leaves serves to render this composition more efficacious. Having prepared one or other of the above, it should be applied to the eyes previously fomented with a penicillum squeezed out of a hot decoction of myrtle or rose-leaves. Furthermore, an incision should be made in the back of the head, and a cupping-glass applied there. If by these means the eye be not restored to its natural position, but remain prolapsed as before, we may rest assured the sight is lost; and that the necessary consequence will be, that the eye will grow hard, or be converted into pus. If the suppuration shew itself in the temporal angle, the eye ought to be incised, that by letting out the pus, the inflammation and pain may cease, and the internal tunics retreat; so that the face may afterwards be less disfigured: collyria are to be afterwards employed; either those above mentioned mixed with milk or with egg, or saffron with white of egg. But if it has grown hard, and has become mortified without turning to pus, so much of it as constitutes an unseemly prominence must be cut away; this may be done by taking hold of the external tunic with a hook, and by making an incision below this by means of a knife: then the same medicines are to be injected till the pain be entirely gone. The same applications are suitable in protrusion of the eye, followed in several places by a bursting of that organ.

10. CARBUNCLES are not unusually the result of inflam-



mation, sometimes in the eyeballs, sometimes in the lids; and when in the latter, sometimes on their inner, and sometimes on their outer surface. In this affection, clustering is useful: the diet must be lowered: the drink must be milk, in order that the offending acrimony may be lenified. With regard to poultices and other applications, those must be used which have been suggested for inflammations: and here again the collyrium of Nileus is to be preferred. But should the carbuncle be situated in the external part of the eyelid, linseed boiled in mulse makes the best cataplasms, or if one cannot obtain that, flour boiled with the same liquor.

11. PUSTULES are also the occasional result of inflammation. When they occur at the earliest stage, the precepts I have laid down concerning blood-letting and repose, are to be still more scrupulously attended to: but if at a later period than is compatible with the employment of the lancet, the bowels are to be purged by clyster; should any circumstance preclude the use of this last remedy likewise, yet; at all events, strict regimen ought to be observed. In this case also bland applications are required, such as that of Nileus, or Cleon's.

12. That which is called Philaethes is also well adapted to this disorder. Of myrrh, opium, of each p.  $\chi$ . i. of washed lead, of the Samian earth called ἀστὴρ (astēr), of tragacanth, of each p.  $\chi$ . iv. baked antimony, starch, of each p.  $\chi$ . vi. washed spodium, washed ceruse, of each p.  $\chi$ . viii. mixed up with rain-water. This collyrium is used with an egg, or with milk.

13. Pustules sometimes produce ulcers, and these when recent are in like manner to be dressed with mild applications, for the most part such as I have proposed above for the pustules themselves. That called διὰ λιβάνου (dia libanou) is prepared for this case exclusively. It contains of copper calcined and washed, fried opium, of each p.  $\chi$ . i. washed spodium, thus, antimony calcined and washed, myrrh, and gum, of each p.  $\chi$ . ii.

14. It sometimes happens that one or both eyes become smaller than natural, and this may be the effect of an acrid flux of pituita, or of constant weeping, or of a blow improperly treated. In such cases also the same mild applications are to be employed, mixed up with woman's milk: and, as to food, such as has been found by experience to be

most nutritious and fattening : all circumstances calculated to excite tears are to be avoided, as also are domestic cares : therefore occurrences having such a tendency must be concealed from the patient's knowledge. Medicines and food of an acrid quality prove hurtful in no way more than by the tears they excite.

15. There is a species of malady in which lice are generated in the eyelashes : the Greeks name it *φθειρίασις* (phtheiriassin). As this arises from a bad habit of body, the mischief seldom stops here, but after some time a very severe discharge of pituita ensues, and the eyes being excessively ulcerated, it even destroys the sight. For persons thus suffering, purging by clyster must be employed ; the hair of the head should be clipped close to the scalp, and the head itself well rubbed daily while they are fasting : they should diligently practise walking and other exercises ; use gargarisms consisting of a decoction of catmint and mellow figs in mulse ; foment the head frequently in the bath with plenty of hot water ; avoid acrid nutriments ; use milk and wine of a rich quality ; and drink more freely than they eat. Medicines are to be exhibited internally likewise ; but these should be of a mild nature, lest they aggravate the acridity of the pituita : and other applications are to be used to destroy the lice and prevent their further production. For this last purpose aphronitre p. ℥. i. sandarach p. ℥. i. stavesacre p. ℥. i. are rubbed together, and oil and vinegar added in equal proportions, until the whole acquire the consistence of honey.

16. Thus far we have spoken of those ophthalmic diseases which are treated by mild applications. Now we come to other kinds, requiring a different method of cure ; these being usually the result of inflammation, but going on even after that has ended, independently of the original cause. And, firstly, in some cases a thin pituita continues to flow. For these the bowels are to be purged by clyster, and the diet lowered : nor will it be inappropriate to anoint the forehead with the composition of Andreas : this contains of gum p. ℥. i. ceruse, antimony, of each p. ℥. ii. litharge baked and washed p. ℥. iv. Now the litharge must be boiled in rain-water, and the dry ingredients rubbed with myrtle-juice. The forehead having been smeared with these, a poultice of meal made into a paste with cold water, with the addition of juice of acacia, or cypress, is also to be laid over it.

Cupping at the top of the head, with previous incisions, or bleeding from the temporal artery, is a suitable remedy. But the mixture for inunction ought to contain of copper-scales, opium, of each p. ℥. i. hartshorn calcined and washed, washed lead, gum, of each p. ℥. iv. thus p. ℥. xii. Because this collyrium contains horn they call it *διὰ κέρατος* (*dia keratos*). Whenever I omit to express what kind of fluid is to be added, I would be understood to mean water.

17. For the same purpose there is that of Euelpides which he called *μεμιγμένον* (*memigmenon*). It contains, of opium, and white pepper, of each an ounce, of gum and calcined copper p. ℥. i. s. In the course of the treatment, bathing and wine employed at intervals are productive of advantage; and as an attenuating diet must be avoided by all who are suffering under lippitude, so more especially by those who have a thin flux of long continuance. But when tired of those aliments which incrassate the phlegm, which is not at all an unusual occurrence in this kind of diet, recourse must be had to those which, because they brace the bowels, produce the like effect on the whole system also.

18. When the ulcers do not disappear with the inflammation, they are apt to grow fungous or foul, or they become excavated and always inveterate. Now such as are fungous are best repressed by the collyrium called *μεμιγμένον* (*memigmenon*). The foul ones are cleansed not only by the same, but by that named *σμύλιον* (*smilion*).

19. This last contains of verdigrease p. ℥. iv. of gum a like quantity, of ammoniacum, Sinopian minium, of each p. ℥. xvi. Some rub these ingredients with water, and some, to make them stronger, with vinegar.

20. That also of Euelpides which he called Phynon is well adapted to this case: of saffron p. ℥. i. opium, gum, of each p. ℥. ii. copper calcined and washed, myrrh, of each p. ℥. iv. white pepper p. ℥. vi. But this is to be properly tempered, before it is applied.

21. Another, invented by the same author, and called by him Sphæron, has the same virtues. Of blood-stone washed p. ℥. i. =. pepper six grains, washed cadmia, myrrh, opium, of each p. ℥. ii. saffron p. ℥. iv. gum p. ℥. viii. all triturated together with Aminæan wine.

22. He used to make a liquid application for the same purpose, in which were the following ingredients: of verdi-

grease p. ℥. =. calcined misy, green copperas, cinnamon, of each p. ℥. i. saffron, nard, opium, of each p. ℥. i. =. myrrh p. ℥. ii. calcined copper p. ℥. iii. of ashes prepared from aromatic herbs p. ℥. iv. of pepper gr. xv. These are to be triturated with a rough wine, then to be boiled with three heminæ of passum until the incorporation be complete. This medicine becomes more efficacious by keeping.

23. For filling concave ulcers of the eyes, the best of all those above recounted are the Sphæron, and that called Philalethes. This same Sphæron is likewise the best application for chronic ulcers, and for those which can scarcely go through the process of cicatrization.

24. There is also a collyrium, which, though efficacious in several affections, is, however, chiefly so in the ulcers just alluded to. Hermon is said to have been the inventor of it. It contains of long pepper p. ℥. i. =. of white pepper p. ℥. of cinnamon, costum, of each, p. ℥. i. green copperas, nard, cassia, castor, of each p. ℥. ii. of galls p. ℥. v. myrrh, saffron, olibanum, lycium, ceruse, of each p. ℥. viii. opium p. ℥. xii. aloes, calcined copper, cadmia, of each p. ℥. xvi. acacia, antimony, gum, of each p. ℥. xxv.

25. The cicatrices consequent upon ulcers are liable to two defects; they may be concave, or too prominent. Concave cicatrices may be filled up by that application which I have stated to be called sphæron, or by that called asclepios. In contains of opium p. ℥. ii. of sagapenum, opopanax, of each p. ℥. iii. of verdigrease p. ℥. iv. of gum p. ℥. viii. of pepper p. ℥. xii. washed cadmia, ceruse, of each p. ℥. xvi. But for lowering such cicatrices as are protuberant, there is the smilion, or the canopite collyrium: this consists of cinnamon, acacia, of each p. ℥. i. washed cadmia, saffron, myrrh, opium, gum, of each p. ℥. ii. of white pepper, olibanum, of each p. ℥. iii. calcined copper p. ℥. ix. Or the pyximum of Euelpides, which consists of the following: of fossile salt p. ℥. iv. of ammoniacum thymiana p. ℥. viii. of opium p. ℥. xii. of ceruse p. ℥. xv. of white pepper, Sicilian saffron, of each p. ℥. xxxii. of gum p. ℥. xiii. washed cadmia p. ℥. ix. Nevertheless the most active remedy for the removal of a cicatrix appears to be that containing of gum p. ℥. =. verdigrease p. ℥. i. crocomagma p. ℥. iv.

26. There is also a species of inflammation in which, provided the eyes swell and become distended from pain, it be-

comes necessary to bleed in the forehead; to freely foment the head and eyes with warm water; to gargle with lentils; or the cream of figs; to anoint with the acrid medicaments mentioned above, and especially with that called sphaerion, which contains blood-stone. Some benefit may accrue also from the use of those other applications expressly prepared for removing the roughness which I shall make the next topic of my discourse.

27. Now this is usually the consequence of inflammation of the eyes, and is sometimes considerable, at others slight. Sometimes it excites lippitude whereby the roughness itself is augmented; in some it is of short, and in others of long duration, so as to be almost permanent. In this affection some rasp the thick and hardened palpebræ, both with a fig-leaf, and with the asperated specillum, sometimes with the scalpel also; and everting them, they daily rub their under surface with medicaments. These means are exceptionable, except in a roughness that is both considerable and inveterate, and even then their frequent repetition is not desirable; for the same end is better attained by regimen and proper medicines. Hence exercise and the more frequent use of the bath must be had recourse to; the eyes must be fomented with plenty of warm water: what food is taken should be acrid and extenuating; and as an external application, that called the Cæsarian is to be preferred. It contains of green copperas p. ℥. i. misy p. ℥. =. white pepper p. ℥. =. opium, gum, of each p. ℥. ii. washed cadmia p. ℥. iii. antimony p. ℥. vi. And this collyrium is pretty generally admitted to be good against all kinds of diseases of the eyes, except such as require lenient applications.

28. That called Hierax is also efficacious for removing a roughness. Its components are myrrh p. ℥. i. ammoniacum thymiama p. ℥. ii. rasile verdigrease p. ℥. iv. For producing a like effect there are also those called canopite, smilion, pyxinum and sphaerion. In the absence of compound applications, a roughness may be conveniently enough treated with goat-gall or the finest honey.

29. There is also a kind of dry lippitude which the Greeks denominate *ξηροφθαλμιαν* (xerophthalmian). The eyes neither swell nor discharge, but are only red and uneasy with some degree of pain, becoming glued up at night by a very troublesome pituita; and the less violent any

attack of this species, the slower is its termination. In this malady it is necessary to walk much, to use considerable exercise, to bathe frequently, to sweat in the bath, and freely to employ friction. The diet should neither be impleting, nor too acrid, but such as is of an intermediate nature. In the morning when it is plain that concoction is perfect, it is no bad plan to gargle with mustard, and afterwards to rub the head and face for some considerable time.

30. But here the best collyrium is that bearing the name of Rhinion. It contains of myrrh p. ℥. —. opium, acacia-juice, pepper, gum, of each p. ℥. i. of blood-stone, Phrygian stone, lycium, scissile stone, of each p. ℥. ii. calcined copper p. ℥. iv. And pyximum is also an appropriate application in the same affection.

31. But if the eyes be scabrous, (which mostly happens in their angles,) the Rhinion above spoken of may be of service; so likewise may be that which contains of rasile verdigrease, long pepper, opium, of each p. ℥. ii. white pepper, gum, of each p. ℥. iv. washed cadmia, ceruse, of each p. ℥. vi. But there is none superior to that of Euelpides which he used to call βασιλικόν (basilikon). Its ingredients are opium, ceruse, Assian stone, of each p. ℥. ii. gum p. ℥. iii. white pepper p. ℥. iv. saffron p. ℥. vi. psoricum p. ℥. xiii. Now psoricum is not a simple substance, but a certain portion of chalcitis, and half as much again of cadmia are triturated together with vinegar, and this being put into an earthenware vessel and covered over with fig-leaves, is buried under ground for twenty days, and when taken up again it is powdered, and called by the name just employed. The basilicum collyrium is also universally acknowledged to be a proper application for all those disorders of the eyes, which do not require mild medicaments. But when compound medicines are not to be had, both honey and wine smooth the corners of the eyes when scabrous: bread softened with wine and laid over the eyes not only affords relief in this disorder, but in a dry lippitude also. For, since there is generally a humour either exasperating the eye itself, or its angles, or its palpebræ, by this application any matter already discharged is extracted, and that which is in the vicinity of it is repelled.

32. Caligo of the eyes is sometimes the result of lippitude, sometimes occurs independently of that affection, and is

sometimes the consequence of old age, or of weakness otherwise contracted. If the affection occur as the sequel of lip-pitude, the collyrium which is called *Asclepios* will be of service, as also will that prepared with crocomagma.

33. That they call *διὰ κρόκου* (*dia krokou*) is also prepared purposely for this disorder. It contains of pepper p.  $\chi$ . I. Cilician saffron, opium, ceruse, of each p.  $\chi$ . II. psoricum, gum, of each p.  $\chi$ . IV.

34. But if it be the natural result of advanced age or debility, inunction with the best honey, cypress-oil, and old oil, will be a suitable remedy for it. However, the best plan is to mix together one part of balsam, two of old oil or oil of cypress, and three of the strongest honey. Some benefit may be derived also from the medicines for caligo just now comprised, and from those which have been cited above for thinning cicatrices. But every person affected with caligo should practise walking and other exercises to a considerable extent, use the bath frequently, and while there rub the entire body, but chiefly the head, with orris-oil until a sweat break out: he should then be wrapped up, nor should he be uncovered until, at his own home, the sweating and heat shall have subsided. He should use acrid and attenuant aliments; and after an interval of some days gargle with mustard.

35. CATARACT, which the Greeks call *ὑπόχυσιν* (*hupo-chusin*), sometimes opposes itself to the power of the eye, just at the axis of vision. This, if inveterate, requires an operation: at its commencement it is now and then got rid of by a nice observance of certain remedial measures. It is expedient to bleed from the forehead or from the nose; to cauterize the temporal veins; to evocate the pituita by the use of gargarisms; and to anoint the eyes with acrid medicaments. The best diet is that which attenuates the pituita.

36. A resolution of the eyes or *παράλυσις* (*paralysis*), as the Greeks term it, requires the same regimen and the like applications. It will suffice, therefore, merely to explain the nature of this malady. It sometimes occurs in one, and sometimes in both eyes, either from a blow, or from epilepsy, or from convulsions, by any of which the eye may have received such a shock, that its motions can neither be directed, nor itself be kept altogether fixed; but is rolled to and fro involuntarily, and therefore fails to represent any object distinctly.

37. That which the Greeks call *μυδρίασις* (*mudriasin*) is not much unlike this last affection. The pupil is relaxed and dilated, and its sight grows dim: and this kind of weakness is exceedingly difficult of cure. In either case, that is to say, whether in a paralysis or a mydriasis, with some slight variation, we are to use the same remedies as those prescribed for caligo of the eyes; for to the orris-oil used for the head it will be necessary sometimes to add vinegar, and at others nitre; for the inunction honey will suffice. In the latter of the two affections some have obtained relief by the use of hot waters: some without any apparent cause have suddenly become stone blind. Now of such patients some, after having seen nothing for some considerable time, have recovered their sight upon the occurrence of a sudden diarrhœa. Hence, both in a recent case and in one of some standing, it would appear plausible to produce a purging by the use of medicines, in order to drive all the noxious matter into the lower parts.

38. Besides these there is a weakness of the eyes, during the existence of which, some persons have a tolerably distinct vision by day, but can see nothing by night; which malady never occurs to females whose menstrual purgations are regular. Now such persons ought to be anointed with the sanies which flows from a roasted liver, and in preference with that of a he-goat; or otherwise of a she-goat: and they should eat the liver likewise. One may also employ with some benefit those same preparations which are used for attenuating cicatrices, or roughness. Some having added honey to powdered purslane-seed, so as to prevent it from dropping from the point of a probe, anoint the eyes with this mixture. Exercises, bathing, frictions, and the gargarisms already mentioned are also to be used by such patients.

39. The disorders above mentioned arise from some internal cause. But the eye may be so much injured externally by a blow, as to occasion extravasation of blood. In this case one can do nothing better than anoint it with the blood of a pigeon or a ring-dove, or a swallow. Nor is that practice altogether devoid of rational foundation; for when the sight of these birds has received external injury, after an interval of some time it returns to its original condition, and that of the swallow most rapidly. Hence originated the fabulous account of these birds healing the wounded eyes of their young by means of some herb; while in truth the cure



is spontaneous. Therefore their blood is a very appropriate remedy for local injuries of our own eyes; but of the three kinds just mentioned, that of the swallow ranks first in the order of efficacy, that of the ring-dove next, and last of all that of the pigeon, whether considered as a remedy for the bird itself, or for us. In order to lessen the inflammation, it is of some service to apply cataplasms over the wounded eye. The ammoniacal, or some other salt ought to be very finely powdered, and oil gradually added thereto till it acquire the consistence of strigent; and then this is to be mixed with barley-meal boiled in mulse. After reviewing all that physicians have written on the subject, any person may easily satisfy himself that there is scarcely a single malady among the ophthalmic diseases above comprised, but what may be removed by simple and easily-procured remedies.

VII. 1. Thus far we have investigated such disorders of the eyes as are principally benefited by medicaments: it is now fit that we advance to the consideration of the organ of hearing, which next to the sight is the most useful faculty bestowed upon us by nature. Now ophthalmic disorders are limited to the eyes themselves; but inflammations and pains of the ears are much more dangerous, for instances occur in which they rapidly induce delirium and death. This makes it incumbent on us not to lose a moment in affording relief, that we may prevent the possibility of greater danger. Compatibly with this object, immediately any one has ear-ache, he ought to abstain, and practise regimen. On the following day, if the affection have gained ground, he should have his head shorn, anoint it with hot orris-oil, and keep it covered. Severe pain with fever and watchfulness demands venesection also; but if there be any circumstances counter-indicating that remedy, purging by clyster is to be instituted. Benefit is to be derived from the use of hot cataplasms of fenugreek or linseed, or other meal boiled in mulse. Sponges are also employed with advantage, frequently squeezed out of hot water. After some mitigation of the pain, a cerate prepared with orris or cypress oil should be kept bound on the part; although in some cases that made with rose-oil answers better. Should the intensity of the inflammation altogether prevent sleep, poppy-heads fried and powdered ought to be added to the poultice, so as to constitute one half of it: and the mixed passum should be the liquid se-

lected to boil them in. Some preparation also ought to be poured into the ear, and this should invariably be tepid : it is most conveniently instilled by means of a strigil. Having filled the cavity of the ear, soft wool is to be laid over it, in order that it may keep in the fluid. Now these are everyday remedies. But rose-oil, and the juice of reed-roots, and oil in which worms have been boiled, and the juice expressed from bitter almonds, or from the pippin of the Persian apple, are all used as local applications. The following are the compounds most usually employed for mitigating inflammation and pain of the ears : equal parts of castor and opium are rubbed together, and passum afterwards added to them ; or equal portions of opium, saffron, and myrrh, alternately adding rose-oil and passum during the process of trituration : or the bitter part of the Egyptian bean is rubbed up with rose-oil ; besides which some mix a little myrrh, or opium, or olibanum with breast-milk, or the juice of bitter almonds with rose-oil ; or equal parts of castor, myrrh, and opium with passum ; or saffron p.  $\times$ . =. myrrh, scissile alum, of each p.  $\times$ . =. to which are gradually added, during trituration, three cyaths of passum and two of honey ; and this is one of the best remedies employed ; or opium dissolved in vinegar. We may also have recourse to Themison's composition, which contains of castor, popanax, opium, of each p.  $\times$ . II. spume of lycium p.  $\times$ . IV. : these are rubbed together and incorporated with passum until they acquire the consistence of a cerate, and are preserved in this state. When required for use, this medicine is again rubbed down with a specillum, passum being added to it. It is an inviolable rule that, as often as any medicament becomes too thick to be dropped into the ear, it will be expedient to add more of the same fluid with which it was originally compounded, until it become sufficiently liquid.

2. But if the ears contain pus also, it is serviceable to pour into them lycium unmixed, or orris-unguent ; or leek-juice with honey ; or juice of centaury with passum ; or juice of a sweet pomegranate warmed with its rind, with the addition of a little myrrh. A suitable mixture may also be prepared from p.  $\times$ . I. of the myrrh called *στακτην* (staktēn), a like quantity of saffron, twenty-five bitter almonds, and a cyath and a half of honey : these are to be rubbed together, and when required for use to be warmed in the shell of a pomegranate. Those medicaments also which are com-

pounded for ulcers of the mouth, are equally sanative for ulcers of the ears. When the latter are inveterate and discharge much sanies, that is a suitable composition which is said to have been invented by Erasistratus: it consists of pepper p.  $\times$ . =. saffron p.  $\times$ . =. myrrh, baked misy, of each p.  $\times$ . I. calcined copper p.  $\times$ . II. These are rubbed up with wine, and afterwards, when they have grown dry, three heminæ of passum are added, and all are boiled together: honey and wine are mixed with them just as required for use. There is also the medicinal application invented by the surgeon Ptolemy; its ingredients are mastich p.  $\times$ . =. galls p.  $\times$ . =. omphacium p.  $\times$ . I. with the juice of pomegranate. That of Menophilus is a very powerful application, and consists of the following: of long pepper p.  $\times$ . I. castor p.  $\times$ . II. myrrh, saffron, opium, Syrian nard, olibanum, pomegranate rind, pulp of the Egyptian bean, bitter almonds, purest honey, of each p.  $\times$ . IV. to which the strongest vinegar is added during trituration, until the consistence be that of passum. Crato's contains of cinnamon, cassia, of each p.  $\times$ . =. lycium, nard, myrrh, of each p.  $\times$ . I. aloes p.  $\times$ . II. honey three cyaths, and of wine one sextarius: the lycium is boiled with the wine, and the remaining ingredients mixed in afterwards. But if the pus be copious, and accompanied with fetor, rasile verdigrease and olibanum each in the proportion of p.  $\times$ . II. two cyaths of honey, and four of vinegar are to be boiled together, and with these sweet wine is to be mixed when required for use. Or a mixture may be formed of equal parts by weight of scissile alum, opium, and acacia-juice, to which henbane-juice may be added, but in the proportion of one half the weight of either of the other ingredients; these when powdered are to be diluted with wine. Henbane-juice is also used alone with considerable advantage.

3. But a general remedy against all diseases incident to the ear, and one confirmed by experience, is that composed by Asclepiades. It contains of cinnamon, cassia, of each p.  $\times$ . I. of flowers of round cyperus, of castor, of white pepper, long pepper, amomum, myrobalanus, of each p.  $\times$ . II. male thus, Syrian nard, fat myrrh, saffron, aphronite, of each p.  $\times$ . III. first powdered separately, then mixed, and rubbed up with vinegar: preserved in this state, they are diluted with more vinegar, just as required for use. So also the sphragis of Polybus dissolved in sweet wine is a

common remedy for affections of the ears: the receipt for preparing it is in a former book. But if there be a sanious discharge with tumour, it will be of some service to syringe the ears with diluted wine; and then to infuse austere wine mixed with rose-oil, adding a small quantity of spodium; or lycium with milk, or juice of blood-herb with rose-oil, or pomegranate-juice with a very small quantity of myrrh.

4. If the ulcers be also foul, it is better to wash them with mulse, and afterwards to pour in either of the above-mentioned compositions containing honey. If the discharge of pus be more considerable, the head should be well shorn, and sluiced with plenty of hot water; and the patient should gargle, walk till he finds himself fatigued, and take food in moderation. If blood be seen to flow from the ulcers, lycium ought to be poured in, dissolved in milk: or a decoction of roses with the juice of blood-herb or acacia. But if fungus grows on the ulcers, and if that pours out a fetid sanies, it requires to be washed with tepid water; and then should be infused that composition which is made of olibanum, verdigrise, vinegar, and honey; or honey boiled with verdigrise. Also copper scales powdered with sandarach may be dropped in by means of a canula.

5. When worms are generated in the ears, if within reach, they are to be extracted by the ear-probe: if too far for this, they must be extracted by medicines, and their further formation prevented. White hellebore triturated with vinegar answers both intentions. The ear may likewise be washed with a decoction of horehound in wine. Dead worms slide down towards the external meatus, from whence they are easily removed.

6. But if the orifice of the ear becomes narrowed, and a thick sanies forms within it, the best honey ought to be introduced. If that be ineffective, p. ꝥ. ii. of rasile verdigrise, added to a cyath and a half of honey, must be boiled and similarly used. Orris with honey is also serviceable. Also galbanum p. ꝥ. ii. myrrh and ox-gall, of each p. ꝥ. = =. with enough wine to dissolve the myrrh.

7. When deafness begins to be experienced, (and this is a common consequence of long-continued head-aches,) we ought in the first place to inspect the ear: for we shall either see an incrustation, like that which accretes on ulcers, or else an accumulation of sordes. If an incrustation, we must pour in either hot oil, or verdigrise with honey, or

juice of leek, or a little nitre with mulse : as soon as the incrustation begins to detach itself from the surface, the ear is to be syringed with warm water, to facilitate extraction by the ear-probe. If there be a collection of soft sordes, it must be removed by the same instrument : but if hard, vinegar with a little nitre is to be injected, and, when softened, the ear must be syringed and cleansed in the same manner. But if a sense of uneasiness still remain in the head, it must be shorn of its hair and rubbed over gently, but for some considerable time, adding to the unguent used for that purpose orris or laurel oil, and mixing a little vinegar with either of these : the patient should then walk for some considerable time, after inunction foment his head moderately with hot water, and use food of the weakest and middle class ; his drink should be weaker than usual, and gargarisms must be occasionally employed. Furthermore, castor with vinegar and laurel-oil, and juice of radish-rind is to be poured into the ear ; or the juice of wild cucumber, with powdered rose-leaves. The juice of the unripe grape distilled with rose-oil is also a good remedy for deafness.

8. Internal ringing of the ears is a different kind of disease from the foregoing ; although this also impairs their power of receiving the impressions of sound. That is the slightest species which arises from *gravedo* : that is worse which ensues upon disease or upon chronic head-aches : but the most dangerous is that which is the forerunner of violent diseases, and particularly of epilepsy. If the affection arise from *gravedo*, one ought to clear out the ear, and hold in the breath until some frothy fluid proceed from it. If it owes its origin to disease, or to head-ache, so far as regards exercise, frictions, affusion, and the use of gargarisms, the same remedial measures apply as in the last-mentioned disease : all the food should be of an extenuating quality : radish-juice with rose-oil ought to be poured into the ear, or juice of wild cucumber with the radish-juice ; or castor with vinegar and laurel-oil. Hellebore is also rubbed with vinegar, then incorporated with boiled honey, and afterwards introduced into the ear in the form of a collyrium. If it has begun independently of the causes just expressed, and on that account inspires us with a dread of something worse, one ought to introduce into the ear castor with vinegar, or orris-oil, or laurel-oil, or, together with this last, castor with the juice of bitter almonds, or myrrh and nitre

with rose-oil and vinegar. Nevertheless in this malady more benefit is derivable from a strict regimen; and the same plan is to be pursued as above comprised, but with still greater exactitude: in addition to these, wine is to be excluded till the sound in the ears be cured. But if both a sounding and inflammation exist simultaneously, all that is requisite is to inject laurel-oil, or the expressed oil of bitter almonds, to which some add castor, or myrrh.

9. It sometimes happens too that something falls into the ear, a stone, for example, or some insect. If a flea have got into it, a little wool should be pushed in, into which it may creep, and with which it may be drawn out. If it do not thus come away, or if it be some other kind of insect, a probe wrapped in wool must be dipped into the most glutinous resin, and especially that of turpentine, and this should be introduced into the ear, and rotated there: for it will certainly inviscate and remove it. But if it be some inanimate substance, it must be extracted by the ear-probe, or by a blunt hook slightly curved: but should these fail, resin may be used, as just explained. Sternutatories are also very suitable remedies for forcing it out, or water forcibly squirted in with a syringe. Also a board is laid down, fixed at its centre with both ends overhanging the prop: on this the patient is tied, towards the side of the affected ear, in such a way that he may not reach over the board: then the end of the board where his feet are, must be struck with a hammer, and so by the shock given to the ear, the foreign body falls out.

VIII. 1. ULCERATED NARES require to be fomented with the steam of hot water. This may be either managed by squeezing a sponge therefrom, and applying it to the part, or by holding a vessel full of hot water directly under the nose. After the fomentation, the ulcers are to be anointed either with dross of lead, or with ceruse, or with litharge; and in the act of powdering either of these substances, wine and oil are to be by turns added thereto until the consistence be that of honey. But if the ulcers occupy the nasal bone, and are attended with several incrustations and a foul odour, which species the Greeks denominate *ὀζαιναν* (*ozainan*), one ought to know, that the affection is almost incurable: yet, however, the following measures are to be instituted by way of trial: the hair of the head is to be close clipped; the head itself is to be diligently and strongly

rubbed, and copiously sluiced with hot water; the patient should use much walking exercise, and food moderate in quantity, such as is neither acrid nor very nutritive. In the next place, honey may be introduced up the nose itself, along with a little resin or turpentine, which may be done by means of a probe rolled in wool; and the moisture is to be drawn in with the breath, until it be tasted in the mouth: for by adopting this method the crusts become detached, and are afterwards forced out in the act of sneezing. The steam of hot water is to be held under the ulcers when pure; and the next application should either be lycium dissolved in wine, or amurca, or omphacium, or the juice of mint or horehound; or green copperas heated to whiteness and then powdered, or the powdered pulp of squills, honey being uniformly added to either of these substances; that is to say, to the green copperas sufficient to form a liquid mixture, to the squills in the proportion of the greater half, and to the other substances a small quantity only. A probe is to be enveloped with wool, to be smeared with the composition, and thus the ulcers are to be incarnated: a piece of lint, of an oblong form, rolled up and dipped into the same medicine, is to be insinuated into the nostril, and moderately secured by a bandage at the lower part. This should be renewed twice a-day in winter and spring, thrice in summer and autumn.

2. Sometimes there is a formation in the nares of caruncular substances resembling the female breast, and these are most fleshy at their base or point of attachment. They require caustics, by the use of which they may be entirely destroyed. But a POLYPUS is a species of caruncle, sometimes white, sometimes reddish, adhering to the nasal bones; and at one time taking a direction towards the lips, it fills up the nostril; at another it falls back through the aperture by which the air descends from the nostrils to the fauces, increasing so extensively as to be seen behind the uvula: it greatly impedes the breathing, and that especially during the prevalence of the southerly or easterly winds: it is most frequently soft, though sometimes hard; and the latter kind produces more difficulty of respiration, with dilatation of the nostrils, and is usually carcinoid; hence it ought not to be meddled with. The other species is usually treated by the knife, though sometimes it dries away by the introduction of the following composition into the nostril by

means of a piece of lint or a penicillum : Sinopian minium, chalcitis, lime, sandarach, of each p. ℥. I. green copperas p. ℥. II.

IX. In TOOTH-ACHE, which may be justly ranked among the most excruciating affections, wine is most decidedly to be interdicted : even food, at first, ought to be denied, and afterwards employed sparingly, choosing such as is tender, that it may not irritate the teeth during mastication ; externally the steam of hot water must be applied by means of a sponge, and a cerate prepared with cypress or orris oil, spread on wool, is to be laid over the part, while the head itself ought to be covered. Should the pain become more severe, benefit may accrue from opening the bowels by clyster, laying hot poultices upon the jaw, and retaining in the mouth warm water impregnated with any proper medicines, and repeatedly renewing the liquid. For this purpose cinquefoil root is boiled in diluted wine, and henbane root either in posca or mixed wine, adding to both these liquors a small portion of salt ; so also poppy-heads, not too dry, and the root of mandragore. But especial care must be taken lest either of these three be swallowed. A decoction of the bark of the root of the white poplar is also a proper medicine for the same purpose ; so also hartshorn shavings in vinegar ; and catmint with a fat teda, or with a ripe fig either in mulse or vinegar and honey ; after boiling the fig the fluid must be strained ; also a probe enveloped in wool is to be immersed in hot oil, and with this the tooth itself is to be fomented. There are certain applications acting upon the tooth itself like a cataplasm : such is the pulp of the rind taken from a sour and dry pomegranate, rubbed up with a like portion of galls and pine-bark, with which minium is mixed ; these, after trituration, are beat up with rain-water ; or equal portions of panaces, opium, peucedanum and stavesacre without the seeds, are rubbed together ; or three parts of galbanum to one of opium. Be the local application to the teeth what it may, one should be equally exact in the use of the cerate for the jaw, covering it, as I said before, with wool. Some also mix together of myrrh, cardamom, of each p. ℥. I. saffron, pellitory, figs, pepper, of each p. ℥. IV. mustard p. ℥. VIII. : having rubbed them together, they smear them on a piece of linen rag, and apply them on the shoulder of that side where the tooth aches ; if in the upper jaw on the scapula, if in the lower on the breast,



and that alleviates the pain ; and after it has produced the proper effect, it is to be immediately removed. Even if the tooth be carious, unless there be urgent occasion, there is no need to be in a hurry to extract it ; but to each fomentation above mentioned other stronger compositions are to be added, of a nature calculated to allay pain, such as is that of Hera. It contains of opium p. ℥. i. pepper p. ℥. ii. sory p. ℥. x. ; these when powdered are formed into a mass with galbanum, and that is applied round the affected tooth. Or that of Menemachus, principally adapted for the molars: the ingredients are, of saffron p. ℥. i. cardamom, soot of frankincense, figs, pepper, pellitory, of each p. ℥. iv. mustard p. ℥. viii. But there are some who mix together of pellitory, pepper, elaterium, of each p. ℥. i. scissile alum, opium, stavesacre, crude sulphur, bitumen, laurel-berries, mustard, of each p. ℥. ii. If the pain render the removal imperatively necessary, either a pepper-corn or an ivy-berry freed from its bark, if introduced into the teeth, splits it, and thus it falls out in shelly portions ; so also the prickle of the flat-fish which our countrymen call *pastinaca*, but the Greeks *τρογῶνα* (*trugōna*), is torried, powdered and incorporated with resin, and this applied round the tooth has the power of loosening it ; scissile alum put into the tooth has also the power of detaching it. But a better mode of using it is to envelop it in wool, for in this manner it relieves the pain without injuring the tooth. These are the remedies in repute among physicians. But the experience of the peasantry has taught them, that in tooth-ache it is a good plan to pull up the herb wild thyme, root and all, throw it into a basin, and pour water on it, and let the patient sit near it covered all over with clothes ; then flints heated to whiteness are to be thrown into the basin, so as to be covered with the water, and the person is to receive the vapour with his mouth open, close wrapt up, as before directed. For a very copious sweat ensues, and a continued stream of humour flows from the mouth : this remedy always insures a good state of health for a year afterwards, and not unfrequently for a longer period.

X. But if the TONSILS become ENLARGED from inflammation without being ulcerated, the head must be covered, and externally the part is to be fomented with hot steam ; walking must be extensively employed ; the head kept high in bed ; and the patient should gargle with refreshing gar-

garisms. Also, the root called liquorice bruised and boiled in passum or mulse is serviceable in this case. It is not a bad plan to gently anoint the tonsils with certain medical applications; these are thus prepared. The juice of a pomegranate is expressed, and a sextarius of it is boiled over a gentle fire until its consistence be that of honey: then p. ℥. ii. of saffron, myrrh, and scissile alum are separately powdered; and to these are gradually added two cyaths of mild wine, and one of honey; afterwards these are mixed with the former juice, and again simmered, or a sextarius of the same juice is boiled in a similar way, and the following ingredients after being powdered are added in like manner: of nard p. ℥. —. omphacium p. ℥. i. cinnamon, myrrh, cassia, of each p. ℥. i. Now these are adapted both for purulent affections of the ears and nostrils. The food in this species of illness ought to be mild, that it may produce no irritation. But should the inflammation be considerable enough to impede respiration, the patient should remain quiet in bed and abstain from food, taking nothing but warm water; his bowels also ought to be opened by clyster, gargles should be used consisting of figs and mulse; the parts should be anointed with honey and omphacium; steam should be applied to the external fauces, for a considerable time, until the tonsils suppurate and open spontaneously. If these tumours contain pus, and yet do not come to a head, incisions are to be made into them, and then the patient should gargle with hot mulse. But if the tumour, though moderate, be attended with ulceration, a little honey is to be added to the cream of bran, to form the gargle, and the ulcers should be touched with the following: three heminæ of the sweetest passum are boiled down to one; and to this is added of olibanum p. ℥. i. saffron, myrrh, of each p. ℥. ʒ. and the whole are again simmered. After the ulcers become clean, they should be gargled with the cream of bran just mentioned, or with milk. And in this affection also the food ought to be of a mild quality, allowing in addition a little mild wine.

XI. ULCERS of the MOUTH, if attended with inflammation, and if foul and red, are best treated by the applications prepared from pomegranates, as above mentioned: and a repressing cream, with the addition of a little honey, is to be retained in the mouth. Walking and bland food are to be resorted to. But as soon as the ulcers begin to be clean,

some bland fluid, and now and then the purest water, is to be held in the mouth: now also the taking of sound wine and a more generous diet, (acid aliments excluded,) become serviceable; and the ulcers ought to be sprinkled with scissile alum added to one half its quantity of unripe galls. If clothed with crusts like eschars from a burn, we are to use those compositions which the Greeks call ἀνθηράς (antheras). Of juncus quadratus, myrrh, sandarach, alum, of each equal parts: or of saffron, myrrh, of each p. ℥. II. of orris, scissile alum, sandarach, of each p. ℥. IV. juncus quadratus p. ℥. VIII. or of galls, myrrh, of each p. ℥. I. scissile alum p. ℥. II. rose-leaves p. ℥. IV. Some mix of saffron p. ℥. ʒ. scissile alum, myrrh, of each p. ℥. I. sandarach p. ℥. II. juncus quadratus p. ℥. IV. The former are sprinkled on dry; the last used as an unction with honey, not only for these ulcers but for the tonsillar affections also.

But by far the most dangerous ulcers of the mouth are those which the Greeks denominate ἀφθᾶς (aphthas), although chiefly so in children, for with them this disease often proves destructive. In adults of either sex it is not of so fatal a character. These ulcers first form in the gums, and afterwards occupy the palate and entire mouth: they then proceed backwards to the uvula and fauces, which, when once attacked, render the infant's convalescence no easy matter. The case is still more lamentable if the infant be still at the breast, for this is a great impediment to the employment of any remedy. However, in the first place the nurse should be compelled to exercise herself not only by walking, but by such employment as will bring into action the superior parts of the frame: she must be sent to the bath, and enjoined while there to sluice the breasts with hot water: she should then be nourished with gentle food, and such as is not easy of putrefaction: if the infant be feverish, the nurse should drink water in preference; if free from fever, wine diluted: and if her bowels be constipated, these should be opened by clyster. If she have a collection of phlegm in her mouth, she ought to vomit. In the next place the ulcers themselves are to be anointed with honey, to which has been added Syrian rhus or bitter almonds: or with a mixture of dry rose-leaves, pine-nuts, mint-stalks, and honey: or with that composition which is prepared from mulberries; the juice of which, like that of pomegranates, is boiled down to the consistence of honey, and afterwards receives the ad-

dition of saffron, myrrh, alum, wine and honey. Nor should any thing be given by which the discharge of humour may be elicited. If the child be stronger in years, such gargles for the most part ought to be used as have been before comprised. And, should mild applications prove inefficient, those are to be resorted to, which, by their caustic quality, induce an eschar upon the ulcers; such as scissile alum, or chalcitis, or copperas. Hunger also and the greatest possible abstinence may be of some service. The food should be bland; and sometimes, to promote the cleaning of the ulcers, cheese and honey may be given with good effect.

XII. Also ULCERS of the TONGUE require the same applications set forth in the beginning of the last chapter. Those on its margins last the longest. We should observe whether there be a sharp tooth opposite, for frequently this prevents the healing process; and therefore requires filing.

XIII. Sometimes also in the vicinity of the teeth certain painful tubercles occur: these the Greeks call *παρουλίδας* (*paroulidas*). At first it is proper to rub them gently with powdered salt; or with a mixture of calcined fossile salt, cypress, and cat-mint: then the patient should wash his mouth with the cream of lentils, and keep it open so as to allow of the escape of a sufficient quantity of pituita. But as the inflammation increases, recourse is to be had to the same applications which have been above proposed for ulcers of the mouth: furthermore, either of the compositions I said were called *ἀνθηραι* (*antherai*), is to be rolled up in a little lint, and this is to be insinuated between the tooth and the gum. But should the tumour be so hard as to render this impracticable, the steam of hot water is to be employed externally with a sponge, and cerate afterwards used as a local application. If suppuration manifest itself, the steam must be employed for a longer period, and a hot decoction of figs in mulse should be retained in the mouth. The tumour should be opened before it is thoroughly matured, lest the pus by remaining confined for a longer period produce lesion of the mouth. But if the tumour be considerable, it is better to extirpate it entirely, so as to liberate the tooth on both sides. The pus being discharged, provided the wound be small, all that is requisite is to hold hot water in the mouth, and to use its vapour externally as a fomentation; but if it be of a larger size, the cream of lentils should be used, together with the same local applications as are employed for the cure of other ulcers of the

mouth: it is highly requisite, however, to chew the herb privet, and to retain its juice in the mouth. There are other ulcers commonly occurring in the gums requiring the same mode of relief as is employed in ulcers of other parts of the mouth. Occasionally it happens, that pus continues to be discharged from the gums for a considerable time whether the tumour was a *παρουλις* (*paroulis*) or not: this is commonly the effect of a decayed or broken tooth, or of bone otherwise diseased, and that generally through a fistulous opening. In this case the affected gum should be lanced, the tooth extracted, and the splinter, if any be detached, is to be removed; while, if there be any unsound bone remaining, it ought to be rasped. What else is necessary to be done, has been comprehended above, when treating of the cure of other ulcers. But if the gums recede from the teeth, the antherous preparations already mentioned are capable of affording relief. It is of some utility also to chew pears or apples not too ripe, and to retain their juice in the mouth. Mild vinegar answers as well, used in the same way.

XIV. Active INFLAMMATION of the UVULA is an alarming affection. Hence in this case likewise abstinence is indispensably requisite, and bleeding is a proper remedy; or, if there be any thing to prevent that, clystering will be found serviceable: furthermore, the head should be kept covered and erect, and a decoction of bramble and lentils should be used as a gargle. The uvula itself ought to be anointed either with omphacium, or with galls or scissile alum, adding to either of these medicines a little honey. There is a local application suited to this purpose, bearing the name Andronium. It consists of the following: scissile alum, red copper scales, green copperas, galls, myrrh, and misy; these, separately powdered, are mixed and rubbed up again, austere wine being gradually added until they acquire the consistence of honey. To smear the uvula with juice of chelidony by means of a spoon is also of great service. After anointing the uvula with either of these preparations, a copious flow of pituita generally ensues; and when that has stopped, it is necessary to gargle with hot wine. If the inflammation be in a slighter degree, it will suffice to rub *assa-fetida* and to add a sufficient quantity of cold water to it, holding this water under the uvula by means of a spoon. When the tumefaction is inconsiderable, cold water itself, used in the same way, has the power of repressing it. But

it will be requisite to gargle with the same water, whether used with or without the assafetida, in the manner just described.

XV. Should ulcers of the mouth become gangrenous, our first duty is to consider whether the habit of body be depraved, and to rectify it, and next to cure the ulcers themselves. But if the affection be superficial, either of the antherous preparations sprinkled in the dry form upon the humid ulcer will answer well enough; or for one that is less humid these same should be smeared on, mixed with a little honey: if somewhat more deeply rooted, two parts of burnt paper to one of orpiment: if the malady have penetrated to a considerable depth, three parts of burnt paper to one of orpiment; or equal parts of fried salt and fried orris; or chalcitis, lime and orpiment, also in equal proportions. But it will be necessary to soak a piece of lint in rose-oil, and to lay it over the caustic applications, to protect the contiguous sound parts. Some also cast fried salt into a hemina of strong vinegar until it ceases to be dissolved; they then boil the vinegar to dryness, and sprinkle the residuary salt in a state of powder. As often as the local application is renewed, both before and afterwards, the mouth is to be rinsed with cream of lentils, or with a decoction of vetches, or olives, or vervains, a little honey being added in either case. Also vinegar of squill held in the mouth is an efficacious remedy against such ulcers: and so again the salt boiled down from vinegar, as just directed, a second time dissolved in the same menstruum. But both these liquids must be retained for a considerable time, and used twice or thrice a day, according to the severity of the symptoms. If the case be that of a child, a probe rolled in wool must be dipped into the medicine, and held in contact with the ulcer, lest the caustic be incautiously swallowed. If the gums be painful, and the teeth loose, these should be extracted, for they are no small impediment to the cure. If all applications prove unavailing, the ulcers are to be cauterized; a measure, however, which is not necessary when they are situated in the lips, because their excision is more convenient. Whether the part have been cauterized, or extirpated by the knife, it cannot be incarned without surgical treatment. Now the bones of the gums being possessed but of a low degree of vitality, always remain bare after the cauterization, nor does the flesh ever grow there again. How-

ever, lentils should be applied over the cauterized parts, until they recover their soundness to the fullest possible extent.

XVI. Such are the diseases of the head usually requiring local applications. But just below the ears parotid tumours not unusually make their appearance; sometimes when the general health is good, as the consequence of local inflammation, and sometimes after protracted fevers, in consequence of the impetus of the disease being thrown on this part. It is in fact a kind of abscess, and needs no peculiar method of treatment. One caution only would appear requisite: if the tumour occur without previous disease we must first try repellents; if it occur as the sequel of some other sickness, to resolve it is improper; the better plan is to mature and open it as soon as possible.

XVII. For a prominence of the navel, in order to avoid a surgical operation with the knife, we must first make trial of abstinence; the bowels too in this case may be opened by elyster, and the following composition applied over the umbilicus: of hemlock, and soot, of each p.  $\chi$ . I. washed ceruse p.  $\chi$ . IV. washed lead p.  $\chi$ . VIII. together with two eggs; and to these juice of nightshade is added. This application must be kept on for some considerable time, and in the interim the patient should remain quiet, use food in moderation, and refrain from every thing of a flatulent quality.

XVIII. 1. The next affections are those which belong to the privities; the terms expressive of which, are among the Greeks tolerable enough, and now in general use; for they are met with almost in all medical works and treatises: our vernacular terms are coarser, and not borne out by being in use among those who have a due regard to modesty in their discourse; so that to one who is desirous of at once expressing himself with delicacy, and at the same time of plainly delivering the precepts of the art, to afford a description of such diseases is no easy matter. Not that this should deter me from writing an account of them: first, because I would omit nothing that may prove conducive to the recovery of health; and, secondly, because there are no diseases whose cure ought to be more generally known than those which one man has the greatest reluctance to submit to the inspection of another.

2. If the penis be swollen from inflammation, so that the

foreskin can neither be retracted nor brought forward, the parts must be freely fomented with hot water: but should the glans penis be concealed, hot water must be introduced between it and the foreskin by means of a syringe. If the skin thus softened and extenuated yield so as to allow of extension, the rest of the cure will be less difficult: if the swelling prevail over our best efforts, we should apply lentils, or horehound, or olive-leaves boiled in wine, adding in either case, while we are triturating these articles, a small portion of honey. The penis should be supported by being tied upwards to the belly, a measure uniformly expedient in the treatment of all affections of this part: and the patient should observe a strict regimen, abstain from food, and relieve urgent thirst by drinking plain water. On the following day fomentations of water are again to be employed in the manner aforesaid, and we are to try with some degree of force to retract the foreskin: if it will not yield, a slight incision should be made at its upper part; for after the sanies has escaped, the part will become less bulky, and the skin may be more easily drawn over. However, whether the affection have been subdued by this last method, or have not resisted the first, ulcers will be detected either in the back part of the foreskin, or in the glans, or beyond this on the body of the penis itself: these will necessarily be either clean and dry, or humid and purulent. If dry, they are first to be fomented with hot water; and afterwards lycium should be applied in wine, or amurca boiled with the same, or butter with rose-oil. If there be a slight humour in them, they should be washed with wine; we are then to mix a little honey of roses, and one-fourth of turpentine resin with butter, and employ that as a dressing. But if the discharge be purulent, the sores ought in the first place to be well washed with warm mulse; then we should employ a mixture consisting of pepper p. ℥. i. myrrh p. ℥. ʒ. saffron, baked misy, of each p. ℥. ii. boiled down with austere wine to the consistence of honey. Furthermore, the same composition suits affections of the tonsils, moist uvula, and ulcers of the mouth and nose. There is another of like efficacy: of pepper p. ℥. ʒ. myrrh p. ℥. ʒ. saffron p. ℥. ʒ. ʒ. baked misy p. ℥. i. calcined copper p. ℥. ii.: these are first triturated with austere wine, and when they have become dry, are again rubbed up with three cyaths of passum, and boiled down to the consistence of viscus. Also verdi-



grise with boiled honey, and those medicines which have been above comprised for ulcers in the mouth : or the composition of Erasistratus, or that of Crato, is a proper application for purulent genitals. Also olive-leaves are boiled in nine cyaths of wine ; to these is added scissile alum p.  $\chi$ . IV. lycium p.  $\chi$ . VIII. with a cyath and a half of honey ; and this application is thinned by adding more honey, if the purulent discharge be copious ; and wine if it be scanty.

One may take it as a general rule, that, after curing the phymosis, so long as inflammation remains, one ought to apply the cataplasm above mentioned, and to dress the ulcers in the same manner. But if the pus have begun to flow abundantly, and its odour be offensive, it ought to be washed away with the cream of lentils, to which a little honey has been added : or olive or mastich leaves, or horehound, should be boiled down, and the juice used in a similar manner with honey. One should use the dressings as in the last case, or omphacium with honey ; or that made for the ears, consisting of verdigrise and honey ; or the composition of Andro, or an anthera incorporated with a little honey. Some treat all the ulcers which we have mentioned with lycium in wine. But if the ulcer spread wide and deep, it should be washed in a similar manner, and verdigrise, or omphacium with honey ought to be applied thereto ; or Andro's composition ; or of horehound, myrrh, saffron, baked scissile alum, dry rose-leaves, galls, of each p.  $\chi$ . I. Sinopian minium p.  $\chi$ . II. These are first rubbed separately, and then together, honey being added until the consistence be that of liquid cerate ; they are then simmered in a copper, taking care lest they boil over ; and when drops of it harden, the vessel is removed from the fire ; this medicine is dissolved in honey or wine, just as required for use. The same composition is usefully employed by itself against fistulas. Sometimes the ulcer descends to the nerves, and there is a copious discharge of fetid thin sanies, of no consistence, but resembling water, in which flesh has been recently washed ; and the part is painful, and has a prickling sensation in it. Now, although this species is of the purulent kind, yet it requires bland applications, such as the tetrpharmacum plaster dissolved in rose-oil, with the addition of a little olibanum : or that prepared from butter, rose-oil, resin, and honey, as above described. This sort of ulcer particularly should be freely fomented with hot water, and covered so as to be defended

from the cold. Sometimes, from the effect of the ulcers, the penis becomes so much consumed under the foreskin that the glans falls off. In this case the prepuce itself must be circumcised. And uniformly whenever the glans or any part of the penis has either sloughed, or has been cut away, the investing portion of prepuce is not to be preserved, lest it come in contact with the ulcer, and be agglutinated therewith, so that subsequently its retraction becoming impracticable, it may possibly close up the urethra.

TUBERCLES, called by the Greeks *φύματα* (phumata), also form about the glans: these are burnt away either by caustics, or the actual cautery; and when the eschars have sloughed, copper scales are sprinkled on the part, to prevent a second morbid growth.

3. These affections fall short of gangrene, to which all parts of the body are liable, but ulcers of the genitals especially. The malady begins with a blackness, and, if this have attacked the skin, the probe is to be put under it, and an incision made there: the cut edges are then to be grasped with the forceps, and all the gangrenous portion removed, together with a little of the sound, and the part must be cauterized. As often as cauterization is practised, lentils must be applied of course; and subsequently when the crusts have fallen off, the ulcers are to be treated like any other sores. But if the gangrene have attacked the body of the penis, some of the caustics are to be sprinkled on the part, and particularly that consisting of lime, chalcitis, and orpiment. If the medicines be not powerful enough, in this case also all the diseased parts are to be cut away, including some portion of the sound. After excision in gangrene, cauterization must uniformly be had recourse to. But if the incrustations produced by the applications or by the actual cautery become callous, there is a great danger of hæmorrhage taking place after they slough away. Therefore there is need of long-continued repose; so absolute, as scarcely to move, until the crusts become gently detached along with the pus itself. But if the patient have designedly or inadvertently separated the crusts by walking too soon, and hæmorrhage be the result, cold water must be applied: should this be inefficient, we must have recourse to styptics; and if even these fail, the part must be cauterized carefully, and not boldly; nor should the same untoward accident be risked afterwards by any motion whatsoever.

4. Sometimes, in the same place, that species of gangrene occurs, which the Greeks denominate *φλεγδαίνα* (phlegdaina). As this admits of no delay, we should forthwith employ the medicines just mentioned; and if they be not sufficiently efficacious, the part must be cauterized. There is also a species of blackness (nigrities), not attended with pain, but which spreads, and, if not checked, reaches to the bladder, and becomes incurable. If it be at the end of the glans close by the orifice of the urethra, into this last a probe should be introduced, lest it be closed; and it is then to be cauterized: if it have penetrated deeply, the part affected must be removed by the knife. The remainder of the treatment is similar to that pursued in other kinds of gangrene.

5. Sometimes also a hard and almost insensible excrescence forms on the penis, which also requires excision. On the first appearance of a carbuncle in this part it should be washed with a syringe: afterwards it should be treated with caustic applications, and especially with chalcitis mixed with honey, or verdigrise with boiled honey, or with sheep-dung fried and rubbed up with honey. After it has sloughed we must employ the liquid applications which are composed for ulcers of the mouth.

6. If inflammation have arisen in the testicles independently of the effect of a blow, blood must be drawn from the ankle: abstinence is to be observed, and poultices applied, consisting of bean-meal boiled in mulse, and powdered cumin boiled with honey; or powdered cumin with cerate prepared with rose-oil; or fried linseed powdered and boiled in mulse; or wheat-flour boiled in mulse with cypress; or bruised lily-root. But if the testicles have become indurated, one ought to apply linseed or fenugreek seed boiled in mulse, or the cerate prepared with cypress oil; or similar medicines triturated with wine, and a little saffron as an adjunct. When the induration is of a more chronic character, the most serviceable application is the root of wild cucumber boiled in mulse, and afterwards bruised. When the swelling has been produced by a blow, blood-letting is necessary; especially if the testicles be livid. But our local application may be either of those compounded with cumin, and just now mentioned; or that composition which contains of baked nitre p. ℥. i. pine resin, cumin, of each p. ℥. ii. staves-acre, without the seeds, p. ℥. iv. honey, as

much as is requisite for the incorporation. But when, in consequence of a blow, there is a loss of substance in the testicles, there is usually an accumulation of pus; nor can relief be afforded in any other way than by making an incision into the scrotum, letting out the pus, and extirpating the testicle itself.

7. The anus also is liable to be affected with sundry most tedious maladies, not requiring any great variety in the modes of treatment. First, then, not unfrequently the skin falls into cracks, and that in several places: the Greeks call this affection *ράγάδια* (*ragadia*). If it be recent, the patient ought to remain quiet, and sit down in hot water. Pigeons' eggs are to be hard boiled, and their shells removed: then, alternately, one should be allowed to remain in hot water, while the part is fomented with the other. Then the tetrapharmacum, or the rhyodes, is to be diluted with rose-oil; or fresh *œsypum* should be mixed with the liquid cerate prepared from rose-oil; or to the same cerate, while liquid, washed lead is to be added; or myrrh to turpentine resin; or old oil to litharge; and with either of these the part is to be anointed. If there be lesion in a part that is external and not concealed, lint soaked in the same preparation is to be applied thereon, and whatever we have previously applied is to be covered with cerate. But in this case we should neither use acrid nor rough aliments, nor such as bind the bowels; all dry nutriments are improper, except in very small quantities. Liquid, mild, fat, glutinous articles are those which are to be preferred. There is nothing to prevent one using mild wine.

8. A *CONDYLOMA* is a tubercle usually arising from some degree of inflammation. When it appears, the same directions must be followed with regard to rest, food, and drink, as have been before laid down. The eggs before spoken of form a proper means of fomenting this kind of tubercle likewise; but the patient should previously sit in a decoction of repressing vervains. After that, lentils, with a small portion of honey, form a proper application; so also melilot boiled in wine; bramble-leaves triturated with cerate prepared from rose-oil; quince rubbed up with the same cerate, or the inner part of pomegranate bark boiled in wine; chalcitis boiled and triturated, and afterwards incorporated with *œsypum* and rose-oil; or some of that composition which contains of *olibanum* p.  $\times$ . I. *scissile alum* p.  $\times$ . II.

ceruse p.  $\times$ . III. litharge p.  $\times$ . v. to which during trituration rose-oil and wine are added alternately. The bandage suited to this part is a square piece of linen or woollen cloth, with two loops at two of its corners, and two fillets at the other two; and when it has been put under the patient, the loops being turned towards the belly, the two bandages being brought forward, are passed through them, and when they have been tightened, the right one takes a direction to the left, the left one to the right, and being thus made to embrace the abdomen, they are at last joined together. But if an old standing condyloma have become indurated, and should not subside under this method of treatment, it ought to be destroyed by the following caustic: of verdigrise p.  $\times$ . II. myrrh p.  $\times$ . IV. gum p.  $\times$ . VIII. olibanum p.  $\times$ . XII. antimony, opium, acacia, of each p.  $\times$ . XVI. by which same applications a new surface is produced on the ulcers recently described. Should this not be sufficiently active for a condyloma, stronger caustics must be employed. After destroying the tumour, we must proceed to the use of mild dressings.

9. The third affection of the anus consists of a turgescence of the veins, which rising as though in small heads, often pour out blood: the Greeks denominate them *αιμορροΐδας*. And these not unusually form in females in the mouth of the womb. In persons who are not debilitated by the hæmorrhage, it is not safe to suppress it; for with them it occurs more as a drain than a disease. Hence some, after being cured, inasmuch as the blood had no outlet, and the matter was thrown upon the præcordia and viscera, have been attacked with sudden and very formidable diseases. If the complaint be really injurious, the patient should sit in a decoction of vervains, and use pomegranate bark in preference as a local application, rubbed up with dry rose-leaves; or he may apply any of the styptic medicines. Inflammation is wont sometimes to occur, and particularly when constipation has injured this part. In this case he should sit down in pure water, and foment by means of the eggs; the yolks are to be applied with rose-leaves beat up with passum: if the malady be internal, this last remedy is to be introduced by the finger; if external, it is to be spread on cloth. Those medicines too, which have been quoted for recent fissures, are here suitable. The diet required in this case is similar to that recommended in the former. When

these means fail, caustic applications usually destroy these small heads. When of considerable duration, Dionysius recommends sprinkling sandarach on them, and afterwards applying the following: of copper scales, orpiment, of each p. ℥. v. limestone p. ℥. viii. On the next day they are to be punctured with a needle. By cauterizing these heads a cicatrix is formed, which impedes further hæmorrhage. But whenever piles are suppressed, to obviate danger, the fluids of the body are to be dispersed by free exercise; and for men, and also for women who do not menstruate, blood is occasionally to be drawn from the arm.

10. In prolapse either of the anus or uterus (for this also sometimes occurs), we are to take notice whether the protruded part be pure, or covered with a mucus. If it be pure, the patient ought to sit down either in salt-water, or in a decoction of vervains, or pomegranate bark: if covered with a moisture, it must be washed with austere wine, and anointed with burnt wine-lees. In whichever way treated, it must be replaced; and we must apply bruised plaintain, or willow leaves boiled in vinegar; then linen, and over that wool; and these are to be secured by bandage, the legs being tied together.

11. The same part is liable to an ulcer similar to a mushroom. This, if in winter, is to be fomented with tepid water, and at other times with cold: the copper scales are to be sprinkled over the part, and over that a cerate prepared with myrtle-oil, with the addition of a little copper scales, soot, and lime. If not removed by this method, it must be burnt by strong caustics, or by the actual cautery.

XIX. Old ulcers of the fingers are best treated by lycium or boiled wine-lees, wine being added in either case. A caruncle sometimes recedes from the nails, and is very painful: *πρεβύλιον* the Greeks call it. It is expedient to dissolve round Melinian alum in water until it have the consistence of honey, then to pour in as much honey as is equal to the quantity of the alum, and mix it with a rod until it be of a saffron colour; and with this the parts are to be anointed. Some, for this same purpose, prefer mixing and boiling together equal parts of dry alum and honey. If the nails do not fall off under this treatment, they must be excised: after that, the fingers are to be fomented with a decoction of vervains, and the following medicine applied: chalcitis, pomegranate bark, and copper scales are inviscated with a

mellow fig boiled in honey ; or an equal quantity of burnt paper, orpiment and crude sulphur are mixed together with the cerate prepared from myrtle-oil ; or rasile verdigrise p.  $\times$ . I. copper scales p.  $\times$ . II. are incorporated with a cyath of honey : or a mixture is formed of equal portions of limestone, chalcitis, and orpiment. Whichever of these applications is used, it requires to be covered with linen dipped in water. On the third day the dressings are to be removed from the finger, any dry part is again to be excised, and the same method of cure repeated. If still obstinate, it must be cleansed with a knife, and cauterized with small irons, subsequently dressing it like any other burn.

But when the nails are scabrous, they ought to be opened around their margin, where they touch the flesh ; and the following composition should be applied equally over their surface : of sandarach, sulphur, of each p.  $\times$ . II. nitre, orpiment, of each p.  $\times$ . IV. liquid resin p.  $\times$ . VIII. and this is to be removed on the third day. Under the use of this application, the diseased nails fall off, and are replaced by a new growth of a better set.

## BOOK VII.

I HAVE already stated, and all the world knows, there is a third department of medicine, or that which is *chirurgi- cal*. Now this, although not excluding medicine and diet, nevertheless employs the hand as its chief curative agent; and is, of the three divisions of the healing art, the one whose beneficial effects are most evident: for since in the treatment of diseases much depends upon mere chance, and the self-same remedial agents are at one time beneficial, and at another useless, it may be doubted whether the recovery ought to be ascribed to the agency of the medicine, or to the efforts of the constitution. Even in those cases in which our dependence is chiefly placed on medicines, although here the effect is more evident, yet it is clear a recovery is often unsuccessfully attempted by their instrumentality, and often takes place without their employment; as may be evidenced by selecting the eyes, for example, which, after being pestered by oculists a long time to no purpose, do sometimes undergo a spontaneous cure. But in operative surgery, it is evident that all the benefit is mainly owing to the hand; although this may be assisted in some degree by other agents. Now, notwithstanding this department is the most ancient, yet its cultivation was advanced more by Hippocrates, the father of all medicine, than by any of his predecessors. Subsequently to his time, when, after being separated from the other branches, it began to have its distinct professors, it made some progress in Egypt also; principally from the labours of Philoxenus, who wrote a very complete treatise on surgery, in several volumes. Also Gorgias, Sostratus, Heron, the two Apollonii, and Ammonius Alexandrinus, with many other celebrated worthies, each made some new discoveries. So likewise at Rome, professors of distinguished talent contributed, by the reformation they effected in various particulars, to render surgery much more methodical; and foremost in celebrity, just



before our own time, was Tryphon the father, and Euelpistus, and MeGES, who was, as his writings testify, the most learned man of the three.

Now a surgeon ought to be young, or at all events not much advanced in years; possessed of a hand that is firm, steady, uniformly devoid of tremor; he should be able to use both hands with equal dexterity: his sight should be penetrating and clear: with a mind undaunted, he should retain so much compassion as may lead him to wish for his patient's recovery, without being so far moved by his shrieks as to induce him to make unnecessary haste, or to cut less than is absolutely expedient; but he ought to complete his operation, in all respects, as though the cries of the sufferer gave rise to no emotion. It may be asked, what properly belongs to this department; for surgeons arrogate to themselves the treatment of wounds also, and of many ulcers elsewhere described. For my own part, I CONCEIVE THAT THE SAME PERSON MAY BE CAPABLE OF PRACTISING ALL THE THREE BRANCHES; BUT SINCE A DIVISION HAS BEEN EFFECTED, I LAUD THAT MAN WHOSE RANGE OF INFORMATION IS THE MOST EXTENSIVE. But I have reserved for the last department the cure of those wounds which are inflicted by the chirurgical physician, and not such as he finds already existing; also such wounds and ulcers as I consider to be more benefited by manual operation than by local dressings; and, lastly, every thing appertaining to the bones. These then are the next subjects which I shall attempt to investigate: deferring the bones to my other book, I shall explain the rest in this; and commencing with such as happen promiscuously all over the body, I shall proceed to those that are proper to certain parts.

1. **SPRAINS**, in whatever part of the body occurring, require to be immediately treated by several incisions of the skin of the painful part; and as the blood exudes, it should be wiped away with the back of the knife. But if relief comes at a later period, and there is also redness or swelling, the best remedy is in like manner to incise the red or swollen part. Then repriments should be laid on, and particularly succid wool steeped in vinegar and oil. The application of these last medicines may, in slighter cases, altogether supersede the use of the knife; and, if nought else be at hand, one may even employ ashes, and especially those of

vine-twigs, or, in default of these, any other kind made into a paste with vinegar, or even with water.

II. In these last cases relief is readily afforded. But in spontaneous tumours arising from some internal disease, and having a tendency to suppuration, there is more difficulty. I have stated elsewhere, that each of these affections is a kind of abscess; and I have traced the proper remedies for them: it now remains that I mention the surgical part of the treatment. Before the induration commences, it is expedient to incise the skin, and apply a cupping cucurbital to draw out any unwholesome and corrupt matter that may have collected there; and the operation ought to be repeated a second and a third time, until all appearance of inflammation shall have been removed. Not that the employment of the cucurbital is uniformly beneficial; for sometimes, although rarely, it happens that the matter of the abscess is included in a proper covering. The ancients called it a tunic. Meges said, inasmuch as the structure of every tunic is nervous, nerve could not be generated during the existence of a disease by which the flesh is destroyed; but that after the pus has been deposited for some considerable time, it becomes surrounded with a callosity. This has no relation to the cure; for the same treatment is required whether it be a tunic or a callosity. And even if it be a callus, inasmuch as it invests, there is no reason why it should not be called a tunic. Again, this callus sometimes forms earlier than the pus, and on that account the fluid below it cannot be extracted by the cucurbital: but that is easily known by the cupping having produced no beneficial change. Hence, if that has happened, or if induration already exists, nothing is to be gained by this remedy: but, as I have elsewhere inculcated, the collecting fluid must be diverted, or dispersed, or brought to a perfect maturation. If the two first be the result, nothing more is required. If suppuration have taken place, the abscess should rarely be lanced in the armpits and groins; rarely in any part, if small, or as often as it is only skin deep, or even when it is in the flesh, unless the weakness of the patient compel us to lose no time; and it will suffice to promote the elaboration of the pus by means of cataplasms; for more usually that part which has not been lanced will remain free from scar. But, if the mischief is more deeply seated, one ought to consider whether the part be nervous,

or otherwise. For, if it be devoid of nerves, it should be opened by means of the actual cautery; the advantage of which is that a small and more permanent opening is obtained for the evacuation of the pus, and a small cicatrix afterwards. When, on the other hand, there are nerves contiguous to it, the case does not admit of cauterization, lest convulsions, or debility of the limb should ensue: but an operation with the knife becomes necessary. Although other abscesses may be opened while but partly mature, in those situated among nerves we must wait till maturation be complete, that the skin may be rendered thin, and that after the pus has come in contact with it, it may be the more readily found. Some abscesses require to be opened in a right line. In that called PANIS, because it produces an extreme tenuity of the skin, all that part immediately above the pus requires to be excised. In the employment of the knife we are to make it our aim in all instances to make the wounds as small and as few as possible, consistently with the extent and number absolutely expedient: for large cavities require broader incisions; and these occasionally in two or three directions. It should be our care that the deepest part of the sinus may have vent, lest any fluid remaining stagnant there, may produce sinuses by corroding the contiguous and as yet healthy parts. There are circumstances also in the order of events which require a more extensive excision of the skin; for when after protracted disorders universal cachexy ensues and the sinus burrows extensively, and the skin over it becomes pallid, we may infer that it is mortified and of no further use: and therefore it is better to cut it away, more especially when it is in the vicinity of the larger joints, and a diarrhoea has exhausted the patient, while he is gaining no flesh from the aliments he is taking. But the excision should be made so that the wound may be in the form of a myrtle-leaf, to facilitate the healing process; and this method is perpetually to be observed in all excisions wherever and on whatever account performed. Having let out the pus, if in the armpits or groins, lint will not be required, but a sponge must be laid on squeezed out of wine. In other parts, should lint be equally unnecessary, a little honey must be infused as a detergent: then agglutinants are to be laid on: if it be requisite to use lint, the sponge out of wine should be applied as just mentioned. Under what circumstances lint is requisite, and when it is

irrequisite, has been elsewhere determined. After the abscess has been lanced, the same means must be pursued as I have stated to be expedient in those cases in which it has been broken by local applications.

III. There are certain signs by which one may soon know to what extent treatment is likely to be serviceable, and what we have to hope or to dread ; and these are commonly the same as have been inculcated with regard to wounds. To have sleep, to breathe easily, not to be harassed with thirst, not to loath food, to be free from fever, if any have existed, and to have a white smooth pus not fetid, are all favourable signs. The untoward symptoms are watchfulness, difficult respiration, thirst, anorexy, fever, dark pus, or that which is feculent and fetid ; so also hæmorrhage occurring in the process of the cure ; or if before the cavity be filled up with granulations the edges become fleshy, while that same flesh is lax, and destitute of firmness. But the worst symptom is fainting, whether occurring during the dressing, or after it. Moreover, if the disease disappear all at once, and it be followed by a suppuration, or if it remain after the pus is discharged, there is reasonable ground for apprehension ; and among other alarming symptoms is an insensibility in the wound to the action of corrosive applications. But, however chance may determine these matters, it is the duty of the physician to use his best exertions for the patient's recovery. To this intent, as often as he removes the dressings from an ulcer, he ought, if the humour require to be repressed, to wash it with a mixture of wine and rain-water ; or with mulse if it need cleansing ; and afterwards to renew the dressings. When at length the humour shall appear to be repressed, and the ulcer has become clean, it will be proper to promote granulation, and to foment the ulcer with equal parts of wine and honey, laying thereon a sponge steeped in wine and rose-oil. Although these medicines facilitate incarnation, yet, as I have elsewhere stated, regimen is still more efficacious : for example, the occasional use of the bath after the conclusion of the fever and the restoration of the appetite ; daily, but easy gestation ; and such food and drink as are of a fattening quality. These precepts all apply to abscesses that have been broken by local applications also : but they have been reserved for this paragraph, because in the cure of an exten-

give suppuration it is scarcely possible to dispense with the lancet.

IV. 1. In fistulas also, when they penetrate so deeply that the tent cannot be introduced to the bottom, when tortuous, and when several in number, an operation is more beneficial than dressings; and those which take a transverse direction below the skin are less troublesome than those which are perpendicular. Therefore, if the fistula be transverse just below the skin, a specillum should be introduced, and the incision made above it. If sinuosities be discovered, their direction must be followed by the specillum and knife at the same time; and if any small branch-like sinuses come into view, these must be dealt with in like manner. When we have reached to the end of the fistula, all the callosity must be excised from it, and fibulæ together with agglutinant dressings must be applied. But, if it point directly inwards, having ascertained its direction by the probe, the sinus must be cut out: then, a fibula is to be put on the edges of the skin, and the agglutinants applied as before: or, if the ulcer be foul, (which occasionally happens when a bone is diseased,) when that symptom also has been duly treated, suppuratives may be used.

2. Sometimes fistulæ extend beneath the ribs. In this case, the portion of rib must be cut through on either side of the fistula, and removed, so as to leave nothing vitiated internally. Sometimes, proceeding beyond the ribs, they penetrate the transverse septum which separates the intestines from the viscera above. This may be known by the situation and severity of the pain, and by the escape of air, accompanied with a frothy fluid, especially when the patient holds in his breath. This kind of fistula is irremediable. But in curable fistulæ of the ribs, greasy applications are injurious: those should be employed which are suited to green wounds: the best is dry lint, or, if in some degree it require to be cleansed, lint dipped in honey.

3. Although there is no bone beneath the abdominal integuments, yet fistulæ in that quarter are extremely dangerous; so much so, that Sostratus deemed them incurable. Experience shews us this is not uniformly the case: nay, what may appear very surprising, a fistula opposite to the liver, spleen, and stomach, is less dangerous than one lying above the intestines; not because it is in itself more mis-

chievous in this last part, but because it paves the way to secondary disease. Some authors have experienced the truth of this fact, without comprehending the reason of it. For the abdomen itself is often perforated with a weapon, and the prolapsed intestines are replaced, and the edges of the wound embraced by sutures; the method of doing which I shall presently point out: in like manner then, even if a small fistula have penetrated the abdomen, it is possible to excise it, and to unite the lips of the wound by suture. If the fistula be wide internally, excision will necessarily leave a wider aperture, which cannot be sewed up without using great violence, especially at its interior part, where the abdomen is bounded by a membrane, which the Greeks call *περιτόναιον* (peritonaion). Hence, when the patient begins to walk, or to be moved about, the suture is broken down, the intestines are protruded, and death is the result. But as such cases are not entirely desperate, we should, in smaller fistulas, endeavour to effect a cure.

4. Again, fistulas in the anus demand a separate consideration. Having therein introduced a probe, just over the point of it the skin must be incised: then the probe, ready threaded, and for that purpose provided with an eye, should be drawn through this new aperture. The ends of the thread are to be taken hold of and tied together, so as to loosely grasp that portion of integument which lies over the fistula; and the thread itself ought to be crude, double or treble, and twisted so as to form one string. In the meantime, the patient may transact his business, walk about, bathe, and take his usual meals, as if in perfect health. All that is required is to draw the string without loosening the knot, so that that portion of it which was above the fistula may be made to enter it. Not that we are to leave the thread in till it rot, but to untie it every third day, and annex a fresh thread to one end, the old portion being drawn out, and the new left within the fistula, and secured by a knot as before; for in this manner it gradually cuts the skin above the fistula; and while the part left by the thread gradually heals up, that part which is corroded by it is divided. This method of cure is tedious, but not painful. Those who prefer a quicker method ought to tie the skin tight with the string, that they may the sooner divide it, and at bed-time to introduce some strips of a penicillum, so as to put the integuments on the stretch, and thus to render them

thinner : but this excites pain. The cure is accelerated, as it is also rendered more painful, by anointing the thread and strips of penicillum with either of those medicines which I have mentioned as corrosives. It may happen that we may be compelled to resort to the knife in our cure of a fistula of this part likewise, if it point directly inwards, or if it consist of several sinuses. In these cases, having introduced the specillum, two incisions must be made into the skin, so as to cut out a very fine slip of it, to prevent the premature junction of the edges of the wound, and to favour the application of lint pledgets, of which no more should be used than absolutely requisite : the rest of the cure will be the same as laid down for abscesses. If there be several sinuses proceeding from one orifice, the straight fistula must be divided with the knife, and the others having been thus brought into view, are to be treated by the thread. If a fistula penetrate so deeply that a knife cannot be safely employed, a medicated tent must be introduced to the bottom of it. In all cases of this nature, whether treated by manual operation, or by local remedies, the food should be moist, and the drink copious, and for a long time restricted to water. When granulation has commenced, then at length both the occasional use of the bath and an impleting diet are employed with advantage.

V. 1. Missile weapons driven into the body, and lodging there, are often extracted with great difficulty. This is sometimes owing to the nature of the instrument, and sometimes to the situation of the part it has penetrated. Every weapon is extracted either at the part where it entered, or at that towards which it points : in the former case, it returns by the course it has itself made ; in the latter, it is indebted to the knife for its exit : for the plan is to cut down upon its point through the flesh. If the weapon has not lodged deep, but is in the superficial flesh, or at all events has not transfixed large vessels and nervous parts, the best plan is to remove it by the way it entered. But if the space through which the weapon has to return, exceeds that through which it has yet to make its way, and if it has already passed vessels and nerves, it is better to lay open what remains imperforate, and to extract it that way. For not only is it found nearer the surface, and drawn out with less risk, but if the point of the weapon has pierced below the centre of one of the larger limbs, the healing process is facilitated by the

wound being pervious ; for it admits of being dressed at both orifices. If the weapon must be withdrawn backwards, the wound should be dilated with a scalpel, to facilitate its removal, and to prevent inflammation, which will run much higher, if in the act of returning the weapon we lacerate the flesh. On the same principle, when a counter-opening is made, it should be so wide as not to be enlarged by the subsequent exit of the weapon. In both cases, the greatest care must be taken to avoid wounding either of the larger veins, or an artery : should any one of these be exposed, it must be taken up with the blunt hook, and drawn out of the reach of the knife. Having made the incision sufficiently large, the weapon must be extracted ; and this too must be done with the like circumspection, lest any of those parts be wounded, which, as I have stated, require to be preserved from injury.

2. The foregoing remarks are general. But there are certain particulars relating to each kind of weapons, and these I shall forthwith subjoin. Nothing so easily penetrates, and so deeply lodges itself in the body, as an arrow. This happens from the force with which it is darted, and from its long and slender form. Hence, it more frequently requires extraction from the opposite part, than from that where it entered ; and that chiefly, because it is generally barbed, and therefore mangles the flesh more when drawn backwards, than when brought out in the opposite direction. Having made an outlet, the flesh should be drawn apart by means of an instrument shaped like the Greek letter  $\nu$  : then, when the point of the arrow comes into view, if the shaft be attached to it, it must be pushed onwards until it can be laid hold of, and extracted from the opposite side : if it have been broken off, and nothing remain but the head, its point must be grasped by the fingers or by the forceps, and so extracted. When extraction is preferred by the same aperture at which it entered, the method is much the same. For after dilating the wound, we have to withdraw either the shaft, or, if that be wanting, the weapon itself. But if barbs appear, and these be short and thin, they should be broken off with a pair of forceps, and the weapon must be withdrawn, after being freed from them : if larger, and too strong to admit of this plan, they must be protected by split writing reeds, and removed in that way, to prevent



laceration. Such are the rules to be observed in extracting arrows.

3. But when a broad weapon has been lodged in the flesh, to withdraw it by a counter-opening is inexpedient: for we thus have two large wounds instead of one. The extraction must be effected by an instrument which the Greeks denominate *Διοκλείον κναθίσκον*, (*diokleion kuathiskon*) because Diocles was the inventor of it, whom I enumerated among the greatest physicians of antiquity. An iron or copper plate is provided with two hooks turned downwards on either side: at one end its sides are inverted, and its extremity slightly inclined towards the grooved surface; and, moreover, it is perforated at that part. This instrument is introduced transversely near the weapon, and when it has reached the point of it, it is slightly turned so as to receive the weapon within the foramen just mentioned. When the point is in the hole, by laying hold of the hooks with two fingers, the operator at once draws out both the instrument and the weapon.

4. A third kind of weapon occasionally requiring extraction, is a leaden bullet, or a stone, or some such body, which forcing its way through the skin, becomes completely imbedded there. In all such cases the wound must be dilated, and the foreign body extracted by the forceps. The difficulty is augmented in every wound, if the weapon be fixed in the bone, or if it have sunk in a joint between two bones. When fast in the substance of a bone, it must be moved to and fro till it be loosened at the point where it was griped, and then it should be extracted either by the hand or by the forceps, just as in drawing a tooth. The weapon seldom, if ever, fails to come away by this method; but if it still remain, it may be dislodged by striking it with some convenient instrument. The last resource when we have failed to withdraw it, is to perforate the bone with a wimble, and to cut out a portion of it in the form of the letter V, so that the lines may diverge opposite to the foreign body: after doing this, it must of necessity give way, and may be readily withdrawn. But if it have made its way between two bones directly into the joint, the two limbs in the vicinity of the wound are to be bound with rollers or straps, and drawn in opposite directions, so as to put the tendons on the stretch: for while these are extended, there is more interspace between the bones, so that the weapon may be removed with-

out difficulty. We must be on our guard, as I have stated before in several paragraphs, lest a nerve, or a vein, or an artery be wounded by the weapon, in the act of its being extracted, adopting the same plan as has been above explained.

5. But when a person has been wounded with a poisoned weapon, the same means must be had recourse to in all respects (and with greater despatch if possible) as though poison had been drunk, or as if stung by a serpent. As to the wound itself, after the extraction of the weapon, it only requires the same dressings as those employed in a simple wound; and on that subject I have said enough already.

VI. The foregoing cases may occur in any part of the body: those remaining to be discussed are proper to particular parts only. I shall proceed to treat of these, beginning with the head. This part is subject to the formation of many different kinds of tubercles, such as they denominate γάγγλια (ganglia), μελικηρίδας (melikēridas), and ἀθερώματα (atherōmata): and there are certain others to which writers assign different names, and to which I will subjoin στεατώματα (steatōmata). Although these often arise in the neck, armpits, and sides, I have not made them the subject of separate consideration, because they differ but slightly, are not dangerous, and require no variety in the method of treatment. All these tumours are at first very small, of slow growth, and included in a proper tunic. Some are hard and renitent, others soft and yielding; some are partially bald, others remain covered with hair, and free from pain. Their contents may be conjectured, but cannot be ascertained till after removal. However, generally in those which are renitent is found a matter like gravel, or a collection of matted hair; in the soft sort, a matter resembling honey, or thin panada, or shavings of cartilage, or insensible and cruentate flesh, and these of various colours. Ganglia are generally elastic: the atheroma contains a substance like thin panada; the meliceris a fluid of a thinner quality, and this, therefore, fluctuates on pressure; the steatoma is filled with a fat substance, and arrives at the largest size, relaxing the whole of the skin lying over it, so as to render it flaccid, while in the other species it remains tense. After removing any hair with which they may be covered, in each kind an incision must be made across the middle of the tumour. But in the steatoma the cyst also must be divided, so that its contents

may be evacuated; for it is difficult to separate it from the integument and subjacent flesh: in the other kinds the cyst is to be preserved entire. It is soon distinguished by its being white, and looking distended. It is then to be detached from the integument and flesh by means of the handle of the scalpel, and to be removed along with its contents. If adhesion have taken place between the sac and a muscle, to avoid wounding the latter, the upper part must be cut away, and the lower allowed to remain. When the tumour has been taken out entire, the edges of the wound are to be approximated, fibulated, and dressed with agglutinant applications. When either the whole or a part of the tunic is left in, suppuratives must be applied.

VII. 1. The diseases last mentioned do not much differ either as regards their nature or their treatment; but in surgical diseases of the eyes, it is necessary to vary our treatment considerably. In the upper eyelids fat and heavy vesicles sometimes arise: these render the elevation of the eye almost impracticable, and excite a slight but constant discharge of pituita. They most frequently happen in children. The operation here requisite consists in compressing the eye with two fingers, so as to render its integument tense, and in then making an incision in a transverse line; poising the hand with great delicacy, in order to avoid wounding the vesicle itself: thus, as soon as an outlet is made for it, it protrudes. It must then be taken hold of with the fingers, and extracted. It readily comes away. Afterwards the part should be anointed with any of the collyria usually employed for lippitude; and in a very few days a small cicatrix forms there. When the vesicle happens to be divided, the operation is more troublesome: for it pours out its fluid, and cannot afterwards be taken up in consequence of its extreme tenuity. In this case, we must apply any of the suppurative dressings.

2. The eyelids are likewise subject to the formation of a minute tubercle on their tarsi, called by the Greeks *κριθή*, (*krithē*), from its resemblance to a barleycorn. Its contents maturate with difficulty. It should be fomented with hot bread, or with wax repeatedly heated to such a temperature as the part can bear with facility; for in this way it is often discussed, sometimes maturated. When the pus becomes evident, the tubercle is to be divided, and whatever fluid it may contain must be expressed: it should then be fo-

mented as before, and anointed, until it have perfectly healed.

3. There are moreover certain other tubercles differing but little from this last kind, but not precisely of the same figure, and moveable under the impression of the finger; and hence the Greeks denominate them *χαλάζια* (*chalazia*). These are to be incised externally if situated just below the skin; internally, if they lie below the cartilage: then with the handle of the knife they must be detached from the sound parts. And if the wound be internal, it must be anointed first with emollient, and afterwards with more acrid medicines: if external, an agglutinant plaster must be put over it.

4. The unguis, which the Greeks call *περὺγιον* (*pterygion*), is a small nervous membrane arising at the corner of the eye, and sometimes reaching to the pupil so as to obstruct the sight. More frequently it takes its origin from the nasal angle; sometimes from the temporal also. When of recent formation, it is easily dispersed by the applications employed for extenuating cicatrices. If it be of long standing, and have become thickened, it ought to be cut away. After one day's abstinence, the patient is to be fixed on a chair, either directly opposite to the physician, or with his back towards him, in such a position that he may recline his head on the operator's breast. Some, if the disease be in the left eye, prefer the former position, if in the right, the latter. Furthermore, it is essential that the assistant draw one eyelid apart, and the operator the other: but the latter of these two persons must open the lower eyelid, if the patient face him; the upper, if he recline in his lap. The physician is then to put a small sharp hook, with its point a little turned inward, under the extremity of the unguis, and to fix it there; and then to give that eyelid also in charge to his assistant, while he himself taking hold of the hook, should elevate the unguis, and pass a needle through it armed with a thread: he is next to lay aside the needle, to take hold of both ends of the thread, and having thus elevated the unguis, any connexion it may have with the surface of the eye must be broken down by means of the handle of the scalpel, until he arrive at the angle; at this stage he is alternately to let go and to draw the unguis, so as both to trace its origin and the extremity of the angle. The danger is two-fold; either lest a portion of the unguis

be left, which when ulcerated is seldom, if ever, cured; or, lest the caruncle of the angle be cut away. This, if the unguis be drawn with too much force, follows it and deceives the operator; and if it is cut away, a foramen remains, through which ever after a humour descends: the Greeks call it *ρῦάδα* (*ruada*). Hence the real extremity of the angle must be precisely ascertained: when this is no longer doubtful, the knife is to be employed without putting the unguis too much on the stretch; and then the membranula may be cut out without wounding any part of the angle. The subsequent dressing must be lint out of honey, and over that linen rag, and either sponge or succid wool: on the following days the eye must be opened daily, lest the lids become agglutinated by a cicatrix, (for this is a third untoward accident to which such cases are liable); and the lint dressing must be resumed as before: lastly, it should be anointed with a collyrium to promote the cicatrization of the wound. Now this method of treatment must be adopted in spring, or certainly before the approach of winter: a distinction which, appertaining as it does to a variety of cases, needs only to be mentioned once. For there are two kinds of cures: one, in which it is not at our option to select the time, but in which we must take advantage of the present juncture, as in wounds and fistulæ; another in which there is no emergency, and in which it is completely safe and easy to wait awhile, as is the case with affections whose progress is slow, and which are not excruciatingly painful. In these it is proper to wait for spring, or, if there be a more pressing necessity, autumn is preferable either to winter or summer; selecting the middle of it, at which period the hot weather has gone by, and the cold not decidedly set in. The more important the organ under treatment, the more danger is it exposed to: and generally, this distinction with regard to the proper season for cure requires a rigid observance commensurately with the size of the wound.

5. After the treatment of an unguis, as I have stated, affections arise which sometimes proceed from other causes also. Occasionally, in consequence of the unguis not having been completely excised, or from some other cause, a tubercle forms so as to impede the opening of the eyelids; in the Greek this is called *ἐγκανθίς* (*enkanthis*).

It should be taken up with a hook, and incised circularly: in performing this likewise, a careful hand is required, to

avoid cutting away any portion of the angle itself. Then, the eyelids being drawn apart, lint sprinkled with cadmia or green copperas is to be insinuated into the angle, and secured in the manner mentioned before; and during the ensuing days it must be similarly dressed, with the exception that at first it must be bathed with tepid, or even with cold water.

6. Sometimes the palpebræ coalesce, and the eye cannot be opened: which is occasionally followed by another misfortune, adhesion of the lids to the white of the eye: that is, when in either case an ulcer has been negligently treated: for then in the healing process, parts which might and ought to have been kept separate, will be agglutinated: to persons labouring under either of these affections the Greeks give the name ἀγκυλοβλεφάρων, (ankuloblepharous). When the adhesion is of the palpebræ only, their separation is not difficult; although sometimes it is done to no purpose, for they again become agglutinated. Nevertheless, one ought to attempt an operation; for the case more frequently turns out successful. Therefore, the broad end of the specillum must be introduced, so as to separate the lids, small penicilla being introduced until the ulceration of the part be cured. But when adhesion exists between the cornea and the palpebra, Heraclides the Tarentine advises us to effect a separation with the sharp edge of the scalpel, cutting very gently lest any part of the eye or eyelid be excised; but, if it be absolutely necessary, of the two it is preferable to remove a part of the palpebra. Subsequently the eye should be anointed with the medicaments commonly used for asperity; and the eyelid everted every day, not only to apply the medicine over the ulcer, but also to prevent adhesion: the patient also himself should be directed to raise it frequently with two fingers. I DO NOT RECOLLECT A SINGLE INSTANCE OF A CURE BY THIS METHOD. Mege has recorded that he also tried various expedients to no purpose; because invariably secondary adhesion took place between the palpebra and the surface of the eye.

7. Again, in the nasal angle, in consequence of some disorder, a fistulous opening is effected, through which a humour constantly distils: the Greeks call it αἰγίλωμα, (aigilōma.) This produces constant uneasiness in the eye: sometimes also, corroding the bone, it penetrates to the nose. Now and then it is of a cancerous nature: when it is so, the vessels

are tense and serpentine, the colour of the part pale, the skin hard and irritated by a slight touch, producing inflammation in the contiguous parts. It is dangerous to tamper with the cancerous species, for it even accelerates the patient's death; useless to treat those cases which penetrate to the nose, for neither do they heal. But in those in which the mischief is limited to the angle, treatment is admissible, with this qualification, that we be not ignorant of the difficulties attending it; difficulties which are enhanced in proportion as the aperture is nearer to the angle; because there is less room afforded for the movement of the hand. In a recent affection relief is more easily afforded. The summit of the opening is to be taken up with a hook; then the entire sinus should be excised as far as the bone, just as I have directed in *fistulæ*: the eye and other contiguous parts being well protected, the bone is to be burnt with a caustery, and that more deeply, if the bone be carious, in order that a thicker scale may be detached. Some apply caustics: such as *copperas*, or *chalcitis*, or *rasile verdigrise*; which is not only a slower, but an inefficient method. After cauterizing the bone, the subsequent treatment is the same as in common burns.

8. The hairs of the eyelids are apt to irritate the eye from two causes. For sometimes the integument of the lid is relaxed and falls down: whence it happens that the hairs are turned towards the eye itself, because there is no simultaneous relaxation of the cartilage; at other times below the natural line of hairs there is a growth of a second series tending inwards directly to the eye.

The following are the methods of cure. When there is a superfluous growth of hairs, an iron needle, thin and broad, like a *spatha*, is to be put into the fire: when at a white heat, the eyelid being lifted up in order that the pernicious hairs may be brought into the operator's view, it must be passed close to the roots of the hairs, commencing at the angle and proceeding as far as across one third of the lid: it is then to be applied a second and a third time, till it reach the opposite angle: in this way the radicles of the hairs being cauterized, die away. Then some medicine must be laid on the part to prevent inflammation: and when the eschars have fallen off, it must be cicatrized. This species heals very readily. Some say that the external part of the *palpebræ* near the lash should be pierced with a needle armed with a wo-

man's hair doubled ; and when the needle has passed through, that the inverted portion of lash should be put into the loop of this hair thread, and by it drawn to the upper part of the eyelid, gluing it down there, and applying a medicament to close up the orifice. Now in the first place, this is not practicable, except where the offending hairs are long ; while in fact they are generally short. And in the next, when there are several of them, the torture is protracted by so frequently passing the needle, and gives rise to inflammation. Lastly, when any humour settles there, the eye being irritated both before by the hair, and afterwards by the foramina made in the lid, the necessary consequence is that the gluten by which the hair has been secured becomes dissolved ; and then it returns to the position from which it had been forcibly removed. There is a method of treating a relaxed eyelid, which is universally pursued and sufficiently certain. The eye being closed, the operator must with his fingers take hold of the middle of the integument of the eyelid, whether it be the upper or the lower, and elevate it ; he is then to consider how much requires to be removed to reduce it to its natural condition : for here again is a two-fold danger ; lest, if one excise too much, the eye remain uncovered ; or if too little, nothing may be done effectually, and the patient be hacked to no purpose. Two ink lines are to be drawn, to point out where the incision ought to be made, in such a manner that between the margin bearing the eyelash, and the line nearest to it, there may be some space for the needle to lay hold of afterwards. These preliminaries having been arranged, the knife is to be used ; and, if it be the upper palpebra, the incision nearest to the eyelash is to be made first ; if the lower, it must be made last ; commencing, if the affection be in the left eye, from the temporal, and if in the right, from the nasal angle ; and excising all between the two lines. The edges of the wound are next to be united by a simple suture, and the eye closed : and if the palpebræ do not descend low enough, the suture must be relaxed ; if too much, it must be tightened, or a second thin slip should be removed from the cut edge : after the excision, other stitches are to be added, not exceeding three. Furthermore, in the upper eyelid a linear incision must be made immediately below the lash, in order that the hairs being drawn from the lower part may point upwards : and this of itself, when the lash is but slightly turned in, suffices for the cure.



The lower eyelid does not need this process. These things being done, a sponge expressed from cold water is to be bound over the eye; an agglutinant plaster should be applied on the day following, the sutures removed on the fourth, and the part anointed with an antiphlogistic collyrium.

9. Sometimes, in consequence of cutting away too much of the integument in this method of treatment, and occasionally from some other cause, the eye remains uncovered. The Greeks call such patients *λαγωφθάλμους* (*lagōphthal-mous*), or hare-eyed. In this case, when the deficiency of the palpebra is considerable, no treatment can restore it; when but trivial, it may be remedied. A lunated incision should be made in the skin a little below the eyebrow, so that its cornua may have a direction downwards. The wound should go to the depth of the cartilage, which should not itself be injured: for, if that be incised, the eyelid falls down, and cannot afterwards be raised. The skin, therefore, should be merely divided, so far as to allow it to descend a little upon the lower part of the eye, as the consequence of the gap in the wound above, into which lint is to be introduced to prevent the reunion of the divided tegument, and to promote granulation in the centre; for after the part has in this way become filled up, the eye is covered as it ought to be.

10. As the upper eyelid is liable to a disorder in which it does not descend far enough, and therefore fails to cover the eye, so there is an affection of the lower, in which it is not sufficiently elevated, but hangs down, and cannot be joined with the upper. This also is sometimes caused by the same bungling in the operation, and is sometimes the effect of old age. The Greeks call it *έκτρόπιον* (*ektropion*). When it originates from bad treatment, it requires the same remedial process as has been above expounded, only that the cornua are to be turned towards the cheeks, and not towards the eye. When the result of old age, it should be entirely cauterized externally with a small iron, and afterwards anointed with honey: after the fourth day it should be fomented with the vapour of hot water, and anointed with such medicaments as have a cicatrizing quality.

11. Such are the affections most commonly occurring about the eye in the angles and palpebræ. But in the eye itself sometimes the outer tunic is raised, (from the rupture or relaxation of one or other of the internal membranes,)

in the form of a grape-stone : hence, the Greek term *σταφύλωμα* (staphulōma). There are two methods of treating this : one consists in passing a needle through it with a double thread just at its root ; then tying the two ends of one thread above, and those of the other below, and bringing it away by gradually cutting it through : the other, in excising from its surface a portion of the size of a lentil, and then rubbing in spodium or cadmia. Whichever of these plans may be pursued, we must cover the eyeball with lint soaked in the white of an egg ; and it should be afterwards fomented with the steam of hot water, and anointed with mild liniments.

12. Callous tubercles in the white of the eye are called *clavi* ; a name given to them from the resemblance in their figure. The best plan is to pierce down to the root with a needle, and excise below it, anointing them subsequently with bland applications.

13. I have elsewhere already mentioned CATARACT, because when recent, it is often discussed by medicines also : but when of long standing, it requires a manual operation, which may be ranked among the most delicate in surgery. Before I treat on this affection, it is requisite to give a brief description of the nature of the eye ; a knowledge of which, although appertaining to several diseases, has an especial relation to this. It is provided then with two coats, of which the exterior is called by the Greeks *κερατοειδής* (keratoeidēs). This, where it forms the white of the eye, is pretty thick, but attenuated in the part before the pupil. The internal coat is connected to this in the middle where the pupil exists, and is concave, with a small aperture ; thin round the pupil, and, like the cornea, thicker at a greater distance from it : this tunic is called by the Greeks *χοριοειδής* (chorioeidēs). These two coats, after investing the internal part of the eye, again join behind it, and becoming extenuated and uniting together, pass through a foramen which is between the bones, as far as to the membrane of the brain, and to this they adhere. Immediately below these, opposite to the pupil, there is an empty space : then below that again a very fine tunic, which Herophilus called *ἀραχνοειδή* (arachnoeidē.) That retreats in the middle, and in its cavity contains a matter which, from its resemblance to glass, the Greeks call *ύαλοειδής* (hualooidēs). It is neither liquid nor solid, but a kind of concrete fluid, the colour of which

determines that of the pupil, whether black or blue, although the outer tunic is white. It is inclosed by a small membrane proceeding from within. Immediately in juxtaposition with these, there is a drop of humour resembling white of egg, from which proceeds the faculty of vision: it is termed by the Greeks *κρυσταλλοειδής* (*krustalloeidēs*).

14. Either from disease then, or from a blow, this last mentioned humour lying immediately behind the coats at the part where I said there was some interspace, becomes concreted; and gradually hardening, opposes itself to the axis of vision. Various are the species of this malady, some curable, some beyond all remedy. For if the cataract be small, immoveable, of the colour of sea-water, or burnished iron, and if it admit of some sense of light at its side, there is yet hope. If it be large, if the black part of the eye be altered from its natural configuration, if of a cærulean or golden colour, if it slide and move about, it is scarcely ever cured. Generally the more severe the disease, or head-ache, or blow, from which it has arisen, the worse the case turns out. Nor is the age of senescence a proper time of life for a cure: for this, independent of any additional malady, is usually accompanied by a dimness of sight: neither is infancy, but the period of life mediate between these. So also neither a small nor a concave eye is favourable to it. Furthermore, the cataract itself has its period of maturity. Hence, we should wait till it cease to fluctuate, and till it appear to have become solidified. Prior to attempting the cure, the patient ought to use but a moderate quantity of food, and drink water for three days; on the next, he should fast altogether.

After these precursory measures, he is to be seated in a light place with his face turned towards the light, in such a manner that the physician may sit opposite to him, but on a seat that is a little higher: an assistant should hold the patient's head behind, so as to keep it fixed: for by a slight motion the sight may be lost for ever. Besides, the eye to be operated upon, must be kept more steady by applying wool on the other eye and tying it on. The left eye must be couched with the right hand, and the right with the left. Then either a needle with a cutting edge, or at all events one not too fine, is to be pushed directly through the two outer coats, at the part which is mediate between the black of the eye and the temporal angle, opposite to the middle of

the cataract, so as not to wound a vein. Nor should it be introduced with timidity; for it enters a space that is void, and even one moderately skilful cannot well be deceived, inasmuch as on entering the cavity, there is no longer any resistance to the needle. When it has arrived there, the needle is to be directed towards the cataract, and gently rotated there; and the operator ought to lower it gradually below the region of the pupil; then when it has passed the pupil, he should press it somewhat more strongly, in order that it may settle at the bottom. If it remain there, the cure is complete: if it repeatedly return to its former position, it must be broken up and cut into pieces with the same needles: for these are more easily lodged out of the axis of vision, and offer less obstruction to it. Then the needle is to be drawn out in a straight direction, and white of egg smeared on lint should be applied as before mentioned, to repress inflammation, and so the part is to be bound up. The patient after this requires absolute repose, abstinence, inunctions with mild liniments; and as to his food, (which it will be soon enough to give on the next day,) it should at first be liquid, that it may not bring the jaws into action; and after the subsidence of the inflammation, such as has been stated to be proper in wounds. Add to this, that water should be his only beverage for some considerable time.

15. Upon the subject of ophthalmic flux I have already given every information so far as regards the employment of medicines. I have now to proceed to such matters as appertain to a cure by manual operation. We perceive that the eyes of some are never dry, but always humid with a thin moisture: this occasions a constant roughness and predisposes to inflammations and lippitudes from slight causes; in a word, annoys a man all his life. In some the affection is beyond all remedy; in others it is curable. Now, it is of paramount importance to be able to make this distinction, in order that we may relieve the one sort, and not meddle with the other. In the first place then, it is useless to attempt to cure those who have had the affection from their infancy, for with such it will remain to their dying day. Next, it is superfluous in those cases in which the discharge is acrid but not copious; for these too are nothing benefited by an operation, while by the use of medicaments and a diet calculated to incrassate the pituita they are effec-

tually cured. Persons whose heads are broad are with difficulty relieved. It makes a difference too whether the vessels which pour out pituita lie between the calvarium and the skin, or between the membrane of the brain and the calvarium. The superficial, in order to be distributed on the eye, pass round the temples; the deep-seated take their course by the membranes which proceed from the eyes to the brain. When the flux proceeds from the vessels above the bone, relief may be afforded; but not when it emanates from those below the bone. Neither is it possible to effect a cure for those patients in whom the pituita is discharged from both sides at once; for, when one part is relieved, it still continues to infest the other. The following is the way to ascertain of which kind the disease is. Having shaved the head, the same medicaments as are effectual in suppressing the pituita in a lippitude must be smeared over from the eyebrows to the vertex: should the eyes begin to grow dry, it will be evident that they are irrigated by the subcutaneous vessels: if they still continue humid, it will be manifest that the pituita descends from vessels under the bone: when the discharge continues, but flows in a diminished quantity, the malady proceeds from both sets of vessels. In the majority of instances the fault is in the superficial vessels: and therefore the greater number admit of cure. This is a fact very well known not only in Greece, but among other nations also; so that in no country has any part of medicine been more clearly explained. There are practitioners in Greece who make nine linear incisions in the integument of the head; that is to say, two straight ones in the occiput, and another decussating these: two above the ears and one decussating these also, and three straight ones between the vertex and forehead. Others drew the lines direct from the vertex to the temples; and, having ascertained the origin of the muscles by the motion of the jaws, they slightly incised the integument above these; then separating the edges of the wound by means of blunt hooks, they inserted pieces of lint, to prevent the edges of the skin from uniting, and to promote an intermediate granulation, which might bind the veins from which the humour was passing to the eyes. The plan pursued by some, was to draw two ink lines from the middle of one ear to that of the other, and from the nose to the vertex: just at the junction of the lines they made an incision with the

scalpel; and after allowing the part to bleed, they cauterized the bone there. Not content with this, they applied the cautery also to the prominent veins in the temples, and to those between the forehead and vertex. To cauterize the temporal veins is a method of cure not at all uncommon: these are generally puffed in this malady; but to inflate and render them more evident, a ligature is to be tied moderately tight round the neck, and the veins are to be cauterized by small but blunt irons, until the pituitous discharge altogether cease: for this is the sign that the conduits through which the humour was conveyed, are in a manner choked up. However, when the vessels are small and deep-seated, and therefore cannot be separated, the more efficacious practice is to tie a ligature round the neck, as before mentioned, and, while the patient holds in his breath to render the vessels more prominent, to mark their course with ink on the temples and between the vertex and forehead: then after slackening the ligature on the neck, to incise the veins where the marks are, and let them bleed: when the hæmorrhage has been sufficient, to cauterize them with the small irons; in the temples indeed with much caution, lest it injure the subjacent muscles which secure the jaws: but deeply between the forehead and vertex, so as to detach a bony scale. The cure adopted by the Africans is still more active: they cauterize the vertex down to the bone, so as to produce exfoliation. But there is no plan better than that pursued in Gallia Comata, where they take up the veins in the temples and upper part of the head. How cauterized surfaces ought to be dressed, I have explained elsewhere. I have here only to add that, after burning veins, we must not be in haste either to detach the eschar, or to effect incarnation, lest hæmorrhage ensue, or the discharge of pus be too suddenly suppressed: for while the latter discharge is essential to promote the desiccation of the part, the former only exhausts it. However, should hæmorrhage ensue, we must sprinkle in such medicines as stop the bleeding without acting as caustics. With regard to taking up veins, and their subsequent treatment, I shall have more to say, when I come to treat of varices of the legs.

VIII. While the eyes require a variety of operations, there are very few in the ears which remain to be treated of in this department of medicine. Either from the first day of birth, or at some subsequent period, when there has

been an ulceration, and the ear has been filled up by a cicatrix, it happens that there is no opening in it, and that it is, therefore, destitute of the power of hearing. In this case it must be probed, to ascertain whether it be filled up to a considerable depth, or whether it be only agglutinated superficially. For if deeply, it will not yield to the pressure; if superficial, it will readily receive the probe. The former case must not be meddled with, lest, without any hope of success, convulsion and death be the result: the latter is easily cured. For an opening should be made in the natural situation of the meatus, either by means of some one of the caustics, or by the cautery, or by incision with the scalpel. When it has been opened, and there is now a clean ulcer, a quill must be introduced, smeared with a cicatrizing medicine, and the same dressing applied, that the skin may heal round the quill: by this method, on the removal of the quill, the patient afterwards enjoys the faculty of hearing. But when the ears, those of a man for example, have been pierced, and are offensive to the sight, it is sufficient to pass a hot needle quickly through the hole, so as to slightly ulcerate its edges; or to produce ulceration in the same part by means of a caustic; afterwards to apply a detergent dressing, and, lastly, to incarn the part and induce a cicatrix. When the hole is large, as it is wont to be in persons who have worn heavy ear-rings, one must cut completely through to the tip, then scarify the edges with a scalpel; afterwards sew it, and apply thereon an agglutinating dressing. The third operation consists in supplying any deficiency of the part: but as this may happen in the lips and nose also, and admits of the same explanation, it is as well to include the three under one head.

IX. Defect in these three parts, or in any other that may be equally small, admit of cure: in parts of greater magnitude the cure is either altogether impracticable, or leads to so much deformity, that of the two the previous state was the least unsightly. Indeed, in the ears and nose deformity is all we have to fear: but when the lips are too much contracted, there is embarrassment of function: for the first ingestion of the food, and also articulation is performed with difficulty. The cure does not consist in generating flesh there, but in bringing it from a neighbouring part; this, when the change is inconsiderable, may lead to no loss of structure, and thus escape notice; when considerable, it

cannot fail to be observed. An old person is not a proper subject for this operation : nor one who is cachectic, nor one in whom ulcers heal with difficulty : for there is no part which gangrene more rapidly attacks, or from which it is with greater difficulty removed. The following is the method of cure : first to reduce the mutilated part to a square ; from its inner angles to make two transverse incisions so as completely to divide the part which lies within these lines from that beyond them ; and afterwards, to approximate the part we have thus opened. If they do not completely meet, then, beyond the lines already made, we must make two lunar incisions turned towards the wound, so as to separate the integument only : for in this way its approximation will be facilitated : not that we are to use violence, but to gently draw it so that it may easily yield, and not retract considerably when let go. Sometimes, however, the skin, not being altogether brought from one side, renders the part which it has left deformed. Of such a place one part is to be incised, and the other left untouched. Hence, we are not to attempt to draw any thing either from the lower part of the ears, or from the middle of the nose, or inferior parts of the nostrils, or from the angles of the lips. We may derive our supply from both sides when there is any defect at the summit or lower parts of the ears, the middle of the nose or nostrils, or in the centre of the lips. These parts are sometimes mutilated in two different places, but even then the cure is the same. If there be a projection of cartilage at the part which has been incised, it must be cut away ; for it does not admit of agglutination, nor can it be safely pierced with the needle. Not that its excision ought to be extensive, lest between the edges of the loose skin on both sides there should chance to be a collection of matter. Then, the approximated edges are to be sewed together, including the skin on both sides, and extending the suture to the lines above mentioned. As an application in dry places, such as the nostrils, litharge answers tolerably well. But into the more extensive and lunated incisions lint must be introduced, to the intent that a growth of flesh may fill up the wound. That the part thus sewed will be required to be protected with the utmost care, may appear manifest from what I have above stated relative to gangrene. Therefore, every third day, it must also be fomented with the steam of hot water, and the dressings resumed as before :



and most commonly it becomes agglutinated on the seventh day. We are then to remove the sutures, and to complete the healing of the ulcers.

X. I have already elsewhere stated that the knife is the principal agent in the cure of POLYPUS. It must be detached from the bone with a sharp instrument made after the fashion of a spatha, due caution being taken not to injure the cartilage beneath, which is difficult of cure. After it has been cut off, it should be extracted with an iron hook. Then a roll of lint, or a strip of penicillum is to be sprinkled with some styptic, and the nostril to be filled with it. After the hæmorrhage has ceased, the ulcer is to be deterged with lint. When clean, a quill smeared with some cicatrizing liniment is to be introduced, as has been above directed for the ear, until the healing process be completed.

XI. What operation is to be performed for the affection called by the Greeks *ὄζαινα* (ozaina), when it does not yield to medicaments, I no where find recorded in the works of the great surgeons; I suppose, because manual treatment is excruciatingly painful, and seldom productive of a cure. Some direct that a small pipe, or a writing-reed with a knot in it be put up the nostril so as to reach the bone; then, that through this a small heated cautery be applied to the bone itself; and that the cauterized place be deterged with verdigrise and honey, healing it when pure with lycium: or that the nostril be cut right up from its lower extremity to the nasal bone, to bring the part into view, and to apply the cautery with greater facility. Next, that the nostril be sewed, and the ulcer treated in the same way, anointing the suture itself with litharge or any other agglutinant.

XII. 1. There are also certain affections of the mouth requiring a manual operation. In the first place, the teeth are liable to become loose, sometimes from weakness at their roots, and sometimes from decay of the gums. In both cases it is requisite to apply a hot iron to the gums, so as to slightly touch their surface, without making too deep an impression. The cauterized gums are to be anointed with honey, and gargled with mulse. When the ulcers are becoming clean, some of the repressing medicaments are to be sprinkled over them. But if a tooth occasion pain, and the person be willing to submit to its extraction, because he has experienced no relief from local applica-

tions, it should be scraped all round to detach the gum : it is then to be shaken repeatedly until it be thoroughly loosened ; for the extraction of a tooth tightly fixed is attended with danger, and sometimes with luxation of the jaw. In the upper teeth the operation is still more dangerous, for it may give a shock to the temples, or to the eyes. The tooth is then to be removed, if possible, by the hand, or otherwise with a forceps : when hollow from caries, it should be previously stuffed with lint, or with lead well fitted in, to prevent it splitting into pieces under the grasp of the instrument. The forceps must be drawn perpendicularly, to avoid fracturing the thin bone in which the tooth is implanted with its roots curving inwards. And even when this precaution is observed, there is still some danger ; especially in stumpy teeth whose fangs are generally longer than usual : for frequently when the forceps fails to grasp the tooth, or has not got a proper hold of it, it seizes the bone of the gum, and causes a fracture there. Immediately that an unusual hæmorrhage takes place, we may infer that a portion of the bone is fractured. The detached splinter must therefore be searched for and removed with a vulsella : if it do not come away, the gum must be lanced till the splinter be discovered. When this is delayed, the jaw becomes indurated externally, so that the patient cannot open his mouth. In this case a hot poultice of meal and figs should be applied until pus be excited, and the incision must be made into the gums afterwards. A copious flow of pus is another sign of a fracture in the bone. This is also a proper case for extraction of the splinter. Sometimes also when it is injured, a fistula forms, which requires erosion with the knife. A scabrous tooth must be scraped where it is black, and rubbed with powdered rose-petals, to which has been added one fourth part of galls, and another of myrrh ; and pure wine should frequently be held in the mouth.

In this case, too, the head must be covered, and the patient should have recourse to much walking, to friction of the head, and a bland diet. But if any of the teeth fall out from a blow, or from any other accident, they are to be tied with gold wire to those that are firm, and repriments are to be retained in the mouth ; such as a decoction of pomegranate bark in wine, or wine into which heated galls have been thrown. In children, should a second tooth appear before the first fall out, that which ought to be shed is to be

detached from the gum and extracted; and the new one should be daily pushed towards its place by means of the finger, until it acquire a proper size. Whenever a stump is left after the extraction of a tooth, that also must be drawn without delay by that kind of forceps which the Greeks call *ρίζαγραν*, (*rizagran*).

2. Indurated tonsils accruing upon inflammations and called by the Greeks *ἀντιάδες*, (*antiades*,) when covered by a slight coat, must be detached by the fingers, and afterwards removed: when it is impossible thus to effect their removal, one must take them up with a hook, and excise them with the scalpel: the ulcer must then be washed with vinegar, and the wound anointed with a styptic application.

3. In relaxation of the uvula, attended with inflammation, pain, and redness, excision cannot be practised with safety, for the hæmorrhage is wont to be profuse: therefore it is better to employ the means which have been elsewhere proposed. But if there be no inflammation, and it nevertheless be greatly elongated by the pituita with which it is gorged; and if it be thin, sharp, and white, in that case excision is expedient: so also if the extremity be livid and thick, while the upper part is slender. There is no more convenient method than to take hold of it with a vulsella, and excise just below the instrument to the extent required. Neither is there any danger of cutting away too much or too little, as it is competent for us to leave below the vulsella just so much as manifestly appears to be superfluous, and only to excise sufficient to reduce the part to its natural length. After the operation, the same means are to be adopted as those recently proposed for the tonsils.

4. The tongue with some is joined with the subjacent part from the birth: hence they have not the faculty of speech. Its extremity must be taken hold of with the vulsella, and an incision is to be made into the membrane below it, great care being taken not to injure the contiguous veins, lest we produce a mischievous hæmorrhage. The after treatment of the wound has been explained in the former cases. In the majority of instances indeed, such persons acquire the power of speech by the time the wound heals. But I have known an instance where, after the operation, although the individual could put out his tongue freely beyond his teeth, he nevertheless did not recover the power of speech. So true is it that IN MEDICINE, EVEN

WHERE THERE ARE FIXED RULES OF PRACTICE, WE CANNOT ANTICIPATE CONSEQUENCES WITH ANY CERTAINTY.

5. Abscess occasionally forms under the tongue also, being most commonly encysted and extremely painful. If small, one incision suffices for the cure: if of larger size, the integuments are to be opened, so as to expose the cyst; then the edges of the wound are to be laid hold of with small hooks, and the investing tunic to be completely detached, great caution being used throughout the operation, to avoid wounding any large vessel.

6. The lips are frequently chapped; and this affection, besides the pain it occasions, is accompanied with this inconvenience, that it hinders one from speaking; since that effort, by opening the fissures, provokes them to bleed. When superficial, it is a better plan to treat them with the applications which are prepared for ulcers of the mouth; but when they have penetrated deeply, it is necessary to burn them with the small cauterly, which being of the shape of a *spatha*, should be made to glide over their surface without being pressed on them. Afterwards, the same method is to be pursued as that recommended for cauterized ears.

XIII. In the neck, between the integument and the trachea, a tumour forms, which the Greeks call *βρογχοκῆλην* (*bronchokēlén*), sometimes containing insensible flesh, sometimes matter like honey, and occasionally hairs mingled with small bones: but in each instance, the matter is contained in a cyst. Now this malady may be cured by caustics, by which, both the common integument and the cyst below it are completely destroyed. After this, when the contents are fluid, they run out, or when of a more solid nature, they require to be turned out by the fingers: then, by applying lint, the ulcer heals. But the knife effects the most expeditious cure. In the middle of the tumour an incision is made in one line down to the cyst: next, the diseased cavity is separated from the sound flesh by the finger, and completely removed together with its cyst: then the wound is bathed with vinegar, to which one has added salt or nitre, and its edges are united by suture: the same dressings are to be laid on as in other sutures, and afterwards the part must be bandaged loosely, lest the fauces be constricted. In the event of its being impracticable to remove the cyst,

caustics are to be sprinkled over its internal surface, and the wound to be dressed with lint and other suppuratives.

XIV. There are several diseases occurring about the umbilicus, concerning which, on account of their rarity, authors give discrepant statements. BUT IT IS VERY PROBABLE THAT EACH OMITTED WHAT HE HAD NOT MET WITH IN HIS OWN EXPERIENCE, AND THAT NONE TRUMPED UP ACCOUNTS OF WHAT HE HAD NOT SEEN. An unsightly prominence of the navel is common to all these cases. Now for the causes. Mege has mentioned three : intestinal, omental, and humoral hernia at that part. Sostratus has said nothing about the omental, but to the other two kinds he has added, that flesh sometimes grows there, and that it is sometimes sound flesh, sometimes of a cancerous nature. Gorgias, too, has omitted the omentum ; but after mentioning the other three, he has stated that air also sometimes forces its way to this place.

Heron not only notices these four kinds, but also mentions the omental, and that which contains both omentum and intestine. The following are the characteristics by which each species is known. When the hernia is intestinal, the tumour is neither hard nor soft ; it is lessened by cold ; enlarged not only by heat, but by stopping the breath ; sometimes there is a gurgling sound in it ; and when the patient lies down, as the intestine glides back, the tumour retreats. But when it is omentum, besides the other characteristics which are similar to those of the last species, the tumour is softer, broad at its base, and tapering towards its summit ; and if one take hold of it, it slips from one's grasp. When both are present, the signs are of a mixed character, and the degree of softness is intermediate. But flesh is harder, and causes a continued swelling even when the patient lies on his back ; nor does it yield to pressure, as in the former kinds. When the flesh is diseased, it has the same characters as I have described in cancer. Furthermore, a fluid is known by its fluctuating under pressure. When the tumour contains air, it yields when pressed, but soon returns to its former bulk again ; nor is its figure altered even when the body is in a supine posture. Of these species, that which proceeds from air is incurable. It is dangerous also to meddle with the fleshy cancer-like tumour ; and therefore this also must be let alone. When the flesh is sound, it ought to be ex-

cised, and the wound dressed with lint. Some treat the humoral species by incising the top of the tumour, so as to let out the fluid, and dressing the wound as before with lint. With regard to the rest, there is much discrepancy of opinion. That the body should be laid in a supine posture to favour the return of the hernia, whether intestinal or omental, is self-evident. The cavity of the navel then being empty, is embraced by two ligatures, and their ends being tied tight, it dies off at that part; others pierce its base through the middle with a needle carrying two threads, and then include a segment of the tumour on either side, by tightly tying both ends of each ligature, which is the method adopted for staphyloma; for in this way, all above the ligature is destroyed. Some have added, that before tying the ligature, their practice was to make an incision athwart the tumour, so that by introducing the finger they might more easily reduce the hernial contents: so they tied it afterwards. But it is quite sufficient to enjoin the patient to hold in his breath, that the tumour may attain its full magnitude; then to mark its base with ink; and laying the patient on his back, to press down the tumour with the fingers, so that if any fail to return, it may be forced in by the hand: afterwards to draw up the navel, and include it in a tight ligature just at the place where the ink-mark is: then to cauterize the part beyond the ligature, either with caustics or the actual cautery, till it be completely destroyed, and to dress the ulcer like other wounds. This plan is completely successful not only where the tumour contains intestine or omentum, or both, but also when it contains a fluid. But certain preliminary considerations are requisite before proceeding to the operation: for neither an infant, nor an adult, nor an aged person, are eligible subjects for it, but generally such as are from seven to fourteen years old. In the next place, a person of a good habit of body is eligible; one who is cachectic; and one having papulæ or impetigo, or the like disorders, is ineligible.

The operation is easy too, when the tumours are but small, while it is dangerous in those which are of a large size. Nor should it be performed in autumn or winter: spring is the most favourable, and summer not an objectionable season for it. Moreover, the patient ought to be abstemious on the previous day. Nor is this sufficient; he

must be purged by clyster, that all the protruded parts may the more easily subside within the abdominal cavity.

XV. That it is requisite to tap dropsical patients I have elsewhere stated. It now remains for me to describe the method of doing it. Some perform it below the navel at the distance of about four digits to the left; some perforate the navel itself; some cauterize the integument, and then make their opening into the abdomen by incision; because a burnt wound is slower in healing. The instrument must be introduced with great care, lest a vessel be divided. Its breadth should be about the third of a digit, and it is to be inserted in such a manner that it may also pass through the membrane by which the flesh is separated from the abdominal cavity.

A leaden or copper canula, with its lips curved outwards, or one that has a circular rim at its middle, to prevent its slipping into the cavity, is then to be introduced through the aperture. When the latter is used, that part of the instrument which is introduced should be longer than that which remains external to the aperture, in order that it may proceed beyond the peritonæum. Thus, the fluid is to be effused; and when the greater part of it has been drawn, the canula must be stopped with a piece of linen rag, and, where cauterization has not been employed, it should be left in the wound. For some days afterwards, about three heminæ are to be discharged, until no vestige of the water be remaining. Some, however, when the integument has not been cauterized, immediately withdraw the canula, and tie a wet sponge over the wound: then, on the next day, they again introduce the canula, (which is easily done by stretching the wound a little,) so that the residuary humour may escape: and they rest satisfied with doing this twice.

XVI. Sometimes the belly is perforated by a blow, and evolution of intestine is the consequence. In this case the first consideration is whether or not it be sound; and the next, whether it retain its natural colour. If the smaller intestine be wounded, as I have already said, the case is irremediable. The large intestine may be sewed: not that we can confidently expect a cure, but because a doubtful hope is preferable to certain despair; for now and then agglutination is effected. However, if either kind of intestine be livid, or pale, or black, and consequently devoid of sen-

sation, all treatment will be unavailing. When the part retains its natural appearance, the treatment must not be delayed an instant; for it soon becomes changed by being in contact with the external air, to which it is unaccustomed. Now, the patient should be laid on his back, with his hips somewhat elevated; and if the wound be too small to allow of the ready return of the intestine, an incision must be made to widen it sufficiently; and, if the part have already become somewhat dry, it should be washed with water, to which a very small quantity of oil has been added. Then it is the assistant's business to gently draw apart the lips of the wound with his hands, or with two hooks attached to the inner membrane; while the physician reduces the intestine, first returning that part which came out last, so as to preserve the order of the convolutions. The entire reduction being effected, the patient must be shook gently, that the intestines may be brought to their natural position, and may settle there. This done, the omentum must also be examined; and if any part of it appear black or mortified, it should be cut off with the scissors: if sound, it ought to be returned after the intestines.

But it is not sufficient that the suture include the integument, or the peritonæum separately, but both together; and it must consist of two threads, the stitches being set in closer than in other cases; because they are liable to be more easily broken by the motion of the abdomen, while this is a part less liable to severe inflammation. Therefore, two needles are to be threaded and held in both hands; and we are first to sew the peritonæum, beginning at the end of the wound, and, passing the needles from within outwards, that is to say, that held in the left hand through the right edge, and that in the right through the left; by which method the point of the needle is constantly kept farthest from the intestines, and the blunt end next to them. After making one stitch, the needles are to be interchanged, that of the left being now laid hold of by the right hand, and that of the right by the left; and they are again to be passed through the lips, and the interchange repeated till the wound be closed.

After sewing the peritonæum, the needles and threads are to be transferred to the integument, and this part must be sewed likewise in a similar manner, uniformly passing the needles from within outwards, and observing the same in-



terchange with regard to the hands; afterwards glutinants are to be applied; and, that to these a sponge or uncleaned wool squeezed out of vinegar, is a necessary addition, is so evident that it need not be repeated. These being applied, the abdomen is to be moderately bandaged.

XVII. 1. The peritonæum is liable to be ruptured from a blow, from holding in the breath too long, or from carrying a great weight, and that without injury of the integument itself. This often happens to pregnant women, and in no part more frequently than about the ilia. Now, inasmuch as the superficial flesh does not offer sufficient resistance to the intestines, an unsightly prominence appears in the integument distended by them. This affection also is variously treated by different persons. For some there are who pass a needle with two threads through the base of the tumour, and tie it on both sides, just as was directed for the navel and for staphyloma, to the intent that all included in the ligature may mortify. Others excise the middle of it in the form of a myrtle leaf, (a method which I have elsewhere said ought uniformly to be adopted,) and then approximate the edges of the wound by a suture. However, the most convenient method is to lay the patient on his back, and ascertain by the pressure of the hand at what part the tumour yields the most; for, most assuredly, that is the part where the membrane is ruptured; since there will be greater resistance where it is sound. Then, at the place which appears to be ruptured, two linear incisions are to be made with a scalpel, so that on excising the part between, the peritonæum may likewise have a recent wound on both sides; because an old aperture does not unite by suture. The place being exposed, if at any part of the peritoneal aperture the membrane do not appear to have received a fresh wound, a fine slip is to be excised from its edge to produce a sore surface there. Whatever else relates to the suture and the dressing has been comprised above.

2. Besides these affections, some persons are liable to varices of the abdomen, which require the same treatment as those of the legs; and, as I shall have to explain this malady in a future paragraph, I reserve my observations for that occasion.

XVIII. I now approach to those affections which occur in the genitals, near the testicles: and, to facilitate their explanation, I will premise a few observations touching the

nature of the parts themselves. The testicles then have something of the property of marrow; for they do not emit blood, and are altogether insensible; although their investing tunics become painful after a blow, or during inflammations. They are suspended from the groins by single cords, which the Greeks call *κρεμαστήρας* (*kremastēras*), and which are accompanied by a vein and an artery on either side. Furthermore, these are invested by a fine tunic that is nervous, bloodless, and white, and called by the Greeks *ἐλυτροειδής* (*elutroeidēs*). Over that is a stronger coat closely adhering to the inner at its lowest part: the Greeks call it *δαρτόν* (*darton*). Besides, numerous membranulæ enclose the veins, arteries, and cords; and there are also some slight and very small ones between the two coats at the upper parts. Thus far the coats and appendages are proper to each testicle. But there is a sinus common to both, and to all the internal parts, which is also evident to us: the Greeks call it *ὄσχεόν* (*oscheon*); our countrymen “SCROTUM.” This, at its fundus, slightly adheres to the middle tunics; at the upper is only enveloped by them. Below this, then, several affections are liable to occur, sometimes proceeding from a rupture of the tunics, which I have stated to take their origin from the groins, and sometimes happening while these remain entire. For, sometimes, first inflammation takes place from disease, and then a rupture, from the weight of the parts; or the tunic, whose office it is to separate the intestines from the genitals, is ruptured at once by a blow; then, either the intestine alone, or that and the omentum together gravitate downwards; and, having found a passage, by keeping up a steady pressure from the groins to the parts below, they gradually divide the coats; and these being of a nervous structure, readily admit of their so doing. The Greeks call the two affections *ἐντεροκήλην* (*enterokēlēn*) and *ἐπιπλοκήλην* (*epiplokēlēn*): we use the word HERNIA, an inelegant, but common term for the two. In the next place, when a portion of omentum has descended, the tumour of the scrotum does not disappear, either when the patient is fasting, or under any altered position of the body whatever: and again, no considerable enlargement takes place while holding in the breath, but the tumour feels unequal to the touch, soft, and smooth.

But when the intestine also has descended, the tumour, independently of the effects of inflammation, is at one time

diminished, and at another enlarged; and it is generally without pain; and when the patient remains quiet, or is in a recumbent position, it sometimes entirely disappears; sometimes is so far diminished, that there are but small remains of it in the scrotum: on the other hand, it becomes enlarged by shouting, by eating a hearty meal, and under any effort the patient may make when bearing a burden: any cold contracts it, while by heat it is diffused; and the scrotum is then both round and smooth to the touch, while its contents easily slip from one's grasp: when pressed, it is returned into the groin; but on being let go, it is again prolapsed with a sort of murmuring noise. These are the symptoms incidental to less severe cases. Occasionally, however, from the reception of excrements, the tumour swells more extensively, and is irreducible: in this state, it occasions pain both in the scrotum, groins, and abdomen: sometimes the stomach also becoming affected, first gives off a tawny-coloured bile by the mouth, then some that is green, and in certain instances even black bile. Sometimes, while the membranes remain entire, a fluid distends the scrotum. There are two species of this disorder also. For sometimes the enlargement takes place between the tunics, or in the membranes, which at the same place envelop the veins and arteries, after becoming thickened from the effect of pressure. Nor indeed has the humour which collects between the coats always one certain seat, for it sometimes lodges between the outer and middle, at others between the middle and inner. The Greeks call both species *ὑδροκήλην* (*hudro-kēlēn*): our countrymen having as yet no perfect knowledge of any distinctions, have the same terms for these as for the former maladies.

Now in these there are some symptoms of a general, and some of a peculiar character: general, by which we detect the fluid itself; peculiar, by which we find out the situation of that fluid. We learn the presence of a fluid from a swelling which never entirely disappears, although becoming occasionally smaller, either from hunger, or a slight febrile action, and that especially in children; and such a tumour is soft, if the fluid be not considerable, renitent like a full bladder tightly tied, if the accumulation be extensive: the veins of the scrotum also become enlarged, and on pressing with one's finger, the fluid yields under it, while the circumfluent portion which is not pressed, is raised, and seen

through the scrotum, as if contained in glass or horn; and there is no pain in the tumour itself. The seat of the fluid is thus detected. If it be between the outer and middle coat, by pressing it with two fingers it gradually returns between them. The scrotum itself is whiter than natural: when drawn, it stretches little or nothing; and the testicle, at that part is neither evident to the sight, nor to the touch. But if under the middle tunic, the scrotum is more tense and elevated, so that the penis above is concealed under it.

Besides these, the coats being equally entire, a raxem grows there: the Greeks call it *κίρσοκήλην* (*kirsokēlēn*). The veins swell, and becoming tortuous and conglomerated at the upper part, either fill the scrotum, or the middle coat, or the inner; sometimes also they enlarge below the inner, about the testicle and its nerve. Now of these species, such as are in the scrotum are visible; but those which are situated on the middle and inner coat, being more deep seated, are proportionably less evident, although these also may be seen: and besides, there is some swelling, according to the size and capacity of the veins; and this is more renitent and irregular on account of the knotty swellings of the veins themselves; and on the side where the tumour is, the testicle hangs lower than natural.

But when this affection has grown upon the testicle and the nerve also, the testicle descends much lower, and becomes less than the other, from a privation of nutriment. Rarely, but now and then, there is a growth of flesh between the tunics; the Greeks call it *σαρκοκήλην* (*sarkokēlēn*). Again, sometimes the testicle itself swells with inflammation, and induces fever also; and unless that inflammatory action soon subside, the pain reaches to the groins and ilia, producing tumefaction there; while the cord by which the testicle hangs, becomes enlarged and indurated. Besides these affections, *RAMICES* sometimes occupy the groins: they call them *βουβωνοκήλην* (*boubōnokēlēn*).

XIX. These matters having been duly investigated, we have next to treat on the method of cure, which is either general, or particular. I shall first treat of the general. But I shall speak of such species only as require the scalpel: for concerning those which are incurable, or which require quite another plan of treatment, it will be my duty to discourse when I come to the species individually. Now, the incision is sometimes made in the groin, sometimes in the

**scrotum.** In either plan of cure, the patient ought to drink water the three previous days: on the preceding day, he should also abstain from food: on the day of the operation, he should be kept on his back; then, if the groin is to be incised, and it is covered with hair, this should be previously shaved off; then extending the scrotum so as to put the skin of the groin on the stretch, an incision should be made at the inferior part of the belly, where the inferior tunics are connected with the abdomen. But our opening should be made boldly, until we cut the uppermost tunic, which is that of the scrotum itself, and thus arrive at the middle. By this wound, we come to an opening toward the inferior parts. Into this we must introduce the forefinger of the left hand, so that by drawing apart the intervening membranes, we may disengage the hernial sac. Furthermore, the assistant, grasping the scrotum with his left hand, should extend it upwards, drawing it away as much as possible from the groins; first, along with the testicle, while the physician cuts away with the scalpel, if he cannot separate with his finger all the membranous bands above the middle tunic; and then, without it, that it may slip down, and be in apposition with the wound itself, so as to be drawn out from thence, and placed upon the belly along with its coats. Then, any vitiated parts are to be cut away; and as numerous vessels take their course here, the smaller ones may be cut off at once, and the larger tied with a thread of a pretty good length, to prevent a dangerous hæmorrhage. But should the middle coat be injured, or if the disease lie below it, it must be excised, in such a way that the incision may be made high up in the groin. However, it is not to be entirely removed below: for that which is closely connected with the innermost tunic at the base of the testicle cannot be excised without imminent danger. The same method is to be pursued with regard to the innermost tunic likewise, when that is injured. But this last is not to be cut away from the upper part of the wound, but a little below, lest by wounding the peritonæum, inflammation be excited. Again, we are not, on the other hand, to leave too much of the tunic, lest it afterwards form a sac, and thus afford a receptacle for the same malady. The testicle thus detached must be gently lowered through the wound, along with its veins, arteries, and cord; and care must be taken lest the blood fall into the scrotum, or lest a coagulum

remain in any part; an event which may be obviated, if the physician have taken the precaution to tie the vessels. The threads by which the vessels are secured ought to hang out of the wound: these, in the suppurative process, will fall off, without occasioning pain. Moreover, two fibulæ are to be put upon the wound itself, and over them an agglutinant. It is sometimes necessary to excise a portion of integument from one edge of the wound, to render the cicatrix larger and wider. In this case, the lint pledgets are not to be crammed into the wound, but just lightly placed on; and over them, such medicines as repel inflammation, such as succid wool, or a sponge dipped in vinegar: the remainder of the cure will be the same as when we have to excite supuration.

But when it is requisite to make the incision beneath, the patient being laid upon his back, the left hand is to be put below the scrotum so as to grasp it firmly while the incision is made; and this, if the malady be limited to a small compass, should be of moderate extent, so that one-third beneath may be left entire for the support of the testicle: if more extensive, the incision must be so also, leaving at the bottom barely sufficient for the testicle to rest upon. Now at the first, the knife should be held in a straight direction, with a very light hand, until it divide the scrotum itself: its point is then to be slightly inclined, so as to cut the transverse membranes situated between the external and middle coats. But this last ought not to be touched, if the disease lie immediately over it: if below, that also must be incised, and even the third, if it afford a covering to the disease. Whatever part be found to be the seat of the malady, it is the assistant's business to moderately squeeze the scrotum at the lower part, while the physician draws forth the detached tunic with the finger, or with the handle of a scalpel: an incision is then to be made in it by the instrument called, from its resemblance, *CORVUS*, large enough to admit the index and middle fingers: after we have introduced these, the rest of the tunic is to be detached, and the knife passed between the fingers, all the noxious contents of the sac being taken out, or effused. Furthermore, whatever coat has been injured during the operation, ought also to be cut away; the middle one, as I said before, as high up the groin as possible, the innermost a little below. But before excision, these at their extremities ought to be tied with a thread, its ends

being left out of the wound, like as in other veins requiring ligature. This done, the testicle is to be replaced, and the cut edges of the scrotum sewed together, not being too sparing of our stitches, lest the agglutination be not perfected, and so the cure prove tedious; nor, on the other hand, putting in too many, lest they augment the inflammation. We must take care also, lest we leave any blood in the scrotum, before we apply our agglutinants. If, however, blood or coagulated blood have fallen down into it, an incision must be made below it, and, after clearing it away, a sponge wet with strong vinegar should be applied round about it. Any wound made on these occasions, unless it be painful, should not be opened for the first five days, but the wool or sponge should be sprinkled twice a day only with vinegar: if painful, the dressings should be removed on the third day; and if fibulæ have been attached, they must be cut; if lint have been applied, it must be changed, and the fresh pledget moistened with rose-oil and vinegar before being applied. If the inflammation increase, we must also apply a poultice of lentils and honey, or one consisting of pomegranate bark boiled in rough wine, or a mixture of the two. Should the inflammation not subside under the use of these applications, the wound must be freely fomented after the fifth day with hot water, until the scrotum itself be extenuated, and become more wrinkled: then a flour poultice is to be applied, with the addition of pine resin, boiled in vinegar, if the patient be robust; with honey, if of a more delicate habit. No matter what may have been the nature of the disorder, if the inflammation be considerable, doubtless suppuratives are necessary applications. But when pus forms within the scrotum, a small incision must be made to give it exit, and sufficient lint applied there to cover the aperture. After the subsidence of the inflammation, we are to use the last-mentioned cataplasm, and then cerate. So much for the particular treatment of this kind of wounds; the remainder of the cure, both remedial and dietetic, should be the same as in any other kind.

XX. These matters having been explained, we come to the species individually. If a young child have a descent of intestine, before using the knife we should try the effect of a truss. To this intent a roller is prepared, provided at one end with a cushion made of rags, which is placed under

the intestine, to repel it ; and then the rest of the bandage is tightly bound on. By this, the intestine is frequently reduced, and the coats agglutinated.

Again, if at a more advanced age, and it be manifest from the size of the tumour that much of the intestine has fallen down, the case being, at the same time, accompanied with pain and vomiting, symptoms which are usually occurring when fæces are incarcerated in the tumour from crudity, it is evident that the knife cannot be employed without a fatal result,—that the case admits of alleviation only,—and that the intestine must be emptied by other means. Blood should be drawn from the arm : then, if the strength permit, abstinence must be enjoined for three days ; or otherwise, for as long a period as his strength will allow. Meantime, a linseed poultice is to be applied, previously boiled in mulse ; afterwards, barley meal with resin should be laid over it, and the patient immersed in a solium of hot water, to which oil also has been added ; and some food of a light, warm nature must be administered. Some also open the bowels by clyster. Now, that may determine more fæces towards the scrotum, while it cannot possibly exonerate it of any. The disease being mitigated by the means above described, if the pain return at any time, the same means are to be repeated.

So also if a great portion of the intestine have become prolapsed without being painful, there is no need of cutting ; not but that it may be removed from the scrotum, unless, however, an inflammation prevent ; but because when repelled from thence, it stops at the groin, and there forms a tumour ; and so we have merely a change and not a termination of the malady. But in a case demanding the use of the knife, as soon as the wound made in the groin shall have reached to the middle coat, this must be laid hold of near its edges by means of two hooks, while the physician detaches it from all the surrounding membranules. Nor can there be any danger from the wounds made by these hooks ; for the membrane must itself be excised, inasmuch as the intestine must necessarily lie under it. After it has been detached an incision ought to be made from the groin to the testicle, (care being taken lest this itself be wounded,) and it is then to be excised. Generally speaking, however, this method of cure holds good in infancy, and in cases where the disease is limited.

If the patient be robust, and the malady more extensive,



the testicle ought not to be withdrawn from its natural situation. The following method is to be adopted :—An opening is to be similarly made into the groin with the scalpel as far as to the middle tunic ; and that tunic similarly embraced with two hooks, while the testicle should be secured by an assistant, to prevent it escaping by the wound : an incision is to be made into the same tunic in a direction downwards, by means of the scalpel ; and below it the index finger of the left hand is to be introduced to the bottom of the testicle, so as to bring it up to the wound : then, with the thumb and forefinger of the right hand, we are to separate the vein, artery, and cord, together with their tunic, from the tunic which is above them. But if any membranules prevent this, they are to be detached with a scalpel until the entire tunic be brought into view. Having excised all that is required to be excised, and returned the testicle to its natural situation, a broadish slip of integument must be removed from the edge of the wound in the groin, in order to enlarge the wound, and that it may thus generate more flesh.

XXI. 1. But in omental hernia an opening must be made into the groin, and a separation of the coats effected, in the same manner as directed above ; duly considering whether it consists of a large or a small portion of it. For if small, it must be pushed back over the groin into the abdomen, either by the finger, or the broad end of a specillum ; if more considerable, the portion prolapsed from the abdomen must be allowed to remain depending ; and must be afterwards anointed with caustic applications till it mortify and slough away. Some, in this case also, pass a needle through the tumour, armed with two threads, and tie the opposite ends of each contrary ways, by which method it dies away just as in the other, but the process is much slower. The effect of the ligature, however, is accelerated by smearing the omentum above it with such medicaments as have the power of eating away, without corroding the part : the Greeks call them *σηπτά* (*sēpta*). There have been practitioners who have cut away the omentum with the scissors ; a method which, where the portion is inconsiderable, is superfluous, and where of considerable magnitude, may be productive of hæmorrhage, because the omentum is connected to certain veins, and these too of the larger order. In fact, although in wounds of the abdomen, the prolapsed omentum is cut off with the scissors, because it is mortified,

and not to be got rid of in any other way, still we are not to imitate that practice in epiplocele. Moreover, if the omentum have been returned, the wound must be sewed: if the portion have been too considerable for reduction, and if it have mortified, the edges of the wound must be excised, as above proposed.

2. In internal humoral collections occurring in children, an incision must be made in the groin, unless the large quantity of the fluid renders this method ineligible for them also: but in men, and in every instance where the fluid is considerable, an opening must be made into the scrotum. Then, if it is the groin that has been incised, the coats must be drawn out at that part, and the humour evacuated: if the scrotum, and the malady is immediately below it, all that is required is to let it out, and to cut away any membranes which may have contained it; and it must then be washed with a solution of salt, or of nitre in water: if situated below the middle, or inferior tunic, these are to be entirely removed out of the scrotum, and then cut off.

XXII. A ramex, if situated on the scrotum, must be cauterized with the small sharp irons, which should be thrust into the veins themselves, but so as not to burn any other part; and the application of the cautery is particularly necessary where the vessels are twisted and conglomerated; then meal mixed up with water is to be laid over the part, and such a bandage applied as I have stated to be proper for the anus: on the third day it will be requisite to apply lentils with honey; afterwards, when the crusts have been thrown off, the ulcers must be purged with honey, incensed with rose-oil, and cicatrized with dry lint. When the swollen vessels are situated upon the middle tunic, an incision is to be made in the groin, and the tunic drawn out, the vessels being separated from it by the finger, or by the handle of the knife. A ligature is to be fixed both above and below that part where they adhere; then they are to be divided close up to these ligatures, and the testicle replaced. But when the ramex is fixed above the third coat, it is necessary to cut it through the middle. Then, if the tumescence be limited to two or three veins, and the greater part be free from the disease, we must pursue the same method as has been described above, dividing the veins previously tied at the groin and at the testicle, and replacing this last as before. But should the ramex occupy the whole groin, the

index finger is to be introduced through the wound, and passed below the veins, so as gradually to draw them out until that testicle be equal to the other, then fibulæ are to be put in the edges of the wound, so as to include the veins also. It is done in this manner. The external edge of the wound is pierced by the needle; it is then passed, not through the vein itself, but through its membrane, and by that it is pushed through the opposite edge. The veins ought not to be wounded, lest hæmorrhage ensue. The membrane is uniformly situated between these veins, but does not create danger, and, when included in the suture, effectually secures them; and therefore two fibulæ are sufficient. Then, whatever veins have been drawn forth, must be pushed into the groin with the back of the specillum. The proper time for removing the fibulæ is when the inflammation has subsided, and the wound has become clean; so that the edges of the sore and the veins may be simultaneously closed in the process of cicatrization. But when a rax has formed between the inner tunic and the testicle itself and its nerve, the only cure for it is excision of the entire testicle. For not only is it of no further use for the purposes of generation, but it is an unseemly, and, in some cases, a painful appendage. Now, in this operation also, the incision must be made in the groin, and the middle tunic drawn out and removed: the same must be done with the innermost tunic, and the cord which suspends the testicle is to be divided: then the veins and arteries are to be secured by ligature close up at the groin, and to be cut off below it.

XXIII. When a growth of flesh has taken place between the tunics, doubtless it also should be removed: but this is more conveniently done by making an incision into the scrotum itself. But when the cord has become indurated, the case neither admits of being cured by the hand, nor by medicines; for the patient is distressed with ardent fever, and either green or black vomiting; besides these, there is intense thirst, and a crackly state of tongue; and generally after the third day, a frothy bile is discharged, producing excoriation: and the food can neither be ingested nor retained, except with difficulty: soon afterwards the extremities become cold; tremor comes on; the hands are outstretched involuntarily, and then follow cold sweats in the forehead, and death.

XXIV. When a rax is situate in the groin, if the tu-

mour be moderate, one incision is sufficient; if considerable, two will be required, in order that what lies between may be excised: afterwards, without drawing out the testicle, in the method I have shown to be sometimes adopted in intestinal hernia also, the veins are to be taken up and secured where they adhere to the coats, and divided below the ligature. The wound itself requires no peculiar method of treatment.

XXV. 1. From these last affections we advance to such as occur in the penis. If the glans be bare, and a person, for the sake of improving its appearance, is desirous to have it covered, the thing is practicable, although more so in a boy than in an adult; less difficult where the defect is congenital than where, as is the custom of some nations, it is the result of circumcision: and so also less where the glans is small, the skin about it loose, and the penis itself short, than in a case where these circumstances are directly contrary. Where the defect is congenital, the following is the method of cure. The skin about the glans is laid hold of, and extended until it completely covers the glans, and is tied there: then, near the pubes a circular incision is made in the integument until the penis is denuded, being particularly careful not to wound the urethra or the veins in that part. This done, the skin is brought forward towards the ligature, which leaves a denuded circle about the pubes; to this lint is applied, to promote the process of granulation and incarnation, so that the breadth of the wound may afford sufficient covering for the glans. The ligature must be left on until cicatrization be complete, an aperture being left in the middle large enough to allow the escape of the urine. But, in cases resulting from circumcision, an incision must be made immediately around the glans, detaching the skin from the body of the penis beneath. This is not very painful, because, after thus separating it at its extremity, it may be easily stripped up to the pubes by means of the hand, without causing hæmorrhage. Moreover, the detached integument is again extended beyond the glans; then it is freely fomented with cold water, and encircled with a plaster particularly efficacious as a repellent of inflammation: and on the ensuing days rigid fasting is observed, lest perchance a hearty meal should cause an erection. When free from inflammation, the part must be bandaged from the pubes to the circle of the glans, and, after putting on a plaster, the

skin must be drawn over it; for in this way the lower part becomes agglutinated, and the upper heals without producing adhesion.

2. On the contrary, if the glans be so concealed, that the prepuce cannot be retracted (which affection the Greeks call *φίμωσις* (*phimōsin*), it requires to be opened after the following method. An incision is to be made at the under and extreme part of the prepuce. The prepuce is to be divided at the inferior part of its extremity, in a direct line towards the frenum; and in this way the dorsum becoming relaxed, admits of retraction. But if the cure be incomplete, either on account of the narrowness or indurated state of the foreskin, a portion of integument must be immediately cut out from the lower part, of a triangular form, with its vertex towards the frenum, and its base at the extremity of the prepuce. Then lint dressings are to be applied, and such other applications as are of a healing quality. Furthermore, absolute rest is necessary until cicatrization be completed: for walking, by the friction it produces, renders the ulcer foul.

3. It is a practice with some to infibulate boys, in some instances to improve their voice, and in others on account of their health: it is done as follows. The skin which covers the glans is extended, and marked on both sides with ink at the part which is to be perforated: it is then relaxed. If the marks recede over the glans, it is a proof that they are too far back, and we must place them lower down: if the glans remain clear of them, the fibula may be with propriety fixed there. Then, where the marks are, the skin is pierced with a threaded needle, and the ends of the thread tied together; and the ligature is moved daily, until the cicatrices of the holes be completed. Afterwards they remove the thread and insert a fibula; and the lighter this is, the better. Now this operation is oftener superfluous than necessary.

XXVI. 1. Circumstances sometimes render it necessary to draw off the urine by an operation; as in retention, or when the urethra has become collapsed from old age, or when a calculus, or grumous blood has produced internal obstruction: so, also, even a moderate degree of inflammation often prevents natural micturition. Now this operation is necessary not only in males, but sometimes in females also. Hence copper catheters are made for this purpose;

and that they may serve for all sorts of cases, the practitioner should keep by him three for men, and two for females; the largest of the male catheters being fifteen digits, those of middle size twelve, and the smallest nine; while of the female, the larger should be nine, and the smaller six. They ought to be somewhat curved, but the male more especially, very smooth, and of a moderate diameter. The patient is to be placed on his back, as described for operations at the anus, upon a stool or a couch. The physician standing at his right side, should, in the male subject, lay hold of the penis with his left hand, while with his right he passes the catheter into the urethra: when he has reached the neck of the bladder, he is to give the instrument, together with the penis, a slight inclination downwards, and to push it on into the bladder itself, and to withdraw it after the urine has been evacuated. In females, the urethra is shorter and straighter than the male, its nipple-like orifice being situated between the labia and above the vagina; and they also as frequently require this kind of aid, although with them it is attended with less difficulty. Sometimes also a calculus sliding into the urethra, inasmuch as this gradually narrows in its course, is apt to stick a little way from its orifice. If possible, it must be extracted either with the oricularium specillum, or with the instrument with which they extract the stone in lithotomy. If that be found impracticable, the end of the prepuce is to be drawn out as much as possible, so as to cover the glans, and tied beyond it with a ligature: afterwards, a lateral incision is to be made into the body of the penis, and the calculus withdrawn: this done, the skin may be allowed to retract: for by this method the sound integument will retract so as to cover the incision, and the urine will be discharged by the natural passage.

2. Now, since mention has been made of the bladder, and of the calculus, this would appear to be the proper place for subjoining the treatment of calculous patients, whose cases admit of no cure except lithotomy. Inasmuch as this is a dangerous operation, to proceed to it at once without deliberation is highly improper. Neither is it to be attempted at all seasons, nor at all periods of life, nor in every form of the disease; but in spring only, in a subject who has reached the age of nine years, and not as yet exceeded fourteen; and when the malady is so urgent that it

is neither to be cured by medicines, nor longer to be endured without shortly destroying life. Not but that a rash treatment occasionally succeeds, but because it more frequently fails, attended as it is with several kinds and seasons of danger, which I shall mention along with the operation itself.

When, therefore, one has determined to resort to extremities, the body should previously be prepared for some days by regimen; so that the patient may take proper food in moderation, avoiding that which is glutinous, and drinking water. At the same time, he should use the exercise of walking, to favour the descent of the calculus towards the neck of the bladder. That it has fallen into this position may be known by introducing the fingers, in the manner to be explained in describing the operation. When this has been satisfactorily ascertained, the boy must be kept in a fasting state for one day; and then the operation is to be performed in a warm room, and in the following manner. A strong and intelligent person having taken his seat on a high stool, and fixed the patient in a supine posture, with his back turned towards him, lays hold of him and draws up his legs, enjoining the patient also to grasp his hams with his hands, and to pull with all his might, while he himself secures them in that position. But if the person to be operated on be unusually strong, two powerful men are to be seated close to each other, both their seats and their inner legs being tied together to prevent their being drawn apart: the patient is then to be similarly placed on both their knees, and one, according as he sits, lays hold of his left leg, while the other secures the right, and he himself draws up his hams. But whether held by one or by two, they are to recline forward, with their breasts on his shoulders. In this way the depression between the ilia and above the pubes is kept tense and free from wrinkles, and the bladder being brought into a small compass, the calculus may be more easily extracted. As an additional precaution, two stout fellows are stationed, one on either side, whose business it is to support the assistants who have hold of the patient. Then the physician, having first carefully pared his nails, gently introduces one after the other the index and middle fingers of the left hand into the anus, while he as gently places the fingers of the right upon the lower part of the abdomen, lest if the fingers on both sides press too strongly on the parts

immediately about the calculus, they should injure the bladder. In doing this, we are not to proceed hastily, as in many other cases, but it should be our aim to adopt the safest mode; for a wounded bladder produces convulsions, and endangers life. We are first to search for the calculus near the neck of the bladder, which is the position most favourable to its extraction; and therefore it was that I stated, that it ought to be ascertained to be in this position before proceeding to the operation. If it be not so situated, or if it have fallen back, the fingers must be applied to the fundus of the bladder, and those of the right hand above it, and gradually be brought down over its tract. On discovering the calculus, (for it cannot fail to be encountered by the fingers,) we must carefully guide it towards the neck of the bladder, exerting the utmost caution when it is small and smooth, for fear it should slip away, and so it be necessary again to disturb the bladder by repeating this part of the operation. For this reason, the right hand must always be placed beyond the calculus to oppose its return, while the fingers of the left are employed in pushing it forwards till it arrive at the neck of the bladder, into which, if oblong, it must be pushed, so that it may escape with its end foremost; if flat, it must be placed so as to be transverse; if square, so as to rest on two angles; if larger at one end, in such a position that the narrower may pass out first. In the round calculus it can evidently make no difference in what position it is placed; but should it be smoother in one part than another, that part should come out foremost. When it has been brought into the proper position, a lunated incision must be made through the integuments near the anus, immediately over the neck of the bladder so as to reach that part, with the horns slightly pointing towards the hips: another transverse incision is then to be made below the integument at the convex margin of the former wound, so as to open the neck of the bladder so freely that the urethra may be exposed, and that the wound may be something larger than the calculus. Those who make the opening too small, from a dread of a fistula, (which, at that part, the Greeks call *κορυάδα* (*koruáda*), are brought into the same dilemma, and even with more danger; because as the calculus is forcibly extracted, it makes a passage, if one be not ready provided for it; and the mischief may be rendered more extensive, either by the configuration of the stone, or by the roughness of its surface,



from whence both hæmorrhage and convulsions may accrue; and even if the patient have escaped these evils, he will yet have a wider fistula, as the result of the cervix being lacerated, than he would have had if it had been cut. The cervix being opened, the calculus comes into view, the colour of which is a matter of no importance. If small, it may be pushed forwards with the fingers at one side, while it is withdrawn at the other: if of larger size, a crotchet made expressly for that purpose must be put over its upper part. This instrument is thin at its extremity, and beat out into the form of a semicircle; smooth at its external surface where it comes in contact with the flesh; rough internally, where it touches the stone; and it ought to be of a pretty good length; for when short, it is deficient in power. When fixed, it should be moved from side to side, to ascertain whether the calculus is within its grasp; for when it is, it moves simultaneously with it. And this is requisite, lest in the act of drawing out the crotchet, the calculus slip away from its grasp, and the instrument come in contact with the edge of the wound, and lacerate it; an event which, as I have already stated, would be pregnant with danger. When satisfied that the calculus is held sufficiently fast, a triple motion is to be performed almost at the same time, two motions from side to side, and one forwards; but this must be done slowly, first drawing the stone a little forwards: after which, the end of the crotchet must be elevated, that it may be more internal, and to the rear of the stone, and may draw it out with more facility. When the calculus cannot be conveniently taken hold of at its upper part, it must be grasped laterally. This then is the most simple mode of performing the operation: although there are various contingencies which yet remain to be considered: for there are some calculi not merely rough but also spinous; which, provided they fall spontaneously into the neck, are extracted without danger; but which when in the bladder, are neither searched for nor extracted with safety, since by lacerating the bladder, they rapidly induce fatal convulsions; and especially, if either of the spinous projections become entangled with the bladder, and throw it into folds in the act of extraction. That the calculus is situated at the neck of the bladder may be inferred from a difficulty of micturition; and that it has a spinous surface is evidenced by the urine being bloody: it is highly expedient to ascertain its presence

by means of the fingers, before proceeding to the operation. Even then we must make only a moderate pressure with the fingers, lest by pressing on too forcibly we wound the bladder: then we must proceed to make the incision. Many use the scalpel in these cases also. Now because this instrument is weak, and liable to encounter some prominent part of the stone, so as to cut the flesh above it without incising that which is in the hollow, (an incident which would call for a second incision,) Meges invented a straight instrument, rounded at its upper, and semicircular and sharp at its lower extremity. Holding this between his index and middle finger with the thumb pressed on it, he thrust it in, so that with one push he might cut not only the flesh, but any prominent portion of the calculus: the advantage of which was that he made a sufficient opening at once. In whatever mode the neck of the bladder is laid open, a rough calculus must be extracted gently, not using violence for the sake of hastening the operation.

3. A sandy calculus may be discovered both before the operation, by the urine being sabulous, and during our operative measures, by its not feeling so hard between the fingers, and by its also being apt to slide away. Urine that brings away with it a scaly matter indicates that the calculi are soft, and that they are made up of many small ones loosely packed together. By gently and alternately changing the position of one's fingers, we must manage to bring all these away without wounding the bladder; leaving no residuary fragments to impede the subsequent cure. Should any such come into view, they must be extracted either with the fingers, or with the crotchet. But if there be several calculi, they must all be drawn out one by one, with this exception, however, that if any minute stone remain, it will be preferable to leave it; for its detection is difficult, and when discovered, it easily gets away. Thus, by a protracted search for it the bladder is injured, and fatal inflammation excited: hence some, without being cut, have died from this tedious and fruitless champoing of the bladder. Add to this, that a small calculus is subsequently moved forwards along with the urine, and so falls out. Should the stone appear too large to admit of extraction without rupturing the neck of the bladder, it must be split: for this invention we are indebted to Ammonius, who was therefore surnamed *λιθοτόμος* (lithotomos). The operation is thus performed:—A.

crotchet is passed over it, in order that even while it is struck there may be no difficulty in keeping it fixed: then an instrument is used of a moderate thickness, its forepart being thin but blunt; and this when applied to the stone, and forcibly struck at its other end, splits it in twain; due caution being observed lest the instrument reach the bladder itself, or lest the fractured calculus lacerate it.

4. The operations just described apply to females likewise; although a few peculiarities require to be noticed; for in them, when the calculus is small, the knife may be dispensed with, because it is driven into the neck of the bladder by the impulse of the urine: now this part is shorter and more capacious than in males. Hence, the calculus frequently comes away spontaneously; and though it stick at the first and narrower part of the urethra, it nevertheless may be safely drawn out with the crotchet already mentioned. In calculi of a larger size, women require the same operation as men: although in virgins the fingers are to be applied as in males; while for her who has lost her virginity, they ought to be introduced by the vagina. Again, in the former subject the incision must be made below the left labium pudendi; in the latter, between the urethra and os pubis, making the wound transverse in both cases. Neither is there the same ground for alarm from a considerable hæmorrhage, where it occurs in females.

5. After the removal of the stone, if the patient be of a robust habit, and his sufferings have not been excessive, it is proper to allow the wound to bleed, to diminish the inflammation; and it is no bad plan to allow him to walk about a little, to favour the escape of any grumous blood that may chance to remain within. But if the bleeding do not stop spontaneously, it must be suppressed, lest the strength be entirely exhausted; and this, in weak subjects, should be done immediately after the operation: for as the patient incurs the risk of convulsions if his bladder be roughly handled, so another danger awaits him—lest, after the operation, a fatal hæmorrhage ensue. To obviate this, he should sit down in sharp vinegar, to which a little salt has been added; under the use of which most commonly not only does the bleeding subside, but the bladder is constricted, and therefore less inflamed. Should these means be ineffectual, a cucurbital is to be fixed on the groins, the hips, and the pubes. When a sufficiency of blood has been

drawn away, or when the hæmorrhage has been checked, he is to be placed on his back with his head depressed and his hips somewhat elevated; and a piece of linen rag folded double or treble, and wet with vinegar, must be applied over the wound. Then, after a lapse of two hours, he is to be immersed in a solium of hot water, while lying on his back, so that it may cover him from his knees to his navel, while clothes are to be thrown over the other parts of his body (his hands and feet only excepted), that he may be less exhausted, and may remain in for a longer period. This usually induces copious perspiration, which is to be wiped from the face with a sponge as it accumulates; and he is to remain in the bath till he have an unpleasant feeling of faintness.

He is then to be freely anointed all over with oil, and a handful of soft wool saturated with warm oil, is to be laid on, so as to cover the pubes, the hips, the groins, and the wounded part itself, which was previously covered with the pledget of linen: this wool is frequently to be moistened with fresh warm oil, so as to keep out the cold from the bladder, and to gently mollify the parts. Some employ calefacient poultices. These, by the pressure they make on the bladder, irritate the wound, and thus do more harm than is counterbalanced by the benefit resulting from their heat. For this reason, too, not even a bandage is admissible. On the day following, if the breathing be difficult, if no urine be voided, if the parts about the pubes have become prematurely swollen, we may infer that coagulated blood still remains in the bladder. Therefore, using the fingers in the manner above explained, the bladder must be gently pressed, and the coagulum dispersed; after which it will escape through the wound. It is not improper, also, by means of a syringe, to inject into the bladder a solution of nitre in vinegar through the wound: for, by this also, the coagula are dissolved; and where we have our fears that there is an internal collection, it is expedient to put this into practice on the first day: especially, if debility prevent the patient from eliciting its discharge by walking.

The other measures, that is to say, immersion in the solium, and the application of the linen pledget and the wool, are to be pursued as before. But a child ought not to be kept so long in the hot water as an adult; the infirm subject not so long as a robust one; one affected with slight, for a

shorter period than one affected with severe inflammation; and the lax not so long as the rigid frame. Meanwhile, if the patient have sleep with equal respiration, moist tongue, moderate thirst, and no swelling of the hypogastrium, and, if neither the fever nor the pain be considerable, we may take it for granted that the cure is proceeding favourably. In that case, the inflammation is ended about the fifth or seventh day; as it diminishes, the solium becomes superfluous: all that is required is to foment the wound with hot water, while he is lying on his back, to wash away any acridity that may have been left by the urine. Suppuratives are the dressings proper in this case, and should the wound require deterring, it must be anointed with honey. If that prove corrosive, it must be mixed with rose-oil. The ennea-pharmacum plaster appears to be best suited to curing this kind of wound: for it both contains suet for exciting suppuration, and honey for cleansing the wound: it contains marrow also, mostly that from veal, which is singularly efficacious in preventing a fistula.

It is superfluous to put lint next the sore, although it may be used with propriety as a medium for applying the salve. But after the ulcer has been cleansed, a simple lint dressing must be employed to cicatrize it. At this stage of the cure, if it be not going on favourably, various are the dangers which may arise. These may be at once presaged, if preceded by constant watchfulness, by difficult respiration, dry state of tongue, vehement thirst; if there is tumefaction of the hypogastrium, retraction of the lips of the wound, and the urine flows through it without producing a sensation of smarting; and if in like manner before the third day a livid matter escapes from it; or if the patient either answers not at all, or in a drawling manner; by the severity of the pains, by the fever being urgent after the fifth day; by the continuance of anorexia, and by a predilection for lying on the belly. There is, however, no symptom so dangerous as convulsions and bilious vomiting occurring before the ninth day. Now, when inflammation is apprehended, it must be relieved by abstinence, food being used only in moderation and at seasonable times: meanwhile we must have recourse to the fomentations and remedies already described.

XXVII. The next peril is GANGRENE. This is known to exist, if, through the wound and by the penis itself there

be a fetid discharge mixed with a matter not unlike coagulated blood, together with small caruncles like the flock of wool; and if, besides these signs, the lips of the wound be arid, if the groins be painful, the fever incessant, and aggravated at night; and, lastly, if irregular shiverings come on. Furthermore, we are to observe what direction the gangrene is taking. If towards the penis, that becomes hard, red, and painful to the touch, and the testicles begin to swell: if, in the direction of the bladder, then follows pain of the anus, induration of the hips, and the legs cannot be extended but with difficulty: but if it tend laterally to the wound, it is visible, and has the same characteristic marks, only in a minor degree. It is of the utmost importance that the patient be placed in a proper position, so that the vitiated part may always remain superior. Thus, if it spread toward the penis, the patient should be laid on his back; if towards the bladder, on his belly; if laterally, on the side which is the least diseased. In the next place, in proceeding to the cure of gangrene the patient must be immersed in a decoction of horehound, or of cypress, or of myrtle; and the same fluid must be injected with a syringe: then lentils mixed with pomegranate bark are to be applied, both having been previously boiled in wine; or we may use the bramble, or olive leaves boiled in the same manner: or any other medicaments which we have proposed for checking and deterring gangrene. These, if used dry, are to be blown in through a quill. When the gangrene is arrested, the wound must be bathed with mulse: and cerate, at this juncture, must be avoided, lest, by softening the flesh, it predispose it to receive this disease: the parts had better be anointed with washed lead mixed with wine: and the same may be laid on, smeared over with lint. By pursuing these measures, it is possible the patient may recover: let us bear in mind, however, that gangrene often affects the stomach, between which organ and the bladder there is a kind of sympathy; and in that case no food is retained, or if retained, it is not digested, nor is the body nourished: hence, the wound can neither be deterged, nor impleted, under which circumstances death is inevitable. Now, inasmuch as when the case has proceeded thus far no relief can be afforded, so we must pursue a method of cure from the first day. In this, some observation is requisite with regard to the food and drink. For at first no food should be given,

except such as is moist : when the ulcer is clean, some from the middle class may be allowed, but greens and salsaments are uniformly hurtful. Drink is necessary, but it must be moderate : for, by drinking too little, the wound is inflamed, the patient troubled with watchfulness, and his energy exhausted ; while, by drinking too much, the bladder is repeatedly distended, which is another cause of irritation. It is so self-evident that the drink should be water only, that it is needless to reiterate the precept. Costiveness is a common consequence of a regimen of this nature. This must be obviated by clysters consisting of a decoction of fenugreek or mallows. The same decoction mixed with rose-oil is to be injected into the wound by a syringe, if the urine fret it, and prevent the healing process. This, at the first, usually flows through the wound ; then, as that heals up, it is partly discharged by the urethra, until at length the wound is entirely closed, an event which sometimes occurs in the third month, sometimes not before the sixth, and, in a few instances, not till after the lapse of a year. Nor are we to despair of completely agglutinating the wound, unless where the neck of the bladder has been considerably ruptured, or many large portions of flesh, together with some of the nervous structure, have sloughed, from the effect of the gangrene.

It is incumbent upon us to use every precaution, that there may be no fistula, or at least only a very small one. For this reason, when the wound begins to cicatrize, the patient ought to lie with his thighs and legs extended ; unless however the calculi be soft or sandy ; for in these last cases, the bladder is not so soon cleansed, and therefore it is necessary that the wound should remain open for a longer period, postponing the cicatrization until there be no longer any sabbulous matter discharged. Should the lips of the wound become agglutinated before the bladder be cleansed, and should there be a return of the pain and inflammation, the wound must be separated by means of the fingers, or by the broad end of a specillum, to afford an exit to the irritating matter : and that being discharged, when for some time the urine has remained clear, we are then at last to apply our cicatrizing medicines, extending the legs, as I have above directed, as closely in contact with each other as possible. But if, from the causes above mentioned, it should appear that there is good reason to dread a fistula, in order that it

may be more easily closed, or at all events narrowed, a leaden pipe is to be introduced into the anus; and the legs being extended, the thighs and ankles are to be tied together, until a cicatrix, such as it may be, shall have become complete.

XXVIII. The foregoing disease may happen alike both to males and females. But some cases exclusively belong to women: the first of which is that in which the vagina does not allow of sexual intercourse, in consequence of its edges being agglutinated. This affection is sometimes congenital; sometimes the result of ulceration in this part, the edges becoming united during the healing process through bad management. When congenital, a membrane is opposed to the mouth of the womb: when it proceeds from an ulcer, it is filled up with flesh. It is expedient to divide the membrane in two lines, decussating each other like the letter X, being particularly careful not to wound the urethra; and then to dissect out the membranous portions. But if flesh have grown there, it is necessary to lay it open in a straight line: then having seized its edge with a vulsella or a hook, to cut away a slip of it, and afterwards to introduce a roll of lint steeped in vinegar (the Greeks call it *λημνίσκον* (*lēmnikon*), binding over it succid wool moistened with the same fluid: on the third day, to remove the dressings, and adopt the same treatment as in other ulcers. When it has begun to heal, a leaden pipe is to be smeared with a cicatrizing liniment, and to be introduced into the vagina: and the same medicament ought also to be injected until the wound be perfectly cicatrized.

XXIX. In pregnancy, if the fœtus, when nearly full grown, die within the womb, and its spontaneous evolution do not take place, we must have recourse to an operation which may be ranked among the most difficult: for it is one which requires the utmost prudence, and the nicest management, and is attended with the greatest danger. In this instance, as well as in many others, the pre-eminently wonderful nature of the womb is readily discovered. In the first place, it is requisite to place the woman on her back across the bed, in such a posture that her ilia may be compressed by her thighs; in order that the inferior part of the belly may be in the view of the operator, and that the fœtus may be impelled towards the os uteri, which, in these cases, is closed, but dilates at intervals. The physician embracing this opportunity, having greased his hand, ought first to insert the index



finger, and to keep it there, until the os uteri be further opened; and then he should again introduce another finger, inserting the remainder in the same way, till his whole hand be within the womb. The practicability of performing this depends very much upon the size of the womb; the strength of its nervous structure; the general habit of the body; and the firmness of the mind: nay, it is sometimes requisite to introduce both hands. It is of importance that the inferior belly and the extremities be kept as warm as possible, and that our remedial measures be instituted while the case is recent, and before the setting in of inflammation. Hence, if the body have begun to swell, neither the introduction of the hands, nor the eduction of the fœtus can be effected but with the greatest difficulty; and even then, the frequent consequences are vomiting, tremor, and fatal convulsions. On introducing the hand upon the dead fœtus, we readily discover its position: for it is either turned upon its head, or its feet, or it lies transversely; so that most commonly either its hand or foot is near the os uteri. Now, the physician's aim should be to turn it with his hand either upon its head or upon its feet, if previously in any other posture. When no other part presents itself, by taking hold of the foot or the hand, the body is brought into a straighter direction; for by the first we turn it upon its head, and by the second, upon its feet. Then, if the head present, a crotchet with a short beak must be introduced, smooth throughout its entire surface; and the parts where it is proper to fix it, are the eyes, ears, mouth, and sometimes the forehead: and by drawing this in a direction forwards, the fœtus is extracted. Not that it is to be drawn out indiscriminately at any time; for if an attempt be made while the mouth of the womb is contracted, this part cannot afford a passage for it, and so the fœtus is lacerated, and the beak of the crotchet slips into the os uteri itself; the consequences of which are convulsion, and, very probably, death. Therefore, during the contraction of the uterus, we must wait, and pull gently when it becomes dilated; thus extracting the fœtus by degrees, as opportunity may permit. The crotchet should be drawn with the right hand, the left being introduced so as to act as a director both to the fœtus and to the instrument. The infant is sometimes distended with a fluid, and a fetid sanies flows from it: in this case, it must be perforated by means of one's forefinger, that by letting out the humour its bulk may be lessened: and it is

then to be gently withdrawn by the hand. For a crotchet thrust into flaccid flesh is easily detached, the danger of which event has already been mentioned. When the fœtus is turned upon its feet also, it is not difficult of extraction; for these being taken hold of, it is readily brought away by the hands merely. When situated transversely, and one cannot direct it by the hand, a crotchet must be fixed in the armpit, and its extraction gradually effected: when in this position, its neck is generally doubled, and its head turned backwards. This difficulty must be remedied by cutting the neck completely through, so as to remove both parts separately. This is accomplished with a crotchet like the former, only that its entire inner edge is sharp. Then, it should be our aim first to remove the head, and afterwards the rest of the body: because it generally happens that where the bulkier part is removed first, the head slips back into the cavity of the womb, and cannot be extracted without extreme danger. Should this happen, a double cloth having been laid over the woman's abdomen, a strong and intelligent person ought to stand at her left side, place both his hands upon the lower part of her belly, and press with one hand laid upon the other, by which means the head is impelled towards the os uteri; and it remains to be extracted with the crotchet, in the manner above mentioned. But if one foot present, while the other lies backward along with the trunk, the protruded part must be gradually cut away: and, if the buttocks have begun to press against the mouth of the womb, they must be forced back again, and the other foot sought for, and brought forward. There are yet other difficulties which render it necessary to remove the child piecemeal, where it cannot be extracted entire. When the fœtus has been extracted, it must be delivered to an assistant, who is to hold it with its back lying on his hands, while the physician ought gently to pull the navel-string with his left hand, so as not to break it; tracing it as far as to the secundines which envelop the fœtus within the womb: and, taking hold of the extremities of these, he is to detach with his hand all its small vessels and membranes from the surface of the womb, and to take it out whole, together with any coagulated blood that may remain there. Then, having closed the thighs, the female is to be placed in a moderately warm apartment, not exposed to any draught of wind. Uncleansed wool, steeped in vinegar, should be laid upon the in-

ferior part of the belly. The remainder of the treatment ought to be the same as that adopted for inflammation and wounds of the nervous parts.

XXX. 1. Affections of the anus also, when not subdued by local applications, require the aid of a manual operation. Therefore, when fissures at that part have become indurated and callous with age, the best plan is first to give a clyster, then to apply a warm sponge in order to relax them, and to bring them out : when in view, to excise them one by one with a scalpel, and thus to obtain a new surface ; next, to apply soft lint, and over that a linen pledget spread with honey, filling up the part with soft wool, and securing it by a bandage : on the next and following days, to use emollient dressings, such as I have directed for the same disorders when recent : and for the few first days to keep the patient wholly on slops, gradually making some addition to his diet, but of that kind only which has been already ordered. If suppurative inflammation arise in them, an incision must be made as soon as it is observed, lest the anus itself should suppurate. Still, however, we are not to do this too hastily, for if the part be cut before it is mature, it aggravates the inflammation, and increases the quantity of pus. These wounds also require a bland diet, and mild dressings.

2. But the tubercles denominated *κονδυλώματα*, (*condulōmata*,) when in a state of induration, are treated in the manner following : in the first place, the bowels are emptied by clyster, then the tubercles are taken hold of by means of the vulsella, and excised near their roots. After accomplishing thus much, the subsequent treatment is the same as I have directed above, with the exception that if there be any excrescence, its growth must be restrained by copper scales.

3. The following is the method of removing bleeding piles. When there is a sanies mixed with the blood that is discharged, the bowels are to be clystered with acrid remedies, in order that the mouths of the veins may be made to be more prominent : and in this way all the heads of the veins may be brought into view. Then if the head be small, and if it have a small base, it must be tied with a thread a little above the point where it is joined with the anus : a sponge squeezed out of hot water is to be laid over it, till it grow livid ; and then we must make an ulcer above the knot either with one's nail, or by the scalpel. Unless this be done, se-

vere pains ensue ; and sometimes dysuria also. If the pile be of a larger size, and have a broader base, it must be taken hold of by one or two small hooks ; an incision is then to be made round the tumour, a little above the base, and we must neither leave any part of the pile, nor take any thing off the anus : this may be managed, provided one neither draw the hooks too much nor too little. When the incision has been made, a needle ought to be inserted, and below it the pile must be tied with a thread. If there be two or three, the lowermost must be cured first : and if still more numerous, they are not to be tied all at once, lest there be sore cicatrices entirely surrounding the anus at one and the same time. If blood flow freely, it must be taken up with a sponge : after that, lint must be applied, the thigh, groins, and other parts contiguous to the ulcer, must be anointed, and cerate laid over it, the part being subsequently filled with warm barley meal, and so bandaged. On the day following, he ought to sit in hot water, and be fomented with the barley-meal poultice ; and twice daily, both before the operation and after it, the hips and thighs must be anointed with liquid cerate, and the patient kept in a warm apartment. After the lapse of five or six days, the lint is to be removed by the auricular specillum : if the piles have not come away along with the lint, they are to be detached by the finger : then the ulcers must be healed by mild dressings, such as I have elsewhere mentioned. I have also stated in another part of the work what precautions are proper to be taken after the affection shall have been removed.

XXXI. Our next transition from these last affections is to the legs. Varices occurring in these, are easily removed. I reserved the operations required for varicose veins of the head, as well as those which form over the abdomen, that I might treat of them also in this paragraph ; since they all require the same method of cure. The diseased vein then is either obliterated by cauterization, or excised by the knife. If such veins be straight, or even if situated transversely, provided they be single and of a moderate size, the cautery is preferable. If tortuous, and disposed in orbs, with a number of them interlacing each other, the better plan is to remove them. The method of cauterizing them is as follows. An incision is made through the integument by which they are covered ; then, having exposed the vein, a moderate pressure

is made upon it with a small blunt heated cautery, care being taken not to burn the edges of the wound, which may easily be retracted by hooks. The cauterization must be repeated throughout the whole course of the varix, at interspaces of about four digits; afterwards dressing the wound with either of the remedies proper for burns. But the excision is thus performed. The skin over the vein having been incised as before, its edges are retracted with the small hook; and the vein is completely detached on all sides from the surrounding flesh, taking care at the same time not to wound the vein itself: under that, a blunt hook is passed; and usually, at the same distance as above mentioned, a second under the same vein; and so on throughout the entire course of the varicose vessel, whose course is easily detected by extending the hook. This done, the vein being drawn at one point by the hook, is divided; then, where the next hook is fixed, it is drawn up, and the excision repeated. In this way, the legs being entirely freed from the varices, the edges of the wound are approximated, and an agglutinant plaster laid over them.

XXXII. If the fingers either congenitally, or from ulceration of their lateral contiguous surfaces, should subsequently adhere together, their separation is effected by the knife: then each is enveloped with some non-unctuous preparation, and thus heals separately.

But if ulceration of the finger have occurred, and it become curvated in consequence of the cicatrization not having been properly managed, we must first try a malagma: then, if that prove useless, (which is no uncommon result in an old cicatrix, and where the tendons have received injury,) it is necessary to observe whether the fault be in the nerve or the integument. If of the tendon, it must not be meddled with, for it is incurable: if of the skin, the old cicatrix must be excised; for, as it is generally callous, so it impedes the extension of the finger; then, being kept perfectly straight, a new cicatrix must be induced.

XXXIII. I have elsewhere stated that gangrene arises between the nails, armpits, or groins; and that where the malady gets the better of our medicines, the limb must be amputated. But this is attended with great danger, for often during the operation itself the patients die from the hæmorrhage, or from deliquium. But in cases like this, WHERE WE HAVE BUT ONE REMEDY, EXPEDIENCY, AND NOT

**SAFETY, IS THE PARAMOUNT CONSIDERATION.** We are therefore to make an incision with a knife between the sound and morbid parts down to the bone; with this precaution, that we are never to cut opposite a joint, and always to include some of the sound part, rather than leave any of that which is diseased. When we come to the bone, the sound flesh must be retracted, so as in some measure to denude it: then, it must be divided with the saw close up to the sound flesh: the end of the bone is next to be smoothed where the saw has left any roughness; and the integument which in this operation ought to be left loose enough to cover the entire stump as far as possible, should be brought over it. Where the stump happens not to be covered with integument, it must be dressed with lint, and over that a sponge dipped in vinegar is to be secured by bandage. The remainder of the treatment is the same as has been directed for wounds in which it is requisite to promote the suppurative process.

## BOOK VIII.

I. THE rest of our work relates to the bones ; and, to make the matter more intelligible, I shall first point out their relative situations and their forms. In the first place, then, the skull is internally concave, externally convex, and smooth on each side, both on that where it covers the membrane of the brain, and on that where it is covered by the hairy scalp :—and at the occipitium and temples it is simple, but double from the forehead to the vertex. Its bones on their external part are hard ; internally, where they are connected together, they are softer ; and between them, veins take their course, which are probably destined to supply them with nourishment. Now, the skull rarely consists of one bony piece without sutures ; yet, however, such crania are sometimes found in hot climates ; and these, during life, are the strongest, and most free from pain. So, with regard to other crania, the fewer the sutures, the less is the liability to cephalic complaints ; for both their number and their situation is uncertain. However, more generally, two above the ears, separate the temples from the superior part of the head : a third, tending across the vertex to the ears, divides the occiput from the top of the head : a fourth proceeds from the vertex over the middle of the head to the forehead ; and that sometimes terminates at the margin of the hairy scalp, and is sometimes continued as far as to the junction of the eyebrows, intersecting the forehead itself. The other sutures are exactly fitted together on a level ; but the transverse sutures above the ears become gradually thinner throughout their entire margins, and thus the inferior bones slightly overlap the superior. The thickest bone in the head is that behind the ear, which is the reason, perhaps, why hair does not grow there. Just below the temporal muscles also, is situated the os medium, which has an inclination outwards. But the face has the largest suture : this beginning at the temple, runs trans-

versely through the middle of the orbits as far as to the other temple. From this suture two short ones point downwards, just below the inner angles. The cheeks also have each a transverse suture at their upper part: and from the middle of the nose, or from the sockets of the upper teeth, one proceeds through the middle of the palate, another also dividing the palate transversely. These sutures are found in most crania. But of the foramina of the head, the largest are those of the eyes, next those of the nostrils, and then those we have in our ears. Of these, those of the eyes are straight and undivided throughout their course to the brain. The two foramina of the nose are divided by a septum; which is osseous at its origin near the eyebrows and internal angles to one-third of its extent, becoming cartilaginous and more fleshy as it descends towards the mouth. Now these foramina, which, from the external as far as to the internal nares, are simple, are there again divided into two other passages: those opening into the fauces, both emit and receive the air; the others, proceeding to the brain, terminate by numerous small foramina, through which the sense of smelling is supplied to us. So also in the ear, the passage at first is straight and simple, but more internally it proceeds in a serpentine direction, and near the brain it is divided into many small foramina, by which we have the faculty of hearing. Near these are two small sinus-like cavities; and over them is the termination of that bone, which, stretching in a transverse direction over the cheeks, is propped up by the bones below. It may be called *JUGALE*, from the same resemblance which caused the Greeks to call it *Ζυγῶδες* (*zugōdes*). The maxilla is a bone of a soft structure, and all in a piece, the middle and inferior part of which constitutes the chin; from whence it proceeds to the temples; and the motion is confined to it alone. For the cheeks, together with the entire bone which gives origin to the upper teeth, are immoveable. The extremities of the lower jaw itself consist, as it were, of two horns. One process is broader below, thinner above, and passing forwards under the os jugale, it is secured above it by the temporal muscles. The other is shorter and rounder, and situated in that depression which is near the foramina of the ear, in the manner of a hinge; and as it inclines itself in different directions, it enables the jaw to execute its complicated movements. The teeth are harder than bone, part of them being fixed in the lower, and part in the upper



jaw. The four first of these are called by the Greeks *τομικοί* (*tomikoi*), because they have a cutting edge. Then, on either side of these are the canine. Beyond these, on both sides, there are most commonly five molar teeth, except in persons in whom the last teeth (which are usually cut at a late period) have not yet come out. Of these, the first mentioned are fixed in by a single fang; the maxillary always by two, and some even by three or four. Most commonly, also, the longer the fang, the shorter the head; and the fang is straight or crooked according as the tooth itself may or may not be so. In children, the new tooth springs from this root, and in a great majority of instances, pushes out the first: occasionally, however, it shows itself above or below it.

The head is fixed on the spine. This is made up of twenty-four vertebræ; seven cervical, twelve costal, and five subcostal. These are round and short, and give off two processes from either side: in the middle they are perforated for the descent of the spinal marrow, which is connected with the brain: there are, moreover, two small foramina in the transverse processes, one on each side, through which, from the membrane of the brain, similar membranulæ are transmitted. In all the vertebræ, the three uppermost excepted, the processes have superficial sinuses superiorly, and inferiorly they send out others which are directed downwards towards the processes. The uppermost vertebra sustains the head, the small condyles of the latter being received by its two depressions. For this reason, the base of the skull is rendered unequal by two prominences; the second articulates with the inferior surface of the first. Its circumference is narrower at its superior surface: hence, the atlas surrounding the dentiform process allows of the lateral motion of the head. The third vertebra is articulated in like manner with the second. Thus is the motion of the neck facilitated. And, in fact, its power would not be adequate to sustaining the head, were it not secured on both sides by straight, powerful tendons, which the Greeks call *ρέοντας* (*tenontas*): for whichever way the head is bent, one is always on the stretch, so as not to allow the head to slip beyond the vertebra. The tubercular eminences of the third vertebra are articulated with that below. So, also, the rest are inter-articulated by means of their inferior oblique processes, which, being directed downwards, are inserted into corresponding depressions, each into the vertebra below; and they

are secured by numerous cords, and an abundance of cartilaginous matter. Thus, by a slight and easy flexion, so as to make a curve in the required direction and in no other, the person stands erect, and bends for his necessary avocations. Below the neck, in a line with the shoulder, the first rib is situated. Then come the eleven inferior, reaching down to the lower margin of the chest; and these being round at their origin, so as to constitute something like small heads, are articulated with the transverse processes of the vertebræ, at the part where these also have superficial depressions: they then grow broader, and bending outwards, gradually degenerate into cartilage, again turning somewhat inwards to be connected to the sternum. This last bone, at its origin in the fauces, is strong, hard, and lunated at both sides; and where it is bounded by the præcordia, it is itself also softened into the nature of a cartilage. Below the upper ribs there are five short and smaller ones, which the Greeks denominate spurious; these also degenerate insensibly into cartilage, and adhere to the extreme parts of the abdomen, the lowest being almost entirely cartilaginous. Moreover, from the neck, two broad bones, one on either side, proceed to the shoulders; we call them "SCUTULA OPERTA," the Greeks *ὀμοπλάτας* (*ōmoplatas*). These, at their upper part, are hollowed out; from their vertices downwards they form a triangle, which becomes gradually wider as it approaches the spine, and the bone is the least firm at its widest part. These, too, are cartilaginous at their extremity, and, at the back part, may be said to be floating, since they have no connexion to any bone except at their summit, where, however, they are firmly braced by strong muscles and nerves. A little to the inner side of the middle of the first rib a bone grows out, slender indeed at its origin, but becoming thicker and broader, as it proceeds to the shoulder-blade: this, slightly bending outwards, is enlarged a little at its other superior extremity, and supports the clavicle. This last bone is itself crooked, and not to be classed with the hardest, one end of it being connected with the bone last described, the other fixed in a small depression of the sternum; and it is slightly moved in the motion of the arm, and connected with the blade-bone just below its head, by means of ligaments and cartilage. Here the humerus begins; which, at both its extremities, has tuberosities of a softer structure, marrowless and cartila-

ginous : in the middle it is round, hard, and full of marrow : forwards and outwards it is slightly convex. Now, its fore part is that which is next the chest ; the posterior is that turned towards the scapulæ ; the interior, that which is next the side ; the exterior, that which recedes from it ; which distinction applies to all joints, as will hereafter be manifest. Now, the superior head of the humerus is rounder than that of the other bones which I have hitherto mentioned ; and while by a slight prominence it articulates with the vertex of the broad bone of the shoulders, the larger portion remaining exterior to the cavity of the joint is tied down by ligaments. At its inferior extremity this bone has two processes with an intermediate depression. This fossa receives the fore-arm, which consists of two bones. The radius, which the Greeks call *κερκίδα* (*kerkida*), is the uppermost, being both the shorter, and, at its origin, the smaller of the two ; and its round head being slightly concave, receives the small tubercle of the humerus, to which it is connected by ligaments and by cartilage. The ulna, being the longer, is placed inferiorly, and is, at its origin, larger than the radius, its two vertical projections being received in a depression of the humerus, situated, as I have already stated, between the two condyles of that bone. At first, the bones of the fore-arm are in contact, but they gradually diverge somewhat, and then again unite near the hand, at which part the relative thickness of the two bones is reversed, for the radius now becomes the larger, while the ulna is extremely small. Then the radius forms itself into a cartilaginous head, with a depression at its vertex ; the ulna is rounded at one extremity, and has a small projection at the other. To save needless repetition, it is expedient to bear in mind that most bones terminate in cartilage, and that all joints are surrounded with the same structure : for their motion would be impossible did they not rest on something smooth ; nor could they be connected with flesh and ligaments, unless by the intervention of some material of an intermediate nature. With regard to the hand, the first part of the palm consists of many small bones, of which the number is uncertain. These are all oblong, triangular, and connected together by a particular structure, being so arranged that the superior angle of each bone forms the plane of the next ; hence, they present the appearance as of one entire bone, with a slight concavity on its internal surface. But two small processes

proceeding from the hand, are lodged in a depression of the radius. Then, anteriorly to the carpal bones, five straight ones going to the fingers, complete the palm; and from these the fingers themselves take their origin, each consisting of three bones of a similar configuration. Each internal bone has a depression at its extremity, where it receives the small tubercle of that which is external to it; and there are ligaments which strengthen the articulation. From these the nails are derived, becoming hard as they advance, and thus adhering by their roots, not to bone, but rather to flesh. Such is the nature of the inter-articulation of the superior parts of the body. But the lower part of the spine sinks in the hip-bone, which is very strong, situated transversely, and which serves as a defence for the womb, bladder, and rectum. This bone is externally convex; next to the spine it has an inclination backwards; laterally, that is to say at the hips themselves, it has round cavities. From these last arises the bone which they call "PECTEN," situated above the intestines transversely, just below the pubis. It is straighter in males, while in females it has a greater inclination outwards, in order that it may not be an obstacle to parturition. Next come the thigh-bones, the heads of which are rounder than those of the humeri, although the latter are the roundest of all the other bones. Below these heads are two processes; one situated anteriorly, and the other posteriorly. These bones then become hard, full of marrow, convex externally, and are again enlarged at their inferior heads. Their superior extremities are lodged in the acetabulum of the pelvis, just as the humeri are received in the sockets of the scapular bones: then, lower down, they have a slight inclination inwards, that they may the more equally sustain the superior part of the body. Between their inferior condyles also there are depressions, to facilitate their articulation with the bones of the leg. This joint is covered by a small, soft, cartilaginous bone, called the patella. This, floating above, is not attached to any other bone, but tied down by flesh and tendons; and, having a slight inclination towards the thigh, it serves as a defence to the joint in all the flexions of the leg. Now the leg is itself formed by two bones; for in every particular the thigh resembles the arm, and the leg the fore-arm; so that the symmetry and elegance of the one may be known by examining the other; and the same similitude holds good as regards the

muscles; also, one of these bones is placed to the outer side of the calf of the leg, and therefore is aptly named *SURA*. This, at its upper extremity, is shorter and thinner, but is enlarged at the ankles. The other, which is situated at the fore part of the leg, and has the name of *tibia*, is longer and larger at its upper extremity, and connected to the inferior extremity of the thigh-bone, just as the *ulna* is connected to the *humerus*. These bones are united at their extremities, and separated at their middle, like those of the fore-arm. The leg is articulated below with the transverse bone of the ankle, which is situated above the *os calcis*: this at one part has a depression, and at another certain processes, and it both gives a lodgement to processes from the ankle bone, and is inserted into its cavity. It is hard and marrowless; and projecting more posteriorly, its figure is rounded there. The other bones of the foot are articulated like those of the hand. The sole, toes, and nails of the one, correspond with the palms, fingers, and nails of the other.

II. All injury of bone resolves itself into caries, fissure, fracture, perforation, contusion, and dislocation. When a bone is diseased, it first becomes oily, then black or carious: these cases happen from the worst sort of ulcers or fistulas, which have become chronic, or which have been attacked by gangrene. In the first place, it is requisite to excise the ulcer and lay the bone bare; and if the disease have spread more extensively than the ulcer, the flesh below must be pared away, until the sound part of the bone appear all around: then it will suffice to cauterize the greasy part with the actual cautery, so as to detach a scale from it; or to scrape it till some blood appear, which is the mark of sound bone; for that which is vitiated is necessarily dry. The same method must be pursued in diseased cartilage, paring that also with a knife till all that is left be sound. In the next place, whether it be bone or cartilage that has been scraped, it must be sprinkled with well-powdered nitre. Nor need any other plan be pursued in superficial caries or blackness of a bone; for these cases merely require the same cauterization or scraping to be continued a little longer. The operator must press the instrument boldly on the part, that he may scrape it effectually, and thus the sooner have done. The operation is completed when one comes to white or to compact bone. It is evident that when the disease is "blackness," it ends in the white structure, and that the

caries ends where the bone possesses due solidity. We have already stated that sound bone bleeds. When, however, it is a matter of doubt how deep either of these diseases may have penetrated, in caries there is an easy method of ascertaining the extent of the mischief. A small probe is introduced into the holes, and this, according as it penetrates more or less deeply, shows us the extent of the caries. So in nigrities, when the pain and fever are not considerable, it may be inferred that the affection is only superficial.

Its extent however is ascertained with greater certainty by boring the bone with a wimble: for when the bony dust ceases to be black, we may rest satisfied that we have arrived at the termination of the disease. If therefore the caries have penetrated deeply, several perforations must be made in it with the wimble, to the depth of the disease, then hot irons must be plunged into these holes, until the bone become entirely dry. For thus the diseased portion will be detached from the sound bone below, and the sinus will be filled up with flesh, while little or no humour will be afterwards discharged. But when there is a nigrity, or a caries which extends to the opposite part of the bone, it ought to be cut out; the same may be done also in a caries which penetrates to the other side of the bone. Where the whole bone is diseased, it must be entirely removed: if its lower part be sound, the excision must be limited to the morbid part only. So also in caries of the cranium, or of the sternum, or of a rib, cauterization is injurious, and excision absolutely necessary. Nor are we to pursue the method of those surgeons, who first denude the bone, and then wait three days before they excise it; for all operations are performed with greater safety prior to the setting in of inflammation. For this reason, one ought to incise the skin, denude the bone, and completely detach the vitiated portion of it, as nearly as possible at the same time. This disease, when seated in the sternum, is by far the most pernicious; because, even if the operation have been favourable, it is seldom followed by a complete cure.

III. Excision of bone is performed in two modes; by the trepan, which the Greeks call *χοιρικίδα*, if the vitiated part be very limited, and by the wimbles, if it be more extensive. I shall explain the method of each. The trepan is a round hollow instrument with a serrated edge, furnished at its centre with a pin, which is also surrounded by an in-

terior circle. Of the terebra or wimble there are two sorts; one is like that used by carpenters; the other having a larger blade, which begins with a sharp point, then suddenly becomes broader, and above that part again, insensibly narrows all the way up. If the disease be confined to a space which may be covered by the trepan, that instrument is to be preferred; and if it be caries, the centre pin of the instrument must be pushed into the opening: if blackness, a small depression must be made with the angle of a chisel, to receive the pin; so that the trepan may not slip while we are turning it round; and it is to be rotated like a wimble by means of a strap. The pressure must be so regulated, that the instrument may perforate and yet be turned round; for if too lightly pressed on, it does not produce the desired effect; if too heavily, it becomes fixed. It is a good plan to drop in a little rose-oil, or milk, to facilitate the rotatory movement: although when in too large a quantity, it blunts the edge of the instrument. When the trepan has made for itself a channel, the centre pin must be removed, and the instrument worked by itself: then, when by the appearance of the dust we recognise sound bone, the trepan must be withdrawn. But if the disease be more extensive, so that it cannot be covered by the trepan, the operation is to be performed by the wimble. With this a hole is to be made at the line which separates the vitiated from the sound bone, then not far from that a second, and a third, until the entire part which is to be excised is surrounded with these foramina; and here too the dust indicates to us how far the wimble ought to penetrate. Then, a chisel driven with a mallet from hole to hole, detaches the intermediate bone; and in this way a circular depression is formed, like that produced by the modiolus, only larger. In whichever way the circle has been made, with the same chisel laid flat on the corrupted bone, each superior lamina must be shaved off, till nothing but sound bone be left. A blackness scarcely ever passes through a bone; a caries occasionally does so, and more especially in a diseased calvarium. This also may be ascertained by the probe; for when introduced into a sinus which has a solid bottom, it meets with resistance and comes out moist: if the caries proves pervious, the probe descends deeper between the bone and dura mater, without experiencing opposition, and comes out dry, not because there is no morbid sanies there, but because, as the cavity is wider,

this is more diffused. But if a blackness detected by the wimble, or if a caries manifested by the probe, have completely passed through the bone, the trepan will generally be useless; for where disease has penetrated thus deeply, it must necessarily have spread more extensively also.

In this case we must use the second kind of terebra before described; and that it may not grow too hot during the motion, it must be repeatedly plunged into cold water. But in operating, we are to be still more cautious when we have bored half through a simple bone, or entirely through the outer table of a double one. We judge of the first by the depth we have already pierced, and of the second by the appearance of blood. At this crisis of the operation the strap must be drawn slower, and less pressure must be made with the left hand, which must frequently be taken off, while we examine the depth of the hole: thus we may observe whether the instrument has yet passed through, and not run the risk of wounding the membrane of the brain with the point of the wimble, a catastrophe which occasions severe inflammation, and endangers the patient's life. Having made the foramina, the intermediate septa are to be excised in the manner above described, until an entrance be made large enough to admit a guard for the membrane, an instrument called by the Greeks *μηνιγγοφύλακα* (*meningophulaka*), proceeding with much more circumspection, to avoid wounding the same. This is a strong copper plate, slightly curved backwards, and polished on its outer surface: with this surface next the brain, it is from time to time put under that part which is to be removed by the chisel; and if it encounter its edge, it arrests its further progress; and in this way the operator repeats his blows with the mallet and chisel with greater boldness and less risk, until the bone, having been detached at all quarters, may be elevated by this plate, and removed without injury to the brain. When all the diseased bone has been removed, the edges are to be pared around and smoothed off; and if any dust have fallen on the dura mater, it must be gathered up. When the outer table has been removed and the inner left, not only are the edges to be smoothed, but the whole of the exposed portion of the second table likewise; so that the skin may be afterwards generated there without interruption; for when it grows over rough bone, this immediately acts as an obstacle to the healing process, and gives rise to a renewal of the



disease. I shall describe the method of treatment proper to be pursued in cases where the brain has been exposed, when I come to treat of fractures. Where the second table is preserved, our applications should be of a non-unctuous nature, and such as are suited to green wounds, laying thereupon raw wool steeped in oil and vinegar. In process of time flesh grows from the bone itself, and fills up the cavity left after the operation. So also after a portion of bone has been cauterized, it is detached from the sound part; for the granulation takes place between the sound and the dead structure, so as to throw off the separated portion, which, because it is thin and narrow, is usually called by the Greeks *λεπίς* (*lepis*), that is to say, a scale. It is a possible occurrence that the bone may neither be split nor broken from the effects of a blow; but may nevertheless be bruised superficially, and rendered rough. In this case it will suffice to shave and smooth it. Although the methods just recited are pursued in the head, they nevertheless apply to the other bones also, so that in similar cases, in whatever part occurring, the same remedial measure must be employed. But fractures, fissures, perforations, and contusions, all require a treatment peculiar to each, although comprehending some measures which are common to all. I shall proceed to speak of these, beginning at the head.

IV. After a blow on the head, the immediate inquiry should be whether the person have vomited bile; whether he have lost his sight or his speech; whether blood have been discharged by his nostrils, or by his ears; whether he fell down from the blow; whether he lay insensible and comatose. These are symptoms which do not happen except in a fracture of the skull; and when they occur, we may conclude that an operation is indispensable, although dangerous. But if a torpor have also come on,—if there be delirium,—if paralysis or convulsion have ensued,—the probability is that the *dura mater* is injured, and the case is still more desperate. When, on the other hand, neither of these symptoms accrue, the existence of fracture may be fairly doubted; and our next consideration should be the nature of the weapon with which the blow has been inflicted; whether it be of stone, wood, iron, or some other material;—so again, whether it be smooth or rough, whether of a moderate or of a larger magnitude, whether the blow have been violent or slight; for the less violent the

blow, the greater is the probability that the skull may have resisted it. The best plan, however, is to ascertain the fact by a surer sign. To this end, we must search the wound with a probe neither too small nor sharp, lest by entering into some of the natural sinuses, it should mislead us into an opinion of the existence of a fracture; nor should it be too thick, lest small fissures escape it. When the probe has come in contact with the bone, if it meet with a surface entirely smooth and slippery, such surface may be considered sound: if it meet with asperity, and especially if at a part where there are no sutures, it is a proof of fracture. HIPPOCRATES HAS RECORDED THAT EVEN HE WAS DECEIVED BY THE SUTURES: THUS IS IT EVER WITH THE TRULY GREAT, WHOSE SELF-CONFIDENCE IS BASED ON SUPERIOR ACQUIREMENT: FOR LITTLE MINDS DARE NOT DETRACT AUGHT FROM THEIR OWN MERIT, BECAUSE THEY HAVE NONE TO SPARE; WHILE THE INGENUOUS AVOWAL OF REAL ERROR IS SUITED ONLY TO A TRANSCENDENT GENIUS, WHOSE SPLENDOUR IS CONSIDERABLE ENOUGH TO SURVIVE THE SACRIFICE; ESPECIALLY IN THE PERFORMANCE OF A TASK, WHICH IS TO BE HANDED DOWN FOR THE BENEFIT OF POSTERITY AS A BEACON-LIGHT OF TRUTH TO WARN THEM AGAINST SIMILAR ERRORS.

I have been led into this digression by my desire to commemorate an illustrious professor. Now a suture may deceive us by being equally rough; so that even where there is a fissure, one may take it for a suture, from its being in a part where we have a right to expect one. Hence, that we may not be deceived, the safest plan is to expose the bone; for, as I have stated above, there is no certainty even in the relative situations of the sutures, and the same part may at once both be naturally joined by suture, and fissured by a blow; or it may have a fissure close by it. Nay, sometimes when the blow has been violent, although nothing have been detected by the probe, it is nevertheless better to expose the part. If no fissure be made evident even by these means, ink is to be applied to the bone, and to be afterwards scraped off with a chisel; for if there be any fissure, it will retain the die. It occasionally happens that the blow is received on one side, and the fracture takes place at the other.

Therefore, if a person have been struck violently, and dangerous symptoms have ensued, and no fissure can be disco-

vered at the part where the integument has been divided, it is proper to examine the opposite side, whether any part be puffed and swollen, and to make an opening there; for that will be found to be the seat of the fracture. Nor will there be much trouble in healing the skin, even though our opening prove unnecessary. Cranial fracture, if not seasonably relieved, produces severe inflammation, and is afterwards treated with greater difficulty. Rarely, but yet occasionally, it happens, that the bone remains entire, while internal rupture of some one of the veins of the cerebral membrane occasions hæmorrhage, and the blood coagulating, excites severe pains, and in some cases blindness. Now more usually the pain is referred externally to the part which corresponds with the extravasation, and on laying open the integument there, the bone is discovered to be pale; therefore that too must be removed. Whatever may be the causes which may render this operation necessary, provided the integument have not been sufficiently exposed, the opening must be widened until all the injured part be brought into view. In doing this, we should be cautious not to leave on the bone any portion of its periosteum; for this, when lacerated by the chisel, or by the wimble, excites high fever, together with inflammation. It is therefore the better plan to detach it completely from the bone. When the wound is the result of a blow, we must necessarily take it as we find it: if we have to make it ourselves, it is most conveniently formed by two decussating incisions in the form of the letter X, the tongue-like processes thus described being afterwards retracted by dissection. Should hæmorrhage occur, while we are doing this, it must be restrained by the application of a sponge repeatedly dipped in vinegar, and the effused blood must be absorbed by dossils of lint, while the head should be elevated. Nor is the operation at all dangerous, except when performed at the temporal muscles; and even here we can pursue no safer method. In all fissures and fractures of the bone, it was customary with the older practitioners to proceed at once to the use of the instruments for excision. But it is far better first to make trial of such plasters as are composed for the calvaria, and to apply any one of them softened with vinegar, on the fissured or fractured bone; then over that, to lay on a piece of linen rag, somewhat wider than the wound itself, spread with the same medicine; and in addition to

these, undressed wool steeped in vinegar: then, to bandage the wound and open it daily, that it may be dressed in the same way for five days running: on the sixth day to foment it with a sponge and hot water, continuing the other measures. If granulation commence, and the fever have either altogether subsided, or it be but slight, if the appetite for food return and the patient sleep, we are to persevere in the use of the same local application. Afterwards, in process of time, the plaster must be softened by the addition of the cerate made from rose-oil, to facilitate granulation, for, used by itself, it has a repressing quality. In this way, fissures are frequently filled up by a sort of callus, which serves as a cicatrix to the bone; and even more extensive fractures are agglutinated by the same callus, where they do not come in contact; and this constitutes a much better defence to the brain, than the flesh which grows over it after partial excision of the bone. If, however, after this our first treatment, the fever be increased, the sleep short, and interrupted by tumultuous dreams, the ulcer moist, and not nourished, the glands of the neck enlarged, and the pains violent, while after all these symptoms the loathing of food increases, then, at last, there is a necessity for proceeding to a manual operation with the chisel. Now two dangers result from a blow on the skull, fissure and depression. When there is fissure, the edges of the bone may remain in a state of close adaptation, either because one overlaps the other, or because they become tightly wedged in again. Whence it happens, that although there may be extravasation upon the dura mater, yet the fluid cannot escape, and therefore irritates that membrane and excites severe inflammation. But, when there is depression of a portion of bone in the middle of a fracture, it presses on the same membrane, which is also sometimes pricked by several spicular splinters. In affording relief in these cases, we must take away as little bone as possible. If, therefore, there be an overlapping of the edges, it will suffice to cut away the prominence with a flat chisel; after the removal of which, the hiatus in the fissure will be wide enough for the cure. But if the edges be compressed together, at the distance of a digit, a foramen must be made with a wimble, and from that the chisel must be driven in two lines corresponding in form to the letter V, diverging from the foramen towards the fissure. If the fissure be of greater extent, a similar aperture must be made from another

foramen, and in this way nothing is left lurking under the concave surface of the bone, but a free exit is afforded for any offensive matter within. Even where there is a portion of fractured bone depressed, its entire excision is not necessary: but whether it be completely broken off, and have receded from the surrounding calvary, or whether it adhere only by a partial connexion, it must be detached from the sound bone by means of the chisel.

Then, near the part where we have made the fissure, holes are to be bored in the depressed bone; two if the injury be limited, three if it be more extensive; and the intermediate septa must be excised: in the next place we are to drive the chisel on both sides as far as the fissure, so as to form a semi-circular cavity, with its base towards the fracture, and its horns facing the sound bone. Then, if there be any loose pieces, and they can be removed without difficulty, they are to be taken up with a forceps made for that purpose, and especially such spiculæ as irritate the membrane: if this prove difficult, the metal plate or meningo-phylax already mentioned, must be introduced beneath the fractured bone, and any spiculæ that may protrude inwards are to be excised upon this instrument; if there be any depressed portion, it must be elevated by the same means. The effect of such treatment is the consolidation of such portions of bone as remain partially connected; and those which are entirely broken off may, by the use of dressings, be separated in time without any pain, while sufficient interspace may be left for the evacuation of the sanies: for the bone constitutes a better defence for the brain than it could possibly have after that had been excised. These measures having been pursued, the membrane must be sprinkled with strong vinegar; so that if there have been any hæmorrhage, it may be restrained: or if there be an internal coagulum, it may be discussed: then the medicament before mentioned, softened as has been already directed, must be applied in contact with the membrane, and the other measures repeated, as regards the smeared lint and the undressed wool: he should be put into a warm apartment, and his wound dressed daily; in summer, even twice a day. But, if the membrane swell from inflammation, tepid rose-oil must be poured into the wound. If the swelling be so considerable as to rise above the bones, it may be restrained by the application of well-pounded lentils, or by powdered vine-leaves mixed with fresh butter or recent

goose fat ; and the neck will require to be mollified by means of liquid cerate made with orris oil. But in the event of the membrane appearing somewhat foul, a mixture must be made of equal quantities of the plaster proper to it, and of honey, and that must be poured over it ; and to keep it on, one or two lint pledgets must be laid over the part ; and over that, linen rag spread with the same plaster. When the membrane has become sufficiently deterged, the addition of cerate to the plaster aforesaid is requisite for encouraging incarnation. But as regards abstinence and the plan of diet and drink to be pursued in the first and last stages, the same precepts are to be observed as have already been laid down for wounds, and the more rigidly in proportion to the extent of the danger. Nay, when it is requisite not barely to sustain, but to nourish such patients ; even then all articles are to be avoided which require manducation : so also smoke, and whatever excites sneezing. Furthermore, provided the membrane be moveable and of a uniform colour, the granulations ruddy, and the motion of the jaw and neck free from pain, our hopes of recovery are grounded upon a solid foundation.

The unfavourable symptoms are immobility of the membrane, or that being black, livid, or of any other morbid colour ; delirium, acrid vomiting, paralysis or convulsion, livid flesh, rigor of the jaws and neck. The other symptoms which relate to sleep, appetite, fever, and the colour of the pus, are favourable or unfavourable, just as in other wounds. When the case is going on prosperously, granulation commences from the membrane ; or when the fractured bone consists of two tables, it sprouts from the diploe likewise, and thus the interspace between the bones is filled up : occasionally it sprouts above the level of the cranium. In this last case copper scales must be sprinkled thereon, to repress and arrest its growth ; and over the flesh cicatrizing medicines are to be applied. A cicatrix is induced without difficulty over all parts except that which is a little above the space between the superciliary ridges : for there, no matter what may be the age of the patient, ulceration is unavoidable : this part must be covered with a medicated pledget of linen. Lastly, in fracture of the skull, until the cicatrix have acquired due firmness, it is to be rigidly observed that insolation, wind, frequent bathing, and excess in wine, are all to be avoided.

V. Both the bone and the cartilage of the nose are liable

to fracture, and that sometimes at the fore part, sometimes at the sides. If both or one of them be fractured anteriorly, the nostrils fall in, and to breathe through them becomes difficult. If it be the bone that is fractured at the side, that part becomes hollow: if cartilage, the nares are twisted toward the opposite side. In whatever direction the cartilage may have been fractured, it must be gently raised either by putting a probe under it, or by compressing it on either side with one's two fingers: then a cylindrical roll of lint, sewed up in a covering of soft leather, is to be introduced; or any tent prepared after the same manner from a dry penicillum; or a quill, large enough to prevent the bridge of the nose from sinking, dipped in gum, smeared with carpenter's glue, and surrounded with soft leather. Now if the fracture be in front, both nostrils require to be equally filled; if at the side, we should introduce a fuller tent into the depressed nostril than into that opposite. Externally a soft strap must be applied, smeared in the middle with a mixture of simila and soot of olibanum, bringing it round beyond the ears, and agglutinating its two ends to the forehead; for it sticks to the skin like glue, and after it has grown hard, it effectually retains the nostrils in their natural position. But if the tent produce pain, as is commonly the case when the interior part of the cartilage is completely fractured, after elevating the nostrils, we are to retain them *IN SITU* by the strap alone: then, after the lapse of fourteen days, that also must be removed. It must be detached by soaking it with warm water, and after its removal, the part itself should also be fomented with the same. But, if the bone have been fractured anteriorly, that also must be adjusted by the fingers, and when the fracture is in the fore part, both nostrils must be filled: if at the side, that only which is compressed by the fractured bone: and after applying our cerate, we should bind the part firmly, for in this part, not only is there a sufficient growth of callus to repair the injury, but it also enlarges so as to form a tumour: after the third day it should be fomented with hot water; and more especially as it advances to a sound state. Should the fracture consist of several small pieces, each is to be replaced in its natural position by one's fingers, and the same strap ought to be applied externally, and over that a cerate without further bandage. Where one fragment of bone is perfectly detached from the rest, and we infer from the copiousness of the dis-

charge that its agglutination is impracticable, it should be extracted with the *vulsella* ; and, after the subsidence of the inflammation, either of the gently reprimment medicaments may be suitably applied. The case is worse when the fractured bone or cartilage is complicated with a wound in the integument. This occurrence is exceedingly rare. If it should so happen, the parts should nevertheless be adjusted by raising them in the manner just explained ; and upon the integument it will be expedient to apply any of the plasters prepared for green wounds, without, however, employing any bandage.

VI. Rupture of a cartilage may occur in the ear also. In such a case, an agglutinant is to be applied before supuration arises, for it will often prevent that process, and cure the ear. We are to bear in mind that both in this part and in the nose, it is not the cartilage itself which unites, but that flesh grows around it, and that so the part becomes consolidated. Therefore, when the cartilage is ruptured along with the skin, the integument is sewed on both sides. But I here confine myself to simple fracture, unattended by a wound of the skin. Now, if pus have already formed, an opening must be made in the integument at one side, and a semi-circular portion of the cartilage below excised : then a gentle styptic must be used, such as *lycium* diluted with water, until the bleeding be restrained : our next application should be a linen pledget with a plaster not containing any thing greasy ; and soft wool should be put behind the ear, so as to fill up the interspace between that part and the head : it is then to be moderately bandaged, and after the fourth day it is to be fomented with the steam of warm water, as I proposed for the nose. In these accidents also, abstinence is necessary on the first days until inflammation be repressed.

VII. Now that I am about to advance from these parts to fractures of the lower jaw, I deem it proper to point out certain facts appertaining to bones in general, in order to avoid useless repetition. Each of the bones then is sometimes cleft longitudinally like a chump of wood, sometimes fractured transversely, now and then obliquely ; so again in this last case, sometimes the fractured ends are obtuse, and sometimes sharp ; which last is the worst case, because when they have no resting point, they are not easily united ; besides, they wound the flesh, and sometimes a nerve or



muscle also. Furthermore, sometimes the bone is broken into several pieces. In other bones it sometimes happens that no part of the broken ends remains in contact; but in fracture of the lower jaw they are always in a state of partial apposition, even when splintered. Therefore, in the first place, the bones are to be adjusted by pressing with one's two fingers on either side, that is to say, both within the mouth, and externally on the surface. Then, if the jaw be fractured transversely, in which case one tooth usually projects above that next to it, the two contiguous teeth, or if these be loose, the two next, are to be tied with a hair. When the fracture takes a different direction, this is unnecessary; the other measures to be adopted are precisely the same: for a double linen cloth steeped in wine and oil must be laid upon it, together with the fine flour and the soot of olibanum before mentioned: we are next to apply either a bandage, or a soft strap with a longitudinal slit in its middle, large enough to completely take in the chin; and carrying its ends upwards to the head, these must be secured there. It may be received as a general remark applicable to all bones, that at first fasting is indispensably requisite; then, after the third day, that the food should be humid: that after the removal of inflammation the diet should be somewhat fuller, and of a nutritious quality; that wine is hurtful throughout. In the next place, that, on the third day, fractures are to be unbound: that they are to be fomented with the steam of hot water by means of a sponge, and again dressed with the same applications: that the same is to be repeated on the fifth day, and daily, until the inflammation shall have subsided, which usually happens on the ninth or seventh. After the removal of inflammation, that the bones are again to be examined, so that any fragment out of place may be adjusted; and after this, that the bandages are not again to be removed till after the lapse of two-thirds of that period which the bones severally take in uniting. In the common order of events, between the fourteenth and twenty-first day union is completed in the lower jaw bone, the malæ, the clavicle, the sternum, the broad bone of the shoulders, the ribs, the spine, the hip bones, the ankle bones, the os calcis, and the bones of the hand and feet: the bones of the fore-arm and leg between the twentieth and thirtieth; those of the arm and thigh between the twenty-seventh and fortieth. Now, with regard to the

lower jaw, I must add that spoon-meat should be used for a length of time: and, after the lapse of some considerable period, the patient must continue to eat pancakes and similar food, until the callus have completely restored the strength of the jaw. Rigid silence also must be observed, especially on the first days.

VIII. 1. When the clavicle is fractured transversely, it sometimes unites very well of itself, and, unless disturbed, it may be cured without bandaging: sometimes, however, and more especially when it has been moved about, its ends slip away, and GENERALLY THE STERNAL PORTION BEING INCLINED BACKWARDS, OVERLAPS THE HUMERAL. The reason of this is, that the bone has no independent motion, but is moved with the humerus, therefore the sternal portion remaining fixed, the humeral gets under it. The humeral end is very rarely the uppermost, so that renowned professors have recorded that they never experienced such a case; although Hippocrates mentions several of this kind. Now as these two cases are altogether dissimilar, so they require to be differently treated. When the clavicle tends towards the shoulders, the humerus must be pushed backwards with our right hand at the same time that we are drawing the clavicle forwards with our left. When turned to the breast, this must be forced back, while the humerus is brought forward: and if the humerus be inferior, the sternal portion must not be depressed, for it is in fact immoveable, but the humerus itself is to be raised: if perchance it be superior, the part next the sternum must be filled with wool, and the humerus must be bound down to the chest. Should there be splinters, the skin above must be incised, the spicular portions removed, and the blunted bones brought into a state of adaptation: should there be any projection, a pledget of lint thrice folded is to be opposed to it, steeped in wine and oil. Where the fragments are numerous they must be covered with a splint made of ferula wood, lined with wax to prevent the roller from slipping; and it is better to make the circumvolutions of the bandage more frequent than tight, a rule which is general in all fractures. When the right clavicle is fractured, it is better to apply the bandage from the right to the left axilla: if the injury be in the left, from that to the right, passing it alternately under each: afterwards, if the clavicle tend towards the shoulders, the arm should be tied down to the side; if forwards, it

should be bandaged in the direction of the neck, and the patient should be kept in a supine posture. The other means are the same as those above comprised.

2. There are several, both of the hard and cartilaginous bones, which have very little motion, and which are liable to be either fractured, or perforated, or bruised, or fissured; for example, the *malæ*, sternum, the broad bone of the shoulders, the ribs, the spine, the hip bones, and those of the ankle, heel, and palmar portion of the hands and feet, all require the same treatment. Should there be an external wound, it must be dressed with suitable applications, and during the healing process the callus fills up the fissures of the bones, as well as any foramina that may be in it. If the integument remain entire, and, from the pain, we are led to infer that the bone is injured, rest is all that is wanted; and, having applied our cerate, we must gently bandage the part till the pain be removed by the bone becoming sound.

IX. 1. Fracture of the ribs, however, requires a few special observations, on account of their juxtaposition with the viscera, and the greater dangers accruing therefrom. Now a rib may also be sometimes fissured in such a manner that while its outer surface remains sound, the injury is confined to its inner, at the part where it is thin; and sometimes it is broken completely through. If the fracture be partial, the accident is not followed by spitting of blood, nor by fever, nor by suppuration, unless in a very few instances, nor by pain; but yet slight pain is felt in the part upon being touched. Here it abundantly suffices to pursue the measures above described, and, in applying the bandage, to begin at its middle, that it may not incline the integuments either to the one side or to the other: after the twenty-first day, by which time the bone ought certainly to be united, we must endeavour, by good living, to make the body as plump as we can, that there may be more flesh to invest the rib, which, being as yet weak, is exposed to injury if covered merely by a thin integument. Moreover, throughout the entire cure vociferation must be avoided, as also talking, hurry, anger, violent motion of the body, smoke, dust, and every thing calculated to excite cough or sneezing: the patient should not even hold in his breath long together. But when the rib is broken completely through, the case does not proceed so favourably, for the consequences are severe inflammation, fever, and suppuration, and the case

is often dangerous, and attended with hæmoptysis. Therefore, if the strength permit, blood should be drawn from the arm of the same side : if debility prevent this, the bowels are to be moved by an emollient clyster, and abstinence must be persisted in for a considerable time. Bread must not be eaten before the seventh day ; the only proper food is gruel ; and, upon the part itself a cerate must be applied, made of lint, with the addition of boiled resin ; or the malagma of Polyarchus, or cloths squeezed out of wine, rose-oil, and common oil ; and over these soft undressed wool, and two double-headed rollers passed round so as not to be too tight : the precautions above mentioned relative to certain things to be avoided are in this case to be still more rigidly attended to, so that one should not even breathe oftener than absolutely necessary. If the cough be troublesome, a potion must be taken for it, consisting of trixago, or of rue, or of the herb-stœchas, or of cummin and pepper. Should the pain be distressing, a cataplasm ought to be applied, consisting of darnel, or barley, with the addition of one-third of mellow figs. Now the poultice will remain on by day, but by night we must either apply the cerate, or the malagma, or the cloths as above mentioned, because the poultice may possibly fall off. On this account it must be opened daily till we can rest content with the cerate and malagma. During the first ten days the body must be reduced by fasting ; but on the eleventh we must begin to nourish it, and at this period, therefore, the bandage must be applied even slacker than at first. In most cases this plan is to be persisted in until the fortieth day. Meantime, when there is reason to fear suppuration, malagmas are of more service than cerate in discussing it. If, nevertheless, suppuration should take place, and it be not discussed by the means already described, there is no time to be lost, for fear the subjacent bone should be vitiated ; but through the part most swollen a heated cautery must be thrust, until it reach the pus, which is then to be evacuated. If the matter should not come to a head, we may discover its situation in this way : the part is to be smeared all over with Cimolian chalk, and to be allowed to grow dry : wherever it remains the longest moist, there the pus is the most superficial, and that is the place for cauterization. When the abscess is of greater extent it must be perforated in two or three places, and tents of lint, or pieces of penicillum, should be introduced.

tied by a thread at the top, to facilitate their eduction. The after treatment corresponds with that proper for other burns. After the ulcer has become clean, the body must be nourished, to prevent a tabes, an event which would prove fatal. Occasionally, too, where the bone is but slightly affected and neglected at the first, instead of pus there is an internal collection of a fluid like mucus, and the skin over it grows softer: in this case, as in the other, cauterization becomes requisite.

2. Fracture of the spine also demands some particular observations; for if either of the vertebral processes be fractured in any way, the part becomes hollow, and pricking pains are felt there; for the fragments must necessarily be spicular: hence, the patient frequently leans forward. Such are the diagnostics in this case. As to the treatment, it is similar to that which has been mentioned in the former part of the present chapter.

X. 1. There is a strong analogy again between the accidents and the treatment of the humerus and thigh-bone: so also there are certain matters common to the bones of the arm, fore-arms, thighs, legs, and phalanges. Thus a fracture in the middle of all these is the least dangerous; the nearer it is to either extremity, whether to the upper or to the lower, so much the worse is the case; for it is more painful and more difficult of cure. A simple transverse fracture is the most favourable: that is worst which is oblique, and consists of many fragments; the worst is where these fragments are splintered. Now sometimes the fractured ends of these bones remain in their natural situation; but much more frequently they are displaced, and overlap each other: this is a circumstance which requires our first consideration: and there are certain marks which characterize it. When the ends are displaced, the limb is crooked, there is a sensation of pricking in it, and its surface feels unequal when the hand is passed over it. But when the fractured ends do not meet directly, but obliquely, which happens where they are displaced, the limb is shorter than that of the opposite side, and its muscles become tumefied. When, therefore, we have assured ourselves that it is a case of this nature, the limb must immediately be extended, for the tendons and muscles, which in the natural state are kept on the stretch by the bones, are now contracted; nor do they recover their proper position, unless forcible extensions be

made. Furthermore, if that be neglected on the first days, inflammation arises, and while it continues it is both difficult and dangerous to stretch the tendons violently: for the consequence may be convulsions, or gangrene, or at all events suppuration, even if the case turn out most favourably. Therefore, where bones have not been set before, they should not be replaced till after the inflammation. Now even one person may succeed in extending a finger, or any other limb, provided it have not grown rigid, by making extension with his right hand, and counter-extension with his left. But where the limb is unusually powerful, the opposed strength of two persons becomes necessary. Where the tendons are remarkably strong, as happens in robust men, in their thighs and legs especially, both ends of the joint are to be secured by straps or linen swathes, and then the counter-extension must be made by several persons at the same time. When the force has elongated the limb a little more than natural, the fractured ends are to be adjusted by the hands, and we may know that the setting is perfected by the removal of the pain, and by the limb being made equal to the other. The limb is then to be enveloped with cloths two or three times doubled, and dipped in wine and oil, and those made of linen are preferable. Now generally six bandages are required. That put on first should be the shortest: it should make three spiral turns round the fracture from below upwards. The next should be half as long again, and should commence from any prominent part of the bone, if such there be; or if all be alike even, it should commence indifferently from any part above the fracture, in an opposite direction to the former, that is to say, from above downwards, and then returning again to the fracture, it should end in the upper part beyond the bandage beneath. Over these cerate must be laid with a broader piece of linen to keep them on; and if there be any projection, a cloth folded treble and dipped in wine and oil must be opposed to that also. These are to be embraced by a third and by a fourth, in such a manner that the direction of each be successively opposed to that of the bandage lying immediately under it, the third ending in the lower part, and the other three at the upper; because it is better to repeat the turns, than to bind the limb tight, since by constriction a part becomes alienated, and liable to gangrene. The less we bandage a joint the better, although if

there be a fracture near it, necessity compels us to do so. The limb must be kept bound up for three days ; and the bandage ought to be so applied, that on the first day it may not be painfully tight, nor appear too slack ; on the second, it should be somewhat laxer ; on the third, almost loose. Therefore, the limb must then be bound up again, and a fifth bandage superadded to the former ; on the fifth day it is to be again opened, and now rolled with six bandages, in such a manner that the third and the fifth bandages may end below, and the rest above. Now as often as the bandages are removed the limb should be fomented with hot water. But should there be a fracture near the joint, wine should be dropped upon it for some considerable time, with the addition of a small quantity of oil : and all the measures aforesaid are to be pursued, until the inflammation be so far diminished, that the size of the limb becomes considerably less than usual ; an event which will happen on the ninth, if not on the seventh day ; at which time the bones are felt without difficulty. If they have not been properly set, now is the time for their re-adjustment : fragments, if any such there be, must now be replaced : afterwards, the limb is to be bound up again in the same way, and splints are to be adapted to retain the bones in their proper places ; and the broadest and strongest splint should be applied on that side towards which the fracture inclines. These splints should all turn outwards near the joint, that they may not hurt it, and should only be bound sufficiently tight to keep the bones fixed, tightening them a little however by means of their straps, every third day, according as they grow loose by time : so that if there be no itching and no pain, they may remain on until the completion of one half the period which each bone takes in uniting : subsequently it should be fomented moderately with hot water, for the matter must first be discussed, and afterwards drawn out. For this reason the surface of the skin must be gently anointed with liquid cerate also, and well rubbed ; and now the limb should be bound up more loosely, and the bandage removed every third day, repeating all the applications except that of the hot water : but each time the rollers are removed one of them must be withdrawn altogether.

2. The foregoing rules relate to fractures in general ; the following to particular cases only. In fracture of the humerus the limb is not to be extended like any other, but the

patient must be fixed on a high stool while the physician sits opposite to him on one that is lower. A sling is put on the patient's neck to support his fore-arm; a second is passed round one end of the bone, and tied into a knot above its head; a third, after embracing the lower end of the bone, is brought downwards, and its ends are also joined together. Then an assistant standing at the patient's back, and passing his arm through the loop of the second bandage, that is to say, the right arm, if the right be to be extended, the left, if it be the opposite, takes hold of a staff which is put between the patient's thighs: the physician, in like manner, puts his foot into a loop in the third mentioned bandage, the right or left, as it may be, and while the assistant is raising one bandage, the physician depresses the other, so that in this way the humerus is gently extended. When the middle, or the lower end of the bone is broken, shorter bandages are required; if the upper end, they must be longer, that they may be continued from thence below the opposite axilla, across the chest and shoulders. Now, in the first place, in binding it up, the fore-arm must be so inclined, and, therefore, put into such a position before the rollers are applied, that, when subsequently suspended, it may not twist the humerus into a different direction from that in which it was during the bandaging. After slinging the fore-arm, the humerus itself is to be gently bound to the side, to keep it fixed: and thus the ends of the bone remain as they were set. When we come to apply the splints, we must adapt the longest externally, those placed anteriorly must be shorter, those below the axilla the shortest: and these must frequently be removed when the humerus is fractured near the bend of the elbow, lest the tendons there grow rigid, and the fore-arm thus become useless. As often as they are removed, the fracture must be grasped by the hand; the elbow must be fomented with hot water, and rubbed with soft cerate, and upon its processes one should either not apply splints at all, or, at all events, only shorter ones.

3. In fractures of the fore-arm the first consideration is whether one or both bones are fractured; not that either incident would require a different method of cure, but first, that we may employ more forcible extension where both bones are implicated in the injury, (because the tendons are necessarily more contracted than where one bone remains whole to keep them on the stretch,) and in the next place, that all



the measures for retaining the bones *IN SITU* may be adopted with the greater care where one is not left to act as a prop to the other: for, when one remains uninjured, it affords more support than bandages and splints. Now the fore-arm ought to be tied up with the thumb inclined towards the chest, that being the most natural position of the limb; and, when bandaged, it is best supported by a scarf, with its broadest part under the fore-arm itself, and its ends tied round the neck; and thus it conveniently enough rests suspended from the latter. It ought to hang somewhat higher than the opposite elbow.

4. In fracture of the olecranon process it is a bad plan to effect a union by binding it, for the fore-arm is thus rendered immoveable; whilst after the removal of the pain it remains as useful as ever.

5. In the leg it is equally important that one of the bones remain uninjured. This limb, like the thigh, after being bandaged should be put in a frame. This at its lower part should have foramina for the exit of any humour that may chance to be evacuated, and at the sole of the foot a prop should be placed to support and keep it from gliding down, with holes at the sides, through which thongs should be passed, to maintain the leg and thigh in the position in which they have been placed. In a fracture of the leg this ought to reach from the foot to the ham: in that of the thigh, as far as to the hip; in fracture of the head of the thigh-bone it should include the hip. One should not be ignorant that fractures of the thigh produce a shortening of the limb; for it never returns to its original condition, and the person ever afterwards rests his weight on his toes; although the weakness causes a much more unsightly appearance when augmented by neglect.

6. It suffices after the subsidence of inflammation to bind a fractured finger to a single splint.

7. These last remarks appertain to particular limbs; the following again are of universal application in all fractures: abstinence on the first days, a liberal diet being allowed directly the growth of callus has commenced: long continued abstinence from wine; fomentations with hot water long continued during the inflammation, and moderate afterwards: long continued but gentle unction of the extremities of the fractured limb, with liquid cerate. The limb should not be exercised all at once, but should be gradually re-accustomed

to its former uses. The case is considerably more formidable when the fracture is complicated with a flesh wound, and particularly if that be in the muscles of the thigh, or of the humerus, for then there is greater inflammation, and a tendency to gangrene. Where the bones of the thigh have slipped past each other, amputation is almost always requisite. The humerus also is in jeopardy under such circumstances, although oftener preserved. The danger is enhanced if the injury have occurred near the joints. Hence in such a case we must act with greater circumspection, and the muscle must be cut completely through over the middle of the wound : if there have been but little hæmorrhage, the patient must be blooded, and his body attenuated by fasting; And though in other cases the limbs may be slowly extended, and their bones gently reduced into their place, in these it is neither proper to stretch the tendons, nor to handle the bones : and the option of placing his limb in that position which he finds least painful must be left to the patient himself. Now upon all such wounds we should first apply lint steeped in wine, to which a minute portion of rose-oil has been added : the other remedies are the same as those already mentioned. They are to be bound up by bandages considerably wider than the wound itself, that is to say, broader than if there were no wound, for compound fracture is much more liable to alienation, and to gangrene : we must try, by a number of loose bandages, to afford as much support as by applying one that is tight. This plan may be pursued in the thigh and humerus, provided the ends of the bones be in exact opposition : otherwise the limb must only be bandaged enough to keep on the dressing. The other measures to be pursued agree with those already inculcated ; with the exception that we cannot employ splints or boxes, since these impede the healing of the wound ; but we shall require a greater number of wider bandages, which must be kept soaked from time to time with hot oil and wine ; at first the patient must fast to a greater extent ; the wound should be fomented with hot water, and cold avoided by every possible expedient : then we are to pass on to the use of suppuratives ; in fact, being more circumspect in the cure of a fracture with external wound, than in that of a simple one. Every day, therefore, it should be opened and dressed : meanwhile, any small projecting fragment of bone, if obtuse, must be replaced ; if spicular, and with a

sharp point, it should previously be cut away ; if stumpy, it should be filed, and, in either case, smoothed off with a chisel, and afterwards re-adjusted : and if we cannot effect this with the hand, a vulsella, such as smiths use, must be applied to the end of the bone now in a proper condition for being replaced, seizing it with the rounded extremities of the instrument, so that, by its convex part, the projecting bone may be thrust into its place. If it be of larger size, and surrounded by small membranes, we must leave them to be dissolved under the action of our medicaments, and cut away the bone after it has been thus denuded, a measure which should certainly be adopted at an early period : afterwards, the bones may be allowed to unite, and the wound to heal ; the former at its proper time, and the latter just as circumstances indicate. Occasionally it happens, too, that where the wound is extensive, the fragments of bone die away, and do not unite with the others ; this also may be known by the quantity of the discharge. Hence it is the more necessary frequently to unbind the ulcer, and to dress it. The result is, that in the course of a few days, that portion of bone falls off spontaneously, and, distressing as is the condition of a wound of this kind at the first, yet this circumstance may both increase its size, and retard its cure ; for the sound skin is frequently ruptured by the end of the bone ; and prurigo and pain are the immediate consequences. To remove these last symptoms, if any such happen, it is expedient to foment with cold water throughout the summer, and with tepid in the winter ; then, to apply myrtle cerate. Sometimes the fracture irritates the flesh by its spicular projections. These being recognised by prurigo and the presence of pungent pains, the physician must, of necessity, lay the wound open, and cut away the spiculæ. The remainder of the cure, in either case, corresponds with that required where the wound has been made at once by the blow. After the ulcer has become clean, the diet should be of an incarning quality. If the limb be still too short, and the bones not yet in their proper situation, a small wedge, made as smooth as possible, must be introduced between them, in such a manner that its head may protrude somewhat through the wound ; and it must be driven in further every day, till both limbs are of equal length. Then the wedge is to be removed, the wound healed, and a cicatrix induced by fomentations consisting of

a cold decoction of myrtle, ivy, or other similar vervains, and afterwards rubbed with a desiccant medicine; at this juncture rest is more especially needed, until the strength of the limb be restored. When the bones fail to unite, in consequence of having been often separated and disturbed, the treatment to be adopted is obvious; for union may still be effected. When the case is of long standing, the limb should be extended, in order to create fresh injury: the bones must be separated by the hand, that their surfaces may be rendered uneven by the friction, and that if there be any fatty substance acting as an intermede, it may be abraded, while the whole surface is renewed, great care being taken, however, to avoid wounding the tendons or muscles. The limb is then to be fomented with a decoction of pomegranate in wine, and the same medicine mixed with white of eggs must be applied over it: on the third day it must be opened and fomented with a decoction of the vervains above recounted: on the fifth this is to be repeated, and the splints are to be adapted: as regards the other measures, whether relating to the first or to the last stage of the cure, the same is to be done as has been already described. Sometimes, however, the bones unite obliquely; and this occasions a shortening and an unsightly appearance of the limb; while, if the ends are pretty sharp, constant pricking pains are experienced. Hence the bones must be again fractured, and re-set. The following is the method adopted. The limb is to be freely fomented with hot water, rubbed with liquid cerate, and then extended; during this part of the operation the physician, feeling the course of the bones, the callus being as yet tender, separates them by his hands, and forces the projecting bone into its proper situation: and if he be not strong enough to effect this, on that side to which the bone inclines, he opposes a rule wrapped up in wool; and thus by binding it on, he gradually compels it to re-assume its former situation. Furthermore, sometimes the ends of the bone perfectly unite; but there is an excess of the callus, and, therefore, a swelling at that part. In such a case, the limb is to be gently rubbed for some considerable time with oil, salt, and nitre, and freely fomented with hot salt water; a dispersing malagma is to be applied, and the limb bound tight: the patient should eat herbs and take vomits, by which means both the callus and the flesh are attenuated. Some good is done by the application of mustard with a fig upon the op-

posite corresponding limb, till it slightly erode, and draw forth matter from that part. After the tumour has been lessened by these means, the patient is again to return to his ordinary course of life.

XI. Thus far we have treated on fractures. Now bones are dislocated in two ways: for sometimes those that are joined together separate; as for example, when the bone of the scapula recedes from the humerus, the radius from the ulna, the tibia from the fibula, and sometimes, from leaping, the os calcis from the ankle; which last, however, is a rare occurrence: while sometimes the articulations are completely displaced. I shall first speak of the former. Directly such a partial luxation has occurred, the part becomes hollow, and the finger pressed thereon detects a depression: then severe inflammation ensues, especially when the accident is in the ankles: for here it not unusually excites even fevers, gangrenes, and either convulsions, or tetanus, which draws the head back to the scapulæ. The prophylactic measures in this case are the same as those which have been proposed for injuries of the moveable bones, for the purpose of removing the pain and swelling; although bones thus separated are never again united, an event which detracts from the appearance of the limb, but does not render it less useful. Now the lower jaw, the vertebræ, and all such joints as are braced by strong ligaments, are either luxated by external violence, or in consequence of their ligaments being ruptured, or debilitated by some casualty; and more readily in children and adolescents than in the more robust. Joints may be luxated forwards, backwards, inwards, and outwards; some in all these different ways, and others in certain only, and the characteristics are either general or particular: for since there is uniformly tumour at the part towards which a bone is impelled, and depression in that from which it has receded, these signs may be taken as general; while there are other marks characteristic of particular dislocations, which I shall have to mention in describing these individually. Although all joints may be dislocated, all are not reducible. Thus the head is never replaced; so also a spinal vertebra, and even the lower jaw, if after being luxated on either side, inflammation ensue before reduction. Again, joints which are prolapsed from disease of their ligaments, even when reduced, slip out again. Such as are luxated in infancy and not reduced, do not grow so

much as the rest ; and the flesh about every permanently luxated joint suffers emaciation, and that to a greater extent in the member nearest to it, than in the next beyond : thus in luxation of the shoulder joint, the arm is wasted more than the fore-arm, and this more than the hand. In the next place, there is more or less use left in the limb according to the site and nature of the accident : and the more perfectly its use is retained, the less is the emaciation. Every dislocation should be reduced before the setting in of inflammation. If this have already come on, the limb must not be meddled with until after its subsidence ; then it must be attempted only in such joints as are reducible. Much depends on the condition of the body and the state of the ligaments : if the body be slender and humid, and the ligaments weak, the bone is more easily replaced, but it is also more liable to dislocation, and is retained in its position with less certainty. The contrary circumstances are more favourable to the retaining of a bone in its place, but are unfavourable to its reduction when luxated. Furthermore, it is proper to alleviate the inflammation by applying undressed wool steeped in vinegar : if the accident be in one of the larger joints, to abstain from food for three days, and occasionally even for five ; to drink hot water till the thirst is removed ; and to observe these precautions more rigidly in luxations of those bones which are held together by strong and fleshy muscles, particularly if fever have supervened : then, after the fifth day to foment with hot water, and, after removing the wool, to apply a cerate made of cypress-oil with nitre, until the inflammation be completely subdued. Then to rub the limb, to use a generous diet with wine in moderation, and to bring the parts into action, for motion, pernicious as it is while there is pain, is at other times exceedingly beneficial to the body. These are general remarks, now for the particular.

XII. The jaw is dislocated forwards, but sometimes only on one side, sometimes on both. If on one side, that and the chin incline to the side opposite : the upper and lower teeth do not meet, but the lower canine get under the incisors. If both sides be dislocated, the entire chin is thrust forwards, and the lower teeth jut out beyond the upper, while the muscles inserted into the jaw all appear stretched. The patient without delay must be so seated that an assistant in his rear may hold his head, or he may be seated against

a wall with a hard leather cushion between that and his head; and his head must be pressed by the assistant against the cushion, to keep it steady: then the thumbs of the operator, wrapped in pieces of linen or rollers, to keep them from slipping, are to be introduced into his mouth, while the fingers are applied externally. Having taken firm hold of the jaw, if dislocated on one side, the chin must be shook and brought towards the throat: then at the same time his head must be held fast, and the chin being raised, the jaw must be replaced, and the mouth shut, all this being nearly the work of the same instant. But, if luxated at both sides, the same measures must be adopted, but the jaw must be forced back equally on either. Having replaced the bone, if the case be accompanied with pain of the eyes and neck, blood must be drawn from the arm. Useful as is a spoon-meat diet in all dislocations, it is here especially beneficial: for even talking, by inducing frequent motion of the jaws, may, through the action of the muscles, be productive of mischief.

XIII. That the head is kept on the neck by means of two processes received in two depressions of the atlas, I have stated at the commencement. These processes are sometimes luxated backwards: in this case the tendons at the back of the neck are put on the stretch, the chin is approximated to the chest, the patient is unable to drink, or to speak, and in some instances has involuntary seminal emissions: these symptoms are rapidly followed by death. I have deemed it proper to describe this kind of accident, not that it admits of remedy, but in order that it may be recognised by its characteristics, and that those who have thus lost a relative may not imagine he died for want of a medical attendant.

XIV. Luxation of the vertebræ of the spine is attended by a result equally fatal: for it cannot occur without laceration of the cord in the middle, of the two membranules which are continued through the lateral processes, and of the connecting ligaments. These may be luxated both backwards and forwards, above the diaphragm and below it. According to the direction of the luxation, there will be either tumour or depression posteriorly. When the injury occurs above the diaphragm, the hands are paralysed, then follow vomiting or convulsions; the breathing becomes embarrassed, the pain urgent, and the hearing dull. If below it, the thighs

are paralysed, the urine suppressed, and sometimes discharged involuntarily. In these cases, although patients do not die so rapidly as in luxation of the neck, they do not live more than three days: for, although Hippocrates has said that in a luxation of a vertebra outwards, the man must be laid on his face and stretched out, while the operator rests all his weight upon it by standing thereon poised on his heel, so as to force the vertebra into its place, this direction must be understood to apply to partial luxation, and not to those cases in which the displacement is complete: for sometimes a weakness of the ligaments causes not a luxation, but a prominence forwards. This is not mortal, although it is not practicable to force it back from the internal part: and when reduced from the external side it generally returns, unless the strength of the ligament be restored, a result which is exceedingly rare.

XV. The humerus is sometimes luxated into the axilla and sometimes forwards. If into the axilla, the elbow recedes from the body, and cannot be extended again with the humerus towards the ear of the same side. If forwards, the fore-arm is extended, but less than natural, and the elbow is stretched forward less easily than backwards. When the humerus has been luxated into the axilla in a young and lax subject, whose ligaments are sure to be weak, it will suffice to fix him upon a stool, and to direct one assistant to gently draw back the head of the broad bone of the scapula, another to extend the fore-arm, while the physician himself, sitting in the rear of the patient, forces back the head of the bone with his knee in the axilla, and at the same time presses the scapula with one hand, while with the other he brings the fore-arm to the side.

But in a full-grown subject, whose ligaments are less yielding, it is requisite to employ a wooden spathula of two fingers' thickness, long enough to reach from the axilla to the fingers: at its top there is a small round head slightly excavated, so as to receive some part of the head of the humerus. In this at three places, and at proper distances, two holes are pierced, into which soft straps are passed; and this spatha, with a roller round it to prevent injury, is applied from the fore-arm to the axilla, so that its head may rest immediately below the axilla: it is then secured by its straps down to the fore-arm, a little below the head of the humerus in one place, at another just above the elbow, and



at a third above the hand, the holes in it being intended expressly for this purpose. The arm thus tied up is put over the step of a ladder, such as is used for poultry, too high to allow the patient to tread firmly on the ground; and just as his body is allowed to sink on one side, the fore-arm is kept extended on the other: and in this way it happens that the head of the humerus, forced towards its natural situation by the ball of wood, is reduced sometimes with and sometimes without a peculiar noise. That there are many other methods of reduction may be known by reading Hippocrates only; but there are none which have better stood the test of experience. But if the humerus have been luxated forwards, the patient must be laid upon his back, and a roller or strap should be passed round the middle of his arm-pit, the ends being delivered to one assistant placed at the patient's back, and his fore-arm to another; and direction should be given that one pull the strap, while the other extends the fore-arm: then the physician should force back the patient's head with his left hand, while with his right he elevates the elbow along with the humerus, and forces the bone back into its situation: and it is more easily effected in the latter case than in the former. Having reduced the humerus, wool is to be put under the axilla in dislocation inwards, so as to afford resistance to it, and in dislocation forwards, that it may be more completely bound up. Then the roller being first passed under the axilla, ought to surround the head of the humerus; afterwards proceeding across the chest to the opposite arm-pit, from that to the scapula, and again to the head of the humerus, passing it round in the same manner, until it completely secures the parts. After the humerus has thus been bound up, it is secured more effectually by being brought close to the side, and tied down there with a roller.

XVI. That these three bones, that is to say, the humerus, radius, and ulna, unite at the elbow, may be understood from what has been stated at the commencement of the present book. In dislocation of the ulna from the humerus, the radius, which is connected with it, is sometimes involved in the luxation, and sometimes remains fixed. Now in all, the ulna may be luxated in four directions: if forwards, the fore-arm is extended, and cannot be bent: if backwards, the fore-arm is bent, and cannot be extended, while it becomes shorter than its fellow: sometimes it brings on fever

and bilious vomiting. If the luxation be outwards or inwards, the fore-arm is stretched, but slightly bent towards that part from which the bone has receded. Whichever species it may happen to be, the only method of reduction (not only in the ulna, but in all cylindrical bones articulated by a long process) is to extend both limbs in different directions, until there be a sufficient space between the bones; then to impel the luxated bone in an opposite direction to that from which it has been prolapsed. However, the modes of effecting extension are various, according to the strength of the ligaments, and the position of the luxated bones. Sometimes the hands alone suffice: while at others we are compelled to resort to other means. If, therefore, the ulna have been luxated forwards, extension with both hands, assisted occasionally by straps, suffices for the reduction: then some round body must be placed at the inner part of the bend of the elbow, and the ulna suddenly impelled towards the humerus. But in the other cases, the best plan is to extend the fore-arm in the manner directed for fracture of the humerus, and then to replace the bones. The remainder of the treatment is the same as in all other luxations. The bandage however should be opened at an earlier period, and more frequently: the limb should also be oftener fomented with hot water, and the friction with oil, nitre, and salt should be continued for a longer period: for in no joint is callus sooner formed than about the ulna, whether remaining in a state of luxation, or whether reduced; and when once this callus is allowed to form during rest, the flexion of the limb is impeded ever afterwards.

XVII. The hand may be dislocated in four directions. If it be luxated backwards, the fingers cannot be extended: if forwards, they cannot be bent: if to either side, the hand is twisted to that opposite, that is to say, either to the thumb or to the little finger. Reduction is not very difficult. The hand and fore-arm should be extended in different directions over something that is hard and renitent; while in a state of pronation, if the luxation be backwards; of supination, if forwards; and placed on its side, if inwards or outwards: when the ligaments have been sufficiently stretched, if the luxation be lateral, the head of the bone must be pushed to the opposite side by the hand. But in luxation forwards or backwards, some hard body is to be fixed, and firmly pressed

upon the projecting bone; by which means the pressure being augmented, the bones are reduced.

XVIII. The bones of the palm of the hand are also occasionally liable to dislocation, sometimes forwards, and sometimes backwards; for laterally they cannot be displaced, because supported by the corresponding bones of the same row. The sole characteristic of this luxation is common to all; that is to say, a projection at the side where the bone has been impelled, and depression at the part from which it has receded. By merely using firm pressure with one's finger, the bone is replaced without employing extension.

XIX. The luxations of the fingers nearly correspond with those of the hands, both as regards their varieties and the signs by which they are recognised. But less force is needed in the employment of extension, because their joints are shorter, and their ligaments weak. They ought to be stretched on a table only, whether luxated forwards or backwards, and then pressed with the palm of the hand: if luxated laterally, the reduction must be effected by the fingers.

XX. In speaking of the foregoing, I may appear to have embraced luxations of the bones of the leg also; for in this kind of accidents there is some analogy between the thigh and the humerus, the tibia and the ulna, the foot and the hand. There are, however, certain matters requiring particularization. The thigh may be luxated, in all, four different ways: inwards most frequently, next outwards, very rarely forwards, or backwards. If luxated INWARDS, the leg is longer than its fellow, and bowed, with the great toe pointing outwards. If dislocated OUTWARDS, it becomes shorter, and bowed inwards, with the foot pointing in the same direction; the heel in walking does not touch the ground, but the patient rests upon the extremity of the sole: and in this case the leg more effectually supports the trunk than it does in the former, and there is less need of a staff. If FORWARDS, the leg is extended, and cannot be crossed; measured towards the heel, it is as long as the other, but the extremity of the sole of the foot is not so much inclined forwards; and the pain is most violent in this species; and it is accompanied very frequently with suppression of urine. When the inflammation and pain have subsided, such patients walk tolerably well, and the foot is straight. If BACK-

WARDS, the extension of the limb is impracticable, and this is shortened; in a standing position in this case also the heel does not touch the ground. Now in luxation of the thigh the danger is that it may not be reduced without difficulty, and that when reduced it may slip out of its socket. Some affirm that it always slips out again; but Hippocrates, Diocles, Philotimus, Nileus, and Heraclides the Tarentine, all authors of high repute, have recorded that they have perfectly cured such cases. Nor would so many different kinds of apparatus for extending the thigh have been invented for this accident by Hippocrates, Andreas, Nileus, Nymphodorus, Protarchus, Heraclides, and even by a certain artificer likewise, had all attempts been fruitless. But although this is a false opinion, yet it is very true that, when the ligaments and tendons are remarkably strong, the reduction is hardly practicable; and that when they have lost their strength, they are incapable of retaining the bone in its place, even after reduction. We must, therefore, try what we can do, and in a young subject it is sufficient to extend the limb by means of one strap fixed at the groin and another at the knee: in one more robust, the extension may be better effected by connecting these straps to strong sticks, and opposing their lower ends against a fulcrum, while the upper are pulled with both hands. The limb may be yet more forcibly extended by placing it on a bench with pulleys on both sides, to which the straps are to be tied: these being turned, as in a wine-press, the operator may, if he persevere, not only extend but even rupture the ligaments and muscles. The patient should be fixed upon the bench, with his face upwards or downwards, or laterally, so that the part towards which the bone has been luxated may always be uppermost, that from which it has receded may be inferior. Having extended the ligaments, if the bone have been luxated forwards, some round body must be put upon the groin, and the patient's knee must be suddenly drawn up in the same way, and for the same reason that it is done in luxation of the arm; and if the femur yield to the flexion, it is immediately reduced. In other cases, where the bones have receded a little from each other, from the effect of external violence, the practitioner should force back the prominent part, while an assistant pushes the hip in a contrary direction. After the reduction of the bone there is nothing new in the treatment, except that the patient should be kept longer in bed,

lest, if the femur be moved while the ligaments are yet lax, it may again slip out.

XXI. Now it is very well known that the knee may be dislocated outwards, inwards, and backwards. Most authors have stated that it is never dislocated forwards, and that is not unlikely, since in that direction it is opposed by the patella, which also keeps in the head of the tibia. Meges, however, has recorded that a case of luxation forwards came under his care. In these cases, the ligaments may be extended by the same means as those proposed for the femur. Where the bone is luxated backwards, it is reduced in the same manner by some round body placed on the ham, while the leg is drawn upwards. In the other instances, the reduction is effected by the hands, while the bones are drawn in opposite directions.

XXII. The ankle may be dislocated in either of the four directions. If inwards, the sole of the foot is turned outwards. When the case is of an opposite nature, the appearance is also the reverse of this. If dislocated forwards, the broad tendon behind is hard and tense, and the foot turns downwards. If backwards, the heel is nearly out of sight, and the sole of the foot enlarged. Dislocations of this kind are reduced also by the hands, the foot and leg being simultaneously extended in counter directions. So also here a longer continuance in bed is indispensable, lest the ankle, which sustains the whole body, yield beneath its load, its ligaments being as yet weak; and lest in this way secondary luxation should occur, low shoes should be used at first, that the ankle may not be nipped.

XXIII. The bones of the soles of the feet are luxated similarly to those of the hands, and are reduced by the same means. The bandage, however, should include the heel; lest, inasmuch as it is necessary to bind the middle of the sole as well as its extremity, the ankle being left free may allow a redundancy of matter to accumulate there, and give rise to abscess.

XXIV. In the toes there is nothing more required to be done than what has already been explained when treating of the hand. After the reduction of the middle or upper part of the joint, however, it may be kept in a frame.

XXV. Such are the methods to be pursued in dislocations unattended by external wound. When this last is a concomitant, the peril is extreme; and it is the more so ac-

cording to the greater size of the limb, or the greater strength of its ligaments and muscles. Hence, such compound accidents in the shoulder or hip-joint excite our apprehensions of a fatal consequence: indeed, if the bones be reduced, the case becomes hopeless, while, if not reduced, still there is danger; and that, too, augmented according as the wound is nearer to the articulation. Hippocrates has pronounced it unsafe to reduce any compound dislocations except those of the phalanges, the feet, and the hands; and he enjoins us even in these to be circumspect lest we destroy the patient. Some have reduced the fore-arms and the legs also, and to prevent gangrene and convulsions, they have drawn blood from the arm. There can be no doubt that where inflammation has set in, or at a later period when the case has remained for a long time unreduced, that not even the bones of the phalanges ought to be reduced, although here the injury being more limited, the danger is not so considerable. Nay, if after the reduction of a bone convulsions ensue, it should be immediately put out again.

Furthermore, in every dislocation compounded with extensive wounds, and not reduced, the limb should lie in the position which is most easy to the patient, so that it may neither be moved about, nor hang in a depending position. In all such cases, much benefit is derived from long fasting, and subsequently from the treatment recommended in fractures complicated with wounds. Should the naked bone project, it will always be an impediment; hence, the projecting portion must be cut away, and the parts must be dressed with dry lint, together with applications not of a greasy nature, until the recovery be as complete as such a case will allow; for some weakness of the limb is a necessary result, and a thin cicatrix being induced, it lies exposed ever afterwards to receive injuries from causes otherwise trivial.

THE END.

**DR. COLLIER** annually delivers three Courses of Lectures on the Theory and Practice of Physic, and on **Materia Medica**, in conformity with the regulations of the Court of Examiners of the Royal College of Surgeons, and of the Apothecaries' Hall.

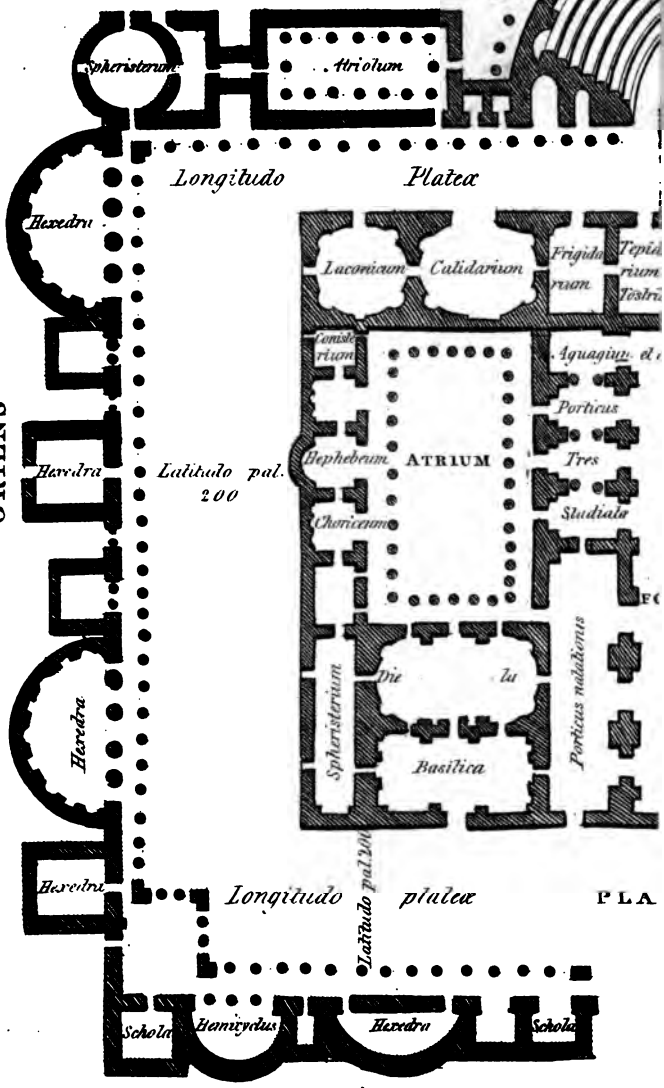
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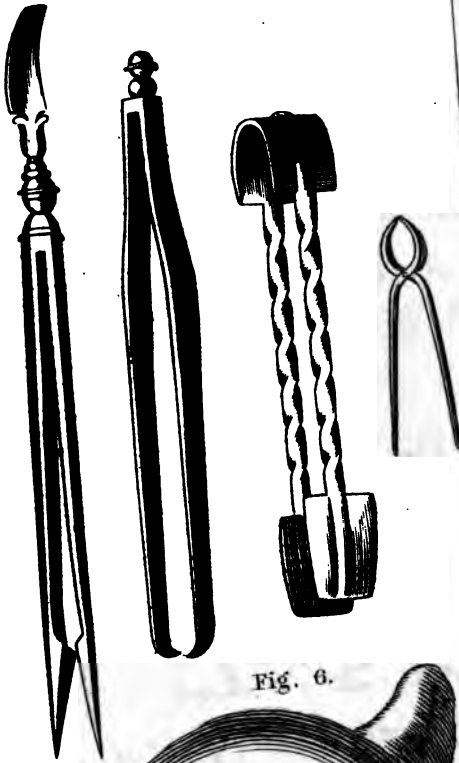
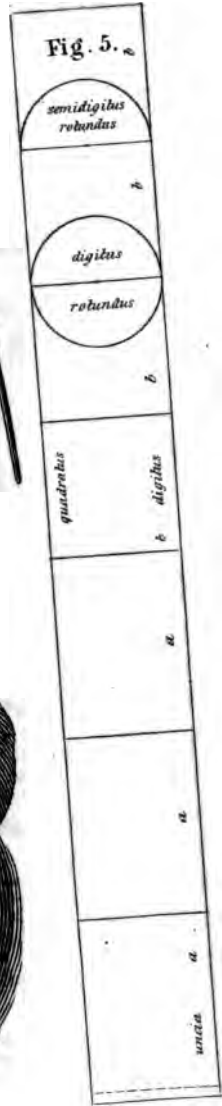
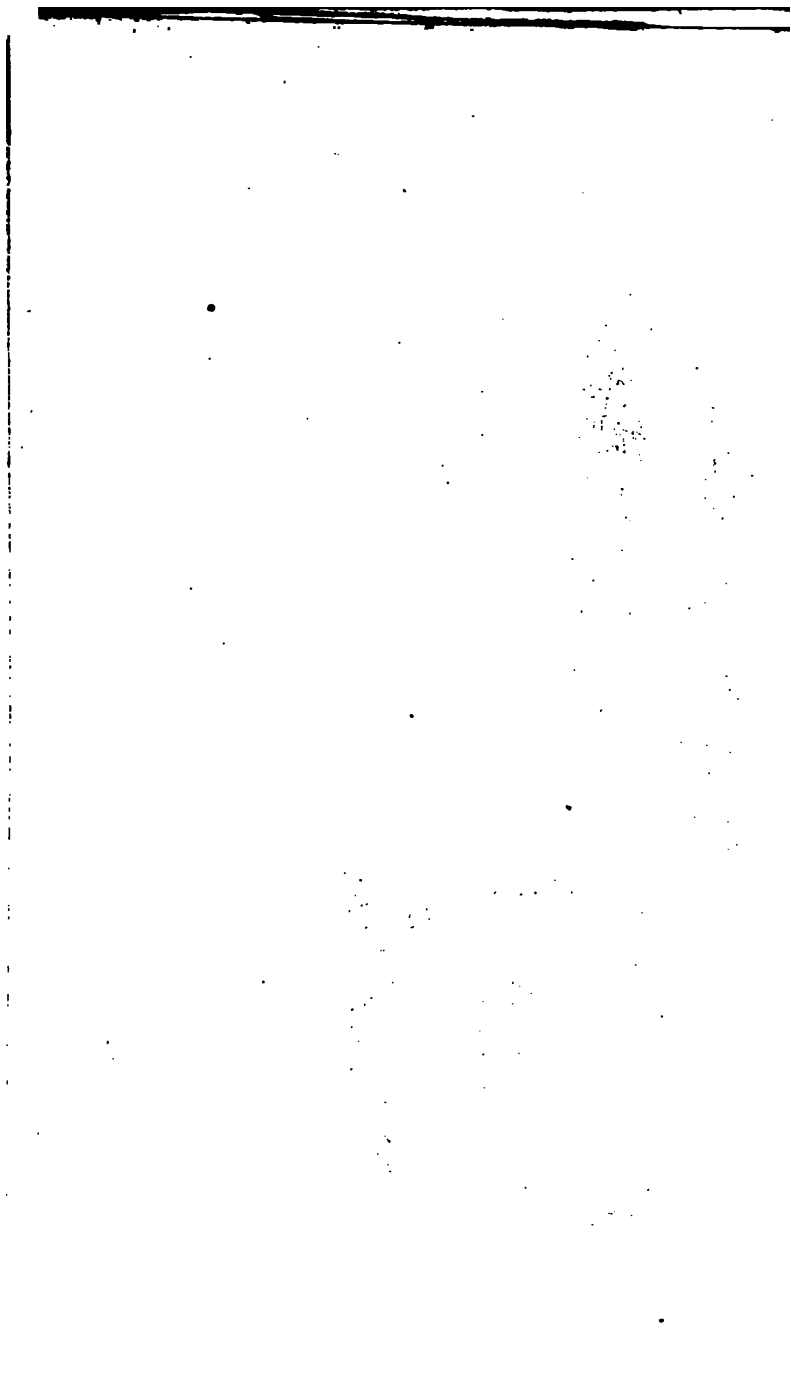


Fig. 6.





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Fig. 4.

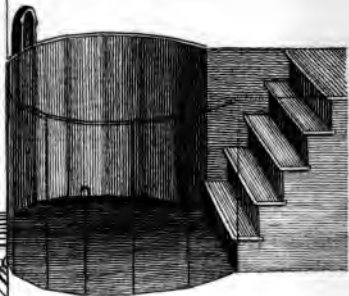
Fig. 1.



Fig. 2.



Fig. 3.















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