HIPPOCRATES

VOL. III
REDUCTION OF THE SHOULDER JOINT.

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# ILLUSTRATIONS

- REDUCTION OF THE SHOULDER JOINT  .  Frontispiece
- THE HIPPOCRATIC BENCH OR SCAMNUM  .  Facing page 454
TRANSLATOR'S PREFACE

Anutius Foësius on coming (1594) to the surgical section of his Hippocrates says that some will find fault with him for editing treatises so fully discussed by many eminent writers: they will call his work futile and superfluous. Some will also cry out upon his notes as fragmentary, superficial and useless. Such fears are more natural in one who looks back not only on Foës himself and his contemporaries, but on the translation of Adams, the great edition of Petrequin, and the labours of Littré and Ermerins, nowhere more complete than when dealing with these treatises; while behind them all loom the thousand pages of Galenic Commentaries and the dim light of the illustrations of Apollonius. He is overwhelmed by his material, and cannot hope to do more that attempt a fairly accurate translation with fragmentary notes condensing the more important discussions of preceding editors.

The recent revolution in surgery due to anaesthetics, asepsis, radiography and other practical and scientific progress tends to put a modern surgeon rather out of touch with the great ancients. It makes him, perhaps, less able to appreciate their achievements, and more conscious of their unavoidable errors. On the other side, recent criti-
cism of the Corpus Hippocraticum relieves him from the necessity of assuming that Hippocrates wrote Mochlicon, and therefore of approaching it hat in hand. Its author assumes rather the appearance of a slave surgeon or student to whom his master gave a rather dilapidated copy of Fractures-Joints with instructions to summarise everything to do with dislocations, and be quick about it. That the result should have been held in honour for more than twenty centuries is high tribute to the excellence of the original.

The translation was made independently of that by Adams, though some of his expressions were afterwards adopted. The notes and meanings of words are taken more frequently than usual from the Commentaries of Galen, who is surely our highest authority on the subject. The text is mainly that of Petrequin, a conservative scholar who often successfully defends the manuscript readings against rash alterations by Littré and Ermerins. The recent edition by Kühlewein (Teubner, 1902) is doubtless an improvement even upon Petrequin, but was not directly available. Some of his emendations are adopted with due acknowledgment, and many of his variants are given in the notes, including all not otherwise attributed. The excessive "Ionicism" of all previous editions has been reduced in accordance with Kühlewein's principles, as in the other volumes.

In treatises so fully discussed by "so many most noble writers in that part of medicine," as Foës has observed, any novel suggestions are likely to be wrong, and the editor is duly conscious of presumption in submitting views of that character as to the
Hippocratic Bench, the astragalus and the origin of Chapters LXXIX-LXXXI on joints.

The frontispiece is a reproduction of the Apollonius illustration for ἐμβολὴ ὄμοι, ὁ διὰ τοῦ κατω-μίζοντος [τρόπος], "the shouldering method of reducing the shoulder joint," taken from the thousand years old MS. "B." It is doubtless a fairly accurate copy of the thousand years older original by Apollonius himself, or the artist he employed. I owe this and other assistance to the courtesy of Dr. Charles Singer, and am still more indebted to our chief authority on "Hippocrates," Dr. W. H. S. Jones.
PREFACE

The whole of this volume has been entrusted to Dr. E. T. Withington, of Balliol College. Only a trained surgeon can explain the surgical treatises of the Hippocratic Collection.

The fourth (and last) volume will contain Aphorisms, Humours, Nature of Man, Regimen in Health I–III, and Dreams. The text of all these works has to be worked out from the manuscripts themselves, as Littre's text is here very imperfect.

W. H. S. J.
GENERAL INTRODUCTION

When Marcus Aurelius Severinus gave the title De efficacis Medicina to his work on surgery he probably expected to annoy the professors of what was then considered a much higher branch of the healing art, but when he goes on to say that surgery is obviously a strenuous, potent and vital method of treatment, few who have been actively or passively concerned with broken bones, dislocated joints or bleeding wounds will venture to disagree with him. He was doubtless also thinking of Celsus, who had long before declared that the part of medicine which cures by hand has a more directly obvious effect than any other.¹ He adds that this is also the oldest part of medicine and, indeed, it must have been recognised from the dawn of reason that, in such common emergencies as those just mentioned, something has to be done, primarily with the hand, and that anyone who can do it quickly, effectively and without causing extreme pain is, for a time at least, "worth many other men."

So says Homer² of the army surgeon, and both he and his hearers were well qualified to judge. As a great authority puts it, "Homer was not content to recite in general terms the wounds of the warriors as mere casual slashing; he records each stab with

¹ VII. 1. ² II. XI. 514.
anatomical precision, describing the path of the weapon and its effects." Condensing slightly Sir Clifford Allbutt’s examples—"A spear driven through the buttock pierces the urinary bladder and comes out under the symphysis pubis (5. 65). The rock hurled by Ajax strikes Hector on the breast, he turns faint, pants for health and spits blood (14. 437). An epigastric wound exposes the pericardium (16. 481). Homer explains that, after the spear of Achilles had transfixed Hector’s neck, he could still speak because the weapon had missed the trachea (22. 328). Yet more remarkable is the record (8. 83) of the rotatory movement of one of the horses of Nestor, which followed the stab of a spear at the base of the skull (καϊριον, a deadly spot)—the weapon had pierced the cerebellum. We may wonder not only at the poet’s surgery, but also that his hearers were prepared to comprehend such particulars." 1

It will perhaps increase the wonder and interest if we contrast the Iliad with our mediaeval Romances of chivalry, where there is no end of wounds and violence but an almost complete absence of definiteness or surgical interest. Take the famous fight between Balin and Balan in the Morte d’Arthur: the champions first unhorse and stun one another, but spring up and fight desperately for a prolonged period, “wounding each other grievously” all the time. At length, when “all the place was red with their blood,” when “they had smitten either other seven other great wounds so that the least of them might have been the death of the mightiest giant in the world,” they have to take a good rest, but go

1 Classical Review, 37. 130.

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at it again with undiminished vigour for an indefinite time till at last Balin faints. To a Greek, the pathos of the incident would be obscured by its absurdity, while, of course, there is nothing surgical about it. Perhaps the only interesting wound from this point of view is that received by Sir Launcelot when shot by the lady huntress, "so that the broad arrow smote him in the thick of the buttock over the barbs," and even the ministrations of a hermit could not enable him to sit on his horse for weeks. So too in the *Tale of Troy* translated by Caxton, there is as much slaughter as in the *Iliad*. Did not the good knight Hector slay a thousand Greek knights in one day? "He gave Patroclus a stroke upon his head and cleft it in two pieces, and Patroclus fell down dead." He cleft Archylogus in twain "notwithstanding his harness," and repeated this immediately on another Greek; in fact he must evidently have kept it up for hours. But the only surgically interesting case is that where Ulysses "struck King Philumenus in his throat and cut asunder his original vein, and smote him as half dead," especially if "original" means "jugular," for Philumenus is as vigorous as ever soon afterwards. No one would dream of making a table of mortality from these romances, distinguishing the wounds by localities and weapons, as has been done for the 147 wounds described in the *Iliad*, with results fairly corresponding with surgical probability.¹

The object of this comparison is to show that the Greeks, during what has been called their "middle ages," were a people who, in interest in their bodies,  

¹ Frölich, *Die Militärmedizin Homer's*, 1879.
knowledge of the nature and results of injuries, and respect for those skilled in the methods of healing afterwards called Surgery, surpassed all those whom we know at a corresponding stage of civilisation.

When we add to this the frequent sacrifices (which may help to explain their greater anatomical knowledge compared with that of our mediaeval ancestors), the vigorous funeral games, and the probably already widespread custom of gymnastic training, there seems no need to suppose borrowings from older civilisation to explain the rise of surgery in a few centuries to the height at which we find it in the Hippocratic writings. As regards the palaestra, if we may judge from the famous group of "the Wrestlers," and its great frequency, dislocation of the shoulder joint was often deliberately produced, and Hippocrates will tell us that it was part of a good education to know all the ways of putting it in again.

The fact that medical schools first arose on the rim of the Greek world, especially in that part of the Asiatic coast where Ionian joined Dorian and both came in contact with remains of older cultures from Crete and Caria, as well as with strangers from Egypt and the East, may be partly accounted for by such contacts. Materials and methods of bandaging perhaps came from Egypt, and we may possibly find in a Cretan drain-pipe or Egyptian tomb a sample of that most interesting of Hippocratic instruments, the crown trephine;¹ but the special

¹ A large bronze crown trephine has been found at Nineveh, and was evidently worked with a cord like the Hippocratic instrument. Meyer Steineg Sudhoff, Geschichte d. Medizin, 1921, p. 25.
treatment of Fractures and Dislocations which forms the main and most remarkable part of Hippocratic surgery was, we may be fairly sure, developed by the Greeks themselves.

It is, however, only right to cast an admiring glance in passing on what little is visible of the Edwin Smith Papyrus. This dates from the seventeenth century B.C. at latest, and contained a "Book of Surgery and External Medicine," the remaining part of which comprises forty-eight typical cases extending from the top of the head to the thorax and breasts. The description of each case is divided into Examination, Diagnosis, Verdict, Treatment. No less than fourteen cases are declared incurable, and in nine of them no treatment is suggested. In only one case is the use of a charm mentioned. The following is Case 18, a wound of the temple, condensed from Prof. Breasted's version.¹

"You should probe, and if you find the bone whole without a psn, a thm or a fracture you should say, Treat it with fresh meat the first day and afterwards with ointment and honey."

This remarkable Papyrus indicates that the Egyptians possessed a semi-scientific surgery not much inferior to that of Hippocrates more than a thousand years before his birth. Whether he was indebted to them is another question, but they evidently knew at least two forms of bone injury besides fracture, and it is not impossible that when we are told what "psn" and "thm" mean, we may get some light on the origin of the Hippocratic term hedra.

¹ In Recueil d'Études Égyptologiques, Paris, 1922.
The earliest historical Greek practitioner is represented as being most effective as a surgeon. Democedes, coming from Croton, a city famous for its gymnasts, though without instruments, so excelled his colleagues that he became medical officer with large and increasing salaries in Aegina, Athens and Samos successively. Brought as a slave to Susa, and probably again without instruments, he cured King Darius of an injury thus vividly described by a layman—"his foot was twisted, and twisted rather violently, for he got his astragalus dislocated from its joints." The Greek surgeon restored it effectively with little pain, saved the Egyptians, who had failed to do so, from impalement, fed at the king's table, and, if we may trust Herodotus, became a prominent figure in history. But he can hardly have lived to see the birth of Hippocrates, in whose time the most important of the treatises here translated were composed. According to all surviving evidence from antiquity, they were mostly written by him, and though there is now a tendency to believe that Hippocrates, like other great teachers, may have written nothing, we shall, while indicating the different amount of evidence for the genuineness of the various treatises, use "the writer" and "Hippocrates" as synonymous terms.

To show how these works were valued we may quote a paragraph from a high authority on Greek matters, which also introduces us to the remarkable MS. which contains most of them. "The MS. was written in Constantinople about the year A.D. 950, and it begins with a paean of joy over the discovery of the works of this ancient surgeon, Apollonius, with his accurate drawings to show how the various
GENERAL INTRODUCTION

dislocations should be set. The text was written out. The illustrations were carefully copied. Where the old drawings were blurred and damaged, the copies were left incomplete lest some mistake should be made. Why? Because this ancient surgeon, living about 150 B.C. [75 is more probable], knew how to set dislocated limbs a great deal better than people who lived a thousand years after him. It was a piece of good fortune to them to rediscover his work. And his writing again takes the form of a commentary on the fifth-century Hippocrates. Hippocrates’ own writing does not look back. It is consciously progressive and original. ¹

The writer, indeed, though he teaches with authority and confidence, confesses failures and welcomes improvements. His work, especially that on the surgery of the bones, formed the basis for future progress and did not prevent it. There was, in fact, steady progress for five centuries, and ancient surgery reached its culmination about A.D. 100. It began, says Celsus, to have its professors at Alexandria, but the first eminent practitioner whom we know as “the Surgeon” was Meges of Sidon, who practised at Rome shortly before Celsus, and is the source whence he drew much of his surgical knowledge. At the end of the century, Archigenes and Leonidas performed amputation almost in the modern style, while Heliodorus and his follower Antyllus showed themselves capable of doing all a surgeon could do, without the aid of modern discoveries. The former was especially famous for his work on the skull and lower part of the body.

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(hernia, fistula, stricture), the latter for the ligature of aneurisms and resection of bones, but he follows Heliodorus so closely that we do not know which was the greater or more original. The surgical writings of the earlier Celsus and the much later Paulus are interesting and very similar, but the first was a layman, the second may or may not have performed the operations he portrays; for both are compilers. But when we pass to the Heliodorus-Antyllus fragments we feel a different atmosphere. There is a definiteness and determination in their language which leaves no doubt that they did what they describe. “The ancients refused to undertake a case of this kind, but we shall” etc., is a phrase which recurs. One is convinced that they did what they say and hopes the unfortunate patient had a large dose of mandragora.¹ This state of excellence, however, does not appear to have lasted. Galen tells us that when he came to Rome he found that serious operations were usually handed over to “those called surgeons.”² Unless Antyllus was among them, none of their names have come down to us, and when, two centuries later, Oribasius made his great “Collections,” he had to go back to him and Heliodorus for the best surgery; while for ordinary fractures and dislocations he could find nothing better than Galen’s commentaries on the treatises in this volume.

Heliodorus, however, is introduced here not as part of an inadequate outline of Greek surgery, but

¹ They removed the whole arm-bone (humerus) and part of the shoulder-blade, and call resection of “the lower part of the jaw” an easy operation. Oribasius XLIV. 23.
² X. 455.

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because he will help us to explain some of the Hippocratic apparatus. The reader of this volume will hear a great deal about bandaging, but very little about definite forms of bandaging. In the surgery, says the writer, the kinds of bandages are the simple (circular) sceparnus, simus, the eye, the rhomb and the hemitome or hemirhomb. This contrasts vividly with the 50 bandages of Heliodorus, the 60 of Soranus, and the 90 odd given in the De Fasciis ascribed to Galen.

We should gather from Galen's commentary that three were simple and three complex, the first being a true circle (εἰκυκλός) where each turn covers the former, so that there was no "distribution" up or down. The sceparnus, or "adze," was slightly oblique, and the simus, or "snub," very oblique, both being simple spirals. But Heliodorus, an older and perhaps better authority on this point, says the simple bandage was a simple figure-of-eight used to fix a limb to some support, while the circular, which was called "the εἰκυκλός of Hippocrates," was slightly spiral and could be distributed upwards or downwards, being used to close sinuses. The sceparnus was a complex bandage, and commenced as an open figure-of-eight; which agrees with a still older commentator, Asclepiades, who says the Hippocratic sceparnus was a slightly oblique crossed bandage (χυζόμενος). The simus is more puzzling: De Fasciis says it is not a bandage at all, but refers to the shape of parts to which a sceparnus bandage should be applied.

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1 XVIII(2). 732.  2 Orib. XLVIII. 61.
3 Ibid. 64  4 In Erotian, s.v.  6 XVIII(1). 772.
ferred the term from its use for a snub nose, or the sloping curve at the bottom of a hill, to denote a very sloping bandage, whence Petrequin concludes that it may be our favourite "spiral with reverses." But if this form had been known, it is hardly credible that we should not have had some clear account of it, and it seems more likely that it was sloping figure-of-eight.

The complex bandages are described in detail by Heliodorus as "the Hippocratic eye" (δοφθαλμός), very similar to the existing bandage for one eye, "the Hippocratic rhomb" which covered the top of the head, and the hemirhomb intended for the side of the face or unilateral dislocation of the jaw.

Hippocrates was also fond of a bandage rolled up to the middle from either end and put on obliquely from two heads, and was evidently acquainted with many complex and ornamental forms though he does not approve of them. He had a peculiar method of bandaging fractures with an under and upper layer separated by splints and compresses, the under-bandaging being done according to a rule clearly laid down, but this, says Galen, went out of use, leaving only the technical terms υποδεσσίς and υποδεσμίδες.

Ointments.—The under-bandages and the folded pieces of linen called σπλαγνες (pads or compresses) were usually soaked in some application, the most important being two forms of "cerate," (1) white or liquid, which consisted of wax liquefied in olive oil or oil of roses,² supposed to prevent inflammation, while (2) (which was the same with the addition of

¹ Surgery, XII. ² XVIII(2). 365.
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some pitch\textsuperscript{1} was used for inflamed or open wounds, and was supposed to have anodyne properties and to favour the production of healthy pus; wine and oil were also used.\textsuperscript{2}

Splints.—Of the ordinary splints (νάρθηκες) we know curiously little. The name (like the Latin fērulae) implies that they were stalks of an umbelliferous plant.\textsuperscript{3} They were put on separately; Celsus\textsuperscript{4} tells us they were split (fissae) and Paulus\textsuperscript{5} that they were wrapped in wool or flax. The nature of the large hollow splint (σωλην), the canalis of Celsus,\textsuperscript{6} is not altogether certain, in spite of much description. It is usually taken to be gutter-shaped, but Galen tells us\textsuperscript{7} that it went right round the limb, more so than did the box splint (γλωσσόκομον), from which it also differed in being circular outside; it was therefore tubular and cylindrical. But the limb could be put upon it, so it must have been opened, and, indeed, we hear of an opened (ἀνοικτός) solen in the Galenic writings.\textsuperscript{8} Perhaps this was a gutter splint, and the only form used in later times, for Paulus, who says the solen was made of earthenware as well as wood, uses σωληνοεῖδῆς in a sense which must mean “like a gutter.” So also in Soranus (1. 85) a baby’s pillow is to be hollowed, σωληνοεῖδῶς, so as not to go right round its head; but Rufus uses the word of the spinal canal, and Dioscorides of a funnel pipe, so it will be prudent to keep to the ambiguous “hollow

\textsuperscript{1} XVIII(2). 538.
\textsuperscript{2} In the case of club foot the ointment was stiffened with resin.
\textsuperscript{3} The giant fennel, light and strong, used by the Bacchants.
\textsuperscript{4} VIII. 10. 1. \textsuperscript{5} VI. 99. \textsuperscript{6} VIII. 10. 5.
\textsuperscript{7} XVIII(2). 504.
\textsuperscript{8} XIV. 795.
splint.” The writer’s account of more complicated “machines” can only be made clearer by illustrations.¹

In conclusion we must mention a theory which brings together, and throws light upon, most of these treatises. *Wounds in the Head* has a place by itself, to be considered shortly, the other four have peculiar titles. In *Fractures* the Greek ἄγμος (for καταγμα) is strange, as observed by Galen. *Joints* clearly means *Reduction of dislocated joints*, and is so given in our oldest MS., but the correction seems too obvious to be correct.² Both these treatises have abrupt beginnings, are probably mutilated and certainly in disorder, yet they rank in the first class of “genuine” works of Hippocrates. *In* (or *About*) a *Surgery*, often ambiguously shortened to *Surgery*, but more instructively expanded to *Concerning things done in the Surgery*, is a collection of notes, chiefly on bandaging, and is obviously derived in part from *Fractures*, yet it contains at least one passage requisite to explain a statement in *Fractures*. Lastly the *Mochlicon* (Leverage), usually rendered *Instruments of Reduction*, begins with a chapter on the Nature of Bones, while the rest is almost entirely an abridgment from *Joints*.

The Hippocratic *Corpus* contains a treatise on the *Nature of Bones* which, after a very few remarks on that subject, is occupied by a variety of confused accounts of blood vessels. It is a wreck which has gathered debris from various sources; yet it contains several peculiar words which are quoted in the

¹ See Appendix: Supplementary Note.
² Still, the περὶ ἄρθρων of Apollonius and Galen may be an abbreviation; following which example we shall call it “Joints.”
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Hippocratic Lexicons of Erotian and Galen as being closely connected with Mochlicon. The author of Joints says he intends to write a treatise on the veins and arteries and other anatomical matters.

This condensed summary may suffice to lead up to the following inferences:—

The Hippocratic part of the Nature of Bones originally came after the first chapter of Mochlicon, which is really its first chapter. This treatise, thus enlarged, had as Preface our Surgery, the whole being an abridgment from an earlier work by the great Hippocrates "for use in the Surgery," which was perhaps its original title (see p. 56). Such a work would be well adapted either for teaching or for refreshing a surgeon's memory.

Of the larger and older work our Fractures and Joints are important fragments, but there was probably an Introduction (now lost) containing the passage now extant in Surgery necessary to explain the later statement in Fractures. This earlier work may also have comprised an original treatise by Hippocrates on bones and blood vessels, of which part of our Nature of Bones is an abridgment. Both these surgical works got broken up, and assumed something like their present form before reaching the haven of the Alexandrian Library.

Littré has hints of the above theory, but it is more fully worked out by O. Regenbogen,¹ who carries it a step further. The seven books of Epidemics were, even before Galen's time, divided into three sections: I and III were universally held to be the oldest and most genuine; II, IV, VI,

which, as Galen says,¹ are not composed works (συγγράμματα) but memoranda (ὑπομνήματα), were generally supposed to have been compiled by Thessalus, son of Hippocrates, from his father’s note-books; V and VII, as Galen remarks,² are beyond the range of the Hippocratic spirit (γρώμη), and, we may add, within that of the Macedonian artillery, which indicates a date later than 340 B.C.³ Galen has his doubts about the single authorship of the middle section, and these are shared by modern critics; but there is no doubt that Epidemics II, IV and VI are closely connected with the three works, Surgery, Bones, Mochlicon, which we have ventured to call an abridgment, but which, if we had not got a good deal of the original, might aptly be termed memoranda. Not only do whole passages in either set correspond verbally, or almost verbally, but there are peculiar philological similarities; in particular the verb ᾿δράν, which, before the rise of drama, was typically Doric, occurs in all six treatises, and a few others belonging to what may be called the middle Hippocratic period, but neither in the earlier nor the later ones. It is not found, for instance, in Fractures or Joints, nor in Epidemics V and VII. Perhaps it is not too fanciful to suggest that after the triumph of Sparta (404 B.C.) these strangers from Cos, who had their surgeries along the northern edge of the Greek world from Perinthus to Crannon, may have remembered that they too might claim to

¹ VII. 890. Cf. also VII. 825, 854. ² XVII. 579. ³ Littré tries, not very successfully, to get them all into the fifth century. V. 16 ff. The date of Epidemics V, VII, is fixed by the siege of Daton where a patient (94) was wounded by “an arrow from a catapult.”

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be Dorians and might have expressed the claim by occasional use of a strong Doric word. Anyhow, there seems all the evidence we can expect that Surgery and Mochlicon formed part of an “abridgment” used in the first half of the fourth century by the practitioners who compiled Epidemics II, IV, VI, while Fractures, Joints and Wounds in the Head belong to the previous generation.

Some little evidence as to the order of these treatises is given by grammarians. They point out that the infinitive used as imperative, characteristic of older Greek, is especially prominent in the Hippocratic Corpus. During the fifth century it was being driven out by the imperative and became demoralised in the process. This “depraved” use was shown mainly by the substitution of the accusative for the nominative of the participle to represent the second person imperative. Now, as regards our treatises, “depraved infinitives” occur only in Surgery and Mochlicon, and are absent from Fractures and Joints, except those parts of the latter which are interpolated from Mochlicon. We thus have further evidence that these chapters are interpolated, and that Surgery and Mochlicon are not by the author of Fractures—Joints.

1 The popularity of the Athenian dramatists, who use the word frequently, is perhaps a simpler explanation.
2 Cf. Schulte, op. cit., infra.
3 “In cases of the second person the subject is in the nominative, but when the infinite is equivalent to the third person of the imperative its subject is in the accusative.” Goodwin, Greek Moods and Tenses, p. 784.
Manuscripts, Editions and Commentaries

The Hippocratic manuscripts and editions have already been discussed in these volumes by a more competent authority. The chief MSS. of the surgical works are: (1) B (Laurentianus 74. 7) ninth or tenth century, referred to above, and described in detail by Schöne in the preface to his *Apollonius* (Teubner, 1896); (2) M (Marcianus Venetus 269) eleventh century; (3) V (Vaticanus Graecus 276), twelfth century. M and V, with their progeny, form the basis of all editions up to the last by Kühlewein (Teubner, 1902), in which B is for the first time fully utilised. Unfortunately the whole of Mochlicon and the last five chapters of *Wounds in the Head* have been cut out of this oldest MS.

The chief editors have paid marked attention to these treatises, and Petrequin’s *Chirurgie d’Hippocrate* —text and translation with very copious notes and appendices, the fruit of thirty years' labour by a practising surgeon—probably represents the most thorough treatment of any ancient medical documents. It is to this work that the present edition is mainly indebted.

Francis Adams translated the treatises in his *Genuine Works of Hippocrates*. He could spare less time and had fewer advantages than Petrequin. The translation, based upon Littré’s text, is straightforward and readable, and the notes have special value owing to the author’s practical experience in almost Hippocratic circumstances, though they are

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1 Paris, 1877–1878.
2 Sydenham Society, 1849.
GENERAL INTRODUCTION

sometimes flatly opposed to the views of the equally experienced Petrequin.

Since the appearance of Schöne’s beautiful edition of *Apollonius of Kition* (Illustrated Commentary on the Hippocratic Treatise on Joints), German scholars have paid much attention to the subject. Schöne himself attempted to show that *Fractures—Joints* at any rate was a genuine work of the great Hippocrates, but was opposed by the eminent scholar Hermann Diels.¹ More recently, three interesting *Theses* on the connections,² grammar³ and style⁴ respectively of the surgical treatises have appeared. Their contents are very briefly outlined in the introductions, and will repay study by those interested in the subject.⁵

² Regenbogen, O., *Symbola Hippocratea*, 1914.
³ Schulte, E., *Observationes Hippocrateae Grammaticae*, 1914
⁴ Krömer, J., *Questionum Hippocraticarum capita duo*, 1914
⁵ See also Kühlewein, H., *Die chirurgischen Schriften des Hippocrates*, Nordhausen, 1898.

ABBREVIATIONS IN NOTES

B. M. V. = the three chief MSS. noted above.
Erm. Pq. Kw. = the three more recent editors: Ermerins 1856, Petrequin and Kühlewein as above.
HIPPOCRATES

ON WOUNDS IN THE HEAD
INTRODUCTION

No Hippocratic work has attracted more attention than this short treatise. All the prominent Alexandrian medical commentators discussed it, and it is in Erotian's list of genuine works. Galen, of course, wrote a commentary, though only a fragment survives.\(^1\) All ancient writers on the subject from Celsus to Paulus had it before them. At the Renaissance it attracted the attention both of anatomists and surgeons, and continued to do so almost to our own times. Its genuineness has hardly been questioned except by those who doubt whether Hippocrates wrote anything.

This celebrity is perhaps equally due to its excellence and its peculiarities. The former may be seen in its clear descriptions and magisterial language; the writer teaches with authority. The latter are two: its account of the sutures, and its doctrine as to trephining. With regard to the former, we may say that, as modified by Galen to the effect that the H form is the only normal one, it is fairly correct so far as it goes, and that it is much better than the later account of Aristotle—that men have three sutures radiating from a centre and women one, which goes in a circle.\(^2\)

The ancients (and Vesalius) accepted this view of

\(^1\) In Oribasius, XLVI. 21. \(^2\) Hist. Anim. 1. 7.
INTRODUCTION

the sutures, but all surgeons, from the post-Hippocratic age onwards, have been troubled by his rule as to trephining, which may be condensed as follows:—

If the skull is contused or fissured, you should trephine at once, but an open depressed fracture does not usually "come to trephining," and is less dangerous; in short, an injured skull should have a hole made in it if there is not one already.

The Alexandrians, as we gather from Celsus, rejected this: "the ancients," he says (piously leaving Hippocrates unnamed), advised immediate operation, but it is better to use ointments—and wait for symptoms. The vast majority of surgeons have done so, but many have regretfully wondered, after the patient's death, whether the Hippocratic trephining might not have saved a life. "Hippocrates" (as the supposed author of Epidemics V. 27) is praised by Celsus, and many others, for confessing that he thought a fissure was a suture and so left a patient untrephined. Symptoms appeared later; he trephined on the fifteenth day, but the patient died on the sixteenth; yet this is just what any later surgeon would have done, even had he recognised the fissure. The reader will find in Littre and Petrequin extensive quotations from French surgeons, and from our own Percival Pott, on the probability of lives being saved by preventive trephining used as an operation of choice before it is obviously necessary, but the Hippocratic rule is no more likely to be reintroduced than is the use of vigorous venesection, which would also doubtless sometimes save life.

The use of the common word προφθορα as a semi-
technical term for a complicated surgical instrument brings us to another noticeable point in the treatise: there seems to be an attempt to establish a medical vocabulary. Eminent theologians have recently settled the controversy on St. Luke's alleged medical language by declaring that the Greeks had none, "the whole assumption of medical language in any ancient writer is a mare's nest," but if the writer of Acts had told us that St. Paul at Lystra got a hedra in the region of the bregma which penetrated to the diploe, they would have been fairly confident that he was a physician who made a rather pedantic use of his medical vocabulary. Here are three simple Greek words which are given such peculiar meanings that they have to be defined and not translated.

The last term had some difficulty in keeping, or recovering, the somewhat unnatural sense here given to it, and probably did so only through the prestige of this little work. Hedra could not be saved even by the authority of Hippocrates and his care in defining it. It is that form of skull injury which is left as its mark (or seat) by the weapon, and varies in size and shape accordingly from a prick to a gash, but without depression, "for then it becomes a depressed fracture." It included mainly what are now called "scratch fractures" and, as Galen says, would also comprise an oblique slice—ἀποσκεπταρνισμός. It was too vague to last, and was partly replaced by ἐγκοπή—incision. Its vagueness has made some confusion in the treatise, for though

1 Jackson and Lake, Prolegomena to Acts, II. 355.
2 i.e. the porous bone tissue between the two hard layers of the skull bones.
there is little doubt that Hippocrates intended to describe five forms of skull injury—as is twice asserted by Galen—later scribes by splitting up the *hedra* have tried to make seven, though, strange to say, no MS. mentions a sixth.

Several cases in *Epidemics* V. seem intended as illustrations to this treatise. A patient with concussion of the skull is trephined largely down to the diploe, he gets inflammatory swelling of the face (erysipelas) and is purged; the Hippocratic rules being thus followed, he recovers (V. 16). The patient with fissure (V. 27) is left untrephined till it is too late. A girl dies because the trephining was insufficient. She has spasm on the side opposite the injury (V. 28).

These cases are more remarkable because skull injuries have nothing to do with epidemics, and there is no such notice of bodily fractures or dislocations. *Epidemics* V., as we have seen, probably belongs to the third Hippocratic generation, when the rules of the Master, as to the treatment of wounds in the head, may have begun to be called in question.

With regard to the style of the treatise, every reader will be struck by the frequent repetition of the same words and phrases, often unnecessarily. This occurs in another manner and to a less extent in *Fractures* and *Joints*, where we shall discuss it further in considering the probability of a common authorship.

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1 XVII(2). 672. *Orib.* as above.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

Ι. Τῶν ἀνθρώπων αἱ κεφαλαὶ οὐδὲν ὄμοιως σφίσιν αὐταῖς, οὐδὲ αἱ ῥᾳδὶ τῆς κεφαλῆς πάντων κατὰ ταυτὰ πεφύκασιν. ἂλλ' ὡστὶς μὲν ἔχει ἐκ τοῦ ἐμπρόσθεν τῆς κεφαλῆς προβολῆν—ἡ δὲ προβολὴ ἐστὶν αὐτοῦ τοῦ ὁστέου ἐξεχον στρογ-γύλον παρὰ τὸ ἄλλο—τούτου εἰσίν αἱ ῥᾳδαὶ πεφυκυίαι ἐν τῇ κεφαλῇ ὡς 2 γράμμα τὸ ταῦ, Ἡ, γράφεται, τὴν μὲν γὰρ βραχυτέρην γραμμὴν ἔχει πρὸ τῆς προβολῆς ἐπικαρσίαν πεφυκυίαν· τὴν δὲ ἐτέρην γραμμὴν ἔχει διὰ μέσης τῆς κεφαλῆς κατὰ μῆκος πεφυκυίαν ἐς τὸν τραχύλον αἰεὶ. ὡστὶς δ' ὁπισθεὶν τῆς κεφαλῆς τὴν προβολήν ἔχει, αἱ ῥᾳδαὶ τούτω πεφύκασι τάναντια ἡ τῶ προστέρω· ἡ μὲν γὰρ βραχυτέρη γραμμὴ πρὸ τῆς προβολῆς πεφυκεν ἐπικαρσίαν· ἡ δὲ μακροτέρη διὰ μέσης τῆς κεφαλῆς πέφυκε κατὰ μῆκος ἐς τὸ μέτωπον αἰεί. ὡστὶς δὲ καὶ 3 ἀμφιτέρωθεν τῆς κεφαλῆς προβολῆν ἔχει, ἐκ τοῦ ἐμπρόσθεν καὶ ἐκ τοῦ ὁπισθεὶν, τούτω αἱ ῥᾳδαὶ εἰσίν ὄμοιως πεφυκυίαι ὡς γράμμα τὸ ἡτα, Ἡ, γράφεται· πεφυκασι δὲ τῶν γραμμῶν αἰ μὲν μακρὰ πρὸ τῆς προβολῆς ἐκατέρησι ἐπικάρσια πεφυκυίαν· ἡ δὲ βραχεῖν διὰ μέσης τῆς κεφαλῆς κατὰ μῆκος πρὸς ἐκατέρην τελευτῶσα τὴν μακρὴν γραμμὴν. 4 ὡστὶς δὲ μηδὲ
ON WOUNDS IN THE HEAD

I. Men’s heads are not alike nor are the sutures of the head disposed the same way in all. When a man has a prominence in the front of his head—the prominence is a rounded outstanding projection of the bone itself—his sutures are disposed in the head as the letter tau, T, is written; for he has the shorter line disposed transversely at the base of the prominence; while he has the other line longitudinally disposed through the middle of the head right to the neck. But when a man has the prominence at the back of his head, the sutures in his case have a disposition the reverse of the former, for while the short line is disposed transversely at the prominence, the longer is disposed through the middle of the head longitudinally right to the forehead. He who has a prominence at each end of his head, both front and back, has the sutures disposed in the way the letter eta, H, is written, for the long lines have a transverse disposition at either prominence and the short goes through the middle of the head longitudinally, ending each way at the long lines. He who has no

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1 So B. Kw. for τὸ τοῦ Pq. The older MSS. BV omit the letters ΤΗΧ.  
2 ἀσπερ.  
3 Omit καὶ.  
4 τῆς μακρῆς γραμμῆς.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ


30 Δίπλοου δ' ἐστὶ τὸ ὀστέον κατὰ μέσην τὴν κεφαλήν· σκληρότατον δὲ καὶ πυκνότατον αὐτοῦ πέφυκεν τὸ τε ἀνωτάτου γ' ἡ ὀμορχρισὶν τοῦ ὀστέου ἢ ὑπὸ τῇ σαρκὶ καὶ τὸ κατωτάτον τὸ πρὸς τῇ μῆνιν γ' ἡ ὀμορχρισὶν τοῦ ὀστέου ἢ κάτω· ἀποχωρεόν δὲ ἀπὸ τοῦ ἀνωτάτου ὀστέου καὶ τοῦ κατωτάτου, ἀπὸ τῶν σκληρότατων καὶ πυκνοτάτων ἐπὶ τὸ μαλθακότερον καὶ ἦσον πυκνὸν καὶ ἐπικοιλότερον ἐς τὴν διπλόν αἰεὶ. ἢ δὲ διπλώ κοιλότατον καὶ μαλθακότατον καὶ μάλιστα σημαγγώδες ἐστὶν· ἐστὶ δὲ καὶ πᾶν τὸ ὀστέον τῆς κεφαλῆς, πλὴν κάρτα ὀλίγου τοῦ τε ἀνωτάτου καὶ τοῦ κατωτάτου σπόγγῳ ὀμοιοῦ καὶ ἔχει τὸ ὀστέον ἐν ἑωτῷ ὀμοια σαρκία πολλά καὶ ύγρά, καὶ εἰ τις αὐτὰ διατρίβει τοῖς δακτύλιοις αἴμα ἀν διαγίνοιτο ἐξ αὐτῶν· ἔνεστι δ' ἐν τῶ ὀστέῳ καὶ φλέβια λεπτότερα καὶ κοιλότερα αἴματος πλέα.

Π. Σκληρότητος μὲν οὖν καὶ μαλθακότητος καὶ κοιλότητος ὃδε ἔχει· παχύτητι δὲ καὶ λεπτότητι, οὔτως· 3 συμπάσχει τῆς κεφαλῆς τὸ ὀστέον λεπτότατον ἐστὶ καὶ ἀσθενεστάτον τὸ κατὰ βρέγμα, καὶ σάρκα ὀλυγίστην καὶ λεπτοτάτην ἔχει ἐφ' ἑωτῷ ταύτῃ τῆς κεφαλῆς τὸ ὀστέον, καὶ ὁ ἐγκέφαλος κατὰ τοῦτο τῆς κεφαλῆς πλέος ὑπεστὶν. καὶ δὴ ὅτι οὔτω ταύτα ἔχει, τῶν τε

1 Kw. omits. 2 So BV. Kw. Pq. has dative throughout. 3 Kw. omits.
ON WOUNDS IN THE HEAD, i.–ii.

prominence at either end has the sutures of his head as the letter chi, X, is written: the lines are disposed one transversely coming down to the temple, the other longitudinally through the middle of the head.

The skull is double along the middle of the head, and the hardest and most dense part of it is disposed both uppermost where the smooth surface of the skull comes under the scalp, and lowest where the smooth surface below is towards the membrane.1 Passing from the uppermost and lowest layers, the hardest and most dense parts, the bone is softer, less dense and more cavernous right into the diploe. The diploe is very cavernous and soft and particularly porous. In fact, the whole bone of the head except a very little of the uppermost and lowest is like sponge, and the bone contains numerous moist fleshy particles like one another and one can get blood out of them by rubbing them with the fingers. There are also rather thin hollow vessels full of blood contained within the bone.

II. Such then is the state of hardness, softness and porosity, but in thickness and thinness of the skull generally, the bone is thinnest and weakest at the bregma,1 and has the least and thinnest covering of flesh in this part of the head, and there is most underlying brain at this part of the head. It follows from such a state of things that when a man is wounded

1 Dura mater.
2 The bregma comprises the front part of the top of the head, where the skull remains longest open.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

τρωσίων καὶ τῶν βελέων ἵσων τε ἐόντων κατὰ μέγεθος καὶ ἐλασσόνων, καὶ ὀμοίως τε τρωθεὶς καὶ ἴσσον, τὸ ὀστέον ταύτῃ τῆς κεφαλῆς φλάται τε μᾶλλον καὶ ῥήγυνται καὶ ἴσω ἐσφλάται, καὶ θανασιμωτέρα ἐστι καὶ χαλεπώτερα ἤτρευεσθαί τε καὶ ἐκφυγγάνεν τῶν θανατοῦ ταύτῃ ἡ ποὺ ἄλλοθι τῆς κεφαλῆς· ἐξίσων τε ἐόντων τῶν τρωμάτων καὶ ὀμοίως τε τρωθεὶς καὶ ἴσσον, ἀποθνῄσκει ὁ ἄνθρωπος, ὁπόταν καὶ ἄλλως μέλλῃ ἀποθανεῖσθαι ἐκ τοῦ τρώματος, ἐν ἐλάσσονι χρόνῳ ὁ ταύτῃ ἔχων τὸ τρώμα τῆς κεφαλῆς ἡ ποὺ ἄλλοθι. ὁ γὰρ ἐγκέφαλος τάχιστα τε καὶ μάλιστα κατὰ τὸ βρέχμα αἰσθάνεται τῶν κακῶν τῶν γινομένων ἐν τε τῇ σαρκί καὶ τῷ ὀστέῳ· ὑπὸ λεπτοτάτῳ γάρ ὀστέῳ ἐστὶ ταύτῃ ὁ ἐγκέφαλος καὶ ὁλιγύστῃ σαρκί, καὶ ὁ πλεῖστος ἐγκέφαλος ὑπὸ τῷ βρέχματι κεῖται. τῶν δὲ ἄλλων τὸ κατὰ τοὺς κροτάφους ἀσθενεστάτον ἐστὶν· συμβολὴ τε γὰρ τῆς κατω γυάθου πρὸς τὸ κρανίον, καὶ κίνησις ἐνεστὶν ἐν τῷ κροτάφῳ ἄνω καὶ κάτω ὀσπερ ἄρθρου· καὶ ἡ ἀκοὴ πληγόν γίνεται αὐτοῦ, καὶ φλέψ διὰ τοῦ κροτάφου τέταται κούλη τε καὶ ἱσχυρῆ. ἱσχυρότερον δ’ ἐστὶ τῆς κεφαλῆς τὸ ὀστέον ἀπαν τὸ ὀπίσθεν τῆς κορυφῆς καὶ τῶν οὐάτων ἢ ἀπαν τὸ πρόσθεν, καὶ σάρκα πλέονα καὶ βαθυτέρην ἐφ’ ἐωντῷ ἔχει τούτῳ τὸ ὀστέον. καὶ δὴ τούτων οὕτως ἐχόντων, ὑπὸ τε τῶν τρωσίων καὶ τῶν βελέων ῥόσων ἐόντων, καὶ ὀμοίων καὶ μεξόνων καὶ ὀμοίως τιτρωσκόμενοι καὶ μᾶλλον, ταύτῃ τῆς κεφαλῆς τὸ ὀστέον ἴσσον ῥήγυνται καὶ φλάται ἔσω, κἂν μέλλῃ ὄνθρωπος ἀποθνῄσκειν καὶ ἄλλως ἐκ τοῦ τρώματος, ἐν τῷ ὀπίσθεν τῆς κεφαλῆς.
ON WOUNDS IN THE HEAD, II.

equally or less, the wounding and weapons being equal or smaller, the bone in this part of the head is more contused or fractured, and fractured and contused with depression, the lesions are more mortal, medical treatment and escape from death more difficult here than in any part of the head. When wounded equally or less, the wounds being alike, the patient, if he is going to die in any case from the wound, dies sooner when he has it in this part of the head than anywhere else; for it is at the bregma that the brain is most quickly and especially sensitive to evils that arise in scalp or skull, since the brain is covered here by thinnest bone and least flesh, and the greatest part of the brain lies under the bregma. Of the other parts, that at the temples is weakest, for the junction of the lower jaw with the cranium is at the temple, and there is an up-and-down movement there as in a joint. Near it is the organ of hearing, and a large and thick blood vessel extends through the temporal region. The whole skull behind the vertex and the ears is stronger than any part in front, and this bone has a fuller and thicker covering of flesh. It follows from such a state of things that when a man is stricken equally or more severely by woundings or weapons which are equal and similar or larger in this part of the head, the bone is less fractured, or contused with depression; and if the man is going to die in any case from the wound, he takes

1 ἀπάντων Pq.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

ἐχων τὸ τρῶμα ἐν πλείονι χρόνω ἀποθανεῖται· ἐν πλείονι γὰρ χρόνῳ τὸ ὅστεόν ἐμπυνύσκεται τε καὶ διαπυνύσκεται κατώ ἐπὶ τὸν ἐγκέφαλον διὰ τὴν παχύτητα τοῦ ὅστεου, καὶ ἐλάσσων ταύτη τῆς κεφαλῆς ὁ εγκέφαλος ὑπεστὶ, καὶ πλέονες ἐκ φυγγάνουσι τὸν θάνατον τῶν ὅπισθεν τιτρωσκομένων τῆς κεφαλῆς ὡς ἐπὶ τὸ πολὺ ἢ τῶν ἐμπροσθεν. καὶ ἐν χειμώνι πλείονα χρόνον ζῇ ὄνθρωπος ἢ ἐν θέρει, ὡστὶς καὶ ἄλλως μέλλειν ἀποθανεῖσθαι ἐκ τοῦ τρώματος ὅπου ἄν τῆς κεφαλῆς ἐχων τὸ τρῶμα.

III. Ἀι δὲ ἐδραί τῶν βελέων τῶν ὄξεων κακουφοτέρων, αὐτὰὶ ἐπὶ σφῶν αὐτέων γινόμενα· ἐν τῷ ὅστεῳ ἀνευ ῥωγής τε καὶ φλάσιος καὶ ἕσω ἐσφλάσιος—αὐταὶ δὲ γίνονται ὁμοίως ἐν τε τῷ ἐμπροσθεν τῆς κεφαλῆς καὶ ἐν τῷ ὅπισθεν—ἐκ τούτων ὁ θάνατος οὐ γίνεται κατά γε δίκην, οὐδ' ἢ γένηται. βαφῇ δὲ ἐν ἐλκεὶ φανεῖσα, ὅστεον ψιλοθέντος, πανταχοῦ τῆς κεφαλῆς τοῦ ἐλκεος γενομένου, ἀσθενεστατον γίνεται τῇ τρώσει καὶ τῷ βέλει αὐτέχειν, εἰ τῦχοι τῷ βέλος ἐσ αὐτήν την βαφῆν στηριχθῇν—πάντων δὲ μάλιστα, ἢν τῷ βέλος ἐν τῷ βρέγματι γενόμενον κατὰ τὸ ἀσθενεστατον τῆς κεφαλῆς—καὶ αἱ βαφὲς εἰ τῦχοι εὖσαι περὶ τὸ ἐλκος καὶ τῷ βέλος αὐτέων τῦχοι τῶν βαφῶν.

IV. Τιτρωσκεται δὲ ὅστεόν τὸ ἐν τῇ κεφαλῇ τοσοῦσδε τρόπους· τῶν δὲ τρόπων ἐκάστου πλείονες ἱδέαι γίνονται τοῦ κατήγματος ἐν τῇ τρώσει. ὅστεον ρήγνυται τιτρωσκόμενον καὶ τῇ ῥωγῇ ἐν τῷ περιέχοντι ὁστῶ τῆν ῥωγήν, ἀνάγκη φλάσιν προσγενέσθαι, ἢνπερ ῥαγῇ τῶν
longer time dying when he has it in the back of the head. For suppuration of the bone takes longer to come on and penetrate down to the brain because of the thickness of the skull; also there is less brain in this part of the head, and, as a rule, more of those wounded in the hinder part of the head escape death than of those wounded in front. In winter, too, a man lives longer than in summer, if he is going to die from the wound in any case, in whatever part of the head he may have the wound.

III. Hedrae of sharp and light weapons, occurring by themselves in the skull without fissure, contusion or contused depression (these happen alike in front and at the back of the head) do not, at any rate by rights, cause death even if it occurs. If a suture appears in the wound when the bone is denuded, wherever the wound may be, the bone makes very weak resistance to lesion or weapon [if the weapon happens to get stuck in the suture itself]—most of all if the weapon gets in the bregma, the weakest part of the head—and if, when the sutures happen to be in the region of the wound, the weapon also happens to strike the sutures themselves.

IV. The bone of the head is injured in the following number of modes, and for each mode several forms of fracture occur in the lesion. The bone is fractured when wounded, and the fracture is necessarily complicated by contusion of the bone about it, if it was really fractured. For the very

1 See Introduction. 2 This seems a superfluous gloss.

1 ὁστὶς ἄν ἄλλως μέλλῃ.
2 ἔχη Kw.’s conjecture.
3 ἐλκος Pq. Erm. βέλος Kw. codd.
4 τῆς ρωγμῆς Pq.; V omits.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

γάρ βελέων ὃ τι περ ῥήγυνυσι τὸ ὀστέον, τὸ αὐτὸ τούτο καὶ φλά τὸ ὀστέον ἡ μᾶλλον ἡ ἱσσον, αὐτὸ τε ἐν ὤπερ καὶ ῥήγυνυσι τὴν ῥωγμήν καὶ τὰ
10 περιέχοντα ὀστέα τὴν ῥωγμήν· εἰς οὕτως τρόπος. ἰδεῖαι δὲ ῥωγμέων παντοίαι γίνονται· καὶ γὰρ λεπτότεραι τε καὶ λεπταὶ πάντες, ὡστε οὐ κατα-
φανεῖς γίνονται, ἐστιν αἱ τῶν ῥωγμέων,1 οὕτε αὐτίκα μετὰ τὴν τρώσιν, οὕτ' ἐν τῇσιν ἁμέρησιν ἐν ἔνναι ἀν καὶ πόνων ὁφέλος γένοιτο τοῦ θανάτου τῶν ἀνθρώπων.2 αἱ δ' αὐτοί παχύτεραι τε καὶ εὐρύτεραι ῥήγυνυνται τῶν ῥωγμέων, ἐναι δὲ καὶ πάνω εὐρέαι. ἐστι δὲ αὐτέων καὶ αἱ μὲν ἐπὶ μακρότερον ῥήγυνυνται, αἱ δὲ ἐπὶ βραχύτερον· καὶ
20 αἱ μὲν ἰδύτεραι, αἱ δὲ ἰδεῖαι πάνω, αἱ δὲ καμπυ-
λώτεραι τε καὶ καμπύλαι· καὶ βαθύτεραι τε ἐς τὸ κάτω καὶ διὰ παντὸς τοῦ ὀστέον [καὶ ἱσσον
23 βαθεῖαι καὶ οὐ διὰ παντὸς τοῦ ὀστέου].3

V. Φιλασθείη δ' ἂν τὸ ὀστέον μένου ἐν τῇ ἐων-
τοῦ φύσει, καὶ ῥωγμὴ τῇ φλάσει οὐκ ἂν προσ-
γένοιτο ἐν τῷ ὀστέῳ οὐδεμία· δεύτερος οὕτως τρόπος. ἰδεῖαι δὲ τῆς φλάσιος πλείους γίνονται· καὶ γὰρ μᾶλλον τε καὶ ἱσσον φλάται καὶ ἐς βαθύτερον τε καὶ διὰ παντὸς τοῦ ὀστέου, καὶ ἱσσον ἐς βαθὺ καὶ οὐ 
διὰ παντὸς τοῦ ὀστέου, καὶ ἐπὶ πλέουν τε καὶ ἐλασσὸν μήκεος τε καὶ πλατύτητος. ἀλλὰ οὐ4 τούτων τῶν ἰδεῶν
10 οὐδεμίαν ἐστὶν ἰδόντα τοῖσιν ὀφθαλμοῖς γνωνιαι ὅποιη τις ἐστὶν τὴν ἱδέν καὶ ὀπόσῃ τις τὸ 
μέγεθος· οὐδὲ γὰρ εἰ πέφλασται ἑώτων τε 
πεφλασμένων καὶ τοῦ κακοῦ γεγεννημένου γίνεται 
tοῖσιν ὀφθαλμοῖσιν καταφανὲς ἰδεῖν αὐτίκα μετὰ

1 ἐστι δ' αἰτίων ῥωγμέων Ρχ., V.
same part of the weapon which breaks the bone also contuses it more or less; and this happens just at the place where it makes the fracture, and in the bones containing the fracture. This is one mode.\textsuperscript{1}

As to forms of fracture, all kinds occur, for some are rather small and very small, so as to be not noticeable either immediately after the lesion or in the days during which the patient might be helped in his sufferings and saved from death. Again, some of the fractures are larger and wider, and some very broad. Some are longer, some shorter, rather straight or quite straight, rather curved or bent, going rather deep and right through the bone [and not so deep and not through the bone].\textsuperscript{2}

V. The bone may be contused and keep in its place, and the contusion may not be complicated by any fracture of the bone. This is a second mode.\textsuperscript{3}

There are many forms of contusion; for the bone is more contused or less, to a greater depth, going right through, or less deeply, not going through the bone, and to a greater or smaller extent in length and breadth. Now none of these forms can be distinguished by the eye as to its precise shape and size, for it is not even clear to the eye immediately after the injury whether contusion has taken place, even if the parts are contused and the damage done;

\textsuperscript{1} "Fissure fracture." \textsuperscript{2} Littré's insertion. \textsuperscript{3} "Contusion."

\textsuperscript{2} Obscure passage: "help for sufferings may be also help against death." Littré suggests καὶ τοῦ θανάτου.

\textsuperscript{3} Added by Littré.

\textsuperscript{4} οὗ Κω.; Pq. omits.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

τὴν τρώσιν, ὡσπερ οὔδὲ τῶν ῥωγμέων ἔνιαὶ ἐκας ἐδούσαί τε καὶ ἐρρωγότος τοῦ ὀστέου.

VI. Ἐσφλάται τὸ ὀστέον ἐκ τῆς φύσιος τῆς ἐωυτοῦ ἐσω σὺν ῥωγμῆσιν. ἀλλὰς γὰρ οὐκ ἂν ἐσφλασθείη τὸ γάρ ἐσφλώμενον, ἀπορρηγυμένον τε καὶ καταγυμένου, ἐσφλάται ἐσω ἀπὸ τοῦ ἀλλου ὀστεοῦ μένοντος ἐν φύσει τῇ ἐωυτοῦ· καὶ δὴ οὔτω ῥωγμῇ ἂν προσείη τῇ ἐσφλάσει· τρίτος οὔτος τρόπος. ἐσφλάται δὲ τὸ ὀστέον πολλὰς ἰδέας· καὶ γὰρ ἐπὶ πλέον τοῦ ὀστέου καὶ ἐπ' ἐλασσον, καὶ μάλλον τε καὶ ἐς βαθύτερον

VII. Καὶ ἐδρὴς γενομένης ἐν τῷ ὀστεοῦ βέλεος προσγένοιτο ἀν ῥωγμῇ τῇ ἐδρῇ, τῇ δὲ ῥωγμῇ καὶ φλάσιν προσγενέσθαι ἀναγκαίον ἐστὶ ή μάλλον ἡ ἡσσον, ἡνπερ καὶ ῥωγμῇ προσγένηται ἔνθατερ καὶ ἐδρῇ ἐγένετο καὶ ἡ ῥωγμῇ, ἐν τῷ ὀστεῷ περιέχοντι τὴν τε ἐδρην καὶ τὴν ῥωγμῆν· τέταρτος οὔτος τρόπος. καὶ ἐδρῇ μὲν ἂν γένοιτο φλάσιν ἐχοῦσα τοῦ ὀστεοῦ περὶ αὐτῆν, ῥωγμῇ δὲ οὐκ ἂν προσγένοιτο τῇ ἐδρῇ καὶ τῇ φλάσει ὑπὸ τοῦ βέλεος· [πέμπτος οὔτος τρόπος] [καὶ ἐδρῇ δὲ τοῦ βελέος γίνεται ἐν τῷ ὀστεῷ· ἐδρῇ δὲ καλείται, οταν μένον το ὀστεοῦ ἐν τῇ ἐωυτοῦ φύσει το βέλος στήριξαν ἐς τὸ ὀστεόν δῆλον ποιήσῃ ὅπου ἐστήριξεν ἐν δὲ τῷ τρόπῳ ἔκαστῳ πλείονες ἰδέαι γίνονται καὶ περὶ μὲν φλάσιος τε καὶ ῥωγμῆς, ἡν ἀμφω ταῦτα προσγενήται τῇ ἐδρῇ, καὶ ἂν φλάσις μούνη γένηται, ἢδη πέφρασται ὑπὶ πολλαί

1 ἐλάσσον Kw.'s suggestion in Hermes XX., but he does not print it.
2 Kw. puts this passage first, as is done in the translation.
ON WOUNDS IN THE HEAD, v.—vii.

just as some fractures are not visible, being far from the wound,¹ though the bone be broken.

VI. The bone is contused and depressed inwards from its natural position with fractures, for otherwise it would not be depressed. For the depressed bone, broken off and fractured, is crushed inwards away from the rest of the bone, which keeps its place; and of course there will thus be a fracture as well as a contused depression. This is a third mode. Contused depressed fracture has many forms, for it extends over more or less of the skull, is more depressed and deeper, or less so and more superficial.

VII. Again, a weapon *hedra* occurs in the skull. It is called "hedra" when, the bone keeping its natural position, the weapon sticks into it and makes a mark where it stuck.² When a weapon *hedra* occurs in the skull, there may be a fracture as well as the *hedra*; and the fracture must necessarily be accompanied by more or less contusion (if a fracture also occurs) where the *hedra* and fracture happened, in the bone containing the *hedra* and fracture. This is a fourth mode. And a *hedra* may occur with contusion of the bone about it, without being accompanied by a fracture in addition to contusion by the weapon. [This is a fifth mode.]³ Of each mode there are many forms; and as regards contusion and fracture (whether both of them accompany the *hedra*, or contusion only), it has already been declared that there are many forms,

¹ Or, "rather small," Kw.
² *Vestigium teli,* "scratch fracture." This passage is obviously out of place in the Greek text.
³ Pq. omits.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

...ιδέαι γίνονται καὶ τῆς φλάσισις καὶ τῆς ρωγμῆς. ἦ δὲ ἐδρη αὐτῇ ἐφ’ ἑωτυτῆς γίνεται μακροτέρη καὶ βραχυτέρη ἐνύσα, καὶ καμπυλωτέρη, καὶ ἰθυτέρη, καὶ κυκλοτερής. καὶ πολλαὶ ἄλλαι ἰδέαι τοῦ τοιούτου τρόπου, ὡστέον ἄν τι καὶ τὸ σχῆμα τοῦ βέλεως ἢ ἄρι ἀδαντι καὶ βαθύτερα τὸ κάτω καὶ μάλλον καὶ ἕσσον, καὶ στενότερα τε καὶ ἕσσον στενά καὶ εὐρύτερα, καὶ πάνω εὐρέαι, ἡ διακόφαται διακόπη δὲ ὀποσητισοῦν γινομένη μήκεως τε καὶ εὐρύτητος ἐν τῷ ὀστεω, ἐδρη ἐστίν, ἢ τὰ ἄλλα ὅστεα τα περιέχοντα τὴν διακοπὴν μένῃ ἐν τῇ φύσει τῇ ἑωτυτῶν, καὶ ἡ συνεσφλάται τῇ διακοπῇ ἐσω ἐκ τῆς φύσιος τῆς ἑωτυτῶν οὔτω δὲ ἐσφλασίς ἀν εἰη καὶ οὐκ ἐτι ἐδρη.

VIII. Ὁστεόν τιτρώσκεται ἄλλῃ τῆς κεφαλῆς ἡ δὲ τὸ ἔλκος ἔχει ὀνθρωπος καὶ τὸ ὀστεόν ἐψιλώθη τῆς σαρκός· πέμπτος οὕτως τρόπος. καὶ ταύτην τὴν συμφορήν, ὡστέον γένηται, οὐκ ἂν ἔχοις ὕφελήσαι οὐδέν. οὐδὲ γὰρ, εἴ πέπονθε τὸ κακὸν τοῦτο, οὐκ ἐστὶν ὅπως χρή αὐτῶν ἐξελέγχαντα εἰδέναι, εἰ πέπονθε τὸ κακὸν τοῦτο ὀνθρωπος, οὐδὲ ὅτι τῆς κεφαλῆς. IX. Τούτων τῶν τρόπων τῆς κατήξιος ἐς πρίσιν ἀφίκει ἡ τε φλάσις ἢ ἀφανής ἰδεῖν καὶ ἡν πως τοῦτο φανερὴ γενομένη καὶ ἡ ρωγμή ἢν ἀφανὴς ἰδεῖν καὶ ἡν φανερή ἢ. καὶ ἡν, ἐδρης γενομένης τοῦ βέλεως εἰν τῷ ὀστεῷ, προσγένηται ρωγμῆ καὶ φλάσις τῇ ἐδρη, καὶ ἡν φλάσις μοῦνη προσγένηται ἀνευ ρωγμῆς τῇ ἐδρη, καὶ αὐτή ἐς πρίσιν ἀφίκει. τὸ δὲ ἐςω ἐσφλόμμενον ὀστεόν ἐκ τῆς φύσιος τῆς ἑωτυτῶν ὀλίγα τῶν πολλῶν πρίσιος προσδεῖται καὶ τὰ μάλιστα ἐσφλασθέντα καὶ 

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both of the contusion and of the fracture. The *hedra* taken by itself is long or short, rather bent, or straighter, or rounded; and there are many other forms of this mode, according to the shape of the weapon. These same *hedrae* vary in depth and narrowness, and may be rather broad or very broad where there is a cleft; for a cleft in the bone of any size whatsoever as to length and breadth is a *hedra* if the rest of the bone round the cleft keeps its natural place and is not crushed in by the cleft; for this would be a contused depressed fracture, and no longer a *hedra*.

VIII. The skull is wounded in a part of the head other than that in which the patient has the lesion and the bone is denuded of flesh. This is a fifth mode.¹ When this accident occurs, you can do nothing to help; for if the man has suffered this injury, there is no possible way of examining him to make sure that he has suffered it, or whereabouts in the head it is.

IX. Of these modes of "fracture,"² contusion, whether invisible or somehow becoming manifest, is a case for trephining, also fissure-fracture, whether invisible or manifest; and if, when there is a weapon *hedra* in the bone, the *hedra* is accompanied by fracture and contusion, or if contusion alone accompanies the *hedra* without fracture, this also is a case for trephining. But as for contused depressed fractures, only a small proportion of them require trephining; and the more the bones are contused,

¹ Seventh Kw., our "contrecoup."
² Evidently taken as = injury.

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¹ στόμα. ² ἔβδομος. ³ ὄνος Εριν.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

μάλιστα καταρραγέντα, ταύτα πρίσισιον ἥκιστα
κέχρηται· οὔδε ἐδρη αὐτὴ ἐφ' ἐωτῇ γενομένη
ἀτερ ῥωγῆς καὶ φλάσιος, οὔδε αὕτη πρίσισιον
dεῖται. 1 οὐδ' ἡ διακοπὴ ἤν 2 μεγάλη καὶ εὐρεῖα ἦ,
οὔδ' αὕτη· διακοπὴ γὰρ καὶ ἐδρη τωῦτον ἐστὶν.

X. Πρῶτον δὲ χρῆ τὸν τραυματήν σκοπεῖσθαι,
ὅπη ἔχει τὸ τρώμα τῆς κεφαλῆς, εἰτ' ἐν τοῖσιν ἵσχυ-
ροτέροις εἰτ' ἐν τοῖσιν ἰσθενεστέροις, καὶ τὰς
τρίχας καταμανθάνειν τὰς περί τὸ ἐλκος, εἰ διακε-
κόφαται ὑπὸ τοῦ βέλεος, καὶ εἰ ἔσω ἥϊσαν3 ἐς τὸ
τρώμα, καὶ ἢν τοῦτο ἦ, φάναι κινδυνεύειν τὸ
ὀστέον ψιλὸν εἶναι τῆς σαρκὸς καὶ ἔχειν τι σῶνος
tὸ ὦστεον ὑπὸ τοῦ βέλεος.4 ταῦτα μὲν οὖν χρῆ
ἀπόστροφεν σκεψάμενον λέξαι, μὴ ἀπτόμενον τοῦ

10 ἀνθρώπου· ἀπτόμενον δ' ἰδὴ πειρᾶσθαι εἰδέναι
σάφα εἰ ἔστι ψιλὸν τὸ ὀστέον τῆς σαρκὸς ἢ οὖν·
καὶ ἢν μὲν καταφανεῖς ἢ τοῖσι ὀφθαλμοῖς τὸ
ὀστέον, ψιλὸν· εἰ δὲ μή, τῇ μήλῃ σκέπτεσθαι.
καὶ ἢν μὲν εὑρῆς ψιλὸν ἐδο τὸ ὦστεον τῆς σαρκὸς
καὶ μὴ υγίες ἀπὸ τοῦ τρώματος, χρῆ τοῦ ἐν τῷ
ὀστέῳ ἐόντος τῆν διάγνωσιν πρῶτα ποιεῖσθαι,
ὅρωντα ὁπόσον τέ ἐστι τὸ κακὸν καὶ τίνος δεῖται
ἐργον. χρῆ δὲ καὶ ἐρωτᾶν τὸν τετρωμένον ὅπως
ἐπαθεῖ καὶ τίνα τρόπον. ἢν δὲ μὴ καταφανεῖς ἦ

20 τὸ ὦστεον, εἰ ἔχει τι κακὸν 5 ἢ μὴ ἔχει, πολλῷ ἐτὶ
χρῆ μᾶλλον τὴν ἐρώτησιν ποιεῖσθαι, ψιλοῦ τε
ἐόντος τοῦ ὦστεον, τὸ τρώμα ὅπως ἐγένετο καὶ
ὀντινα τρόπον· τὰς γὰρ φλάσιας καὶ τὰς ῥωγὰς
tὰς οὐ φαίνομένας ἐν τῷ ὦστεῳ, ἐνεοῦσας δὲ, ἐκ
τῆς ὑποκρίσιος6 τοῦ τετρωμένου πρώτων διαγνώ-

1 δεῖται—εὐρεῖα Κω. Β. 2 οὔδ' ἦν διακοπὴ. 3 εἶησαν.
ON WOUNDS IN THE HEAD, ix.–x.

depressed and comminuted, the less they require trephining. Nor does a *hedra*, occurring by itself without fracture or contusion, require trephining, and even if the cleft is large and wide, not even then; for cleft and *hedra* are the same.

X. The first thing to look for in the wounded man is whereabouts in the head the wound is, whether in the stronger or weaker part, and to examine the hair about the lesion, whether it has been cut through by the weapon and gone into the wound. If this is so, declare that it is likely that the bone is denuded of flesh and injured in some way by the weapon. One should say this at first inspection, without touching the patient. It is while handling the patient that you should try to make sure whether the bone is denuded of flesh or not. If the bone is visible to the eye, it is bare; if not, examine with the probe. Should you find the bone bare of flesh and injured by the wound, you should first distinguish the nature of the osseous lesion, its extent, and the operation required. And you should also ask the wounded man how he suffered the injury, and of what kind it was. If the bone is not visible so as to show whether it is or is not affected, it is far more necessary than when the bone is bare to make the interrogation as to the origin and nature of the wound. For, in the case of contusions and fractures which do not appear in the bone, though they are there, you should first try to

1 Reading νόσημα.

4 I give Kw.'s order of these sentences.
6 νόσημα B. Kw. 8 ἀποκρύπτοιος.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

σκειν πειράσθαι, εἰ τι πέπονθε τούτων τὸ ὀστέον ἢ οὔ πέπονθεν. ἔπειτα δὲ καὶ λόγῳ καὶ ἐργῷ ἐξελέγχειν, πλὴν μηλώσιος. μηλώσις γὰρ οὐκ ἐξελέγχει, εἰ πέπονθε τι τούτων τῶν κακῶν τὸ ὀστέον, καὶ εἰ τὶ ἔχει ἐν ἑωτῷ, ἢ οὔ πέπονθεν· ἀλλ' ἐδρῆν τε τοῦ βέλεος ἐξελέγχει μηλώσις, καὶ ἤν ἐμφλασθῇ τὸ ὀστέον ἐκ τῆς φύσιος τῆς ἑωτοῦ, καὶ ἤν ἵσχυρὸς ῥαγὴ τὸ ὀστέον, ἀπερ καὶ τοῦτο ὀφθαλμοῦσι καταφανέα ἐστὶν ὀρθῶνα γινόσκειν. ¹

XI. Ρήγυνται δὲ τὸ ὀστέον τὰς τὰς ἀφανέας ῥωγμὰς καὶ τὰς φανερὰς, καὶ φλάτα τὰς ἀφανεὰς φλάσιας, καὶ ἐσφλάτα ταίς ἐσῳ ἐκ τῆς φύσιος τῆς ἑωτοῦ, μᾶλιστα ὀπόταν ἐτέρο πο' ἐτέρον τιτρωσκόμενος ἐπίτηδες τρώσατε ² βουλόμενος ἢ ὀπόταν ἀέκων—καὶ ὀπόταν ἐξ ψυχολοτέρου γίνεται ἡ βολή ἢ ἡ πληγὴ, ὀποτέρη ἀν ἢ, μᾶλλον ἢ ὀπόταν ἐξ ἱσοπέδου τοῦ χωρίου, καὶ ἤν περικρατή τῇ χειρὶ τὸ βέλος, ἴν τε βάλλῃ ἴν τε τύπτῃ, καὶ ἵσχυρότερος ἐδών ἀσθενέστερον τιτρῶσκῃ. ὀπόσου δὲ πίπτοντες τιτρῶσκονται πρὸς τε τὸ ὀστέον καὶ αὐτὸ τὸ ὀστέον, ὃ ἀπὸ ψυχολοτάτου πίπτων καὶ ἐπὶ σκληρότατον καὶ ἀμβλύτατον, τοῦτω κύνδυνος τὸ ὀστέον ῥαγήματε καὶ καὶ φλασθῆμαι καὶ ἐσῳ ἐσφλασθῆμαι ἐκ τῆς φύσιος τῆς ἑωτοῦ. τῷ δὲ ἐξ ἱσοπέδου μᾶλλον χωρίου πίπτωτε καὶ ἐπὶ μαλθακώτερον, ἤσον ταῦτα πίσχει τὸ ὀστέον ἢ οὔκ ἀν παθού. ὀπόσα δὲ ἐσπίπτοντα ἐς τὴν κεφαλὴν βέλεα τιτρῶσκει πρὸς τὸ ὀστέον καὶ αὐτὸ τὸ ὀστέον, τὸ ἁπὸ ψυχολοτάτου ἐμπεσὸν καὶ ἥκιστα ἐξ ἱσοπέδου, καὶ σκληρότατον τε ἀμα καὶ ἀμβλύτατον καὶ βαρύτατον, καὶ ἥκιστα κοῦφον καὶ

¹ Lobeck considers the last two words superfluous, but they are in all MSS.

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ON WOUNDS IN THE HEAD, x.–xi.

distinguish by the patient's report whether the skull has or has not suffered in these ways. Then test the matter by reasoning and examination, avoiding the probe; for probing does not prove whether the bone has or has not suffered one of these evils, and what is the result. What probing proves is the existence of a *hedral* or weapon mark, or whether the skull has a contused fracture with depression, or is badly broken, things which are also clearly obvious to ocular inspection.

XI. The skull suffers invisible and visible fractures, invisible and visible contusions, and contused fracture with depression from its natural place, especially when one person is deliberately and wilfully wounded by another, rather than when the wound is unintentional; when the missile or the blow, whichever it be, comes from above rather than from level ground; when the weapon, whether used to throw or strike, is in full control,¹ and when a stronger man wounds a weaker. As to those who are wounded about the skull or in the skull itself by falling, he who falls from a very great height upon something very hard and blunt is likely to get his skull broken or contused, or to have a contused fracture with depression; while if a man falls from more level ground on to something rather soft, his skull suffers less in this way, or not at all. As to missile weapons which wound the parts about the skull or the skull itself, a thing will fracture or contuse the bone in proportion as it falls from a great height rather than the level, and is very hard as well as blunt, and

¹ Adams' "if the instrument be of a powerful nature" seems hardly correct.

² χτωρεν; Pq. text obscure.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

ηκιστα ὁξὺ καὶ μαλθακόν, τοῦτο ἀν ρίξεις τὸ ὀστέον καὶ φλάσεις.

Καὶ μάλιστα γε ταῦτα πάσχειν τὸ ὀστέον κίνδυνος, ὅποταν ταῦτα τε γίνεται καὶ ἐς ἵν τρωθῇ καὶ κατ’ ἀντίον γένεται τὸ ὀστέον τοῦ βέλεος, ἢν τε πληγῆ ἐκ χειρὸς ἢν τε βληθῇ ἢν τε τι ἐμπέσῃ αὐτῷ καὶ ἢν αὐτὸς καταπέσων τρωθῇ καὶ ὀπωσοῦν τρωθεῖς καὶ ἀντίον γενομένου τοῦ ὀστέου τῷ βέλει. τὰ δ’ ἐς πλάγιον τοῦ ὀστέου παρασύραντα βέλεα ἰσσον καὶ ῥήγυσι τὸ ὀστέον καὶ φλά καὶ ἔσω ἐσφλά, κὴν ψιλωθῇ τὸ ὀστέον τῆς σαρκός· ἔνα γὰρ τῶν τρωμάτων τῶν οὕτω τρωθέντων οὐδὲ ψιλουταί τὸ ὀστέον τῆς σαρκός. τῶν δὲ βέλεων ῥήγυσι μάλιστα τὸ ὀστέον τὰς τε φανερὰς ῥωγμὰς καὶ τὰς ἀφανέας καὶ φλά τε καὶ ἐσφλά ἔσω ἐκ τῆς φύσιος τῆς ἐωστοῦ τὸ ὀστέον τὰ στρογγύλα τε καὶ περιφερέα καὶ ἀρτίστομα, ἀμβλέα τε ἐόντα καὶ βαρέα καὶ σκληρά· καὶ τὴν σάρκα ταῦτα φλὰ τε καὶ πέπειραν ποιεῖ καὶ κόπτειν καὶ τὰ ἐλκεα γίνεται ὑπὸ τῶν τοιούτων βελέων, ἐς τε πλάγιον καὶ ἐν κύκλῳ ὑπόκοιλα, καὶ διάπνα τε μᾶλλον γίνεται καὶ υγρὰ ἐστιν καὶ ἐπὶ πλέονα χρόνον καθαίρεται· ἀνάγκῃ γὰρ τὰς σάρκας τὰς φλασθεῖσας καὶ κοπτέσας πῦὸν γενομένας ἐκτακήναι. τὰ δὲ βέλεα τὰ προμήκεαι ἐπὶ πολὺ λεπτὰ ἐόντα καὶ ὀξέα καὶ κούφα, τὴν τε σάρκα διατίμωμει μᾶλλον ἡ φλὰ καὶ τὸ ὀστέον ὀφαντὸς· καὶ ἐδρῆν μὲν ἐμποιεῖ αὐτὸ καὶ διακόψαν 1—διακοπὴ γὰρ καὶ ἐδρῆ τωῦτον ἐστὶ—φλὰ δὲ ὦ μᾶλα τὸ ὀστέον τὰ τοιαῦτα βέλεα οὐδὲ ρήγυσιν οὐδ’ ἐκ τῆς φύσιος ἔσω ἐσφλά.

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heavy—in other words, the least light, sharp, and soft.

And the skull is especially likely to suffer this when the wound happens in those circumstances, and is perpendicular, the skull being directly opposed to the weapon, whether the agent be a blow or missile or something falling on the patient, or the patient falling himself, or being wounded in any way whatsoever, so long as the bone is at right angles to the weapon. When weapons graze the skull obliquely, they are less apt to cause fracture, or contusion, or contused fracture with depression, even if the bone is denuded; for in some wounds of this kind the bone is not even denuded of flesh. Those weapons which especially cause visible and invisible fractures, and contuse and crush in the bone out of its natural place, are rounded, smooth-surfaced, blunt, heavy and hard. These contuse the scalp, and pound it to a pulp. The wounds caused by such weapons become undermined both at the side and all round, and more likely to suppurate; they are moist and take long to cleanse, for the crushed and pounded tissue must necessarily become pus and slough away. Elongated weapons being usually slender, sharp and light, cut through the flesh rather than bruise it, and likewise the skull; they make a hedra in it and a cleaving\(^1\) (for cleft is the same as hedra), but such weapons do not readily contuse the bone or break it, or crush it inwards out of its place.

\(^1\) Or, "It leaves a hedra while cleaving."

\(^1\) In these words \textit{autô} refers to \textit{òstéon}, \textit{diakēvan} to \textit{bēlea} (\textit{bēlos}). Erm.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

'Αλλὰ χρὴ πρὸς τῇ ὅψει τῇ ἑωντοῦ, ὁ τι ἂν σοι φαίνηται ἐν τῷ ὀστέω, καὶ ἐρώτησιν ποιεῖσθαι πάντων τούτων. τοῦ γὰρ μᾶλλον τε καὶ ᾧσον τρωθέντος ταῦτά ἐστι σημεῖα, καὶ ἣν ὁ τρωθεῖς καρωθῇ καὶ σκότος περιχυθῇ καὶ ἣν διὸς ἔχῃ καὶ πέσῃ.

ΧΙ. 'Οπόταν δὲ τὐχῇ ψιλωθὲν τὸ ὀστέον τῆς σαρκὸς ὑπὸ τοῦ βέλεος, καὶ τὐχῇ κατ' αὑτὰς τὰς ραφὰς γενόμενον τὸ ἐλκος, χαλεπὸν γίνεται καὶ τὴν ἐόρην τοῦ βέλεος φράσασθαι τὴν ἐν τῷ ἀλλῷ ὀστέῳ φανερῆ γενομένῃ, εἰτ' ἐνεστὶν ἐν τῷ ὀστέῳ ἐιτε μὴ ἐνεστίν, καὶ ἢν τὐχῇ γενομένῃ ἡ ἐόρη ἐν αὐτῇ τῇ ραφῇ. συγκλέπτει ¹ γὰρ αὐτῇ ἡ ραφὴ τριχυτέρη ἔσοβα τοῦ ἀλλου ὀστέου, καὶ οὐ διάδηλον ο τι τε αὐτοῦ ραφῆ ἐστί καὶ ο τι τοῦ βέλεος ἐόρη, ἢν μὴ κάρτα μεγάλη γένηται ἡ ἐόρη. προσγίνεται δὲ καὶ ρήξεις τῇ ἐόρῃ ὡς ἐπὶ τὸ πολὺ τῇ ἐν τῇ ραφῇ γενομένῃ,² καὶ γίνεται καὶ αὐτῇ ἡ ρήξεις χαλεπωτέρη φράσασθαι, ἐρρωγότος τοῦ ὀστεοῦ, διὰ τοῦτο ὅτι κατ' αὐτὴν τὴν ραφὴν ἡ ρήξεις γίνεται, ἢν ρήγυνται, ὡς ἐπὶ τὸ πολύ. ἔτοιμον γὰρ ταῦτη ρήγυνσθαι τὸ ὀστέον καὶ διαχαλάν διὰ τὴν ἀσθενείαν τῆς φύσιος τοῦ ὀστεοῦ ταῦτη καὶ διὰ τὴν ἀραιότητα, καὶ δὴ ἄτε τῆς ραφῆς ἐτοίμης ἐνόσης ρήγυνσθαι καὶ διαχαλάν. τὰ δὲ ἄλλα ὀστέα τὰ περιέχοντα τὴν ραφὴν μένει ἀρραγέα, ὁτι ἱσχυρότερα ἐστὶ τῆς ραφῆς. ἢ δὲ ρήξεις ἢ κατὰ τὴν ραφῆν γενομένη καὶ διαχάλασις ἐστὶ τῆς ραφῆς, καὶ φράσασθαι οὐκ εὔμαρης, οὔτε εἰ³ ἀπὸ ἐδρῆς τοῦ βέλεος γενομένης ἐν τῇ ραφῇ, ἐπειδὰν ραγῆ καὶ διαχαλάσῃ, οὔτε ἢν φλασθέντος τοῦ ὀστεοῦ κατὰ τὰς 26
ON WOUNDS IN THE HEAD, xi.-xii.

Now, besides your own inspection of what you may see in the bone, inquiry should be made into all these things, for they are indications of the greater or less gravity of the wound, also as to whether the patient was stupefied and plunged in darkness, or had vertigo and fell down.

XII. Whenever the skull happens to be laid bare of flesh by the weapon, and the wound happens to occur just at the sutures, it becomes difficult to make an assertion as to the presence or absence of a weapon *hedra* in the bone which would be obvious in another part, especially if the *hedra* happens to come in the sutures themselves. For the suture itself being more uneven than the rest of the skull is deceptive, and it is not very clear which part is suture and which *hedra*, unless the *hedra* is very large. As a rule, too, fracture accompanies the *hedra* when it occurs in the sutures, and the fracture itself is harder to make out—though the bone is broken—for this reason, viz. that when there is a break it comes, as a rule, just in the suture. For the skull here is readily fractured or comes apart owing to the natural weakness of the bone in this place, and because of its porosity. Besides, the suture as such is ready to rupture and come apart, but the bones containing it remain unbroken because they are stronger than the suture. Fracture occurring in a suture includes a giving way of the suture, and it is not easy to make out whether the breaking and coming apart follows a weapon *hedra* occurring in the suture, or whether it is after contusion of the

1 Scaliger's emendation for συμβλέπει, confirmed by B. (συνκλέπτη).  
2 αὐτής ει... γινομενής Πρ.  
3 ἤν.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

σάρκας, ῥαγῇ καὶ διαχάλασιν ἅλλ' ἔστι χαλεπώ-
tερον φράσασθαί τὴν ἀπὸ τῆς φλάσιος ρωγμῆν. συγκλέπτοις γὰρ τὴν γυνώμην καὶ τὴν ὦψιν τοῦ

ιητροῦ αὐταί αἱ ῥαφαὶ ρωγμοειδεῖς φαινόμεναι καὶ τρηχύτεραι ἐοῦσαι τοῦ ἄλλου ὀστέου, ὅτι μὴ ἰσχυρὸς διεκόπη καὶ διεχάλασεν· διακοπὴ δὲ καὶ ἔδρη τῶν τοῦ ἀνευρίσκειν ὦ τι ἀν πεπόνθη τὸ ὀστέον. ἀπὸ γὰρ ἴσων τε βελέων τὸ μέγεθος καὶ ὁμοίων καὶ πολλῶν

tε ἐλασσόνων, καὶ ὁμοίωσ τε τρωθεῖς καὶ πολλῷ ἦσσον, πολλῷ μέζον ἐκτῆσατο τὸ κακὸν ἐν τῷ ὀστέῳ ὡς τὰς ῥαφὰς δεξάμενος τὸ βέλος ὡς μὴ ἐς τὰς ῥαφὰς δεξάμενος. καὶ τούτων τὰ πολλὰ πρίεσθαι δεῖ· ἅλλ' οὐ χρὴ αὐτὰς τὰς ῥαφὰς πρίειν, ἅλλ' ἀποχωρήσαντα ἐν τῷ πλησίον ὀστέῳ τὴν πρίσιν ποιεῖσθαι, ἢν πρίης.

Χ. Περὶ δὲ ἴσιοι τρωσίων τῶν ἐν τῇ κεφαλῇ καὶ ὡς χρῆ ἔξελεγχειν τὰς πάθας τὰς ἐν τῷ ὀστέῳ γενομένας τὰς μὴ φανερὰς, ὁδὲ μοι δοκεῖ. ἐλκος ἐν τῇ κεφαλῇ οὐ χρῆ τέγγειν οὐδενεί, οὐδὲ οἴνῳ, ἄλλως ἤκιστα· οὐδὲ καταπλάσσειν, οὐδὲ μοτῷ τὴν ἴσιν ποιεῖσθαι, οὐδὲ ἐπὶ δεῖν χρῆ ἐλκος ἐν τῇ κεφαλῇ, ἢν μὴ ἐν τῷ μετώπῳ ἢ τὸ ἐλκος, ἢ ἐν τῷ ψιλῷ τῶν τριχῶν, ἢ περὶ τὴν ὀφρῶν καὶ τὸν ὀφθαλμῶν. ἐνταῦθα δὲ γινόμενα τὰ ἐλκεα κατα-

πλάσιοι καὶ ἐπιδέσιοι μᾶλλον κέχρηται ἢ ποι

1 πολλῶν.
2 πολύν.
3 ἅλλ' ὡς ἤκιστα Pq., but with less support from MSS. or the context.
skull and flesh that it breaks and comes apart. Still, the fracture that follows contusion is harder to make out. For the sutures themselves, having a fracture-like appearance, and being more uneven than the rest of the skull, deceive the mind and eye of the physician, when not violently cleft or gaping — cleft and *hedra* are the same.¹ Now, if the wound is at the sutures, and the weapon penetrated the parts about the bone, and to the bone, you should devote your attention to finding out what injury the bone has suffered. For a person wounded by weapons of equal, similar or much less size to a similar or much less extent suffers far greater mischief in his skull if he receives the weapon at the sutures than when it is not so received, and the majority of these cases require trephining. You should not, however, trephine the sutures themselves, but, leaving an interval, operate on the adjacent part of the bone, if you do trephine.

XIII. The following is my view of the treatment of wounds in the head, and the way to discover affections of the skull which are not manifest. A lesion ² in the head should not be moistened with anything, not even wine, much less anything else,³ nor should the treatment include plasters or plugging, nor ought one to bandage a lesion in the head, unless it is on the forehead or in the part devoid of hair, or about the eyebrow or eye. Wounds occurring here are more suited to plasters and bandaging than those

¹ Surely an insertion.

² *ἐλακός* is defined by Galen as “a lesion of continuity in the soft parts.” The “wound,” therefore, concerns the scalp only.

³ Or, reading ΔΑΔΑX ὡς Ἰκιστα “except the least possible,” but the “correction” seems needless.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

άλλοθι τῆς κεφαλῆς τῆς ἄλλης· περιέχει γὰρ ἡ κεφαλὴ ἡ ἄλλη τὸ μέτωπον πάντες ἐκ δὲ τῶν περιεχόντων τὰ ἔλκεα, καὶ ἐν ὅτω ἄν ἡ τὰ ἔλκεα, φλεγμαίνει καὶ ἐπανοδίσκεται διὰ αἵματος ἐπιρροῆς. χρή δὲ οὐδὲ τὰ ἐν τῷ μετώπῳ διὰ παντὸς τοῦ χρόνου καταπλάσσειν καὶ ἐπιδεῖν, ἀλλ’ ἐπειδὰν παύσηται φλεγμαίνοντα, καὶ τὸ οἴημα καταστῇ παύσασθαι καταπλάσσοντα καὶ ἐπιδέοντα· ἐν δὲ τῇ ἄλλῃ κεφαλῇ ἔλκος οὔτε μοτοῦν χρή, οὔτε καταπλάσσειν οὔτ’ ἐπιδεῖν, εἰ μὴ καὶ τομῆς δέοντο.

Τάμνειν δὲ χρή τῶν ἔλκεων τῶν ἐν κεφαλῇ γενομένων, καὶ ἐν τῷ μετώπῳ, ὅπου ἄν τὸ μὲν ὀστέον ψιλὸν ἡ τῆς σαρκὸς, καὶ δοκῇ τι σίνος ἔχειν ὑπὸ τοῦ βέλεος, τὰ δὲ ἔλκεα μὴ ἴκανὰ τὸ μέγεθος τοῦ μῆκος καὶ τῆς εὐρύτητος ἐστὶν ἑκεῖν, τῶν ὀστείων, εἰ τι πέποιθεν ὑπὸ τοῦ βέλεος κακῶν καὶ ὀποῖον τι πέποιθε, καὶ ὀπόσον μὲν ἡ σάρξ πέφλασται καὶ τὸ ὀστέον ἔχει τι σίνος, καὶ δ’ αὔτε εἰ ἀσινές τε ἐστὶ τὸ ὀστεῖν ὑπὸ τοῦ βέλεος καὶ μηδὲν πέποιθε κακῶν, καὶ ἐστὶν ὑποίας, ὅποις τινὸς δεῖται τὸ τῆς ἐλκος ἡ τε σάρξ καὶ ἡ πᾶθε τοῦ ὀστεῖν· τὰ δὲ τοιαῦτα τῶν ἐλκέων τομῆς δεῖται. καὶ ὅταν1 μὲν τὸ ὀστέον ψιλωθῇ τῆς σαρκός, ὑπόκοιλα δὲ ἡ ἐς πλάγιον ἐπὶ πολὺ ἐπανατάμμευιν τὸ κοίλον, ὅπου μὴ εὐχερέσ τῷ φαρμάκῳ ἁφικέσθαι, ὅποιών ἄν τινι χρή· καὶ τὰ κυκλοτερέα τῶν ἐλκέων καὶ ὑπόκοιλα ἐπὶ πολὺ καὶ τὰ τοιαῦτα ἐπανατάμμων τὸν κύκλον διχῇ κατὰ μῆκος, ὡς πέφυκεν ὑσθρωτος, μακρὸν ποιεῖν τὸ ἔλκος.

Τάμνοντι δὲ κεφαλῆς, τὰ μὲν ἄλλα τῆς

30
ON WOUNDS IN THE HEAD, xiii.

elsewhere in the head, for the rest of the head surrounds the whole forehead, and it is from the surrounding parts that lesions, wherever they may be, get inflamed and swollen by afflux of blood. Not even on the forehead should you use plasters and bandaging all the time, but when inflammation ceases and the swelling subsides, stop plasters and bandaging. On the rest of the head you should not plug, plaster, or bandage a wound unless incision is also required.

One should incise wounds occurring in the head and forehead where the bone is laid bare and seems to be in some way injured by the weapon, while the wounds are not long and broad enough for inspection of the bone, to see whether it has suffered any harm from the weapon, the nature of the injury and extent of the contusion of the flesh and any lesion of the bone, or, on the other hand, whether the bone is uninjured by the weapon, and has suffered no harm; also, as regards treatment to see what the wound requires, both as regards the flesh and the bone lesion. These are the kinds of wounds that require incision. When the skull is laid bare and there is considerable undermining on one side, open out by incision the hollow part where it is not easy for the suitable remedy to penetrate. In the case of circular wounds which are undermined to a considerable extent, open these out also by a double incision up and down as regards the patient ¹ so as to make the wound a long one.

Incisions may be safely made by the surgeon in

¹ i.e. at opposite sides of the wound above and below.

¹ ἀν μὲν ὁπεῖ P.
κεφαλής ἀσφαλείην ἔχει ταμνόμενα· ὁ δὲ κρόταφος, καὶ ἀνωθεν ἔτι τοῦ κροτάφου, κατὰ τὴν φλέβα τὴν διὰ τοῦ κροτάφου φερομένην, τούτῳ δὲ τὸ χωρίον μὴ τάμνειν, σπασμός γὰρ ἐπιλαμβάνει τὸν τμηθέντα· καὶ ἂν μὲν ἐπὶ ἀριστερὰ τμηθὴ κροτάφου, τὰ ἐπὶ ἀριστερὰ ὁ σπασμὸς ἐπιλαμβάνει.

XIV. Ὅταν οὖν τάμνης ἔλκος ἐν κεφαλῇ ὀστέου εἴνεκα τῆς σαρκὸς ἐψιλωμένου, θέλων εἰδέναι εἰ τι ἔχει τὸ ὀστέον κακὸν ὑπὸ τοῦ βέλεος ἢ καὶ οὐκ ἔχει, τάμνειν χρή τὸ μέγεθος τῆς ὠτελῆς, ὡς ὀπόση ἂν δοκῇ ἀποχρῆμαι. τάμνοντα δὲ χρὴ ἀναστείλαι τὴν σάρκα ἀπὸ τοῦ ὀστέου ἢ πρὸς τῇ μῆνυγι καὶ πρὸς τῷ ὀστέῳ πέφυκεν, ἔπειτα διαμοτῶσαι τὸ ἔλκος πᾶν μοτῷ, ὡστὶς ἂν εὐρύτατον τὸ ἔλκος παρέξει ἐς τὴν ὑστεραίην σὺν ἐλαχίστῳ πόνῳ· μοτώσαντα δὲ καταπλάσματι χρῆσθαι ὁπόσον ἂν περ χρόνον καὶ τῷ μοτῷ, μάζης ἐκ λεπτῶν ἀλφίτων, ἐν οἴει δὲ μᾶσσειν, ἐφειν δὲ καὶ γλύσχρην ποιεῖν ὡς μάλιστα. τῇ δὲ ὑστεραίῃ ἡμέρῃ, ἐπειδὰν ἕξελθῃ τὸν μοτόν, κατιδὼν τὸ ὀστέον ὁ τι πέποιθεν, ἐὰν μὴ σοι καταφανὴς ἢ τῇ τρόσῃ, ὅποι ἔστιν ἐν τῷ ὀστέῳ, μηδὲ διαγνώσκῃς εἰ τῇ τῇ ἔχει τὸ ὀστέον κακὸν ἐν ἐωτῷ, ἢ καὶ οὐκ ἔχει, τὸ δὲ βέλος δοκῇ ἀφικέσθαι ἐς τὸ ὀστέον καὶ σίνασθαι, ἐπὶξεῖν χρὴ τῷ ἐξυστήρι κατὰ βάθος καὶ κατὰ μῆκος τοῦ ἀνθρώπου ὡς πέφυκε, καὶ αὐθις ἐπικάρσιον τὸ ὀστέον τῶν ῥηξίων εἴνεκα τῶν ἀφανέων ἱδείν καὶ τῆς

1 ἐν τῷ... κροτάφῳ also below ἐν τῷ ἐπὶ δεξιὰ τμηθῆ κροτάφῳ, Kw.

32
any other part of the head, but he should not incise the temple, or the part above it in the region traversed by the temporal blood-vessel, for spasm seizes the patient. And if incision of the temple is made on the left, spasm seizes the parts on the right, while if the incision is on the right, spasm seizes the parts on the left.

XIV. When, therefore, you incise a head wound because the bone is denuded, and you want to know whether it has, or has not, suffered any injury from the weapon, the size of the open wound should be such as seems fully sufficient. When operating you should detach the scalp from the skull where it is adherent to the membrane and to the bone. Then plug the whole wound with lint, so that next day it will present the widest possible lesion of continuity with least pain. When plugging use a plaster of dough from fine barley meal to be kept on as long as the lint. Knead it up with vinegar and boil, making it as glutinous as possible. Next day, when you take out the lint, if, on looking to see what the bone has suffered, the nature of the lesion is not clear, and you cannot even see whether the skull has anything wrong with it, yet the weapon seems to have reached and damaged the bone, you should scrape down into it with a raspatory, both up and down as regards the patient, and again transversely so as to get a view of latent fractures and contusion which

1 Vidius suggests that this refers to the connections between pericranium and dura mater at the sutures. Celsus seems to translate “membranula quae sub eute, calvariam cingit.” VIII. 4.

2 τομήν, Kw’s conjecture.
περί τῶν ἐν κεφαλήι τρωματῶν

φλάσιοις εἴνεκα τής ἀφανέος τῆς οὐκ ἐσφλωμένης ἔσω ἐκ τῆς φύσιος τῆς κεφαλῆς τοῦ ἄλλου ὀστέου. ἐξελέγχει γάρ ἡ ξύσις μάλα τὸ κακὸν, ἢν μὴ καὶ ἄλλος καταφανεῖς ἔωσιν αὕται αἱ πάθαι αἱ έσθαι ἐν τῷ ὀστεῷ [τοῦ βέλεος]. 1 καὶ ἢν ἔδρην ἰδης ἐν τῷ ὀστεῷ τοῦ βέλεος, ἐπιξεύειν χρῆ αὐτὴν τε τὴν ἔδρην καὶ τὰ περιέχοντα αὐτὴν ὀστέα, μὴ πολ- 30 λάκις τῇ ἔδρῃ προσγένηται βῆξις καὶ φλάσις, ἡ μόνη φλάσις, ἔπειτα λανθάνῃ ὁ καταφανεῖ ἐστά.

Ἐπειδὰν δὲ ξύσις τὸ ὀστέου τῷ ἐνστήρι, ἢν μὲν δοκῇ ἐς πρίσιν ἀφίκειν ἡ τρώσις τοῦ ὀστέου, πρίειν χρῆ, καὶ τὰς τρεῖς ἱμέρας μὴ ὑπερβάλλειν ἀπρώτων, ἀλλ' ἐν ταύτης πρίειν, ἀλλως τε καὶ τῆς θερμῆς ὀρῆς, ἢν εἰς ἄρχης λαμβάνῃ τὸ ἕιμα. 4 Ἡν δὲ υποπτεύης μὲν τὸ ὀστέον ἔρρωγεναι ἢ πεφλάσθαι, ἡ ἀμφότερα ταῦτα, τεκμαίρομενος ὅτι ἰσχυρός τέτρωται ἐκ τῶν λόγων τοῦ τρωματίου, καὶ ὅτι υπὸ ἰσχυρότερον τοῦ τρώσαντος, ἢν ἐτερος ὑφ' ἐτέρου τρωθῇ, καὶ τὸ βέλος ὀτρωθῇ, ὅτι τῶν κακούργων βέλεων ἢν, ἐπείτα τῶν ἀνθρώπων ὅτι δίνὸς τε ἐλαβε καὶ σκότους, καὶ ἐκαρώθη καὶ κατέπεσεν τοῦτων δὲ ὀυτω γενομέ- νων, ἢν μὴ διαγινώσκης εἰ ἔρρωγε τὸ ὀστ' ὄν ἢ πεφλασται, ἢ καὶ ἀμφότερα ταῦτα, μήτε ἄλλως 2 ὀρέων δύνη, δει δὴ ἐπὶ τὸ ὀστέον τὸ τηκτὸν τῷ μελάντατον δεύσας; 3 τῷ μέλανι φαρμάκῳ τῷ τηκομένῳ στείλαι 4 τὸ ἐλκος, υποτεύγας ὀδόνιον 50 ἐλαιός τέγγας; 5 εἶτα καταπλάσας τῇ μάζῃ ἐπιδη- σαι. τῇ δὲ υστεραι ἀπολύσας, ἐκκαθήρας τὸ ἐλκος ἐπιξεύσαι καὶ ἢν μὴ ἢ υγιὲς, ἀλλ' ἔρρωγη καὶ

1 Omit B. Kw.  2 ὀλῶς Pq.  3 δεύσαντα.
is latent because the rest of the bone is not crushed in out of its natural position. For rasping shows up the mischief well, even if these lesions though existing in the bone are not otherwise manifest. And if you see a weapon hedra in the bone, you should scrape the hedra itself and the bone containing it, in case, as often happens, fissure with contusion or contusion alone accompanies the hedra, and not being well marked, is overlooked.

When you scrape the bone with the raspatory, if the skull lesion seems to be a case for trephining, you should operate and not leave the patient untrephined till after the three days, but trephine in this period, especially in the hot season, if you take on the treatment from the first.

Should you suspect the skull to be fractured or contused or both, judging from the patient's account that the blow was severe and inflicted by a stronger person—if he was struck by someone else—and that the instrument with which he was wounded was of a dangerous kind; further, that the man suffered vertigo and loss of sight, was stunned and fell down: in such circumstances if you cannot otherwise distinguish by inspection whether the skull is fractured or contused or even both, then you must drop on the bone the very black solution, anoint the wound with the dissolved black drug, putting linen on it and moisten with oil, and then apply the barley-meal plaster and bandage. Next day, having opened and cleansed the wound, scrape further, and, if it is not sound but fractured and contused,

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4 Difficult text. στείλειν = superregere, inungere.
5 τιγζαί.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

πεφλασμένον ἦ, τὸ μὲν ἄλλο ἦσται ὀστέον λευκοῦ ἐπιξύμενον· ἡ δὲ ῥωγὴ καὶ ἡ φλάσις, κατακέντος τοῦ φαρμάκου, δεξαμένη τὸ φάρμακον ἐσ᾽ ἐωτὴν μέλαν ἐόν, ἦσται μέλαια ἐν λευκῷ τῷ ὀστὲῳ τῷ ἄλλῳ. ἀλλὰ χρῆ αὕθις τὴν ῥωγήν ταύτην φανεῖσαν μέλαιαν ἐπιξύειν κατὰ βάθος· καὶ ἤν μὲν ἐπιξύων [τὴν ῥωγήν ταύτην φανεῖσαν μελα- 
ναν] ἐξέλης καὶ ἀφανέα ποιήσῃς, φλάσις μὲν γεγένηται τοῦ ὀστέου ἡ μᾶλλον ἡ ἤσσον, ἤτις περιέρρηξε καὶ τὴν ῥωγήν τὴν ἀφανισθείσαν ὑπὸ τοῦ ἱυστήρος· ἤσσον δὲ φοβερὸν καὶ ἤσσον ἐν πρήγμα ἀπ᾽ αὐτῆς γένοιτο ἀφανισθείσης τῆς ῥωγῆς. ἦν δὲ κατὰ βάθος ἢ καὶ μὴ ἐθέλη ἐξείναι ἐπιξυμένη, ἀφῆκει ἐς πρίσιν ἡ τοιαύτη συμφορή.

XV. Ἀλλὰ χρῆ πρίσιντα τά λοιπὰ ἤτρευνεν τὸ ἔλκος. φυλάσσεσθαι δὲ χρῆ ὅπως μὴ τι κακὸν ἀπολαῦῃ τὸ ὀστέον ἀπὸ τῆς σαρκός, ἦν κακὸς ἤτρευνται. ὀστέω γὰρ καὶ πεπρο- 
μένῳ καὶ ἄλλωσ ἀπρίστῳ ἐψιλομένῳ δὲ, καὶ ὑγιεῖ δὲ ἐόντι καὶ ἔχοντι τι σίνος ὑπὸ τοῦ βέλεος, δοκέοντι δὲ ὑγιεί εἶναι, κύνδυνος ἐστὶ μᾶλλον ὑπόπτων γενέσθαι, ἦν καὶ ἄλλως μὴ μέλλῃ, ἦν καὶ ἡ σάρξ ἡ περιέχουσα τὸ ὀστέον κακῶς θεραπεύνται, καὶ φλεγμαίνῃ τε καὶ περισφίγ- 
γηται· πυρετῶδες γὰρ γίνεται καὶ πολλοῦ φλογμοῦ πλέον· καὶ δὴ τὸ ὀστέον ἐκ τῶν περιεχόμενον σαρκῶν ἐσ᾽ ἐωτὸ θέρμην τε καὶ φλογμὸν καὶ ἀραδοὺ ἐμποιεῖ καὶ σφυγμόν, καὶ ὁπόσα περ ἢ σάρξ ἐχει κακὰ ἐν ἐωτῇ, καὶ ἐκ τούτων ὅδε ὑπόπτων γίνεται. κακὸν δὲ καὶ ὑγρὴν τε εἶναι τὴν σάρκα ἐν τῷ ἔλκει καὶ

1 Probably a gloss: many codd. and editt. omit.
ON WOUNDS IN THE HEAD, xiv.–xv.

the rest of the bone will be white after scraping, but the fracture and contusion will have absorbed the dissolved drug and will be black in the white bone. You should again scrape down into this fracture which shows black, and if on further scraping [this fracture which shows black] you clear it away and make it invisible, there has been more or less contusion of the bone, which also produced the fracture now abolished by the raspatory, but it is less formidable and less danger will result from it now the fracture has disappeared. Should it go deep and refuse to disappear when scraped, such an accident is a case for trephining.

XV. After the operation you should use the other treatment requisite for the wound.¹ You should guard against any mischief spreading from the tissues to the skull owing to improper treatment. For when the bone is trephined or otherwise denuded without trephining—whether really sound, or injured in some way by the weapon though apparently sound—there is greater risk of suppuration, even if it would not otherwise occur, if the flesh about the bone receives improper treatment and gets inflamed and strangulated. For a sort of fever occurs in it, and it becomes full of burning heat, and finally the bone draws into itself heat and inflammation from the tissues about it, also irritation and throbbing, and everything bad which the flesh already contains, and so it becomes purulent. It is also bad for the tissues in the wound to be moist and

¹ Vidius: "cetera facienda sunt quae ulceris curatio postulat."

² ἀπρίστῳ δὲ, καὶ B. Kw.; the rest omit.

³ οὔτως.
μυδῶσαν καὶ ἐπὶ πολλῶν χρόνων καθαίρεσθαι· ἀλλὰ χρῆ διάπυνον μὲν ποιῆσαι τὸ ἔλκος ώς
tάξιστα· οὔτω γὰρ ἂν ἥκιστα φλεγμαίνοι τὰ
περιέχοντα τὸ ἔλκος καὶ τάχιστ' ἂν καθαρὸν
εἶν. ἀνάγκη γὰρ ἔχει τὰς σάρκας τὰς κοπείσας
καὶ φλασθείσας ὑπὸ τοῦ βέλεος, ὑποτύουσι
γενομένας, ἐκτακὴν. ἐπειδὰν δὲ καθαρῆν,
ξηρότερον χρῆ γίνεσθαι τὸ ἔλκος· οὔτω γὰρ
ἀν τάξιστα υγίες γένοιτο, ξηρῆς σαρκὸς βλασ-
tουσης καὶ μὴ ψυχῆς, καὶ οὔτως οὐκ ἂν
ὑπερσαρκίσῃ τὸ ἔλκος. ἦ δὲ αὐτὸς λόγος
καὶ ὑπὲρ τῆς μὴ τῶν τῆς περὶ τὸν ἐγκέφαλον·
ἡ γὰρ αὐτίκα ἐκπρίσας τὸ ὀστέον καὶ ἀφελῶν
ἀπὸ τῆς μὴ τῶν ψυχής καθαρῆς αὐτῆς,
καθαρῆν χρῆ ποιῆσαι ὡς τάξιστα καὶ ξηρῆν,
ὡς μὴ ἐπὶ πολὺν χρόνου ψυχῆ ἐστὶν μυδῆ τε καὶ ἡκαίρηται·
tοῦτων γὰρ οὔτω γινομένων σατῆναι αὐτῆς
κίνδυνος.
ΧΩΝ. Ὑστέον δὲ ὁ τι δὴ ἀποστῆναι δεῖ ἀπὸ
tοῦ ἄλλου ὑστέου, ἐλκεος ἐν κεφαλῇ γενομένου,
ἐδρῆς τε ἐνούσης τοῦ βέλεος ἐν τῷ ὑστέον, ἢ
ἄλλως ἐπὶ πολὺ ψυλλοθέντος τοῦ ὑστέου,
ἀφισταται ἐπὶ πολὺ ἐξαιμον γενομένου. ἀναξη-
ραίνεται γὰρ τὸ αἷμα ἐκ τοῦ ὑστέου ὑπὸ τε τοῦ
χρόνου καὶ ὑπὸ φαρμάκων τῶν πλείστων.
τά-
χιστα δ’ ἂν ἀποσταίνῃ, εἰ τις τὸ ἔλκος ὡς τάχιστα
καθήρας ξηραίνοι τὸ λοιπὸν τὸ τε ἔλκος καὶ τὸ
ὑστέον, καὶ τὸ μέζῳ καὶ τὸ ἱςσον. τὸ γὰρ
τάχιστα ἀποξηραθεῖν καὶ ἀποστρακῳθὲν τοῦτω
μάλιστὰ ἀφισταται ὑπὸ τοῦ ἄλλου ὑστέου τοῦ

1 περί.
ON WOUNDS IN THE HEAD, xv.–xvi.

macerated, and to take a long time to clean up. You should rather make the wound suppurate as quickly as possible; for thus the parts about it will be least inflamed and it will be most rapidly cleansed; for the tissues that are pounded and contused by the weapon must necessarily become purulent and slough away. When the wound is cleansed it should get rather dry, for so it will soonest become healthy, the growing tissue\(^1\) being dry and not moist, and thus the wound will have no exuberance of flesh. The same principle applies to the membrane covering the brain. For if you trephine at once and by taking away the bone denude this membrane, you should make it clean and dry as soon as possible, lest by being moist a long time it should fungate and swell up, for in such circumstances there is risk of its becoming putrid.

XVI. Any bone which is bound to separate from the rest, when a wound has occurred in the head and there is a weapon *hedra* in the skull, or when the bone is otherwise extensively denuded, usually separates after becoming bloodless, for the blood in the bone is dried up both by time and by most applications. The separation would occur most rapidly if, after cleansing the wound as soon as possible, one should next dry both the wound and the bone whether larger or smaller. For what is soonest dried up and made like a potsherd, thereby most readily separates from the rest of the bone which is full of blood and life, having

\(^1\) Our "granulation tissue."

\(^2\) ξερηταν.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

ἐναίμον τε καὶ ξωντος, αὐτὸ ἐξαιμόν τε γευόμενον καὶ ξηρὸν [τῷ ἐναίμῳ καὶ ξωντι μᾶλα ἀφίσταται].

XVII. "Οσα δὲ τῶν ὀστέων ἐσφιλαται ἔσω ἐκ τῆς φύσιος τῆς ἐωτῶν, καταρραγέντα ἥ καὶ διακοπέντα πάνω εὐρέα, ἀκινδυνότερα τὰ τοιαύτα γίνεται, ἐπὶν ἡ μῆνιγξ ὑγιῆς ἥ καὶ τὰ πλέοσι ρωγμῆσιν ἐσκαταραγέντα καὶ εὐρυτέρησιν ἐτὶ ἀκινδυνότερα καὶ εὐμαρέστερα ἐς τὴν ἀφαίρεσιν γίνεται. καὶ οὐ χρη πρίειν τῶν τοιούτων οὔδεν, οὔδε κινδυνεύειν τὰ ὀστέα πειρώμενον ἀφαίρειν πρὶν ἡ αὐτόματα ἐπανιή: εἴκος πρῶτον χαλά-

10 σαντος. ἐπανερχεται δὲ τῆς σαρκὸς ὑποφυο-
μένης: ὑποφύεται δὲ ἐκ τῆς διπλῆς τοῦ ὀστέου καὶ ἐκ τοῦ υγιέος, ἢν ἡ ἀνώθεν μοῖρῃ τοῦ ὀστέου μοῦνη σφακελίση. οὕτω δ' ἀν τάχιστα ἡ τε σάρξ ὑποφύσιτο καὶ βλαστάνοι καὶ τὰ ὀστέα ἐπανίοι, εἴ τις τὸ ἔλκος ὡς τάχιστα διάπνυον ποιήσας καθαρὸν ποιήσηται. καὶ ἡ διὰ παντὸς τοῦ ὀστέου ἀμφο τι μοῖραι ἐσφλασθῶσιν ἔσω ἐς τὴν μῆνιγγα, ἢ τε ἀνω μοῖρῃ τοῦ ὀστέου καὶ ἡ κάτω, ἵπτευσαι ὡςαῦτως τὸ ἔλκος υγιὲς τάχιστα ἐσται, καὶ τὰ ὀστέα τάχιστα ἐπάνειοι

20 ἐς ἐσφλασθέντα ἔσω.

XVIII. Τῶν δὲ παιδίων τὰ ὀστέα καὶ λεπτό-

21 τερά ἐστι καὶ μαλθακώτερα διὰ τοῦτο, ὅτι ἐναι-

μότερά ἐστι, καὶ κούλα καὶ σημαγγώδεα καὶ

οὔτε πυκνά οὔτε στερεά. καὶ ὑπὸ τῶν βελέων

1 Following Kw.'s reading and punctuation of this much controverted passage. Scaliger and others omit the last words.

2 "This passage is corrupt and depraved in all the examples." Fœs.
become itself bloodless and dry [it readily comes away from the vascular and living part].

XVII. Cases of contused fracture of the bones with depression when they are broken up and even comminuted very widely, are less dangerous (than other injuries) if the covering of the brain is unharmed, and where the bones are broken in with many and rather wide fractures they are still less dangerous, and are more readily removed. In such cases you should do no trephining, nor run risk in trying to remove bone fragments before they come up of their own accord: they naturally come up when there is a loosening.\(^1\) Now the fragments come up when the flesh grows from below, and it grows up from the diploë of the skull and its healthy part, if there is necrosis of the upper table of the skull only. Such upgrowth from below and burgeoning of the flesh will take place most rapidly if one brings the wound as soon as possible to suppuration and cleanses it. If the whole bone with both its "tables,"\(^2\) both upper and lower, is contused inwards and depressed into the cerebral membrane, it is by the same treatment that the wound will heal soonest and the bone fragments that are crushed inwards come up most quickly.

XVIII. The (skull) bones of young children are thinner and softer because they contain more blood and are hollow and porous and neither dense nor hard. And when wounded by equal or weaker

\(^{1}\) "Subsidence of the swelling," Adams, reading οἶδεος for εἰκός as Littre.

\(^{2}\) Literally "parts."

\(^{8}\) ποιήσειεν.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

...οισων τε ἐόντων καὶ ἀσθενεστέρως, καὶ πρωθέντων ὅμοιως τε καὶ ἴσοι, τὸ τοῦ νεώτερου παιδίου καὶ μᾶλλον καὶ θᾶσσον ὑποπυῖσκεται ἢ τὸ τοῦ πρεσβυτέρου, καὶ ἐν ἐλάσσοιν χρόνω· καὶ ὅσα ἂν ἀλλως μέλλη ἀποθανεῖσθαι ἐκ τοῦ τρώματος, 10 ὁ νεώτερος τοῦ πρεσβυτέρου θᾶσσον ἀπόλλυται.

Ἀλλὰ χρή, ἢν ψιλωθή τῆς σαρκὸς τὸ ὁστέον, προσέχοντα τὸν νόσον, πειρῆσθαι διαγινώσκειν ὁ τι μὴ ἐστὶ τοῖς ὀφθαλμοῖς ἰδεῖν, καὶ γνῶναι εἰ ἔρρωγε τὸ ὁστέον καὶ εἰ πέφλασται, ἢ μούιον πέφλασται, καὶ εἰ, ἕδρας γενομένης τοῦ βέλεος, πρόσεστι φλάσις ἢ ῥωγή ἢ ἄμφω ταύτα. καὶ ἢν τι τούτων πέπονθε τὸ ὁστέον, ἀφεῖναι τοῦ αἴματος τρυπῶντα τὸ ὁστέον σμικρῷ τρυπάνῳ, φυλασσόμενοι ἐπὶ ὀλέγου· λεπτοτερον 20 γὰρ τὸ ὁστέον καὶ ἐπιπολαιότερον τῶν νέων ἢ τῶν πρεσβυτέρων.

Χ.ΙΧ. "Ὅστις δὲ μέλλει ἐκ τρωμάτων ἐν κεφαλῇ ἀποθυνήσκειν, καὶ μὴ δυνατόν αὐτὸν ὑγία γενέσθαι μηδὲ σωθῆναι, ἐκ τῶν τῶν σημείων χρῆ τὴν διάγνωσιν ποιεῖσθαι τοῦ μέλλοντος ἀποθυνήσκειν, καὶ προλέγειν τὸ μέλλον ἔσεσθαι. πάσχει γὰρ τάδε· ὅποταν τις ὁστέον κατεγράφη ἢ ἔρρωγός ἢ πεφλασμένον, ἢ ὅτῳ γοῦν τρόπῳ κατεγράφη ἐννοίας ἁμάρτῃ, καὶ μῆτε ξύσῃ μῆτε πρίσῃ μῆτε δεόμενου, μῆτε 1 δὲ ὡς ὑγιέος ὄντος τοῦ ὁστέον, πρὸ τῶν τεσσερακοίδεκα ἱμερέων πυρετὸς ἐπιλήψεται, ὡς ἐπὶ πολὺ ἐν χειμῶν, ἐν δὲ τῷ θέρει μετὰ ταῖς ἐπτὰ ἱμέρας ὁ πυρετὸς ἐπιλαμβάνει. καὶ ἐπειδὰν τοῦτο γένηται, τὸ ἔλκος ἄχροον γίνεται

1 This fourth μῆτε puzzles nearly all the translators. They leave it out. I follow Petrequin. μεθη δὲ Litt. Ern.
ON WOUNDS IN THE HEAD, xviii.—xix.

weapons to a similar or less extent the skull of the younger child suppurates more readily and rapidly than that of the elder and for a shorter period,¹ and when they are going to die in any case from the wound, the younger perishes sooner than the elder.

But if the bone is denuded of flesh you should devote your intelligence to trying to distinguish a thing which cannot be known by inspection—whether there is fracture and contusion of the skull or only contusion, and whether, if there is a weapon hedra, it is accompanied by contusion or fracture, or both of these. If the bone is injured in any of these ways, let blood by perforating with a small trepan, keeping a look-out at short intervals,² for in young subjects the skull is thinner and more on the surface³ than in older persons.

XIX. When anyone is going to die from wounds in the head, and it is impossible to make him well or even save his life, the following are the signs from which one should make the diagnosis of approaching death and foretell what is going to happen. He has the following symptoms—when, after recognising that the skull is injured, either broken or contused, or injured in some way, one makes a mistake and neither scrapes nor trephines as though it were not required, yet the bone is not sound, fever as a rule will seize the patient within fourteen days in winter, and in summer just after seven days. When this occurs, the lesion

¹ So Petrequin, avoiding a tautology.
² Cf. θαμώνα σκοτούμενον, XXI.
³ i.e. has less depth.
καὶ ἔξ αὐτοῦ ἰχώρ ἐρεί σμικρός· καὶ τὸ φλεγμαίνον ἐκτέθηκεν ἐξ αὐτοῦ· καὶ βλεψόδες γίνεται καὶ φαίνεται ὅσπερ τάριχος, χροϊν πυρρόν, ὑποτέλιον· καὶ τὸ ὀστεόν σφακέλιζει τηνικάτα ἅρχεται, καὶ γίνεται περικνόν λείον ὄν,2 τελευταίον δὲ ἐπωχρον γενόμενον ἢ ἐκλεισκον. ὅταν δ' ἦδη ὑπόπτουν ἂ, ἐπὶ τῇ γλώσσῃ φλυκταίναι γίνονται, καὶ παραφρονέων τελευτά. καὶ σπασμὸς ἐπιλαμβάνει τοὺς πλείστους τὰ ἐπὶ θάτερα τοῦ σώματος· ἂν μὲν ἐν τῷ ἐπὶ ἁρίστερα τῆς κεφαλῆς ἔχῃ τὸ ἔλκος, τὰ ἐπὶ δὲξιὰ τοῦ σώματος ὁ σπασμὸς λαμβάνει· ἂν δ' ἐν τῷ ἐπὶ δεξιὰ τῆς κεφαλῆς ἔχῃ τὸ ἔλκος, τὰ ἐπὶ ἁρίστερα τοῦ σώματος ὁ σπασμὸς ἐπιλαμβάνει. εἰσὶ δ' οὐ καὶ ἀπότληκτοι γίνονται, καὶ οὕτως ἀπόλλυνται πρὸ ἐπτά ἡμέρων ἐν θέρει ἡ τεσσάρων καὶ δέκα ἐν χειμῶνι· ὁμοίως δὲ τὰ σημεία ταῦτα σημαίνει, καὶ ἐν πρεσβυτέρῳ έόντι τῷ τρώματι ἢ καὶ ἐν νεωτέρῳ.

Ἀλλὰ χρῆ, εἰ ἐνυοίης τῶν πυρετῶν ἐπιλαμβάνονται καὶ τῶν ἄλλων τι σημείῳ τούτῳ προσγενόμενον, μὴ διατρίβειν, ἀλλὰ πρὶσαντα τὸ ὀστέον πρὸς τὴν μύιαγγα ἢ καταξύσαντα τῷ ἕυστῃρι— εὐπριστον3 δὲ γίνεται καὶ εὐξυστον— ἐπειτα τὰ λοιπὰ οὕτως ὑπερεύειν ὅπως ἂν δοκῇ συμφέρειν, πρὸς τὸ γενόμενον ὀρῶν.

XX. “Ὅταν δ' ἐπὶ τρώματι ἐν κεφαλῇ ἀνθρώπου ἢ πεπρωμένου ἢ ἀπριώτου, ἐψιλωμένου δὲ τοῦ ὀστέου, οἴδημα ἐπιγενήται ἐρυθρόν καὶ ἐρυσιπελατώδες ἐν τῷ προσώπῳ καὶ ἐν τοῖς ὀφθαλμοῖς ἀμφότεροις ἢ τῷ ἐτέρῳ, καὶ εἰ τὰς ἀπτοιτο τοῦ οἰδήματος, ὀδυνώτω, καὶ πυρετοῖς
ON WOUNDS IN THE HEAD, xix.–xx.

gets a bad colour and a little ichor flows from it, the inflammation dies completely out of it, it gets macerated and looks like dried fish of a rather livid reddish colour. Necrosis of the bone then sets in, it gets dark coloured instead of white, finally turning yellowish or dead white. When it has become purulent, blebs appear on the tongue and the patient dies delirious. Most cases have spasm of the parts on one side of the body; if the patient has the lesion on the left side of the head, spasm seizes the right side of the body; if he has the lesion on the right side of the head, spasm seizes the left side of the body. Some also become apoplectic and die in this state within seven days in summer and fourteen in winter. These symptoms have the same value both in an older and a younger patient.

If, then, you recognise that fever is seizing upon a patient and that any of these symptoms accompanies it, make no delay but, after trephining the bone down to the membrane, or scraping with the raspatory (for the bone becomes easy to saw or scrape), treat the case in future as may seem best in view of the circumstances.

XX. When in case of a wound in the head, whether the patient has been trephined or not, the bone being denuded, there supervenes a red erysipelas oedema of the face and one or both eyes and the oedema is painful when touched,

1 Reading λευκόν. λείν Pq. and codd. "without ceasing to be smooth" (?).

1 So Kw. following Erotian and Archigenes. γλυκράδες Pq. codd.
2 λευκόν εόν Kw. etc.
3 καπυρόν.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

ἐπιλαμβάνοι 1 καὶ ρίγος, τὸ δὲ ἐλκος αὐτό τε 2 ἀπὸ τῆς σαρκὸς καλῶς ἔχοι ἰδέσθαι καὶ τὰ ποὺ τοῦ ὀστέου, καὶ τὰ περιέχοντα τὸ ἐλκος ἔχοι καλῶς, πλὴν τοῦ οἴδηματος τοῦ ἐν προσώπῳ καὶ ἀλλὴν ἀμαρτάδα μηδεμίαν ἔχοι τὸ οἴδημα τῆς ἀλλῆς διαίτης, τούτου χρῆ τὴν κάτω κοιλίην ὑποκαθήραι φαρμάκῳ ὃ τι χόλην ἀγεί καὶ οὕτω καταρθέντος, ὁ τε πυρετὸς ἠφίησι καὶ τὸ οἴδημα καθίσταται καὶ ἕγις γίνεται. τὸ δὲ φύρμακον χρῆ διδόναι πρὸς τὴν δύναμιν τοῦ ἀνθρώπου ὅρων, ὥς ἂν ἔχῃ ἴσχύος.

XXI. Περὶ δὲ πρίσιος, ὅταν καταλάβῃ ἀνάγκη πρίσαι ἀνθρώπουν, ὅδε γινώσκειν. ἢν εἴ ἄρχης λαβὼν τὸ ὑμα πρίσης, οὐ χρῆ ἐκπρείνει τὸ ὀστέον πρὸς τὴν μῆνιγγα αὐτίκα· οὐ γὰρ συμφέρει τὴν μῆνιγγα ψελιήν εἴναι τοῦ ὀστέου ἐπὶ πολὺν χρόνον κακοπαθοῦσαι, ἀλλὰ τελευτῶσα πῃ καὶ διεμύθησεν. 3 ἐστὶ δὲ καὶ ἐτερος κύνδυνος, ἢν αὐτίκα ἀφαίρης πρὸς τὴν μῆνιγγα ἐκπρίσεις τὸ ὀστέον, τρῶσαι ἐν τῷ ἔργῳ τῷ πρίσιν τὴν μῆνιγγα. ἀλλὰ χρῆ πρίσαι, ἐπειδὰν ὅλιγον 4 πάνω δὲν διαπεπρίσθαι, καὶ Ἦδη κινῆται τὸ ὀστέον, παύσασθαι πρίσαι, καὶ ἐὰν ἐπὶ τὸ αὐτόματον ἀποστῆμαι τὸ ὀστέον· ἐν γὰρ τῷ διαπριστῷ ὀστέῳ καὶ ἐπιλεξεμένῳ τῆς πρίσιος οὐκ ἐπιγενοῖτο κακὸν οὐδέν, λεπτὸν γὰρ τὸ λειπόμενον ἦδη γίνεται. τὰ δὲ λοιπὰ ἴσθαι χρῆ, ὥς ἂν δοκῇ συμφέρειν τῷ ἐλκεῖ.

1 ἐπιλαμβάνη. 2 τὰ τε Reinhold.
3 σαπεῖσα διεμύθησεν Scaliger; but this is surgically the wrong order. Reinhold suggests διεμύθησε καὶ τελευτῶσα ἔστη.

46
and fever also seizes him with a rigor, but the lesion itself has a healthy appearance in the part affecting the scalp and skull, and the parts about the wound look healthy except for the oedema of the face, and the oedema is not further complicated by an error in regimen, in this case you should cleanse the bowel with a cholagogue. After such purging the fever departs, the oedema subsides and the patient gets well. In giving the drug you should have an eye to the patient's vigour, what strength he has.

XXI. As to trephining when it is necessary to trephine a patient, keep the following in mind. If you operate after taking on the treatment from the beginning, you should not, in trephining, remove the bone at once down to the membrane, for it is not good for the membrane to be denuded of bone and exposed to morbid influences for a long time, or it may end by becoming macerated. There is also another danger that, if you immediately remove the bone by trephining down to the membrane, you may, in operating, wound the membrane with the trephine. You should rather stop the operation when there is very little left to be sawn through, and the bone is movable; and allow it to separate of its own accord. For no harm will supervene in the trephined bone, or in the part left unsawn, since what remains is thin enough. For the rest the treatment should be such as may seem beneficial to the lesion.

1 "Becomes macerated, and finally putrefies." R.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

Πρίοντα δὲ χρή πυκνά ἐξαιρεῖν τὸν πρίονα τῆς θερμασίας εἴνεκα τοῦ ὀστέου, καὶ ὑδατὶ ψυχρῶν ἐναποβάπτειν. θερμαϊνόμενος γὰρ ὑπὸ τῆς περιόδου ὁ πρίων καὶ τὸ ὀστέον ἐκθερμαίνει καὶ ἀναξηραίνων κατακαίει, καὶ μέξον ποιεῖ ἀφίστασθαι τὸ ὀστέον τὸ περίεχον τὴν πρίον ἡ ὅσων μέλλει ἀφίστασθαι. καὶ ἢν αὐτίκα βούλη ἐκπρίσαι τὸ πρὸς τὴν μῆνινγα, ἐπείτα ἀφελεῖν τὸ ὀστέον, ὥσαυτῶς χρή πυκνά τε ἐξαιρεῖν τὸν πρίονα καὶ ἐναποβάπτειν τῷ ὑδατὶ τῷ ψυχρῶν.

"Ἡν δὲ μὴ ἦν ἢ χρή λαμβάνης τὸ ἱμα, ἀλλὰ παρὰ ἀλλού παραδέχῃ ύστεριζὸν τῆς ἱήσιον, πρίονι χρή χαρακτῷ ἐκπρίεσαι μὲν αὐτίκα τὸ ὀστέον πρὸς τὴν μῆνινγα, θαμινὰ δὲ ἐξαιρεῖντα τὸν πρίονα σκοπεῖσθαι καὶ ἀλλως καὶ τῇ μῆλῃ πέριξ κατὰ τὴν ὁδὸν τοῦ πρίονος· καὶ γὰρ πολὺ θάσσον διαπρίσειται τὸ ὀστέον, ἢν ὑπόπτυνον τε ἐδον ἢδη καὶ διάπυννο πρῖις, καὶ πολλάκις τυγχάνει ἐπιπόλαιον ἐδον τὸ ὀστέον, ἀλλως τε καὶ ἢν ταύτη τῆς κεφαλῆς ἢ τὸ τρῶμα ἢ τυγχάνει λεπτότερον ἐδον τὸ ὀστέον ἢ παχύτερον. ἀλλὰ φυλάσσεσθαι χρή ὡς μὴ λάθης προσβαλῶν τὸν πρίονα, ἀλλ' ὅτι δοκεῖ πάχιστον εἶναι τὸ ὀστέον, ἐς τούτῳ αἰεὶ ἐνστηρίζειν τῶν πρίονα, θαμινὰ σκοπούμενος, καὶ πειράζοντες ἀνακινών τὸ ὀστέον ἀναβάλλει, ἀφελῶν δὲ τὰ λοιπὰ ἰητρεύειν ὡς ἃν δοκῇ συμφέρειν τῷ ἐλκεῖ [πρὸς τὸ γινόμενον ὅρέων].

Καὶ ἦν, ἦν χρή λαμβῶν τὸ ἱμα, αὐτίκα βούλη ἐκπρίσας τὸ ὀστέον ἀφελεῖν ἀπὸ τῆς μῆνινγας,

2 Pq. omits, but see Kw.'s note.
ON WOUNDS IN THE HEAD, xxi.

While trephining, you should frequently take out the saw and plunge it into cold water to avoid heating the bone, for the saw gets heated by rotation, and by heating and drying the bone cauterises it and makes more of the bone around the trephined part come away than was going to do. If you want to trephine down to the membrane at once, and then remove the bone, the trephine should in like manner be often taken out and plunged in cold water.¹

If you do not take on the cure from the beginning, but receive it from another, coming late to the treatment, trephine the bone at once down to the membrane with a sharp-toothed trephine, taking it out frequently for inspection, and also examining with a probe around the track of the saw. For the bone is much more quickly sawn through if you operate when it is already suppurating and full of pus; and the skull is often found to have no depth, especially if the wound happens to be in the part of the head where the bone inclines to be thin rather than thick. You must be careful not to be heedless in placing the trephine, but always to fix it where the bone seems thickest. Examine often, and try by to-and-fro movements to lift up the bone; and, after removing it, treat the rest as may seem beneficial to the lesion [having regard to what has happened].

If you take on the case from the beginning, and want to trephine the bone at once completely and remove it from the membrane, you should likewise

¹ As we learn from Celsus, VIII. 3, and Heliodorus in Oribasius XLVI. 11, the trephine was rotated by a bow and cord, not by a handle as in modern times.
ΠΕΡΙ ΤΩΝ ΕΝ ΚΕΦΑΛΗΙ ΤΡΩΜΑΤΩΝ

ωσαύτως χρη πυκνά τε σκοπεῖσθαι τῇ μήλῃ τὴν περίοδου τοῦ πρόωνος, καὶ ἐς τὸ παχύτατον αἰεὶ τοῦ ὀστέου τοῦ πρόωνα ἐνστηρίζειν, καὶ ἀνακινεῖν βούλεσθαι ἀφελεῖν τὸ ὀστέον. ἂν δὲ τρυπάνῳ χρῆ, πρὸς τὴν μήνιγγα μή ἀφικνεῖσθαι, ἂν ἕξ ἀρχῆς λαμβαίνων τὸ ἵμα τρυπᾶς, ἀλλ' ἐπιλυτεῖν τοῦ ὀστέου λεπτῶν, ὥσπερ καὶ ἐν τῇ πρίσει γέγραπται.
often examine the circular track of the saw with
the probe, always fixing the trephine in the
thickest part of the bone, and aim at getting it
away by to-and-fro movements. If you use a
perforating trepan, do not go down to the membrane,
if you perforate on taking the case from the be-
ginning; but leave a thin layer of bone, as was
directed in trephining.
IN THE SURGERY
INTRODUCTION

Concerning Things in the Surgery—(περὶ τῶν κατʼ ἰητρείαν) is, according to Galen, the full title for works of this kind, which were written by Diocles, Philotimus and Mantias as well as by Hippocrates. Our surviving sample has not only a mutilated heading, but contents which, as Galen admits, might be more accurately called for the most part, Notes on Bandaging. He thinks this incompleteness is perhaps due to its being intended for beginners, but recognises its need of a commentary many times longer than itself.\(^1\)

It is a note book in which many things, grammatical and didactic, are left to be understood and have been understood diversely by various commentators, while some remain unintelligible, requiring, as Galen says, a diviner rather than a commentator. The note book style is combined with a tautology which converts the whole into a curious mixture of brevity and repetition, due perhaps to insertion of comments into the text, or to another cause mentioned below.

On account, probably, of its obscurity the work attracted as much attention in antiquity as did Wounds in the Head. All the chief Hippocratic commentators from Bacchius (early in the third century B.C.) to Galen have dealt with it. Besides a long and careful exposition by Galen, a good deal

\(^1\) XVIII(2). 629–632.
of the treatise is comprised in the preface to the Galenic work On Bandages, while the whole of the later treatise on that subject ascribed to him is taken from it and the commentary. Almost all ancient authorities considered it "genuine," though Galen suggests that it was not intended for publication and may have first been given out by Thessalus, who, according to some, was its author.

In modern times, Littre at first considered it spurious, an analysis or abridgment of some lost work, just as Mochlicon is certainly abridged from Fractures-Joints, but he afterwards changed his mind for the following reasons:—It has a peculiar connection with Fractures: Thus a statement in Fractures IV on the quantity of bandages is unintelligible unless we know their length, and this is only given in Surgery XII; on the other hand "ἡ" used to denote "rather than," Surgery XIV, seems (as Galen had observed) addressed to persons who knew Fractures XXII, where the context shows that it must have this sense. In Surgery XX, ἄτι (and still more διοτι read by some) strongly suggests a note which the writer intends to enlarge upon. Littre concludes that Surgery is probably a "canevas" or preliminary sketch for a larger work of the kind which has perished, though part of it survives in our Fractures, and since Surgery XIX almost repeats XV, there may have been two such preliminary outlines which have been imperfectly conflated. We shall notice a similar duplication in Mochlicon.

Littre, however, does not entirely reject the view that Surgery is a later abstract or collection of memoranda from an earlier work; and the philosophical evidence is strongly on this side.
INTRODUCTION

The verb δράω is common, in fact reaches its highest frequency, in this treatise. "Depraved" infinitives with accusative participles posing as second person imperatives also occur, e.g. IV (where the two are combined) XII, XXIV. We naturally look for some connection with the δράω (or middle) division of the books on Epidemics, and find that the beginning of Epid. IV. 45 corresponds verbally with part of Surgery I and II. We conclude that the work probably belongs to the second Hippocratic generation, may have been written by Thessalus son of Hippocrates, but can hardly have the same author as the great treatise Fractures—Joints.

Galen¹ and Palladius² tell us that, according to some, "In the Surgery" was the original title of the combined treatises Fractures—Joints, and this tradition may represent a truth. There was, perhaps, a great work on the surgery of the bones (of which we have fragments), and one or more abridgments of it, or possibly both an abridgment and a collection of memoranda in note-book style. Our Surgery would represent the beginning of the latter, our Mochlicon the end of the former, while the duplications may be due to an imperfect mixture of the two.

There are other curious resemblances between Surgery and Fractures. Thus, Surgery XVI seems condensed from Fractures IV, but while the writer of the latter says he has only seen over-extension in the case of a child, the epitomist has "over-extension is harmful except in children."

¹ XVIII(2), 323.
INTRODUCTION

*Surgery* XVIII corresponds to *Fractures* VI, but it is only by reference to the latter that we can discover that splints are to be applied on the seventh day, and not at the seventh dressing, which is the more natural translation. The writer was, perhaps, relying upon memory, but this appears to be further evidence that *Surgery* is a later epitome, *not a preliminary outline.*
ΚΑΤ' Ἡ ΗΚΤΡΕΙΟΝ

I. Ὡμοίω ἡ ἀνόμοια, ἐξ ἀρχῆς ἀπὸ τῶν μεγίστων, ἀπὸ τῶν ρηήστων, ἀπὸ τῶν πάντη πάντως γινώσκομεν, ἀ καὶ ἰδεῖν καὶ θείεν καὶ ἀκοῦσαι ἐστιν. ἀ καὶ τῇ ὄψει καὶ τῇ ὕφῃ καὶ τῇ ἀκοῇ καὶ τῇ μιν καὶ τῇ γλώσσῃ καὶ τῇ γνώμῃ ἐστιν αἰσθέσθαι. ἀ, οἰς γινώσκομεν, ἀπασιν

II. Τὰ δὲ ἐς χειρουργίην κατ᾽ ἱητρεῖον· ὁ ἀσθενεὼν, ὁ δρῶν, οἱ ὑπηρέται, τὰ ὀργάνα, τὸ φῶς, ὁ πον, ὁ πως· ὁ σα, ὁ σιν, ὁ πως, ὁ πότε· τὸ σῶμα, τὰ ἀρμενα· ὁ χρόνος, ὁ τρόπος, ὁ τόπος.

III. Ὁ δρῶν, ἡ καθήμενος ἡ ἐστέως, συμμέτρως πρὸς ἐωυτὸν, πρὸς τὸ χειριζόμενον, πρὸς τὴν αὐγήν.

Ἀνυγῆς μὲν οὖν δύο εἴδεα, τὸ μὲν κοινὸν, τὸ δὲ τεχνητὸν· τὸ μὲν οὖν κοινὸν οὐκ ἐφ' ἡμῖν, τὸ δὲ τεχνητὸν καὶ ἐφ' ἡμῖν. ὅν ἐκατέρου δισσαὶ ὁρίσσεις, ἡ πρὸς αὐγὴν ἡ ὑπ' αὐγήν. ὑπ' αὐγήν μὲν οὖν ὀλίγη τε ἡ χρήσις καταφανὴς τε ἡ μετριώτης· τὰ δὲ πρὸς αὐγήν, ἐκ τῶν παρευσεϊν.

ὡς. But Galen read ὁ ποσὶν πρὸς τὴν λαμπροτάτην τρέπειν τὸ χειριζόμενον, πλὴν ὁπόσα λαθεῖν δεῖ ἡ ὀρᾶν αἰσχρόν, οὕτω δὲ τὸ μὲν χειριζόμενον ἐναντίον τῇ αὐγῇ, τὸν δὲ χειριζοῦτα ἐναντίον τῷ χειριζόμενῳ, πλὴν ὡστε μὴ ἔπισκο-

1 οἰς· ὡς. But Galen read ὁ ποσὶς twice (XVIII(2). 669).

2 δύο αἰ.
IN THE SURGERY

I. [Examination: look for] what is like or unlike the normal, beginning with the most marked signs and those easiest to recognise, open to all kinds of investigation, which can be seen, touched and heard, which are open to all our senses, sight, touch, hearing, the nose, the tongue and the understanding, which can be known by all our sources of knowledge.

II. Operative requisites in the surgery; the patient, the operator, assistants, instruments, the light, where and how placed; their number, which he uses how and when; the (patient’s?) person and the apparatus; time manner and place.¹

III. The operator whether seated or standing should be placed conveniently to himself, to the part being operated upon and to the light.

Now, there are two kinds of light, the ordinary and the artificial, and while the ordinary is not in our power the artificial is in our power. Each may be used in two ways, as direct light and as oblique light. Oblique light is rarely used, and the suitable amount² is obvious. With direct light, so far as available and beneficial, turn the part operated upon towards the brightest light—except such parts as should be unexposed and are indecent to look at—thus while the part operated upon faces the light, the surgeon faces the part, but not so as to overshadow

¹ "Part affected," according to Galen: XVIII(2). 674.
² This is the usual meaning of μετριδτης. See Fractures V.
τάξειν: οὕτω γὰρ ἂν ὁ μὲν δρῶν ὀρφή, τὸ δὲ χειριζόμενον οὐχ ὀρφότο

Πρὸς ἐωτόν δέ, καθημένω μὲν πόδες ἐς τὴν ἀνω ἢξιν κατ’ ἰδίῳ γούνασι: διάστασιν δὲ ὀλίγον συμβεβάτες. γούνατα δὲ ἀνωτέρω βουβώνων σμικρόν, διάστασιν δέ, ἀγκώνων θέσει,1 καὶ παραθέσει: ἱμάτιον εὐσταλέως, εὐκρινέως, ἵσως, ὀμοίως ἀγκώσιν ὀμοίωσ.

Πρὸς δὲ τὸ χειριζόμενον, τοῦ μὲν πρόσω καὶ ἐγγὺς [ὁριον,]2 καὶ τοῦ ἀνω καὶ τοῦ κάτω, καὶ ἐνθα ἢ ἐνθα ἢ μέσον. τοῦ μὲν πρόσω καὶ ἐγγὺς ὀριον, ἀγκώνας ἐς μὲν τὸ πρόσθεν γούνατα μὴ ἀμείβειν, ἐς δὲ τὸ ὀπίσθεν πλευράς: τοῦ δὲ ἀνω μὴ ἀνωτέρω μάζων ἀκρας χεῖρας ἐχείν· τοῦ δὲ κάτω, μὴ κατωτέρω ἢ ώς τὸ στῆθος ἐπί γούνασιν ἡχοῦτα, χεῖρας ἀκρας ἐχειν ἐγγονίους πρὸς βραχίονας. τὰ μὲν κατὰ μέσον οὕτως· τὰ δὲ ἐνθα ἢ ἐνθα, μὴ ἤξιω τῆς ἐδρης, κατὰ λόγον δὲ τῆς ἐπιστροφῆς προσβαλλόμενον τὸ σῶμα, καὶ τοῦ σώματος τὸ ἐργαζόμενον.

Ἐστεώτα δὲ, ἵδειν μὲν καὶ ἐπ’ ἀμφοτέρων βεβαιῶτα ἢ ἢσον τῶν ποδῶν ἄλις, δρᾶν δὲ τὸ ἔτέρῳ ἐπιβεβώτα, μὴ τῷ κατὰ τὴν δρῶσαν χειρα· ὕψος γουνάτων 3 πρὸς βουβώνας ὡς ἐν ἐδρη· καὶ τὰ ἀλλα ὄρια τὰ αὐτὰ.

40 Ὅ δὲ χειριζόμενος τῷ χειρίζοντι τῷ ἄλλῳ τοῦ σώματος μέρει ύπηρετεῖτω, ἢ ἑστεώς ἢ καθήμενος ἢ κείμενος, ὀποιο实践经验 τὸ δεῖ σχῆμα ἑχων διατελῆ, φυλάσσων ύπόρρυσιν, ύπόστασιν, ἐκ-

1 ἀγκώσιν, θέσει.
2 Omit Ρq. Litt. and codd. : except V.
3 ὕψος· γουνάτα Kw. ὕψος γουνάτος Littré. 4 ὡς.
IN THE SURGERY, III.

it. For the operator will in this way get a good view and the part treated not be exposed to view.

As regards himself, when seated his feet should be in a vertical line straight up as regards the knees, and be brought together with a slight interval. Knees a little higher than the groins and the interval between them such as may support and leave room for the elbows. Dress well drawn together, without creases, even and corresponding on elbows and shoulders.

As regards the part operated upon, there is limit for far and near, up and down, to either side and middle. The far and near limit is such that the elbows need not pass in front of the knees or behind the ribs, and for up and down, that the hands are not held above the breasts, or lower than that, when the chest is on the knees, the forearms are kept at right angles to the arms. Such is the rule as regards the median position but deviation to either side is made by throwing forward the body, or its active part, with a suitable twist, without moving the seat.¹

If he stands, he should make the examination with both feet fairly level, but operate with the weight on one foot (not that on the side of the hand in use); height of knees ² in the same relation to groins as when seated, and the other limits the same.

Let the patient assist the surgeon with the other (free) part of his body standing, sitting or lying so as to maintain most easily the proper posture, on his guard against slipping, collapse, displacement, pen-

¹ According to Galen, the anatomical "seat" or pelvis.
² The other foot is on some elevated support: see Fractures VIII. Galen XVIII(2). 700.
τρεψιν, καταντίαν, όσ ὁ δεῖ σώζηται καὶ σχῆμα καὶ εἰδὸς τοῦ χειριζομένου ἐν παρέξει, ἐν χειρισμῷ, ἐν τῇ ἑπείτα ἡξει.

IV. Ἡσυχασ μήτε ὑπερέχειν μήτε ἐλλείπειν δακτύλων κορυφᾶς. Ἐς χρήσιν ἀσκεῖν δακτύλους μὲν ἄκροις, τὰ πλεῖστα λιχανῷ πρὸς μέγαν· ὅλη δὲ καταπτηνεῖ, ἀμφοτέρησι δὲ ἑναντίσεως. δακτύλων εὐφυΐη· μέγα τὸ ἐν μέσῳ τῶν δακτύλων, καὶ ἀπεναντίον τὸν μέγαν τῷ λιχανῷ. νοῦσος δὲ, δι’ ἅν καὶ βλάπτονται, τοὺς ἐκ γενέσι ἐν τῷ τροφῇ εἰδύσται ὁ μέγας ὑπὸ τῶν ἄλλων δακτύλων κατέχεσθαι δῆλον. τὰ ἔργα πάντα ἀσκεῖν ἐκατέρθη δρῶντα, καὶ ἀμφοτέρησιν ἁμα—ὁμοία γάρ εἰσίν ἀμφότεραι—στοχά-ξόμενον ἀγαθῶς, καλῶς, ταχέως, ἀπόνως, εὐρύ-θμως, εὐπόρως.

V. Ὅργανα μὲν καὶ ὅτε, καὶ οὕς, εἰρήσεται. ὅπου δεῖ μὴ ἐμπυὸν τῷ ἔργῳ μηδὲ ἐκποδὸν τῇ ἀναιρέσει, παρὰ τὸ ἐργαξόμενον δὲ τοῦ σώματος ἐστώ· ἄλλος δὲ ἢν δίδῳ, ἔτοιμος ὁλίγῳ πρότερον 5 ἐστώ, ποιεῖτω δὲ, ὅταν κελεύῃς.

VI. Οἴ δὲ περὶ τὸν ἁσθενεόντα, τὸ μὲν χειριζόμενον παρεχόμενον, ὡς ἃν δοθῇ. τὸ δὲ ἄλλο σῶμα κατεχόντων, ὡς ὅλων ἄτρεμη, συγώντες, 4 ἀκούοντες τοῦ ἐφεστεότος.

VII. Ἐπιδέσιος δύο εἴδεα, εἰργασμένον καὶ ἐργαξόμενον. ἐργαξόμενον μὲν ταχέως, ἀπόνως, εὐπόρως, εὐρύθμως. ταχέως μὲν ἀνύειν τὰ ἔργα·

1 κορυφῆς. 2 δοκή.

1 The meaning can only be fully understood after reading Fractures.

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IN THE SURGERY, III.—VII.

dency, so that the position and form of the part treated may be properly preserved during presentation, operation, and the attitude afterwards.¹

IV. The nails neither to exceed nor come short of the finger tips. Practise using the finger ends especially with the forefinger opposed to the thumb, with the whole hand held palm downwards, and with both hands opposed. Good formation of fingers: one with wide intervals and with the thumb opposed to the forefinger, but there is obviously a harmful disorder in those who, either congenitally or through nurture, habitually hold down the thumb under the fingers. Practise all the operations, performing them with each hand and with both together—for they are both alike—your object being to attain ability, grace, speed, painlessness, elegance and readiness.

V. As to instruments, the time and manner of their use will be discussed. Their proper position is such as neither to be in the way of the operation nor to be out of the way when wanted; their place is by the operator's hand,² but if an assistant gives them, let him be ready a little beforehand, and act when you bid him.

VI. Let those who look after the patient present the part for operation as you want it, and hold fast the rest of the body so as to be all steady, keeping silence and obeying their superior.

VII. Of bandaging there are two aspects, completed and in process of application. As regards application, speedily, painlessly, with resource and neatness. Speedily to bring the operation to an end,

² This seems to refer to the surgeon, as above, not to the part operated on (τὸ χείριζομένον).
ΚΑΤ’ ἸΗΤΡΕΙΟΝ


VIII. Ἀγαθῶς δε δύο εἰδεα τοῦ ἐπιδεομένου ἱσχύος μὲν ἡ πιεξει, ἡ πληθεὶ ὀθονίων. τὸ μὲν οὖν αὐτὴ ἡ ἐπιδεσίς ἴηται, τὸ δε τοῖσιν ὕμενοισιν ὑπηρετεῖ. ἐς μὲν οὖν ταῦτα νόμοις· ἐν δε τοῦτοις μεγιστα ἐπιδεσίοις: πιεξεις μὲν ὡστε τὰ ἐπικείμενα μὴ ἀφεστάναι, μηδὲ ἐρημεῖσθαι [κάρτα], ἀλλ’ ἡμόσθαι μὲν, προσηγαγάσθαι δε μή, ἦσον μὲν τα ἔσχατα, ἦκιστα δε τὰ μέσα. ἀμμα καὶ ράμμα νεμόμενοι μὴ κάτω, ἀλλ’ ἄνω, ἐν παρέξει καὶ σχέσει καὶ ἐπιδεσει καὶ πιεξει. ἀρχας βάλλεσθαι μὴ ἐπί τὸ ἔλκος, ἀλλ’ ἐνθα τὸ ἀμμα. τὸ δε ἀμμα μήτε ἐν τρίβω μήτε ἐν ἔργῳ, μήτε ἐκείσε ὁπον ἐνεόν, ὃς μὴ ἐς τὸ ἐνεόν κείσεται. ἀμμα δε καὶ ῥάμμα μαλθακον, μη μέγα.

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1 εὐπόριη . . . εὐρυθμίη.

2 ἐὐκυκλοῦ or ἑγκυκλοῦ was inserted as explanation of ἀπλοῦν by Artemidorus and Dioscorides. Cf. Galen, XVIII(2). 729.

3 Added by Littré from Galen de Fasc.

4 Kw.’s reading of this obscure passage.

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1 So Galen.

2 As Galen remarks, there is no "second" unless we take it to include all other good qualities; some apply it to the two objects of bandaging.

3 A puzzle to commentators as contrasted with later directions, cf. XII.
IN THE SURGERY, vii.–viii.

painlessly to do it with ease, with resource ready for anything, with neatness that it may be pleasant to look at. Exercises for attaining these ends have been mentioned. Completed bandaging should be well and neatly done. Neatly means smoothly, well distributed,\(^1\) evenly and alike where the parts are even and similar, unevenly and unlike where they are unlike and uneven. As to kinds, simple (circular), oblique (adze like), very oblique (reversed?), the eye, the rhomb, the half rhomb, (use) the form suited to the shape and the affection of the part bandaged.

VIII. “Well” has two aspects when applied to the part bandaged: first\(^2\) firmness got either by tension or by the number of bandages. Now, the bandaging may either cure by itself or assist the curative agents. There is a rule for this and it includes the most important elements of bandaging. Pressure so that the applications neither fall away nor are very tight, fitting to the part without forcible compression, less at the ends and least in the middle.\(^3\) Knot and thread suture carried upwards and not downwards in presentation, attitude, bandaging and compression.\(^4\) The ends (for tying) to be put, not over the wound, but where the knot is to be. The knot where there is neither friction nor motion, and not where it will be useless, lest its purpose be not served.\(^5\) Knot and suture soft and not large.

\(^4\) \(\xi\xi\) “fixation” is what we should expect, but the whole is obscure.

\(^6\) A much discussed passage. Perhaps means not close to the edge of the dressing lest it slip off. Heliodorus \((Orib. XLVIII. 70)\) and Galen seem to ignore the last six words, but both say that \(\epsilon\nu\epsilon\nu\nu=\kappa\epsilon\nu\epsilon\nu\nu\) “useless.” Can it be a pun, “not where there is a void lest it be void of use”? As Galen says, we should expect “not over a hollow” such as the armpit.
ΚΑΤ’ ἩΝΤΡΕΙΟΝ

IX. Εἰ δὲ μὴν ἐστι γνώναι ὅτι ἐς τὰ κατάντη καὶ ἄπόξι γενύει πᾶς ἐπίδεσμος, οἶον κεφαλῆς μὲν τὸ ἄνω, κυνῆς δὲ τὸ κάτω. ἐπιδείγει δεξιὰ ἐπὶ ἀριστερά, ἀριστερὰ δὲ ἑπὶ δεξιῶ, πλὴν τῆς κεφαλῆς, ταῦτα κατ’ ἕξιν. τὰ δὲ ὑπεναντία 1 ἀπὸ δύο ἀρχέων ἢν δὲ ἄπο μῆς, ἐφ’ [ἐκάτερα] 2 ὀπερ ὁμοίον ἐς τὸ μόνιμον, οἴον τὸ μέσον τῆς κεφαλῆς, ἢ ὁ τι ἄλλο τοιοῦτον. τὰ δὲ κινεύμενα, οἴον ἄρθρα, ὅπη μὲν συγκάμπτεται, ὡς ἦκιστα καὶ εὐσταλέστατα περιβάλλειν, οἴον ἤγνυν. ὅπη δὲ περιτείνεται, ἀπλᾶ τε καὶ πλατέα, οἴον μύλην προσπεριβάλλειν δὲ καταλήψιος μὲν τῶν περὶ ταῦτα εὔνεκα, ἀναλήψιος δὲ τοῦ συμπάντος ἐπιδέσμου, ἐν τοῖς ἀτρεμέονι καὶ λαπαροτέροισι τοῦ σώματος, οἴον τὸ ἄνω καὶ τὸ κάτω τοῦ γούνατος: ὁμολογεῖ δὲ, ὦμοι μὲν ἡ περὶ τὴν ἔτερην μασχάλην περιβολή, βουβώνως δὲ ἡ περὶ τὸν ἐτερον κενέδων, καὶ κυνῆς ἢ ὑπὸ γαστροκυνήμιν. ὁπόσοισι μὲν ἄνω ἢ φυγῆ, κάτωθεν ἢ 20 ἀντίληψις, οἴσι δὲ κάτω, τούναντιον οἴσι δὲ μὴ ἔστιν, οἴον κεφαλῆς, τούτων ἐν τῷ ὀμαλωτάτῳ τὰς καταλήψιας ποιεῖσθαι, καὶ ἦκιστα λοξῶ τῷ ἐπιδέσμῳ χρήσθαι, ὡς τὸ μονιμωτάτον ὑστατον περιβληθεῖν τὰ πλανωδέστατα κατέχῃ. ὁπόσοισι δὲ τοῖς ὀθνίσσι μὴ εὐκαταλήπτως, μηδὲ εὐ-αναλήπτως ἔχει, ῥάμμασί τὰς ἀναλήψιας ποι-27 εἴσθαι ἐκ καταβολῆς ἢ συρραφῆς.

1 τὰ καθ’ ἐκάτερον μέρος ὁμοίως διακείμενα.—Galen.
2 Most MSS. omit.
IX. It is well to bear in mind that every bandage slips towards the pendent and conical parts, such as the top of the head and the bottom of the leg. Bandage parts on the right side towards the left, and those on the left to the right, except the head; do this vertically.\(^1\) Parts with opposite sides alike\(^2\) require a two-headed bandage, but if you bandage from one end, extend it each way so that it may have a similar relation to the fixed part, such as the middle of the head or the like. As to mobile parts, such as joints, where there is flexion the turns should be as few and as contracted as possible, as with the back of the knee, but where the part is extended, like the knee cap, spread out and broad. Make additional turns both to hold fast applications in these parts, and to support the dressing in the fixed and flatter parts of the body, such as those above and below the knee. In case of the shoulder, a turn round the opposite armpit is suitable, for the groin, one round the opposite flank, and for the leg, the part above the calf. In cases where the tendency is to slip up, the support is from below, when down the reverse. Where this is impossible, as on the head, make the hold-fasts on the smoothest part, and avoid obliquity as far as you can, so that the outermost and firmest turn may hold down the most mobile ones. Where it is not easy to get either good fixation or support with the bandages, make supports with threaded sutures in loops\(^3\) or continuous suture.

\(^1\) "From vertex to chin." Galen.
\(^2\) Galen's paraphrase.
\(^3\) Apparently our interrupted sutures, with long ends to tie. "Stitching with ligatures." Adams.
ΚΑΤ' ἹΗΤΡΕΙΟΝ

X. Ἐπιδέσματα καθαρά, κούφα, μαλθακά, λεπτά. Ἐλίσειν ἄμφοτέρησιν ἄμα, καὶ ἐκατέργα ἄφρας ἀσκεῖν. τῇ πρεπούσῃ δὲ ἐσ τὰ πλάτη καὶ τὰ πάχα τῶν μορίων ¹ τεκμαιρόμενον χρῆσθαι. ἐλίξιος κεφαλαῖ σκληραί, ² ὀμαλαί, εὐκρινεῖς. τὰ δὲ δὴ μέλλοντα ἀποπίπτειν [καλῶς] ³ ταχέως ἀποπεσόντων. ⁴ τὰ δὲ ὡς μῆτε πιέζειν μῆτε ἀποπίπτειν τὰ εἰρημένα.

XI. ⁵Ων δὲ ἔχεται ἣ ἐπίδεσις ἡ ὑπόδεσις ἡ ἄμφοτερα: ὑπόδεσις μὲν αἰτίη ὡστε ἡ ἀφεστῶτα προστείλαι, ἡ ἐκπεπταμένα συστείλαι, ἡ συνε- σταλμένα διαστείλαι, ἡ διεστραμμένα διορθώσαι, ἡ τάναντία. παρασκευὴ δὲ ὀδόνια κούφα, λεπτά, μαλθακά, καθαρά, πλατέα, μὴ ἔχοντα συρραφάς, μηδ' ἐξάστιας, καὶ ὑγία ὡστε τάνυσιν φέρειν καὶ ὀλυγω κρέσσω, μὴ ἔξηρι, ἀλλ' ἐγχυμα χυμῷ ὧ ἔκαστα σύντροφα. ἀφεστῶτα μὲν ⁵ ὡστε τὰ ¹ ¹ μετέωρα τῆς ἐδρῆς ψαύνει μὲν, πιέζειν δὲ μή ἄρχεσθαι ⁶ δὲ ἐκ τοῦ υγιέος, τελευτᾶν δὲ πρὸς τὸ ἔλκος, ὡστε τὸ μὲν ὑπεδον ἐξαθέληγον, ἐτερον δὲ μὴ ἐπισυνλέγοντι: ἐπιδεῖν τὰ μὲν ὀρθὰ ἐσ ὀρθον, τὰ δὲ λοξὰ λόξωσ, ἐν σχῆματι ἀπόνῳ, ἐν ὁ μῆτε ἀπόσφυγξις μῆτε ἀπόστασις ἐσται [τις] ⁷ εἰς οὖ ὅταν μεταλλάσσῃ, ἢ ἐσ ἀνάληψιν ἢ ἐσ θέσιν, μὴ μεταλλάξουσιν, ἀλλ' ὀμοία ταῦτα ἐξουσι μῦες, φλέβες, νεῦρα, ὀστέα [ἡ]

¹ οδόνιων.
² σκληραί puzzled Galen. Ermerins inserts a negative, μὴ. The edges of a bandage should not be hard.
³ καλῶ Kw. codd. καλῶς Erm. Pq.
⁴ A much discussed passage. G. says ἀποπεσόντων is a solecism, either as imperative or participle.
⁵ Add προστείλαι.
IN THE SURGERY, x.—xi.

X. Bandages, clean, light, soft, thin. Practise the rolling with both hands at once, and with each separately. Use one of suitable size, estimating by the thickness and breadth of the parts. Edges of the roll firm, not frayed, without creases. When things are really going to fall off, it is well that they do so quickly (?). Modes of bandaging such as neither compress nor fall off are those mentioned.

XI. What bandaging, whether upper or under or both, aims at. The function of an under bandage is to bring together what is separated, reduce everted wounds, separate what is adherent, adjust what is distorted, or the reverse.\(^1\) Apparatus. Linen bandages light, thin, soft, clean, broad, without sutures or projections, sound so as to bear the tension required, and a little stronger; not dry, but soaked in a liquid suited to each case. Close a sinus\(^2\) so that the upper parts touch the base without pressing on it, begin bandaging from the sound part and end at the open wound, so that while the contents are pressed out no more is accumulated. Bandage vertical ones\(^3\) in a vertical direction and the oblique obliquely, in a position causing no pain, without either compression or laxity, so that when the change is made to a sling or fixation the muscles, vessels, ligaments and bones will retain their normal

\(^1\) G. refers this to bad bandaging.
\(^2\) A sinus is a superficial abscess which has opened and continues to discharge.
\(^3\) G. refers this to the sinus, not to affected parts generally.

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\(^6\) ἁρχοι Galen Kw.  
\(^7\) Omit Galen Vulg. Kw.  
\(^8\) δμοιπτατα Kw.
μάλιστα ευθετα καὶ εὐσχετα. 1 ἀναλελάφθαι 2
dὲ ἡ κεῖσθαι ἐν σχήματι ἀπόνω τῷ κατὰ φύσιν.
ἂν δὲ ἄν [μὴ] 3 ἀποστῇ, τὰναντία· ὃν δὲ ἐκπε-
πταμένα συστείλαι, τὰ μὲν ἄλλα τὰ αὐτά, ἐκ
πολλοῦ δὲ τίνος δὲὶ τὴν συναγωγήν, καὶ ἐκ προσ-
αγωγῆς τὴν πίεξιν, τὸ πρῶτον ἥκιστα, ἐπείτα
ἐπὶ μᾶλλον, ὅριον τοῦ μάλιστα τὸ συμψαύειν.
ἂν δὲ συνεσταλμένα διαστείλαι, σὺν μὲν φλεγ-
μονῇ, τάναντία. ἀνεὶ δὲ ταύτης, παρασκευῇ μὲν
τῇ αὐτῇ, ἐπιδέσει δὲ ἑναντίῃ. διεστραμμένα δὲ
dιορθώσαι, τὰ μὲν ἄλλα κατὰ ταύτα· δεὶ δὲ τὰ
30 μὲν ἀπεληλυθότα ἐπάγειν [τὰ δὲ ἐπεληλυθότα ἀπάγειν], 4 ἐπιδέσει, παρακολῆσει, ἀναλήψει,
32 [θέσει]. 4 τὰ δὲ ἑναντία, ἑναντίως.

ΧΙ. [Κατηγομασία δὲ] σπλήνων μῆκεα, πλάτεα,
πάχεα, πλῆθεα. μῆκος ὅση ἡ ἐπιδεισι· πλάτος,
τρίῳν ἡ τεσσάρων δακτύλων· πάχος, τριπτύχους
ἡ τετραπτύχους. 5 πλῆθος, κυκλεύνας μὴ υπερ-
βάλλειν, μηδὲ ἐλλείπειν· οἷς δὲ ἐς διορθώσιν,
μῆκος κυκλεύνα· πάχος καὶ πλάτος τῇ ἐνδείῃ
tεκμαίρεσθαί, μὴ ἀθρόα πληροῦντα.

Τῶν δὲ ὀθονίων ύποδεσμίδες εἰσὶ δύο· τῇ
πρώτῃ ἐκ τοῦ σίνεος ἐς τὸ ἄνω τελευτώσῃ. 6 τῇ
10 δὲ δευτέρῃ ἐκ τοῦ σίνεος ἐς τὸ κάτω, ἐκ τοῦ κάτω

1 Read by Galen; not in the codd.  2 ἀναλελάμφθαι.
3 μὴ Kw.; suggested by Galen's predecessors.
4 Omit BV. 5 τρίπτυχα τετράπτυχα.
6 ἡ ... τελευτώσα Erm. Reinhold. Pq. suggests τελευ-
tώσι, as Ald.

1 Restored from Galen's Commentary.
2 G. gives three other interpretations, without the
negative.
IN THE SURGERY, xi.–xii.

positions [in which they are best put up and supported].¹ Let the part be slung or put up in a natural comfortable position. Where there is no open sinus the reverse.² Where there is a gaping wound bring the parts together just as in other cases, but start the joining up at a good distance; and graduate the pressure, first very little, then increasing, the extreme limit being contact of the parts. In separating what is adherent, if there is inflammation the reverse holds good,³ if not use the same apparatus, but bandage in the opposite way. To adjust what is distorted act generally on the same principles; what is turned out must be brought in [and what is turned in brought out] by bandaging, agglutination,⁴ suspension, setting—the reverse reversely.

XII. In fractures, the length, breadth, thickness and number of compresses. Length to correspond with the bandaging, breadth, three or four fingers, thickness, folded thrice or four times. Number, sufficient to go round without overlapping or vacancy: when required to adjust the shape,⁵ long enough to go round, estimating breadth and thickness by the deficiency, but not filling it up with one compress.

Of the linen bandages, the under ones ⁶ are two in number. Start with the first from the lesion and end upwards, but carry the second downwards from

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¹ i.e. avoid bandaging as far as possible; Galen.
² Refers to turned in eyelashes.
³ i.e. in conical or irregular parts: not "deformity" as Adams.
⁴ This Hippocratic division of under and upper bandages did not survive. ἐνδείσιδες remains a peculiar Hippocratic word for bandages below the pads or compresses. XVIII(2). 785 Galen.
ΚΑΤ' ἸΗΤΡΕΙΟΝ

ἐς τὸ ἀνω τελευτώση τὰ κατὰ τὸ σῶνος πιέζειν μάλιστα, ἡκιστα τὰ ἄκρα, τὰ δὲ ἀλλα κατὰ λόγον. ἡ δὲ ἐπίδεσις πολὺ τοῦ υγιέος προσλαμβανέτω.

Ἐπιδέσμων δὲ πλήθος, μῆκος, πλάτος. πλήθος μὲν μὴ ἔσσασθαι τοῦ σῶνος, μηδὲ νάρθηξιν ἐνέρεισιν εἶναι, μηδὲ ἄχθος, μηδὲ περίρρησιν, μηδὲ ἐκθῆλυσιν. μῆκος δὲ καὶ πλάτος, τριῶν ἡ τεσσάρων ἡ πέντε ἡ ἐξ πήχεων μὲν μῆκος, δακτύλων δὲ πλάτος. καὶ παραιρήματος περιβολαί τοσαύτα ὡστε μὴ πιέζειν μαλθακά δὲ, μὴ παχέα ταῦτα πάντα ὡς ἐπὶ μῆκει καὶ πλάτει καὶ πάχει τοῦ παθόντος.

Νάρθηκες δὲ λεῖοι, ὁμαλοὶ, σιμοὶ κατ' ἄκρα, σμικρῷ μείους ἐνθεν καὶ ἐνθεν τῆς ἐπιδέσιος, παχύτατοι δὲ ἡ ἐξήριπτε τὸ κάτηγμα. ὅποσα δὲ κυρτὰ καὶ ἁσαρκα φύσει, φυλασσόμενον τῶν ὑπερεχόντων, οἶον τὰ κατὰ δακτύλους ἡ σφυρά, ἡ τῇ θέσει ἡ τῇ βραχύτητι. παραιρήμασι δὲ ἀρμόζειν, μὴ πιέζειν τὸ πρῶτον κηρωτῇ μαλθακῇ καὶ λείῃ καὶ καθαρῇ ἕλισσετω.

XIII. "Τὸ δατος θερμότης, πλήθος. θερμότης μὲν κατὰ τῆς ἐωτοῦ χειρὸς καταχεῖν, πλήθος δὲ χαλάσαι μὲν καὶ ἵσχυναι τὸ πλείστον ἀριστον, σαρκώσαι δὲ καὶ ἀπαλύναι τὸ μέτριον μέτρου δὲ τῆς καταχύσιος, ἐτι μετεωρίζομενον δεῖ, πρὶν συμπίπτειν, παῦσθαι τὸ μὲν γὰρ πρῶτον ἀείρεται, ἐπειτα δὲ ἵσχυναιται.

XIV. Θέσις δὲ μαλθακῆ, ὁμαλῆ, ἀνάρροπος τοῖσι ἐξέχουσι τοῦ σῶματος, οἶον πτέρυγα καὶ

1 Or "where the fracture occurred."
IN THE SURGERY, xii.–xiv.

the lesion, bringing it up again to end at the top. Make most pressure over the lesion and least at the ends, the rest in proportion. Let the bandaging include a good deal of the sound part.

Amount, length and breadth of the bandages. Amount sufficient to deal with the lesion, without either pressing in the splints, or being burdensome, or slipping round, or causing weakness. As to length and breadth, three, four, five or six cubits for length, fingers for breadth. The supporting bands in such a number of coils as not to compress, soft and not thick. All these suited to the length, breadth and thickness of the part affected.

Splints, smooth, even, tapering at the ends, a little shorter in each direction than the bandaging; thickest over the prominence at the fracture;\(^1\) avoiding either by position or shortening the convexities naturally uncovered by flesh, such as on the fingers and ankles. Fit them on by supporting bands without pressure. Let the first dressing be made with bandages rolled in soft, smooth and clean cerate.\(^2\)

XIII. Of water (one must consider) temperature, quantity. Temperature by pouring it over one's own hand. Quantity, for relaxation and attenuation the more the better, but for flesh forming and softening observe moderation, and for moderate douching one should stop while the part is still swollen up before it collapses, for first it swells and then becomes attenuated.

XIV. Permanent position: soft, smooth, sloping up for projecting parts as with the heel or hip, so

\(^{2}\) So Galen, for cerate see Introduction. Pq. "before bandaging anoint the skin with."
ισχίω, ὡς μήτε ἀνακλάται [μήτε ἀποκλάται]¹ μήτε ἐκτρέπται,² σωλήνα παυτὶ τῷ σκέλει ἢ ἡμίσει: ἐς τὸ πάθος δὲ βλέπειν καὶ τὰ ἄλλα ὀκόσα βλάπτει δῆλα.³

ΧV. Πάρεξις γὰρ,⁴ καὶ διάτασις, καὶ ἀναπλασις, καὶ τὰ ἄλλα κατὰ φύσιν. φύσις δὲ ἐν μὲν ἐργοις, τοῦ ἐργοῦ τῇ πρήξει, ὁ βουλεται τεκμαρτέον· ἐς δὲ ταῦτα, ἐκ τοῦ ἐλινύοντος, ἐκ τοῦ κοινοῦ, ἐκ τοῦ ἔθεος· ἐκ μὲν τοῦ ἐλινύοντος καὶ ἀφειμένου τὰς θυσεῖς σκέπτεσθαι, οἶον τὸ τῆς χειρὸς· ἐκ δὲ τοῦ κοινοῦ, ἐκτασιν, σύγκαμψιν, οἶον τὸ ἐγγὺς τοῦ ἐγγαμών πήχεος πρὸς βραχίων· ἐκ τοῦ ἔθεος, ὅτι οὔκ ἄλλα σχήματα 10 φέρειν δυνατώτερα. οἶον σκέλεα ἐκτασιν ἀπὸ τούτων γὰρ ρήματα πλείστον χρόνον ἔχου ἀν μὴ μεταλλάσσοντα. ἐν δὲ τῇ μεταλλαγῇ ἐκ διατάσιος ὁμοιότατα ἐξουσιν⁵ ἐς ἐξίν ἢ θέσιν μὺς, φλέβες, νεύρα, ὀστέα, ἢ μάλιστα εὐθετα καὶ 15 εὐσχέτα.

ΧVl. Διάτασις, μάλιστα τὰ μέγιστα καὶ πάχιστα, καὶ ὅπου ἀμφότερα· δεύτερα, ὅπως τὸ ὑποτεταγμένον, ἡκιστὰ ἀν τὸ ἀνω· μᾶλλον δὲ τοῦ μετρίου βλάβη, πλὴν παιδίων· ἔχειν ἀνάντη σμίκρον· διορθώσιος παράδειγμα, τὸ ὀμόνυμον, τὸ ὀμόζυγον, τὸ ὀμοιον, τὸ ὑγίεις.

¹ Galen omits.
² ἐκτρέπται vulg Galen; ἐκτρίβηται Pq. The things to be feared are distortion or abrasion which would be ἐκτρίβηται; ἀποκλάται, which implies fracture, seems hardly possible.
³ ἡμίσει—Galen says ἢ is negative (ἂντ' ἀποφάσεως) as in Iliad 1. 117, but we discover this only by reference to Fractures XXII.
⁴ δέ.
as neither to be bent back [bent aside? broken off?] or distorted. Apply a hollow splint to the whole leg rather than to half. Consider the affection and also the obvious disadvantages (of this splint).

XV. Presentation, extension, setting, and the rest, according to nature. Now nature shows itself in actions, and one must judge what nature wants by the performance of action: for the above matters (judge) from the state of rest, from what is normal, from the customary. From rest and relaxation estimate proper direction, for example as regards the arm: from what is normal judge extension and flexion, such as the nearly rectangular relation of the forearm to the arm; from habit infer the posture more easy to maintain than any other, such as extension in the case of the legs; for one would most easily keep such postures for the longest time without changing, and in the change after [surgical] extension the muscles, vessels, tendons and bones have the most similar relations as to habit and posture, and are thus most conveniently put up or slung.

XVI. Extension, most when the largest and thickest and when both bones [of the arm] are broken. Next in cases where it is the underneath one [ulna], least where it is the upper. Excessive tension does damage except in children. Keep the limb a little raised. As model for adjustment take the homonymous, corresponding, similar, sound limb.

1 Littré-Adams "what we want."
2 Because their tendons are more elastic, G.; but it may be a confused reference to the case in Fract. IV.
3 G. says it should be "synonymous."

6 ὁμοίωτα ἔχουσιν Κω. ὁμοία ταῦτα ἔχουσιν Ρμ., as in XI.
KAT' ΙΗΤΡΕΙΟΝ

XVII. Ἀνάτριψις διόνυσαι λύσαι, δῆσαι, σαρκώσαι, μινυθῆσαι. ἡ σκληρῇ δῆσαι. ἡ μαλακῇ λύσαι. ἡ πολλῇ μινυθῆσαι. ἡ μετρὴ παχύναι.

XVIII. Ἐπιδείξεις δὲ τὸ πρῶτον· ὁ ἐπιδεδεμένος μάλιστα φάτω πεπείχθαι κατὰ τὸ σίγος· ἤκιστα τὰ ἀκρα· ἠμύσθαι 1 δὲ, μὴ πεπείχθαι· πλήθει, μὴ ἵσχυ· τὴν δὲ ἡμέρην ταύτην καὶ νύκτα, ὀλύγῳ μᾶλλον, τὴν δὲ ύστερην, ἢσον· τρίτη, χαλαρά· εὐρεθήτω δὲ τῇ μὲν ύστεραίᾳ ἐν ἄκρουσιν οἶδημα μαλθακὸν. τῇ τρίτῃ δὲ τὸ ἐπιδείεθα λυθὲν, ἵσχυστερον, παρὰ πᾶσας τὰς ἐπιδείσιας τούτο. τῇ δὲ ύστεραίᾳ ἐπιδέσει, ἢν δικαίως ἐπιδεδεμένον φανῇ, μαθείν δεῖ· ἑντεῦθεν δὲ μᾶλλον καὶ ἐπὶ πλέοσι πιεχθῆτω· τῇ δὲ τρίτῃ ἐπὶ μᾶλλον καὶ ἐπὶ πλέοσιν. τῇ δὲ ἐθὸδοιμὴ ἀπὸ τῆς πρώτης ἐπιδείσιος λυθέντα εὐρεθῆτω ἵσχυ· χαλαρὰ τὰ ὀστέα. ἔστε δὲ νάρβηκας δεθέντα, ἢν ἵσχυ καὶ ἀκινήσμα καὶ ἀνέλκεα ἢ, ἕαν μέχρις εἰκοσιν ἡμερέων ἀπὸ τοῦ σίγος· ἢν δὲ τι ὑποπτεύθηται, λύσαι εν τῷ μέσῳ· νάρβηκας διὰ τρίτης ἐρείδειν.

XIX. Ἡ ἀνάληψις, ἡ θέσις, ἡ ἐπίδεσις, ὡς ἐν τῷ αὐτῷ σχήματι διαφυλάσσειν. κεφάλαια σχημάτων, ἐθέα, φύσεις ἐκάστου τῶν μελέων· τὰ δὲ εἴδεα, ἐκ τοῦ τρέχειν, ὀδοιπορεῖν, ἔσταναι, κατὰ-κεῖσθαι, ἐκ τοῦ ἔργον, ἐκ τοῦ ἀφείσθαι.

XX. Ἄτι 2 χρῆσις κρατύνει, ἀργὴ δὲ τῇ κεἰν. 

XXI. Ἡ πίεσις πλήθει, μὴ 3 ἵσχυ.

1 ἠμύσθαι. ὁτι δὲ, ὅτι; Kw. 2 i.e. on alternate days. 3 G. considers XIX. a marginal note to XV.

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IN THE SURGERY, xvii.–xxi.

XVII. Friction can produce relaxation, constriction, increase of flesh, attenuation. Hard friction constricts, soft relaxes: if long continued it attenuates, when moderate it increases flesh.

XVIII. As to the first bandaging: the patient should say there is pressure chiefly over the injury, least at the ends; that the dressing fits firmly but without compression: pressure should be got by amount of bandaging not by tension. During this day and night pressure should increase a little, but be less during the next day, and lax on the third. A soft swelling should be found on the second day at the extremities. On the third the part when unbanded should be less swollen, and so with every dressing. At the second dressing one must find out whether it seems properly done, and then use more bandages and greater pressure; at the third still more with more coils of bandage. On the seventh day after the first dressing the parts when set free should be found without swelling and the bones mobile. When put up in splints, if the parts are not swollen and are free from itching or wound, leave alone till twenty days after the injury; but if there is any suspicion remove in the interval. Make the splints firm every third day.

XIX. In suspension, putting up, bandaging, take care that the part keeps the same attitude, the general principle being the habitual natural position of each limb. The kinds of attitude are derived from running, walking, standing, lying, work, relaxation.

XX. (Remember) that use strengthens, disuse debilitates.

XXI. The pressure by quantity (of bandages) not by force.
ΚΑΤ’ ἸΗΣΠΕΙΟΝ

XXII. Ὅποσα δὲ ἐκχυμώματα, ᾗ φλάσματα, ᾗ σπάσματα, ᾗ οἰδήματα ἀφλέγμαντα, ἐξαρύνεται αἷμα ἐκ τοῦ τρώματος, ἐς μὲν τὸ ἀνώ τοῦ σώματος τὸ πλείστον, βραχύ δὲ τι καὶ ἐς τὸ κατω. μὴ κατάνυτῃ τὴν χείρα ἔχουσα ἢ τὸ σκέλος: τιθέμενον τὴν ἀρχὴν κατὰ τὸ τρώμα καὶ μάλιστα ἐφεδοῦσα, ἥκιστα τὰ ἄκρα, μέσως τὰ διὰ μέσου. τὸ ἐσχατὸν πρὸς τὸ ἀνώ τοῦ σώματος νεμόμενον ἐπιδείη, πιέζειν ἀταρ καὶ ταῦτα πλήθει μᾶλλον ἢ ἰσχύι. μάλιστα δὲ τούτοις θόνων, λεπτά, κονίφα, μαλθακά, καθαρά, πλατέα, ύμηα, ώς ἂν ἅν ἄνευ ναρθήκων καὶ καταχύσῃ χρήσθαι πλέουν.

XXIII. Τὰ δὲ ἐκπτώματα, ἦ στρέμματα, ἦ διαστήματα, ἦ ἀποσπάσματα, ἦ ἀποκλάσματα, ἦ διαστρέμματα, οἷα τὰ κυλλά, τὰ ἐπερόρροπα, οὗν ῞ μὲν ἐξέστη, συνδιδόντα, ὅπη δὲ, συντείνοντα, ὡς ἐς τάναυτία ῥέπη, ἐπιδεθέντα ἤ πρὶν ἐπιδεθῆναι, σμικρῷ μᾶλλῳ ἢ ὡστε εἴξ ἰσον εἶναι: καὶ τοῖς ἐπιδέσμοις, καὶ τοῖς σπλήνεσι, καὶ τοῖς ἀναλήμμασι, καὶ τοῖς σχήμασι, κατατάσει, ἀνατρίψει, διορθώσει, [ταῦτα καὶ] ἑκατοχύσει πλέουν.

XXIV. Τὰ δὲ μυνυθήματα, πολὺ προσλαμβάνοντα τοῦ ύγιέος, ἐπιδείην ὡς ἄν εἴ ἐπιδρομῆς τὰ συντακέντα πλέον ᾗ αὐτὰ ἐμνύθη, ἀλλοίῳ τῇ ἐπιδείη παραλλάξαντα, ἐκκλίνει ἐς τὴν αὔξησιν καὶ τὴν ἀνάπλασιν τῶν σαρκῶν ποιήσαται. βέλτιον δὲ καὶ τὰ ἀνωθὲν, οἷον κυνήματι καὶ τῶν μηρῶν, καὶ τὸ ἐτερον σκέλος τῷ ύγιεὶ συνεπιδείην,

1 ἐκθέν. 2 O.mit Galen. Kw. 3 αὐτόματα. 4 ἐκκλίνη. 5 τὸ ύγιεῖς.

1 Includes club foot, knock knee, bandy leg.
IN THE SURGERY, xxii.–xxiv.

XXII. In case of bruising, crushings, ruptures of muscles or swellings without inflammation, blood is expressed from the injured part [by bandaging] mostly upwards, but some little downwards. This is done (with neither arm nor leg in a pendent position) by beginning the bandage at the wound and making most pressure there, least at the ends and moderate in between; the final turns being brought upwards. By bandaging, by compression—but here, too, pressure must be got by quantity of bandage rather than by force. In these cases especially, the linen bandages should be thin, light, soft, clean, broad and sound, as one would use without splints; use also copious douching.

XXIII. [Bandaging as regards] dislocations, sprains, separations, avulsions, fractures near joints or distortions, such as deformities to either side:¹ yielding on the side from which it deviates, bracing up on the side towards which it deviates, so that when it is put up, or before it is put up, it is not straight but has a slight inclination the opposite way. The treatment includes use of bandages, compresses, suspension, postures, extension, friction, adjustment; and in addition copious douching.

XXIV. [Bandaging as regards] atrophied parts: Apply the bandage, taking in a good deal of the sound parts in a way that the wasted tissues may gain more by afflux than they lose spontaneously; by changing to a different mode of bandaging² it may divert (the tissues) towards growth and bring about flesh formation. It is a rather good plan to bandage the upper parts also, such as the top of the leg and the thigh, also the sound leg that it may be

¹ From that described in XXII. A very obscure passage.

² From that described in XXII. A very obscure passage.
ΚΑΤ' ἸΝΤΡΕΙΟΝ

וט ὁμοίότερον ἢ καὶ ὁμοίως ἐλινύῃ, καὶ ὁμοίως τῆς τροφῆς ἀποκλείεται καὶ δέχεται. Θοινίων 10 πλήθει, μὴ πιέξει· ἀνίεντα πρῶτον τὸ μάλιστα δεόμενον, καὶ ἀνατρίψει χρῶμενον σαρκούσῃ καὶ 12 καταχύσει· ἀνευ ναρθήκων.

XXV. Τὰ δὲ ἑρμάσματα καὶ ἀποστηρίγματα, οἷον στιθεὶ, πλευρῆς, κεφαλῆς, καὶ τοῖσιν ἄλλοις, ὅσα τοιαῦτα· τὰ μὲν σφυγμῶν ἐνεκεν, ὡς μὴ ἑνσεῖται· τὰ δὲ καὶ τῶν διαστασίων τῶν κατὰ τὰς ἄρμονίας ἐν τοῖσι [τῶν] κατὰ τὴν κεφαλῆς ὀστέων 1 ἑρεισμάτων χάριν· ἔπι τε βηχῶν ἢ πταρμῶν, ἢ ἄλλης κινήσιος, οἷον 2 κατὰ θώρηκα καὶ κεφαλῆς ἀποστηρίγματα γίγνεται, τούτων ἀπάντων αἳ αὐταὶ συμμετρίᾳ τῆς ἐπιδείσιος· ἢ μὲν γὰρ τὰ σίνη μάλιστα πεπιέχθαι· ὑποτιθέναι οὖν [εἴριον] 3 μαλθακῶν ἄρμοζον τῷ πάθει· ἐπιδείων δὲ μὴ μᾶλλον πιέξεντα ἢ ὡστε τοὺς σφυγμοὺς μὴ ἑνσείειν, μηδὲ μᾶλλον ἢ ὡστε τῶν διεστηκότων τὰ ἐσχατα τῶν ἄρμονίων συμψαύειν ἄλληλον, μηδὲ τὰς βήχας καὶ τοὺς πταρμοὺς ὡστε κωλύειν, ἄλλα ὡστε ἀποστηρίγμα 17 εἶναι ὡς μῆτε διαναγκαζόταται, μῆτε ἑνσείηται.

1 ὀστέοις omit τῶν. 2 οἰα τά. 3 Littré and Pq. omit and add τι after μαλθακῶν.
in a like state, and share alike in rest and the deprivation or reception of nutriment. Use plenty of bandages, not compression; relaxing first where it is most needed, using friction of the flesh-forming kind and douching—no splints.

XXV. Supports attached or separate,¹ such as those for chest, ribs, head and other such parts; sometimes used because of pulsations² that the part may not be shaken; at other times, in cases of separation of the commissures in the bones of the head, as supports: also in case of coughings, sneezings and other movements they serve as separate supports (cushions?) for the chest and head. The suitable modes of bandaging in all these cases are the same, for where the lesion is there should be the chief pressure. Put something³ soft underneath suited to the affection. Do not make the bandaging tighter than suffices to prevent the pulsations from shaking the part, or than is necessary to bring the edges of the separated commissures into touch with one another; nor is it intended to prevent coughings and sneezings,⁴ but to act as a support for the avoidance both of forcible separation and shaking.

¹ So Galen, who says the words are usually synonymous.
² Includes everything from twitchings to respiratory movements. G.
³ Reading μαλακόν τί.
⁴ The text seems corrupt, but it can hardly mean "so tight as to prevent sneezing"!
FRACTURES, JOINTS, MOCHLICON
INTRODUCTION

There is no question as to the relationship of these three treatises. Fractures and Joints probably once formed a single work, and are certainly by the same author,1 while Mochlicon is composed of an abbreviation of those parts of them which treat of dislocations. In antiquity no one doubted that Fractures and Joints were by the great Hippocrates, except a few who attributed them to another man of the same name, his grandfather, the son of Gnosidicus.2 Galen, in all his lists, classes them first, or nearly first, among the γνησίωτατα3 or "most genuine" works. Of the two things we know for certain about the teaching of Hippocrates, Plato's statement that he held it impossible to understand the body without studying nature as a whole has proved too vague to be attached to any particular treatise, but the condemnation by his kinsman Ctesias of his reduction of the hip-joint (unless it refers to verbal teaching or to some work which has vanished) must apply, as Galen says,4 to Joints, where the subject is treated in detail.

1 This seems sufficiently proved by the fact that references are made from Joints to Fractures in exactly the same terms as to the earlier parts of Joints: e.g. J LXVII, LXXII, ὡς καὶ πρόποθεν εἴρηται. εἴρηται [ἐποκα B, Apoll.] καὶ πρόσοπον, which refer to F XXXI and XIII respectively. Reference to another treatise is put differently: e.g. ἐν ἐτέρῳ λόγῳ J XLV.

2 Galen, XV. 456.
3 XVII(1). 577.
4 XVIII(1). 731.
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The work was known to, and in part paraphrased by, Diocles, who was probably adult before Hippocrates died, and there is no record that he doubted its authorship. We may therefore, perhaps, conclude that nothing in the Corpus has a better claim to be by Hippocrates himself than Fractures–Joints, and proceed to discuss them in some detail.

The question asked in antiquity was: Why does Fractures contain a good deal about dislocations (joints) while Joints has some sections on fractures? To which Galen replies that Hippocrates cared less for words than for things, and fractures and dislocations often come together. This answer is not quite satisfactory, for the weak point of the work is precisely the absence of any clear account of fracture-dislocations: besides, it seems probable to most careful readers that the result is mainly due to a work on fractures and dislocations having been broken up and put together again in disorder.

We may perhaps indicate this most clearly and briefly by taking Mochlicon, in which a natural order is preserved, as our guide, showing at the same time its relationship to the older treatise, or treatises. The order of Mochlicon is face, upper and lower limbs from above downwards, spine and ribs, though, like other Hippocratic works, it ends in a confused mass of rough notes.

M II–III, nose and ear, are derived from J XXXV–XL. M IV, lower jaw, from J XXX–XXXI. M V epitomizes in one chapter the remarkable account of shoulder dislocations, J I–XII. M VI is from J XIII, on dislocation of the outer end of the collarbone considered as avulsion of the acromion.

1 Apollonius, 13; Galen, XVIII (1). 519. Cf. Littre I. 334.
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We are surprised to find that M VII–XIX are not an epitome but a verbal repetition of J XVII–XXIX. They are derived mainly (VII–XV) from F XXXVIII–XLVII, on the elbow; XVI–XVIII, on the wrist, have no extant original, and XIX, on the fingers, does not appear to be an abridgment of the long account in J LXXX.

There seems no reasonable doubt, from the nature of the case, the style of the writing and peculiarities of language, that the epitome was made by the author of Mochlicon and afterwards transferred to Joints to fill up a vacancy. A reader of the latter observes a sudden change of style, the appearance of new words (ἐξαίφνης for ἐξαπίνης) and a whole string of depraved infinitives;¹ but the section is in perfect harmony with the rest of Mochlicon.

M XX–XXIV abbreviate the very full account of thigh dislocations in J LI–LX, while the directions for reduction, given at length in J LXX–LXXVIII, are condensed into M XXV.

M XXVI–XXXI on knee, ankle and foot repeat the phenomenon of VII–XIX. They correspond verbally with J LXXXII–LXXXVII and are epitomized from Fractures X–XIV—except XXVI, on the knee, which is, in part, from F XXXVII. We shall find that J LXXXII–LXXXVII form part of an appendix to the original treatise.

M XXXII condenses the account of club foot given in J LXII.

M XXXIII–XXXV deal with compound disloca-

¹ We may note that, according to our text, M XII has the more normal nominatives which have become accusatives on transference to J XXII.
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tions, loss or amputation of parts, gangrene and necrosis. They are derived from J LXIII–LXIX.

M XXXVI feebly represents the long account of spinal curvature in J XLI–XLVI, also fracture and contusion of the ribs, J XLIX.

In XXXVII M begins to go to pieces. It is based partly on J XLJ, partly on J L, and the rest of the treatise is a mass of confused notes on dislocations and fractures, often hardly intelligible, but obviously all taken from Fractures–Joints. Imbedded in it is a paragraph (XXXIX) on disease of the palate corresponding almost verbally with passages in Epidemics II, IV, and VI; and interesting as showing that Mochticon, like Surgery, has some connection with the middle division of this series.

Fractures and Joints may now be summarized briefly. About one-fourth of Fractures deals with dislocations. The first seven chapters treat fracture of the forearm in detail as a typical case. Chapter VIII fracture of the upper arm: IX–XXIII dislocations of the foot and ankle, and fractures of the lower limb. We are surprised to be told in chapter IX that dislocation of the wrist has already been mentioned. The remainder is devoted partly (XXIV–XXXVII) to compound fractures, and partly (XXXVIII–XLVII) to dislocations of the elbow, with a few words on dislocation of the knee (XXXVIII) and fracture of the olecranon.

Joints begins similarly with a sample case, dislocation of the shoulder-joint, described in great detail (I–XII). Then comes fracture of the collarbone and its dislocation (XIII–XVI). Next (XVII–XXIX) is the interpolation from Mochticon, on elbow, wrist, and finger-joints. Injuries of the jaw, nose
and ear (XXX–XL) are given great attention, doubtless owing to the vigorous boxing methods then in use. XL–L treat of the spine and ribs in detail, and show much anatomical knowledge. LI–LXI include the celebrated account of dislocation of the hip and its results, and LXII has the excellent description of club foot. In LXIII–LXIX we are diverted to the consideration of compound dislocations, amputation, necrosis and gangrene, and finally return to the hip-joint and its reduction in LXXI–LXXVIII.

According to Galen, chapter LXXVIII is the last, and his commentary ends here. So does that of Apollonius, except for some rough notes, most of which occur at the end of our Mochlicon.

This view is confirmed by the nature of chapter LXXIX, which is a brief introduction to the study of dislocations, and would come more appropriately at the beginning.

Chapter LXXX looks like the original account of finger-joint dislocation; but was unknown to Apollonius, who says (on chapter XXIX) that Hippocrates made only a few remarks on the subject owing to its simplicity, and proceeds to supplement them by an extract from Diocles, which seems almost certainly based upon LXXX, and to form part of the "paraphrase" mentioned by Galen. We may perhaps conjecture that chapter LXXX was lost and discovered again after its place had been occupied. The rest of the appendix is an epitome of knee, foot and ankle lesions supplied from Mochlicon, the originals having somehow got into Fractures.

The answer to the question of antiquity is, then,
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that the great work on Fractures and Dislocations got into disorder soon after it was written, and that parts were lost, either temporarily (as J LXXX) or permanently, as with the original account of the wrist. The excellences of its disiecta membra speak for themselves, and have been recognized by all surgeons ancient and modern. An editor has the less agreeable task of dealing with defects and difficulties.

Many questions which occur to a modern reader are unlikely to receive satisfactory answers. Why does Hippocrates say that the fibula is longer than the tibia and projects above it\(^1\) (apparently because he saw and exaggerated its analogy with the ulna) and that twenty days are "very many" for consolidation of a broken collar-bone, whereas we allow three to six weeks?\(^2\) Why does he assert with emphasis that inward dislocation of the thigh-bone is much the most frequent,\(^3\) and all antiquity (together with Ambrose Paré)\(^4\) agree with him, whereas all modern evidence is to the contrary? Why does he ignore injuries of the knee-cap, and the use of that ancient instrument the safety-pin? These problems and other statements which will surprise the surgeon, such as the cure of hump back by varicose veins and the frequency of dislocation of the knee, must

\(^1\) Fractures, XII, XXXVII.
\(^2\) Joints, XIV.
\(^3\) Joints, LI.
\(^4\) So Adams (558). In his chapter on hip dislocation (XVI. 38) Paré says "Le plus souvent en dehors et en dedans, en devant et en derrière rarement." He may have held the modern view (dehors comes first) but have been unwilling to contradict such authorities as Hippocrates, Celsus and Galen. Possibly some grip in ancient wrestling made the internal form then more frequent.
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remain unsolved. Two subjects, however, require further consideration: the accounts of elbow and ankle dislocations. The former is treated by most editors at some length, and it is generally admitted that the latest and longest discussion (that of Petrequin) throws light on the subject. He points out that some difficulties are removed by supposing the Hippocratic attitude of the arm to be that with the bend of the elbow turned inwards, not forwards, and since Hippocrates speaks of dislocation of the humerus or upper arm (the convex from the concave), whereas we speak of dislocation of the forearm, a double correction is necessary, his inwards and outwards becoming our backwards and forwards respectively. Similarly, with lateral dislocation, the Hippocratic forwards and backwards become our inwards and outwards. This seems the best that can be done, though it brings the two surgical editors, Petrequin and Adams, into violent contradiction on some points.

The second puzzle is why—though Herodotus knows exactly what happened to the astragalus of Darius when he sprained his ankle—does Hippocrates never mention the bone, and give us a very obscure account of ankle dislocation? In part, doubtless, it is the layman rushing in where the specialist fears to tread; but the existence of a duplicate epitome of each of these subjects will enable us to discuss them further in the text.

Soranus tells us that the father of rhetoric, Gorgias, was one of the teachers of the father of medicine, and so long as such works as The Art and Breaths were considered genuine, they might have been adduced either as showing the result of this teach-
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ing, or as possibly giving origin to such a legend. But the story may very well be correct, for Gorgias and Hippocrates were both in Thessaly about the same time, and the physician may have admired not only the fine constitution of the elder man, which was destined to prolong his life well beyond a century, but also his fine language, and have taken some lessons in composition. But if we look for traces of rhetoric in what are now considered possibly genuine works, we are surprised to find them most prominent in the great surgical treatises. Fractures–Joints abound, if not in purple patches, at least in purple spots, as if the writer was trying to make use of recently acquired knowledge of rhetorical forms. Attention was called to this by Diels, and it has been more fully worked out by Krömer. Some rhetorical forms show through even the worst translation, and the reader will easily discover at least twelve examples of the rhetorical query. Plays upon words are also frequent and obvious in the Greek, though difficult to repeat in English. Of special interest is the frequent occurrence of chiasmus and other forms of the evenly balanced sentence. A short sample of either may be found respectively in Fractures, XLVII: πολλῶν μὲν γὰρ ἄν κῶλυμα εἰπ, ὦφελίθ δὲ ὀλύγων, and Joints, XLVI: ἄλλα καὶ οὖτως ἂν ἀποθάνω, παραξρῆμα δὲ οὐκ ἀποθάνω.

The latter, with the allied form of anaphora, or needless but ornate repetition of the same word (e.g. of ἀλλο in Fractures, 11; ἄρσον, Joints, XI) may remind readers of the less artistic repetitions common in Wounds in the Head, and suggest that in spite of diversity of style it may be by the same author. We notice also a similarity of doctrine,
especially the statement that contusions of bones are usually more serious than fractures, applied respectively to skull and ribs.

Too much weight may, perhaps, be given to this. Thus Littre (IV. 566) notes a resemblance between Fractures, XXXI, and Diet in Acute Diseases, VII. In both there is a disapproval, expressed in very similar language, of any marked interference, operative or dietetic respectively, during the third, fourth, or fifth days. He considers that the identity in sense and form of criticism, together with "the identity of the epoch," is enough to prove identity of authorship. He might have added that there is a number of curious terms common to Diet in Acute Diseases and Fractures—Joints: e.g. ἀγχώστα, in the sense of μάλιστα, and ἡδελφισμένος, ἄπαρτι, τὸ ἐπίταν.¹ But there are differences which raise doubts. Thus the favourite drink of the author of Fractures—Joints is oxyglyphy (hydromel, prepared by boiling squeezed-out honey-combs).² Diet in Acute Diseases never mentions this, though it has much to say about the closely allied oxymel and melicrate, which are ignored in Fractures—Joints.

The most formidable opponent of the Hippocratic authorship was H. Diels, whose main contention is that ancient writers did not refute one another by name, nor mention those whom they copied. Therefore, probably, neither Ctesias nor Diocles named Hippocrates. That they refer to him is only Galen's assumption. Reasons to the contrary are adduced by Krömer, and seem equally potent.³ The "paraphrase" of Diocles at least shows that the work was

¹ See Kühlewein op. cit. p. 6. ² Galen, XVIII(2). 466
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well known early in the fourth century, which is sufficient to refute the second argument usually brought against its Hippocratic origin, that the writer knows too much anatomy, and in particular distinguishes clearly between arteries and veins. If we may trust Caelius Aurelianus, their distinction was known to Euryphon,¹ who was older than Hippocrates, while the writer’s ability to give a good account of the shoulder-joint and spine, and promise of further details, is only what we should expect from what Galen says about the anatomical studies of the old Asclepiadae.²

Still, we must agree with Diels that this last attempt to demonstrate at least one genuine work of Hippocrates may be met by the ancient warning, δοκος δ’ επὶ πῶς τέτυκται, or rather that the whole sentence of Xenophanes may appropriately be applied to the Hippocratic problem, “Even if one hit upon the truth, he would not be sure he had done so, for guess-work is spread over all things.”

¹ T. P. 2. 10. ² Anat. Adm. 2. 1
ΠΕΡΙ ΑΓΜΩΝ

I. Ἐχρὴν τὸν ἤτροῦν τῶν ἐκπτωσίων τε καὶ καταγμάτων ὡς ἰδύτατα τὰς κατατάσσεις ποιεῖσθαι: αὐτὴ γὰρ ἡ δικαιοτάτη φύσις. ἢν δὲ τι ἐγκλίνῃ ἢ τῇ ἢ τῇ, ἐπὶ τὸ προηγὲς ἰδέης ἐλάσσον γὰρ ἡ ἀμαρτάς ἢ ἐπὶ τὸ ὕππτον. οἱ μὲν οὖν μηδὲν προβούλευονται οὐδὲν ἐξαμαρτάνουσιν ὡς ἐπὶ τὸ πολὺ: αὐτὸς γὰρ ἐπιδησόμενος ἡ τῆν χεῖρα ἀπορέγει οὕτως ὑπὸ τῆς δικαίης φύσιος ἀναγκαζόμενος. οἱ δὲ ἤτροὶ σοφιζόμενοι δήθεν ἔστιν ἀρὰ ἐφ’ οἷς ἀμαρτάνουσιν. ὁπούδη μὲν οὖν οὐ πολλὴ χεῖρα καταγμανόντως χειρίσαται, καὶ παντὸς δὲ ἤτροῦ, ὡς ἐπος εἰπεῖν: ἀναγκάζομαι δὲ ἐγὼ πλεῖον γράφειν περὶ αὐτοῦ ὅτι οἶδα ἤτροὺς σοφοὺς δὸξαντας εἶναι ὑπὸ σχημάτων χειρὸς ἐν ἐπιδείσει, ἀφ’ ὧν ἀμαθέας αὐτοὺς ἐχρὴν δοκεῖν εἶναι. ἄλλα γὰρ πολλὰ οὕτω ταύτης τῆς τέχνης κρίνεται τὸ γὰρ ξειοπρεπὲς οὕτω συνιέστε, εἰ χρηστὸν, μᾶλλον ἐπαινέουσιν ἢ τὸ σύγχρος, ὅ ἡδη οἴδασιν ὅτι χρηστὸν, καὶ τὸ ἀλλόκοτον ἢ τὸ εὐδηλον. ῥητέον οὖν ὅπόσας ἀν ἐθέλω τῶν ἀμαρτάνοντι τῶν ἤτροῦν, τὰς μὲν ἀποδιδάξει, τὰς δὲ διδάξατι [ἀρξομαι δὲ] τῆς φύσιος τῆς

1 ὁ ἐπιδησόμενος.  
2 ἔστιν οἷ.  
3 αὐτῆς.

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ON FRACTURES

I. In dislocations and fractures, the practitioner should make extensions in as straight a line as possible, for this is most conformable with nature;¹ but if it inclines at all to either side, it should turn towards pronation (palm down) rather than supination (palm up), for the error is less. Indeed, those who have no preconceived idea make no mistake as a rule, for the patient himself holds out the arm for bandaging in the position impressed on it by conformity with nature. The theorizing practitioners are just the ones who go wrong. In fact the treatment of a fractured arm is not difficult, and is almost any practitioner’s job, but I have to write a good deal about it because I know practitioners who have got credit for wisdom by putting up arms in positions which ought rather to have given them a name for ignorance. And many other parts of this art are judged thus: for they praise what seems outlandish before they know whether it is good, rather than the customary which they already know to be good; the bizarre rather than the obvious. One must mention then those errors of practitioners as to the nature of the arm on which I want to give positive

¹ Galen makes this a general statement; but the writer is apparently speaking of the forearm, which he had already mentioned in a lost introduction.
χειρός: καὶ γὰρ ἄλλων ὀστέων τῶν κατὰ τὸ
24 σῶμα δίδαγμα ὅδε ὁ λόγος ἐστίν.

Π. Τὴν μὲν οὖν χείρα, περὶ οὐ ὁ λόγος,
ἐδωκέ τις καταδήσας πρήμεα 2 ποιήσας: ὃ ὅσ
ἡμᾶς καζεῖν οὔτως ἔχειν ὡσπερ οἱ τοξεύοντες, ἐπὶν
τὸν ὄμον ἐμβιάλλωσι, καὶ οὔτως ἔχουσαν ἐπέδει,
νομίζων ἐωτῷ εἶναι τούτο αὐτῇ τὸ κατὰ φύσιν
καὶ μαρτύριον ἐπήγετο τὰ τε ὡστέα ἀπαντα τὰ
ἐν τῷ πίνει, ὅτι θυνωρίην κατάλληλα εἰχε, 3 τῆν
τε ὠμοχρόην, ὅτι αὐτῇ καθ’ ἐωτῇ τὴν θυνωρίην
ἔχει οὕτω καὶ ἐκ τοῦ ἐξόθην μέρεος καὶ ἐκ τοῦ
ἔσωθεν: οὕτω δὲ ἐφή καὶ τὰς σάρκας καὶ τὰ
νεῦρα πεφυκέναι, καὶ τὴν τοξικὴν ἐπήγετο μαρτύ-
ριον. ταῦτα λέγου ταῦτα ποιέων σοφὸς
ἐδώκει εἶναι: τῶν δὲ ἄλλων τεχνέων ἐπελελήθη
cαὶ ὁπόσα ἴσχυ ἐργαζόνται καὶ ὁπόσα τεχνή-
μασίν, οὐκ εἰδὼς ὅτι ἄλλο ἐν ἄλλῳ τὸ κατὰ
φύσιν σχῆμα ἐστίν, καὶ ἐν τῷ αὐτῷ ἔργῳ ἑτερα
τῆς δεξιῆς χειρὸς σχῆματα κατὰ φύσιν ἐστίν, καὶ
ἐτερα τῆς ἀριστερῆς, ἣν οὕτω τύχη. ἄλλο μὲν
γὰρ σχῆμα ἐν ἄκοπτησμῷ κατὰ φύσιν, ἄλλο δὲ ἐν
20 σφενδονίσει, ἄλλο δὲ ἐν λιθοβολήσει, ἄλλο ἐν
πυγῆ, ἄλλο ἐν τῷ ἐλινώει. ὁπόσας δέ ἀν τῆς
tέχνας εὐροὶ ἐν ἧσιν οὐ τὸ αὐτὸ σχῆμα τῶν χειρῶν
κατὰ φύσιν ἐστίν καὶ 4 ἐν ἐκαύσῃ τῶν τέχνων,
ἄλλα 4 πρὸς τὸ ἄρμενον ὁ ἐχή ἐκαστος, καὶ πρὸς

1 of because it is an idiom or phrase not referring specially
to ἡ χείρ.
2 ἐπηδήσαι καταπρηνέα.
3 ἔχει κατάλληλα.
4 ἄλλα (omitting καί).

1 Commentators, from Galen downwards, point out the
absurdity of teaching “errors.” Ermerius got rid of it in
and negative instruction,\(^1\) for this discourse is an instruction on other bones of the body also.

II. To come to our subject, a patient presented his arm to be dressed in the attitude of pronation, but the practitioner made him hold it as the archers do when they bring forward the shoulder,\(^2\) and he put it up in this posture, persuading himself that this was its natural position. He adduced as evidence the parallelism of the forearm bones, and the surface also, how that it has its outer and inner parts in a direct line, declaring this to be the natural disposition of the flesh and tendons, and he brought in the art of the archer as evidence. This gave an appearance of wisdom to his discourse and practice, but he had forgotten the other arts and all those things which are executed by strength or artifice, not knowing that the natural position varies in one and another, and that in doing the same work it may be that the right arm has one natural position and the left another. For there is one natural position in throwing the javelin, another in using the sling, another in casting a stone, another in boxing, another in repose. How many arts might one find in which the natural position of the arms is not the same, but they assume postures in accordance with the apparatus

his usual bold manner by reading τὰ for τᾶς. Diels considered it a glaring hysteron proteron which can be simply remedied by reversal, and this is practically done in the translation. It seems a play upon words at which the writer is more successful elsewhere. See chap. XXX end.

\(^2\) Galen says the archer held his left arm back downwards or nearly so; but this is contrary to ancient representations. What the writer chiefly objects to is putting up a broken forearm with the elbow extended.
ΠΕΡΙ ΑΓΜΩΝ

tὸ ἔργον ὁ ἄν ἐπιτελεῖσθαι θέλῃ, σχηματίζονται αἱ χεῖρες· τοξικὴν δὲ ἀσκέοντι εἰκὸς τοῦτο τὸ σχῆμα κράτιστον εἶναι τῆς ἐτέρης χειρὸς· τοῦ γὰρ βραχίωνος τὸ γιγγυλυμοειδὲς, ἐν τῇ τοῦ πῆχεος βαθμίδι ἐν τούτῳ τῷ σχῆματι ἐρείδον ἰδυωρίην ποιεῖ τοίς οὐστέοισιν τοῦ πῆχεος καὶ τοῦ βραχίωνος, ὡς ἂν ἐν εἰς τὸ πᾶν· καὶ ἡ ἀνάκλασις τοῦ ἄρθρου κέκλασται ἕν τούτῳ τῷ σχῆματι. εἰκὸς μὲν οὖν οὕτως ἀκαμπτότατον τε καὶ τετανώτατον εἶναι τὸ χωρίον, καὶ μὴ ἤσοσθαι, μηδὲ συνιδοῦναι, ἐλκομένης τῆς νευρῆς ὑπὸ τῆς δεξιῆς χειρὸς· καὶ οὕτως ἐπὶ πλείστον μὲν τὴν νευρὴν ἔλκυσε, ἀφῆσε δὲ ἀπὸ στερεωτάτου καὶ ἀθροωτάτου· ἀπὸ τῶν τοιούτων γὰρ ἀφεξίων τῶν τοξευμάτων, ταχεῖαι καὶ αἱ ἰσχύες καὶ τὰ μῆκα γίνονται.

30 ἐπιδείσει δὲ καὶ τοξικὴ οὐδὲν κοινὸν. τοῦτο μὲν γὰρ, εἰ ἐπιδήσας ἐχεῖν τὴν χείρα οὕτως ἐμελλε, πόνους ἄν ἄλλους πολλοὺς προσετίθει μείζονας τοῦ τρόματος· τοῦτο δ’, εἰ συγκάμψαι ἐκέλευν, οὔτε τὰ ὁστέα οὔτε τὰ νευρὰ οὔτε αἱ σάρκες ἐτι ἐν τῷ αὐτῷ ἐγκυνοῦτο, ἀλλὰ ἄλλῃ μετεκοσμεῖτο κρατέοντα τὴν ἐπίδεσιν· καὶ τὶ ὀφελὸς ἐστὶ τοξικοῦ σχῆματος· καὶ ταύτα ἰσος οὐκ ἀν ἐξημάρτανε σοφιζόμενος, εἰ εἰα τὸν τετρωμένου

40 αὐτὸν τὴν χείρα παρασχέσθαι.

III. Ἀλλος δ’ αὐ τις τῶν ἦτροιν ύπτίης τὴν χείρα δοὺς, οὕτω κατατείνειν ἐκέλευε, καὶ οὕτως ἔχουσαν ἐπέδει, τοῦτο ρομίζων τὸ κατὰ φύσιν εἶναι, τῷ τε χρῷ σημαίνομενος καὶ τὰ ὁστεά νομίζων κατὰ φύσιν εἶναι οὕτως, ὅτι φαινεται τὸ ἐξέχων ὁστέον τὸ παρὰ τὸν καρπὸν ἡ ὁ σμικρὸς

1 τέταται: Kw. (τετασθαι B').
each man uses and the work he wants to accomplish! As to the practiser of archery, he naturally finds the above posture strongest for one arm: for the hinge-like end of the humerus in this position being pressed into the cavity of the ulna makes a straight line of the bones of the upper arm and forearm, as if the whole were one, and the flexure of the joint is extended (abolished) in this attitude. Naturally then the part is thus most inflexible and tense, so as neither to be overcome or give way when the cord is drawn by the right hand. And thus he will make the longest pull, and shoot with the greatest force and frequency, for shafts launched in this way fly strongly, swiftly and far. But there is nothing in common between putting up fractures and archery. For, first, if the operator, after putting up an arm, kept it in this position, he would inflict much additional pain, greater than that of the injury, and again, if he bade him bend the elbow, neither bones, tendons, nor flesh would keep in the same position, but would rearrange themselves in spite of the dressings. Where, then, is the advantage of the archer position? And perhaps our theorizer would not have committed this error had he let the patient himself present the arm.

III. Again, another practitioner handing over the arm back downwards had it extended thus and then put it up in this position, supposing it to be the natural one from surface indications: presuming also that the bones are in their natural position because the prominent bone at the wrist on the little finger

2 ἐκελεὺς. 8 ἐκελευσε.
Δάκτυλος, κατ' ιθυωρίην είναι τοῦ ὀστέου, ἀφ' ὀστεον 1 τοῦ πήχου οἱ ἀνθρωποὶ μετρέουσιν ταύτα τὰ μαρτύρια ἐπήγετο ὅτι κατὰ φύσιν οὕτως ἔχει, καὶ ἐδόκει εὐ λέγειν.

'Αλλὰ τούτῳ μὲν, εἰ ὑπτίη ἡ χείρ κατατείνωτο, ἵσχυρῶς πονοῖ ἡν γνοῖ δ' ἂν τῆς τὴν ἐωτοῦ χειρα κατατείνας ὡς ἐπώδυνον τὸ σχῆμα. ἐπεὶ καὶ ἀνὴρ ἦσσων κρέσσονα διαλαβὼν οὕτως εὗ 2 τῆς ἐωτοῦ χερσίν, ὡς κλάται ὁ ἀγκὼν ὕπτιός, ἄγοι ἂν ὅτι ἐθέλουσέν οὔτε γὰρ εἰ ἕξιος ἐν ταύτῃ τῇ χειρὶ ἔχοι, ἔχοι ἂν ὅ τι χρήσαιτο τῷ ἕξιε' οὕτω βιάζον τούτῳ τὸ σχῆμα ἐστιν. τούτῳ δὲ, εἰ ἐπιδήσας τοῖς ὑπό τοῦ σχῆματι ἕφη, μέζων μὲν πόνος, εἰ περίμων, μέγας δὲ καὶ εἰ κατακέοςτο. τούτῳ δὲ, εἰ συγκάμψει τὴν χειρὰ, ἀνάγκη πᾶσα 3 τοὺς τε μῦνας καὶ τὰ ὀστέα ἄλλο σχῆμα ἔχειν. ἤγνωςε δὲ καὶ τάδε τὰ ἐν τῷ σχῆματι χωρίς τῆς ἀλλης λύμης: τὸ γὰρ ὀστεὸν τὸ παρὰ τὸν καρπὸν ἐξέχον, τὸ κατὰ τὸν σμικρὸν δάκτυλον, τούτῳ μὲν τοῦ πήχεως ἐστιν: τὸ δὲ ἐν τῇ συγκάμψει ἐδώ ἀπὸ τευ 4 τοῦ πήχου οἱ ἀνθρωποὶ μετρέουσιν, τούτῳ δὲ τοῦ βραχίους ἡ κεφαλή ἐστιν. ὁ δὲ φέτο τουτὸ ὀστεόν εἶναι τούτῳ τε κάκεινο, πολλοὶ δὲ καὶ ἀλλοι: ἐστὶ δὲ ἐκεῖνῳ τῷ ὀστὲῳ των τὸ ἀγκὼν καλοῦμενος, ὁ ποτὶ 5 στηριζόμεθα. οὕτως οὖν ὑπτίην ἔχοντι τὴν χειρὰ, τούτῳ μὲν τὸ ὀστεὸν διεστραμμένον φαίνεται, τούτῳ δὲ τὰ νεῦρα τὰ ἀπὸ τοῦ καρποῦ τείνοντα ἐκ τοῦ ἔσω μέρεος καὶ ἀπὸ τῶν δακτύλων, ταύτα ὑπτίην ἔχοντι τὴν χειρὰ διεστραμμένα γίνεται· τείνεται 6 γὰρ ταύτα τὰ νεῦρα

1 ἀπ' ὀστε. 2 ἐν. 3 Kw. omits.

100
side appears to be in line with the bone from which men measure the forearm (cubit). He adduced this as evidence for the naturalness of the position, and seemed to speak well.

But, to begin with, if the arm were kept extended in supination it would be very painful; anyone who held his arm extended in this position would find how painful it is. In fact, a weaker person grasping a stronger one firmly so as to get his elbow extended in supination might lead him whither he chose, for if he had a sword in this hand he would be unable to use it, so constrained is this attitude. Further, if one put up a patient's arm in this position and left him so, the pain, though greater when he walked about, would also be great when he was recumbent. Again, if he shall bend the arm, it is absolutely necessary for both the muscles and bones to have another position. Besides the harm done, the practitioner was ignorant of the following facts as to the position. The projecting bone at the wrist on the side of the little finger belongs indeed to the ulna, but that at the bend of the elbow from which men measure the cubit is the head of the humerus, whereas he thought the one and the other belonged to the same bone, and so do many besides. It is the so-called elbow on which we lean that belongs to this bone.1 In a patient with the forearm thus supinated, first, the bone is obviously distorted, and secondly, the cords stretching from the wrist on its inner side and from the fingers also undergo distortion in this supine position, for

1 i.e. the olecranon process is part of the ulna.
ΠΕΡΙ ΑΓΜΩΝ

πρὸς τὸ τοῦ βραχίονος ὀστέου, ὅθεν ὁ πήχυς μετρεῖται. αὐταί τοσαῦτα καὶ τοιαῦτα αἱ ἀμαρτάδες καὶ ἀγνοίαι τῆς φύσιος τῆς χειρός. εἰ
dὲ, ὡς ἐγὼ κελεύω, χεῖρα κατεγγυιάν κατατείνοι
tις, ἐπιστρέψει μὲν τὸ ὀστέον ἐς θύ, τὸ κατὰ τὸν
σμικρὸν δάκτυλον, τὸ ἐς τὸν ἀγκώνα τείνον,
θυσίριν ὅ ἐξεὶ τὰ νεῦρα τὰ ἀπὸ τοῦ καρποῦ
πρὸς τοῦ βραχίονος τὰ ἄκρα τείνοντα· ἀναλαμ-
βανομένη δὲ ἡ χεῖρ ἐν παραπλησίῳ σχήματι
ἔσται, ἐν ὃ περ καὶ ἐπίδεομένη, ἀπονοῦσ μὲν
ὁδιπορέοντι, ἀπονοῦσ δὲ κατακεμένω καὶ ἀκά-
ματος. καθίνυνθαί δὲ χρῆ τὸν ἀνθρώπων οὕτως,
ὅπως ἢ τὸ ἐξέχον τοῦ ὀστέου πρὸς τὴν λαμπροτά-
την τῶν παρεοισέων αὐγέων, ὡς μὴ λάθη τὸν
χειρίζοντα ἐν τῇ κατατάσει, εἰ ἴκανος ἐξίθυνται.
τοῦ γε μὴ ἐμπείρον ὦνδὲ ἄν τὴν χεῖρα λάθοι ἐπα-
γομένην τὸ ἐξέχον· ὑτὰρ καὶ ἀλγεῖ μάλιστα κατὰ
54 τὸ ἐξέχον ψαυόμενον.

Τῶν δὲ ὀστεῶν τοῦ πῆχεος, δὲν μὴ ἄμφοτερα
cατέγγει, 1 ράων ἡ ἱσις, ἦν τὸ ἄνω ὀστεόν τετρω-
μένου ὃ καὶ περ παχύτερον ἐδὼ ἀμα μὲν ὁτι τὸ
ὕγιες ὑποτεταμένου γίνεται ἀντὶ ἁμελίου, ἀμα δὲ
ὅτι εὐκρυπτότερον γίνεται, πλὴν εἰ 2 τὸ ἐγγὺς τοῦ
καρποῦ· παχεῖν γάρ ἡ τῆς σαρκὸς ἐπίφυσις ἐπὶ
tὸ ἄνω. τὸ δὲ κἀτω ὀστέον ἀσαρκῶ καὶ οὐκ
eὐσύγκρυπτου, καὶ κατατάσιος ἵσχυρότηρς ἐδεῖται.
ἡν δὲ μὴ τοῦτο συντριβῇ, ἀλλὰ τὸ ἐτερον,
10 φαυλοτέρη ἢ κατάτασις ἄρκει. ἡν δὲ ἄμφοτερα
cατείγη, ἵσχυρότητις κατατάσιος ἐδεῖται· παιδίον
μὲν γὰρ ἣδη εἶδον κατατάθεντα μᾶλλον ἡ ὥς

1 κατέγγει, ... εἰ ... τετρωταί. 2 ἦν. 3 ἐλαφροτέρη.
these cords extend to the bone of the upper arm from which the cubit is measured. Such and so great are these errors and ignorances concerning the nature of the arm. But if one does extension of a fractured arm as I direct, he will both turn the bone stretching from the region of the little finger to the elbow so as to be straight and will have the cords stretching from the wrist to the (lower) end of the humerus in a direct line; further, the arm when slung will keep about the same position as it was in when put up, and it will give the patient no pain when he walks, no pain when he lies down and no sense of weariness. The patient should be so seated that the projecting part of the bone is turned towards the brightest light available, that the operator may not overlook the proper degree of extension and straightening. Of course the hand of an experienced practitioner would not fail to recognise the prominence (at the fracture) by touch; also there is a special tenderness at the prominence when palpated.

IV. When the bones of the forearm are not both fractured the cure is easier if the upper bone (radius) is injured, though it is the thicker, both because the sound bone lying underneath acts as a support and because it is better covered, except at the part near the wrist, for the fleshy growth on the upper bone is thick; but the lower bone (ulna) is fleshless, not well covered, and requires stronger extension. If it is not this bone but the other that is broken, rather slight extension suffices: if both are broken very strong extension is requisite.

In the case of a child I have seen the bones ex-

1 i.e. the styloid process in line with the olecranon.
PERΙ ΑΡΜΩΝ

ἐδεί, οἱ δὲ πλείστοι ἡσοῦν τείνονται ἦ ὡς δεῖ. χρὴ δὲ ἐπὶ ταῖς τἐναρα προσβάλλοντα διορθοῦν ἐπείτα χρήσατα κηρωτῇ μὴ πάνω πολλῇ, ὡς μὴ περιπλέξε τὰ ἐπιδέσματα, οὕτως ἐπιδεῖν ὅπως μὴ κατωτέρω ἀκρὴν τῇν χεῖρᾳ ἔξει τοῦ ἀγκώνος, ἀλλὰ σκιρω ἀνώτέρω, ὡς μὴ τὸ αἷμα ἐς ἀκρον ἐπιρρέῃ, ἀλλὰ ἀπολαμβάνῃ ταῖς ἐπείτα ἐπιδεῖν τῷ θόνῳ, τῇν ἀρχῇν βαλλόμενος κατὰ τὸ κάτηγμα· ἐρείδων μὲν οὖν, 1 μὴ πιέζων δὲ κάρτα· ἐπὴν δὲ περιβάλλη κατὰ τῶν ἔτος ἡ τρίς, ἐπὶ τὸ ἄνω νεμέσθω ἐπιδεῶν, ἵνα αἱ ἐπιρροαὶ τοῦ αἷματος ἀπολαμβάνωνται, καὶ τελευτησάτω κεῖθε. χρὴ δὲ μὴ μακρὰ εἴναι τὰ πρῶτα ὀθόνια. τῶν δὲ δευτέρων ὀθόνιῶν τῇν μὲν ἀρχῇν βάλλεσθαι ἐπὶ τὸ κάτηγμα· περιβαλῶν τε 2 ἅπαξ ἐς τῶν τῷ, ἐπείτα νεμέσθω εἰς τὸ κάτω καὶ ἐπὶ ἡσοῦν πιέζων, καὶ ἐπὶ μέξου διαβιβάσκων, ὡς ἂν αὐτὸ 3 ἱκανὸν γένηται τὸ ὀθόνιον ἀναπαλυνδρομῆσαι κεῖθε ἵνα περὶ τὸ ἐτερον ἐπελεύσησιν. ἐνταῦθα μὲν οὖν τὰ ὀθόνια ἐπὶ ἀριστερὰ ἢ ἐπὶ δεξιὰ ἐπιδεδέσθῳ, ἢ ἐπὶ ὀπότερα ἄν συμφέρῃ πρὸς τὸ σχῆμα τοῦ κατεαγότος, 4 καὶ ἐφ' ὀπότερα ἄν περιρρέψειν συμφέρῃ. μετὰ δὲ ταῦτα, σπλήνας κατατείνειν χρὴ κεχρισμένους κηρωτῇ ὀλίγην καὶ γὰρ προσηνέστερον καὶ εὐθετώτερου. ἐπείτα οὕτως ἐπιδεῖν τοῖσιν ὀθονίοισιν ὡς 5 ἐναλλάξ, ὅτε μὲν ἐπὶ δεξιά, ὅτε δὲ ἐπὶ ἀριστερά· καὶ τὰ μὲν πλεῖσι κάτωθεν ἀρχόμενος ἐς τὸ ἄνω ἀγεῖν, ἐστὶ δὲ ὅτε καὶ ἀνωθέν ἐς τὸ κάτω. τὰ δὲ ὑπόξηρα ἀκείσθαι τοῖσι σπλήνεσι κυκλεύντα· τῷ δὲ πλῆθει τῶν περι-

1 Omit οὖν. 2 δὲ. 3 αὐτῷ.
tended more than was necessary, but most patients get less than the proper amount. During extension one should use the palms of the hands to press the parts into position, then after anointing with cerate (in no great quantity lest the dressings should slip), proceed to put it up in such a way that the patient shall have his hand not lower than the elbow but a little higher; so that the blood may not flow to the extremity but be kept back. Then apply the linen bandage, putting the head of it at the fracture so as to give support, but without much pressure. After two or three turns are made at the same spot, let the bandage be carried upwards that afflux of blood may be kept back, and let it end off there. The first bandages should not be lengthy. Put the head of the second bandage on the fracture, making one turn there; then let it be carried downwards, with decreasing pressure and at wider intervals, till enough of the bandage is left for it to run back again to the place where the other ended. Let the bandages in this part of the dressing be applied either to left or right, whichever suits the form of the fracture and the direction towards which the limb ought to turn. After this, compresses should be laid along after being anointed with a little cerate; for the application is more supple and more easily made. Then put on bandages crosswise to right and left alternately, beginning in most cases from below upwards but sometimes from above downwards. Treat conical parts by surrounding them with compresses, bringing them to a level not all
βολέων μὴ πᾶν ἀθροῦν συνδιορθοῦντα, ἀλλὰ κατὰ μέρος. περιβάλλειν δὲ χρή χαλαρὰ καὶ περὶ τὸν καρπὸν τῆς χειρὸς ἄλλοτε καὶ ἄλλοτε. πλήθος δὲ τῶν οθονίων ἱκανὸν τὸ πρῶτον αἱ δύο μοῖραι.

V. Σημεῖα δὲ τοῦ καλῶς ἱπτρευμένου ταῦτα, καὶ ὀρθῶς ἐπιδεόμενοι, εἰ ἐρωτώντος αὐτῶν εἰ πεπιέκται, καὶ εἰ φαίγη μὲν πεπιέχθαι, ἵσυχως δὲ, καὶ μάλιστα εἰ κατὰ τὸ κάτηγμα φαίγει τοιαῦτα τοῖνυν φάναι χρή πεπρογράμενα διὰ τέλεος τὸν ὀρθῶς ἐπιδεόμενον. σημεῖα δὲ ταῦτα τῆς μετριότητος, τὴν μὲν ἴμέρη, ἵνα ἐπιδεθῇ, καὶ τὴν νῦκτα δοκεῖτω αὐτὸς ἐσυντὸ μὴ ἐπὶ ἱσσον πεπιέχθαι, ἀλλὰ ἐπὶ μᾶλλον τῇ δὲ ὑστεραίῃ οἰδημάτων ἐλθεῖν ἐς χεῖρα ἀκρήν μαλθακόν· μετριότητος γὰρ σημεῖων τῆς πιέξιός σοῦ· τελευτώσῃς δὲ τῆς ἴμέρης, ἐπὶ ἱσσον δοκεῖτω πεπιέχθαι· τῇ δὲ τρίτῃ χαλαρᾶ σοι δοκεῖτω εἶναι τὰ ἐπιδέσματα. κἂν μὲν τι τούτων τῶν εἰρημένων ἐκλείπῃ, γυνώσκειν χρή ὅτι χαλαρωτέρῃ ἐστὶν ἡ ἐπίδεσις τοῦ μετρίου· ἵνα δὲ τῶν εἰρημένων πλεονάζῃ, χρὴ γυνώσκειν ὅτι μᾶλλον ἐπιέχθη τοῦ μετρίου· καὶ τούτους σημαινόμενος τὸ ύστερον ἐπιδέων ἢ χαλάν μᾶλλον, ἢ πιέζειν. ἀπολύσαντα δὲ χρῆ τριταῖον ἑόντα κατατεινάμενον καὶ διορθωσάμενον· καὶ ἵνα μετρίως τὸ πρῶτον τετυχήκης ἐπιδήσας, ταῦτα τὴν ἐπίδεσιν χρῆ ὀλίγῳ μᾶλλον

1 Littré inserts ἀδῆς ἐπίδησαι—and renders (as followed by Adams), “Having removed the bandages on the third day, you must make extension and adjust the fracture and bind it up again.” As Petrequin remarks, this seems contrary to common sense, surgery and the express directions
ON FRACTURES, iv.–v.

at once but gradually by the number of circum-
volutions. You should put additional loose turns
now and then at the wrist. The two sets of
bandages are a sufficient number for the first
dressing.

V. These are the indications of good treatment
and correct bandaging:—If you ask the patient
whether the part is compressed and he says it is,
but moderately and that chiefly at the fracture.
A properly bandaged patient should give a similar
report of the operation throughout. The following
are the indications of a due moderation. During
the day of the dressing and the following night
the pressure should appear to the patient not to
diminish but rather to increase, and on the following
day a slight and soft swelling should appear in
the hand; you should take this as a sign of the
due mean as to pressure. At the end of the day
the pressure should seem less, and on the third
day you should find the bandages loose. If, then,
any of the said conditions are lacking you may
conclude that the bandaging was slacker than the
mean, but if any of them be excessive you may
conclude that the pressure was greater than the
mean, and taking this as a guide make the next
dressing looser or tighter. You should remove the
dressing on the third day after the extension and
adjustment, and if your first bandaging hit the

of the author (XXXI). The limb is supposed to be set, any
further adjustment being made on the seventh day. Celsus
(VIII. 10. 1), Galen (Med. Med. VI. 5) and Paulus (VI. 99)
all follow Hippocrates, but make no mention of a second
setting on the third day. Still, in the case of the leg he
seems to recommend interference at every dressing; and
grammar is on the side of Littre.
ΠΕΡΙ ΑΓΜΩΝ

η ἐκείνην πιέσαι. βάλλεσθαι δὲ χρὴ τὰς ἁρχὰς κατὰ τὸ κάτηγμα, ὥσπερ καὶ τὸ πρῶτον· ἢν μὲν γὰρ τοῦτο πρῶτον ἐπιδέσης, ἔξειρύναται ἐκ τοῦτον οἱ ἰχώρες ἐς τὰς ἑσχατιᾶς ἑνθα καὶ ἑνθα· ἢν δὲ τι ἄλλο πρῶτον πίεξης, ἐς τοῦτο ἔξειρυναται ἐκ τοῦ πιεχθέντος· ἐς πολλὰ δὲ εὐχρηστον τὸ συνεῖναι. οὕτως οὖν ἄρχεσθαι μὲν αἰεὶ χρὴ τὴν ἐπίδεσιν καὶ τὴν πίεξιν ἐκ τοῦτον τοῦ χωρίου, τὰ δὲ ἄλλα κατὰ λόγον, ως προσωτέρω ἀπὸ τοῦ κατῆγματος ἀγάγης, ἐπὶ ἔσον τὴν πίεξιν ποιεῖσθαι. χαλαρὰ δὲ παντάπασι μηδέποτε περιβάλλεται, ἄλλα προσπεπτοκεῖναι. ἐπείτα δὲ πλεῖστον θονίοις χρὴ ἐπιδεῖν ἐκάστην τῶν ἐπιδεσίων. ἐρωτώμενος δὲ φάτω ολίγῳ μᾶλλον οἱ πεπίεχθαι, ἢ τὸ πρῶτον, καὶ μᾶλιστα φάτῳ κατὰ τὸ κάτηγμα καὶ τὰ ἄλλα δὲ κατὰ λόγον· καὶ ἀμφὶ τῷ οἴδηματι, καὶ ἀμφὶ τῷ πονεέων, καὶ ἀμφὶ τῷ ῥηίζεωι, κατὰ λόγον τῆς προτέρης ἐπιδεσίας γινέσθω. ἐπὶ οὖν δὲ τριταῖος ἦ, χαλαρώτερα οἱ δοκεῖτω εἶναι τὰ ἐπιδέσματα. ἐπείτα ἀπολύσαντα χρὴ αὖθις ἐπιδήσαι, ολίγῳ μᾶλλον πιέζοντα, καὶ ἐν πάσι τοῖς θονίοις οἰσὶ περ ἑμελλεν ἐπιδείσθαι· ἐπείτα δὲ πάντα αὐτὸν ταῦτα καταλαβέτω, ἀπερ καὶ ἐν τῇ πρώτῃ περιόδοις τῶν ἐπιδεσίων.

VI. Ἐπὶ οὖν δὲ τριταῖος γεννηται, ἐβδομαιος δὲ ἀπὸ τῆς πρώτης ἐπιδεσίας, ἢν ὁρθῶς ἐπιδέσηται, τὸ μὲν οἴδημα ἐν ἄκρῃ τῇ χειρὶ ἔσται, ὡστε τοῦτο λῖνη μέγα· τὸ δ’ ἐπιδεόμενον χωρίον ἐν πάσῃ τῇ πίεξιν ἐπιδεσιῶν ἐπὶ τὸ λεπτότερον καὶ ἴσχυστερον εὑρέθησεται, ἐν δὲ τῇ ἐβδομῇ καὶ πάνυ λεπτῶν.

1 ἔξειρυναται bis. See note, p. 158.
proper mean this one should be a little tighter. The heads of the bandages should be applied over the fracture as before, for if you did this before, the serous effusions were driven thence into the outer parts on both sides, but if you formerly made the pressure anywhere else, they were driven into this place (the fracture) from the part compressed. It is useful for many things to understand this. It shows that one should always begin the bandaging and compression at this point, and, for the rest, in proportion as you get further from the point of fracture make the pressure less. Never make the turns altogether slack, but closely adherent. Further, one should use more bandages at each dressing, and the patient when asked should say he felt a little more pressure than before, especially at the point of fracture, and the rest in proportion. And as regards the swelling, feeling of pain and relief, things should be in accord with the previous dressing. When the third day comes, he should find the dressings rather loose. Then after undoing them he should bandage again with a little more pressure and with all the bandages that he is going to use, and afterwards the patient should experience all those symptoms which he had in the first periods of bandaging.

VI. When the third day is reached (the seventh from the first dressing), if he is being properly bandaged, there will be the swelling on the hand, but it will not be very marked. As to the part bandaged, it will be found to be thinner and more shrunken at each dressing, and on the seventh day.
ΠΕΡΙ ΑΓΜΩΝ

καὶ τὰ ὀστέα τὰ κατεγρῶτα ἐπὶ μᾶλλον κινεύμενα καὶ εὐπαράγωγα ἐς κατόρθωσιν. καὶ ἂν ἡ ταύτα
tοιαῦτα, κατορθωσάμενον χρῆ ἐπιδήσαι ὡς 'σ νάρ-
θηκας, ὀλίγῳ μᾶλλον πέσαντα ἦ τὸ πρότερον, ἦν
μὴ πόνος τις πλείον ἦ ἀπὸ τοῦ οἰδήματος τοῦ ἐν
ἀκρῇ τῇ χειρί. ἐπὶ οὖ ἐπιδήσης τοῖς ὀθονίοις,
tοὺς νάρθηκας περιθείναι χρῆ καὶ περιλαβέιν ἐν
τοῖς δεσμοῖς ὡς χαλαρωτάτοιοι, ὅποιον ἤρε-
μεῖν, ὡστε μηδὲν συμβάλλεσθαι ἐς τὴν πίεξιν τῆς
χειρὸς τὴν τῶν ναρθηκῶν προσθεσιν. μετὰ δὲ
tαύτα, ὡ τε πόνος, αἳ τε ῥαστῶναι αἳ αὐτάι
γυνέσθωσαν αἳ περ καὶ ἐν τῇ πρώτῃ 1 περι-
όδοις τῶν ἐπιδεσίων. ἐπὶ δὲ τριταῖος ἕως φη
χαλαρῶν εἶναι, τότ' ἐπειτα χρῆ τοὺς νάρθηκας
ἐρείσασθαι, μάλιστα μὲν κατὰ τὸ κάτηγμα, ἀτὰρ
καὶ τάλλα κατὰ λόγον, ἦπερ καὶ ἡ ἐπίδεσις
ἐχάλα ἄρα 2 μᾶλλον ἦ ἐπίεζεν. παχυτατον δὲ
χρῆ εἶναι τῶν νάρθηκα ἃ ἐξέστη τὸ κάτηγμα, μὴ
μὴν πολλῷ. ἐπιτιθεῦειν δὲ χρῆ μάλιστα μὲν κατ'
ἰθυωρίην τοῦ μεγάλου δακτυλοῦ, ὡς μὴ κεῖσται ὁ
νάρθηξ, ἀλλὰ τῇ ἢ τῇ, μηδὲ κατὰ τὴν τοῦ σμικροῦ
ἰθυωρίην, ἢ τὸ ὀστέον ὑπέρεχει ἐν τῷ καρπῷ,
ἀλλὰ τῇ ἢ τῇ. ἢν δὲ ἄρα πρὸς τὸ κάτηγμα
συμφέρη κείσθαι κατὰ ταῦτα τινας τῶν ναρθηκῶν,
βραχυτέρους αὐτοὺς χρῆ τῶν ἄλλων ποιεῖν, ὡς
μὴ ἐξικενώτατι πρὸς τὰ ὀστέα τὰ ὑπέρεχοντα
παρὰ τὸν καρπὸν κίνδυνος γὰρ ἑλκωσίος καὶ
νεύρων ψιλώσιος. χρῆ δὲ διὰ τρίτης ἐρείδειν
tοῖς νάρθηξι πάνυ ἡσυχῆ, οὕτω τῇ γνώμῃ
ἐχοντα, ὡς οἱ νάρθηκες φυλακῆς εἶνεκα τῆς

1 προτέρησι.
it will be quite thin, while the fractured bones will be more mobile and ready for adjustment. If this is so, after seeing to the adjustment you should bandage as for splints, making a little more pressure than before, unless there is any increase of pain from the swelling on the hand. When you dress with the bandages you should apply the splints round the limb and include them in ligatures as loose as possible consistently with firmness, so that the addition of the splints may contribute nothing to the compression of the arm. After this the pain and the relief following it should be the same as in the previous periods of bandaging. When, on the third day, he says it is loose, then indeed you should tighten up the splints, especially at the fracture, and the rest in proportion where the dressing also was loose rather than tight. The splint should be thicker where the fracture projects, but not much so, and you should take special care that it does not lie in the line of the thumb, but on one side or the other, nor in the line of the little finger where the bone projects at the wrist, but on one side or the other. If, indeed, it is for the benefit of the fracture that some of the splints should be placed thus, you should make them shorter than the rest, so that they do not reach as far as the bones which project at the wrist, for there is risk of ulceration and denuding of tendons. You should tighten the splints every third day¹ very slightly, bearing in mind that they are put there to maintain

¹ i.e. every other day

² Pq. ἐχελαρια codd.; but this is not Greek. Kw. omits ἄρα.
ΠΕΡΙ ΑΓΜΩΝ

ἐπιδέσιος προσκέονται ἂλλ' οὐ τῆς πιέζος εἴνεκεν ἐπιδεδενται.

VII. Ὅν μὲν οὖν εὐς εἰδῆς ὅτι ἰκανῶς τὰ ὀστέα ἀπίθυνται ἐν τῷ προτέρησι ἐπιδέσεσι, καὶ μητε κυνησμὸι τινες λυπέωσι, μήτε τις ἐλκώσις μηδεμία ὑποπτεύνηται εἰναι, ἓν χρῆ ἐπιδεδέσθαι ἐν τοῖσι νάρθηξι, ἕστ' ἀν ὑπὲρ εἰκοσιν ἡμέρας γέννηται.

ἐν τριήκοντα δὲ μᾶλλον τῇσι συμπάσχει κρατύνεται ὀστέα τὰ ἐν τῷ πῆχει τὸ ἐπίπαν ἀτρεκὲς δὲ οὐδὲν Μάλα γὰρ καὶ φύσις φύσεος καὶ ἠλικία ἠλικίας διαφέρει. ἐπὶν δὲ λύσης, ύδωρ θερμὸν καταχέα τὴ χρή καὶ μετεπιδήσαι, ἦσον μὲν όλῳ πιέσαντα ὑ τὸ πρόσθεν, ἐλάσσοσι δὲ τοῖσιν ὀθονίοισιν ὑ τὸ πρῶτον· καὶ ἔπειτα διὰ τρίτης ἡμέρης λύσαντα ἐπιδείν, ἐπὶ μὲν ἦσον πιέξοντα, ἐπὶ δὲ ἐλάσσοσι τοῖσιν ὀθονίοισιν. ἐπὶν δὲ, ὅταν τοῦσι νάρθηξι δεθῆ, ὑποπτεύης τὰ ὀστέα μὴ ὀρθῶς κεῖσθαι, ἡ ἄλλο τι ὀχλεῖ τὸν τετραμένου, λύσαι ἐν τῷ ἡμίσει τοῦ χρόνου ὑ ὀλίγῳ πρόσθεν, καὶ αὐθίς μετεπιδήσαι. δίαιτα δὲ τοῦτοις οἷς ἄν μὴ ἐλκεα ἐξ ἀρχής γέννηται ἢ ὀστέα ἐξω ἐξίσχη, ἀρκεῖ ὑποφαύλη. [σμικρῶν τι καὶ γὰρ ἐνδέστερον χρὴ διαιτάν ἄχρις ἡμερῶν δέκα, ἀτε δὴ καὶ ἐλινύοντας· καὶ ἦγοισιν ἀπαλοίσι χρῆσθαι ὅποσα τῇ διεξόδῳ μετριότητα παρασχῆσει, οἷον δὲ καὶ κρησφαγίας ἀπέχεσθαι· ἔπειτα μέντοι ἐκ προσαγωγῆς ἀνακομίζεσθαι. οὐτοσ ὁ λόγος ὅπερ νόμος κεῖται δίκαιος περὶ κατηγμάτων ἡμίσιος, ὡς τε χειρίζειν χρὴ, ὡς τε ἀποβαίνειν ἀπὸ τῆς δικαίης χειρίζεσι· ὅ τι δ' ἄν μὴ οὕτως ἀποβαινῇ, εἰδέναι χρὴ ὅτι ἐν τῇ

1 προσκέονται Vulg.: προσκέονται Kw.
ON FRACTURES, vi.-vii.

the dressing, but not bound in for the sake of pressure.

VII. If you are convinced that the bones are sufficiently adjusted in the former dressings, and there is no painful irritation nor any suspicion of a sore, you should leave the part put up in splints till over the twentieth day. It takes about thirty days altogether as a rule for the bone of the forearm to unite. But there is nothing exact about it, for both constitutions and ages differ greatly. When you remove the dressing, douche with warm water and replace it, using a little less pressure and fewer bandages than before; and after this, remove and re-apply every other day with less pressure and fewer bandages. If, in any case where splints are used, you suspect that the bones are not properly adjusted, or that something else is troubling the patient, remove the dressing and replace it in the middle of the interval or a little sooner. Light diet suffices in those cases where there is no open wound at the first, or protrusion of the bone, for it should be slightly restricted for the first ten days, seeing that the patients are resting; and soft foods should be taken such as favour a due amount of evacuation. Avoid wine and meat, but afterwards gradually feed him up. This discourse gives a sort of normal rule for the treatment of fractures, how one should handle them surgically, and the results of correct handling. If any of the results are not as described, you may

2 ἐπιδέωνται Vulg. : ἐπιδεδέαται Kw.
3 μεσηγυ.
4 So Galen and some MSS. Omit Littré, Ern. Kw.
5 ἐνδείστερον ἕ.
ΠΕΡΙ ΑΓΜΩΝ

χειρίζει τι ευδεές πεποίηται ἡ πεπλεώμασται. ἐτι δὲ τίδε χρὴ προσσυνιέναι ἐν τούτῳ τῷ ἀπλῷ τρόπῳ, ἀ ν ού καρτα ἐπιμελεύονται οἱ ἱητροῦ, καίτοι πᾶσαν μελέτην καὶ πᾶσαν ἐπίδεσιν οὐ τε διαφθείρειν ἐστὶ, μὴ ὥρθος ποιεύμενα. ἢν γὰρ τὰ μὲν ὀστέα ἁμφο κατηγη, ἦ τὸ κάτω μοῦνον, ὁ δὲ ἐπιδεδεμένος ἐν ταυτῇ τυί τὴν χεῖρα ἔχῃ ἀναλελαμμένην,1 τυγχάνῃ δὲ ἡ ταυτία κατὰ τὸ κάτηγμα πλείστη ἐούσα, ἐνθὲν δὲ καὶ ἐνθὲν ἦ χεῖρ ἀπαιωρήται, τούτου ἀνάγκη τὸ ὀστέον εὑρεθήναι διεστραμμένον ἔχοντα πρὸς τὸ ἀνω μέρος: ἦν δὲ, κατεγρυτῳ τῶν ὀστέων οὖτως, ἀκρην τε τὴν χεῖρα ἐν τῇ ταυτίᾳ ἔχῃ καὶ παρὰ τὸν ἀγκώνα, ὁ δὲ ἅλλος πῆχυς [μῆ] 2 μετέωρος ἦ, οὖτως 3 εὑρεθήσεται τὸ ὀστέον ἐς τὸ κάτω μέρος διεστραμμένως ἔχον. χρὴ οὖν, ἐν ταυτίᾳ πλάτος ἐχούσῃ, μαλθακῇ, τὸ πλείστον τοῦ πῆχεος καὶ τὸν καρπὸν τῆς χειρὸς ὁμαλῶς ἀιωρεῖσθαι.

VIII. Ἡν δὲ οἱ βραχίων καταγη, ἦν μὲν τὸς ἀποτανύσας τὴν χεῖρα ἐν τούτῳ τῷ σχῆματι διατείνῃ, ὁ μῦς τοῦ βραχίωνος κατατεταμένος ἐπιδεθήσεται ἐπὶ τὴν δὲ ἐπιδεθεῖς συγκάμψῃ τὸν ἀγκώνα, ὁ μῦς τοῦ βραχίωνος ἅλλο σχῆμα σχίσει. δικαιοτάτη ὁν βραχίωνος κατάτασις ἢδε: ἐξολον πηχυαῖον ὁ ὄλγον βραχύτερον, ὅποιοι οἱ στειλαίοι εἰσὶ τῶν σκαφίων, κρεμάσαι χρὴ ἐνθὲν καὶ ἐνθὲν, σειρή δήσαται καθίσατα δὲ τὸν ἀνθρωπον ἐπὶ ψηλὸν τινός, τὴν χεῖρα ὑπέρ-κεῖσθαι, ὡς ὑπὸ τῇ μασχάλῃ γένηται ὁ στειλαῖος ἐλων συμμέτρως, ὡστε μόλις δύνασθαι καθίν-

1 ἀναλελαμμένος.
be sure there has been some defect or excess in the surgical treatment. You should acquaint yourself further with the following points in this simple method, points with which practitioners do not trouble themselves very much, though they are such as (if not properly seen to) can bring to naught all your carefulness in bandaging. If both bones are broken, or the lower (ulna) only, and the patient, after bandaging, has his arm slung in a sort of scarf, this scarf being chiefly at the point of fracture, while the arm on either side is unsupported, he will necessarily be found to have the bone distorted towards the upper side; while if, when the bones are thus broken, he has the hand and part near the elbow in the scarf, while the rest of the arm is unsupported, this patient will be found to have the bone distorted towards the lower side. It follows that as much as possible of the arm and wrist should be supported evenly in a soft broad scarf.

VIII. When the humerus is fractured, if one extends the whole arm and keeps it in this posture, the muscle of the arm will be bandaged in a state of extension, but when the bandaged patient bends his arm the muscle will assume another posture. It follows that the most correct mode of extension of the arm is this:—One should hang up a rod, in shape like a spade handle and of a cubit in length or rather shorter, by a cord at each end. Seat the patient on a high stool and pass his arm over the rod so that it comes evenly under the armpit in such a position that the

1 Biceps.

2 Omit; but Galen defends both readings (xviii(2), 415).
3 οὗτος . . . διεστραμμένων ἔχων.
ΠΕΡΙ ΑΙΓΜΩΝ

νυσθαί τον ἀνθρώπον, σμικρὸν δέοντα μετέωρον εἶναι· ἐπείτα θέντα τι ἄλλο ἐφεδρον, καὶ ὑπο-
θέντα σκύτων ὑποκεφάλαιον, ἢ ἐν ἢ πλείω, ὅπως συμμέτρως σχῆσει ὑγεος τοῦ πῆχεος
πλαγίου πρὸς ὀρθὴν γωνίην, ἀριστον μὲν σκύτος
πλατὺ καὶ μαλθακὸν ἢ ταινίην πλατένην ἀμφι-
βάλλοντα, τῶν μεγάλων τι σταθμῶν ἐξαρτήσαι,
ο ὁ τι μετρίως ἐξει κατατείνων· εἰ δὲ μῆ, τῶν
ἀνδρῶν ὅστις ἐρρωμένος, ἐν τούτῳ τῷ σχήματι
τοῦ πῆχεος ἐόντος παρὰ τῶν ἀγκώνα καταναγ-
καζέτω ἐς τὸ κάτω. ὁ δὲ ἦτρος ὀρθὸς μὲν ἐῶν
χειριζέτω, τὸν ἐτερον πόδα ἐπὶ ψυχοτέρου τινὸς
ἐχων, κατορθώσας δὲ τοῖς θέναρσι τὸ ὀστέον·
ῥηδίως δὲ κατορθώσεται· ἀγαθὴ γὰρ ἡ κατα-
στασις, ἢ τις καλῶς παρασκευάσηται. ἐπείτα
ἐπιδεῖτω, τάς τε ἄρχας βαλλόμενος ἐπὶ τὸ
κάτηγμα, καὶ τάλλα πάντα ὦσπερ πρότερον
παρηνέθη, χειριζέτω· καὶ ἐρωτήματα ταῦτα
ἐρωτάτω· καὶ σημεῖοις χρήσθω τοῖσιν αὐτοῖς,
εἰ μετρίως ἐχει, ἢ οὔ, καὶ διὰ τρίτης ἐπιδεῖτω,
καὶ ἑπὶ μᾶλλον πιεζέτω. καὶ ἐβδομαίον ἢ ἐν-
νατάιον ἐν νάρθηξι δησάτω· καὶ ἢν ὑποπτεύσῃ
μὴ καλῶς κεῖσθαι τὸ ὀστέον μεσηγὸν τοῦτον
τοῦ χρόνου, λυσάτω, καὶ εὐθεισάμενος μετ-
ἐπιδησάτω.

Κρατύνεται δὲ μᾶλιστα βραχίονος ὀστέον
ἐν τεσσαράκοντα ἡμέρασιν. ἐπὶ τί δὲ ταύτας
ὑπερβάλη, λύειν χρῆ, καὶ ἑπὶ ἢσσον πίεζεν
τοῖσιν ὀθονίοισι καὶ ἑπὶ ἐλᾶσσοσιν ἐπιδεῖν. διαι-
ταν δὲ ἀκριβεστήρην τινὰ ἢ τὸ πρότερον διαιτᾶν,
καὶ πλείω χρόνον· τεκμαίρεσθαι δὲ πρὸς τοῦ
οἰδήματος τοῦ ἐν ἄκρῃ τῇ χειρί, τὴν ῥώμην

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man can hardly sit and is almost suspended. Then placing another stool, put one or more leather cushions under the forearm as may suit its elevation when flexed at a right angle. The best plan is to pass some broad soft leather or a broad scarf round the arm and suspend from it heavy weights sufficient for due extension; failing this, let a strong man grasp the arm in this position at the elbow and force it downwards. As to the surgeon, he should operate standing with one foot on some elevated support, adjusting the bone with the palms of his hands. The adjustment will be easy, for there is good extension 1 if it is properly managed. Then let him do the bandaging, putting the heads of the bandages on the fracture and performing all the rest of the operation as previously directed. Let him ask the same questions, and use the same indications to judge whether things are right or not. He should bandage every third day and use greater pressure, and on the seventh or ninth day put it up in splints. If he suspects the bone is not in good position, let him loosen the dressings towards the middle of this period, 2 and after putting it right, re-apply them.

The bone of the upper arm usually consolidates in forty days. When these are passed one should undo the dressings and diminish the pressure and the number of bandages. A somewhat stricter diet and more prolonged (is required here) than in the former case. Make your estimate from the swelling in the hand, having an eye to the patient’s strength.

1 Reading κατάτασις.
2 i.e. the period in splints.

1 κατάτασις Galen Kw.
ΠΕΡΙ ΑΓΜΩΝ

όρεων. προσσυνέεινα δὲ χρῆ καὶ τάδε, ὅτι ὁ
βραχίων κυρτὸς πέφυκεν ἐς τὸ ἔξω μέρος: ἐς
tοῦτο τοίνυν τὸ μέρος φιλεῖ διαστρέφεσθαι, ἐπὶ
μὴ καλῶς ιητρεύνηται: ἀτὰρ καὶ τάλλα πάντα
όστεα ἐς ὅπερ πέφυκε διεστραμμένα, ἐς τοῦτο καὶ
ιητρεύομενα φιλεῖ διαστρέφεσθαι, ἐπὶν κατεαγή.
χρῆ τοῖνυν, ἐπὶν τοιούτον τι ὑποπευκήτα, ταινίᾳ
πλατὲγ προστηλαμβάνειν τὸν βραχίων κύκλῳ
περὶ τὸ στῆθος περιδέουτα: καὶ ἐπὶν ἀνα-
παύεσθαι μέλλη, μεσηγὸν τοῦ ἀγκώνος καὶ τῶν
πλευρῶν σπλήνα τινὰ πολύπτυχον πτύζαντα
ὑποτίθεναι, ἢ ἅλλο τι ὁ τούτῳ ἐοικεν: οὕτω γὰρ
ἀν ἰθὺ¹ τὸ κύρτωμα τοῦ ὀστέου γένοιτο: φυλάσ-
σεσθαι δὲ μέντοι χρῆ, ὅπως μὴ ἢ ἄγαν ἐς τὸ
ἔσω μέρος.

IX. Ποις δὲ ἀνθρώπου ἐκ πολλῶν καὶ σμικρῶν
ὀστέων συγκεῖται, ὡσπερ καὶ χειρ ἄκρη κατ-
αγυνυται μὲν οὐ πάνυ τι ταῦτα τὰ ὀστεά, ἢν μὴ
σὺν τῷ χρωτί² τιτρωσκομένῳ ὑπὸ δέξεως τινὸς
ἡ βαρεός: τὰ μὲν οὕν τιτρωσσόμενα, ἐν ἐλκωσίων
μέρει εἰρήσεται ὡς χρῆ ιητρεύειν. ἢν δὲ τι
κινηθῆ ἐκ τῆς χώρης, ἢ τῶν δακτύλων ἄρθρων
ἡ ἅλλο τι τῶν ὀστεῶν τοῦ ταρσοῦ καλομένου,
ἀναγκάζειν μὲν χρῆ ἐς τὴν ἐσωτηρία χώρην
ἐκαστῶν, ὡσπερ καὶ τὰ ἐν τῇ χειρὶ εὑρηται·³
ιητρεύειν δὲ κηρωτῇ καὶ σπλήνῃ καὶ ὀθονίοις
ὡσπερ καὶ τὰ κατήγματα, πλὴν τῶν ναρθηκῶν,
tὸν μὲν αὐτὸν τρόπον πιεζεῖντα, διὰ τρίτης δὲ
ἐπιδέοντα: ὑποκρίνεσθω δὲ ὁ ἐπιδεόμενος παρα-
πλῆσια, οὐ περ καὶ ἐν τοῖς κατήγμασι, καὶ
περὶ τοῦ πεπίεχθαι καὶ περὶ τοῦ χαλαρῶν εἶναι.⁴

¹ ἀλορδότατον B. Kw. ἢθυ MV Pq. Littré.

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ON FRACTURES, viii.–ix.

One must also bear in mind that the humerus is naturally convex outwards, and is therefore apt to get distorted in this direction when improperly treated. In fact, all bones when fractured tend to become distorted during the cure towards the side to which they are naturally bent. So, if you suspect anything of this kind, you should pass round it an additional broad band, binding it to the chest, and when the patient goes to bed, put a many-folded compress, or something of the kind, between the elbow and the ribs, thus the curvature of the bone will be rectified. You must take care, however, that it is not bent too much inwards.

IX. The human foot, like the hand, is composed of many small bones. These bones are not often broken, unless the tissues are also wounded by something sharp or heavy. The proper treatment of the wounded parts will be discussed in the section on lesions of soft parts.¹ But if any of the bones be displaced, whether a joint of the toes or some bone of what is called the tarsus, you should press each back into its proper place just in the way described as regards the bones of the hand. Treat as in cases of fracture with cerate, compresses and bandages, but without splints, using pressure in the same way and changing the dressings every other day. The patient's answers both as to pressure and relaxation should be similar to those in cases of fracture. All

¹ Rather "compound fractures," cf. XXIV, XXV. Galen defines ἐλκος as a lesion of a soft part.

² χρησ = τὸ σαρξίδιος (Galen).
³ A lost chapter, condensed in Moch. XVI, Joints XXVI.
⁴ χαλάν.
ΤΕΡΙ ΑΓΜΩΝ

υγιέα δὲ γίνεται ἐν εἶκοσιν ἡμέρησι τελέως ἀπαντα, πλὴν ὀπόσα κοινωνεῖ τοῦι τῆς κυήμης ὦστεοισι καὶ αὐτῇ τῇ ἦξει.1 συμφέρει δὲ κατα-
κείσθαι τοῦτον τῶν χρόνων. ἀλλὰ γὰρ οὐ τολμέουσιν ὑπερορῶντες τὸ νόσημα, ἀλλὰ περι-
έρχονται πρὸν ὑγιεῖς γενέσθαι. διὰ τοῦτο καὶ οἱ πλεῖστοι οὖν ἐξυγιαίνουσι τελέως. ἀλλὰ 
πολλάκις αὐτοὺς ὁ πόνος ὑπομυμνήσκει εἰκότως, ὅλου γὰρ τὸ ἄχθος τοῦ σώματος οἱ πόδες ὀχέ-
ουσί. ὀπόταν οὖν μῆτω υγιεῖς ἔοντες ὀδοι-
πορέωσι, φλαύρως συναλθάσσεται 2 τὰ ἀρθρα τὰ 
κινηθέντα: διὰ τοῦτο ἄλλοτε καὶ ἄλλοτε ὀδοι-
πορέοινται ὀδυνώντα τὰ πρὸς τῇ κυήμῃ.

Χ. Τὰ δὲ κοινωνεοῦντα τοῖς τῆς κυήμης ὦστεοισι 
μεῖξῳ τε τῶν ἐτέρων ἐστὶ, καὶ κινηθέντων τοῦτων 
πολυχρωμοιστέρῃ ἡ ἀλθέξις. ὑσισι μὲν οὖν ἡ 
αὐτῇ ὀθονίσσοι πολείσοι χρήσθαι καὶ σπλή-
νεσι, καὶ ἐπὶ πᾶν ἐνθεν καὶ ἐνθεν ἐπιδεῖν πιέζειν 
δὲ ὀσπερ καὶ τάλλα πάντα, ταύτῃ μάλιστα ἡ 
ἐκινήθη, καὶ τὰς πρώτας περιβολῶς τῶν ὀθονίων 
κατὰ ταῦτα ποιεῖσθαι: ἐν δὲ ἐκάστῃ τῶν ἀπολυ-
σίων ὕδατι πολλῷ θερμῷ χρήσθαι: ἐν πάσι δὲ 
πολλὸν ύδωρ καταχεῖν τοῖς κατ᾽ ἀρθρα σίνεσιν. 
αἱ δὲ πιέζεις καὶ αἱ χαλάσιες ἐν τοῖς αὐτοῖσι 
χρόνοισι τὰ αὐτὰ σημεία δεικνύοντων ἀπερ ἐπὶ 
τοῖς πρόσθεν καὶ τὰς μετεπιδέσιας ὀσαύτως 
χρῆ ποιεῖσθαι. υγιεῖς δὲ τελέως οὖντα γίνουνται 
ἐν τεσσεράκοντα ἡμέρησι μάλιστα, ἣν τολμέωςι 
κατακείσθαι: ἦν δὲ μῆ, πᾶσχοισι ταῦτα ἃ καὶ 
17 πρότερον, καὶ ἐπὶ μᾶλλον.

XI. "Ὅσοι δὲ πιθήκαντες ἀφ' ὕψηλου τινὸς 
1 κατ' αὐτὴν τὴν ἦξιν.
these bones are completely healed in twenty days, except those which are connected with the leg-bones in a vertical line. It is good to lie up during this period, but patients, despising the injury, do not bring themselves to this, but go about before they are well. This is the reason why most of them do not make a complete recovery, and the pain often returns; naturally so, for the feet carry the whole weight. It follows that when they walk about before they are well, the displaced joints heal up badly; on which account they have occasional pains in the parts near the leg.

X. The bones which are in connection with those of the leg are larger than the others, and when they are displaced healing takes much longer. Treatment, indeed, is the same, but more bandages and pads should be used, also extend the dressings completely in both directions. Use pressure, as in all cases so here especially, at the point of displacement, and make the first turns of the bandage there. At each change of dressing use plenty of warm water; indeed, douche copiously with warm water in all injuries of joints. There should be the same signs as to pressure and slackness in the same periods as in the former cases, and the change of dressings should be made in the same way. These patients recover completely in about forty days, if they bring themselves to lie up; failing this, they suffer the same as the former cases, and to a greater degree.

XI. Those who, in leaping from a height, come

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1 Displacement of the astragalus?
2 "Those of the wrist." Adams.
ΠΕΡΙ ΑΓΜΩΝ

ἐστηρίζαντο τῇ πτέρνῃ ἰσχυρῶς, τούτοις διόστανται μὲν τὰ ὀστέα, φλεβία ὑπὸ ἐκχυμοῦνται ἀμφιφλασθείσης τῆς σαρκὸς ἀμφὶ τὸ ὀστέον, οὐδημα δὲ ἐπιγίνεται καὶ πόνος πολύς. τὸ γὰρ ὀστέον τούτο οὐ σμικρὸν ἔστι, καὶ ὑπερέχει μὲν ύπὸ τὴν ἱθυωρίν ἡς κυνῆς, κοινονεῖ δὲ φλεβί καὶ νεύροις ἐπικαρόρως οὐ τένων δὲ ὀπίσθιος τούτω προσήρτηται τὸ ὀστέο, τούτους χρή ὑπερεύειν μὲν κυρωτῇ καὶ σπλήνεσι καὶ ὀθονίοισιν· ὑδατι δὲ θερμῷ πλεῖστω ἐπὶ τούτοις χρῆσθαι καὶ ὀθονίων πλειώνων ἐπὶ τούτοις δεὶ καὶ ἄλλως ὡς βελτίστων καὶ προσημετάτων. καὶ ἢν μὲν τύχῃ ἀπαλῶν τὸ δέρμα φύσει ἕχον τὸ ἀμφὶ τῇ πτέρνῃ, ἐὰν οὕτως· ἢν δὲ παχὺ καὶ σκληρῶν, οία μετεξέτεροι ἱσχυοῦσι, κατατάμμων χρῆ ὀμαλῶς καὶ διαλεπτύνειν, μὴ διατιρώσκοντα. ἐπιδεῖν δὲ ἀγαθῶς οὐ πάντος ἀνδρός ἔστι τὰ τοιαῦτα· ἢν γὰρ τὶς ἐπιδείξῃ, ὀσπέρ καὶ τὰ ἄλλα τὰ κατὰ τὰ σφυρὰ ἐπιδείξαι, ὅτε μὲν περὶ τὸν πόδα περιβαλλόμενος, ὅτε δὲ περὶ τὸν τένοντα, αἱ ἀποσφίγξεις αὐταὶ χωρίζουσι τὴν πτέρνῃ ἢ τὸ φλάσμα ἐγένετο· καὶ οὕτω κίνδυνος σφακελίσαι τὸ ὀστέον τῷ τῆς πτέρνης· καὶ τοῖς ἢ σφακελίσῃ, τῶν αἰῶνα πάντα ἰκανὸν ἀντίσχειν τὸ νόσημα. καὶ γὰρ τὰλα ὡςα μὴ ἐκ τοιοῦτου τρόπου σφακελίζει, ἀλλ᾿ ἐν κατακλίσει μελανθείσῃ τῆς πτέρνης υπὸ ἀμέλειας τοῦ σχήματος ή ἐν κυνή τρόματος γενομένου ἐπικαρῶν καὶ χρονίου καὶ κοινοῦ τῇ πτέρνῃ, ἢ ἐν μηρῷ ἢ ἐπ᾿ ἀλλῳ νοσήματι ύπτιασμοῦ χρονίου γενομένου, ὀμῶς καὶ τοῖς τοιοῦτοις χρόνια, καὶ ὀχλῶδεα καὶ πολλάκις ἀναρρηγνύμενα, ἢν μὴ χρηστῇ μὲν

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down violently on the heel, get the bones separated, while there is extravasation from the blood-vessels since the flesh is contused about the bone. Swelling supervenes and severe pain, for this bone is not small, it extends beyond the line of the leg, and is connected with important vessels and eords. The back tendon\(^1\) is inserted into this bone. You should treat these patients with cerate, pads and bandages, using an abundance of hot water, and they require plenty of bandages, the best and softest you can get. If the skin about the heel is naturally smooth, leave it alone, but if thick and hard as it is in some persons, you should pare it evenly and thin it down without going through to the flesh. It is not every man's job to bandage such cases properly, for if one applies the bandage, as is done in other lesions at the ankle, taking one turn round the foot and the next round the back tendon, the bandage compresses the part and excludes the heel where the contusion is, so that there is risk of necrosis of the heel-bone; and if there is necrosis the malady may last the patient's whole life. In fact, necrosis from other causes, as when the heel blackens while the patient is in bed owing to carelessness as to its position, or when there is a serious and chronic wound in the leg connected with the heel, or in the thigh, or another malady involving prolonged rest on his back—all these necroses are equally\(^2\) chronic and troublesome, and often break out afresh if not treated with most

\(^1\) Tendo Achillis.
\(^2\) \(\delta\mu\dot{\omega}\), Littre's emendation for \(\delta\mu\omega\), "nevertheless" (Kw. and codd.).

\(1\) \(\tau\eta\nu\ \pi\tau\varepsilon\rho\nu\eta\nu\).
μελέτη θεραπευθῆ, πολλῆ δὲ ἴσυχία, ὡς τὰ γε σφακελίζοντα· ἐκ τοῦ τοιοῦτον δὲ τρόπου σφακελίζοντα καὶ κινδύνους μεγάλους τῷ σώματι παρέχει πρὸς τῇ ἄλλῃ λύμῃ. καὶ γὰρ πυρετοὶ ὑπεροξεῖς, συνεχεῖς, τρομώδεις, λυγγώδεις, γυνώμης ἀπτόμενοι, καὶ ὀλυγήμεροι κτείνοντές τε·

γένοιτο δ’ ἂν καὶ φλεβῶν αἰμορρόων πελίσσιες ναρκώσιες ¹ καὶ γαγγραινώσιες ὑπὸ τῆς πιέξιος·

gένοιτο δ’ ἂν ταῦτα ἔξω τοῦ ἄλλου σφακελίσμου. ταῦτα μὲν οὖν εἴρηται, οία τὰ ἱσχυρότατα φλάσματα γίνεται· τὰ μέντοι πλεῖστα ἴσνυχαῖς ἀμφιφλάται καὶ οὐδεμίᾳ πολλῇ σπουδῇ τῆς μελέτης, ἀλλ’ ὦμοις ὁρθὸς γε δεὶ χειρίζειν. ἔπην μέντοι ἱσχυρὸν δόξη εἶναι τὸ ἔρεισμα, τὰ τε εἰρημένα ποιεῖν χρῆ, καὶ τὴν ἐπίδεισιν τὴν πλείστην ποιεῖσθαι ἀμφὶ τὴν πτέρυγην περι-

βάλλοντα, ἄλλοτε πρὸς τὰ ἄκρα τοῦ ποδὸς ἀντιπεριβάλλοντα, ἄλλοτε πρὸς τὰ μέσα, ἄλλοτε πρὸς τὰ περὶ τὴν κυήμην· προσεπίδειν δὲ καὶ τὰ πλησίον πάντα ἐνθευ καὶ ἐνθευ, ὥσπερ καὶ πρόσθεν εἴρηται· καὶ ἱσχυρὴν μὲν μὴ ποιεῖσθαι τὴν πιέξιν, ἐν πολλῷ σεῖ τοῖσιν ὀθονίσειν. ἄμεινον δὲ καὶ ἐλλέβορον πιπίσκειν ² αὐθημερὸν ἡ τῇ ρυστεραῖς· ἀπολύεσαι δὲ τριταῖον καὶ αὐθεῖς μετεπιδήσαι. σημεῖα δὲ τῶς, εἰ παλιγκοταίνει ἡ οὖν. ἐπῆν μὲν τὰ ἐκχυμώματα τῶν φλεβῶν καὶ τὰ μελάσματα καὶ τὰ ἐγγὺς ἐκείνων ὑπερυθρα γίνεται καὶ ὑπόσκληρα, κίνδυνος παλιγκοτήσαι· ἀλλ’ ἡν μὲν ἀπύρετος ἡ, φαρμακεύειν ἄνω χρῆ, ὥσπερ εἴρηται, καὶ ὁσα ἂν μὴ συνεχὴ ³ πυρεταίνηται· ⁴ ἡν δὲ συνεχῆ πυρεταίνηται, μὴ φαρμακεύειν, ὑπέχειν δὲ σιτίων καὶ

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skilful attention and long rest. Necroses of this sort, indeed, besides other harm, bring great dangers to the body, for there may be very acute fevers, continuous and attended by tremblings, hiccoughs and affections of the mind, fatal in a few days. There may also be lividity and congestion of the large blood-vessels, loss of sensation and gangrene due to compression, and these may occur without necrosis of the bone. The above remarks apply to very severe contusions, but the parts are often moderately contused and require no very great care, though, all the same, they must be treated properly.

When, however, the crushing seems violent the above directions should be observed, the greater part of the bandaging being about the heel, taking turns sometimes round the end of the foot, sometimes about the middle part, and sometimes carrying it up the leg. All the neighbouring parts in both directions should be included in the bandage, as explained above; and do not make strong pressure, but use many bandages. It is also good to give a dose of hellebore on the first and second days. Remove the bandage and re-apply it on the third day. The following are signs of the presence and absence of aggravations. When there are extravasations from the blood-vessels, and blackenings, and the neighbouring parts become reddish and rather hard, there is danger of aggravation. Still, if there is no fever you should give an emetic as was directed; also in cases where the fever is not continuous; but if there is continued fever, do not give an evacuant, but avoid food, solid

1 ναυσιώσεις (regurgitations), Galen and most MSS., but hard to accept.
2 πίσαι.
3 συνεχεί.
4 πυρεταίνη bis.
ΠΕΡΙ ΑΓΜΩΝ

ροφημάτων, ποτὸ δὲ χρῆσθαι ύδατι καὶ μῆ οἶνῳ, ἀλλὰ τῷ ὀξυγλυκεί. ἦν δὲ μῆ μέλλῃ παλιγκο-

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ταίνειν τὰ ἐκχυμώματα καὶ τὰ μελάσματα καὶ
tὰ περιέχοντα, ὑπόχλωρα γίνεται καὶ οὐ σκληρά.

ἀγαθὸν τούτῳ τὸ μαρτύριον ἐν πᾶσι τοῖς ἐκ-

χυμώμασι, τοῖς μῆ μέλλουσι παλιγκοταίνειν

ὀσα δὲ σὺν σκληρύσμασι πελιοῦται, κίνδυνος

μεν μελανθήμαι. τῶν δὲ πόδα ἐπιτηδεύειν χρῆ

όκως ἀνωτέρω τοῦ ἄλλου σώματος ἔσται τὰ

πλεῖστα ὁλίγον. ὧγις δ' ἄν γένοιτο ἐν ἐξήκοντα

76 ἥμερησιν, εἰ ἀτρεμελ.1

Χ.Ι.Ι. Ἡ δὲ κυνήμι δύο ὀστέα ἔχει,2 τῇ μὲν

συχνῷ λεπτότερον τὸ ἔτερον τοῦ ἔτερου, τῇ δὲ

οὐ πολλῷ λεπτότερον συνεχέται δὲ ἀλλήλουσι

τὰ πρὸς τοῦ ποδός, καὶ ἐπίφυσιν κοινὴν ἔχει,

ἐν ἱδυωρίᾳ δὲ τῆς κυνήμης οὐ συνεχεται τὰ δὲ

πρὸς τοῦ μηροῦ συνεχεται καὶ ἐπίφυσιν ἔχει, καὶ

ἡ ἐπίφυσις διάφυσιν μακρότερον δὲ τὸ [ἔτερον]

ὀστέον σμικρῷ τῷ 3 κατὰ τὸν σμικρὸν δακτυλοῦν.

καὶ ἡ μὲν φύσις τοιαύτη τῶν ὀστεῶν τῶν ἐν τῇ

κυνήμη.

Χ.Ι.Ι.Ι. Ὀλισθάνει δὲ ἐστίν ὅτε τὰ μὲν πρὸς

τοῦ ποδός, ὅτε μὲν σὺν τῇ ἐπιφύσει ἀμφότερα

τὰ ὀστεά, ὅτε δὲ ἡ ἐπίφυσις ἐκινήθη, ὅτε δὲ τὸ

ἔτερον ὀστέον. ταύτα δὲ χλώδεα μὲν ἦσον ἡ τὰ

ἐν τῷ καρπῷ τῶν χειρῶν, εἰ τολμῇ ἄτρεμειν οἱ

ἀνθρωποί. ῥῆσις δὲ παραπλησίη, οὐ Περ ἐκείνων

τῶν τε γὰρ ἐμβολὴν χρῆ ποιεῖσθαι ἐκ κατα-

τάσιος, ὀσπερ ἐκείνων, ἵσχυρότερης δὲ δεῖται

τῆς κατατάσιος, ὀσφω καὶ ἱσχυρότερον τὸ σῶμα

10 ταύτη. εἰς δὲ τὰ πλεῖστα μὲν ἄρκεουσιν ἀνδρεῖς

1 ἀτρεμελ. 2 ἐστίν.
or fluid, and for drink use water and not wine, but hydromel may be taken.\textsuperscript{1} If there is not going to be aggravation, the effusions and blackenings and the parts around become yellowish and not hard. This is good evidence in all extravasations that they are not going to get worse, but in those which turn livid and hard there is danger of gangrene. One must see that the foot is, as a rule, a little higher than the rest of the body. The patient will recover in sixty days if he keeps at rest.

XII. The leg has two bones, one much more slender than the other at one end, but not so much at the other end. The parts near the foot are joined together and have a common epiphysis. In the length of the leg they are not united, but the parts near the thigh-bone are united and have an epiphysis, and the epiphysis has a diaphysis.\textsuperscript{2} The bone on the side of the little toe is slightly the longer. This is the disposition of the leg-bones.

XIII. The bones are occasionally dislocated at the foot end, sometimes both bones with the epiphysis, sometimes the epiphysis is displaced, sometimes one of the bones. These dislocations give less trouble than those of the wrist, if the patients can bring themselves to lie up. The treatment is similar to that of the latter, for reduction is to be made by extension as in those cases, but stronger extension is requisite since the body is stronger in this part. As a rule two men suffice, one pulling one way and one

\textsuperscript{1} A decoction of honeycomb in water, cf. Galen xviii(2). 466.
\textsuperscript{2} Spinous process or medial projection.

\textsuperscript{3} Pq. τφ for τε codd.: omitting ἐτερον cf. XVIII, XXXVII.
PERI AGMΩΝ

dύο, ὁ μὲν ἐνθεν, ὁ δὲ ἐνθεν τείνοντες. ἢν δὲ μὴ ἵσχύσσιν, ἵσχυσσιν ῥηίδιον ἐστὶ ποιεῖν τὴν κατάτασιν. ἢ γὰρ πλῆμμην κατορύξαντα χρῆ, ἢ ἄλλο τι ὁ τι τούτω ἐσουκε, μαλθακόν τι περὶ τὸν πόδα περιβάλλειν· ἐπειτα πλατέσαι βοείοισιν ἰμᾶσιν περιδήσαντα τὸν πόδα τὰς ἀρχὰς τῶν ἰμάντων ἢ πρὸς ύπερον ἢ πρὸς ἐτέρον ξύλου προσδήσαντα, τὸ ξύλον πρὸς τὴν πλῆμμην ἀκρον ἐντεθέντα ἐπανακλάν,1 τοὺς δὲ ἀντιτείνειν ἀνωθεν, τῶν τε ὄμων ἐχομένους καὶ τῆς ἵγνυσιν. ἔστι δὲ καὶ τὸ ἀνω τοῦ σῶματος ἀνάγκη προσλαβείν τούτῳ μὲν ἢν βουλῇ, ξύλου στρογγύλου, λείου, κατορύξας βαθέως, μέρος τι αὐτοῦ ύπερέχον τοῦ ξύλου μεσημῖ τῶν σκελέων ποιήσασθαί παρὰ τὸν περίναιον, ὡς κωλύη ἀκολουθεῖν τὸ σῶμα τοῖς πρὸς ποδῶν τείνουσιν· ἐπειτα πρὸς τὸ τεινόμενον σκέλος μὴ ῥέσειν, τὸν δὲ τινα πλάγιον παρακαθήμενον ἀπώθειν τὸν γλουτόν, ὡς μὴ περιέλκηται τὸ σῶμα.

30 τούτῳ δὲ καὶ ἢν βουλῇ, περὶ τὰς μασχάλας ἐνθεν καὶ ἐνθεν τὰ ξύλα παραπέτηγεν,2 αἰ δὲ χεῖρες παρατεταμέναι φυλάσσονται,3 προσεπελαμβανέτω4 δὲ τις κατὰ τὸ γόνυ, καὶ οὕτως ἀντιτείνειτο. τούτῳ δὲ ἢν παρὰ τὸ γόνυ βούληται,5 ἀλλούς ἰμάντας περιδήσας καὶ περὶ τὸν μηρόν, πλῆμμην ἀλλήν ὑπὲρ κεφαλῆς κατορύξας, ἐξαρτήσας τοὺς ἰμάντας ἐκ τινος ξύλου, τὸ ξύλον στηρίζουν ἐς τὴν πλῆμμην τὰναντία τῶν πρὸς ποδῶν ἐλκείν. τούτῳ δὲ ἢν βούλῃ, ἀντὶ τῶν πλημυνών δοκίδα ὑποτείνας ὑπὸ τὴν κλίνην μετρίην, ἐπειτα πρὸς τῆς δοκίδος ἐνθεν καὶ ἐνθεν τὴν κεφαλῆν στηρίζων καὶ ἀνακλῶν τὰ ξύλα, 128
the other, but if they cannot do it, it is easy to make the extension more powerful. Thus, one should fix a wheel-nave or something similar in the ground, put a soft wrapping round the foot, and then binding broad straps of ox-hide about it attach the ends of the straps to a pestle or some other rod. Put the end of the rod into the wheel-nave and pull back, while assistants hold the patient on the upper side grasping both at the shoulders and hollow of the knee. The upper part of the body can also be fixed by an apparatus. First, then you may fix a smooth, round rod deeply in the ground with its upper part projecting between the legs at the fork, so as to prevent the body from giving way when they make extension at the foot. Also it should not incline towards the leg which is being extended, but an assistant seated at the side should press back the hip so that the body is not drawn sideways. Again, if you like, the pegs may be fixed at either armpit, and the arms kept extended along the sides. Let someone also take hold at the knee, and so counter-extension may be made. Again, if one thinks fit, one may likewise fasten straps about the knee and thigh, and fixing another wheel-nave in the ground above the head, attach the straps to a rod; use the nave as a fulcrum for the rod and make extension counter to that at the feet. Further, if you like, instead of the wheel-naves, stretch a plank of suitable length under the bed, then, using the head of the plank at each end as fulcrum, draw back the rods and make exten-
κατατείνειν τοὺς ἵμαντας· ἢν δὲ θέλησ, ὁνόσκουσ καταστήσας ἐνθεν καὶ ἐνθεν, ἐπ' ἐκεῖνων τὴν κατάτασιν ποιεῖσθαι. πολλοὶ δὲ καὶ ἄλλοι τρόποι κατατασίών· ἄριστον δὲ, ὡστις εὖ πόλει μεγάλῃ ἤπτευε, κεκτήσθαι ἐσκευασμένον ξύλον, ἐν ὃ πᾶσαι αἱ ἀναγκαὶ ἐσονται πάντων μὲν κατηγμάτων, πάντων δὲ ἀρθρῶν ἐμβολῆς ἐκ 50 κατατάσεως καὶ μοχλεύσιος· ἄρκει δὲ τὸ ξύλον, ἢν ἡ τοιοῦτον οἶνον οἱ τετράγωνοι στύλοι οἱ δρύινοι γίνονται, μῆκος καὶ πλάτος καὶ πάχος.

'Επὶ μὲν ἐκανῶς καταταινύσης, ῥηίδιον ἣδι τὸ ἀρθρον ἐμβαλείν· ὑπεραωρεῖται γὰρ ἐς ἰδιωρίαν ὑπὲρ τῆς ἀρχαίας ἔδρης. κατορθοῦσθαι σὺν χρῆ τοίς θεναρσὶ τῶν χειρῶν, τοῖς μὲν ἐς τὸ ἐξεστηκὸς ἐρείδοντα, τοῖς δὲ ἐπὶ θύτερα κατώτε- 58 ρον τοῦ σφυροῦ ἀντερείδοντα.

XIV. Ἐπὶ δ' ἐμβάλλῃς, ἢν μὲν οἴνον τε ἢ, κατατεταμέειν ἐπιδεῖν χρῆ· ἢν δὲ κωλύθηται ὑπὸ τῶν ἵμαντων, ἐκεῖνος λύσαντα ἀντικατα- τείνειν, ἐστ' ἂν ἐπιδήγης. ἐπιδείην δὲ τὸν αὐτὸν τρόπον καὶ τὰς ἀρχὰς ὀσαυτώς βαλλόμενον κατὰ τὸ ἐξεστηκὸς, καὶ τὰς περιβολὰς τὰς πρώτας πλείστας κατὰ τοῦτο ποιεῖσθαι, καὶ τοὺς σπλή- νας πλείστους κατὰ τοῦτο, καὶ τὴν πίεξιν μάλιστα κατὰ τοῦτο· προσεπιδεῖν δὲ καὶ ἐνθεν 10 καὶ ἐνθεν ἐπὶ συχνῶν· μᾶλλον δὲ τὶ τοῦτο τὸ ἀρθρον πεπίεχθαι χρῆ ἐν τῇ πρώτῃ ἐπιδέσει ἢ τὸ ἐν τῇ χειρὶ· ἐπὶ μὲν ἐπιδήγης, ἀνωτέρῳ μὲν τοῦ ἄλλου σώματος ἐχέτω τὸ ἐπιδεθεῖν, τὴν δὲ θέσιν δεὶ ποιεῖσθαι οὕτως, ὅπως ἥκιστα ἀπαίω·

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sion on the straps. And if you choose, set up wind-lases at either end and make the extension by them. There are also many other methods for extensions. The best thing for anyone who practises in a large city is to get a wooden apparatus comprising all the mechanical methods for all fractures and for reduction of all joints by extension and leverage. This wooden apparatus will suffice if it be like the quadrangular supports such as are made of oak in length, breadth and thickness.

When you make sufficient extension it is then easy to reduce the joint for it is elevated in a direct line above its old position. It should therefore be adjusted with the palms of the hands, pressing upon the projecting part with one palm and with the other making counter pressure below the ankle on the opposite side.

XIV. After reduction, you should, if possible, apply a bandage, while the limb is kept extended. If the straps get in the way, remove them and keep up counter extension while bandaging. Bandage in the same way (as for fractures) putting the heads of the bandages on the projecting part and making the first and most turns there, also most of the compresses should be there and the pressure should come especially on this part. Also extend the dressing considerably to either side. This joint requires somewhat greater pressure at the first bandaging than does the wrist. After dressing let the bandaged part be higher than the rest of the body, and put it up in a position in which the foot is as little as

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1 Adams' "threshing boards"—Littre's τρίθωλοι, a rash suggestion which he afterwards withdrew.

2 The nature of these dislocations is discussed on pp. 425 ff.
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ρηθήσεται ὁ πούς. τὸν δὲ ἰσχυρὰν τοῦ σώματος οὕτως ποιεῖσθαι, ὅποιῃ τινὰ δύναμιν ἔχει καὶ τὸ ὀλύσθημα: τὰ μὲν γὰρ σμικρὸν, τὰ δὲ μεγά ὀλίσθανε. τὸ ἐπίπταν δὲ ἰσχυαίνειν μᾶλλον καὶ ἐπὶ πλεῖστον χρόνον χρή ἐν τοῖς κατὰ τὰ σκέλεα τρόμμασι ἦ ἐν τοῖς κατὰ τὰς χεῖρας−1 καὶ γὰρ μέζῳ καὶ παχύτερα ταῦτα ἐκεῖνων καὶ δὴ καὶ ἀναγκαίον ἑλιθεύειν τὸ σῶμα καὶ κατακεῖσθαι. μετεπιδήσαι δὲ τὸ ἄρθρον οὔτε τι κωλύει τριταίον οὔτε κατετείγει καὶ τὰ ἀλλα πάντα παραπλησίως χρῇ ἤθρεύειν, ὡσπερ καὶ τὰ παροιχόμενα. καὶ ὃς μὲν τολμᾶ ἀτρέμα κατακεῖσθαι, ἴκαναι τεσσαράκοντα ἡμέραι, ἢν μοὖν ἐστὶ τὴν ἑωτῶν χώρην τὰ ὅστεα αὐθίς καθίζειται ἢν δὲ μὴ θέλῃ ἀτρμεῖν, χρῆτο μὲν ἀν ὁποὶ δρᾶσιν 2 τῷ σκέλει, ἐπιδεῖσθαι δὲ ἀναγκάζοιτ' ἀν πολὺν χρόνον. ὅποσα μέντοι τῶν ὀστέων μὴ τελέως ἵζει ἐστὶ τὴν ἑωτῶν χώρην, ἀλλὰ τι ἐπιλείπει, τὸ χρόνῳ λεπτύνεται ῥυχίον καὶ μηρὸς καὶ κυμήν καὶ ὃς μὲν ἐσω ὀλίσθη, τὸ ἐξω μέρος λεπτύνεται, ὃς δὲ ἐξω, τὸ ἐσω: τὰ πλείστα δὲ ἐστὶ τὸ ἐσω ὀλίσθανει.

XV. Ἐπὶ δὲ κυμῆς ὁστέα ἀμφότερα καταγῇ ἀνευ ἐλκώσιος, κατατάσσεις ἰσχυρότερης δεῖται. τείνειν 3 τούτων τῶν τροπῶν ἐνύσιοι τῶν προειρημένων τις, ἢν μεγάλαι αἱ παραλλάξεις ἑωσιν. ἴκαναὶ δὲ καὶ αἱ ἀπὸ τῶν ἄνδρῶν κατατάσσεις: τὰ πλείστα γὰρ ἀρκεοίν ἀν δύο ἄνδρες ἐρρωμένοι, ὃ μὲν ἐνθὲν, ὃ δὲ ἐνθὲν αὐτητεῖνουτες. τείνειν δὲ ἐστὶ τὸ ἓνυ χρῆ κατὰ φύσιν καὶ κατὰ τὴν

1 κατὰ χεῖρα. 2 βράδεως, omit οὐ. 3 κατατείνειν.

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possible unsupported.\(^1\) The patient should undergo a reducing process corresponding to his strength and to the displacement, for the displacement may be small or great. As a rule the reducing treatment should be stricter and more prolonged in injuries about the leg region than in those about the arm region, for the former parts are larger and stouter than the latter. And it is especially needful for the body to be at rest and lie up. As to rebandaging the joint on the third day, there is neither hindrance nor urgency, and one should conduct all the other treatment as in the previous cases. If the patient brings himself to keep at rest and lie up, forty days are sufficient, provided only that the bones are back again in their places. If he will not keep at rest, he will not easily recover the use of the leg and will have to use bandages for a long time. Whenever the bones are not completely replaced but there is something wanting, the hip, thigh and leg gradually become atrophied. If the dislocation is inwards the outer part is atrophied, if outwards, the inner: now most dislocations are inwards.\(^2\)

XV. When both leg-bones are broken without an external wound, stronger extension is required. If there is much overlapping make extension by some of those methods which have been described. But extensions made by man-power are also sufficient, for in most cases two strong men are enough, one pulling at each end. The traction should be in a straight line in accordance with the natural direction

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\(^1\) Not merely prevented from hanging down, but kept at right angles to the leg (cf. Galen).

\(^2\) i.e. of the foot outwards and the leg inwards.
ΠΕΡΙ ΑΓΜΩΝ

ιθυωρήν τῆς κυήμης καὶ τοῦ μηροῦ, καὶ ἣν κυήμης ὀστεὰ κατεγνυίς κατατείνης, καὶ ἣν μηροῦ. καὶ ἐπιδείκνυ δὲ ὀὕτως ἐκτεταμένων ἀμφοτέρων, ὁπότερον ἂν τούτων ἐπιδέησιν γὰρ ταῦτα συμφέρει σκέλει τε καὶ χειρὶ πῆχεος μὲν γὰρ καὶ βραχίωνος ἐπὶ ἐπιδεθῶσιν ὀστεὰ κατεγνύτα, ἀναλαμβάνεται ἡ χείρ, καὶ ἣν ἐκτεταμένα ἐπιδέησιν, τὰ σχῆματα τῶν σαρκῶν ἐπεροιούται ἐν τῇ συγκάμψει τοῦ ἁγκὼνος· ἀδύνατος γὰρ ὁ ἁγκὼν ἐκτετάσθαι πολὺν χρόνων· οὐ γὰρ πολλάκις ἐν τοιούτῳ εἶδοιςται ἐσχηματίσθαι, ἀλλὰ ἐν τῷ συγκεκάμψθαι καὶ δὴ καὶ ἄτε δυνάμενοι οἱ ἄνθρωποι περιέναι συγκεκάμψθαι κατὰ τὸν ἁγκώνα δέονται. σκέλος δὲ ἐν τῇ σαρκῇ ὀδοιπορίσει καὶ ἐν τῷ ἑστάναι εἶδοιςται ὁτὲ μὲν ἐκτετάσθαι, ὁτὲ δὲ σμίκρου δεῖν ἐκτετάσθαι καὶ εἰδοθαί καθεῖσθαι ἐς τὸ κάτω κατὰ τὴν φύσιν, καὶ δὴ καὶ πρὸς τὸ ὁξέειν τὸ ἄλλο σῶμα· διὰ τοῦτο ἐμφορον ἀντὶ ἐστὶ τὸ ἐκτετάσθαι, ὅταν ἀνάγκην ἐξῆταν καὶ δὴ καὶ ἐν τῇ συγκάμψθαι πολλάκις ἐν τῷ σχῆματι τοῦτῳ ἑστὶν [ἐν τῷ ἐκτετασθαί]. ἐπὶ ἡν δὲ δὴ τρωθῇ, ἀνάγκη καταδουλοῦται τὴν γνώμην, ὅτι ἀδύνατοι μετεωρίζεσθαι γίνονται, ὅστε οὐδὲ μέμνησθαι περὶ τοῦ συγκαμβόθησθαι καὶ ἀναστήναι, ἀλλὰ ἀπερεμέουσι ἐν τούτῳ τῷ σχῆματι κείμενοι, διὰ ὃν ταύτας τὰς προφάσιας χειρὸς καὶ σκέλεος οὕτε ἡ κατάτασις οὕτε ἡ ἐπίδειξις τοῦ σχῆματος συμφέρει ἡ αὐτή. ἦν μὲν οὖν ἵκαι ἡ κατάτασις ἡ ἀπὸ τῶν ἄνδρῶν ἡ, οὐ δὲι μάτην πονεῖσθαι—καὶ γὰρ σολοικότερον μηχανοποιεῖν μηδὲν δέον—ἠν δὲ μὴ ἵκαι ἡ κατάτασις ἢ κατάτασις ἢ ἀπὸ τῶν ἄνδρῶν, καὶ τῶν ἄλλων τινὰ τῶν 134.
of the leg and thigh, both when it is being made for fractures of the leg bones and of the thigh. Apply the bandage while both\(^1\) are extended, whichever of the two you are dressing, for the same treatment does not suit both leg and arm. For when fractures of the forearm and upper arm are bandaged, the arm is slung, and if you bandage it when extended the positions of the fleshy parts are altered by bending the elbow. Further, the elbow cannot be kept extended a long time, since it is not used to that posture, but to that of flexion. And besides, since patients are able to go about after injuries of the arm, they want it flexed at the elbow. But the leg both in walking and standing is accustomed to be sometimes extended and sometimes nearly so, and it is naturally directed downwards and, what is more, its function is to support the body. Extension therefore is easily borne when necessary and indeed it frequently has this position in bed. If then it is injured, necessity brings the mind into subjection, because patients are unable to rise, so that they do not even think of bending their legs and getting up, but keep lying at rest in this posture. For these reasons, then, the same position either in making extension or bandaging is unsuitable for both arm and leg. If, then, extension by man-power is enough, one should not take useless trouble, for to have recourse to machines when not required is rather absurd. But if extension by man-power is not enough,

\(^1\) \textit{i.e.} thigh and leg.

1 \(\alpha\nu\acute{\alpha}γκη.
2\) Seems an obvious gloss. Most editors omit.
3 \(καλ\; \eta\; \alpha\nu\acute{\alpha}γκη.
4\) \(τολ\mu\acute{\omega}\circιν\).
ΠΕΡΙ ΑΓΜΩΝ

ἀναγκέων προσφέρειν, ἤμωνά γε προσχωρή. ὃταν δὲ δὴ ἰκανός κατατάθη, ἡμέραν ἳδὴ κατορθώσασθαι τὰ ὀστέα καὶ ἐς τὴν φύσιν ἀγαγεῖν, τοσὶ θέναρσι τῶν χειρῶν ὑπευθύνοντα καὶ ἐξευκρινεύοντα.

XVI. Ἐπὶ τὸ κατορθώσῃς, ἐπιδεικνύει τοσὶν ὀθονίοις κατατεταμένοιν, ἤν τ’ ἐπὶ δεξία ὧν τ’ ἐπὶ ἀριστερὰ περιφέρειν συμφέρῃ αὐτοῦσι τὰ πρῶτα ὀθόνια. βάλλεσθαι δὲ τὴν ἀρχὴν τοῦ ὀθονίου κατὰ τὸ κάτηγμα, καὶ περιβάλλεσθαι κατὰ τούτῳ τὰς πρώτας περιβολας. κάπετια νέμεσθαι ἐπὶ τὴν ἄνω κυήμην ἐπιδεέων, ὥσπερ ἐπὶ τοσὶν ἄλλοις κατήγμασι εἴρηται. τὰ δὲ ὀθόνια πλατύτερα χρῆ εἶναι καὶ μακρότερα καὶ πλέων πολὺ αὐ τὰς κατὰ τὸ σκέλος τῶν ἐν τῇ χειρί. ἐπὶ τ’ ἐπιδήμησις, καταθεῖσαι ἐφ’ όμαλῇ τινος καὶ μαλακοῦ, ὡστε μὴ διεστράφθαι ἢ τῇ ἢ τῇ, μὴτε λορδὸν μῆτε κυφὸν εἶναι. μᾶλιστα δὲ συμφέρει προσκεφάλαιον, ἢ λίνεον ἢ ἐρύνεον, μὴ σκληρὸν, λαπαρὸν μέσον κατὰ μῆκος ποιήσαντα, ἢ ἀλλο τῷ τούτῳ ἐσικεῖν.

Περὶ γὰρ τῶν σωλήνων τῶν ὑποτιθέμενων ὑπὸ τὰ σκέλεα τὰ κατεγότα, ἀπορεῖ ό τί συμβουλεύσω. ἢ ὑποτιθέναι χρῆ ἢ οὐ; ὥφελεον μὲν γὰρ, οὐχ ὅσον δὲ οἱ ὑποτιθέμενοι οἴονται. οὔτε γὰρ τῷ ἄλλῳ σώματι στρεφομένῳ ἢ ἐνθὰ ἢ ἐνθὰ ἐπαναγκάζει οἱ σωλήνες ὑπερείει, ὡς οἴονται. οὔτε γὰρ τῷ ἄλλῳ σώματι στρεφομένῳ ἢ ἐνθὰ ἢ ἐνθὰ ἐπαναγκάζει οἱ σωλήνες μὴ ἐπακολουθεῖν τὸ σκέλος, ἢν μὴ ἐπιμέληται αὐτός ὑπεροπτὸς. οὔτε αὖ τὸ ἐκ τὸ σκέλος ἀνευ τοῦ σώματος κωλύει ὁ σωλήν κινηθῆναι ἢ τῇ ἢ τῇ ἢ ἀλλὰ μὴν ἀστερ-
bring in some of the mechanical aids, whichever may be useful. 1 When once sufficient extension is made, it becomes fairly easy to adjust the bones to their natural position by straightening them and making coaptation with the palms of the hands.

XVI. After adjustment, apply the bandages while the limb is extended, making the turns with the first bandage, either to right or left as may be suitable. Put the head of the bandage at the fracture and make the first turns there, and then carry the bandaging to the upper part of the leg as was directed for the other fractures. The bandages should be broader and longer and much more numerous for the leg parts than those of the arm.

On completing the dressing, put up the limb on something smooth and soft so that it does not get distorted to either side or become concave or convex. The most suitable thing to put under is a pillow of linen or wool, not hard, making a median longitudinal depression in it, or something that resembles this.

As for the hollow splints which are put under fractured legs I am at a loss what to advise as regards their use. For the good they do is not so great as those who use them suppose. The hollow splints do not compel immobility as they think, for neither does the hollow splint forcibly prevent the limb from following the body when turned to either side, unless the patient himself sees to it, nor does it hinder the leg itself apart from the body from moving this way or that. Besides, it is, of course,

1 ἱπτυτον Littré; ἱν vulg.: "if any is of use."

2 For αὐτὰ (codd.); cf. below, line 25. τά Kw.

3 αὐτό.


ΠΕΡΙ ΑΙΜΩΝ

γέστερον ξύλον υποτετάσθαι, ἂν μη ὄμως ἂν 1 τις μαλθακόν τι ἐς αὐτὸ ἐντεθῇ εὐχρηστότατον δὲ ἐστιν ἐν τῇ μεθυποστρώσει καὶ ἐν τῇ ἑν ἀφοδὸν προχώρήσειν. ἔστιν οὖν σὺν σωλήνι καὶ ἀνευ σωλήνος, καὶ καλῶς καὶ ἀσχρῶς κατασκευάσασθαι. πιθανῶτερον δὲ τοις δημοτηςίᾳ ἔστι καὶ τὸν ἵππον ἀναμαρτήτοτερον εἶναι, ἃν σωλήν ὑποκένται· καίτοι ἀρχεύςτερον γε ἔστιν. δει μὲν γὰρ ἐφ' ὀμαλοῦ καὶ μαλθακοῦ κεῖσθαι πάντῃ πάντως ἐς ιθὺ· ἐπεὶ τοι γε ἐνάγη κρατηθῆμαι τὴν ἐπίδεσιν ὑπὸ τῆς διαστροφῆς τῆς ἐν τῇ διαθέσει, ὅποι ἂν ῥέσῃ καὶ ὅποσα ἂν ῥέσῃ. ὑποκρινέσθω δὲ ὁ ἐπιδεδεμένος ταῦτα, ἀπερ καὶ πρότερον ἐϊρηται· καὶ γὰρ τὴν ἐπίδεσιν χρὴ τοιαύτῃ εἶναι καὶ τὸ οἴδημα οὕτως ἐξαείρεσθαι ἐς τὰ ἄκρεα καὶ τὰς χαλάσιας οὕτως, καὶ τὰς μετεπίδεσιας διὰ τρίτης· καὶ εὐρισκέσθω ἱσχύστερον τὸ ἐπιδεέμενον, καὶ τὰς ἐπιδείσιας ἐπὶ μᾶλλον ποιεῖσθαι καὶ πλέοσι τοῖς οὐδονιοσιν· περιλαμβάνειν τε τὸν πόδα χαλαρῶς, ἢν μὴ ἀγαν ἐγγὺς ἢ τοῦ γούνατος τὸ τρόμα. κατατείνειν δὲ μετρίως καὶ ἐπικατορθοῦν ἐφ' ἐκαστῇ ἐπίδεσει χρῆ τὰ ὅστεα: ἢν γὰρ ὀρθῶς μὲν ἦτρευτηται, κατὰ λόγον δὲ τὸ οἴδημα χωρῆ, ἐτι 2 μὲν λεπτότερον καὶ ἱσχύστερον τὸ ἐπιδεέμενον χωρίον ἔσται, ἐτὶ δὲ αὐτὸ παραγωγότερα τὰ ὅστεα, ἀνακούντα τῆς κατατάσιος μᾶλλον. ἐτὴν δὲ ἐβδομαίος ἢ ἐνυπαίτος ἢ ἐνδεκατάοις γένηται, τοὺς νάρθηκας προστιθέναι, 3 ὦστερ καὶ ἐπὶ τοῖς ἄλλοις κατήγμασι εἰρηται. τῶν δὲ νάρθηκων τὰς ἐνέδρας χρῆ φυλάσσεσθαι κατὰ τὲ τῶν σφυρῶν τῆν ἑξιν καὶ κατὰ τὸν τένοντα τὸν ἐν τῇ κυήμῃ τοῦ ποδος.

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ON FRACTURES, xvi.

rather unpleasant to have wood under the limb unless at the same time one inserts something soft. But it is very useful in changing the bed clothes, and in getting up to go to stool. It is thus possible either with or without the hollow splint to arrange the matter well or clumsily. Still the vulgar have greater faith in it, and the practitioner will be more free from blame if a hollow splint is applied, though it is rather bad practice. Anyhow, the limb should be on something smooth and soft and be absolutely straight, since it necessarily follows that the bandaging is overcome by any deviation in posture, whatever the direction or extent of it may be. The patient should give the same answers as those above mentioned, for the bandaging should be similar, and there should be the like swelling on the extremities, and so with the looseness and the changes of dressing every third day. So, too, the bandaged part should be found more slender and greater pressure be used in the dressings and more bandages. You should also make some slack turns round the foot if the injury is not very near the knee. One should make moderate extension and adjustment of the bones at each dressing; for if the treatment be correct and the oedema subsides regularly, the bandaged part will be more slender and attenuated while the bones on their side will be more mobile and lend themselves more readily to extension. On the seventh, ninth, or eleventh day splints should be applied as was directed in the case of other fractures, and one must be careful as to the position of the splints, both in the line of the ankles, and about the back tendon.

1 ὁμαλον Kw. in Hermes XXVII. ἄτις in text.
2 ἐπὶ bis.
3 χρῆ προστιθέναι.

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ΠΕΡΙ ΑΓΜΩΝ

όστέα δὲ κυήμης κρατύνεται ἐν τεσσαράκοντα ἡμέρησιν, ἢν ὅρθως ἤτρευθαι. ἢν δὲ ὑποπτεύης
tῶν ὀστέων τι δείσθαι τινος διορθώστος ἢ των ἐλκωσιν ὀρρωδῆς, ἐν τῷ μεσημβρών χρόνῳ ἤρρ
λύσαντα καὶ εὐθετισάμενον μετεπιδήσαι.

ΧVII. Ἡν δὲ τὸ ἔτερον ὀστέον κατεγγύ ἐν κυήμης, κατατάσσοις μὲν ἄσθενεστέρης δεῖται. οὐ
μὴν ἐπιλείπτω τῷ χρή, οὐδὲ βλακεύειν ἐν τῇ κατα-
tάσει, μάλιστα μὲν τῇ πρώτῃ ἐπιδέσει κατα-
tείνεσθαι ὅσον ἐφικνεῖται αἰεὶ ποτε πάντα τὰ
cατήγματα, εἰ δὲ μή, ὡς τάχιστα· ο τι γάρ
ἀν μὴ κατὰ τρόπον ὑθετισμένον ¹ τῶν ὀστέων
ἐπιδέουσι τίς πιέει, ὀδυναίτερον τὸ χωρίον γίνεται.

9 ἡ δὲ ἄλλη ἤτρευθη ἡ αὐτὴ.

ΧVIII. Τῶν δὲ ὀστέων, τὸ μὲν ἔσω τοῦ ἀντι-
κυημίου καλεομένου ὄχλωδέστερον ἐν τῇ ἤτρευθῃ
ἐστὶ, καὶ κατατάσσοις μᾶλλον δεόμενον, καὶ ἢν
μὴ ὅρθως τὰ ὀστέα τεθῆ, ἀδύνατον κρύψαι
φανερῶν γάρ καὶ ἀσαρκοῦ πάν ἐστίν· καὶ ἐπι-
βαίνειν ἐπὶ τὸ σκέλος πολλῶν βραδύτερον δύναντ' ἂν,
tούτου κατεγγότος. ἢν δὲ τὸ ἔξω ὀστέον
κατεγγύ,² πολὺ μὲν εὐφορώτερον φέρουσι, πολὺ
dὲ εὐκρυπτότερον, καὶ ἢν μὴ καλῶς συντεθῇ
(ἐπίσαρκον γάρ ἐστιν), ἐπὶ πόδας τε ταχέως
ἔστανται, τὸ πλείστου γάρ τοῦ ἀχθεοῦς ὅχει τὸ
ἐσώθειν τοῦ ἀντικυημίου ὀστέον. ἀμα μὲν γὰρ
αὐτῷ τῷ σκέλει καὶ τῇ ἰδυωρίᾳ τοῦ ἀχθεοῦς τοῦ
κατὰ τὸ σκέλος, τὸ πλεῖον ἤχει τοῦ πόνου τὸ ἔσω
ὀστέον· τοῦ γὰρ μηροῦ ἡ κεφαλὴ ὑπεροχεῖ τὸ
ὕπερθεν τοῦ σώματος, αὕτη δὲ ἐσώθεν πέφυκε
τοῦ σκέλεος καὶ οὐκ ἐξόθεν, ἀλλὰ κατὰ τὴν τοῦ

¹ εὐθετισμένων. ² καταγγῆ.
from leg to foot. The bones of the leg solidify in forty days if properly treated. If you suspect that one of the bones requires some adjustment, or are afraid of ulceration, you should unbandage the part in the interval and reapply after putting it right.

XVII. If one of the leg-bones be broken, the extension required is weaker: there should, however, be no shortcoming or feebleness about it. Especially at the first dressing sufficient extension should be made in all fractures so as to bring the bones together, or, failing this, as soon as possible, for when one in bandaging uses pressure, if the bones have not been properly set, the part becomes more painful. The rest of the treatment is the same.

XVIII. Of the bones, the inner of the so-called shin is the more troublesome to treat, requiring greater extension, and if the fragments are not properly set, it cannot be hid, for it is visible and entirely without flesh. When this bone is broken, patients take longer before they can use the leg, while if the outer bone be fractured they have much less inconvenience to bear, and, even if not well set, it is much more readily concealed; for it is well covered: and they can soon stand. For the inner shin bone carries the greatest part of the weight, since both by the disposition of the leg itself and by the direct line of the weight upon the leg the inner bone has most of the work. Further, the head of the thigh-bone sustains the body from below and has its natural direction towards the inner side of the leg and not the outer, but is in the line of the shin

\[1\] Littre and others apply this to the fibula, but the limitation seems uncalled for.
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ἀντικενημίου ἦξεν· ἀμα δὲ τὸ ἀλλο ἦμισυ τοῦ σώματος γειτονεύεται μᾶλλον ταύτη τῇ ἦξει,
20 ἀλλ’ οὐχὶ τῇ ἦξῳ ἦξεν· ἀμα δὲ, ὅτε παχύτερον τὸ ἢσῳ τοῦ ἦξωθεν, ὃσπερ καὶ ἐν τῷ πήχει τὸ κατὰ τὴν τοῦ μικρὸν δακτύλου ἦξιν λεπτότερον καὶ μακρότερον. ἐν μέντοι τῷ ἄρθρῳ τῷ κάτω
οὐχ ὀμοίη ὑπότασις τοῦ ὀστεοῦ τοῦ μακροτέρου· ἀμοιβὼς γὰρ ὁ ἄγκων καὶ ἡ ἐνγύη κάμπτεται. διὰ οὖν ταύτας τὰς προφάσιας τοῦ μὲν ἦξωθεν ὀστέου κατεγύτος,2 ταχεῖα αἱ ἐπιβάσιες, τοῦ δὲ ἦξῳ ἦξεν κατεγύτος, βραδεῖα αἱ ἐπιβάσιες.

XIX. Ἡν δὲ τὸ τοῦ μηροῦ ὀστεοῦ καταγή, τὴν κατάτασιν χρή ποιεῖσθαι περὶ παντὸς, ὅπως μὴ ἐνδεστέρως σχίσει· πλεονασθεῖσα μὲν γὰρ οὐδὲν ἀν σύνοιτο· οὐδὲ γὰρ ἐι διεστῶτα τὰ ὀστέα ὑπὸ τῆς ἰσχύος τῆς κατατάσιος ἐπιδείξῃ τις, οὐκ ἀν δύνατο κρατεῖν ἡ ἐπίδειξις ὡστε διεστάναι, ἀλλὰ συνέλθοι ἀν πρὸς ἀλληλα τὰ ὀστέα ὅτι τάχιστα [ἀν]3 ἀφείησαν οἱ τεῖνουτεῖ παχεῖαι γὰρ καὶ ἰσχύραι αἱ σάρκες ἔουσαι,
10 κρατήσουσι τῆς ἐπιδείξιος, ἀλλ’ οὐ κρατήθησονται. περὶ οὖ οὖν ὁ λόγος, διατείνειν εὗ μάλα καὶ ἀδιαστρέπτως χρῆ, μηδὲν ἐπιλείποντα· μεγάλῃ γὰρ ἡ ἀίσχυν καὶ βλάβη βραχύτερον τὸν μηρὸν ἀποδείξῃ. χεῖρ μὲν γὰρ, βραχύτερῃ γενομένῃ, καὶ συγκρυφθεῖν ἀν καὶ οὐ μέγα τὸ σφάλμα· σκέλος δὲ βραχύτερον γενόμενον χωλὸν ἀποδείξει 4 τοῦ ἀνθρωποῦ· τὸ γὰρ ὑγιές ἐλέγχει παρατιθέμενον μακρότερον ἕως, ὡστε λυσιτελεῖ τὸν μέλλοντα κακῶς ἱστρεύσθαι, ἀμφότερα
20 καταγήναι τὰ σκέλεα μᾶλλον ἤ τὸ ἐτερον· ἱσόρροπος γοῦν ἅν εἰη αὐτὸς ἐσωτη, ἐπὶ ἑν μέντοι

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bone. So, too, the corresponding half of the body is nearer the line of this bone than that of the outer one, and besides, the inner is thicker than the outer, just as in the forearm the bone on the side of the little finger is longer and more slender; but in this lower articulation the longer bone does not lie underneath in the same way, for flexion at the elbow and knee are dissimilar. For these reasons, when the outer bone is fractured patients soon get about; but when the inner one is broken they do so slowly.

XIX. If the thigh-bone is fractured, it is most important that there should be no deficiency in the extension that is made, while any excess will do no harm. In fact, even if one should bandage while the bones were separated by the force of the extension, the dressing would have no power to keep them apart, but they would come together immediately when the assistants relaxed their tension. For the fleshy part being thick and powerful will prevail over the bandaging, and not be overcome by it. To come to our subject, one should extend very strongly and without deviation leaving no deficiency, for the disgrace and harm are great if the result is a shortened thigh. The arm, indeed, when shortened may be concealed and the fault is not great, but the leg when shortened will leave the patient lame, and the sound leg being longer (by comparison) exposes the defect; so that if a patient is going to have unskilful treatment, it is better that both his legs should be broken than one of them, for then at least he will be in equilibrium. When, therefore, you have made suffi-
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ικανός καταταυνύσης, κατορθωσάμενον χρή τοῖς θέναρσι τῶν χειρῶν ἐπιδείκνυ τῶν αὐτῶν τρόπον, ὡσπερ καὶ πρόσθεν γέγραπται, καὶ τὰς ἀρχὰς βαλλόμενον, ὡσπερ εὑρηταί, καὶ νεμόμενον ἐς τὸ ἀνώ τῇ ἐπιδείσει. καὶ ὑποκρινέσθω ταῦτα ὡσπερ καὶ πρόσθεν, καὶ πονεῖτω κατὰ ταῦτα καὶ ῥητικώ· καὶ μετεπιδείσθω ὡσαύτως, καὶ ναρθήκων πρόσθεσις ἡ αὐτή. κρατύνεται δὲ ὁ μηρὸς ἐν πεντηκοντα ἁμέρησιν.

XX. Προσσυνεῖναι δὲ χρή καὶ τόδε, ὅτι ὁ μηρὸς γαυσῶς ἐστίν ἐς τὸ ἔξω μέρος μᾶλλον ἢ ἐς τὸ ἔσω, καὶ ἐς τὸ ἐμπροσθεν μᾶλλον ἢ ἐς τούπισθεν· ἐς ταῦτα τοῖς τὰ μέρεα καὶ διαστρέφεται, ἐπὶ μὴ καλῶς ἤτρευνται· καὶ δὴ καὶ κατὰ ταῦτα ἀσαρκότερος αὐτῶς ἐνυτοῦ ἐστίν, ὡστε οὔδε συγκρύπτειν ἔναντί, ἐν τῇ διαστροφῇ. ἢν οὖν τι τοιούτῳ ὑποπτεύσῃ, μηχανοποιεῖσθαι χρή οἷά περ ἐν τῷ βραχίων τῷ διεστραμμένῳ παρῆναι.1 προσπεριβάλλειν δὲ χρή ὅλων τῶν ὀθυνίων κύκλῳ ἀμφὶ τὸ ἴσχυον καὶ τὰς ἴζυας, ὅπως ἄν οἱ βουβοῦνες τε καὶ τὸ ἀρθρον τὸ κατὰ τὴν πλιχάδα καλομένην προσεπιδέσθαι· καὶ γαρ ἀλλωσ συμφέρει, καὶ ἄπως μὴ τὰ ἀκρεὰ τῶν ναρθήκων σώνῃ πρὸς τὰ ἀνεπίδει προσβαλλόμενα. ἀπολείπειν δὲ χρή ὑπὸ τοῦ γυμνοῦ αἰεὶ τοὺς νάρθηκας καὶ ἐνθεὺν καὶ ἐνθεὶς ικανῶς.2 καὶ τὴν θέσιν αἰεὶ τῶν ναρθήκων προμηθεῖσθαι χρή, ὅκως μήτε κατὰ τὸ ὀστέον τῶν ἑξαχόντων παρὰ τὰ ἀρθρα φύσει πεφυκότων μήτε κατὰ τὸ 20 ἀρθρον] 3 νεύρον ἐσταί.

XXI. Τὰ δὲ οἰδήματα τὰ κατ’ ἱγνύν, ἢ κατὰ πόδα, ἢ κατὰ τῇ ἄλλο ἐξαειρεύμενα 4 υπὸ τῆς 21

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cient extension, you should adjust the parts with the palms of the hands and bandage in the same way as was described before, placing the head of the bandage as directed and carrying it upwards. And he should give the same answers as before, and experience the same trouble and relief. Let the change of dressing be made in the same way, and the same application of splints. The thigh-bone gets firm in forty days.

XX. One should also bear the following in mind, that the thigh-bone is curved outwards rather than inwards, and to the front rather than to the back, so it gets distorted in these directions if not skilfully treated. Furthermore it is less covered with flesh on these parts so that distortions cannot be hidden. If, then, you suspect anything of this kind, you should have recourse to the mechanical methods recommended for distortion of the upper arm. Some additional turns of bandage should be made round the hip and loins so that the groins and the joint at the so-called fork may be included, for besides other benefits, it prevents the ends of the splints from doing damage by contact with the uncovered parts. The splints should always come considerably short of the bare part at either end, and care should always be taken as to their position so that it is neither on the bone where there are natural projections about the joint, nor on the tendon.

XXI. As to the swellings which arise owing to pressure behind the knee or at the foot or elsewhere,
πιέξιος, εἰρύοισι πολλοῖσι ῥυπαροίσιν, εὐ κατ-
ειργασμένοισιν, οἴνῳ καὶ ἐλαίῳ ῥήμιας, κηρωτῇ
ὕποχρίων, καταδείκτι, καὶ ἢ πιέξωσιν οἱ νάρθηκες,
χαλάν θάσσων ἱσχυναίνοις δ' ἃν, εἰ ἐπάνω ἐσ' τοὺς
νάρθηκας ὁθονίοισι ἱσχυναῖσιν ἐπιδέοισι τὰ οἰδή-
ματα, ἀρξάμενος ἀπὸ τοῦ κατωτάτῳ ἐπὶ τὸ ἄνω
νεμόμενος· οὔτω γὰρ ἂν τάχιστα ἱσχὺν τὸ οἰδήμα
γένοιτο, καὶ ὑπερθοῖν ἃ ἂν ὑπὲρ τὰ ἀρχαῖα ἐπιδεό-
ματα· ἀλλ' οὖν χρὴ τοῦτο τῷ τρόπῳ χρῆσθαι
τῆς ἐπιδείσιος, ἢν μὴ κίνδυνος ἢ ἐν τῷ οἰδήματι
φλυκταίνωσιος ἢ μελασμοῦ· γίνεται δὲ οὐδὲν
τοιούτοι, ἢν μὴ ἄγαν τις πιέξῃ τὸ κάτηγμα, ἢ
κατακρεμάμενον ἔχη, ἢ κυνῆται τῇ χειρὶ, ἢ ἄλλο
τι προσπιτή ἐρεθιστικόν ἐσ' τὸν χρώτα.

XXII. Σωλήνα δὲ ἢν μὲν τις ὑπ' αὐτὸν τὸν
μηρὸν ὑποθεῖν μὴ ὑπερβάλλοντα τὴν ἱγνύν,
βλάπτοι ἃν μᾶλλον ἢ ὅφελεοι οὔτε γὰρ ἂν τὸ
σώμα κωλύοι οὔτε τὴν κυήμην, ἀνευ τοῦ μηροῦ
κινεῖσθαι· ἀσηρὸν γὰρ ἂν εἴη πρὸς τὴν ἱγνύν
προσβάλλομεν· καὶ ὁ ἡκιστα νεῖ, τοῦτ ἂν
ἐπιτρύνοι ποιεῖν, [ἡκιστὰ γὰρ δεί] 4 κατὰ τὸ γόνον
κάμπτειν πᾶσαν γὰρ ἂν τύρβῃ παρέχου τῆς
ἐπιδέοσιν, καὶ μηροῦ ἐπιδεδεμένου καὶ κυήμης,
όστις κατὰ τὸ γόνον κάμπτοι. ἀνάγκη γὰρ ἂν
εἴη τούτω τοὺς μῦσας ἁλλοτε καὶ ἁλλοτε ἁλλο
σχῆμα ἵσχεν· ἀνάγκη δ' ἂν εἴη καὶ τὰ ὀστέα
tὰ κατεγράτα κύησιν ἤχειν. περὶ παντὸς ὅλον
ποιητέον τὴν ἱγνύν ἐντετάσθαι. δοκεῖοι ἂν
[ὁμοίως] 5 ὁ σωλὴν ὁ περιέχων 6 πρὸς τὸν πόδα ἀπὸ

1 ἐπαρεῖς Kw. suggested by Erm., confirmed by B.
2 ὑπερθοῖν codd. ὑπερθοῖν Littre. ὑπέλθοι . . . ὑπὸ B Kw.
3 πρὸς Kw.
dress them with plenty of crude wool, well pulled out, sprinkling it with oil and wine, after anointing with cerate, and if the splints cause pressure relax them at once. You will reduce the swellings by applying slender bandages after removing the splints, beginning from the lowest part and passing upwards, for so the swelling would be most rapidly reduced and flow back above the original dressing. But you should not use this method of bandaging unless there is danger of blisters forming or mortification at the swelling. Now, nothing of this kind happens unless one puts great pressure on the fracture, or the part is kept hanging down or is scratched with the hand, or some other irritant affects the skin.

XXII. As to a hollow splint, if one should pass it under the thigh itself and it does not go below the bend of the knee it would do more harm than good; for it would prevent neither the body nor the leg from moving apart from the thigh, would cause discomfort by pressing against the flexure of the knee, and incite the patient to bend the knee, which is the last thing he should do. For when the thigh and leg are bandaged, he who bends the knee causes all sorts of disturbance to the dressings, since the muscles will necessarily change their relative positions and there will also necessarily be movement of the fractured bones. Special care, then, should be taken to keep the knee extended. I should think that a hollow splint reaching [evenly?] from hip to

1 Reading ἐπατεῖς.
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tοῦ ἵσχίου, ὁφελεῖν ὑποτιθέμενος· καὶ ἄλλως κατ᾽ ἱγνίην ταύτην χαλαρώς περιβάλλειν σὺν τῷ σωλήνι, ὥσπερ τὰ παιδία ἐν τῇσι κοίτησι σπαργανοῦται· εἶτα ἐπὶν ὦ μηρὸς ἐς τὸ ἀνω

diastrepfoi 1 ἦ ἐς τὸ πλάγιον, εὐκατασχε-
tότερον εἰς ἀν ὑπ τῷ σωλήνι οὖτως. ἦν οὖν
diamperes ἦ, 2 ποιητέος ὃ σωλήν, ἦ οὖ ποιητέος.

XXIII. Πτέρνης δὲ ἄκρης κάρτα χρή ἐπι-
μελεῖσθαι ὡς εὐθέτως ἔχῃ, καὶ ἐν τοῖσι κατὰ
κυνήμην καὶ ἐν τοῖσι κατὰ μηρὸν κατήγμασιν. ἦν
μὲν γὰρ ἀπαιωρήται ὁ ποὺς τῆς ἄλλης κυνήμης
ήματισμένης, ἀνάγκη κατὰ τὸ ἀντικυνήμιον τὰ
ὀστέα κυρτά φαινεσθαι· ἦν δὲ ἦ μὲν πτέρνη
ὑψιλοτέρη [3] τοῦ μετρίου ἱρτισμένη, 3 δὲ ἄλλη
κυνήμη ὑπομετέωρος ἦ, ἀνάγκη τὸ ὦστεον τοῦτο
κατὰ τὸ ἀντικυνήμιον τοῦτο κοιλότερον φανήμαι

toῦ μετρίου, προσέτι καὶ ἦ πτέρνη τυχχάνη
ἑούσα τοῦ ἀνθρώπου φύσει μεγάλη. ἀτὰρ καὶ
κρατύνεται πάντα τὰ ὦστεα βραδύτερον, ἦν μὴ
κατὰ φύσιν κείμενα [4], καὶ τὰ μῆ 4 ἀτρε-
μέοντα ἐν τῷ αὐτῷ σχῆματι καὶ αἱ πωρώσιες

15 ἀσθενέστεραί.

XXIV. Ταῦτα μὲν δὴ, ὀσοὶ σι τὰ μὲν ὦστεα
κατέγγειν, ἔξεχει δὲ μῆ, μηδὲ ἄλλως ἔλκος ἐγένετο.
οἶσι δὲ καὶ τὰ ὦστεα κατέγγειν ἀπλά τῷ τρόπῳ
καὶ μὴ πολυχιδεῖ, αὐθιημερα ἐμβληθέντα ἢ τῇ
ὐστεραῖ ἡ, καὶ κατὰ χώρην ἱζόμενα, καὶ μὴ
ἐπίδοξος ἢ ἀπόστασις παρασχίδων ὦστεων ἀπ-
ιέναι, ἢ καὶ οἶσιν ἔλκος μὲν ἐγένετο, τὰ δὲ ὦστεα
τὰ κατηγότα ὦκ ἔξισχει, οὔδ' ὁ τρόπος τῆς
κατήξιος τοιῶτος ὦοι παρασχίδαις ὦστεων ἑούσας

1 diastrephtai. 2 diamperh sοι.
foot would be useful, especially with a band passed loosely round at the knee to include the splint, as babies are swaddled in their cots. Then if the thigh-bone is distorted upwards (i.e. forwards) or sideways it will thus be more easily controlled by the hollow splint. You should, then, use the hollow splint for the whole limb or not at all.

XXIII. In fractures both of the leg and of the thigh great care should be taken that the point of the heel is in good position. For if the foot is in the air while the leg is supported, the bones at the shin necessarily present a convexity, while if the foot is propped up higher than it should be, and the leg imperfectly supported,¹ this bone in the shin part has a more hollow appearance than the normal, especially if the heel happens to be large compared with the average in man. So, too, all bones solidify more slowly if not placed in their natural position and kept at rest in the same posture, and the callus is weaker.

XXIV. The above remarks apply to those whose bones are fractured without protrusion or wound of other kind. In fractures with protrusion, where they are single and not splintered, if reduced on the same or following day, the bones keeping in place, and if there is no reason to expect elimination of splinters, or even cases in which, though there is an external wound, the broken bones do not stick out, nor is the nature of the fracture such that any

¹ ὑποπετέως, "rather low." Adams.
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10 ἐπιδόξους εἶναι ἀναπλῶσαι τῶν τοιούτων οί μὲν μὴτε μέγα ἀγαθῶν μὴτε μέγα κακῶν ποιοῦντες, ἐπικρέουσι τὰ μὲν ἐλκεα καθαρτικὸ τινὶ, ἡ πισσηρῆν ἐπιθέετες, ἡ ἐναιμὸν ἡ ἄλλο τι ὅν εἰσόθασι ποιεῖν ἑπάνω δὲ τοὺς οἴνηρους σπλήμας ἡ εἰρίμα ῥυπαρὰ ἐπιδεόουσιν ἡ ἄλλο τι τοιοῦτον. ἐπὴν δὲ τὰ ἐλκεα καθαρὰ γένηται καὶ ἔδη συμφύνηται, τότε τοῖσιν ὁθονίοις συγχωνιοὶ πειρῶνται ἐπιδεῖν καὶ νάρθηξι κατορθοῦν. αὐτὴ μὲν ἡ ἔσης ἀγαθὸν τι ποιεῖ, κακὸν δὲ οὐ μέγα.

20 τὰ μὲντοι ὅστεα οὐχ ὁμοίως δύναται ἵδρυσθαι ἐς τὴν ἑωτῶν χώρην, ἀλλὰ τινὶ ὁγκηρότερα σῶματα τοῦ καιροῦ ταύτῃ γίνεται γένοιτο δ' ἂν βραχύτερα, ὃν ἀμφότερα τὰ ὅστεα κατέγγειν ἢ

24 πῆχεος ἡ κινῆσις.

ΣΣΧΔ. Ἀλλοι δ' αὐτὶνες εἰσὶ οἱ ὁθονίοις τὰ τοιαῦτα ἐπιδεοῦσι εὐθέως καὶ ἐνθευ δὲν καὶ ἐνθευ ἐπιθέοσι τοῖσιν ὁθονίοις, κατὰ δὲ τὸ ἐλκεα αὐτὸ διαλείπουσι, καὶ ἐδὼς ἀνεψυχθαί ἐπειτὲ ἐπιτιθέασι ἐπὶ τὸ ἐλκεα τῶν καθαρτικῶν τι, καὶ σπλήνεσιν οἴνηροις ἡ εἰρία ῥυπαροῖς θεραπεύουσιν. αὕτη ἡ ἔσης κακή, καὶ εἰκὸς τοὺς οὐτῶς ἐπιθέοντας τὰ μέγιστα ἀσυνετεῖν, καὶ ἐν τοῖσιν ἄλλοσι κατηγμάσι καὶ ἐν τοῖσι

10 τοιοῦτοισιν. μέγιστον γὰρ ἐστὶ τὸ γινόμοιεν καθ' ὁποῖον τροπὸν χρή τὴν ἄρχην μὲν βάλλεσθαι τοῦ οἴνου, καὶ καθ' ὁποῖον μάλιστα πεπείχθαί, καὶ οἶα τε ὀφελοῦσιν ἦν ὁρθῶς τις βάλλομα τὴν ἄρχην καὶ πιέζῃ ἡ μάλιστα χρή, καὶ οἶα ἐπιλεῖται ἦν οὔτε ὁρθῶς τις βάλλομα μηδὲ πιέζῃ ἡ μάλιστα χρή, ἀλλὰ ἐνθευ καὶ ἐνθευ. εἰρηται μὲν οὖν καὶ ἐν τοῖσ πρόσθεν γεγραμ-
splinters are likely to come to the surface:—in such cases they do neither much good nor much harm who treat the wound with a cleansing plaster, either pitch cerate, or an application for fresh wounds, or whatever else they commonly use, and bind over it compresses soaked in wine, or uncleaned wool or something of the kind. And after the wounds are cleansed and already united, they attempt to make adjustment with splints and use a number of bandages. This treatment does some good and no great harm. The bones, however, cannot be so well settled in their proper place, but become somewhat unduly swollen at the point of fracture. If both bones are broken, either of forearm or leg, there will also be shortening.

XXV. Then there are others who treat such cases at once with bandages, applying them on either side, while they leave a vacancy at the wound itself and let it be exposed. Afterwards, they put one of the cleansing applications on the wound, and treat it with pads steeped in wine, or with crude wool. This treatment is bad, and those who use it probably show the greatest folly in their treatment of other fractures as well as these. For the most important thing is to know the proper way of applying the head of the bandage, and how the chief pressure should be made, also what are the benefits of proper application and of getting the chief pressure in the proper place, and what is the harm of not placing the bandage rightly, and of not making pressure where it should chiefly be, but at one side or the other. Now, the results of each were ex-

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1 ὀστέα for σώματα; callus develops.

1 τινὶ καὶ τὰ ὀστέα.
μένοις, ὁποῖα ἀφ’ ἐκατέρων ἀποβαίνει μαρτυρεῖ δὲ καὶ αὐτὴ ἡ ἰητρείη. ἀνάγκη γὰρ τῷ οὕτως ἐπιδεομένῳ τὸ οἴδος ἐξαίρεσθαι ἐστὶ αὐτὸ τὸ ἔλκος. καὶ γὰρ εἰ γυγίς χρῶς εἶθεν καὶ ἐνθεν ἐπιδειθεὶς, ἐν μέσῳ δὲ διαλειψθείς, μάλιστα κατὰ τὴν διάλειψιν οἴδησεν ἀν καὶ ἀχροίσειν πῶς οὖν οὐχὶ ἔλκος γε ταῦτα ἄν πάθοι; ἀναγκαῖος οὖν ἔχει ἄχρον μὲν καὶ ἐκπεπληγμένον τὸ ἔλκος εἶναι, δακρυώδες τε καὶ ἀνεκπύρητον, ὡστέα δέ, καὶ μὴ μέλλοντα ἀποστῆναι, ἀποστατικὰ γενέσθαι σφυγμῶδες τε καὶ πυρώδες τὸ ἔλκος ἀν εἰη. ἀναγκὰζονται δὲ διὰ τὸ οἴδος ἐπικατα-πλάσσειν ἀσύμφορον δὲ καὶ τούτῳ τοῖσιν ἐνθεν καὶ ἐνθεν ἐπιδεομένοισιν ἀχθος γὰρ ἀνωφελέσ πρὸς τὸ ἄλλο σφυγμῷ ἐπιγίνεται. τελευτῶντες δὲ ἀπολύοντες τὰ ἐπιδέσματα, ὄποταν σφιν παλιγκοτί, καὶ ἰητρεύουσι τὸ λοιπὸν ἄνευ ἐπιδέσιος. οὐδὲν δὲ ἦσον, καὶ ἦν τι ἄλλο τρῶμα τοιοῦτον λάβωσι, τῷ αὐτῷ τρόπῳ ἰητρεύουσιν. οὐ γὰρ οἱντα τὴν ἐπίδεσιν τὴν ἐνθεν καὶ ἐνθεν, καὶ τὴν ἀνάψυξιν τοῦ ἔλκεος αἰτίην εἶναι, ἀλλὰ ἄλλην τινὰ ἀνυχίην. οὐ μέντοι γε ἂν ἐγραφοῦν περὶ τούτου τοσάντα, εἰ μὴ εἰ μὲν ἢδειν ἀσύμφορον ἐουσαν τὴν ἐπίδεσιν, συχνοὺς δὲ οὕτως ἰητρεύοντας, ἐπίκαιρον δὲ τὸ ἀπομάθημα, μαρτύριον δὲ τοῦ ὅρθος γεγραφθαί τὰ πρόσθεν γεγράμμενα εἶτε μάλιστα πιεστέα τὰ κατιγματα εἶτε ἦκιστα.

1 ἐκατέρων.

1 That is, an unhealthy discharge without "purification."
2 Exposure here cannot mean exposure to cold or even bareness—the foolish surgeons cover the wound with wool or
plained in what has been written above. The treatment, too, is itself evidence; for in a patient so bandaged the swelling necessarily arises in the wound itself, since if even healthy tissue were bandaged on this side and that, and a vacancy left in the middle, it would be especially at the vacant part that swelling and decoloration would occur. How then could a wound fail to be affected in this way? For it necessarily follows that the wound is discoloured with everted edges, and has a watery discharge devoid of pus,¹ and as to the bones, even those which were not going to come away do come away. The wound will become heated and throbbing, and they are obliged to put on an additional plaster because of the swelling; and this too will be harmful to patients bandaged at either side of the wound, for an unprofitable burden is added to the throbbing. They finally take off the dressings, when they find there is aggravation, and treat it for the future without bandaging. Yet none the less, if they get another wound of the same sort, they use the same treatment, for they do not suppose that the outside bandaging and exposure² of the wound is to blame, but some mishap. However, I should not have written so much about this had I not known well the harmfulness of this dressing and that many use it; and that it is of vital importance to unlearn the habit. Besides, it is an evidence of the truth of what was written before on the question whether the greatest or least pressure should come at the fracture.³

¹ According to Adams this warning was still necessary in his time.

² It means absence of due pressure, the proper graduation of which is the main point in Hippocratic bandaging.
XXVI. Ἐρή ἄν, ὡς ἐν κεφαλαίῳ εἰρήσθαι, οἷς ἂν μὴ ἐπίδοξος ἢ ἢ τῶν ὀστέων ἀπόστασις ἔσεσθαι, τὴν αὐτὴν ἱπτρείν ὕπτρεύειν, ὥσπερ ἂν ὀσίων ὀστέα μὲν κατεγόμενα εἰς, ἐλκος δὲ μὴ ἔχοντα· τὰς τε γὰρ κατατάσσεις καὶ κατορθώσεις τῶν ὀστέων τὸν αὐτὸν τρόπον ποιεῖσθαι, τὴν τε ἐπίδεσιν παραπλήσιον τρόπον. ἔπε μὲν αὐτὸ τὸ ἐλκος πιστηρὴν κηρωτὴν χρήσαντα, σπλήνα λεπτὸν διήλογον ἐπιδεθήματι, τὰ δὲ πέριξ κηρωτῆς λεπτῆς χρίειν. τὰ δὲ θόνια καὶ τὰ ἀλλα πλατύτερα τινὶ ἐσχισμένα ἔστω, ἡ εἰ μὴ ἐλκος εἰχεν· καὶ ὃ ἂν πρωτῷ ἐπιδεήται, συχνῷ ἔστω τοῦ ἐλκεος πλατύτερον. τὰ γὰρ στενότερα τοῦ ἐλκεος ξώσαντα ἔχει τὸ ἐλκος· τὸ δὲ οὐ χρῆ· ἀλλ΄ ἡ πρώτη περιβολὴ ὅλον κατεχέτω τὸ ἐλκος, καὶ ὑπερεχέω τὸ θόνιον ἐνθεν τε καὶ ἐνθεν. βάλλεσθαι μὲν οὖν χρῆ τὸ θόνιον κατ’ αὐτὴν τὴν ἑξιν τοῦ ἐλκεος, πιέζειν δὲ ὀλίγῳ ἔσον ἢ εἰ μὴ ἐλκος εἰχεν, ἐπινέμεσθαι δὲ τῆς ἐπιδέσει ὥσπερ καὶ πρόσθεν εἰρηται. τὰ δὲ θόνια αἰεὶ μὲν τοῦ τρόπου τοῦ μαλθακοῦ ἔστωσαν, μᾶλλον δὲ τε δεῖ ἐν τοῖς τοιούτοισιν, ἡ εἰ μὴ ἐλκος εἰχεν. πλήθος δὲ τῶν θονίων· μὴ ἐλάσσω ἔστω τῶν πρότερον εἰρημένων, ἀλλὰ τινὶ καὶ πλεῖω. ἢν δὲ ἐπιδεθή, δοκεῖτω τῶ ἐπιδεδεμένῳ ἤμροσθαι μὲν, πεπιέχθαι δὲ μὴ φάτῳ δὲ κατὰ τὸ ἐλκος μάλιστα ἤμροσθαι. τους δὲ χρόνους τους αὐτούς μὲν χρῆ εἶναι ἐπὶ τὸ μᾶλλον δοκεῖν ἤμροσθαι, τους αὐτοὺς δὲ ἐπὶ τὸ μᾶλλον δοκεῖν χαλάν, ὥσπερ καὶ ἐν τοῖς πρόσθεν εἰρηται. μετεπιδεῖν δὲ διὰ τρίτης, πάντα μεταποιεύοντα ἐς τοὺς τρόπους τοὺς παραπλησίους, ὥσπερ καὶ πρόσθεν 154
XXVI. To speak summarily, when there is no likelihood of elimination of bone, one should use the same treatment as in cases of fracture without external wound. The extensions and adjustments of the bones should be made in the same way, and so too with the bandaging. After anointing the wound itself with pitch cerate, bind a thin doubled compress over it, and anoint the surrounding parts with a thin layer of cerate. The bandages and other dressings should be torn in rather broader strips than if there was no wound, and the one first used should be a good deal wider than the wound; for bandages narrower than the wound bind it like a girdle, which should be avoided; rather let the first turn take in the whole wound, and let the bandage extend beyond it on both sides. One should, then, put the bandage just in the line of the wound, make rather less pressure than in cases without a wound, and distribute the dressing as directed above. The bandages should always be of the pliant kind, and more so in these cases than if there was no wound. As to number, let it not be less than those mentioned, before but even a little greater. When the bandaging is finished it should appear to the patient to be firm without pressure, and he should say that the greatest firmness is over the wound. There should be the same periods of a sensation of greater firmness, and greater relaxation as were described in the former cases. Change the dressings every other day, making the changes in similar

1 Proper treatment of compound fractures.
ΠΕΡΙ ΑΓΜΩΝ

eἰρηται, πλὴν ἐς τὸ σύμπαν ἥσσον τιν πιέζειν ταῦτα ἣ ἐκεῖνα. καὶ ἢν κατὰ λόγον τὰ εἰκότα γένηται, ἵσχυσερον μὲν αἰεὶ εὐρεθήσεται τὸ κατὰ τὸ ἔλκος, ἵσχυν δὲ καὶ τὸ ἄλλο πᾶν τὸ ὑπὸ τῆς ἐπιδείεσις κατεχόμενον· καὶ αὐτὸ τὰ ἐκπυκνίσεις ἐσούνται θάσσουσ ἢ τῶν ἄλλως ἰητρευμένων ἐλκέων, ὅσα τε σαρκία ἐν τῷ τρώματι ἐμελάνθη καὶ ἐθανατώθη, θάσσουν περιρρήγυνται καὶ ἐκπύκνετει ἐπὶ ταύτη τῇ ἱπτρείᾳ ἢ ἐν τῇ ἀλλῆσιν, ἢς ὀστειλάς τε θάσσουν ὅρμανται τὸ ἔλκος οὕτως ἢ ἄλλως ἰητρευμένον. πάντων δὲ τούτων αὐτίον ὃτι ἵσχυν μὲν τὸ κατὰ τὸ ἔλκος χωρίου γίνεται, ἵσχυν δὲ τὰ περιέχοντα. τὰ μὲν ὅσον ἄλλα πάντα παραπλησίως χρῆ ἱπτρέειν, ὡς τὰ ἀνευ ἐλκώσιος ὅστεα κατηγούμενα· τοὺς δὲ νάρθηκας οὐ χρῆ προστιθέναι. διὰ τούτο καὶ τὰ ὁδόνων χρῆ τούτοις πλεῖω εἶναι ἢ τοῖς ἐτέροισιν, ὃτι τε ἥσσον πιέζεται, ὅτι τε οἱ νάρθηκες Βραδύτεροι 1 προστιθένται· ἢν μέντοι τοὺς νάρθηκας προστιθῆς, μὴ κατὰ τὴν ἤξιν τοῦ ἔλκεος προστιθίεται, ἄλλοις τε καὶ χαλαρῶς προστιθίεται, προμηθευμένοις 2 ὁπως μηδεμίη σφίξεις μεγάλη ἐσται ἀπὸ τῶν ναρθήκων. εἰρηταὶ δὲ τούτο καὶ ἐν τοῖς πρότερον γεγραμμένοισι. τὴν μέντοι δίαιταν ἀκριβεστήρην καὶ πλεῖω χρόνον χρῆ ποιεῖσθαι οἰσιν ἐξ ἀρχῆς ἐλκεα γίνεται καὶ οἰσιν ὅστεα ἐξισχει καὶ τὸ σύμπαν δὲ εἰρήσθαι, ἐπὶ τοῖς ἰσχυροτάοισι πρόμασιν ἀκριβεστήρην καὶ 60 πολυχρονωστήρην εἶναι χρῆ τὴν δίαιταν.

ΧΧVII. Ἡ αὐτὴ ἱπτρείᾳ τῶν ἐλκέων καὶ οἰσιν ὅστεα μὲν κατέγγειν, ἐλκος δὲ ἐξ ἀρχῆς μηδὲν ἢ, ἢν δὲ ἐν τῇ ἱπτρείᾳ ἐλκος γένηται, ἢ τοῖς 156
fashion except that, on the whole, the pressure should be less in these cases. If the case takes a natural course according to rule, the part about the wound will be found progressively diminished and all the rest of the limb included in the bandage will be slender. Purification\(^1\) will take place more rapidly than in wounds treated otherwise, and all fragments of blackened or dead tissue are more rapidly separated and fall off under this treatment than with other methods. The wound, too, advances more quickly to cicatrisation thus than when treated otherwise. The cause of all this is that the wound and the surrounding parts become free from swelling. In all other respects, then, one should treat these cases like fractures without a wound, but splints should not be used.\(^2\) This is why the bandages should be more numerous than in the other cases both because there is less pressure and because the splints are applied later. But if you do apply splints, do not put them in the line of the wound; especially apply them loosely, taking care that there is no great compression from the splints. This direction was also given above. Diet, however, should be more strict and kept up longer in cases where there is a wound from the first and where the bones protrude, and on the whole, the greater the injury the more strict and prolonged should be the dieting.

XXVII. The same treatment of the wounds applies also to cases of fracture which are at first without wound, but where one occurs during treat-

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\(^1\) *i.e.* discharge of laudable pus.

\(^2\) We must evidently understand "so soon."

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\(^1\) βραδύτερον.

\(^2\) προμηθευμένοις codd. Pq.
ΠΕΡΙ ΑΓΜΩΝ

οθονίοισι μᾶλλον πιεχθέντος, ἢ υπὸ νάρθηκος
ωἐνέδρης, ἢ υπὸ ἄλλης τινὸς προφάσιος. γινώ-
σκεται μὲν οὖν τὰ τοιαύτα, ἢν ἐλκος υπῆ, τῇ
τε ὀδύνῃ καὶ τοίσι σφυγμοῖσιν· καὶ τὸ ο缐μα
τὸ ἐν τοῖσι ἁκροισὶ σκληρότερον γίγνεται τῶν
tοιούτων, καὶ εἰ τὸν δάκτυλον ἐπαγάγοις, τὸ
ἔρευνθος ἔξειρται, 1 ἢτάρ καὶ αὐθίς ἀποτρέχει
ταχεώς. ἢν οὖν τι τοιούτων ὑποπτεύχα, λύσαντα
χρῆ, ἢν μὲν ἢ κυνηχοὶς κατὰ τὰς υποδεσμίδας
ὁ ἐπὶ 2 τὸ ἄλλο τὸ ἐπιδεδεμένον πισσηρῆς κηρωτῆ
ἀντὶ τῆς ἐτέρης χρῆσθαι. ἢν δὲ τούτων μὲν μιθὲν
ἡ, αὐτὸ δὲ τὸ ἐλκος ἡρεθισμένων εὐρίσκεται
μέλαν ἐπὶ πολὺ ἡ 3 ἀκάθαρτον, καὶ τῶν μὲν
σαρκῶν ἐκπυρησμένων, τῶν δὲ νεύρων προσεκ-
πεσωμένων, τούτων οὐδὲν δὲ ἀναψύχειν παυτά-
πασιν, οὐδὲ τι φοβεῖσθαι τὰς ἐκπυρήσιας ταύτας,

10 ἀλλ’ ἱητρεύειν τὰ μὲν ἅλλα παραπλῆσιον τρόπον,
ὡσπερ καὶ οἷσιν ἐξ ἀρχῆς ἐλκος ἐγένετο. τοῖσι
δὲ οθονίοισιν ἄρχεσθαι χρῆ ἐπιδέουν ἀπὸ τοῦ
οἰδήματος τοῦ ἐν τοῖσιν ἁκρέοισι πάνυ χαλαρῶς,
καὶ ἐπειτὰ ἐπινέμεσθαι τῇ ἐπιδείσει αἰεὶ ἐς τὸ
ἀνώ, καὶ πεπίεχθαι μὲν οὐδαμῇ, ἥρμοσθαι 4 δὲ
μάλιστα κατὰ τὸ ἐλκος, τὰ δὲ ἅλλα ἔπι ἴησον.
τὰ δὲ οὸνια τὰ πρῶτα, ταῦτα μὲν καθαρὰ ἐςτὶν
καὶ μὴ στενὰ· τὸ δὲ πλῆθος τῶν οθονίων ἐςτὶν
ὁ σον περ καὶ ἐν τοῖσι νάρθηξιν, εὶ ἐπιδείσοντο, 5 ἡ

20 ὀλίγῳ ἐλασσων. ἐπὶ δὲ αὐτὸ τὸ ἐλκος ἰκανὸν
σπληνὸν τῇ λευκῇ κηρωτῇ κεχρισμένον· ἢν τε
γὰρ σὰρξ ἢν τε νεύρων μελανθῆ, προσεκπεσεῖται·
tὰ γὰρ τοιαύτα οὐ χρῆ δριμέσιν ἱητρεύειν, ἅλλα

1 ἐξείργηται Kw.‘s conjecture. Kw.‘s note ἐξείργηται scripsi, ἐξαρέσαται B1, ἐξαρέσαται B2 ΡΙ., ἐξαρέσαται M V, ἐξαρέσαται

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ment either through too great compression by bandages or the pressure of a splint or some other cause. In such cases the occurrence of ulceration is recognised by pain and throbbing: also the swelling on the extremities gets harder, and if you apply the finger the redness is removed but quickly returns. So, if you suspect anything of this kind you should undo the dressings, if there is irritation below the under bandages, or in the rest of the bandaged part, and use pitch cerate instead of the other plaster. Should there be none of this, but the sore itself is found to be irritated, extensively blackened or foul with tissues about to suppurate and tendons on the way to be thrown off, it is by no means necessary to leave them exposed, or to be in any way alarmed at these suppurations, but treat them for the future in the same manner as cases in which there is a wound from the first. The bandaging should begin from the swelling at the extremities and be quite slack; then it should be carried right on upwards, avoiding pressure in any place, but giving special support at the wound and decreasing it elsewhere. The first bandages must be clean and not narrow, their number as many as when splints are applied or a little fewer. On the wound itself a compress anointed with white cerate is sufficient; for if flesh or tendon be blackened it will also come away. One should treat such cases not with irritant, but

Litt., ἐξανίσταται Wb, τῷ ἰρενθὸς ἐξαείρεται Galen in cιλ., ἐξαρύσταται: ἐκκεννόται ἐκθλίβεται Galen in cscyesi. Such is the discord about this word whenever it occurs; but the meaning seems obvious.

2 καὶ omitting ἧ. 3 ἤ ἐπὶ πολὺ ἀκάθαρτον omitting μέλαν.
4 ἡμμάσθαι. 5 ἐπιδέωτο.
ΠΕΡΙ ΑΓΜΩΝ

μιθακόσιων, ὡσπερ τὰ περίκαυστα. μετεπιδεῖον
dὲ διὰ τρίτης, νάρθηκας δὲ μὴ προστίθεναι
ἀτρεμεῖον δὲ ἐπὶ μᾶλλον ἦ τὸ πρόσθεν, καὶ
ὀλιγοσιτεῖν εἰδέναι δὲ χρῆ εἰ τε σάρξ, εἰ τε
νεύρον τὸ ἐκπεσοῦμενον ἔστι, ὅτι οὔτω πολλῷ μὲν
ήσον νέμεται ἐπὶ πλεῖον, πολλῷ δὲ θάσσουν

40 ἐκπεσεῖται, πολλῷ δὲ ἵσχυότερα τὰ περίεχοντα
ἔσται, ἢ εἰ τις ἀπολύον ἀθόνια ἐπιθείῃ τι
tῶν καθαρτικῶν φαρμάκων ἐπὶ τὸ ἔλκος. καίτοι
καὶ ἢν ἐκπέσῃ τὸ ἐκπεσοῦμενον, θάσσον τε σαρ-
κοῦται ἐκείνος ἢ ἐτέρως ἀρχηγόμενον, καὶ θασσοῦ
ὀπελοῦται. πάντα μὴν ἔστι ταύτα ὅρθῶς ἐπιδεῖν
καὶ μετρίως ἐπίστασθαι. προσευμβάλλεται δὲ
καὶ τὰ σχήματα καὶ οἷα χρῆ εἶναι, καὶ ἡ ἄλλη
48 δίαιτα, καὶ τῶν ὀθονίων ἡ ἐπιτηθείωτης.

XXVIII.' Ἡν δὲ ἄρα ἑξαπατηθῆς ἐν τοῖσι
νεοτρώτοισι, μὴ οἴομενος ὅστέον ἀπόστασιν
ἐσεθαι, τὰ δὲ ἐπίδοξα ἢ ἀναπλῶσαι, οὐ χρῆ
ὅρρωδειν τούτων τὸν τρόπον τῆς ἱπτρείης, οἷδεν
γὰρ ἂν μέγα φλάγμον γένοιτ' ἂν,1 ἢν μοῦνον
οἶος τε ἡ τῇ χειρὶ τὰς ἐπιδέσιας ἀγαθάς καὶ
ἀσινεάς ποιέσθαι. σημείον δὲ τόδε, ἢν μέλλῃ
ὁστέων ἀπόστασις ἐσεθαι ἐν τῷ τρόπῳ τούτῳ
τῆς ἱπτρείης: πῦνον γὰρ συχνὸν ἐκεῖ ἐκ τοῦ ἔλκος
καὶ ὀργανὸν φαίνεται. πυκνότερον οὖν μετεπι-
δεῖσθαι2 διὰ τὸ πλάδον ἐπεὶ ἄλλως τε καὶ
ἀπύρετοι γίνονται, ἢ μὴ κάρτα πιέζονται ὑπὸ
tῆς ἐπιδέσιος, καὶ τὸ ἔλκος καὶ τὰ περίεχοντα
ἰσχνᾶ: ὡσαι μὲν οὖν λεπτῶν πάνω ὀστέων

1 γένοιτο.
2 μετεπιδέιον.
with mild applications, just like burns. Change the dressing every other day but do not apply splints. Keep the patient at rest and on low diet even more than in the former case. One should know if either flesh and tendon is going to come away that the loss will be much less extensive and will be brought about much quicker, and the surrounding parts will be much less swollen (by this treatment), than if on removing the bandage one applied some detersive plaster to the wound. Besides, when the part that is going to suppurate off does come away, flesh formation and cicatrisation will be more rapid with the former treatment than with any other. The whole point is to know the correct method and due measure in dressing these cases. Correctness of position also contributes to the result, as well as diet and the suitability of the bandages.

XXVIII. If, perchance, you are deceived in fresh cases, and think there will be no elimination of bones, yet they show signs of coming to the surface, the use of the above mode of treatment need not cause alarm, for no great damage will be done if only you have sufficient manual skill to apply the dressings well and in a way that will do no harm. The following is a sign of approaching elimination of bone in a case thus treated. A large amount of pus flows from the wound, which appears turgid. So the dressing should be changed more often because of the soaking,1 for thus especially they get free from fever, if there is no great compression by the bandages, and the wound and surrounding parts are not engorged. But separations of very small fragments require no great

1 "Maceration," "abundance of humours."
ΠΕΡΙ ΑΓΜΩΝ

ἄποστάσις, οὐδεμίας μεγάλης μεταβολῆς δέονται, ἀλλ' ἡ χαλαρώτερα ἐπίδειν, όσ ὑ ἀπολαμβάνη-
tαι τὸ πῦον, ἀλλ' εὐαπόρρυτον, ἡ καὶ πυκνό-
tερον μετεπιδεῖν ἐστ' ἂν ἀποστῇ τὸ ὀστέον, καὶ

19 νάρθηκας μὴ προστιθέναι.

XXIX. Ὅπόσοις δὲ μείζονοι ὀστεοὺ ἀπο-
stasis ἐπίδοξος γένηται, ἡν τε ἐξ ἀρχῆς προγνωθ,
 quam οὐκ ἐτὶ τῆς αὐτῆς ιττρείης δείται, ἀλλὰ τὰς μὲν κατατάσσιας καὶ
tὰς διορθώσιας οὕτω ποιεῖται ὁσπερ εἰρηται-
σπλήνας δὲ χρῆ διπλῶν, πλάτος μὲν ἡμιστιθα-
μαίους, μὴ ἐλάσσους (ὅποιον δὲ ἂν τι καὶ τὸ
πρώμα ἢ, πρὸς τοῦτο τεκμαίρεσθαι), μῆκος δὲ
βραχυτέρους μὲν ὅλιγω ὡστε δίς περικνεῖσθαι

10 περὶ τὸ σῶμα τὸ τετρωμένον, μακροτέρους δὲ
συχνῷ ὡστε ἀπαξ περικνεῖσθαι, πλήθος δὲ
όπόσους ἂν συμφέρῃ, ποιησάμενον, τούτους ἐν
οἴνῳ μέλαν αὐστηρῷ βρέχοντα, χρῆ ἐκ μέσου
ἀρχόμενον, ὡς ἀπὸ δύο ἀρχῶν ὑποδεσμὰς ἐπι-
deίται, περιελίσσει, κάπειτα σκεπαρυγγὸν παρ-
αλλάσσοντα τὰς ἀρχὰς ἀφιέναι. ταῦτα κατὰ τε
ἀυτὸ τὸ ἐλκος ποιεῖν καὶ κατὰ τὸ ἔνθεν καὶ ἔνθεν
tὸν ἐλκεος· καὶ πεπιέχθω μὲν μὴ, ἀλλ' ὅσον
ἐρμασμοῦ ἐνεκεν τοῦ ἐλκος προσκείσθω. ἐπὶ

20 δὲ αὐτὸ τὸ ἐλκος ἐπιτιθέναι χρῆ πισσηρῆν, ἢ τι
tῶν ἐναίμον ἢ τι τῶν ἄλλων φαρμάκων, ὡ τι
σύντροφῶν ἡ ἐστὶν [ὁ] ἐπιτέγξει. καὶ ἧν μὲν ἡ
ωρὴ θερινῆ ἢ, ἐπιτέγγειν τῷ οἴνῳ τοὺς σπλήνας
πυκνᾶ· ἢν δὲ χειμερινῆ ἡ ωρῆ ἢ, εἰρια πολλὰ
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alteration of treatment beyond either loose bandaging so as not to intercept the pus but allow it to flow away freely; or even more frequent change of dressing till the bone separates, and no application of splints.

XXIX. But in cases where separation of a rather large bone is probable, whether you prognosticate it from the first, or recognise it later, the treatment should not be the same, but, while the extensions and adjustments should be done as was directed, the compresses should be double, half a span in breadth at least—take the nature of the wound as standard for this—and in length a little less than will go twice round the wounded part, but a good deal more than will go once round. Provide as many of these as may suffice, and after soaking them in dark astringent wine, apply them beginning from their middle as is done with a two headed under bandage; enveloping the part and then leaving the ends crossed obliquely, as with the adze-shaped bandage. Put them both over the wound itself and on either side of it, and though there should be no compression, they should be applied firmly so as to support the wound. On the wound itself one should put pitch cerate or one of the applications for fresh injuries or any other appropriate remedy which will serve as an embrocation. If it is summer time soak the compresses frequently with wine, but if

1 Adams strangely calls a span a fathom here and elsewhere.

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1 δεί.
2 σιντροφῶν, as Galen says, means "appropriate," as in Surgery, XI.
3 ἐπιτεγέξει Pq. takes as a verb. Kw. apparently takes it as subst., omitting ὅ.
ΠΕΡΙ ΑΡΜΩΝ

ρυπαρά νεοτισμένα οὖν καὶ ἐλαίων ἐπικείσθω. ἦλιθιν δὲ χρῆ ὑποτετάσθαι, καὶ εὐαπόρρυτα ποιεῖν, φυλάσσοντα τοὺς ὑπορρόους, μεμνημένον ὅτι οἱ τόποι οὖντοι, ἐν τοῖς αὐτοῖς σχῆμασι πολλῶν χρόνων κειμένοις, ἐκτρίμμματα δυσάκεστα ποιεόμουσιν.

XXX. "Οσοὶ δὲ μὴ οἶον τε ἐπίδεσει ἴησασθαι διὰ τινά τούτων τῶν εἰρημένων τρόπων ἢ τῶν ῥηθησομένων, τούτους περὶ πλέονος χρῆ ποιεῖσθαι ὅπως εὐθέτως σχῆσονται τὸ κατεχός τοῦ σώματος κατ' ἰθυφορὶν, προσέχοντα τὸν νόον καὶ τῷ ἀνωτέρῳ δὲ μᾶλλον ἢ τῷ κατωτέρῳ. εἰ δὲ τις μέλλων καλῶς καὶ εὐχέρως ἑργάζεσθαι, ἄξιον καὶ μηχανοποιήσασθαι, ὅκως κατάτασιν δικαίην καὶ μὴ βιαίην σχῆση τὸ κατεχός τοῦ σώματος·

μᾶλλον δὲ ἐν κυνήγῃ εὐδέχεται μηχανοποιεῖν· εἰσὶ μὲν οὖν τινὲς οἳ ἐπὶ πάσι τοῖς τῆς κυνήγης κατηγομασίᾳ, καὶ τοῖς ἐπιδεομένοις καὶ τοῖς μὴ ἐπιδεομένοις, τὸν πόδα ἄκρον προσδεομινι πρὸς τὴν κλίνην ἢ πρὸς ἄλλο τι εὐλόγων παρὰ τὴν κλίνην κατορύξαντες. οὕτωι μὲν οὖν πάντα κακά ποιοῦσιν, ἀγαθῶν δὲ οὐδέν· οὕτε γὰρ τοῦ κατατείνεσθαι άκος ἑστὶ τὸ προσδεδέσθαι τὸν πόδα, οὐδέν γὰρ ἦσον τὸ ἄλλο σῶμα προσχωρῆσαι πρὸς τὸν πόδα καὶ οὕτως οὐκ ἂν ἔτι τείνοιτο·

οὔτ' αὖ ἐς τὴν ἰθυφορίαν οὗδὲν ὄψειε, ἀλλὰ καὶ βλάπτει· στρεφομένου γὰρ τοῦ ἄλλου σώματος ἢ τῇ ἢ τῇ, οὗδὲν κωλύει ὁ δεσμὸς τὸν πόδα καὶ τὰ ὀστέα τὰ τῷ ποδὶ προσηρτημένα ἐπακολουθεῖν τῷ ἄλλῳ σῶματι· εἰ δὲ μὴ προσεδέσθο, ἦσον ἂν 'διεστρέφετο· ἦσον γὰρ ἂν ἐγκατελείπετο ἐν τῇ κυνήσει τοῦ ἄλλου σώματος. εἰ δὲ

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winter apply plenty of crude wool moistened with wine and oil. A goat's skin should be spread underneath to make free course for discharges, giving heed to drainage and bearing in mind that these regions (when patients lie a long time in the same posture) develop sores difficult to heal.

XXX. As to cases which cannot be treated by bandaging in one of the ways which have been or will be described, all the more care should be taken that they shall have the fractured limb in good position in accord with its normal lines, seeing to it that the slope is upwards rather than downwards. If one intends to do the work well and skilfully, it is worth while to have recourse to mechanism, that the fractured part may have proper but not violent extension. It is especially convenient to use mechanical treatment for the leg. Now, there are some who in all cases of leg fractures, whether they are bandaged or not, fasten the foot to the bed, or to some post which they fix in the ground by the bed. They do all sorts of harm and no good; for extension is not ensured by fastening the foot, since the rest of the body will none the less move towards the foot, and thus extension will not be kept up. Nor is it of any use for preserving the normal line, but even harmful. For when the rest of the body is turned this way or that, the ligature in no way prevents the foot and the bones connected with it from following the movement: If it were not tied up, there would be less distortion, for it would not be left behind so much in the movement of the rest of the body. Instead of this, one should get two

1 Cf. the good Samaritan.  
2 σχίσει.  
3 μάλιστα.  
4 αὐτήν.
τις σφαίρας δύο ράβδου, εκ σκύτεος Αἰγυπτίου
tοιαύτας οίοις φορέουσιν οἱ εἶν τῇσι μεγάλησι
πέδησι πολλοῖς χρόνοις πεπεδημένοι, αἰ δὲ
σφαῖρας ἔχοιεν ἐνθὲν καὶ ἐνθὲν χιτῶνας τὰ μὲν
πρὸς τοὺς τρόματος βαθυτέρους, τὰ δὲ πρὸς τῶν
ἀρθρῶν βραχυτέρως, εἰς δὲ ὄγκηραὶ μὲν καὶ
μαλθακί, ἀρμόζουσι δὲ, ἢ μὲν ἀνωθεν 1 τῶν
σφυρῶν, ἢ δὲ κάτωθεν 2 τοῦ γόνατος· ἐκ δὲ
πλαγίας ἐκατέρθεις 3 διόσα ἐκατέρθωθεν ἔχοι προσ-
ηρτημένα ἡ ἀπλόου ἵματος ἡ διπλόου, βραχύ-
tερα 4 ὀσπερ ἀγκύλας, τὰ μὲν τι τοῦ σφυροῦ
ἐκατέρθωθεν, τὰ δὲ τι τοῦ γόνατος· τrellas καὶ ἡ ἀνωθεν
σφαῖρα ἐτέρα τοιαύτα ἔχοι] 5 κατὰ τὴν ιθυωρίην
τὴν αυτὴν. κἀπειτα κραναίνας ῥάβδους τέσσαρας
λαβών, ἵσας τὸ μέγεθος ἄλληληςιν ἐχοῦσας,
τάχος μὲν ὡς δακτυλιαίας, μήκος δὲ, ὡς κεκαμ-
μέναι ἐναρμόσουσιν ἐς τὰ ἀπαιωρηματα, ἐπιμε-
λόμενοι ὅπως τὰ ἄκρα τῶν ῥάβδων μὴ ἐς τὸν
χρώτα, ἀλλ' ἐς τὰ ἄκρα τῶν σφαιρέων ἐγκέλσῃ.
εἶναι δὲ χρή ζεύγεα τρία τῶν ῥάβδων, καὶ πλέω,
καὶ τινι μακροτέρας τὰς ἑτέρας τῶν ἑτέρων καὶ
ti ni καὶ βραχυτέρας καὶ σμικροτέρας, ὡς καὶ
μᾶλλον διατείνειν, 6 ἢν βούληται, καὶ ἥσσον
καὶ ἔστισαν δὲ αἱ ῥάβδαι ἐκατεραι ἐνθὲν καὶ
ἐνθὲν τῶν σφυρῶν. ταῦτα τοίνυν εἰ καλῶς
μηχανοποιηθείς, τὴν τε κατάτασιν καὶ δικαιήν
ἀν παρέχοι καὶ ὁμαλήν κατὰ τὴν ιθυωρίην, καὶ
tῷ τρώματι πόνος οὐδεὶς ἂν εἰῃ· τὰ γὰρ ἀποπλη-
σματα, εἰ τι καὶ ἀποτείξωτο, τὰ μὲν ἂν ἐς τὸν
πόδα ἀπάγοιτο, τὰ δὲ ἂς τὸν μηρὸν· αἱ τε ῥάβδοι
ἐνθετῶτεραι, αἱ μὲν ἐνθέν, αἱ δὲ ἐνθὲν τῶν
σφυρῶν, ὡστε μὴ κωλύεσθαι τὴν θέσιν τῆς
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rounded circlets sewn in Egyptian leather such as are worn by those who are kept a long time shackled in the large fetters. The circlets should have coverings on both sides deeper on the side facing the injury and shallower on that facing the joints. They should be large and soft, fitting the one above the ankle, the other below the knee. They should have on each side two attachments of leather thongs, single or double, short like loops, one set at the ankle on either side, the other on either side of the knee (and the upper circlet should have others like them in the same straight line, i.e. just opposite those below). Then take four rods of cornel wood of equal size, the thickness of a finger; and of such length as when bent they fit into the appendices, taking care that the ends of the rods do not press upon the skin but on the projecting edges of the circlet. There should be three or more pairs of rods, some longer than the others and some shorter and more slender, so as to exert greater or less tension at pleasure. Let the rods be placed separately on either side of the ankles. This mechanism if well arranged will make the extension both correct and even in accordance with the normal lines, and cause no pain in the wound, for the outward pressure, if there is any, will be diverted partly to the foot and partly to the thigh. The rods are better placed, some on one side and some on the other side of the ankles, so as not to interfere with the position of the

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1 τῷ ἀνωθεν.  
2 τῷ κάτωθεν.  
3 ἐκατέρω.  
4 βραχέα.  
5 Kw. omits; Ern. omits the rest of the sentence also.  
6 διατέλησ.  

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κυήμης: τὸ τε τρώμα εὐκατάσκεπτον καὶ εὐ-
60 βάστακτον: οὐδὲν γὰρ ἐμποδότων, εἰ τις ἔθελοι τὰς
dύο τῶν ῥάβδων τὰς ἀνωτέρω αὐτὰς πρὸς ἀλ-
λήλας ξεύξαι, καὶ ἢ τις κούφως βούλοιτο ἐπι-
βάλλειν, ὥστε τὸ ἐπιβαλλόμενον μετέωρον ἀπὸ
tοῦ τρώματος εἶναι. εἰ μὲν οὖν αἳ τε σφαῖραι
προσηνέεις καὶ καλαὶ καὶ μαλθακαὶ καὶ καναὶ
ραφεῖν, καὶ ἡ ἐντασις τῶν ῥάβδων χρηστῶς
ἐνταθεῖν, ὡσπερ ἣδη εἰρήται, εὐχρηστον τὸ
μηχάνημα: εἰ δὲ τι τούτων μὴ καλῶς ἔξει,
βλάπτοι ἄν μᾶλλον ἡ ὀφελεί. χρή δὲ καὶ τὰς
70 ἄλλας μηχανὰς ἡ καλῶς μηχανάσθαι, ἡ μὴ
μηχανάσθαι, αἰσχρὸν γὰρ καὶ ἄτεχνον μηχανο-
72 ποιέοντα ἀμηχανοποιεῖσθαι.

XXXI. Τοῦτο δὲ, οἱ πλεῖστοι τῶν ἰητρῶν τὰ
catήγιματα καὶ τὰ σὺν ἔλκεσι καὶ τὰ ἀνευ ἐλκέων,
tὰς πρώτας τῶν ἡμερέων ἰητρεύονσιν εἰρύοισι
ῥυπαροῖσιν: καὶ οὐδὲν τι ἄτεχνον δοκεῖ τοῦτο
eῖναι. ὅπωςι μὲν οὖν ἀναγκάζονται ὑπὸ τῶν
αὐτίκα νεοτρώτων εόντων, οὐκ 1 ἔχοντες ὀθόνια,
eἰρύοισι παρασκευάσασθαι, τούτοισι πλείστῃ
συγγνώμη: οὐ γὰρ ἂν τις ἔχοι ἀνευ ὀθονίων ἀλλὸ
ti πολλῷ βέλτιον εἰρύον ἐπιδήσαι 2 τοιοῦτα: εἶναι
10 δὲ χρὴ πάμπολλα καὶ πάνυ καλῶς εἰργασμένα καὶ
μὴ τρηχέα: τῶν γὰρ ὀλίγων καὶ φλαύρων ὀλίγῃ
καὶ ἡ δύναμις. ὅσοι δὲ ἐπὶ μήν ἡ δύο ἡμέρας
eἰρία ἐπιδεῖν δικαιοῦσι, τρίτῃ δὲ καὶ τετάρτῃ
ὀθονίσωσι ἐπιδεόντες πιέζουσι, καὶ κατατείνουσι

1 μή.
2 ἐπιδήσαι ἐπὶ.
leg; and the wound is both easy to examine and easy to handle. For, if one pleases, there is nothing to prevent the two upper rods from being tied together, so that, if one wants to put something lightly over it, the covering is kept up away from the wound. If then the circlets are supple, of good quality, soft and newly sewn, and the extension by the bent rods suitably regulated as just described, the mechanism is of good use, but if any of these things are not well arranged it will harm rather than help. Other mechanisms also should either be well arranged or not used, for it is shameful and contrary to the art to make a machine and get no mechanical effect.

XXXI. Again, most practitioners treat fractures, whether with or without wounds, by applying uncleaned wool during the first days, and this appears in no way contrary to the art. Those who because they have no bandages are obliged to get wool for first-aid treatment are altogether excusable, for in the absence of bandages one would have nothing much better than wool with which to dress such cases; but it should be plentiful, well pulled out and not lumpy; if small in amount and of poor quality its value is also small. Now, those who think it correct to dress with wool for one or two days, and on the third or fourth day use bandages with compression and extension just at this period

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1 "Arrange" (Adams), better than "maintain" (Littré, Petrequin); "sustinere aliquid" (Erm.) suits the context—"easily bears a covering," but see Herod. II. 125.

2 ἐυτασίς perhaps connected with use of word in architecture, "slight outward curvature."

3 Cf Aristoph. Acharn. 12, Vesp. 275, Lysist. 987 on this use of wool.
τότε μάλιστα, οὕτως πολὺ τι τῆς ἵθηρικῆς καὶ κάρτα ἐπίκαιρον ἀσυνετέουσιν ἦκιστα γὰρ χρὴ τῇ τρίτῃ ἡμέρῃ ἤ τῇ τετάρτῃ στυφελίζειν πάντα τὰ τρώματα, ὡς ἐν κεφαλαίῳ εἰρῆσθαι καὶ μηλώσιας δὲ πάσας φυλάσσεσθαι χρῆ ἐν ταύτῃ τῇ σιν ἡμέρῃ, καὶ ὁπόσοιοι ἀλλοιοι τρώμασι ἡρέθισται. τὸ ἐπὶ παν γὰρ ἡ τρίτῃ καὶ τετάρτῃ ἡμέρῃ ἐπὶ τοῖς πλείστοις τῶν τρωμάτων τίκτει τὰς παλιγκοτήσιας, καὶ ὅσα ἐς φλεγμονήν καὶ ἀκαθαρσίαν ὀρμᾶ, καὶ ὅσα ἄν ἐς πυρετοὺς ἥ· καὶ μᾶλα πολλοῦ ἁξίου τούτο τὸ μάθημα, εἰ πέρ τι καὶ ἀλλο· τίνι γὰρ οὕκ ἐπικουνωνεί τῶν ἐπικαιροτάτων ἐν ἱθηρικῇ, οὐ κατὰ τὰ ἐλκεα μόνον, ἀλλὰ καὶ κατ᾽ ἀλλα πολλὰ νοσήματα; εἰ μή τις φήσει καὶ πάλλα νοσήματα ἐλκεα εἶναι ἔχει γὰρ τινα καὶ οὕτως ὁ λόγος ἐπιεἰκεῖαι πολλαχῇ γὰρ ἠδέλφισται τὰ ἐτερα τοῖς ἐτέροις. ὁπόσοι μέντοι δικαίος εἰρύοιςι χρῆσθαι, ἔστ᾽ ἄν ἐπὶ τὰ ἡμέραι παρέλθωσιν ἐπειτὰ κατατείνειν τε καὶ κατορθοῦν καὶ θύνοισιν ἐπιδείν, οὕτως οὐκ ἄν ἀσύνετοι ὀμοίως φανεῖν καὶ γὰρ τῆς φλεγμονῆς τὸ ἐπικαιροτάτον παρελήλυθε, καὶ τὰ ὀστέα χαλαρὰ [καὶ εὐθέτα] μετὰ ταύτας τὰς ἡμέρας ἄν εἴῃ. πολλῶ μέντοι ἦσσηται καὶ αὐτῇ ἡ μελέτῃ τῆς ἐξ ἀρχῆς τοῖς ὁθονίσον ἐπιδέσιοι· κεῖνος μὲν γὰρ ὁ τρόπος ἑβδομαῖος ἑόντας ἀφλεγμαντοὺς ἀποδείκνυσι, καὶ παρασκευάζει νάρθηξι τελέως ἐπιδείν οὕτως δὲ ὁ τρόπος πολὺ ὅστερει, βλάβας δὲ τινα καὶ ἀλλα ἐχε. ἀλλὰ μακρὸν ἄν εἴῃ πάντα γράφειν.

'Ωπόσοισι δὲ τὰ ὀστέα κατεγότα καὶ ἐξ-

1 χρῆ, 2 τρώματα, 3 Pq. omits.
are very ignorant of the healing art, and that on a most vital point. For, to speak summarily, the third or fourth day is the very last on which any lesion should be actively interfered with; and all probings as well as everything else by which wounds are irritated should be avoided on these days. For, as a rule, the third or fourth day sees the birth of exacerbations in the majority of lesions, both where the tendency is to inflammation and foulness, and in those which turn to fever. And if any instruction is of value this is very much so. For what is there of most vital importance in the healing art to which it does not apply, not only as regards wounds but many other maladies? Unless one calls all maladies wounds, for this doctrine also has reasonableness, since they have affinity one to another in many ways. But those who think it correct to use wool till seven days are completed and then proceed to extension, coaptation and bandaging would appear not so unintelligent, for the most dangerous time for inflammation is past, and the bones after this period will be found loose and easy to put in place. Still, even this treatment is much inferior to the use of bandages from the beginning, for that method results in the patients being without inflammation on the seventh day and ready for complete dressing with splints, while the former one is much slower, and has some other disadvantages; but it would take long to describe everything.

In cases where the fractured and projecting bones

1 Littre—Adams, "in wounds attended by irritation," seems pleonastic (he has said that no wound is to be interfered with). ἵκοσα άλλα οίσων ἡρέθισται τρέμασιν (Petrequin). This view is confirmed by Kw.'s reading.
ΠΕΡΙ ΑΓΜΩΝ

ίσχυσα μὴ δύνηται ἐς τὴν ἐωτῶν χώρην καθι- 
δρύεσθαι, ἣδε ἡ κατάστασις. ¹ σιδήρια χρῆ 
ποιεῖσθαι ἐς τοῦτον τὸν τρόπον οὕτερ ² οἱ μοχλοὶ 
ἔχουσιν, οὐς οἱ λατύποι χρέουν, τὸ μὲν τι 
πλατύτερον, τὸ δὲ τι στενότερον ἐἶναι δὲ χρῆ 
καὶ τρία καὶ ἑτὶ πλεῖο, ὡς τοῖς μάλιστα 
ἀρμόζουσί τις χρῆσαι. ³ ἔπειτα τούτοις χρῆ 
ἄμα τῇ κατατάσει μοχλεύειν ύπερβάλλοντα, προς 
μὲν τὸ κατωτέρον ⁴ τοῦ ὀστέου τὸ κατώτερον 
ἔρειδοντα, προς δὲ τὸ ἀνώτερον ⁵ τὸ ἀνώτερον τοῦ 
σιδηρίου, ἀπλῶ δὲ λόγω, ὦσπερ εἰ λίθον τις ἢ 
ἐνυλον μοχλεύοι ἰσχυρῶς ἐστώ δὲ σθεναρὰ τὰ 
σιδήρια ως οἶον τε, ὡς μὴ κάμπτηται. αὐτὴ 
μεγάλη τιμωρίη, ἦν τε τὰ σιδήρια ἑπιτήδεια ἢ 
καὶ μοχλεύηται τις ὡς χρῆ ὅποσα γὰρ ἀνθρώ-
ποισιν ἀρμενα μεμιχάνηται, πάντων ἰσχυρότατά 
ἐστὶ τρία ταῦτα, ὅνου τε περιαγωγή καὶ μόχλευ-
σις καὶ σφήνωσις· ἄνευ δὲ τούτων, ἡ ἐνὸς δὲ 
τινος ἢ πάντων, οὐδὲν τῶν ἐργῶν τῶν ἰσχυρο-
τάτων οἱ ἀνθρωποὶ ἑπιτελέουσιν. οὐκοιν ἄτι-
μαστήν αὐτὴ ἡ μόχλευσις· ἡ γὰρ οὗτως ἐμπε-
σεῖται τὰ ὀστέα, ἡ οὐκ ἄλλως. ἦν δὲ ἀρα τοῦ 
ὀστέου τὸ ἀνω παρηλλαγμένοι μὴ ἑπτήδειον 
ἐχῇ ἐνέδρην τῷ μοχλῷ, ἀλλὰ πάροξυν ὁ 
παραφέρῃ,⁷ παραγιλύσασα χρῆ τοῦ ὀστέου 
ἐνέδρην τῷ μοχλῷ ἀσφαλέα ποιήσασθαι· μοχλεύ-
ειν δὲ χρῆ καὶ τείνειν αὐθίμερα ἡ δευτεραία, 
τριτάια δὲ μὴ, τεταρταία δὲ ὡς ἡ κιστά καὶ 
πεμπταία. καὶ μὴ ἐμβάλλοντα, ὀχλήσαντι δὲ 
ἐν ταύτης τῇ σιν ἡμέρῃς, φλεγμονὴν ἀν

¹ καταστάσει used by Asiatic Greeks for “put in its place.”
² Galen, XVIII(2). 590.

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cannot be settled into their proper place, the following is the method of reduction. One must have iron rods made in fashion like the levers used by stone masons, broader at one end and narrower at the other. There should be three and even more that one may use those most suitable. Then one should use these, while extension is going on, to make leverage, pressing the under side of the iron on the lower bone, and the upper side against the upper bone, in a word just as if one would lever up violently a stone or log. The irons should be as strong as possible so as not to bend. This is a great help, if the irons are suitable and the leverage used properly; for of all the apparatus contrived by men these three are the most powerful in action—the wheel and axle, the lever and the wedge. Without some one, indeed, or all of these, men accomplish no work requiring great force. This lever method, then, is not to be despised, for the bones will be reduced thus or not at all. If, perchance, the upper bone over-riding the other affords no suitable hold for the lever, but being pointed, slips past, one should cut a notch in the bone to form a secure lodgment for the lever. The leverage and extension should be done on the first or second day, but not on the third, and least of all on the fourth and fifth. For to cause disturbance without reduction on these days would set up inflamm-

1 "One rather broader—another narrower," Adams.
2 "Presents a point which makes the lever slip," Pq.; "the protruding part is sharp," Adams.

2 ὄντερ. 3 ἀμυδουσι...χρῆσται. 4 κατωτέρω. 5 ἀνωτέρω. 6 τέ. 7 πάροξυν παραφέρυ. πάροξυ εἶν Littre.
ΠΕΡΙ ΑΓΜΩΝ

ποιήσεις, καὶ ἐμβάλλοντι οὐδὲν ἥσοσν· σπασμὸν μέντοι ἐμβάλλοντι πολὺ ἄν μᾶλλον ποιήσεις ἢ ἀπορήσαντι ἐμβάλλεις. ταύτα εὖ χρὴ εἰδέναι· καὶ γὰρ εἰ ἐπιγένοιτο σπασμὸς ἐμβαλλοντι,

80 ἐλπίδες μὲν οὐ πολλαὶ σωτηρίας· λυσιτελεῖ δὲ ὅπισω ἐκβάλλειν τὸ ὁστέον, εἰ οἶνον τε εἰὴ ἀόχλως. οὐ γὰρ ἐπὶ τοῖσι χαλαρωτέροις τοῦ καρδίαν σπασμοὶ καὶ τέτανοι ἐπιγίνονται, ἀλλὰ ἐπὶ τοῖσιν ἐντεταμένοισι μᾶλλον. περὶ οὗ οὖν ὁ λόγος, οὐ χρὴ ἐνοχλεῖν ἐν τῇ προειρμηνείσιν ἡμέρῃσι ταντῆς, ἀλλὰ μελετᾶν ὅπως ἦκιστα φλεγμανεῖ τὸ ἐλκος καὶ μάλιστα ἐκπυήσει.

89 ἐπὶ δὲ ἐπτὰ ἡμέραι παρέλθωσιν ὁ ὀλίγων πλείους, ἢν ἀπύρετος ἢ, καὶ μὴ φλεγμανὴν τὸ ἐλκος, τότε ἥσον καλλύει πειρήσθαι ἐμβάλλειν, ἢν ἐλπίζῃς κρατήσεις, ἢν δὲ μὴ, οὐδὲν δεῖ μάτην

92 ὀχλεῖν καὶ ὀχλεῖσθαι.

XXXII. Ἰν μὲν οὖν ἐμβάλλης τὰ ὁστεὰ ἐς τὴν ἐωτῶν χώρην, γεγράφεται ἧδη οἱ τρόποι οὐ̂ως 1 χρὴ ἰητρεύειν, ἢν τε ἐλπίζῃς ὁστεὰ ἀποστήσεσθαι ἢν τε μὴ. χρὴ δὲ, καὶ ἢν μὲν ἐλπίζῃς ὁστεὰ ἀποστήσεσθαι, [ὡς ἐφήν,] 2 τῷ τρόπῳ τῶν ὀδονίων ἐπὶ πάσι τοῖσι τούτοις τὴν ἐπίδεσιν ποιεῖσθαι ἐκ μέσου τοῦ ὀδονίου ἀρχόμενον, ὡς ἐπὶ τὸ πολὺ, ὡς ἀπὸ δύο ἀρχῶν ὑποδεσμὶς ἐπιδεῖται· τεκμαίρεσθαι δὲ χρὴ πρὸς τὴν μορφὴν τοῦ ἐλκεος, ὅπως ἦκιστα σεσηρὸς καὶ ἐκπεπλυμένον ἦσται παρὰ τὴν ἐπίδεσιν· τοῖσι μὲν γὰρ ἐπὶ δεξιὰ ἐπιδεῖν συντρόφως 3 ἔχει, τοῖσι δὲ ἐπ᾽ ἀριστερὰ, τοῖσι δὲ ἀπὸ δύο ἀρχέων.

1 ὁς.

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mation, and no less so if there was reduction; spasm, indeed, would much more likely be caused if reduction succeeded than if it failed. It is well to know this, for if spasm supervenes after reduction there is not much hope of recovery. It is advantageous to reproduce the displacement, if it can be done without disturbance, for it is not when parts are more relaxed than usual that spasms and tetanus supervene, but when they are more on the stretch. As regards our subject, then, one should not disturb the parts on the days above mentioned, but study how best to oppose inflammation in the wound and favour suppuration. At the end of seven days, or rather more, if the patient is free from fever and the wound not inflamed, there is less objection to an attempt at reduction, if you expect to succeed; otherwise you should not give the patient and yourself useless trouble.

XXXI. The proper modes of treatment after you reduce the bones to their place have already been described, both when you expect bones to come away and when you do not. Even when you expect bones to come away you should use in all such cases the method of separate bandages, as I said, beginning generally with the middle of the bandage as when an under-bandage is applied from two heads. Regulate the process with a view to the shape of the wound that it may be as little as possible drawn aside or everted by the bandaging: for in some cases it is appropriate to bandage to the right, in others to the left, in others from two heads.

2 Omit Littré, Erm.
3 συντρόφως = oikêlos (Galen). Cf. XXIX.
XXXIII. Ὅποσα δὲ κατηπορήθη ὀστεά ἐμπεσεῖν, ταῦτα [αὐτὰ] ἐιδέναι χρή ὅτι ἀποστήσεται, καὶ ὅσα τελέως ἐψιλόθη τῶν σαρκῶν. ψιλοῦται δὲ ἐνίων μὲν τὸ ἄνω μέρος, μετεξετέρων δὲ κυκλώθειν ἀμφιθνήσκουσιν 2 αἱ σάρκες: καὶ τῶν μὲν ἀπὸ τοῦ ἀρχαίον τρόματος σεσάμπρισται ἕνα τῶν ὀστέων, τῶν δὲ οὐκ ὑπὲρ τῶν μὲν μᾶλλον, τῶν δὲ ἡσυχίας καὶ τὰ μὲν σμικρά, τὰ δὲ μεγάλα. διὰ οὖν ταῦτα τὰ εἴρημένα οὔκ ἔστιν ἐνι ὁνόματι εἰπεῖν, ὅποτε τὰ ὀστεά ἀποστήσεται: τὰ μὲν γὰρ διὰ σμικρότητα, τὰ δὲ διὰ τὸ ἐπὶ ἄκρον ἐχεσθαί, θάσσον ἀφίσταται τὰ δὲ, διὰ τὸ μὴ ἀφίστασθαι, ἀλλὰ λεπιδοῦσθαι, καταξηραθέντα καὶ σαπρὰ γενόμενα: πρὸς δὲ τούτοις, διαφέρει τι καὶ ἠτρείσι ἠτρείσις. ὡς μὲν οὖν τὸ ἐπὶ ταῖς τάχιστα τοῦτων ὀστέα ἀφίσταται ὅπως τάχιστα μὲν αἱ ἐκπυκνεῖται, τάχιστα δὲ καὶ κάλλισται αἱ σαρκοφυίαι, καὶ γὰρ αἱ ὑποφυόμεναι σάρκες κατὰ τὸ σιναρὸν αὐτοὶ μετεωρίζονται τὰ ὀστέα.

20 ὠς ἐπὶ τὸ πολὺ. ὅλος μὴν ὁ κύκλος τοῦ ὀστέου, ἦν ἐν τεσσαράκοντα ἡμέρησιν ἀποστῆ, καλῶς ἀποστήσεται: ἕνα γὰρ ἐς ἐξήκοντα ἡμέρας ἀφικνεῖται [ἡ καὶ πλείους]. 3 τὰ μὲν γὰρ ἀραιοτέρα τῶν ὀστέων θάσσον ἀφίσταται, τὰ δὲ στερεώτερα, θραδύτερον: τὰ δὲ ἄλλα τὰ μείω, πολλὸν ἐνδοτέρω, ἄλλα δὲ ἄλλως ἀποτρίειν δ’ ὀστέον ἐξέχον ἐπὶ τοῦτο τῶν προφασίσων χρῆ ἦν μὴ δύνητα ἐμβιάζειν, μικρὸν δὲ τινος αὐτῷ δοκῆ δεῖν παρελθεῖν, καὶ οἶνον τε ἣ παραιρεθήναι ἦν τε ἀσηρὸν ἦ καὶ θραύν τὶ τῶν σαρκῶν, καὶ δυσθεσίαν παρέχει, ψιλὸν τε τυγχάνῃ ἐόν, καὶ

1 Omit B, Pq.
XXXIII. As to bones which cannot be reduced, it should be known that just these will come away, as also will those which are completely denuded. In some cases the upper part of the bones are denuded, in others the soft parts surrounding them perish, and the starting point of the necrosis is, in some of the bones, the old wound, in others not. It is more extensive in some and less so in others, and some bones are small, others large. It follows from the above that one cannot make a single statement as to when the bones will come away, for some separate sooner owing to their small size, others because they come at the end (of the fracture) while others do not come away (as wholes) but are exfoliated after desiccation and corruption. Besides this, the treatment makes a difference. As a general rule, bones are most quickly eliminated in cases where suppuration is quickest, and the growth of new flesh most rapid and good; for it is the growth of new flesh in the lesion that as a rule lifts up the fragments. As to a whole circle of bone, if it comes away in forty days it will be a good separation, for some cases go on to sixty days or even more. The more porous bones come away more quickly, the more solid more slowly; for the rest, the smaller ones take much less time, and so variously. The following are the indications for resection of a protruding bone: if it cannot be reduced, but only some small portion seems to come in the way, and it is possible to remove it; if it is harmful, crushing some of the tissues, and causing wrong position of the part, and if it is denuded, this also should

2 περιθυγακουσι. 3 K.W. Omits.
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tο τοιούτων ἀφαίρειν χρή. τὰ δὲ ἄλλα οὐδὲν μέγα διαφέρει, οὕτε ἀποπρήσαι οὕτε μὴ ἀπο-
πρίσαι. σαφέως γὰρ εἰδέναι χρὴ ὅτι ὅστεα, ὦσα
tελέως στηρέται τῶν σαρκῶν καὶ ἐπιξηραίνεται,
ὅτι πάντα τελέως ἀποστήσεται. ὦσα δὲ ἀπο-
λεπιδούσθαι μέλλει, ταῦτα οὐ χρὴ ἀποπρίειν-
tεκμαίρεσθαι δὲ χρὴ ἀπὸ τῶν τεταγμένων
σημείων τὰ τελέως ἀποστησόμενα.

XXXIV. Ἰητρεύειν δὲ τοὺς τοιούτους σπλή-
νεσι καὶ τῇ συνηρή ἰητρεύῃ, ὡσπερ καὶ πρόσθεν
gέγραπται ἐπὶ τῶν ἀποστησομένων ὀστέων.
φυλάσσεσθαι δὲ χρὴ μὴ ψυχροίσι 2 τέγγειν τὸν
πρῶτον χρόνον· ρίγεων γὰρ πυρετῶδων κίνδυνος·
kίνδυνος δὲ καὶ σπασμῶν προκαλεῖται γὰρ
σπασμὸν τὰ ψυχρά, ποτὶ δὲ καὶ ἐλκη. εἰδέναι
dὲ χρὴ ὅτι ἀνάγκη βραχύτερα τὰ σώματα ταῦτῃ
gίνεσθαι, ὃν ἀμφότερα τὰ ὀστέα κατεγγότα καὶ
παρηλλαγμένα ἰητρεύῃται, καὶ οἷς ὀλοσ ὁ κύκλος
τοῦ ὀστέου ἀπέστη.

XXXV. "Οσοισι 3 δὲ μηροῦ ὀστέον ῥ Ῥαχύ-
νος ἐξέσχε πο, οὕτωι οὐ μάλα περιγίνονται. τὰ
γὰρ ὅστεα μεγάλα καὶ πολυμύελα, καὶ πολλὰ
cαι ἐπίκαιρα τὰ συντιτρωσκόμενα νεῦρα 4 καὶ
μύες καὶ φλέβες· καὶ ἣν μὲν ἐμβάλλης, σπασμοὶ
φιλέουσιν ἐπιγίνεσθαι, μὴ ἐμβληθεῖσι δὲ πυρετοὶ
ὀξέα καὶ ἐπίχολοι καὶ λυγγώδεις, καὶ ἐπιμελαίνο-
νται περιγίνονται δὲ οὐχ ἔσσον, οἰσι μὴ ἐμβληθῇ,
μὴ πειρηθῇ 5 ἐμβάλλεσθαι· ἕτι δὲ μᾶλλον περι-
γίνονται, οἰσι τὸ κάτω μέρος τοῦ ὀστέου ἐξέσχεν,

1 τοιούτο.
2 καταψυχροίσι (B M V). Kw. adopts Ermerins’s suggestion κάρτα.

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be removed. In other cases it makes no great difference whether there is resection or not. For one should bear clearly in mind that when bones are entirely deprived of soft parts and dried up they will all come away completely; and one should not resect those bones which are going to be exfoliated. Draw your conclusion as to bones which will come away completely from the symptoms set forth.

XXXIV. Treat such cases with compresses and vinous applications as described above in the case of bones about to be eliminated. Take care not to moisten with cold fluids at first, for there is risk of feverish rigors and further risk of spasms, for cold substances provoke spasms and sometimes ulcerations. Bear in mind that there must be shortening of the parts in cases where, when both bones are broken, they are treated while over-lapping, also in cases where the circle of bone is eliminated entire.

XXXV. Cases where the bone of the thigh or upper arm protrudes rarely recover; for the bones are large and contain much marrow, while the cords, muscles and blood vessels which share in the injury are numerous and important. Besides, if you reduce the fracture, convulsions are liable to supervene, while in cases not reduced there are acute bilious fevers with hiccough and mortification. Cases where reduction has not been made or even attempted are no less likely to recover, and recovery is more frequent when the lower than when the upper part

1 This seems the place where ποτέ means ποτε as Galen says in his Lexicon, but ποτέ καλ is an expression peculiar to these treatises and means "especially." See Diels, op. cit.
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η σίζι το άνω· περιγύνοιτο δ' ἄν καὶ οἶς ἐμβληθεὶς, σπανίως γε μήν. μελέται γὰρ μελέτεων μέγα διαφέρουσι, καὶ φύσεις φυσίων τῶν σωμάτων ἐς εὐφορίαν. διαφέρει δὲ μέγα, καὶ ἢν ἔσω τοῦ βραχίωνος καὶ τοῦ μηροῦ τὰ ὁστέα ἑξέχη· τολλαὶ γὰρ καὶ ἐπίκαιροι κατατάσσεις φλεβῶν ἐν τῷ ἔσω μέρει, ὅν ἐνιαί τιτρωσκόμεναι σφάγιαι εἰσίν· εἰσὶ δὲ καὶ ἐν τῷ ἐξώ μέρει, ἢςον δὲ. ἐν τοίσιν οὖν τοιούτοις τρώμασι τοὺς μὲν κινδύνους οὐ χρῆ λήθειν ὅποιοῖ τινές εἰσί, καὶ προλέγειν χρῆ πρὸς τοὺς καιρούς. εἰ δὲ ἀναγκάζοι μὲν ἐμβάλλειν, ἑλπίζουσι δὲ ἐμβάλλειν, καὶ μὴ πολλὴ ἡ παράλλαξις εἰς τοῦ ὁστέου, καὶ μὴ συνδεδραμῆκοιν οἱ μὲς—

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μετὰ τῆς κατατάσσεις εὖ ἄν συλλαμβάνοιτο.

XXXVI. Ἐμβάλλοντα δὲ, ἐλλέβορον μαλθακὸν πιτίσαι χρῆ αὐθήμερον, ἢν αὐθήμερον ἐμβληθῇ, εἰ δὲ μή, οὖδ' ἐγχειρεῖν χρῆ. τὸ δὲ ἐλκος ἵπτρειςε εἰςε—σίε περ κεφαλῆς ὡστέα κατεγυμνησ καὶ ψυχρὸν μηδὲν προσφερέων, συνίων δὲ στερήσαι τελέως· καὶ ἢν μὲν πικρόχολος φύσει ὅ, ὀξυγλυκι συνδρόμοι σφάλλων ἐς ἄγων ἐφ' ὑδρῷ ἐπιστάζοντα τούτῳ διαιτῶν ἢν δὲ μὴ πικρόχολος ὅ, ύδατι πόματι χρῆσθαι· καὶ ἢν μὲν πυρεταῖν ἰσχυρῶς, τεσσαρακάδεκα ἤμερησι τὸ ἐλάχιστον οὔτω διαιτῶν, ἢν δὲ ἀπύρετος ἢ, ἔπτα ἤμερησιν ἐπείτα ἐκ προσαγωγῆς κατὰ λόγον ἐς φαιλῆν διαιτᾶν ἀγείν. καὶ οἶσιν μὴ ἐμβληθῇ τὰ ὡστέα, καὶ τὴν φαρμακείην χρῆ τοιαύτην ποιεῖσθαι, καὶ

1 ἤμερας bis. 2 ἄν μή.
of the bone projects. There may be survival even in cases where reduction is made, but it is rare indeed. There are great differences between one way of dealing with the case and another, and between one bodily constitution and another as to power of endurance. It also makes a great difference whether the bone protrudes on the inner or outer side of the arm or thigh, for many important blood vessels stretch along the inner side, and lesions of some of them are fatal; there are also some on the outside, but fewer. In such injuries, then, one must not overlook the dangers or the nature of some of them, but foretell them as suits the occasion. If you have to attempt reduction and expect to succeed and there is no great overriding of the bone, and the muscles are not retracted (for they are wont to retract) leverage combined with extension would be well employed even in these cases.

XXXVI. After reduction one should give a mild dose of hellebore on the first day, if it is reduced on the first day, otherwise one should not even attempt it. The wound should be treated with the remedies used for the bones of a broken head. Apply nothing cold and prescribe entire abstinence from solid food. If he is of a bilious nature give him a little aromatic hydromel 1 sprinkled in water, but if not, use water as beverage. And if he is continuously febrile keep him on this regimen for fourteen days at least, but if there is no fever, for seven days, then return by a regular gradation to ordinary diet. In cases where the bones are not reduced, a similar purgation should be made and so with the management of the wounds

1 Decoction of honeycomb in water = ἄποθυμελί in XI; cf. Galen on its preparation.
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tῶν ἐλκέων τὴν μελέτην καὶ τὴν διάιταν ὁσαίτως καὶ τὸ ἀπαιωρεύμενον ¹ τοῦ σώματος μὴ κατα-
tείνειν, ἄλλα καὶ προσάγειν μᾶλλον, ὡστε καὶ τὸ ἀπαιωρεύμενον εἶναι τὸ κατὰ τὸ ἔλκος. τῶν ὑς ὁστέων ἀπόστασις ² χροιή, ὡστερ καὶ πρόσθεν εἰρηται. μάλιστα δὲ χρῆ τὰ τοιαῦτα διαφυγεῖν, ἄμα ἐν τις καλῆς ἐχῇ τὴν ἀποφυγήν, αἱ τε γὰρ ἐλπίδες ολίγαι, καὶ οἱ κίνδυνοι πολλοὶ· καὶ μὴ ἐμβάλλον ἀτεχνὸν ἀν δοκεῖοι εἶναι, καὶ ἐμβάλλον ἐγγυτέρω ἀν τοῦ θανάτου ἀγάγοι ἦ

25 σωτηρίης.

XXXVII. Τὰ δὲ ὅλισθήματα τὰ κατὰ τὰ γούνατα καὶ τὰ διακινήματα τῶν ὁστέων εὑρεθέτερα πολὺ τῶν καὶ ἄγκωνα κινημάτων καὶ ὅλισθημάτων· τὸ τε γὰρ ἄρθρον τοῦ μηροῦ ἐνεκτελέστερον ὡς ἑτερογενῆ ἢ τὸ τοῦ βρα-
χίονος, καὶ δικαίως φύσιν μοῦνον ἔχουν, καὶ ταύτην περιφερέα· τὸ δὲ τοῦ βραχίονος ἄρθρον μέγα τε καὶ βαθμίδας πλείονας ἔχουν. πρὸς δὲ τούτως, τὰ μὲν τῆς κινήμης ὁστέα παραπλήσια μῆκος

10 ἔστι καὶ σμικρὸν τε οὐκ ἄξιον λόγον τὸ ἐξω ὁστέων ὑπερέχει, οὐδενὸς μεγάλου κόλλομα ἐόν, ἀφ' οὗ πέφυκεν ὃ ἐξω τένων ὁ παρὰ τὴν ἵγνυην· τὰ δὲ τοῦ πήχεος ὁστέα ἄνισᾶ ἔστιν, καὶ τὸ βραχύτερον παχύτερον συνχω, τὸ δὲ λεπτότε-
ρον πολλὸν ὑπερβαίλλει καὶ ὑπερέχει τὸ ἄρθρον· ἐξηρτηται ἐμνυοὶ καὶ τούτων ³ τῶν νεύρων κατὰ τὴν κοινὴν σύμφυσιν τῶν ὁστέων· πλεῖον δὲ μέρος ἔχει τῆς ἐξαρτήσιος τῶν νεύρων ἐν τῷ βραχίονι τὸ λεπτὸν ὀστέον ἦπερ τὸ παχύ. ἦ

20 μὲν οὖν φύσις τοιουτοτροπος τῶν ἄρθρων τούτων

¹ ἀπαρεύμενον. ² ἡ ἀπόστασις. ³ τοῦτο.
ON FRACTURES, xxxvi.–xxxvii.

and the regimen. Likewise do not stretch the unreduced part, but even bring it more together so that the seat of the wound may be more relaxed. Elimination of the bones takes time, as was said before. One should especially avoid such cases if one has a respectable excuse, for the favourable chances are few, and the risks many. Besides, if a man does not reduce the fracture, he will be thought unskilful, while if he does reduce it he will bring the patient nearer to death than to recovery.

XXXVII. Dislocations at the knee and disturbances of the bones are much milder than displacements and dislocations at the elbow; for the articular end of the thigh-bone is more compact in relation to its size than is that of the arm-bone, and it alone has a regular conformation, a rounded one, whereas the articular end of the humerus is extensive, having several cavities. Besides this the leg-bones are about the same size, the outer one overtops the other to some little extent not worth mention, and opposes no hindrance to any large movement though the external tendon of the ham arises from it. But the bones of the forearm are unequal, and the shorter (radius) much the thicker, while the more slender one (ulna) goes far beyond and overtops the joint. This, however, is attached to the ligaments at the common junction of the bones. The slender bone has a larger share than the thicker one of the attachments of ligaments in the arm. Such

1 Kw.'s reading is the most suitable.
2 A curious error, perhaps due to an effort to make the fibula resemble the ulna as far as possible. (The fibula does not reach the top of the tibia)
3 The ulna is attached to the ligaments of the elbow joint, at the point where it joins the radius. Galen.
καὶ τῶν ὀστέων τοῦ ἄγκοινος. καὶ διὰ τὸν τρόπον τῆς φύσιος τὰ κατὰ τὸ γόνυ ὀστέα πολλάκις μὲν ὀλισθάνει, ῥήμιδως δὲ ἐμπίπτει· φλεγμονὴ δὲ οὐ μεγάλη προστίθηται, οὔτε δεσμὸς τοῦ ἀρθρου. ὀλισθάνει δὲ τὰ πλείστα ἐς τὸ ἐσω μέρος, ἔστι δ' ὅτε ἐς τὸ ἐξω, ποτὲ δὲ καὶ ἐς τὴν ἱγνύην. τούτων ἀπάντων αἱ ἐμβολαὶ οὐ χαλεπαί· ἀλλὰ τὰ μὲν ἐξω καὶ ἐσω ὀλισθάνοντα, καθήσθαι μὲν χρὴ τὸν ἀνθρωπὸν χαμαί ἢ ἐπὶ χαμαιζήλον τινός, τὸ δὲ σκέλος ἀνωτέρω ἑχειν, μή μὲν πολλό. κατάτασις δὲ ὡς ἐπὶ τὸ πολὺ μετρή ἄρκει, τῇ μὲν κατατείνειν τὴν κυήμην, τῇ δὲ ἀντιτείνειν τὸν μηρόν.1

XXXVIII. Τὰ δὲ κατὰ τὸν ἄγκωινα ὀχλωδε-στερά ἐστι τῶν κατὰ τὸ γόνυ, καὶ δυσεμβολώ-τερα καὶ διὰ τὴν φλεγμονὴν καὶ διὰ τὴν φύσιν, ἣν μὴ τις αὐτικὰ ἐμβάλη· ὀλισθάνει μὲν ἡςουν2 ἢ ἐκεῖνα, δυσεμβολώτερα δὲ καὶ δυσθετώτερα, καὶ ἐπιφλεγμαίνει μᾶλλον καὶ ἐπιποροῦται.3

XXXIX. Ἐστι δὲ καὶ τούτων πλείστα4 σμικραὶ ἐγκλίσεις, ἀλλοτε ἐς τὸ πρὸς τῶν πλευρεῶν μέρος, ἀλλοτε ἐς τὸ ἐξω, οὐ πᾶν δὲ τὸ ἀρθροῦν μεταβεβηκός, ἀλλὰ μὲνον5 τὸ κατὰ τὸ κοιλὸν

1 End of Galen's Commentary as extant; but later fragments are preserved in Orib. XLVI.6, XLVII.5, etc.
2 ἡςουν opposed to πολλάκις above: but not true. Some therefore take it to mean "to a less extent."
3 ἐπιποροῦται.
4 τὰ μὲν πλείστα.
5 μὲνον B, μὲνοντι τὸ M, μὲνον τι V, μοῦν Kw. The reading is important for the writer's account of elbow dislocations. If μὲνον, the chapter must refer to dislocation of the radius only and "inwards" would imply that the writer looked at the arm and hand as hanging back to front with the bend of the elbow turned inwards, the reverse of our position. Petrequin first noticed this, and showed that
ON FRACTURES, xxxvii.–xxxix.

the bones of the elbow. Owing to the way they are disposed the bones at the knee are often dislocated but easily put in, and no great inflammation or fixation of the joint supervenes. Most dislocations are inwards, but some outwards and some into the knee flexure. Reduction is not difficult in any of these cases: as to external and internal dislocations, the patient should be seated on the ground or something low, and have the leg raised, though not greatly. Moderate extension as a rule suffices; make extension on the leg and counter-extension on the thigh.

XXXVIII. Dislocations at the elbow are more troublesome than those at the knee, and harder to put in, both because of the inflammation and because of the conformation of the bones, unless one puts them in at once. It is true that they are more rarely dislocated than the above, but they are harder to put up, and inflammation and excessive formation of callus is more apt to supervene.

XXXIX. (Dislocation of radius.) The majority of these are small displacements sometimes inwards, towards the side and ribs, sometimes outwards (our "forwards" and "backwards"). The joint is not dislocated as a whole, but maintaining the con-

1 A strange remark, perhaps includes displacement of the kneecap. Displacements of cartilages are not noticed.
2 Of the thigh-bone.
3 Pq. says he treated ten times more elbow than knee dislocations.
4 Cf. Celsus VIII. 16, "callus circumdatur."

it explains much. μόνος or μονοδομος would imply a dislocation of the ulna only, and add another difficulty. It seems clear that the epitomist (M VII, J XVII) read μόνος; but these chapters have puzzled the scribes as well as the surgeons.
τοῦ ὀστέου τοῦ βραχίονος, ἕτερον τὸ ὑπερέχων ἔχει. τὰ μὲν οὖν τοιαῦτα, καὶ τῇ ἕτερῃ ὀλύσθῃ, ῥηίδιον ἐμβάλλειν, καὶ ἀποχρῇ ἢ κατάτασις ἢ ἐς τὸ ἱθὺ γινομένη κατ’ ἰθυφρῷ τοῦ βραχίονος, τὸν μὲν κατὰ τὸν καρπὸν τὴς χειρὸς τείνειν, τὸν δὲ κατὰ τὴν μασχάλην περιβάλλοντα, τὸν δὲ τῇ ἐτέρῃ προς τὸ ἔξεστεὸς ἀρθρον τὸ θέναρ προσβάλλοντα ὦθεῖν, τῇ δὲ ἐτέρῃ ἀντωθεῖν προσβάλλοντα ἐγγὺς τῷ ἄρθρῳ.

XL. Ἐνακούει δὲ οὖν βραδέως ἐμβαλλόμενα τὰ τοιαύτα ὀλισθήματα, ἢ πρὶν φλεγμήνῃ ἐμβάλλη τις. ὀλισθάνει δὲ ως ἐπὶ τὸ πολὺ μᾶλλον ἐς τὸ ἐσόμερον, ὀλισθάνει δὲ καὶ ἐς τὸ ἐξω, εὐθηλα δὲ τῷ σχήματι. καὶ πολλάκις ἐμπίπτει τὰ τοιαῦτα, καὶ ἀνευ ἱσχυρῆς κατάτασιος: χρὴ δὲ τῶν ἐσω ὀλισθανόντων, τὸ μὲν ἄρθρον ἀπωθεῖν ἐς τὴν φύσιν, τὸν δὲ πῆχυν ἐς τὸ καταπρηνῆς μᾶλλον réποντα περιάγειν. τὰ μὲν πλείστα ἀγκώνος τοιαύτα ὀλισθήματα.

XLII. Ἡν δὲ ὑπερβῆ τὸ ἄρθρον ἑνθα ἑνθα ὑπὲρ τὸ ὀστέον τοῦ πῆχεος τὸ ἐξέχον ἐς τὸ κολλον τοῦ βραχίονος—γίνεται μὲν οὖν ὀλιγάκις τοῦτο, ἢν δὲ γίνεται—οὐκ ἐτί ὀμοίως ἢ κατάτασις ἢ ἐς τὴν ἱθυφρήν γινομένη ἐπιτηθεὶν τῶν τοιούτων ὀλισθημάτων· κωλύει γὰρ ἐν τῇ τοιαύτῃ κατατάσει τὸ ἀπὸ τοῦ πῆχεος ὑπερέχον ὀστέον τὴν ὑπέρβασιν τοῦ βραχίονος. χρὴ τοῖνυν τοῖσιν

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1 ἐξέσχεν B, Kw., etc. 2 πρὸς τοῦ πῆχεος B, Kw. insert. 3 Pq. omits.
nexion with the cavity of the humerus, where the projecting part of the ulna sticks out. Such cases, then, whether dislocation is to one side or the other, are easy to reduce, and direct extension in the line of the upper arm is quite enough, one person may make traction on the wrist, another does so by clasping the arm at the axilla, while a third presses with the palm of one hand on the projecting part and with the other makes counter-pressure near the joint.

XL. Such dislocations yield readily to reduction if one reduces them before they are inflamed; the dislocation is usually rather inwards (forwards), but may also be outwards, and is easily recognised by the shape. And they are often reduced even without vigorous extension. In the case of internal dislocations one should push the joint back into its natural place, and turn the forearm rather towards the prone position. Most dislocations of the elbow are of this kind.¹

XLI. (Complete dislocation of the elbow backwards and forwards). If the articular end of the humerus passes either this way or that² over the part of the ulna which projects into its cavity (the latter³ indeed occurs rarely, if it does occur), extension in the line of the limb is no longer equally suitable, for the projecting part of the ulna prevents the passage of the humerus. In patients with these

¹ Adams agrees that XXXIX is "dislocation of the radius," but has to call XL "incomplete lateral dislocation of the forearm" since the radius alone cannot be dislocated "inwards." The nature of these lesions is discussed on p. 411 ff.
² "to either side," Adams.
³ Refers to "backwards," which can hardly occur without fracture.
οὐτως ἐκβεβληκόσι τὴν κατάτασιν ποιεῖσθαι
10 τοιαύτην, οἵη περ πρόσθεν γέγραπται, ἐπὶ τὴν τις ὀστέα βραχίωνος κατεγγότα ἐπιδέη, ἀπὸ μὲν τὴς μασχάλης ἐς τὸ ἀνώ τείνεσθαι, ἀπὸ δὲ τοῦ ἀγκώνιος αὐτοῦ ἐς τὸ κάτω ἀναγκάζειν οὕτω γὰρ ἄν μάλιστα ὁ βραχίων ὑπεραιωρηθεὶς ὑπὲρ τῆς ἑωυτοῦ βαθμίδος, ἡν δὲ ὑπεραιωρηθῇ, ῥηνὶ ἡ κατάστασις, τοῖς θέναρσι τῶν χειρῶν τὸ μὲν ἐξεστεὸς1 τοῦ βραχίωνος ἐμβάλλοντα ὄθειν, τὸ δὲ ἐς τὸ τοῦ πῆχεος ὀστέου τὸ παρὰ τὸ ἄρθρον ἐμβάλλοντα ἀντωθεῖν, τὸν αὐτὸν τρόπον ἀμφω·
20 ἢσσον μέντοι 2 ἡ τοιαύτη κατάτασις τοῦ τοιοῦτον ὁλισθήματος δικαιότατη· ἐμβληθείν δ' ἂν καὶ
22 ἀπὸ τῆς ἢ ἢ δυνατάσιος, ἢσσον δὲ ἢ οὕτω.

XLII. Ἦν δὲ ἐς τοῦμπροσθεν ὁλίσθη ὁ βραχίων, ἐλαχιστάκις μὲν τοῦτο γίνεται, ἀλλὰ τι ἂν ἐξαιτίας3 ἐκπάλησις οὐκ ἐμβάλλοι; πολλὰ γὰρ καὶ παρὰ τὴν οἰκείαν 4 φύσιν ἐκπίπτει, καὶ ἡν μέγα τι ἢ τὸ κωλύον· ταύτη δὲ τῇ ἐκπαλήσει μέγα τι τὸ ὑπερβαίνομενον τὸ ὑπὲρ τὸ παχύτερον τῶν ὀστέων, καὶ τῶν νεύρων συχνὴ κατάτασις· ὀμοιοὶ δὲ δὴ τισιν ἐξεπάλησεν. σημεῖον δὲ τοῖς
10 οὕτως ἐκπαλήσασι· οὐδὲν γὰρ χρῆμα τοῦ ἀγκώνος κάμψαι δύνανται, εὐθηλοῦν5 δὲ καὶ τὸ ἄρθρον ψαυμένον. ἡν μὲν οὖν μὴ αὐτίκα ἐμβληθῇ, ἱσχυρὰ καὶ βίαιαι φλεγμοναὶ καὶ πυρετώδεες γίνονται· ἡν δὲ δὴ αὐτίκα τις παρατύχη εὐμβολοῦν, [χρὴ δὲ οθόνιον σκληρῶν]6

1 ἐς τὸ ἐξεστεός.
2 Kw. ἀμφω, ἢσσον μέντοι . . . He supposes a hiatus.
3 ἐξαιτίας.
4 ἐοικάνια.
5 εὐθηλοῦν.
6 Kw. omits.
ON FRACTURES, xli.–xlII.

dislocations, extension should be made after the manner which has been described above for putting up a fractured humerus. Make traction upwards from the armpit, and apply pressure downwards at the elbow itself, for this is the most likely way to get the humerus lifted above its own socket, and if it is so raised, replacement by the palms of hands is easy, using pressure with one hand to put in the projecting part of the humerus, and making counter-pressure on the ulna at the joint to put it back. The same method suits both cases. This has, indeed, less claim to be called the most regular method of extension in such a dislocation and reduction would also be made by direct extension, but less easily.¹

XLII. (Internal lateral distortion of the forearm, Petrequin's View). Suppose the humerus to be dislocated forwards. This happens very rarely; but what might not be dislocated by a sudden violent jerk? For many other bones are displaced from their natural position,² though the opposing obstacle may be great. Now, there is a great obstacle to this jerking out, namely the passage over the thicker bone (radius) and the extensive stretching of the ligaments, but nevertheless it is jerked out in some cases. Symptoms in cases of such jerkings out. They cannot bend the elbow at all, and palpation of the joint makes it clear. If, then, it is not reduced at once, violent and grave inflammation occurs with fever, but if one happens to be on the spot it is easily put in. One should take

¹ "Evidently meant as a description of complete lateral dislocation," Adams.
² Kw. "beyond what seems natural."
ΠΕΡΙ ΑΓΜΩΝ

—δοθόμον γὰρ σκληρὸν εἰλιγμένου ἀρκεῖ, μὴ μέγα
—ἐνθέντα πλάγιον ἐς τὴν καμπήν τοῦ ἀγκώνος,
ἐξαπίνης συγκάμψαι τὸν ἀγκώνα καὶ προσ-
αγαγεῖν ὡς μάλιστα τὴν χείρα πρὸς τὸν ὄμον.
ἰκανὴ μὲν αὐτῇ ἢ ἐμβολὴ τοίσιν οὔτως ἐκπαλή-
σασιν ἕκαστοι τοῦτον τὸν τρόπον τῆς ἐμβολῆς:
τοῖσι μὲνοί θέναρσι τῶν χειρῶν χρῆ, τοῖσι
μὲν ἐμβάλ-
λοντα ἐς τὸ τοῦ βραχίωνος ἐξέχον τὸ παρὰ τὴν
καμπήν ὁπίσω ἀποθέευν, τοὺς δὲ τινὰ κάτωθεν ἐς
τὸ τοῦ ἀγκώνον ἐξ ἐμβάλλοντα ἀντωθεῖν ἐς τὴν
ἰδυωρίην τοῦ πῆχεος ἑποντα. δύναται δὲ ἐν
τούτῳ τῷ τρόπῳ τῆς ὀλισθήσιος κάκειν ἡ
κατάτασις ἢ πρόσθεν ἐγγεγραμμένη, ὡς χρῇ
κατατείνει τὰ ὀστέα τοῦ βραχίωνος κατεγοτα,
ἐπὶ τὸν μέλλονν ἐπιδεῖσθαι: ἐπὶ τὸν δὲ καταταθῇ,
οὕτω χρῇ τοίσι θέναρσι τὰς προσβολὰς ποι-
εἰσθαι, ὥσπερ καὶ πρόσθεν ἐγγραπται.

ΧLIII. Ἡν δὲ ἐς τὸ ὁπίσω βραχίων ἐκπέσῃ—
ὀλιγάκις δὲ τούτο γίνεται, ἐπωδυνώτατον τε τούτο
πάντων καὶ πυρετωδέστατον, συνεχέον πυρετῶν
καὶ ἀκρητοχόλων, ἑπατωδεῶν καὶ ὀλιγημέρων—
οὶ τοιοῦτοι ἐκτανεύων οὐ δύναται. ἢν δὲ μὲν ὕπνον
ἀὐτίκα παρατύχῃς, βιάσασθαι ἢ χρῇ ἐκτανύσαντα
tὸν ἀγκώνα, καὶ ἀυτομάτως ἐμπίπτει. ἢν δὲ σε
φθάσῃ πυρετωνήσῃς, οὐκ ἐτὶ χρῇ ἐμβάλλειν:
κατακτεῖνει γὰρ ἂν ἢ ὄδυνη ἀναγκαζομένου. ὡς
δ' ἐν κεφαλαίῳ εἰρήσθαι, οὐδὲ ἄλλο χρῇ ἄρθρον
πυρεταῖνοντι ἐμβάλλειν, ἥκιστα δὲ ἀγκώνα.

1 τῷ τοιούτῳ. 2 πρόσθεν γεγραμμ' ἐν. 3 βιάζεσθαι.
a hard bandage (a hard rolled bandage of no great size is sufficient) and put it crosswise in the bend of the elbow, suddenly flex the elbow, and bring the hand as close as possible to the shoulder. This mode of reduction is sufficient for such jerkings out. Direct extension, too, can accomplish this reduction. One must, however, use the palms, putting one on the projecting part of the humerus at the elbow and pushing backwards (our inwards), and with the other making counter-pressure below the point of the elbow, inclining the parts into the line of the ulna.\(^1\) In this form of dislocation, the mode of extension described above as proper to be used in stretching the fractured humerus when it is going to be bandaged is also effective. And when extension is made, application of the palms should be made as described above.

XLIII. (External lateral dislocation of forearm).\(^2\) If the humerus is dislocated backwards (our “inwards”)—this occurs rarely, and is the most painful of all, most frequently causing continuous fever with vomiting of pure bile, and fatal in a few days—the patients cannot extend the arm. If you happen to be quickly on the spot, you ought to extend the elbow forcibly, and it goes in of its own accord. But if he is feverish when you arrive, do not reduce, for the pain of a violent operation would kill him. It is a general rule not to reduce any joint when the patient has fever, least of all the elbow.

\(^1\) Adams. "Dislocation of ulna and radius backwards," II. 500, but II. 549, "It would seem to be dislocation of the forearm forwards."

\(^2\) So Petrequin. It seems impossible that this should be dislocation of the forearm backwards, the commonest form, as Adams suggests.
XLIV. Ἐστὶ δὲ καὶ ἄλλα σίνεα κατ' ἀγκώνα ὠρχώδεα, τούτῳ μὲν γάρ, τὸ παχύτερον ὀστέον ἐστὶν ὅτε ἐκκυσθῇ ἀπὸ τοῦ ἑτέρου, καὶ οὕτε συγκάμπτει οὕτε κατατανύει ὁμοίως δύνανται. δὴ λοις δὲ γίνεται ψαυόμενον κατὰ τὴν σύγκαμψιν τοῦ ἀγκώνου παρὰ τὴν διασχίδα τῆς φλεβῶς τῆς ἀνωθέν τοῦ μύς τείνουσαν οἷς δὲ τὸ τοιοῦτον, οὐκ ἐτι ἰθίδιον ἐστὶ τὴν ἔως τοῦ φύσιν ἀγαγείν. οὐδὲ γὰρ ἄλλην οὐδεμίαν ἰθίδιον συμφωνάδα κοινὴν δύο ὀστέων κινηθείσαν ἐστὶ τὴν ἀρχαίαν φύσιν ἰδρυνθῆναι, ἀλλ' ἀνάγκη ὁγκον ὑσχεῖν τὴν διάστασιν. ως δὲ ἐπὶδεῖν χρῆ ἐν ἀρθρῷ, ἐν τῇ κατὰ σφυρὸν ἐπιδέσει εἰρηται.

XLV. Ἐστὶ δ' οἴσι κατάγνυται 1 τοῦ πίθεως τὸ ὀστέον τὸ ὑποτεταγμένον τῷ βραχίωνι, οὗτος μὲν τὸ χονδρώδες αὐτοῦ ἄφ' οὐ πέφυκεν ὁ τένων ὁ ὀπισθεν τοῦ βραχίωνος <ὅτε δὲ τὰ πρόσω κατὰ τὴν ἄρχην τῆς ἐκφύσιος τοῦ προσθίου κορωνοῦ> 2 καὶ, ἐπὶ τοῦτο κινηθῆ, πυρετῶδες καὶ κακόηθες γίνεται: τὸ μέντοι ἄρθρον μένει ἐν τῇ ἔως τοῦ χωρῆν πᾶσα γὰρ ἡ βάσις αὐτοῦ ταῦτη ὑπερέχει. 3 ὅταν 4 δὲ ἀπαγῇ ταύτη ἡ ὑπερέχει ἡ κεφαλὴ τοῦ βραχίωνος, πλαισίδεστερον τὸ ἄρθρον γίνεται, ἡν παντάπασιν ἀποκαυλισθῇ. ἀσινέστερα δὲ, ὡς ἐν κεφαλαίῳ εἰρήσθαι, πάντα τὰ καταγνύμενα τῶν ὀστεῶν ἐστὶν ἡ οἷσιν τὰ μὲν ὀστέα οὐ κατάγνυται, φλέβες δὲ καὶ νέυρα ἐπίκαιρα ἀμφιφλάται ἐν τούτοις τοίς χωρίοισιν· ἐγγυτέρω γὰρ θανάτῳ

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1 ἀπάγνυται.
2 Omit codd., vulg.; restored by Littre from Galen in Orib. XLVI. 6.
3 ὑπέχει.
4 ἦν.

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ON FRACTURES, xliv.–xlv.

XLIV. (Separation of radius). There are also other troublesome lesions of the elbow. Thus the thicker bone is sometimes separated from the other, and they can neither flex nor extend the joint as before. The lesion is made clear by palpation at the bend of the elbow about the bifurcation of the blood vessel\(^1\) which passes upwards along the muscle.\(^2\) In such cases it is not easy to bring the bone into its natural place, for no symphysis of two bones when displaced is permanently settled in its old position, but the diastasis (separation) necessarily remains as a swelling. How a joint ought to be bandaged was described in the case of the ankle.

XLV. (Fractures of olecranon). There are cases in which the bone of the forearm (ulna) is fractured where it is subjacent to the humerus, sometimes the cartilaginous part from which the tendon at the back of the arm arises, sometimes the part in front at the origin of the anterior coronoid process, and when this occurs it is complicated with fever and dangerous, though the joint (articular end of humerus) remains in its place, for its entire base comes above this bone.\(^3\) But when the fracture is in the place on which the articular head of the humerus rests, the joint becomes more mobile if it is a complete cabbage-stalk fracture (i.e. right across). Speaking generally, fractures are always less troublesome than cases where no bones are broken, but there is extensive contusion of blood vessels and important cords in these parts. For the latter

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\(^1\) Cephalic vein.  
\(^2\) Biceps.  
\(^3\) \(\upsilon\pi\epsilon\rho\epsilon\chi\epsilon\tau\), \(\upsilon\rho\epsilon\sigma\rho\epsilon\sigma\delta\epsilon\tau\), “is above,” the articular end of the humerus rests entirely on the olecranon, the arm being bent. “Protrudes at this point,” Littré-Adams.
ΠΕΡΙ ΑΓΜΩΝ

πελάξει ταύτα ἢ ἐκεῖνα, ἣν ἐκπυρωθῇ συνεχεὶ πυρέτων ὀλίγα γε μὴν τὰ τοιαῦτα κατήγματα

18 γίνεται.

XLVI. Ἔστι δὲ ὅτε αὐτὴ ἡ κεφαλὴ τοῦ βραχίωνος κατὰ τὴν ἐπίφυσιν κατάγωνται·
tούτο δὲ δόκειν κακοσιωτάτον εἶναι πολλῷ
tινὶ 1 εὐθέστερον τῶν κατ' ἀγκώνα σινέων ἔστιν.

XLVII. Ὡς μὲν οὖν ἐκαστὰ τῶν ὀλισθημάτων ἀρμόσσει 2 ἐμβάλλειν καὶ 3 μάλιστα ἤτρεύειν,
γέγραπται, καὶ ὅτι παραχρήμα ἐμβάλλειν μάλιστα ἄρθρον συμφέρει διὰ τὸ τάχος τῆς φλεγ-
μονῆς τῶν νεύρων. καὶ γὰρ ἂν ἐκπεσόντα αὐτίκα ἐμπέσῃ, ὁμος φιλεῖ τὰ νεῦρα σύντασιν ποιεῖσθαι,
καὶ κωλύειν ἐπὶ ποσὸν χρόνον τὴν τέ ἐκτασιν, ὅσην περ φιλεῖ 4 ποιήσασθαι, 5 τὴν τε σύγκαμψιν.

ήτρευειν δὲ πάντα παραπλησίως τὰ τοιαῦτα

10 συμφέρει καὶ ὅποσα ἀπάγωνται, καὶ ὅποσα διῆσται, καὶ ὅποσα ὀλισθάνει πάντα γὰρ χρῆ
ὀθονίοις πολλοῖς καὶ σπλήνεις καὶ κηρώτξ
ήτρευειν, ὃστερ καὶ τάλλα κατήγματα. τὸ δὲ

σχῆμα τοῦ ἀγκώνος ἐν τούτοις δὴ καὶ παντά-
pasi χρῆ τοιοῦτον ποιεῖσθαι, οἷον περ οἶς
βραχίων ἐπεδείκτω καταγείς, καὶ πῆχυς· κοινό-
tatou mēn γὰρ πᾶσι τοῖς ὀλισθήμασι καὶ τοῖς
κινήμασι κατηγμασι τοῦτο τὸ σχῆμα

ἔστιν κοινότατον δὲ πρὸς τὴν ἐπειτὰ διάστασιν, 6

20 καὶ τὸ ἐκτανύειν ἐκαστὰ καὶ συγκάμπτειν
ἐντεύθεν γὰρ ὁδὸι ἐς ἀμφότερα παραπλησίων·

ἐνοχῶτατον καὶ εὐανάληπτον αὐτῷ τῷ κάμωντι

τοῦτο τὸ σχῆμα. ἔτι δὲ πρὸς τούτοις, εἰ ἄρα
κρατηθεῖν ὑπὸ τοῦ πωρώματος, εἰ μὲν ἐκτετα-

1 τφ. 2 ἀρμόσει.
lesions involve greater risk of death than do the former, if one is seized with continued fever. Still, fractures of this kind rarely occur.

XLVI. Sometimes the actual head of the humerus is fractured at the epiphysis, but this, though apparently a very grave lesion, is much milder than injuries of the elbow joint.

XLVII. How, then, each dislocation is most appropriately [reduced and] treated has been described; especially the value of immediate reduction owing to the rapid inflammation of the ligaments. For, even when parts that are put out are put in at once, the tendons are apt to become contracted and to hinder for a considerable time the natural amount of flexion and extension. All such lesions, whether avulsions, separations or dislocations, require similar treatment, for they should all be treated with a quantity of bandages, compresses and cerate, as with fractures. The position of the elbow should in these cases, too, be the same in all respects as in the bandaging of patients with fractured arm or forearm; for this position is most generally used\(^1\) for all the dislocations, displacements and fractures, and is also most useful as regards the future condition, in respect both of extension and flexion in the several cases, since from it the way is equally open in both directions. This attitude is also most easily kept up or returned to by the patient himself. And besides this, if ankylosis should prevail, an arm ankylosed in the

\(^{1}\) κοινότατον almost = "most useful."

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\(^{3}\) Omit B, Kw.  
\(^{6}\) ποιείσθαι.  
\(^{4}\) πέφυκε.  
\(^{6}\) διατάσιν Κ.
ΠΕΡΙ ΑΓΜΩΝ

μένη η χείρ κρατηθεῖν, κρέσσων ἀν εἰη μὴ προσεύσα, πολλῷ μὲν γὰρ κὼλμα εἰη, ὀφελεῖν δὲ ὠλίγω, εἶ δ' αὖ συγκεκαμμένη, μᾶλλον εὐχρη-

στος ἀν εἰη, πολλῷ δὲ εὐχρηστοτέρη, εἰ τὸ διὰ μέσον σχήμα ἔχουσα πωρῳδείη [κρέσσον].

30 τὰ μὲν περὶ τοῦ σχῆματος τοιάδε.

XLVIII. Ἐπιδεῖν δὲ χρη τὴν τε ἁρχὴν τοῦ πρῶτου ὀθονίου βαλλόμενον κατὰ τὸ βλαφθέν, ἢν τε καταγή, ἢν τε ἐκστή, ἢν τε διαστή, καὶ τὰς περιβολὰς τὰς πρῶτας κατὰ τοῦτο ποιεῖσθαι, καὶ ἐρημεῖσθω μάλιστα ταῦτη, ἕνθεν δὲ καὶ ἐνθεν ἐπὶ ἦσσον. τὴν δὲ ἐπίδεσιν κοινὴν ποιεῖσθαι χρη τοῦ τε πῆχεος καὶ τοῦ βραχίονος, καὶ ἐπὶ πολὺ πλέον ἐκάτερον ἢ ως οἱ πλεῖστοι ποιέουσιν, ὅπως ἐξαρύνηται ὡς μάλιστα ἀπὸ τοῦ σίνεος τὸ οἴδημα ἕνθεν καὶ ἐνθεν. προσπερι-

βαλλέσθω δὲ καὶ τὸ ὄξυ τοῦ πῆχεος, ἢν τὸ σίνος κατά τοῦτο ἢ, ἢν δὲ μή, ἵνα μή τὸ οἴδημα ἐνταύθα περὶ αὐτὰ συλλέγῃται. περιφεύγειν δὲ χρη ἐν τῇ ἐπίδεσι, ὅπως μή κατὰ τὴν καμπῆν πολλὸν τοῦ ὀθονίου ἡθροισμένον ἐσται ἐκ τῶν δυνατῶν: πεπιέχθαι δὲ κατὰ τὸ σίνος ὃς μάλιστα. καὶ τὰ ἄλλα καταλαβέτω αὐτοῦ περὶ τῆς πιέξιος καὶ τῆς χαλάσιος ταύτα, καὶ κατὰ τοὺς αὐτοὺς χρόνους ἐκαστα, ὥσπερ τῶν ὀστέων τῶν κατεγό-

20 τῶν ἐν τῇ ἐντυρείῃ πρόσθεν γέγραπται· καὶ αἱ μετ-

επιδείσεις διὰ τρίτης ἐστώσαν χαλάν δὲ δοκεῖτω τῇ τρίτῃ, ὥσπερ καὶ τότε· καὶ νάρβηκας προσ-

περιβάλλεων ἐν τῷ ἱκνεομένῳ χρόνῳ—οὐδὲν γὰρ ἀπὸ τρόπου, καὶ τοσὶ τὰ ὀστέα κατεγόσι, καὶ τοσὶ μή, ἢν μὴ πυρεταῖνῃ—ὡς χαλαρωτάτους δὲ,

1 κρέσσον ορ κρέσσων codd. omnes; but many editors omit.

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extended position would be better away, for it would be a great hindrance and little use. If flexed, on the other hand, it would be more useful, and still more useful if the ankylosis occurred in an attitude of semiflexion. So much concerning the attitude.

XLVIII. One should bandage by applying the head of the first roll to the place injured whether it be fractured, dislocated, or separated. The first turns should be made there and the firmest pressure, slackening off towards each side. The bandaging should include both fore and upper arm, and be carried much further each way than most practitioners do, that the oedema may be repelled as far as possible from the lesion to either side. Let the point of the elbow be also included in the bandage, whether the lesion be there or not, that the oedema may not be collected about this part. One should take special care in the dressing that, so far as possible, there shall be no great accumulation of bandage in the bend of the elbow, and that the firmest pressure be made at the lesion. For the rest, let him deal with the case as regards pressure and relaxation, in the same way, and according to the same respective periods, as was previously described in the treatment of fractured bones. Let the change of dressings take place every third day, and he should feel them relaxed on the third day, as in the former case. Apply the splints at the proper time—for their use is not unsuitable whether there is fracture or not, if there is no fever—but they should be applied as loosely as possible, those of

Omit κρέσσανον.

2 ἡξελεγγάται Κ.ω. 3 αὐτῶ.
ΠΕΡΙ ΑΓΜΩΝ

τοὺς μὲν ἀπὸ βραχίονος κατατεταγμένους, τοὺς δὲ ἀπὸ τοῦ πῆχεος ἀνειμένους· ἔστωσαν δὲ μὴ παχέες οἱ νάρθηκες· ἀναγκαῖον δὲ καὶ ἀνίσους αὐτοὺς εἶναι ἀλλήλοις, παραλλάσσειν δὲ παρ’ ἀλλήλους ἡ ἀν ὑπερβολή, τεκμαίρομενον πρὸς τὴν σύγκαμψιν. ἀτὰρ καὶ τῶν σπληνῶν τὴν πρόσθεσιν τοιαύτην χρή ποιεῖσθαι, ὡσπερ καὶ τῶν ναρθήκων εἰρηται, ὡγκηρότερος δὲ ὀλίγω κατὰ τὸ σίνος προστιθέναι. τοὺς δὲ χρόνους τοὺς ἀπὸ τῆς φλεγμονῆς τεκμαίρεσθαι χρὴ καὶ ἀπὸ τῶν πρόσθεν γεγραμμένων.

— 1 Reinhold’s emendation, τοὺς μὲν κάτω τεταγμένους, τοὺς δὲ ἀνω κειμένους, seems to give the sense most clearly.
ON FRACTURES, XLVIII.

the arm being under and those of the forearm on the top.¹ The splints should not be thick, and must be unequal in length in order to overlap one another where it is convenient, judging by the degree of flexion. So, too, as regards the application of compresses, one should follow the directions for the splints. They should be rather thicker at the point of lesion. The periods are to be estimated by the inflammation and the directions already given.

Hippocrates had no angular splints, and straight ones applied to the bent arm above and below the elbow had to be so arranged that one set overlapped the other at the sides.
ΠΕΡΙ ΑΡΘΡΩΝ

I. Ὡμοί δὲ ἄρθρον ἕνα τρόπον οἶδα ὀλίσθανον,
tὸν ἐς τὴν μασχάλην ἄνω δὲ οὐδέποτε εἶδον,
οὐδὲ ἐς τὸ ἐξό· οὐ μέντοι διίσχυρείω ἔγωγε ὁ
ὅλισθανοι ἃν ἢ οὐ, καὶ περὶ ἐξων περὶ αὐτοῦ ὁ
τι λέγω. ἀτὰρ οὐδὲ ἐς τὸ ἐμπροσθεν οὐδέπω
ὁπωτα ὁ τι ἐδοξέ μοι ὀλισθηκέναι· τοῦτο μέντοι
ιητροῖσι δοκεῖ κάρτα ἐς τούμπροσθεν ὀλισθᾶνειν,
καὶ μᾶλιστα ἐξαπατώνται ἐν τούτοιςν, ὃν ἂν
φθίσις καταλάβη τὰς σάρκας τὰς περὶ τὸ ἄρθρον
10 τε καὶ τὸν βραχίονα· φαίνεται γὰρ ἐν τοῖς
τοιούτοις παντάπασι ἡ κεφαλὴ τοῦ βραχίονος
ἐξέχουσα ἐς τοῦμπροσθεν. καὶ ἔγωγέ ποτε τὸ
tοιοῦτον οὐ φᾶς ἐκπεπτωκέναι ἥκουσα φλαύρως
ἀπὸ τῶν ἰητρῶν, ὑπὸ τε τῶν δημοτῶν διὰ τοῦτο
tὸ πρήγμα· ἐδόκεον γὰρ αὐτοῖςν ἡγγοηκέναι
μοῦνοι, οἱ δὲ ἄλλοι ἐγνωκέναι, καὶ οὐκ ἡδυνάμην
αὐτοὺς ἀναγνώσαι, εἰ μὴ μόλις, ὅτι τὸδ' ἐστὶ
tοιοῦδε· εἰ τοὺς τοῦ βραχίονος ψιλώσειε μὲν τῶν
σαρκῶν τὴν ἐπωμίδα, ψιλώσειε δὲ ἡ ὁ μῶς
20 ἀνατείνει, ψιλώσειε δὲ τὸν τένοντα τὸν κατὰ
tὴν μασχάλην τε καὶ τὴν κληδὰ πρὸς τὸ στήθος
ἐχουτα, φαίνωτο ἡ κεφαλὴ τοῦ βραχίονος ἐς
tοῦμπροσθεν ἐξέχουσα ἱςχυρῶς, καὶ περὶ οὐκ ἐκπε-
πτωκυια· πέφυκε γὰρ ἐς τοῦμπροσθεν προπτής
ἡ κεφαλὴ τοῦ βραχίονος· τὸ δ' ἄλλο ὀστέον τοῦ

1 So Apollonius, Galen and most MSS. B M and Kw. add ἐμβολής.
ON JOINTS

I. As to the shoulder-joint, I know only one dislocation, that into the armpit. I have never observed either the upward or outward form, but do not wish for my part to be positive as to whether such dislocations occur or not, though I can say something on the subject. Nor have I ever seen anything that seemed to me a dislocation forwards. Practitioners, indeed, think forward dislocation often happens, and they are especially deceived in cases where there is wasting of the flesh about the joint and arm, for in all such the head of the humerus has an obvious projection forwards. In such a case I myself once got into disrepute both with practitioners and the public by denying that this appearance was a dislocation. I seemed to them the only person ignorant of what the others recognised, and found it hardly possible to make them understand that the case was as follows:—

Suppose one laid bare the point of the shoulder of the fleshy parts from the arm, and also denuded it at the part where the muscle\(^1\) is attached, and laid bare the tendon stretching along the armpit and collar-bone to the chest, the head of the humerus would be seen to have a strongly marked projection forwards, though not dislocated. For the head of the humerus is naturally inclined forwards,

\(^1\) Deltoid.
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βραχιονός ἔσ τὸ ἔξω καμπύλων. ὁμιλεῖ δὲ ὁ βραχίων τῷ κοίλῳ τῆς ὁμοπλάτης πλάγιος, ὅταν παρὰ τὰς πλευρὰς παρατεταμένος ἦ. ὅταν μέντοι ἐς τούμπροσθεν ἐκταυνυσθῇ ἡ σύμπτασα χεῖρ, τότε ἡ κεφαλὴ τοῦ βραχιόνος κατὰ τὴν ἵξιν τῆς ὁμοπλάτης τῷ κοίλῳ γίνεται καὶ οὐκ ἐτὶ ἐξέχειν ἐς τούμπροσθεν φαινεται. περὶ οὗ οὖν ὁ λόγος, οὔδεποτε εἰδον οὐδὲ ἐς τούμπροσθεν ἐκπεσόν· οὐ μὴν ἴσχυρεῖς γε οὐδὲ περὶ τοῦτον, εἰ μὴ ἐκπέσοι ἀν οὕτως ἢ οὔ· ὅταν οὖν ἐκπέσῃ ὁ βραχίων ἐς τὴν μασχάλην, ἀτε πολλοῖς ἐκπιπτοντος, πολλοὶ ἐπιστανται ἐμβάλλειν· εὐπαίδευτον δὲ ἐστὶ τὸ εἰδέναι πάντας τοὺς τρόπους, οἷς οἱ ἴστροι ἐμβάλλουσι, καὶ ως ἀν τις αὐτοῦς τοῖς τρόποις τούτοις κάλλιστα ἄν χρέωτο. ἡ χρήσθαι δὲ χρῆ τῷ κρατίστῳ τῶν τρόπων, ἢ τὴν ἴσχυροτάτην ἀνάγκην ὅρας· κράτιστοι δὲ ὁ ὑστατός ἐγεραψώ 43 μενος.

II. Ὁκόσοιοι μὲν οὖν πυκνὰ ἐκπίπτει ὁ ὁμος, ἰκανοὶ ὡς ἐπὶ τὸ πλείστον αὐτοὶ σφίσιν αὐτοῖσιν ἐμβάλλειν εἰσὶν· εὐθέντες γὰρ τῆς ἐτέρης χειρὸς τοὺς κοινὸν ὅτι τὴν μασχάλην ἀναγκάζονται ἀνω τῷ ἄθροιν, τὸν ἰδίων παράγουσι παρὰ τὸ στῆθος. τὸν αὐτόν δὲ τρόπον τοῦτον καὶ ὁ ἴστρος ἄν ἐμβάλλοι, εἰ αὐτός μὲν ὑπὸ τὴν μασχάλην ἐσωτέρῳ τῷ ἄθροιν τοῦ ἐκπεπτωκότως ὑποτείνας τοὺς δακτύλους ἀπαναγκάζοι ἀπὸ 10 τῶν πλευρῶν ἐμβάλλοι τὴν ἐως τοῦ κεφαλῆς ἐς τὸ ἀκρώμιον ἀντερείσιος ἐνεκα, τοῖσι δὲ γούνασι παρὰ τὸν ἄγκωνα ἐς τὸν βραχίωνα ἐμβάλλοι, ἀντιβοῦν πρὸς τὰς πλευρὰς—συμφέρει δὲ καρπέρας τὰς χεῖρας ἐχειν τὸν ἐμβάλλοντα—ἡ εἰ 202
ON JOINTS, 1.–II.

while the rest of the bone is curved outwards. The humerus, when extended along the ribs, meets the cavity of the shoulder-blade obliquely, but when the whole arm is extended to the front, then the head of the humerus comes in line with the cavity of the shoulder-blade, and no longer appears to project forwards. To return to our subject, I never saw a dislocation forwards, but do not want to be positive about this either, whether such dislocation occurs or not. When, then, the humerus is displaced into the axilla, many know how to reduce it since it is a common accident, but expertness¹ includes knowledge of all the methods by which practitioners effect reduction, and the best way of using these methods. You should use the most powerful one when you see the strongest need, and the method that will be described last is the most powerful.

II. Those who have frequent dislocations of the shoulder are usually able to put it in for themselves. For by inserting the fist of the other hand into the armpit they forcibly push up the head of the bone, while they draw the elbow to the chest. And a practitioner would reduce it in the same way if, after putting his fingers under the armpit inside the head of the dislocated bone, he should force it away from the ribs, thrusting his head against the top of the shoulder to get a point of resistance, and with his knees thrusting against the arm at the elbow, should make counter-pressure towards the ribs—it is well for the operator to have strong hands—or, while he

¹ "'Tis a skilful man’s part” (Liddell and Scott). "An easy thing to teach” (Adams).
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αὐτὸς μὲν τῇσι χερσὶ καὶ τῇ κεφαλῇ οὕτω ποιοῖς, ἄλλος ¹ δὲ τὶς τὸν ἁγκὼνα παράγοι παρὰ τὸ στῆθος.

"Εστι δὲ ἐμβολὴ ὀμον καὶ ὡς τούτῳ ὑπερβάλλοντα τὸν πῆχυν ἐπὶ τὴν ράχιν, ἔπειτα τῇ 20 μὲν ἐτέρῃ χειρὶ ἀνακλάν ἐς τὸ ἀνω τοῦ ἁγκὼνος ἐχόμενον, τῇ δὲ ἐτέρῃ παρὰ τὸ ἄρθρον ὤπισθεν ἐρείδειν. αὐτὴ ἡ ἐμβολὴ, καὶ ἡ πρόσθεν εἰρημένη, οὐ κατὰ φύσιν έσοῦσιν, ὀμοις ἀμφισφάλλουσιν τὸ 24 ἄρθρον ἀναγκάζουσιν ἐμπίπτειν.

ΤΡΙΤΟΝ. Οἱ δὲ τῇ πτέρνῃ πειρώμενοι ἐμβάλλειν, ἐγγύς τι τοῦ κατὰ φύσιν ἀναγκάζουσιν. χρῆ δὲ τὸν μὲν ἀνθρωπὸν χαμαὶ κατακλίναι ὑπτιον, τὸν δὲ ἐμβάλλοντα χαμαὶ ἰζεσθαι ἐφ᾽ ὠπότερα ἄν τὸ ἄρθρον ἐκπεπτώκη. ἔπειτα λαβόμενον τῇσι χερσὶ τῆσιν ἐωυτοῦ τῆς χειρὸς τῆς σιναρῆς, κατατείνειν αὐτὴν, τὴν τε πτέρνῃν ἐς τὴν μασχάλην ἐμβάλλοντα ἀντωθεὶν, τῇ μὲν δεξιῇ ἐς τὴν δεξιήν, τῇ δὲ ἀριστήρῃ ἐς τὴν ἀριστερῆν. δεὶ δὲ ἐς τὸ 10 κοίλον τῆς μασχάλης ἐνθείναι στρογγύλων τῇ ἐνάρμοσσου ἐπιτηδεύσταται δὲ αἱ πάνυ σμικραὶ σφαῖραι καὶ σκληραὶ, οὕτα πολλάκιε ἐκ τῶν σκυτέων ² ῥάπτονται ἢ γὰρ μὴ τι τοιοῦτον ἐγκέιται, οὐ δύναται ἡ πτέρνῃ ἐξικνεῖσθαι πρὸς τὴν κεφαλὴν τοῦ θραχίους. κατατεινομένης γὰρ τῆς χειρὸς κοιλαίνεται ἡ μασχάλη. οἱ γὰρ τένοντες οἱ ἐνθεὶ καὶ ἐνθεὶ τῆς μασχάλης ἀντιφίγγοντες ἐναντίοι εἰσὶν. χρῆ δὲ τινὰ ἐπὶ θάτερα τοῦ κατατεινομένου καθῆμενον κατέχειν 20 κατὰ τὸν ύγιέα ὁμον, ὡς μὴ περιέλκηται τὸ σῶμα, τῆς χειρὸς τῆς σιναρῆς ἐπὶ θάτερα τειν-

¹ ἐτέρος. ² ἐκ πολλῶν σκυτέων ποικίλων Weber.
ON JOINTS, ii.–iii.

uses his hands and head in this way, an assistant might draw the elbow to the chest.

There is also a way of putting in the shoulder by bringing the forearm backwards on to the spine, then with one hand turn upwards the part at the elbow, and with the other make pressure from behind at the joint. This method and the one described above, though not in conformity with nature,¹ nevertheless, by bringing round the head of the bone, force it into place.

III. Those who attempt to put in the shoulder with the heel, operate in a way nearly conformable with nature. The patient should lie on his back on the ground, and the operator should sit on the ground on whichever side the joint is dislocated. Then grasping the injured arm with both hands he should make extension and exert counter-pressure by putting the heel in the armpit, using the right heel for the right armpit, and the left for the left. In the hollow of the armpit one should put something round fitted to it,—the very small and hard balls such as are commonly sewn up from bits of leather are most suitable. For, unless something of the kind is inserted, the heel cannot reach the head of the humerus, for when extension is made on the arm the axilla becomes hollow and the tendons on either side of it form an obstacle by their contraction. Someone should be seated on the other side of the patient undergoing extension to fix the sound shoulder so that his body is not drawn round when the injured arm is pulled the other way.

¹ "Because without traction," Apollon., referring to Fract. I.
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ομένης· ἐπειτὰ ἰμάντος μαλθακοῦ πλάτος ἔχοντος ἰκανοῦ, ὅταν ἡ σφαῖρη ἐνετῇ ἐς τὴν μασχάλην, περὶ τὴν σφαῖραν περιβεβλημένον τοῦ ἰμάντος, καὶ κατέχοντος, λαβόμενον ἀμφοτέρων τῶν ἀρχέων τοῦ ἰμάντος, ἀντικατατείνει τινά, ὑπὲρ τῆς κεφαλῆς τοῦ κατατεινομένου καθήμενον, τῷ πολὺ προσβάντα πρὸς τοῦ ἀκρωμίου τὸ ὀστέον. ἡ δὲ σφαῖρα ὡς ἐσωτάτω καὶ ὡς μάλιστα πρὸς τῶν πλευρέων κείσθω, καὶ μὴ ἔπι τῇ κεφαλῇ τοῦ βραχίωνος.

IV. "Εστὶ δὲ καὶ ἄλλη ἐμβολή, ἣ κατωμίζουσιν ἐς ὀρθὸν· μείζω μέντοι εἶναι χρή τὸν κατωμίζοντα, διαλαβόντα δὲ τὴν χείρα ὑποθεύναι τὸν ὄμον τῶν ἐωτοῦ ὑπὸ τὴν μασχάλην ἰξῖν· καπείτα ὑποστρέφαι, ὡς ἄν ἐνίκηται ἔδρη, οὔτω στοχαστικῶς ὁπως ἀμφὶ τὸν ὄμον τῶν ἐωτῶν κρεμᾶσαι τὸν ἀνθρωπον κατὰ τὴν μασχάλην· αὐτὸς δὲ ἐωτὸν ὑψηλότερον ἐπὶ τούτων τὸν ὄμον ποιεῖτω ἡ ἐπὶ τὸν ἔτερον· τοῦ δὲ κρεμαμένου τὸν βραχίωνα πρὸς τὸ ἐωτόν στήθος προσαναγκαζέτω ὡς μάλιστα· εἴ τοῦτο δὲ τῷ σχῆματι προσανασειέτω, ὁπόταν μετεωρίσῃ τὸν ἀνθρώπον, ὡς ἀντιρρέτοι τὸ ἄλλο σῶμα αὐτῷ, ἀντίοι τοῦ βραχίωνος τοῦ καταχωμένου· ἢν δὲ ἄγαν κοῦφος ἢ ὁ ἀνθρωπος, προσεπεκρεμασθήτω τούτου ὁπισθεν τις κοῦφος παῖς. αὐταὶ δὲ ἐμβολαὶ πᾶσαι κατὰ παλαιότητην εὐχρηστοὶ

1 ὡς κατωμίζουσιν Galen. Kw. 2 ὃταν—ἀντιρρέπῃ. 3 προσεπεκρεμασθήτω.
ON JOINTS, iii.–iv.

Take, besides, a fairly broad strap of soft leather, and after the ball is put into the armpit, the strap being put round and fixing it, someone, seated at the head of the patient undergoing traction, should make counter-extension by holding the ends of the strap, and pressing his foot against the top of the shoulder-blade. The ball should be put as far into the armpit and as near the ribs as possible, not under the head of the humerus.¹

IV. There is another mode of reduction in which they put it right by a shoulder lift²: but he who does the shoulder lift must be the taller. Grasping the patient’s arm, let the operator put the point of his own shoulder under his armpit, then make a turn that it may get seated there, the aim of the manœuvre being to suspend the patient from his shoulder by the armpit. He should hold this shoulder higher than the other, and press in the arm of the suspended patient as far as possible towards his own chest. In this attitude let him proceed to shake the patient when he lifts him up, so that the rest of the body may act as a counterpoise to the arm which is held down. If the patient is very light, a boy of small weight should be suspended to him from behind. All these methods are very useful in the palaestra, since they do not require located his collar-bone. He rightly remarks that the little ball cannot be put between the ribs and the head of the bone. XVIII(1), 332.

² All editors who translate ἐσ ἀφθονίᾳ make it mean “standing.” Föeς-Erm: “in erecti et stantis humerum aeger extollitur”; Littré-Adams, “performed by the shoulder of a person standing”; Petrequin alone prefers the patient—“sur le malade debout.” But after all the expression seems to go best with the verb.
ΠΕΡΙ ΑΡΘΡΩΝ

eἰσιν, ὅτι οὐδὲν ἀλλοίων ἀρμένων δέονται ἐπεισενε- 19 εχθῆμαί· χρήσαιτο δ' ἂν τις καὶ ἄλλῳς.

V. Ἀτάρ καὶ οἱ περὶ τὰ υπέρα ἀναγκάζοντες ἑγγὺς τι τοῦ κατὰ φύσιν ἐμβάλλουσιν. χρῆ δὲ τὸ μὲν υπέρου κατειλίχθαι ταινίᾳ τινὶ μαλθακῇ —ἡσον γὰρ ἄν υπολισθάνοι—ὑπηναγκάσθαι δὲ μεσημίᾳ τῶν πλευρῶν καὶ τῆς κεφαλῆς τοῦ βραχίονος· καὶ ἢν μὲν βραχὺ ή τὸ υπέρου, καθήσαται χρῆ τὸν ἀνθρωπὸν ἐπὶ τινὸς ὡς μόλις τὸν βραχίονα περιβάλλειν δύνηται περὶ τὸ υπέρου· μάλιστα δὲ ἐστὶν μακρύτερον τὸ υπέρον, ως ἄν ἐστεώς ὁ ἀνθρωπὸς κρέμασθαι μικροῦ δέν άμφι τῷ ἔλυσ. κάπετα ὁ μὲν βραχίων καὶ ὁ πῆχυς παρατεταμένος παρὰ τὸ υπέρον ἐστώ, τὸ δὲ ἐπὶ θάτερα τοῦ σώματος καταναγκαζότω τις, περιβάλλων κατὰ τὸν αὐχένα παρὰ τὴν κληίδα τὰς χεῖρας. αὐτή η ἐμβολὴ κατὰ φύσιν ἐπιεικέως ἐστὶ καὶ ἐμβάλλειν δύναται, ἢν χρηστῶς σκεύα-

17 σώνται αὐτήν.

VI. Ἀτάρ καὶ ἢ διὰ τοῦ κλιμακίου ἐτέρῃ τις τοιαύτη, καὶ ἐτὶ βελτίων, ὅτι ἀσφαλεστέρως ἀν τὸ σῶμα, τὸ μὲν τῇ, τὸ δὲ τῇ ἀυτισθηκωθῆ μετεωρισθέν· περὶ γὰρ τὸ ὑπεροεῖδὴς ὁ ὅμος ἢ καὶ καταπεπήγη, περισφάλλεσθαι τὸ σῶμα κίνδυνος ἢ τῇ ἢ τῇ. χρῆ μέντοι καὶ ἐπὶ τῷ κλιμακτήρι ἐπιδεδέσθαι τι ἀνωθὲν στρογγύλῳ ἐνάρμοσον ἐς τὸ κοίλον τῆς μασχάλης, ἕ προσδιαναγκάζει τὴν κεφαλήν τοῦ βραχίωνος ἐς 10 τὴν φύσιν ἀπείναι.

VII. Κρατίστη μέντοι πασέων τῶν ἐμβολῶν ἢ τοιῇδε· ἔλυσιν χρῆ εἶναι πλάτος μὲν ὡς πενταδάκτυλον, ἢ τετραδάκτυλον τὸ ἐπίπαν, 208
further bringing in of apparatus, and one might also use them elsewhere.

V. Again, those who reduce by a forcible movement round pestles come fairly near the natural method. The pestle should have a soft band wrapped round it (for this will make it less slippery) and be pressed in between the ribs and the head of the humerus. If the pestle is short the patient should be so seated on something that he can just get his arm over it, but as a rule the pestle should be rather long so that the patient when erect is almost suspended on the post. Then let the arm and forearm be pulled down beside the pestle, while an assistant putting his arms round the patient's neck at the collar-bone forces the body down on the other side. This method is tolerably natural and able to reduce the dislocation if they arrange it well.

VI. Again there is another similar method with the ladder, which is still better, since the body when lifted up is more safely kept in equilibrium on either side. For with the pestle, though the shoulder may be fixed, there is danger of the body slipping round to one side or the other. But on the ladder-step also something rounded should be fastened on the upper side, which, fitting into the hollow of the armpit, helps to force the head of the humerus back to its natural place.

VII. The most powerful of all methods of reduction, however, is the following. There should be a piece of wood about five, or four fingers in breadth
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πάχος δὲ ὡς διδάκτυλον ἢ καὶ λεπτότερον, μῆκος δὲ δίπηχυ, ἢ καὶ ὀλίγῳ ἐλασσον. ἔστω δὲ ἐπὶ θάτερα τὸ ἀκρον περιφερές καὶ στενότατον ταύτη καὶ λεπτότατον. ἀμβην δὲ ἐχέτω σμικρὰν ὑπερέχουσαν ἐπὶ τῷ ὑστάτῳ τοῦ περιφερέως, ἐν τῷ μέρει, µῆ τῷ πρὸς τὰς πλευρὰς, ἀλλὰ τῷ πρὸς τὴν κεφαλὴν τοῦ βραχίωνος ἐχοντι, ὡς υφαρμόσειε τῇ μασχάλῃ παρὰ τὰς πλευρὰς ὑπὸ τὴν κεφαλὴν τοῦ βραχίωνος υποτιθέμενον ὀδονίω δὲ ἤ ταινία μαλθακῆ κατακεκολλήσθω ἀκρον τὸ ἔγουν, ὅπως προσηνέστερον ἃ. ἔστειτα χρῆ, ὑπώσαντα τὴν κεφαλὴν τοῦ ἕγουν ὑπὸ τὴν μασχάλην ὡς ἐσωτάτῳ μεσηγι τῶν πλευρέων καὶ τῆς κεφαλῆς τοῦ βραχίωνος, τὴν δὲ ὀλην χεῖρα πρὸς τὸ ἕγουν κατατείναντα προσκαταδίησαι κατά τε τὸν βραχίωνα, κατά τε τὸν πῆχυν, κατὰ τε τὸν καρπὸν τῆς χειρός, ὡς ἀν ἀτρεμῆ ὅτι μάλιστα· περὶ παυτὸς δὲ χρῆ ποιεῖσθαι, ὅπως τὸ ἀκρον τοῦ ἔγουν ὡς ἐσωτάτῳ τῆς μασχάλης ἐσται, ὑπερβεβηκός τὴν κεφαλὴν τοῦ βραχίωνος. ἔστειτα χρῆ μεσηγι δύο στῦλων στρωτῆρα πλάγιον εὖ προσδίησαι, ἔστειτα ὑπερενεγκείν τὴν χεῖρα σὺν τῷ ἕγουν ὑπὲρ τοῦ στρωτῆρος. ὅπως ἢ μὲν χείρ ἐπὶ θάτερα ἢ, ἐπὶ θάτερα δὲ τὸ σῶμα, κατὰ δὲ τὴν μασχάλην ὁ στρωτήρ κάπειτα ἐπὶ μὲν θάτερα τὴν χείρα καταναγκάζειν σὺν τῷ ἕγουν περὶ τὸν στρωτῆρα, ἐπὶ θάτερα δὲ τὸ ἀλλὸ σῶμα. ὑψος δὲ ἔχων ὁ στρωτήρ προσδεδέσθω, ὡστε μετέωρον τὸ ἀλλὸ σῶμα εἶναι ἐπὶ ἀκρον τῶν ποδῶν. ὅπως ο ὁ τρόπος παρὰ πολὺ κράτιστος ἐμβολῆς ὄμοιος ὑπεκινότατα μὲν γὰρ μοχλεύει, ἢν καὶ μούνον ἑσωτέρω ἢ τὸ ἔγουν τῆς κεφαλῆς 210
as a rule, about two fingers thick or even thinner, and in length two cubits or a little less. Let it be rounded at one end and be thinnest and narrowest there, and at the extremity of the rounded end let it have a slightly projecting rim (ambé) not on the side towards the ribs but on that towards the head of the humerus, so as to fit into the armpit when inserted along the ribs under the head of the humerus, and the end of the wood should have linen or a soft band glued over it that it may be more comfortable. One should then insert the tip of the instrument as far as possible under the armpit between the ribs and the head of the humerus, and extending the whole arm along the wood, fasten it down at the upperarm, forearm and wrist, so as to be as immobile as possible. Above all, one should manage to get the tip of the instrument as far into the armpit as possible, up above the head of the humerus. Then a cross-bar should be firmly fastened between two posts and next one should bring the arm with the instrument over the bar, so that the arm is on one side, the body on the other and the cross-bar at the armpit. Then on one side press down the arm with the instrument round the beam, on the other side the rest of the body. The beam should be fastened at such a height that the rest of the body is suspended on tiptoe. This is by far the most powerful method for reducing the shoulder, for it makes the most correct leverage, if only the instrument is well on

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1 Omit kal.
2 épí.
ΠΕΡΙ ΑΡΘΡΩΝ

tοῦ βραχίωνος· δικαιόταται δὲ αἱ ἀντιρρόπαι, ἀσφαλεῖς δὲ τῷ ὀστέῳ τοῦ βραχίωνος. τὰ μὲν οὖν νεαρὰ ἐμπίπτει θᾶσσον ἡ ὁσὶ ἃν τις οἴοιτο, πρὶν ἢ καὶ κατατετάσθαι δοκεῖν· ἀτὰρ καὶ τὰ παλαιὰ μοῦνη αὖτη τῶν ἐμβολέων οὔτε τε ἐμβιβάσαι, ἢν μὴ ἤδη ὑπὸ χρόνου σάρξ μὲν ἐπεληλύθη ἐπὶ τὴν κοτύλην, ἢν δὲ κεφαλὴ τοῦ βραχίωνος ἤδη τρίβον ἑωτῇ πεποιημένῃ ὡς ἐν τῷ χώρῳ, ὲνα ἕξεκλίθην· οὐ μὴν ἀλλ' ἐμβάλλειν γάρ μοι δοκεῖ καὶ οὕτω πεπαλαιωμένον ἐκπτωμα τοῦ βραχίωνος—τί γὰρ ἂν δικαίαν μόχλευσις οὐχὶ κινήσειν;—μένειν μέντοι οὐκ ἃν μοι δοκεῖι κατὰ χώρην, ἀλλ' ὀλισθάνειν ἃν ὡς τὸ ἐδος.

Τὸ αὐτὸ δὲ ποιεῖ καὶ περὶ κλιμακτήρα καταναγκάζειν τοῦτον τὸν τρόπον σκευάσαντα. πάνυ μὴν ἱκανῶς ἔχει καὶ περὶ μέγα ἐδος Θεσσαλίκου ἀναγκάζειν, ἢν νεαρὸν ἢ τὸ ὀλίσθημα. ἐσκευάζει μέντοι χρὴ τὸ ξύλον οὕτως, ὥσπερ εἰρηται· ἀτὰρ τὸν ἀνθρωπὸν καθίσαι πλάγιον ἐπὶ τῷ δίφρω. κατεῖτα τὸν βραχίωνα σὺν τῷ ξύλῳ ὑπερβάλλειν ὑπὲρ τοῦ ἀνακλισμοῦ, καὶ ἐπὶ μὲν θάτερα τὸ σῶμα καταναγκάζειν, ἐπὶ δὲ θάτερα τὸν βραχίωνα σὺν τῷ ξύλῳ. τὸ αὐτὸ δὲ ποιεῖ καὶ ὑπὲρ δίκλειδος θύρης ἀναγκάζειν. χρῆσθαι δὲ χρὴ αἰεὶ τοῦτοισιν, ἃ ἃν τὴν παρεώντα.

VIII. Εἰδεναι μὲν οὖν χρὴ ὅτι φύσεις φυσίων

1 ἄν μοι δοκέωι. 2 ἐς τὸ. 3 ποιεῖν.

1 An old-fashioned straight-backed chair, Galen. Adams is enthusiastic over this method. For the ambé fasten a jack-towel above the patient’s elbow: put your foot in the loop and gradually increase the tension. You will do the
ON JOINTS, vii.–viii.

the inner side of the head of the humerus. The counterpoise is also most correct and without risk to the bone of the arm. Indeed, recent cases are reduced more rapidly than one would believe, even before any apparent extension has been made, while, as for old standing cases, this method alone is able to reduce them, unless by lapse of time the tissues have already invaded the articular cavity and the head of the humerus has made a friction cavity for itself in the place to which it has slipped. Nevertheless I think it would reduce even so inveterate a dislocation of the arm—for what would not correct leverage move?—but I should not suppose it would stay in position, but slip back to its old place. The same result is obtained by pressure round the rung of a ladder, arranging it in the same way. Also the operation is very effectively done on a large Thessalian chair, if the dislocation is recent. In this case the wooden instrument should be prepared as directed while the patient is seated sideways on the chair. Then put the arm with the instrument over the chair-back, and press down the body on one side, and the arm with the instrument on the other. The same result is obtained by operating over (the lower half of) a double door. One should always make use of what happens to be at hand.

VIII. One should bear in mind that there are

job quickly, safely and almost pleasantly, if the arm and chair top are properly padded.

1 Apollonius strangely illustrates this by an ordinary vertical (folding) double door. As Galen points out, it refers to doors which open in two halves above and below, usually with a cross-bar between.
μέγα διαφέρουσιν ἐς τὸ ῥηίδῳς ἐμπίπτειν τὰ ἐκπίπτοντα· διενεχοὶ μὲν γὰρ ἂν τι καὶ κοτύλη κοτύλης, ἢ μὲν εὐπέρβατος έόυσα, ἢ δὲ ἦσσον· πλεῖστον δὲ διαφέρει καὶ τῶν νεύρων ὁ σύνδεσμος, τοῖσι μὲν ἐπιδόσιας ἐχοὺς, τοῖσι δὲ συντεταμένοις [έόν]. 

καὶ γὰρ ἡ υγρότης τοῖσι ἀνθρώποις γίνεται ἢ ἐκ τῶν ἄρθρων, διὰ τῶν νεύρων τὴν ἀπάρτισιν, ἦν χαλαρά τε ἦ φύσει καὶ τὰς ἐπιτάσσιας εὐφόρως φέρῃ· συχνὸς γὰρ ἂν τις ἴδοι, οἷς οὕτως υγρῷ εἴσιν, ἢςτε, ὅποταν ἐθέλωσι, τότε ἐαυτοῖσι τὰ ἄρθρα ἐξίστανται ἄνωθεν, καὶ καθίστανται ἄνωθεν. διαφέρει μέντοι τι καὶ σχέσις τοῦ σώματος· τοῖσι μὲν γὰρ εὑ ἔχουσι τὸ γνῦν καὶ σεσαρκωμένοις ἐκπίπτει τε ἦσσον, ἐμπίπτει δὲ χαλεπώτερον· ὅταν δὲ αὐτοὶ σφέων αὐτῶν λεπτότεροι καὶ ἁσαρκότεροι ἔωσι, τότε ἐκπίπτει τε μᾶλλον, ἐμπίπτει δὲ ῥάον. σημεῖον δὲ, ὅτι ταύτα οὕτως ἔχει, καὶ τόδε· τοῖσι γὰρ βους· τοῖσι ἐκπίπτουσι μᾶλλον οἱ μήροι ἐκ τῆς κοτύλης, ἵναν ἐκ αὐτῶν σφέων αὐτῶν λεπτότατοι ἔωσιν· γίνονται δὲ βόες λεπτότατοι, τοὺς χειμώνους τελευτῶντος· τότε οὖν καὶ ἑξαρθρεύουσι μάλιστα, εἰ δὴ τι καὶ τοιοῦτο δεῖ ἐν ἱηρικῇ γράψαι· δεῖ δὲ· καλῶς γὰρ "Ομηρος καταμεμαθήκει, ὅτι πάντων τῶν προβάτων βόες μάλιστα πονέουσι" ταύτην τὴν ὄρη, καὶ βοῶν οἱ ἄροται, ὅτι [κατὰ] τὸν χειμώνα ἐργάζονται· τοῦτοι τοῖνυν καὶ ἐκπίπτει μάλιστα· οὕτω γὰρ μάλιστα λεπτύνονται·

30 τὰ μὲν γὰρ ἀλλὰ βοσκῆματα δύναται βραχεῖν τὴν ποίην βόσκεσθαι· βοῦς δὲ οὐ μᾶλα, πρὶν βαθείᾳ γένηται· τοῖσι μὲν γὰρ ἀλλοισίν ἐστὶ λεπτῇ ἡ προβολὴ τοῦ χείλεος, λεπτῇ δὲ ἡ ἀνω

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great natural diversities as to the easy reduction of dislocations. There may be some difference in the sockets, one having a rim easy to cross, the other one less so; but the greatest diversity is the attachment of the ligaments, which in some cases is yielding, in others constricted. For the humidity in individuals as regards the joints comes from the disposition of the ligaments which may be slack by nature and easily lend themselves to extensions. In fact one may see many persons of so humid a temperament that when they choose they can dislocate and reduce their joints without pain. The state of the body makes a further difference, for in those who are muscular and have the limb in good condition dislocation is rarer and reduction more difficult, but when they are thinner and less muscular than usual dislocation is more frequent and reduction easier. The following also shows that this is so. In the case of cattle the thigh bones get dislocated from the socket when they are at their thinnest. Now cattle are thinnest at the end of winter, and it is then especially that they have dislocations, if indeed such a matter should be cited in a medical work. And it should be, for Homer has well observed that of all farm beasts cattle suffer most during this season, and among cattle the ploughing oxen because they work in the winter. It is in these, then, that dislocation especially occurs, for they are especially attenuated. For other farm animals can graze on herbage while short, but cattle can hardly do so till it is long, since in the others the projection of the lip is thin,
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γνάθος· Βοή δὲ παχείη μὲν ἡ προβολὴ τοῦ χείλεος, παχείη δὲ καὶ ἀμβλεία ἡ ἀνω γνάθος· διὰ ταῦτα ὑποβάλλειν ὑπὸ τὰς βραχείας ποίας οὐ δύναται. τὰ δὲ αὐ μῶνυχα τῶν ζώων, ἀτε ἀμφώδοντα ἐόντα, δύναται μὲν σαρκάζειν, δύναται δὲ ὑπὸ τὴν βραχείην ποίην ὑποβάλλειν τοὺς ὀδόντας, καὶ ἢδεται τῇ οὖτως ἐχούσῃ ποίῃ μᾶλλον ἡ τῇ βαθείῃ καὶ γὰρ τὸ ἐπίπαν ἀμείων καὶ στερεωτῆρῃ ἡ βραχείη ποίη τῆς βαθείης ποτὶ καὶ πρὶν ἐκκαρπέων τὴν βαθείην· διὰ τοῦτο οὖν ἐποίησεν ὁδὲ τάδε τὰ ἔπη—Ὤς δ' ὅποτ' ἀσπάσιον ἔαρ ἠλυθε βουσίν ἐλιξὶν—οτὲ ἁμενοστάτη [τοῖσιν]¹ αὐτοῖσιν ἡ βαθείη ποίη φαίνεται. ἀτάρ καὶ ἄλλως ὁ βοῦς χαλαρὸν φύσει τὸ ἄρθρον τοῦτο ἔχει μᾶλλον τῶν ἄλλων ζώων· διὰ τοῦτο καὶ εἰλίπουν ² ἐστὶ μᾶλλον τῶν ἄλλων ζώων, καὶ μάλιστα ὅταν λεπτὸν ³ καὶ γηραλέων ⁴ ἦ. διὰ ταῦτα πάντα καὶ ἐκπίπτει βοὶ μάλιστα. πλείω δὲ γέγραπται περὶ αὐτοῦ, ὅτι πάντων τῶν προερημένων ταῦτα μαρτύρια ἔστιν.

Περὶ οὖν οὗ ὁ λόγος, τοῖσιν ⁵ ἀσάρκιοις μᾶλλον ἐκπίπτει καὶ θάσσον ἐμπίπτει ἡ τοῖσιν εὐ σεσαρκωμένοις· καὶ ἡ σοῦν ἐπιφλεγμαίνει τοῖσι ϊγροῖσι καὶ τοῖσιν ἀσάρκιοισιν ἡ τοῖσι σκελιφροῖσι ⁶ καὶ σεσαρκωμένοισι, καὶ ἡ σοῦν γε δέδεται ἐς τῶν ἐπείτα χρόνων· ἀτάρ καὶ εἰ μῦξα πλείων ὑπείη τοῦ μετρίου μὴ σῦν φλεγμονῆ, καὶ οὕτως ἀν ὀλισθηρὸν εὑ, μυξωδέσ-

¹ Omit Littré, Erm. Kw.
² εἶλιποῦς: Erm.'s correction which Kw. follows as with the other adjectives, but they surely go with ζώων.
³ λεπτός.
⁴ γέρων.
as is also the upper jaw, but in the ox the projection of the lip is thick and the upper jaw thick and blunt, wherefore he cannot grasp the short herbage. But the solid-hoofed animals, having a double row of teeth, can not only browse but can also grasp the short herbage with their teeth, and they prefer this kind to the long grass. In fact the short grass is on the whole better and of more substance than the long, especially when the long is just going to seed. It is in allusion to this that he wrote the following verse:

“As when the season of spring arrives welcome to crumple-horned cattle,”¹

because the long grass appears most welcome to them. Moreover in the ox this joint is generally more lax than in other animals, and for this reason it has a more shambling gait than other animals, especially when it is thin and old. For all these reasons the joint is especially liable to dislocation in the ox, and more has been written about it because these facts testify to all the preceding statements.

To return to the subject, dislocation occurs more easily and is more quickly reduced in emaciated than in muscular persons, and inflammation more rarely supervenes in the moist and thin than in muscular subjects of a dry habit, but the joint is not so firm afterwards. Further, if an excess of mucous substance is engendered without inflammation, this too will make it liable to slip, and, on

¹ Not in our Homer.
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tera γαρ τούπίπαν τα άρθρα τοίσι άσάρκουσι
η τοίσι σεσαρκωμένους εστίν καὶ γαρ αύτα
αι σάρκες των μη ἀπο τέχνης ὅρθως 1 λελι-
μαγχημένων, αι των λεπτῶν μυξωδέστεραι εἰσιν
η αι των παχέων. ὅσοισι μέντοι σων φλεγμονή
mύξα ὑπογίνεται, ἡ φλεγμονή δήσασα ἔχει τὸ
άρθρον. διὰ τούτο οὐ μᾶλα ἐκπίπτει τα ὑπόμυξα,
ἐκπίπτοντα ἂν, εἰ μὴ τι ἡ πλέον ἡ ἐλασσον
70 φλεγμονής ὑπεγένετο.

IX. Οἶσι μὲν οὖν ὅταν ἡ ἐμπέσῃ τὸ άρθρον καὶ
μὴ ἐπιφλεγμήηῃ τὰ περιέχοντα, χρῆσθαι τε
ἀνωδύνως αὐτίκα τῷ ὁμίῳ δύνανται, οὕτωι μὲν
οὐδὲν νομίζουσι δειν ἑωτῶν ἐπιμελεῖσθαι· ιητροῦ
μὴν ἐστι καταμαντεύσασθαι τῶν τοιούτων· τοίσι
τοιούτοισι γὰρ ἐκπίπτει καὶ αὕτης μᾶλλον ἡ
ὁσιν ἃν ἐπιφλεγμήηῃ τὰ νεῦρα. τοῦτο κατὰ
πάντα τὰ άρθρα οὕτως ἔχει, καὶ μάλιστα κατ' ὁμιὸν καὶ κατὰ γόνυ· μάλιστα γὰρ οὖν καὶ
ὁλοθανίει ταῦτα. οἶσι δ' ἃν ἐπιφλεγμήηῃ [τὰ
νεῦρα], 3 οὐ δύνανται χρῆσθαι τῳ ὁμῆῳ κωλύει
γαρ ἡ ὁδύνη καὶ ἡ σύντασις τῆς φλεγμονῆς.
τοὺς οὖν τοιούτους ἱήσθαι χρὴ κηρωτῇ καὶ
σπλήνεσι καὶ ὀθοίουσι πολλοῦσι ἐπιδεώντας·
ὑποτιθέναι δὲ ἐς τὴν μασχάλην εἵριον μαλθάκον
καθαροῦ συνειλίσσουται ἐκπλήρωμα τοῦ κοίλου
ποιοῦντα ἵνα ἀντιστήριγμα μὲν τῇ ἐπιδέσει ἡ,
ἀνακωχῇ δὲ τὸ ἄρθρον· τὸν δὲ βραχίονα χρῆ ἐς
tὸ ἄνω ῥέοντα ἵσχειν τὰ πλείστα· οὕτω γὰρ
20 ἃν ἐκαστάτω εἰς τοῦ χωρίου ἐς ὃ ὀλισθευν ἡ
κεφαλή τοῦ ὁμίου· χρὴ δὲ, ὅταν ἐπιδήσῃς τὸν

1 ὅρθης. 2 ἀν, Littre's suggestion. 3 Omit B, Kw.
the whole, the joints of emaciated persons contain more mucus than those of muscular individuals. One sees, in fact, that these tissues in emaciated persons, who have not been normally reduced according to the principles of the art, have more mucosity than those of stout people. But in those in whom mucus develops along with inflammation, the inflammation keeps the joint firm. This is why the joints do not often get dislocated from a slight excess of mucus, though they would do so were there not more or less inflammation at the bottom of it.

IX. Should, however, no inflammation of the surrounding parts supervene after the reduction of the joint, patients can at once use the shoulder without pain, and these persons think there is no further necessity to take care of themselves. It is, then, the practitioner's business to act the prophet for such, for it is in such that dislocation occurs again, rather than in cases where inflammation of the ligaments may have supervened. This is the case with all joints and especially those at the shoulder and knee, for they are specially liable to dislocation. Those in whom inflammation may have supervened cannot use the shoulder, for the pain and inflammatory tension prevents it. One should treat such cases with cerate, compresses, and plenty of bandages, also put a soft roll of cleansed wool under the armpit, making a plug for the cavity that it may form a fulcrum for the bandage and prop up the head of the bone. The arm should be kept as far as possible pressed upwards, for so the head of the humerus will be furthest from the place into which it was dislocated. After bandaging the shoulder you should proceed to fasten
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ωμον, ἔπειτα προσκαταδείν τὸν βραχίονα πρὸς τὰς πλευρὰς ταινίᾳ τωὶ κύκλῳ περὶ τὸ σώμα περιβάλλοντα. χρῆ δὲ καὶ ἀνατρίβειν τὸν ωμον ἕσυχαις καὶ λιπαρῶς πολλῶν ἐμπειρόν δεῖ εἶναι τὸν ἵπτρόν, ἀτὰρ δὴ καὶ ἀνατρίψιος· ἀπὸ τοῦ αὐτοῦ ὀνόματος οὐ τωτὸ ἀποβαίνει· καὶ γάρ ἂν δῆσειεν ἄρθρον ἀνάτριψι, χαλαρώτερον τοῦ καιροῦ ἐόν, καὶ λύσειεν ἄρθρον σκληρότερον τοῦ καιροῦ ἐόν· ἄλλα διοριεῖται ἡμῶν περὶ ἀνατρίψιος ἐν ἄλλῳ λόγῳ. τὸν γούν τοιοῦτον ὦμον μαλθακῆς τε χερσίν ἀνατρίβειν συμφέρει, καὶ ἄλλως πρηξέως· τὸ δὲ ἄρθρον διακινεῖν, μή βίη, ἄλλα τοσοῦτον ὅσον ἀνωδύνως κινήσεται. καθίσταται δὲ πάντα, τὰ μὲν ἐν πλέον χρόνῳ, τὰ

30 36 δ’ ἐν ἐλάσσονι.

Χ. Γυνώσκειν δὲ εἰ ἐκπέπτωκεν ὁ βραχίων τοιοῦτος χρῆ τοΐς σημείοισι· τοῦτο μὲν, ἐπειδὴ δίκαιον ἔχουσι τὸ σώμα οἱ ἄνθρωποι, καὶ τὰς χειρὰς καὶ τὰ σκέλεα, παραδείγματι χρησθαι δεὶ τῷ υγείᾳ πρὸς τὸ μή υγείας, καὶ τῷ μή υγείᾳ πρὸς τὸ υγείας, μή τὰ ἀλλότρια ἄρθρα καθοροῦντα· ἀλλοι γὰρ ἀλλοι μᾶλλον ἔξαρθροι πεφύκασιν· ἀλλὰ τοῦ αὐτοῦ τοῦ κάμνοντος, ἢν ἀνόμοιον ἢ τὸ υγείας τῷ κάμνοντι. καὶ τοῦτο

10 εἰρηται μὲν ὄρθως, παρασύνεσιν δὲ ἔχει πάνω πολλὴν εἰδὰ τὰ τοιαῦτα, καὶ οὐκ ἄρκει μοῦνον λόγῳ εἰδέναι τὴν τέχνην ταύτην, ἄλλα καὶ ὀμιλίη ὀμιλείν πολλοὶ γὰρ, ύπὸ ὀδύνης, ἢ καὶ ύπ’ ἀλλοίης προφάσιος, οὐκ ἔξεστεώτων αὐτοίσι τῶν ἄρθρων, ὡμοὶ οὐ δύνανται ἐς τὰ ὰμοία σχήματα καθεστάναι ἐς οἷά περ τὸ υγιαίνον σῶμα σχηματίζεται· προσυνινέαν μὲν οὖν καὶ
the arm to the side with some sort of band, passing it horizontally round the body, and the shoulder should be gently and perseveringly rubbed. The practitioner must be skilled in many things and particularly in friction (massage). Though called by one name it has not one and the same effect, for friction will make a joint firm when looser than it should be, and relax it when too stiff. But we shall define the rules for friction in another treatise. Now, for such a shoulder the proper friction is that with soft hands, and always gently. Move the joint about, without force, but so far as it can be moved without pain. All symptoms subside,¹ some in a longer, others in a shorter time.

X. A dislocation of the humerus may be recognised by the following signs. First, since men's bodies are symmetrical as to arms and legs, one should use the sound in comparison with the unsound, and the unsound with the sound; not observing other people's joints (for some have more projecting joints than others), but those of the patient himself, to see if the sound one is dissimilar to the one affected. And though this is correct advice there is a good deal of fallacy about it.² This is why it is not enough to know the art in theory only, but by familiar practice. For many persons owing to pain or some other cause, though their joints are not dislocated, cannot hold themselves in the attitude which the healthy body assumes. One must, therefore, take this also into

¹ "All joints re-establish themselves." Pq.; "Things get restored," Adams.
² K. punctuates after τοιαύτα.

¹ ὑγιήςν.
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ἐννοεῖν καὶ τὸ τοιόντες σχῆμα χρῆ. ἀτὰρ καὶ ἐν τῇ μασχάλη ἡ κεφαλῆ τοῦ βραχίονος φαίνεται.

20 ἐγκειμένη πολλῷ μᾶλλον τοῦ ἐκπεπτωκότος ἡ τοῦ υγιεός τοῦτο δὲ, ἀνωθέν κατὰ τὴν ἐπωμίδα κοῖλον φαίνεται τὸ χωρίον καὶ τὸ τοῦ ἀκρωμίου ὀστέον ἔξοχον ἑξίχων φαίνεται, ἀτε ὑποδεικνύσαι τοῦ ἄρθρου ἐς τὸ κάτω τοῦ χωρίου—παρασύνεσιν μὴν καὶ ἐν τούτῳ ἑχει τινά, ἀλλὰ ύστερον περὶ αὐτοῦ γεγράφεται, ἄξιον γὰρ γραφῆς ἐστὶ—

tοῦτο δὲ, τοῦ ἐκπεπτωκότος ὁ ἁγικὸν φαίνεται ἀφεστεῶς μᾶλλον ἀπὸ τῶν πλευρῶν ἡ τοῦ ἔτερου εἰ μέντοι τις προσαναγκάζοι, προσάγεται μὲν ἐπιπόνος δὲ τοῦτο δὲ, ἀνω τὴν χεῖρα ἄραι εὐθείᾳ παρὰ τὸ οὕς, ἐκτεταμένου τοῦ ἁγικοῦν, ὡς μάλα δύνανται, ὡσπερ τὴν υγιέα, οὐδὲ παράγειν ἐνθα καὶ ἐνθα ὁμοίως. τά τε οὖν σημεῖα ταῦτα ἐστίν, ὡμον ἐκπεπτωκότος. αἱ δὲ ἐμβολαὶ αἱ γεγραμμέναι αἱ τε ιατρεῖαι αὕται.

30 XI. Ἐπάξιον δὲ τὸ μάθημα ὡς χρῆ ἱητρεύειν τοὺς πυκνὰ ἐκπίπτοντας ὠμοὺς. πολλοὶ μὲν γὰρ ἦδη ἀγωνίης ἐκωλύθησαν διὰ ταύτην τὴν συμφορὴν, τάλλα πάντα ἀξιοχρημίου ἐόντες πολλοὶ δὲ ἐν πολεμικοὶς ἀχρησίως ἐγένοντο καὶ διεφθάρησαν διὰ ταύτην τὴν συμφορῆν./

10 ἄμα τε ἐπάξιον καὶ διὰ τοῦτο, ὅτι οὐδένα οἶδα ὀρθῶς ἱητρεύοντα, ἀλλὰ τοὺς μὲν μηδὲ ἐγχειρέουτας, τοὺς δὲ ταναντία τοῦ συμφέροντος φρονεώτας τε καὶ ποιέοντας. συχνός γὰρ ἦδη ἱητροῦ ἐκαυσαν ὠμοὺς ἐκπιπτοντας, κατὰ τε τὴν

1 τοῦτο μὲν Ἀπολλ. Β.Κω. 2 ἔξοχον. 3 πολέμοις ἀχρείοι. 222
ON JOINTS, x.-xi.

consideration and have such a position in mind. Now, first, the head of the humerus is much more obvious in the armpit on the injured than on the sound side. Again, towards the top of the shoulder the part appears hollow, while the bone at the shoulder-point (acromion) is seen to project, since the articular end of the humerus has sunk to the lower part of the region. Yet there is some fallacy in this too, but it will be described later, for it merits description. Again the elbow of the dislocated limb obviously stands out more from the ribs than that of the other. If, indeed, one should forcibly adduct it, it yields, but with much pain. Further, the patient is quite unable to raise the arm straight alongside the ear, with the elbow extended, as he does with the sound one, or move it about in the same way. These, then, are the signs of a dislocated shoulder, the modes of reduction are the ones described, and these the methods of treatment.

XI. The proper treatment of those whose shoulders are often being dislocated is a thing worth learning. For many have been debarred from gymnastic contests, though well fitted in all other respects, and many have become worthless in warfare and have perished through this misfortune. Another reason for its importance is the fact that I know of no one who uses the correct treatment, some not even attempting to take it in hand, while others have theories and practices the reverse of what is appropriate. For many practitioners cauterize shoulders

1 Reading τούτο μὲν.
2 Cf. *Airs Waters*, XX. on flabby joints of Scythians and their use of cautery.
ἐπωμίδα, κατά τε ἐμπροσθεν, ἢ ἡ κεφαλὴ τοῦ βραχίονος ἐξογκεί, κατά τε τὸ ὀπισθεν ὅλιγον τῆς ἐπωμίδος. αὐται οὖν αἱ καύσεις, εἰ μὲν ἐς τὸ ἄνω ἐξέπτητεν ὁ βραχίῳ, ἢ ἐς τὸ ἐμπροσθεν ἢ ἐς τὸ ὀπισθεν, ὥρθός ἄν ἐκαίνην νῦν δὲ δὴ, ὅτε ἐς τὸ κάτω ἐκπίπτει, ἐκβάλλουσιν αὐταί αἱ καύσεις μᾶλλον ἡ κωλύουσιν· ἀποκλείουσι γὰρ τῆς ἄνω εὐρύχωρης τὴν κεφαλῆν τοῦ βραχίονος.

Χρη δὲ ὅπε καίειν ταύτα: ἀπολαβόντα τοῖς διακτύλουσι κατὰ τὴν μασχάλην τὸ δέρμα, ἀφελκύσαι κατ’ αὐτὴν τὴν ἵξιν μάλιστα, καθ’ ὅν ἡ κεφαλὴ τοῦ βραχίονος ἐκπίπτει· ἐπείτα οὖν ἀφειλκυσμένον τὸ δέρμα, διακάισαι ἐς τὸ πέρην. σιδηρίῳς ὑπὶ χρή ταύτα¹ καίειν, μὴ παχέσι, μηδὲ λίθον φαλακροῖσιν, ἀλλὰ προμῆκει—ταχυπορώτερα γὰρ—καὶ τῇ χειρὶ ἐπερείδειν· χρή δὲ καὶ διαφανέσι καίειν, ὥς ὅτι τάχιστα περαιώθη 30 κατὰ δύναμιν· τὰ γὰρ παχέα βραδεῖως περαιουμένα πλατυτέρας τὰς ἐκπτώσιας τῶν ἐσχαρέων ποιεῖται, καὶ κίνδυνος ἄν εἰη συρραγήσῃ τὰς ὅτειλάς· καὶ κάκιον μὲν οὐδὲν ἄν εἰη, αἰσχιον δὲ καὶ ἀτεχνώτερον. ὅταν διακαύσης ἐς τὸ πέρην, τῶν μὲν πλείστων ἰκανῶς ἄν ἔχοι ἐν τῷ κάτω μέρει τὰς ἐσχάρας ταύτας μοῦνας θείναι: ἢν δὲ μὴ κίνδυνος φαίνηται εἰναι συρραγήσῃ τὰς ὅτειλάς, ἀλλὰ πολὺ τὸ διὰ μέσου ἢ, ὑπάλειπτρον χρῆ λεπτὸν διέρσαι διὰ τῶν καυμάτων, ἐτι 40 ἀναλελημμένου τοῦ δέρματος, οὐ γὰρ ἄν ἄλλος δύνατο διέρσαι· ἐπην δὲ διέρσης, ἀφεῖναι τὸ δέρμα, ἐπείτα μεσηγὶ τῶν ἐσχαρῶν ἄλλην

¹ τὰ τοιάδια.
liable to dislocation at the top and in front where the head of the humerus forms a prominence, and behind a little away from the top of the shoulder. Now these cauterizations would be properly done if the dislocations of the arm were upwards, forwards or backwards, but, as it is, since the dislocation is downwards, these cauterizations rather bring it about than prevent it, for they shut out the head of the humerus from the space above it.

One should cauterize these cases thus:—Grasp the skin at the armpit between the fingers and draw it in the direction towards which the head of the humerus gets dislocated (i.e. downwards), then pass the cautery right through the skin thus drawn away. The cautery irons for this operation should not be thick nor very rounded, but elongated (for so they pass through more quickly), and pressure should be made with the hand. They should be white hot, so that the operation may be completed with all possible speed. For thick irons, since they pass through slowly, leave larger eschars to come away, and there is risk of the cicatrices breaking into one another. This indeed is no great evil, but looks rather bad and shows want of skill. When your cautery has gone right through, these two eschars in the part below will in most cases be sufficient by themselves. But if there seems no risk of the cicatrices breaking into one another, and there is a good interval between them, one should pass a thin spatula through the cautery holes, the skin being still held up, for otherwise you could not pass it. After passing it, let go the skin and then make another eschar between the others with a thin
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ἐσχάρην ἐμβάλλειν λεπτῷ σιδηρίῳ, καὶ διακαίνσαι ἄχρις ἀν τῷ ὑπαλείπτρῳ ἐγκύρῳ. ὁπόσον δὲ τι χρὴ τὸ δέρμα τὸ ἀπὸ τῆς μασχάλης ἀπολαμβάνειν, τοιοῦτος χρὴ τεκμαίρεσθαι. ἀδένες ὑπεισίν ἐκλάσουσι ἢ μείζουσι πᾶσιν ὑπὸ τῇ μασχάλῃ, πολλαχῇ δὲ καὶ ἄλλῃ τοῦ σώματος. ἀλλὰ ἐν ἄλλῳ λόγῳ περὶ ἀδένων οὐλομελίας γεγράψεται, ὅ τι τέ εἰσι, καὶ οἷα ἐν ὅουσι σημαίνουσι τε καὶ δύνανται. τοὺς μὲν οὐν ἀδένας οὐ χρὴ προσ- ἀπολαμβάνειν, οὐδὲ ὅσα ἐσωτέρω τῶν ἀδένων· μέγας γὰρ ὁ κίνδυνος· τοῖς γὰρ ἐπικαιροτάτοις τόνοις γειτονεύονται· ὅσον δὲ ἐξωτέρω τῶν ἀδένων ἐπὶ πλείουστον ἀπολαμβάνειν· ἀπινεά γὰρ. ἵνα ὅσκειν δὲ χρὴ καὶ τάδε, ὅτι ἂν μὲν ἱσχυρός τὸν βραχίονα ἀνατείνῃς, οὗ δυνήσῃ τοῦ δέρματος ἀπολαβεῖν οὐδὲν τοῦ ὑπὸ τῇ μασχάλῃ, δὲ τι καὶ ἄξιον λόγου· καταναίσιμοταί γὰρ ἐν τῇ ἀνατάσει· οἱ δὲ αὖ τόνοι, οὕς οὐδεμιῇ μηχανῇ δεῖ τιτρώσκειν, οὕτως πρόχειροι γίνονται καὶ κατα- τεταμένοι ἐν τούτῳ τῷ σχῆματι· ἢν δὲ σμικρὸν ἐπάρης τὸν βραχίονα, πολὺ μὲν τοῦ δέρματος ἀπολήψῃ, οἱ δὲ τόνοι ὁμοίοι προμηθεύονται, ἔνω καὶ πρὸς τὸν χειρίσματος γίνονται. ἃρ' οὖν οὐκ ἐν πάσῃ τῇ τέχνῃ περὶ παντὸς χρῆ ποιεῖσθαι, τὰ δίκαια σχῆματα ἐξευρίσκειν ἐφ' ἐκάστοις· ταῦτα μὲν τὰ κατὰ τὴν μασχάλην, καὶ ἰκανὰι αὐταί αἱ καταλήψεις, ἢν ὅρθως τεθῶσιν αἱ ἐσχάραι. ἐκτυσθεὶς δὲ τῆς μασχάλης δισσὰ μοῦνά ἐστὶ χωρία, ἢν ἂν τῖς ἐσχάρας θείῃ τιμωρεύσας τῷ παθήματι, μίαν μὲν ἐν τῷ ἐμπροσθεν μεσημβρῇ τῆς τε κεφαλῆς τοῦ βραχίωνος

1 ἀδ'.
cautery, and burn through till you come on to the spatula. The amount of skin that one should take up from the armpit should be estimated thus:—All men have glands, smaller or larger, in the armpit and many other parts of the body.—But the whole structure of glands will be described in another treatise, both what they are, and their signification and function in the parts they occupy.¹—The glands, then, must not be caught up with the skin, nor any parts internal to the glands. The danger, indeed, is great, for they lie close to cords of the utmost importance. But take up as much as possible of what is superficial to the glands, for that is not dangerous. One should also know the following, namely that if you stretch the arm strongly upwards you cannot take up any part of the skin under the armpit worth mentioning, for it is used up for the extension. The cords, again, which must by no means be wounded, come close to the surface and are on the stretch in this attitude; but if you raise the arm slightly you can take up a good deal of skin, while the cords which are to be guarded lie within, and far from the field of operation. Ought we not then, in all our practice, to consider it of the highest importance to discover the proper attitudes in each case? So much for the parts about the armpit, and these gathers (lit. interceptions) suffice if the eschars are properly placed. Outside the armpit there are only two places where one might put eschars efficacious against the malady; one in front between the head of the humerus and the

¹ The extant treatise on glands is an attempt by a later writer to supply this vacancy. Galen XVIII (1), 379.
καὶ τοῦ τένοντος τοῦ κατὰ τὴν μασχάλην· καὶ ταύτη τὸ δέρμα τελέως διακαίειν χρή, βαθύτερον δὲ οὐ χρή· φλέψ τε γὰρ παχεῖν πλησίον καὶ νεῦρα, ἂν οὐδέτερα θερμαντέα. ὅπισθεν τε αὐτὸ ἀλλην ἐσχάρην ἐνδέχεται ἐνθεύναι ἀνωτέρω μὲν συχνῷ τοῦ τένοντος τοῦ κατὰ τὴν μασχάλην,

κατωτέρω δὲ ὄλγῳ τῆς κεφαλῆς τοῦ βραχίωνος· καὶ τὸ μὲν δέρμα τελέως χρὴ διακαίειν, βαθείᾳ δὲ μηδὲ κάρτα ταύτην ποιεῖν· πολέμιον γὰρ τὸ πῦρ νεῦροισιν. ἤτρευεν μὲν οὖν χρὴ διὰ πάσης τῆς ἤτρευσής τὰ ἐλκεα, μιθέποτε ἵσχυρῶς ἀνατείνοντα τὸν βραχίωνα, ἅλλα μετρίως, ὅσον τῶν ἐλκέων ἐπιμελεῖς εἶνεκα· ἢσον μὲν γὰρ ἄν διαψύχοιτο· συμφέρει γὰρ πάντα τὰ καῦματα σκέπειν, ὡς ἐπιεικέως ἤτρευεν· ἢσον δὲ ἄν ἐκπλίσσοιτο· ἢσον δὲ ἄν αἰμορραγοίη· ἢσον δὲ ἄν σπασμὸς ἐπιγένοιτο. ὅποταν δὲ δὴ καθαρά γένηται τὰ ἐλκεα, ἐς ὀπτείλας τε ἦ, τότε δὴ καὶ παντάπασι χρὴ αἰεὶ τὸν βραχίωνα πρὸς τῆς πλευρῆς προσδεδέσθαι, καὶ νῦκτα καὶ ἡμέρην· ἄταρ καὶ ὅποταν υγεία γένηται τὰ ἐλκεα, ὀμοίως ἐπὶ πολὺν χρόνον χρὴ προσδείν τὸν βραχίωνα πρὸς τὰς πλευρὰς· οὕτω γὰρ ἄν μάλιστα ἐπουλωθεί καὶ ἀποληψθεί ἡ εὐρυχωρία, καθ’ ἦν μάλιστα ὅλισθάνει ὁ βραχίων.

ΧΙΙ. Ὅσοις δ’ ἄν ὁμοῖς κατηπορηθῆ ἐμβληθήναι, ἂν μὲν ἐπὶ ἐν αὐξῆσε ἐσώσιν, οὐκ ἐθέλει συναύξεσθαι τὸ ὅστεν τοῦ βραχίωνος ὁμοίως τῷ ὑγείᾳ, ἅλλα αὐξᾶται μὲν ἐπὶ τί, βραχύτερον δὲ τοῦ ἑτέρου γίνεται· καὶ οἱ καλοῦμενοι δὲ ἐκ γενεῆς γαλιάγκων, διὰ δισσῶς συμφορᾶς ταύτας

1 ὡς καὶ.
tendon at the armpit,\(^1\) and here the cautery should go right through the skin, but no deeper, for there is a large blood vessel in the neighbourhood, and cords, none of which must be heated. Again, another eschar may be placed behind, well above the tendon at the armpit, but a little below the head of the humerus. Burn through the skin completely but do not make this cauterization very deep either, for fire is hostile to nerves. During the whole treatment, the wounds must be dressed without ever lifting the arm up strongly, but only such moderate distance as the care of the wounds requires. They will thus be less exposed to cold—(it is well to cover all burns if they are to be treated properly)—less drawn apart, less liable to haemorrhage, and spasm will be less likely to supervene. When, finally, the wounds get cleansed and begin to cicatrize, then above all should the arm be kept continually bound to the side both night and day, nay, even when the wounds get healed, one should bind the arm to the side in the same way for a long time; for so would the cavity into which the humerus is mostly displaced be best cicatrized up and cut off.

XII. In cases where reduction of the shoulder has failed, if the patients are still adolescent, the bone of the arm will not grow like the sound one. It grows a little indeed, but gets shorter than the other. As to those who are called congenitally weasel-armed\(^2\), they owe this infirmity to two

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\(^1\) Pectoralis major tendon.

\(^2\) Strictly weasel-elbowed. Galen in his Lexicon says they have shrivelled upper arms and swollen elbows "like the weasels," but he doubts the derivation. In his Commentary he is still more doubtful, but leaves "those who study such matters" to clear it up, which they have not yet done.
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γίνονται, ἢν γε τι τοιοῦτον αὐτοῦς ἐξάρθρημα καταλάβῃ ἐν τῇ γαστρὶ ἐόντας, διά τε ἄλλην ἕμμεσορην, περὶ ἃς υστερόν ποτε γεγράφηται· ἀτὰρ καὶ οἳσιν ἐτὶ νηπίοισιν ἐόσιν κατὰ τὴν κεφαλὴν τοῦ βραχίονος βαθεῖα τι καὶ ύποβρύχιοι ἐκπνήσεις γίνονται, καὶ οὕτωι πάντες γαλλιάγκωνες γίνονται· καὶ ἢν τε τριηθῶσιν, ἢν τε καυθῶσιν, ἢν τε αὐτόματον σφίν ἐκραγῇ, εἰ ἐιδέναι χρή ὅτι ταῦτα οὕτως ἔχει. χρησθαι μέντοι τῇ χειρὶ δυνατότατοι εἰσίν οἴ εκ γενεῆς γαλλιάγκωνες, οὐ μὴν οὐδὲ ἐκεῖνοι γε ἀνατείναν παρὰ τὸ υἱὸν τῶν βραχίων έκταυσάμαντον τὸν ἀγκώνα δύνανται, ἀλλὰ πολὺ ἐνθεστέρως ὅ τὴν ἔγινα χειρα. οἴσι

20 δὴ ἢν ἧδη ἀνδράσιν εὐσίν ἐκπέσῃ ὁ ὄμος καὶ μὴ ἐμβληθῇ, ἡ ἐπωμὺς ἀσαρκοτέρῃ γίνεται, καὶ ἢ ἔξις λεπτῇ ἡ κατὰ τοῦτο τὸ μέρος· ὅταν μὲντοι ὁδυνώμενοι παύσωνται, ὀπόσα μὲν δὲ ἐργάζεσθαι ἐπαίρονται τὸν ἀγκώνα ἀπὸ τῶν πλευρῶν ἐς τὸ πλάγιον, ταῦτα μὲν οὐ δύνανται ἀπαντὰ ὁμοίως ἐργάζεσθαι· ὀπόσα δὲ δὲ ἐργάζεσθαι, παραφέροντα τὸν βραχίονα παρὰ τὰς πλευρὰς, ἢ ἐς τοῦπὶσῳ ἢ ἐς τοῦμπροσθεν, ταῦτα δὲ δύνανται ἐργάζεσθαι· καὶ γὰρ ἃν ἀρίδα ἔλκυσαιν καὶ πρίονα, καὶ πελεκήσαιεν ἃν, καὶ σκάψαιεν ἃν, μὴ κάρτα ἄνω αἴροντες τὸν ἀγκώνα, καὶ τάλλα ὅσα ἐκ τῶν τοιοῦτων σχημάτων ἐργάζονται.

XIII. Ὅσοις δ’ ἢν τὸ ἀκρώμιον ἀποσπασθῇ, τούτωσιν φαίνεται ἐξέχον τὸ ὀστέον τὸ ἀπεσπασμένων· ἔστι δὲ τοῦτο ὁ σύνδεσμος τῆς κληθοῦς καὶ τῆς ὀμοπλάτης· ἐτεροὶ γὰρ ἡ φύσις

1 ἐτέρην. 2 δυνατώτεροι.
separate causes. Either a dislocation of this kind has befallen them in the womb, or another accident which will be described somewhat later;¹ so, too, those in whom deep suppuration bathing the head of the humerus occurs while they are still children all become weasel-armed. And whether they are operated on by the knife or cautery, or the abscess breaks of itself, be sure that this will be the result. Still, those who are congenitally weasel-armed are quite able to use the arm, though they, too, cannot stretch the arm up by the ear with the elbow extended, but to a much less extent than the sound one. In adults, when the shoulder is dislocated and not reduced, its point is less fleshy than usual and this part assumes a lean habit. Still, when they cease to suffer pain, though as regards all such work as requires raising the elbow outwards from the side they are unable to do it as before, any work such as involves moving the arm either backwards or forwards along the side they can execute. For they might work a bow-drill² or saw,—and might use pick or spade without much raising of the elbow, and so with all other works which are done in such attitudes.

XIII. In cases of avulsion of the acromion, the bone torn off makes an obvious projection. This bone is the bond between the clavicle and the shoulder-blade, for man’s structure is here diverse

¹ As Galen remarks, if we deduct the dislocation and the disease from the two causes, it is difficult to see what remains.
² "File" most translators, "auger" Adams, but the ἄρτις was used to work the trephine. See Oribasius, XLVI. ii.
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ἀνθρώπου ταύτη ἡ τῶν ἄλλων ξώων οἱ οὖν ἵπτοι μάλιστα ἑξαπατώνται ἐν τούτῳ τῷ τρῷματι—ἧτε γὰρ ἀνασχόντος τοῦ ὀστεόν τοῦ ἀποσπασθέντος, ἥ ἐπωμῖς φαίνεται χαμαιξῆλη καὶ κοίλη—ὡςτε¹ καὶ προμηθεύεσθαι τῶν ὁμών τῶν ἐκπεπτωκότων. πολλοὶ οὖν αἰδα ἱπτοῦσι τάλλα οὐ φλαύρους ἑόντας, οἱ πολλὰ ᾩδη ἐλυμήναντο, ἐμβάλλειν πειρόμενοι τοὺς τοιοῦτοὺς ὁμοὺς, οὕτως οἰόμενοι ἐκπεπτοκέναι, καὶ οὐ πρόσθεν παύονται πρὶν ἡ ἀπογυνώναι ἡ ἀπορῆσαι, δοκοῦντες αὐτοῖς σφέας αὐτοὺς ἐμβάλλειν τὸν ὁμὸν. τούτοις ἵπτρεῖν μὲν, ἥπερ καὶ τοῖς ἄλλοις τοῖς τοιούτοις, κηρωτή καὶ σπλήνας καὶ οὐδόμα, καὶ ἐπιδεισις τοιαύτη. καταναγκάζειν μέντοι τὸ ὑπερέχου χρῆ, καὶ τοὺς σπλήνας κατὰ τοῦτο τιθέναι πλείστους, καὶ πιέζειν ταύτη μάλιστα, καὶ τὸν βραχίονα πρὸς τήσυ πλευρήσι προσηρτημένον ἐς τὸ ἄνω μέρος ἐχεῖν, οὕτω γὰρ ἂν μάλιστα πλησιάζω τὸ ἀπεσπασμένον. τάδε μὲν εὑ εἰδέναι χρῆ, καὶ προλέγειν ὡς ἁσφαλέα, εἰ ἄλλως ἐθέλεις, ὅτι βλάβη μὲν οὐδεμία, οὕτε σμικρὴ οὕτε μεγάλη, τῷ ὁμῷ γίνεται ἀπὸ τούτου τοῦ τρόματος, αἱσχιον δὲ τὸ χωρίον οὐδὲ γὰρ τοῦτο τὸ ὀστέον ἐς τὴν ἀρχαιν ἐδρην ὁμοίως ἂν ἱδρυνθείη, ὡσπερ ἐπιπέφυκεν,² ἄλλ᾽ ἀνάγκη πλέον ἡ ἑλασσον ὁγκηρότερον εἶναι ἐς τὸ ἄνω. οὐδὲ γὰρ ἄλλο ὀστέον οὐδὲν ἐς τοῦτο καθίσταται ὃ τι ἂν κοινωνεύον ἡ ἑτέρω ὀστέω καὶ προσπεφυκὸς ἀποστασθῇ ἀπὸ τής ἀρχαίης φύσιος. ἀνώδυνον

¹ ὡσπερ τῶν ὁμών.
² ὡς ἐπεφύκει.
from that of animals. Thus practitioners are especially deceived by this injury—since, the detached bone being raised up, the point of the shoulder looks depressed and hollow—even to the extent of treating the patients for dislocated shoulders.\footnote{I know many otherwise excellent practitioners who have done much damage in attempting to reduce shoulders of this kind, which they thought were dislocated: and who did not cease their efforts till they recognised either their error or their impotence if they still supposed they were reducing the shoulder-joint. The treatment in these, as in other like cases, consists of cerate, compresses, bandages and the like mode of dressing. The projecting part however should be forced down, the bulk of the compresses placed over it and strongest pressure made here. Also the arm should be fixed to the ribs and kept up, for so it will best be brought near the part torn off. For the rest, keep well in mind and predict with assurance, if you think proper, that no harm, small or great, happens to the shoulder from this injury, but the part will be deformed. This bone, in fact, cannot be fixed in its old natural position as it was, but there will necessarily be more or less of a tuberosity on the top. Nor, indeed, is any bone brought back to the same place, if, after forming an annex or outgrowth of another bone, it has been torn away from its old natural position.\footnote{"Looks hollow" as when the shoulders are dislocated, (Kw.'s reading).}
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τε τὸ ἀκρόμιον ἐν ὀλίγησιν ἥμερησι γίνεται, ἢν
35 χρηστῶς ἐπιδέχεται.

ΧΙΧ. Κλησὶ δὲ κατεαγεῖσα, ἢν μὲν ἀτρεκέως ἀποκαυλισθῇ, εὔητοτέρῃ ἐστὶν· ἢν δὲ παραμη-
κέως, δυσητοτέρῃ. τάναντια δὲ τούτοις ἐστὶν ἢ ὡς ἂν τις ὤδετο, τὴν μὲν γὰρ ἀτρεκέως ἀποκαυ-
λισθέισαν προσαναγκάσειεν ἐὰν τίς μᾶλλον ἐς τὴν φύσιν ἐλθεῖν· καὶ γὰρ ἐὰν πάνυ προμηθείη,
τὸ ἀνωτέρω κατωτέρῳ ἄν ποιήσει σχήματι τε ἐπιτηδείουσι καὶ ἐπιδέσει ἀρμοδιότητι· ἢ δὲ μὴ τε-
λέως ἰδρυνθεῖν, ἀλλ’ ὦν τὸ ὑπερέχον γε τοῦ ὀστέου
10 οὐ κάρτα ὥς γίνεται· ὃς δ’ ἂν παραμηκές τὸ ὀστέου κατεαγῇ, ἱκέλῃ ἢ συμφορῇ γίνεται τοῖς ὀστείσι τοῖς ἀπεσπασμένοισι, περὶ ὧν πρόσθεν ἔγραπται· οὔτε γὰρ ἰδρυνθήναι αὐτὸ πρὸς ἐωυτὸ κάρτα ἐθέλει, ἢ τε ὑπερέχουσα ὄκρις τοῦ ὀστέου ὥς ἐγένεται κάρτα. τὸ μὲν ὦν σύμπαν, εἰδέναι
χρῆ ὅτι βλάβη οὐδεμίῃ τῷ ὅμω οὐδὲ τῷ ἄλλῳ σώματι γίνεται διὰ τὴν κάτηξιν τῆς κλινίδος, ἢν
μὴ ἐπισφακελίσῃ· ὦληγάκις δὲ τούτῳ γίνεται.
20 αἰσχὸς γε μὴν προσγίνεται περὶ τὴν κάτηξιν τῆς κλινίδος, καὶ τούτοις τὸ πρῶτον αἰσχιστον, ἔπειτα μὴν ἐπὶ ἣσσον γίνεται. συμφύεται δὲ ταχέως κλησὶ καὶ τάλλα πάντα ὡσα χαῦνα ὀστέα·
tαχεῖν γὰρ τὴν ἐπιπώρωσιν πολεῖται τὰ τοιαῦτα.
ὅταν μὲν ὡσα νεωστὶ κατεαγῇ, οἱ τετρωμένοι σπουδάζουσι, οἴομενοι μέζον τὸ κακὸν εἴναι ἢ ὃσον ἐστὶν· οἷ τε ἤτροι προθυμέονται δήθεν

1 προσαναγκάζω.

1 This is probably dislocation of the clavicle at the outer end. The anatomy of the part was imperfectly understood
The acromion becomes painless in a few days, if it is properly bandaged.¹

XIV. A fractured collar-bone is more easily treated if broken straight across; but if fractured obliquely, treatment is more difficult. In these cases matters are the reverse of what one would expect. For one will more readily force a collar-bone fractured straight across into its natural position, and by thoroughly careful treatment will succeed in adjusting the upper to the lower fragment by appropriate attitudes and suitable bandaging. And should it not be completely reduced, at least the projection of bone will not be very pointed. But those in whom the bone is fractured obliquely suffer an accident like the avulsions of bones described above; for the fracture hardly lends itself to reduction, and the projecting ridge of bone becomes very sharp. Still, when all is said, one must bear in mind that no harm happens to the shoulder, or body generally, from a fractured collar-bone, unless necrosis supervenes, and this rarely happens. Deformity, it is true, accompanies fracture of the clavicle, and this is very marked at first, but afterwards gets less. The collar-bone unites quickly, as do all spongy bones, for with such the formation of callus is rapid. Thus, when the fracture is recent, patients take it seriously, thinking the damage is worse than it is, and practitioners on their side are careful in applying proper treatment;

even in Galen's time, some saying that the acromion was a distinct bone found only in man; while others thought there was a third bone or cartilage between the clavicle and acromion. The accident occurred to Galen when 35 years old, and he relates vividly how it was first mistaken for a dislocated shoulder, and how, by forty days' endurance of tight bandaging, he recovered without any deformity.
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ὁρθῶς ἦσθαι: προϊόντος δὲ τοῦ χρόνου οἱ τετρωμένοι, ἀτε οὐκ ὁδινώμενοι οὐδὲ κωλυόμενοι οὔτε ὀδοιπορίας οὔτε ἐδωδῆς, καταμελέουσιν: οὐ τε αὐτ

30 ἢτροί, ἀτε οὐ δυνάμενοι καλὰ τὰ χωρία ἀποδεικνύναι, ὑπαποδιδράσκουσι, καὶ οὐκ ἄχθονται τῇ ἀμελείᾳ τῶν τετρωμένων: ἐν τούτῳ τε ἦ ἐπιτώρωσις συνταχύνεται.

Ἐπιδέσιος μὲν οὖν τρόπος καθέστηκε παραπλήσιος τοισι πλείστοις κηρωτῇ καὶ σπλήνεσί καὶ θοινίωσί μαλθακῶσίν ἦτηρεύειν· καὶ τάδε δεῖ προσιητρεύειν, καὶ τάδε δεῖ προσπυνίειν καὶ μάλιστα ἐν τούτῳ τῷ χειρίσματι, ὅτι τοὺς τε σπλήνας πλείστους κατά τὸ ἐξέχων χρή τιθέναι,

40 καὶ τοῖς ἐπιδέσμοισι πλείστοισι καὶ μάλιστα κατὰ τούτο χρὴ πιέζειν. εἰὼ δὲ ἡ τινὲς, οὗ ἐπεσοφίσαντο ἣδη μολύβδιον βαρὺ προσεπικαταδεῖν, ὡς καταναγκάζοι τὸ ὑπερέχων· συνιᾶσι μὲν οὖν ἵσως οὐδὲ οἱ ἀπλῶς ἐπιδέουμες· ἀτὰρ δὴ οὐδὲ οὗτος ὁ τρόπος κληρίδος κατήξιος ἐστίν· οὐ γὰρ δυνατὸν τὸ ὑπερέχων καταναγκάζοσθαι οὐδὲν ὁ τι ἡξιον λόγου. ἄλλοι δ' ἀυτῖν τις ἐστὶν, οὕτως, καταμαθόμεντες τούτο, ὅτι αὕτη αἱ ἐπιδέσεις παράφοροι εἰσὶ καὶ οὐ κατὰ φύσιν καταναγκάζουσι τὰ ὑπερέχοντα, ἐπιδέουσι μὲν οὖν αὐτοὺς σπλήνεσι καὶ θοινίωσι χρεώμενοι, ὡσπερ καὶ οἱ ἄλλοι. ἐξῴκαντες δὲ τῶν ἀνθρωπῶν ταῖνίᾳ τινί, ἢ εὐξεστοτάτος αὐτὸς ἐωτοῦ ἐστιν, ὅταν ἐπιθέωσι τοὺς σπλήνας ἐπὶ τὰ ὑπερέχοντα τοῦ κατήγματος, ἐξουκόκαντες ἐπὶ τὰ ἐξέχοντα, τὴν ἀρχὴν τοῦ θονίου προσέδησαν πρὸς τὸ ξῶσμα ἐκ τοῦ ἐμπροθεν, καὶ οὕτως ἐπιδέουσιν, ἐπὶ τὴν ἤξιν τῆς κληρίδος ἐπιτανύομετε, ἐς τούπισθεν ἄγοντες·

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but as time goes on the patients, since they feel no pain and are not hindered either in getting about or eating, neglect the matter, and physicians too, since they cannot make the parts look well, withdraw gradually, and are not displeased by the patients' carelessness, and meanwhile the callus formation quickly develops.

Now, the established mode of treatment is like that used for most fractures, cerate, compresses, and soft bandages; also the following extra treatment is required, and it must be kept in mind especially in handling this injury that one should put the bulk of the compresses on the projecting part and apply pressure with most of the bandages, especially at this point. There are some, indeed, who in their wisdom have contrived something further and bind on a heavy piece of lead as well, so as to press down the projection. Perhaps those who use a simple bandage are no wiser, yet after all, this is not a suitable plan for a fractured collar-bone, for the projecting part cannot be pressed down to any extent worth mentioning.

Again, there are certain others, who, recognizing a tendency to slip in these dressings and their inability to press down the projecting parts in a natural way, use compresses and bandages like the rest, but gird the patient with a belt at the most suitable part of his body. Then they put compresses on the part of the fracture that sticks up, piling them on to the projection, fix the end of the bandage to the belt in front and apply by stretching it vertically over the collar-bone and bringing it to the back. Then,
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καπείτα περιβάλλοντες περὶ τὸ ζῶσμα, ἐς τοῦμ-60 προσθέν ἄγουσι, καὶ αὐθὶς ἐς τοῦπισθέν. οἱ δὲ τινες οὔχι περὶ τὸ ζῶσμα περιβάλλοντι τὸ ὀθόνιον, ἀλλὰ περὶ τὸν περίναιον τε καὶ παρ’ αὐτὴν τὴν ἐδρὴν καὶ παρὰ τὴν ἄκαθαν κυκλεύ-νοντες τὸ ὀθόνιον, οὔτω πιέζουσι τὸ κάτηγμα. ταῦτα γοὺς ἀπείρῳ μὲν ἄκουσαι φαίνεται ἐγγύς τι τοῦ κατὰ φύσιν εἶναι, χρεομένῳ δὲ ἀχρηστὰ· οὔτε γὰρ μόνιμα οὐδένα χρόνον, οὐδ᾿ εἰ κατα-κέουτο τις—καίτοι ἐγνυτάτω ἄν οὕτως—ἀλλ᾿ ὀμοι, εἰ καὶ κατακείμενος ἢ τὸ σκέλος συγκάμ-

70 ψειεν ἢ αὐτὸς καμφθείῃ, πάντα ἂν τὰ ἐπίδεσματα κινέουτο· ἀλλως τε ἄσηρη ἢ ἐπίδεσις· ἢ τε γὰρ ἐδρή ἀπολαμβάνεται, ἀθρόα τε τὰ ὀθόνια ἐν ταύτῃ τῇ στενοχωρίᾳ γίνεται· τὰ τε αὐ περὶ τὴν ζώνην περιβάλλομενα οὐχ οὕτως ἱσχυρῶς ἐξωσταί, ὡς οὔκ ἀναγκάσας εἰς τὸ ἀνω τὴν ζώνην ἐπαινεῖα, καὶ οὕτως ἀναγκὴ ἂν εἰῇ χαλάνει 1 τὰ ἐπίδεσματα. ἀγχιστὰ δ᾿ ἂν τις δοκεῖ ροιεῖν, καίπερ οὐ μεγάλα ποιῶν, εἰ τοῖσι μὲν τισι τῶν ὀθονίων περὶ τὴν ζώνην περιβάλλοι, τοῖσι δὲ 80 πλείστοις τῶν ὀθονίων τὴν ἀρχαῖαν ἐπίδεσιν ἐπιδέοι· οὔτω γὰρ ἂν μάλιστα τὰ ἐπίδεσματα μόνιμα τε εἰℏ καὶ ἀλλήλοις τιμωρεῖ.

Τὰ μὲν οὖν πλείστα εὑρήται, ἀσσα καταλαμ-

βάνει τοὺς τὴν κληῖδα καταγνυμένους. προσ-

συνίεναι δὲ τόδε χρή, ὅτι κλῆς ὡς ἐπιτοπολύ

κατάγωνται, ὡστε τὸ μὲν ἄπο τοῦ στῆθεος

πεφυκός ὄστεον ἐς τὸ ἀνω μέρος ὑπερέχειν, τὸ δὲ ἀπὸ τῆς ἅκρωμίης ἐν τῷ κάτω μέρει εἶναι. αἰτία

δὲ τούτων ταῦτα, ὅτι τὸ μὲν στήθος οὔτε κατωτέρῳ

90 ἂν πολὺ οὔτε ἀνωτέρῳ χωρῆσειν· σμικρὸς γὰρ ὁ
ON JOINTS, xiv.

passing it through the belt, they bring it to the front and again to the back. There are others who pass the bandage, not through a belt, but round the perineum near the fundament itself; and, completing the circle along the spine, thus make pressure on the fracture. To an inexperienced person these methods seem to come near the natural, but to one who uses them useless; for they have no permanent stability, not even if the patient keeps his bed, though this would come nearest. Yet even if, when recumbent, he bends his leg or curves his body all the bandages will be deranged. Besides the dressing is troublesome, for the fundament is included, and all the bandages accumulate in this narrow part, while, as for those passed through the belt, it is impossible to gird it so tightly as not to yield to the force pulling upwards, and so the bandages will necessarily become lax. One would appear to be most effective, though without effecting much, by making some turns of bandage through the belt while applying most in the old fashion,¹ for so the bandages would best keep in place and support one another.

Almost all then has been said on the subject of patients with broken collar-bones; but the following should also be borne in mind, namely, that the clavicle as a rule is so fractured that the part arising from the breast-bone is on the top and that from the shoulder-point (acromion) below. The reason of this is as follows: the breast-bone does not move much either downwards or upwards, for the range of the joint at

¹ Some make ἀρχαῖν ἐπίδεσων = the under bandage, first applied, but cf. ἀρχαῖς φύσις = νομίμης, XIII. 33.

² ἐν ταῖς Χαλαῖν.
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κιγκλισμὸς τοῦ ἄρθρου τοῦ ἐν τῷ στήθει. αὐτὸ
tε γὰρ ἐξωτὸ συνεχές ἐστὶ τὸ στήθος καὶ τῇ
ῥάχῃ. ἄγχιστα μὴν ἡ κλησὶ πρὸς τὸ τοῦ ὠμοῦ
ἀρθρον πλοῦθης ἐστίν· ἡμάγκασται γὰρ πυκνο-
κίνητος εἶναι διὰ τὴν τῆς ἀκρωμίας σύζευξιν.
アルバム τε ὅταν τρωθῇ, φεύγει ἐς τὸ ἀνω μέρος τὸ
πρῶς τῷ στήθει προσεχόμενον, καὶ οὐ μάλα ἐς τὸ
κάτω μέρος ἀναγκάζεσθαι ἑθέλει· καὶ γὰρ
πέφυκε κούφον,¹ καὶ ἡ εὐρυχωρία αὐτῶ ἀνω
πλείων ἢ κάτω. ὁ δὲ ὠμος καὶ ὁ βραχιὺς καὶ
tὰ προσηργήμενα τούτων εὐαπόλυτά ἐστιν
ἀπὸ τῶν πλευρῶν καὶ τοῦ στήθεος, καὶ διὰ
tοῦτο δύναται καὶ ἀνωτέρω πολὺ ἀνάγκασθαι καὶ
κατωτέρω· ὅταν ὁς κατεαγῇ ἡ κλησί, τὸ πρὸς
tῷ ὁμῷ ὁστέον ἢ τὸ κατωτέρω ἐπιρρέπει· ἐς
tοῦτο γὰρ ἐπιτροχὸτερον αὐτὸ ἀμα τῷ ὁμῷ καὶ
tῷ βραχίονι κάτω βέβαι μᾶλλον ἢ ἐς τὸ ἀνω·
ὅποτε οὖν ταῦτα τοιαύτα ἐστιν, ἀυσυνετέουσιν

όσοι τὸ ὑπέρεχον τοῦ ὁστέου ἢ τὸ κάτω καταναγ-
kάσαι οὐναι οὖν τε εἶναι. ἀλλὰ δῆλον ὅτι τὰ
kάτω πρὸς τὸ ἀνω προσακτέον ἐστὶν· τοῦτο γὰρ
ἐχει κίνησιν, τοῦτο γὰρ ἐστιν καὶ τὸ ἀποστάν
ἀπὸ τῆς φύσιος. δῆλον οὖν ὅτι ἀλλὰς μὲν
οὐδαμῶς ἐστὶν ἀναγκάσαι τοῦτο—αἱ τε γὰρ
ἐπιδείσεις οὐδὲν τι μᾶλλον προσαναγκάζουσιν ἢ
ἀπαναγκάζουσιν—εἰ δὲ της τὸν βραχίωνα πρὸς
tῆς πλευρῆς ἐόντα ἀναγκάζοι ὡς μᾶλλοντα ἀνω,
ὡς ὅτι οξύτατος ὁ ὁμος φαίνηται ³ εἶναι, δῆλον
ὅτι οὖτως ἄν ἀρμοσθείη πρὸς τὸ ὁστεόν τὸ ἀπὸ
tοῦ στήθεος πεφυκός, οθὲν ἀπεσπάσθη. εἰ οὖν
tις τῇ μὲν ἐπιδέσει χρέωτο τῇ νομίμῃ τοῦ ταχέως

1 λορδόν.
the sternum is slight and there is continuous connexion between the breast-bone and the spine, but the clavicle on the side of its connexion with the shoulder is especially loose, for it has to have great freedom of movement owing to the acromial junction. Besides, when it is fractured, the part adherent to the breast-bone flies upwards, and can hardly be pressed down, for it is naturally light and there is a larger vacancy for it above than below. But the shoulder, upper arm and parts annexed are easily separated from the ribs and breast-bone and therefore can be moved through a large space upwards and downwards. Thus, when the collar-bone is broken, the part towards the shoulder sinks downwards, for with the shoulder and arm it is more readily disposed to move down than upwards. So whenever this state of things occurs, they are unintelligent who think it possible to press the projecting part of the bone downwards; while it is obvious that one must bring the lower part up, for this is the moveable part, and this too is the one out of its natural place. It is obvious then that other methods are useless in reducing this fracture—for bandagings are no more likely to bring the parts together than to separate them—but if one presses the arm upwards as much as possible, keeping it to the side, so that the shoulder appears very pointed, it is clear that the fragment will thus be brought into connexion with the bone arising from the sternum from which it was torn. If, then, one should use the ordinary dressing for the sake of

1 Erotian refers twice to this use of ἀγχιστα = μαλιστα.

2 φαλνται, Galen, M.
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συναλθεσθήναι εἶνεκα, ἡγήσατο ἂν τάλλα πάντα μάτην εἶναι παρὰ τὸ σχῆμα τὸ εἰρημένου, ὅρθως τε ἂν συνίοι, ἤτρευοι τε ἂν τάχιστα καὶ κάλ-
λιστα. κατακείσθαι μέντοι τὸν ἄνθρωπον μέγα τὸ 1 διάφορον ἔστιν· καὶ ἥμεραι ἰκαναὶ τεσσαρεσ-
καίδεκα, εἰ ἄτρεμεοί, εἰκοσι δὲ πάμπολλαί.

XV. Εἰ μέντοι τινὶ ἐπὶ τάναντία ἡ κλῆς καταγείρῃ, ὁ οὐ μάλα γίνεται, ὥστε τὸ μὲν ἀπὸ τοῦ στίθεσος ὦστεον ὑποδεδυκέναι, τὸ δὲ ἀπὸ τῆς ἀκρωμίης ὦστεον ὑπερέχειν καὶ ἐποχεῖσθαι ἐπὶ τοῦ ἐτέρου, οὐδεμίης μεγάλης ἤτρειψις ταῦτά
γ' ἂν δέοιτο· αὐτὸς γὰρ ὁ ὄμοι ἀφίέμενος καὶ ὁ
βραχίων ἱδρύοι ἂν τὰ ὦστεα πρὸς ἀλλήλα, καὶ
φαύλη ἂν τις ἐπίδεισις ἄρκεοι, καὶ ὀλγαῖ ἥμεραι.

9 τῆς πωρώσιος γενοιάτ' ἂν.

XVI. Εἰ δὲ μὴ καταγείρῃ μὲν οὕτως, παρ-
ολισθάνοι δὲ ἐς τὸ πλάγιον ἢ τῇ ἢ τῇ, ἐς τὴν
φύσιν μὲν ἀπαγαγεῖν ἂν δέοι, ἀναγαγόντα τὸν
ὡμον σὺν τῷ βραχίωνι, ὅσπερ καί πρόσθεν
ἐιρήται· ὅταν δὲ ἵζηται ἐς τὴν ἀρχαίν φύσιν,
tαχείᾳ ἂν ἡ ἀλλη ἤτρειψις ἐιη. τὰ μὲν οὖν
πλεῖστα τῶν παραλλαγμάτων κατορθοί αὐτὸς ὁ
βραχίων, ἀναγκαζόμενος πρὸς τὰ ἀνω. ὡσα δὲ
ἐκ τῶν ἄνωθεν παρολισθάνοντα ἐς τὸ πλάγιον

10 ἠλθεν, ἢ ἐς τὸ κατωτέρω, συμποροῦν ἂν τὴν
κατόρθωσιν, εἰ ὁ μὲν ἄνθρωπος ὑπτίος κέοιτο,
κατὰ δὲ τὸ μεσημὺ τῶν ὠμοπλατέων ὑψηλότερον
τι ὀλγίῳ ὑποκέοιτο, ὡς περιφρήδεσ ἢ τὸ στίθος
ὡς μάλιστα· καὶ τὸν βραχίωνα εἰ ἰκανοὶ τις
παρὰ τὰς πλευρὰς παρατεταμένον, ὁ δὲ ἤτρος
τῇ μὲν ἐτέρη χειρὶ ἐς τὴν κεφαλὴν τοῦ βραχίωνος
ἐμβαλὼν τὸ θέναρ τῆς χειρὸς ἀπώθειοι, τῇ δὲ
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getting a quick cure, and should consider everything else of no importance compared with the attitude described, his opinion would be right and his treatment most correct and speedy. Still, it makes a great difference if the patient lies down, and fourteen days suffice if he keeps at rest, while twenty are very many.

XV. If, however, a man has his collar-bone broken in the opposite way, which rarely happens—so that the thoracic fragment is underneath and the acromial part projects and overrides the other—no complicated treatment will be required here, for the shoulder and arm left to themselves will bring the fragments together. Any ordinary dressing will suffice, and callus will form in a few days.

XVI. If the fracture is not of this kind, but the displacement is to one side or the other, one must reduce it to its natural position by elevating the shoulder and arm as described before, and when it is set in its old natural place the rest of the cure will be rapid. Most lateral displacements are corrected by the arm itself when pressed upwards, but in cases where the upper (sternal) fragment is displaced laterally or downwards adjustment will be favoured by the patient lying flat on his back with some slightly elevated support between the shoulders, so that the chest falls away as much as possible at the sides. Let an assistant push the arm, kept stretched along the side, upwards, while the practitioner with one hand on the head of the humerus presses it back with his palm, and with the other adjusts the

1 So Galen.
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ἐτέρη τὰ ὅστεά τὰ κατεγράτα εὐθετίζου, οὕτως ἀν μάλιστα ἐς τὴν φύσιν ἄγον ἀτάρ, ὥσπερ ἡδή εὑρηται, εὑρέθη 20 μάλα τὸ ἄνωθεν ὅστεον ἐς τὸ κάτω φιλεῖ ὑποδύνειν. τοῖσι μὲν οὐν πλείστοτεσιν, ὅταν ἐπιδεθώσι, τὸ σχῆμα ἠρήγει, παρ' ἀυτὰς τὰς πλευρὰς τὸν ἀγκώνα ἕχοντα οὕτως ἐς τὸ ἄνω τὸν ὄμοιν ἀναγκάζεσθαι. ἐστὶ δε ὅσι μὲν τὸν ὄμοιν ἀναγκάζειν δει ἐς τὸ ἄνω, ὡς εὑρηται, τὸν δὲ ἀγκώνα πρὸς τὸ στήθος παράγειν, ἀκρην δὲ τὴν χεῖρα παρὰ τὸ ἀκρώμιον τοῦ ὑγείου ὄμοιν ἵσχειν. ἤν μὲν οὖν κατακεῖσθαι τολμᾶ, ἀντι- στήριγμά τι προστιθέναι χρῆ, ὡς ἂν ο ὄμος ἀνωτάτω ἢ; ἢν δὲ περίθη, σφειδόνην χρῆ ἐκ ταύνης περὶ τὸ ἄξυ τοῦ ἀγκώνος ποιήσαντα 30 ἀναλαμβάνειν περὶ τὸν αὐχένα.

ΧVII. Ἀγκώνοις δὲ ἄρθρον παράλλαξαν μὲν ἢ παραρθησαν πρὸς πλευρὴν ἢ ἔξω, μένοντος τοῦ ὄξεος τοῦ ἐν τῷ κοίλῳ τοῦ βραχίωνος, ἐς εὐθὺ κατατεῖναντα, τὸ ἐξέχου ἀπωθεῖν ὀπίσω καὶ 5 ἐς τὸ πλάγιον.

ΧVIII. Τὰ δὲ τελέως ἐκβάντα ἢ ἑνθα ἢ ἑνθα, κατάτασις μὲν, ἢ ο βραχίων κατεαγείς ἐπι- δεῖται οὕτω γὰρ ἀν τὸ καμπύλου τοῦ ἀγκώνος οὐ κωλύσει. ἐκπίπτει δὲ μάλιστα ἐς τὸ πρὸς 244

1 ὁ Littre, Erm., Kw. 2 πλευρὴν. 3 περικάμψαι.

1 Reading ὁυ. εὐ (Galen, Pq, and all MSS.) would accentu-
broken bones; in this way one will best bring them to the natural position; but as was said before the upper (sternal) fragment is not much wont to be displaced downwards. In most cases, the position after bandaging with the elbow to the side suffices to keep the shoulder up, but in some it is necessary to press the shoulder up as described, bring the elbow towards the chest and fix the hand at the point of the sound shoulder. If, then, the patient brings himself to lie down one should supply a prop to keep the shoulder as far up as possible, but if he goes about one should suspend the part by a sling bandage round the neck to include the point of the elbow.

XVII. (Subluxation of the radius.) When there is displacement or subluxation of the elbow-joint towards the side or outwards, the point (olecranon) in the cavity of the humerus retaining its position, make direct extension and push the projecting part obliquely backwards.

XVIII. Complete dislocations of the elbow in either direction require extension in the position in which a fractured humerus is bandaged; for so the curved part of the elbow will not get in the way. The usual dislocation is that towards the ribs. For adjustment separate the bones as much as possible so that the head (of the humerus) may not hit the coronoid process, keep it up and use movements of circumduction and flexion, and do not force it back.

The statement that the sternal fragment may be displaced downwards.

2 Or, following Pq and the MSS., "the upper fragment may very well be displaced downwards."

3 For the sources of XVII—XXIX see Introduction, p. 86.

4 = our forearm backwards, cf. Fractures XLI.
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eυθὺ βιάζεσθαι, ἀμα δὲ ὀδεῖν τὰναντία ἐφ' ἑκάτερα καὶ παρωθεῖν ἐς χώρην συνωφελοῖν

d' ἄν καὶ ἐπίστρεψις ἄγκώνος ἐν τούτοις, ἐν τῷ μὲν ἐς τὸ ὑπτίον, ἐν τῷ δὲ ἐς τὸ πρηνές.
ἰησὶς δὲ, σχῆματος μὲν, ολίγῳ ἀνωτέρῳ ἄκρην

tὴν χεῖρα τοῦ ἄγκώνος ἔχειν, βραχίονα κατὰ πλευράς· οὕτω δὲ καὶ ἀνάληψις καὶ θέσις· καὶ

eὐφορον καὶ φύσις, καὶ χρῆσις ἐν τῷ κοινῷ, ἣν ἀρα μὴ κακῶς πωροθῇ· πωροῦται δὲ ταχέως.
ἰησὶς δὲ ὀθονίοισι κατὰ τὸν νόμον τὸν ἀρθριτικόν,1
καὶ τὸ ὄξυ προσεπίδειν.

XIX. Παλιγκοτώτατον δὲ ὁ ἄγκων πυρετοῦσιν,

οὐδύνησιν, ὕπονδει, ἀκρηποχόλον, ἄγκώνος δὲ μά-

λιστα τοῦπισω διὰ τὸ ναρκώδες, δεύτερον δὲ

τούμπροσθεν. ἱησὶς δὲ ἡ αὐτὴ· ἐμβολάι δὲ, τοῦ

μὲν ὀπίσω, ἐκτείναντα κατατείναι. σημείον δὲ·

οὐ γὰρ δύνανται ἐκτείνειν· τοῦ δὲ ἐμπροσθεν, οὐ

dύνανται συγκάμπτειν. τούτῳ δὲ ἐνθέντα τι

συνειλιγμένου σκληροῦ, περὶ τοῦτο συγκάμψαι

9 εἰς ἐκτάσιος ἐξαίφνης.

XX. Διαστάσιος δὲ ὡστέων σημείον, κατὰ τὴν

φλέβα τὴν κατὰ βραχίονα σχιζομένην δια-

3 ψαύνοτι.

XXI. Ταῦτα δὲ ταχέως διαπωροῦται· ἐκ γε-

νεῖς δὲ βραχύτερα τὰ κατω τοῦ σύνεος ὡστέα,

πλεῖστον τὰ ἐγγύτατα τοῦ πήχεος· δεύτερον

χειρός· τρίτον δακτύλων· βραχίων δὲ καὶ ὄμος,

1 Cf. Fract. XLVIII.

1 "Evidently complete lateral luxation of the forearm," Adams.
2 Our "external lateral."
3 Internal lateral, but Adams "forwards or backwards."
in a straight line, but at the same time press on the two bones in opposite directions and bring them round into place. In these cases turning of the elbow sometimes towards supination, sometimes towards pronation will contribute to success. For after treatment, as regards position, keep the hand rather higher than the elbow, and the arm to the side: this applies both to suspension and fixation. The position is easy and natural and serves for ordinary use, if indeed the ankylosis [stiffening of the joint] is not unfavourable; but ankylosis comes on quickly. Treatment with bandages according to what is customary with joints; and include the point of the elbow in the bandaging.\(^1\)

XIX. Elbow injury is very liable to exacerbation with fever, pain, nausea and bilious vomiting, especially the dislocation backwards\(^2\) owing to the numbness [injury of the ulnar nerve], and secondly dislocation forwards.\(^3\) Treatment is the same. Modes of reduction—for backward dislocation, extension and counter-extension: sign—they cannot extend the arm, while in dislocation forward they cannot flex it. In this case, when something rolled up hard has been put in the bend of the elbow, flex the arm suddenly upon it after extension.

XX. Separation of the bones (of the forearm) is recognised by palpation at the point where the blood vessel of the upper arm bifurcates.

XXI. In these cases there is rapid and complete ankylosis, and when it is congenital, the bones below the injury are shortened, those of the forearm nearest the injury most; secondly, those of the hand, third those of the fingers; while the upper arm and shoulder are stronger because they get
ἐγκρατέστερα διὰ τὴν τροφὴν· ἢ δὲ ἐτέρη χεῖρ
dιὰ τὰ ἔργα ἐκ πλείω ἐγκρατεστήρη· μινύθησις
dὲ σαρκῶν, εἰ μὲν ἔξω ἐξέπεσεν, ἔσωθεν· εἰ δὲ μὴ,
8 ἐς τούτων ἢ ἐξέπεσεν.

ΧΧII. Ἀγκων δὲ ἢ ἔσω ἢ ἔξω ἐκβήν, κατά-
tασις μὲν ἐν σχήματι ἐγγωνίω τῷ πῆχει πρὸς
βραχίων· τὴν μὲν γὰρ μασχάλην ἄναλαβόντα
tαινὴ ἀνακρεμάσαι, ἄγκωνι δὲ ἄκρο υποθέντα
tι παρὰ τὸ ἄρθρον βάρος, ἐκκρεμάσαι, ἢ χερσὶ
καταναγκάζειν· ὑπεραιρηθέντος δὲ τοῦ ἄρθρου,
αἱ παραγωγαὶ τοῖσι θέναρσι ὡς τὰ ἐν χερσίν·
ἐπίδεσις ἐν τούτῳ τῷ σχήματι, καὶ ἀνάληψις
9 καὶ θέσις.

ΧΧIII. Τὰ δὲ ὀπίσθεν, ἐξαίφνης ἔκτεινοντα
διορθοῦν τοῖσι θέναρσι· ἀμα δὲ δεὶ ἐν τῇ δι-
ορθώσει καὶ ἐν τοῖσι ἐτέρωσιν. ἢν δὲ ἐμπροσθὲν
ἀμφι θόνιον συνειλιγμένον, εὐγκον συγκάμπ-
5 τοντα ἀμα διορθοῦν.

ΧΧIV. Ἡν ἑτεροκλινὲς ἢ, ἐν τῇ διορθώσει
ἀμφότερα ἀμα χρῆ ποιεῖν. τῆς δὲ μελέτης τῆς
θεραπείας κοινῶν, καὶ τὸ σχῆμα καὶ ἡ ἐπίδεσις.
δύναται δὲ καὶ ἐκ τῆς διαστάσεως κοινῆ συμπό-
5 τειν ἀπαντά.

ΧΧV. Τῶν δὲ ἐμβολέων, αἱ μὲν ἔξω ὑπερ-
αιρησίων ἐμβάλλονται, αἱ δὲ ἐκ κατατάσιος,
αἱ δὲ ἐκ περισφάλσιος· αὐταὶ δὲ ἐκ τῶν ὑπερ-
4 βολέων τῶν σχημάτων ἢ τῇ ἢ τῇ σὺν τῷ τάχει.

ΧΧVI. Χείρος δὲ ἄρθρον ὀλισθάνει ἢ ἔσω ἢ
ἔξω, ἔσω δὲ τὰ πλείστα. σημεῖα δὲ εὐσημα:

1 XXII and XXIII are notes partly repeating XVIII
and XIX.
more nourishment. The other arm is stronger still because of the work it does. Attenuation of the soft parts is on the inner side if the dislocation is outwards, otherwise on the side opposite to the dislocation.

XXII. When the elbow is dislocated inwards or outwards, extension should be made with the forearm at right angles to the upper arm. Take up and suspend the armpit by a band, and hang a weight from the point of the elbow near the joint, or press it down with the hands. The articular end of the humerus being lifted up, adjustments are made with the palms, as in dislocations of the hand. Bandaging, suspension, and fixation in this attitude.

XXIII. Backward dislocations, sudden extension and adjustment with the palms of the hands; the actions must be combined as in the other cases. If the dislocation is forwards make combined flexion and adjustment round a large rolled bandage.¹

XXIV. If there is deviation to one side, in the adjustment both movements should be combined. Position and bandaging follow the common rule of treatment. It is also possible to put in all these cases by the common method of double extension.²

XXV. Some reductions are brought about by a lifting over, others by extension, others by circumduction; and these are by exaggerations of attitude in one direction or another combined with rapidity.

XXVI. The wrist is dislocated inwards or outwards, but chiefly inwards.³ The signs are obvious,

² Partial lateral dislocations (cf. XVII), probably of radius.
³ Partial dislocation of wrist, Celsus VIII. 17.
συγκάμπτειν τοὺς δακτύλους οὐ δύνανται· Ἦν δὲ ἐξω, μὴ ἐκτείνειν. ἐμβολὴ δὲ, ὑπὲρ τραπέζης τοὺς δακτύλους ἔχουν, τοὺς μὲν τείνειν, τοὺς δὲ αὐτεῖνειν, τὸ δὲ ἐξέχουν ἢ θέαρι ἢ πτέρνη ἀμα ἀπωθείν καὶ ὠθείν πρόσω κάτω, κάτωθεν δὲ κατὰ τὸ ἐτερον ὡστέον, ὦγκον μαθακὸν ὑποθείσι, Ἦν μὲν ἄνω, καταστρέψας τὴν χείρα, Ἦν δὲ κάτω, ὑπτίην. ᾨσις δὲ θονίοισιν.

XXVII. Ὄλη δὲ ἡ χείρ ὀλισθάνει ἡ ἐσω ἡ ἔξω, ἡ ἕνθα ἡ ἕνθα, μάλιστα δὲ ἐσω· ἔστι δὲ ὁτε καὶ ἡ ἐπίφυσις ἐκινήθη· ἔστι δ' ὁτε τὸ ἐτερον τῶν ὡστέων διέστη. τοῦτοισι κατάτασις ἵσχυρὶ ποιητήν καὶ τὸ μὲν ἐξέχουν ἀπωθείν, τὸ δὲ ἐτερον ἀντωθείν, δύο εἶδε αὕμα καὶ ἐς τοῦτοσω καὶ ἐς τὸ πλάγιον, ἡ χερσίν ἐπὶ τραπέζης ἢ πτέρνη. παλίγκοτα δὲ καὶ ἀσχήμων. τὸ δὲ χρόνω κρατύνεται ἐς χρήσιν. ᾨσις, θονίοισι σὺν τῇ χειρὶ καὶ τῷ πῆχεν καὶ νάρθηκας μέχρι δακτύλων τιθέναι· ἐν νάρθηξι δὲ δεθέντα ταῦτα πυκνότερον ἄνειν ἢ τὰ κατήγματα καὶ καταχύσει πλέον χρήσθαι.

XXVIII. Ἐκ γενέθς δὲ βραχυτέρη ἡ χείρ γίνεται καὶ μινύθησις σαρκῶν μάλιστα τάναντα ἢ ηγ τὸ ἐκπτώμα· ἥξυμενοι δὲ, τὰ ὡστέα μένει.

XXIX. Δακτύλου δὲ ἄρθρον, ὀλισθόν μὲν,

1 πυκνότερα.

1 "In a great measure ideal," Adams. Seems connected with LXIV, but the epitomist may have seen lost chapters.
2 Complete dislocation of wrist. Mochl. XVII; cf. Fract. XIII.

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if inwards they cannot flex the fingers, if outwards they cannot extend them. Reduction: placing the fingers on a table, assistants should make extension and counter-extension, while the operator with palm or heel presses the projecting part back, with a downward and forward pressure, having put something thick and soft under the other bone. The hand should be prone if the dislocation is upwards and supine if it is downwards. Treatment with bandages.\(^1\)

**XXVII.** The hand is completely dislocated, inwards, outwards, or to either side, but chiefly inwards, and the epiphysis is sometimes displaced [fracture of lower end of radius], sometimes one of the bones is separated. In these cases one must make strong extension. Press back the projecting part and make counter-pressure on the other side, the two kinds of movement backward and lateral being simultaneous, and performed on a table with the hands or heel. These are serious injuries and cause deformity, but in time the joints get strong enough for use. Treatment with bandages to include the hand and forearm, and apply splints reaching to the fingers. When put up in splints change more frequently than with fractures and use more copious douching.\(^2\)

**XXVIII.** When the dislocation is congenital the hand becomes relatively shorter, and there is attenuation of the tissues most pronounced on the side opposite the displacement, but in an adult the bones are unaltered.\(^3\)

**XXIX.** Dislocation of a finger-joint is easily

\(^1\) Mochl. XVIII. These obscure accounts of elbow and wrist dislocations are discussed, p. 411.
ΠΕΡΙ ΑΡΘΡΩΝ

εὐσημον. ἐμβυλὴ δέ, κατατελναντα ἐς ἰθὺ, τὸ μὲν ἐξέχον ἀπωθεῖν, τὸ δὲ ἐναντίον ἀντωθεῖν. ἦςις δὲ, ταῦτοισιν ὀδονοίσιν. μὴ ἐμπεσον δὲ, ἐπιπωροῦται ἐξωθεὶν. ἐκ γενεῖς δὲ ἥ ἐν αὐξήσει ἐξαρθρίσαντα, τὰ ὀστέα βραχύνεται τὰ κάτω τοῦ ὀλισθήματος, καὶ σάρκες μινύθουσι τάναντια μάλιστα ἡ ὡς 1 τὸ ἕκπτωμα. ἕνοξημένῳ δὲ, τὰ 9 ὀστέα μένει.

XXX. Γνάθος δὲ ὀλίγοισιν ἴδῃ τελέως ἐξήρθησεν. ὀστέον 2 τε γὰρ τὸ ἀπὸ τῆς ἀνω γυάθου πεφυκὸς ὑπεξύγωται πρὸς τῷ ὑπὸ τὸ ὄου ὀστέῳ προσπεφυκότι, ὅπερ ἀποκλείει τὰς κεφαλὰς τῆς κάτω γυάθου, τῆς μὲν ἀνωτέρω ἑόν, τῆς δὲ κατωτέρω τῶν κεφαλῶν. τὰ τε ἀκρεα τῆς κάτω γυάθου, τὸ μὲν διὰ τὸ μῆκος οὐκ εὐπαρείσδυτον, 3 τὸ δὲ αὐ τὸ κορωνὸν τε καὶ ὑπερέχον ὑπὲρ τοῦ χυγώματος. ἀμα τε ἀπ᾽ ἀμφοτέρων τῶν ἄκρων 10 τοῦτων νευρῶδεις τένοντες πεφύκασιν, ἐξ ὧν ἐξήρθηνται οἱ μυεσ οἱ κροταφίται καὶ μασητήρες καλέομενοι. διὰ τοῦτο δὲ καλέονται καὶ διὰ τουτο κινέονται, ὅτι ἐντεῦθεν ἐξήρθηνται. ἐν γὰρ τῇ ἐδωδῇ καὶ ἐν τῇ διαλέκτῳ καὶ ἐν τῇ ἅλλῃ χρῆσει τοῦ στόματος, ἡ μὲν ἀνω γυάθος ἀτρεμεῖ. συνήρθηται γὰρ τῇ κεφαλῇ καὶ οὐ διήρθουται. ἡ δὲ κάτω γυάθος κινεῖται. ἀπήρθουται γὰρ ὑπὸ τῆς ἀνω γυάθου καὶ ἀπὸ τῆς κεφαλῆς. διότι μὲν οὖν ἐν σπασμοῖς τε καὶ τετάνουσι πρῶτον 20 τοῦτο τὸ ἄρθρον ἐπισημαίνει συντεταμένου, καὶ διότι πληγαὶ καίριοι καὶ καροῦσαι αἱ κροταφί- τιδες γίνονται, ἐν ἅλλῳ λόγῳ εἰρήσεται. περὶ

1 Κ. Kw. Mochl. 2 τὸ ὀστέον Erm., K. 3 εὐπαρεῖσδυτον Füös in note, Erm., Kw.; εὐπαρεῖσδυτον MSS.
recognised. Reduction: while extending in a direct line, press back the projecting part, and make counter-pressure on the opposite side. Treatment with tapes and as (narrow bandages). If not reduced, it gets fixed outside. When the dislocation is congenital or during growth, the bones below the laxation are shortened and the tissues waste, especially on the side opposite the displacement; but in an adult the bones are unaltered.

XXX. Complete dislocation of the lower jaw rarely occurs, for the bone which arises from the upper jaw forms a yoke¹ with that which is attached below the ear, and shuts off the heads of the lower jaw, being above the one and below the other. As to these extremities of the lower jaw, one of them is not easily dislocated ² because of its length, while the other is the coronoid, and projects above the zygoma. And besides, ligamentous tendons arise from both these summits, into which are inserted the muscles called temporals and masseters. They derive their names and functions from being so attached; for in eating, speech, and other uses of the mouth the upper jaw is at rest, being connected with the head directly, not by a joint.³ But the lower jaw moves, for it is articulated with the upper jaw and the head. Now, the reason why the joint first shows rigidity in spasms and tetanus, and why wounds of the temporal muscles are dangerous and apt to cause coma will be stated in another treatise.⁴ The above are the

¹ The "zygoma."
² "Accessible," MSS. reading.
³ Or, "by synarthrosis, not diarthrosis" (Galen). Some read συνήθθαρθοσαί.
⁴ Pq. thinks this is Wounds in the head, but that seems to be the older treatise, and is written in a less finished style: also it hardly gives a full account of the matter.
ΠΕΡΙ ἈΡΘΡΩΝ

dὲ τοῦ μὴ κάρτα ἐξαρθρεῖν, τάδε τὰ αὑτία· αὑτίον
dὲ καὶ τόδε, ὅτι οὐ μάλα καταλαμβάνονσι
tοιαύται ἀνάγκαι βρωμάτων, ὅστε τὸν ἀνθρώπον
χανεῖν μέξον ἢ ὅσον δύναται· ἐκπέσοι δὲ ἄν ἡπ'
οὔδενὸς ἄλλου σχήματος ἢ ἄπο τοῦ μέγα χανόντα
παραγαγεῖν τὴν γέννην ἐπὶ θάτερα. προσσυμ-
βάλλεται μέντοι καὶ τόδε πρὸς τὸ ἐκπίπτειν·

30 ὀπόσα γὰρ νεῦρα καὶ ὀπόσιν μὲς παρὰ ἀρθρα
eἰσίν, ἢ ἄπο ἄρθρων ἄφ' ὃν συνδέδεντα, τούτων
ὸσα ἐν τῇ χρήσει πλειστάκις διακινεῖται, ταῦτα
καὶ ἐς τὰς κατατάσσεις δυνατώτατα ἐπιδίδοναι,
ὡσπερ καὶ τὰ δέρματα τὰ εὐδεψητότατα
πλείστην ἐπίδοσιν ἔχει. περὶ οὐ οὖν ὁ λόγος,
ἐκπίπτει μὲν γνάθος ὁλύγακις, σχάται μέντοι
πολλάκις ἐν χάσμησιν, ὡσπερ καὶ ἄλλα πολλαὶ
μυὸν παραλλαγαὶ καὶ νεύρων τοῦτο ποιέονσιν.
δήλου μὲν οὖν ἐκ τῶνδε μαλιστά ἐστιν, ὀπόταν
ἐκπεπτώκῃ προϊσχεται 1 γὰρ ἡ κάτω γνάθος ἐς
tοῦμπροσθεν καὶ παρῆκται τάναντια τοῦ ὁλυσ-
θήματος καὶ τοῦ ὡστεοῦ τὸ κορωνὸν ὄγκηρότερον
φαίνεται παρὰ τὴν ἀνω γνάθον καὶ χαλεπῶς
συμβάλλονσι τὰς [κάτω] 2 γνάθοις.

Τούτοις δὲ ἐμβολὴ πρόδηλος, ἦτις γύναιτ’ ἂν
ἀρμόζουσα· χρῆ γὰρ τὸν μὲν τινα κατέχειν τὴν
κεφαλὴν τοῦ πετρωμένου, τὸν δὲ περιλαβόντα
tὴν κάτω γνάθον καὶ ἐσωθεν καὶ ἔξωθεν τοῖς
dακτύλοις κατὰ τὸ γένειον, χάσκοντος τοῦ

50 ἀνθρώπου ὅσον μετρῖως δύναται, πρῶτον μὲν
dιακινεῖν τὴν [κάτω] 3 γνάθον χρόνον τινά, τῇ καὶ
tῇ παράγοντα τῇ χειρί, καὶ αὐτὸν τὸν ἀνθρώπον
κελεύειν χαλαρῶν τὴν γνάθον ἐχειν, καὶ συμπαρ-
ἀγείν καὶ συνδιδόναι ὡς μάλιστα· ἐπείτα ἐξ-

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reasons why the dislocation is rare; and one may add this—that the necessities of eating are rarely such as to make a man open his mouth wider than is normally possible, and the dislocation would occur from no other position than that of lateral displacement of the chin while widely gaping. Still, the following circumstance also favours dislocation: among the tendons and muscles which surround joints or arise from them and hold them together, those whose functions involve most frequent movement are most capable of yielding to extension, just as the best tanned skins have the greatest elasticity. To come then to our subject, the jaw is rarely dislocated, but often makes a side-slip\(^1\) in yawning, a thing which changes of position in muscles and tendons also often produce. When dislocation occurs, the following are the most obvious signs: the lower jaw is thrown forward and deviates to the side opposite the dislocation; the coronoid process appears more projecting on the upper jaw, and patients bring the jaws together with difficulty.

The appropriate mode of reduction in these cases is obvious. Someone should hold the patient’s head, while the operator grasping the jaw with his fingers inside and out near the chin—the patient keeping it open as wide as he conveniently can—should move the jaw this way and that with his hand, and bid the patient keep it relaxed and assist the movement by yielding to it as far as possible.

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\(^1\) σχάται, a gymnastic term for a sudden lateral movement, Galen (XVIII (1), 438).

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\(^2\) Omit Kw.

\(^3\) Omit Galen, Ern., etc.
ΠΕΡΙ ΑΡΘΡΩΝ

απίνης σχάσαι, τρισλ σχήμασιν όμοι προσέχοντα
tόν νόον. χρή μὲν γὰρ παράγεσθαι ἐκ τῆς
dιαστροφῆς ἐσ τήν φύσιν, δεὶ δὲ ἐς τούτῳς
ἀπωσθῆναι τήν γνάθου τήν κάτω, δεὶ δὲ ἐπομενον
tούτοις συμβάλλειν τὰς γνάθους, καὶ μὴ χάσκειν.

60 ἐμβολὴ μὲν ὄνω αὐτῇ, καὶ οὐκ ἂν γένοιτο ἀπ’
ἀλλων σχημάτων. ῥητρείη δὲ βραχείη ἀρκέσευ’
σπλήνα προστιθέντα κεκηρωμένον χαλαρῷ ἑπὶ-
δέσμῳ ἑπιδεῖν. ἀσφαλέστερον δὲ χειρίζειν ἑστὶν
ὑπτιον κατακλύναντα τὸν ἄνθρωπον, ἐρείσαντα
tὴν κεφαλὴν αὐτοῦ ἐπὶ σκυτίνου ὑποκεφαλιών
ὡς πληροστάτου, ἦν ὡς ἦκιστα ὑπείκῃ προσκατ-
έχειν δὲ τινὰ χρῆ τήν κεφαλὴν τοῦ τετρωμένου.

XXXI. Ἡν δὲ ἀμφότεραι αἱ γνάθοι ἐξ-
αρθρήσωσιν, ἡ μὲν ἴσης ἡ αὐτῆ. συμβάλλειν δὲ
τὴν ἴσον οὕτω τὸ στόμα ὑδαναίτ’ καὶ γὰρ
προπετέστεροι αἱ γέννες τούτοις, ἀστραβέες δὲ.
τὸ δὲ ἀστραβὲς μάλιστ’ ἄν γνοίης τοῖς ὁρίοις
τῶν ὀδόντων τῶν τε ἄνω καὶ τῶν κάτω κατ’ ἴξιν.
τούτοις συμφέρει ὡς τάχιστα ἐμβάλλειν ἐμβο-
λής δὲ τρόπος πρόσθεν ἐήρηται. ἡν δὲ μὴ ἐμπέση,
kίνδυνος περὶ τῆς ψυχῆς ὑπὸ πυρετῶν συνεχέων
καὶ νωθρῆς καρώσιος—καρώδεες γὰρ οἱ μύες
οὕτω, καὶ ἀλλοιούμενοι καὶ ἐντεινόμενοι παρὰ
φύσιν—φιλεῖ δὲ καὶ ἡ γαστήρ ὑποχωρεῖν τοῦ-
τοις χολώδεα ἀκρήτα ὀλίγα: καὶ ἂν ἐμέωσιν,
ἀκρήτα ἐμέουσιν’ οὕτω οὖν καὶ θυήσκουσι

15 δεκατάιοι μάλιστα.

XXXII. Ἡν δὲ κατεσαγῇ ἡ κάτω γνάθος, ἡν
μὲν μὴ ἀποκαυλισθῇ παντάπασιν, ἄλλα συνέχη-
ται τὸ ὀστέον, ἐγκεκλιμένον δὲ ἂ, κατορθώσαι
μὲν χρῆ τὸ ὀστέον, παρὰ γε τήν γλῶσσαν

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ON JOINTS, xxx.–xxxii.

Then suddenly do a side-slip, having in mind three positions in the manœuvre. For the deviation must be reduced to the natural direction, the jaw must be pressed backwards, and, following this, the patient must close his jaws and not gape. This, then, is the reduction, and it will not succeed with other manœuvres. A short treatment will suffice. Apply a compress with cerate and a loose bandage over it. The safest way of operating is with the patient recumbent, his head being supported on a well-stuffed leather pillow, that it may yield as little as possible; and someone should also keep the patient's head fixed.

XXXI. If both lower jaws are dislocated [i.e. both sides of the lower jaw], the treatment is the same. These patients are rather less able to close the mouth, for the chin is more projecting, though without deviation. You will best recognize the absence of deviation by the vertical correspondence of the upper and lower rows of teeth. It is well to reduce these cases as quickly as possible; and the mode of reduction is described above. If not reduced there is risk of death from acute fever and deep coma—for these muscles when displaced or abnormally stretched produce coma—and there are small evacuations of pure bile; if there is vomiting, it is also unmixed. These patients, then, die about the tenth day.

XXXII In fracture of the lower jaw, if it is not entirely broken across, but the bone preserves its continuity though distorted, one should adjust the bone by making suitable lateral pressure with the
πλαγίην υπείραντα τοὺς δακτύλους, τὸ δὲ ἐξωθεὶν ἀντερείδοντα, ὡς ἂν συμφέρῃ καὶ ἢ μὲν διεστραμμένοι ἔσωσι οἱ ὄδοντες οἱ κατὰ τὸ τρώμα καὶ κεκινημένοι, ὅποταν τὸ ὀστέον κατορθωθῇ, ξεῦξαι τοὺς ὄδοντας χρῆ πρὸς ἄλληλους, μὴ μοῦνον τοὺς δύο, ἀλλὰ καὶ πλέονας, μάλιστα μὲν δὴ χρυσίῳ, ἕστ' ἂν κρατυνθῇ τὸ ὀστέον, εἰ δὲ μὴ, λίνῳ ἔπειτα ἐπιδεῖξαι κηρωτῇ καὶ σπλήνον λίγοισι καὶ θονίοισιν ὁλίγοισι, μὴ ἄγαν ἐρείδοντα, ἀλλὰ χαλυροῖσιν. εὐ γὰρ εἰδέναι χρῆ, ὅτι ἐπίδεισις θονίους γυναῖκας κατευγείσης σμικρὰ μὲν ἂν ὄφελεοι, εἰ χρηστῶς ἐπιδείτω, μεγάλα δ' ἂν βλάπτοι, εἰ κακῶς ἐπιδείτω. πυκνὰ δὲ παρὰ τὴν γλώσσαν ἐσματείσθαι χρῆ, καὶ πολὺν χρόνον ἀντέχειν τοῖς δακτύλοισι κατορθοῦντα τοῦ ὀστέου τὸ ἐκκλιθεῖν ἀριστον δὲ. εἰ αἰεὶ δύνατο τάλλον οὐχ οἰον τε.

XXXIII. Ἡν δὲ ὁποκαυλισθῇ παντάπασιν τὸ ὀστέον—ὁλιγάκις δὲ τοῦτο γίνεται—κατορθοῦν μὲν χρῆ τὸ ὀστέον οὕτω, καθάπερ εἰρηται. ὅταν δὲ κατορθώσῃς, τοὺς ὄδοντας χρῆ δεδουλήσῃς, ὥς πρόσθεν εἰρηται μέγα γὰρ ἂν συλλαμβάνων ἐς τὴν ἀτρεμίν, προσέτι καὶ εἰ τοὺς ὀρθῶς ξεῦξει ὀσπερ χρῆ, τὰς ἄρχας ράψας. ἀλλὰ γὰρ οὐ ρηῖδιον ἐν γραφῇ χειρουργήγην πᾶσαν δηγείσθαι, ἀλλὰ καὶ αὐτὸν ὑποτοπεῖσθαι ἡ χρῆ ἐκ τῶν γεγραμμένων ἡ ἐπείτα χρῆ δέρματος Ἰαπέρες Καρχηδονίου. ἢ μὲν νηπιώτερος ἢ ὁ τρωθείς, ἀρκεῖ τῷ λοιπῷ χρῆσθαι, ἢν δὲ τελειότερος ἢ, αὐτῷ τῷ δέρματι ταμόντα δὲ χρη εὑρος ὡς τρι- δάκτυλον, ἢ ὁπως ἂν ἀρμόζῃ, ὑπαλείψαντα ὅταν. ἡ ἐπὶ πλέονας. 2 ὁπως ἀρμόζῃ, ὑπαλείψαντα

1 χρῆσθαι κατευγείσης.
ON JOINTS, xxxii.—xxxiii.

fingers on the tongue side, and counter-pressure from without. If the teeth at the point of injury are displaced or loosened, when the bone is adjusted fasten them to one another, not merely the two, but several, preferably with the gold wire, but failing that, with thread, till consolidation takes place. Afterwards dress with cerate and a few compresses and bandages, also few, and with no great pressure, but lax. For one should bear in mind that bandaging a fractured jaw will do little good when well done, but will do great harm when it is done badly. One should make frequent palpation on the tongue side, and hold the distorted part of the bone adjusted with the fingers for a long time. It would be best if one could do so throughout; but that is impossible.

XXXIII. If the jaw is broken right across, which rarely happens, one should adjust it in the manner described. After adjustment you should fasten the teeth together as was described above, for this will contribute greatly to immobility, especially if one joins them up properly and fastens off the ends as they should be. For the rest, it is not easy to give exact and complete details of an operation in writing; but the reader should form an outline of it from the description. Next, one should take Carthaginian leather; if the patient is more of a child, the outer layer is sufficient, but if he is more adult, use the skin itself. Cut a three-finger breadth, or as much as may be suitable, and, anointing the jaw with

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1 ἐγκλιθέν. 2 ες το ἀτρέμειν. 6 ὑποτυπείσθαι MSS.: ὑποτοπείσθαι Erot., Littré. 7 νεώτερος.

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ΠΕΡΙ ΑΡΘΡΩΝ

κόμμα τὴν γυνάθου—εὐμενέστερον γὰρ κόλλης—
προσκολλήσαι τὴν δέρριν ἄκρου πρὸς τὸ ἀπο-
κεκαυλισμένον τῆς γυνάθου, ἀπολείποντα ὡς
dάκτυλον ἀπὸ τοῦ τρώματος ἢ ὀλύγῳ πλέον.
tοῦτο μὲν έσ τὸ κάτω μέρος· ἐχέτω δὲ ἐντομῇ
κατὰ τὴν ίζειν τοῦ γενείου ο ἴμας, ὡς ἀμφὶβεβήκη
ἀμφὶ τὸ ὁξὺ τοῦ γενείου. ἔτερον δὲ ἰμάντα
tοιούτον, ἢ ὀλύγῳ πλατύτερον, προσκολλήσαι
χρῆ πρὸς τὸ ἅνω μέρος τῆς γυνάθου, ἀπολείποντα
cαὶ τούτον ἀπὸ τοῦ τρώματος, ὀσοπερ ὁ ἔτερος
ἀπέλπην· ἐσχύσθω δὲ καὶ οὕτως ὁ ἴμας τῆς
ἀμφὶ τὸ ὀφὺ περίβασιν. ἀποξέεσ δὲ ἐστῶσαν οἱ
ἰμάντες ἀμφὶ τὴν συναφῆν· [ἐνθὰ συνάπτεσθαί
tε καὶ συνδεῖσθαι ἐς τὰ πέρατα τῶν ἰμάντων.] ²
ἐν δὲ τῇ κολλήσει ἡ σάρξ τοῦ σκύτεος πρὸς τοῦ
χρωτὸς ἔστω, ἔχεικολλότερον γὰρ οὕτως. ἔπειτα
κατατείναντα χρῆ καὶ τούτον τὸν ἰμάντα, μᾶλλον
dὲ τι τῶν περὶ τὸ γενείου, ὡς ὅτι μᾶλιστα μὴ
ἀπομομυλλαίην ³ ἡ γυνάθος, συνάψας τοὺς ἰμάντας
κατὰ τὴν κορυφήν κάπετα περὶ τὸ μέτωπον
ὀθονῶν καταδῆσαι, καὶ κατάβλημα χρῆ εἶναι,
ὡσπερ νομίζεται, ὡς ἀπρεμέῃ τὰ δεσμά. τὴν
dὲ κατάκλισιν ποιεῖσθω ἑπὶ τὴν ὑγεία γυνάθου, μὴ
τῇ γυνάθῳ ἐρημεισμένος, ἀλλὰ τῇ κεφαλῇ. ἵσχύ
ναινεὶ δὲ χρῆ τὸ σῶμα ἄχρις ἡμέρων δέκα, ἔπειτα
ἀνατρέφειν μὴ βραδεώς· ἢν δὲ ἐν τῇ προτέρησι
ἡμέρῃσι μὴ φλεγμήνῃ, ἐν εἰκοσί ἡμέρησιν ἢ
γυνάθος κρατύνεται· ταχέως γὰρ ἐπιποροῦται,
ὡσπερ καὶ τὰ ἄλλα τὰ ἀραὶ ὀστέα, ἢν μὴ
ἐπιφοικελίσῃ. ἀλλὰ γὰρ περὶ σφακελίσμων
tῶν συμπάντων ὀστέων ἄλλος μακρὸς λόγος

1 εὐμενέστερον γὰρ κόλλης B.; κόλλης M.V.

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gum—for it is more agreeable than glue—fasten the end of the leather to the broken-off part of the jaw at a finger's breadth or rather more from the fracture. This is for the lower part; and let the strap have a slit in the line of the chin, so as to include the chin point. Another strap, similar or a little broader, should be gummed to the upper part of the jaw at the same interval from the fracture as the former one; and let it also be split for going round the ear. Let the straps taper off at their junction, where the ends meet and are tied together. In the gumming, let the fleshy side of the leather be towards the skin; for so it adheres more firmly. One should then make traction on the thong, but rather more on the one that goes round the chin, to avoid so far as possible any distortion of the jaw. Fasten the straps together at the top of the head, and afterwards pass a bandage round the forehead; and there should be the usual outer covering to keep the bands steady. The patient should lie on the side of the sound jaw, the pressure being not on the jaw, but on the head. Keep him on low diet for ten days, and afterwards feed him up without delay; for if there is no inflammation in the first period, the jaw consolidates in twenty days, since callus forms quickly as in other porous bones, unless necrosis supervenes. Now, necrosis of bones generally remains to be treated at length elsewhere.

1 Erotian s.v.: probably "snout-like distortion." "In acutum" (Foës).

2 Omit Kw. and most MSS.

3 ἀποσυμβαλλεῖ Galen ("draw to a point"); ἀπομυλάξῃ Erot. ("be distorted").
ΠΕΡΙ ΑΡΩΡΩΝ

λείπεται.\(^1\) αὕτη ἡ διάτασις ἡ ἀπὸ τῶν κολλη-
μάτων εὐμενής καὶ εὐταμίευτος, καὶ ἐς πολλὰ
καὶ πολλαχοῦ διορθώματα εὔχρηστος. τῶν δὲ
ἳητρῶν οἱ μὴ σὺν νῦ ἐυχείρες καὶ ἐν ἄλλοις
50 τρώμασι τοιοῦτοί εἰσι καὶ ἐν γυάθων καθιέσιν·
ἐπιδέουσι γὰρ γυάθον κατεαγεῖσαι ποικίλως, καὶ
καλῶς καὶ κακῶς: πᾶσα γὰρ ἐπιδέσις γυάθον
οὕτως κατεαγείσης ἐκκλίνει\(^2\) τὰ ὀστέα τὰ ἐς τὸ
54 κάτηγμα ἔποπτα μᾶλλον ἢ ἐς τὴν φύσιν ἀγεῖ.

XXXIV. *Εν δὲ ἡ κάτω γυάθως κατὰ τὴν
σύμφυσιν τὴν κατὰ τὸ γένειον διασπασθῇ—
μούνῃ δὲ αὕτη ἡ σύμφυσις ἐν τῇ κάτω γυάθῳ
ἔστιν, ἐν δὲ τῇ ἀνω πολλαί: ἄλλ' οὐ βούλομαι
ἀποπλανᾶν τοῦ λόγου, ἐν ἄλλοις γὰρ εἰδεῖσι
νοσημάτων περὶ τούτων λεκτέον— ἢν οὖν διαστῇ
ἡ κατὰ τὸ γένειον σύμφυσις, κατορθώσαι μὲν
παντὸς ἀνδρός ἔστιν. τὸ μὲν γὰρ ἑξεστεὸς
ἐσωθεῖν χρῆ ἢ τὸ ἔσω μέρος, προσβαλόντα τοὺς
daktύλους, τὸ δ' ἔσω ἔποπτο ἀνάγειν ἢ τὸ ἔξω
μέρος, ἐνερείσαντα τοὺς δακτύλους. ἔς διάστασιν
μέντοι διατεινάμενον ταῦτα χρῆ ποιεῖν ῥάδον γὰρ
οὕτως ἐς τὴν φύσιν ήξει ἢ εἴ τις ἐγχρήμπτοντα
ἐς ἀλληλα τὰ ὀστέα παραναγκάζειν πειρᾶται·
tοῦτο παρὰ πάντα τὰ τοιαῦτα [ὑπομνήματα]\(^3\)
χαρίεν εἰδέναι. ὀπὸ ταῦτα δὲ κατορθώσῃς, ξεῦξαι
μὲν χρῆ τοὺς ὀδόντας τοὺς ἐνθευ καὶ ἐνθεύν πρὸς
ἀλλήλους, ὡσπερ καὶ πρόσθεν εἰρηται. ἴησθαι

\(^{1}\) Cf. LXIX. \(^{2}\) ἐγκλίνει B Kw. \(^{3}\) κατῆγμα Littré. Erm. omits the whole sentence.

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ON JOINTS, xxxiii.-xxxiv.

This mode of extension by straps gummed on is convenient, easy to manage, and very useful for a variety of adjustments. Practitioners who have manual skill without intelligence show themselves such in fractures of the jaw above all other injuries. They bandage a fractured jaw in a variety of ways, sometimes well, sometimes badly; but any bandaging of a jaw fractured in this way tends to turn the fragments inwards¹ at the lesion rather than bring them to their natural position.

XXXIV. When the lower jaw is torn apart at the symphysis which is at the chin²—this is the only symphysis in the lower jaw, while in the upper there are many, but I do not want to digress, for one must discuss these matters in relation to other maladies. When, therefore, the symphysis at the chin is separated, anyone can make the adjustment. For one should thrust the projecting part inwards, making pressure with the fingers, and force out that which inclines inwards, using the fingers for counter-pressure. This, however, must be done while the parts are separated by tension; for they will thus be reduced more easily than if one tries to force the bones into position while they override one another (this is a thing it is well to bear in mind in all such cases³). After adjustment, you should join up the teeth on either side as described above. Treat with

¹ Kw.'s reading; Adams prudently has "derange."
² The idea that the lower jaw consists of two bones with a symphysis at the chin is corrected in Celsus VIII 1, but repeated by Galen (perhaps out of respect for Hippocrates), though he admits that it is hard to demonstrate.
³ Perhaps an insertion, but read by Galen.
δὲ χρὴ κηρωτῇ καὶ σπλήνεσιν όλίγους καὶ 20 ὀθονίοισιν. ἐπίδεσιν δὲ βραχεῖσθαι ἢ ¹ ποικίλην μάλιστα τοῦτο τὸ χωρίον ἐπιδέχεται, ἐγγὺς γὰρ τι τοῦ ἱσορρόπου ἐστίν, ὡς δὴ μὴ ἱσορρόπων ἐστιν. τοῦ δὲ ὀθωνίου τὴν περιβολὴν ποιεῖσθαι χρὴ, ὅτι μὲν ἡ δεξιή γνάθος ἐξεστήκη, ἐπὶ δεξιὰ (ἐπὶ δεξιὰ γὰρ νομίζεται εἶναι, ᾧ ἡ δεξιή χεῖρ προ-
ηγῆται τῆς ἐπιδέσιος): ἢν δὲ ἡ ἑτέρη γνάθος ἐξεστήκη, ὥς ἑτέρως χρὴ τὴν ἐπιδέσιν ἀγείν. κἂν 30 μὲν ὅρθῳ τις κατορθώσηται καὶ ἐπατρεμήσῃ ὡς χρῆ, ταχεῖα μὲν ἡ ἄλθεξις, οἱ δὲ ὀδόντες ἀσυνες γίνονται. ἢν δὲ μὴ, χρονιωτέρῃ ἡ ἄλθεξις, διαστροφὴν δὲ ἱσχοῦσιν οἱ ὀδόντες, καὶ σιναροὶ 32 καὶ ἀχρεῖοι γίνονται.

XXXV. Ἡν δὲ ἡ ρίς κατεαγὴ, τρόπος μὲν οὐχ εἰς ἐστὶ κατηξίας: ἀτὰρ πολλὰ μὲν δὴ καὶ ἀλλὰ λωβέονται οἱ χαίροντες τῇς καλῆς ἐπιδέσεις ἀνευ νόου, εὖ δὲ τοῖς περὶ τὴν ρίνα μάλιστα: ἐπιδεσίων γάρ ἐστίν αὕτη ποικιλωτάτη καὶ πλείστους μὲν σκεπάρνους ἐχουσά, διαρρωγάς δὲ καὶ διαλεύψιας ποικιλωτάτας τοῦ χρωτὸς ῥομβοειδέας. ὡς οὖν εἰρηται, οἱ τὴν ἀνόητον εὐχειρίαν ἐπιτιθέοντες ἀσμενοὶ ρίνοις κατεγνωσθι 10 ἐπιτυγχάνουσι, ὡς ἐπιδησίωσιν. μὴν μὲν οὖν ἡμέραν ἢ δύο ἀγάλλεται μὲν ὁ ἴτρος, χαίρει δὲ ὁ ἐπιδεδεμένος: ἐπεῖτα ταχέως μὲν ὁ ἐπιδεδεμένος κορίσκεται, ἀσπρὸν γὰρ τὸ φόρμημα ἀρκεῖ δὲ τῷ ἴτρῷ, ἐπειδὴ ἐπέδειξεν ὅτι ἐπίσταται ποικίλως ρίνα ἐπιδείν. ποιεῖ δὲ ἡ ἐπίδεσις ἡ τοιαῦτα


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cerate and a few pads and bandages. A simple dressing rather than a complicated one is specially suited to this part, for it is nearly cylindrical\(^1\) without actually being so. The bandage should be carried round to the right if the right jaw sticks out (it is said to be "to the right" if the right hand precedes in bandaging\(^2\)): while if the other jaw projects, make the bandaging the other way. If the bandaging is well done and the patient keeps at rest, as he should, recovery is rapid, and the teeth are not damaged; if not, recovery is slow, and the teeth remain distorted and become damaged and useless.

XXXV. If the nose is broken, which happens in more than one way, those who delight in fine bandaging without judgment do more damage than usual. For this is the most varied of bandagings, having the most adze-like turns and diverse rhomboid intervals and vacancies.\(^3\) Now, as I said, those who devote themselves to a foolish parade of manual skill are especially delighted to find a fractured nose to bandage. The result is that the practitioner rejoices, and the patient is pleased for one or two days; afterwards the patient soon has enough of it, for the burden is tiresome; and as for the practitioner, he is satisfied with showing that he knows how to apply complicated nasal bandages. But such bandaging

\(^1\) \(ισφιρεντος\) = "cylindrical" (Galen). "Semicircular" is perhaps clearer.

\(^2\) I.e. to the surgeon's right, but from right to left of the patient's jaw (Galen).

\(^3\) \(διαλαλψιας\) (Kw., Apollon.).

lower jaw is the part on which students exercised their skill in complex forms of bandaging. (XVIII. (1) 462).
ΗΕΡΙ ΑΡΩΡΩΝ

πάντα τάναντία τοῦ δέοντος· τούτο μὲν γάρ, ὁπόσοι σιμοῦνται διὰ τὴν κατηξίν, δηλοῦντι εἰ ἀνωθέν τις μᾶλλον πιείζοι, σιμώτεροι ἂν ἐτι εἰεν· τούτο δέ, ὁσοιι παραστρέφεται ἡ ἐνθα ἡ ἐνθα
20 ἡ ῥίς, ἡ κατὰ τὸν χούνδρον ἡ ἀνωτέρω, δηλοῦντι οὕδεν αὐτοὺς ἡ ἀνωθέν ἐπίδεσις ὡφελησειν, ἀλλὰ καὶ βλάψειε 2 μᾶλλον οὐχ οὗτο γάρ εὖ συναρμόσει σπλήνεσι τὸ ἐπὶ θάτερον τῆς ῥινὸς·
24 καίτοι οὐδὲ τοῦτο ποιόσουσιν οἱ ἐπίδεοντες.

XXXVI. Ἀγχιστα δὲ ἡ ἐπίδεσις μοι δοκεῖ ἃν τι ποιεῖν, εἰ κατὰ μέσην τὴν ρίνα κατὰ τὸ ὅξυ ἀμφιφλασθεὶς ἡ σάρξ κατὰ τὸ ὀστέον, ἡ εἰ κατὰ τὸ ὀστέον σμικρόν τι σίνος εἰ,3 καὶ μὴ μέγα: τοῦτι γάρ τοιοῦτοισιν ἐπιπόρῳμα ὠσχει ἡ ῥίς, καὶ ὀκρυειδεστέρη τινὶ γίνεται: ἀλλ' ὦμοι οὕδε τοῦτοις δὴ ποὺ πολλοῦ ὀχλοῦ δεῖται ἡ ἐπίδεσις, εἰ δὴ τι καὶ δεὶ ἐπιδεῖν. ἀρκεῖ δὲ ἐπὶ μὲν τὸ φλάσμα σπληνίον ἐπιτείναυτα κεκηρω-
10 μένου, ἑπείτα ὡς ἀπὸ δύο ἀρχέων ἐπιδεῖται, οὕτως θοινὼς ἐς ἀπαξ ηπειβάλλει. ἀρίστη μέντοι ὑπερεῖν τῷ ἀλητῷ, τῷ σητανίῳ, τῷ πλυτῷ, γλύσχρῳ, πεφυρμένῳ, ὀλίγῳ, καταπλάσσειν τὰ τοιαῦτα· χρή δὲ, ἢ μὲν εἰ ἀγαθῶν ἢ τῶν πυρῶν τὸ ἀλητον καὶ εὐδλίκιον, τοῦτῳ χρὴθαι ἐς πάντα τὰ τοιαῦτα· ἢ δὲ μὴ πάνω ὀλίκιον ἢ, ἐς ὀλίγημα μαίνετα ὑδατί ὡς λειτοτάτην διέντα. τοῦτῳ φυρᾶν τὸ ἀλητον, ἢ κόμμι πάνω ὀλίγον ὡς αὐτῶς
19 μύσγειν.

XXXVII. Ὁπόσοισι μὲν οὖν ρίς ἐς τὸ κάτω

1 ῥωφηλησει. 2 βλάψει. 3 ἔχαι.
acts in every way contrary to what is proper; for first, in cases where the nose is rendered concave by the fracture, if more pressure is applied from above, it will obviously be more concave, and again in cases where the nose is distorted to either side, whether in the cartilaginous part or higher up, bandaging will obviously be useless in either case, and will rather do harm; for so one will not arrange the pads well on the other side of the nose, and in fact those who put on bandages omit this.

XXXVI. Bandaging seems to me to be most directly¹ useful where the soft parts are contused against the bone in the middle of the nose at the ridge, or when, without great damage, there is some small injury at the bone; for in such cases the nose gets a superficial callus and a certain jagged outline. But not even in these cases is there need of very troublesome bandaging, even if it is required at all. It suffices to stretch a small compress soaked in cerate over the contusion and then take one turn of bandage round it, as from a two-headed roller. After all, the best treatment is to use a little fresh flour, worked and kneaded into a glutinous mass, as a plaster for such lesions. If one has wheat flour² of good quality forming a ductile paste, one should use it in all such cases; but if it is not very ductile, soak a little frankincense powdered as finely as possible in water, and knead the flour with this, or mix a very little gum in the same way.³

XXXVII. In cases where the nose is fractured with

¹ ἀγχιστα = μάλιστα (Erotian).
² στάνιος may be either summer wheat or a special kind rich in gluten (Galen).
³ μάννα = powder of frankincense (Dioscorides 1.68).
καὶ έστι τὸ σιμών ρέπουσα καταγῆ, ἥν μὲν ἐκ τοῦ ἐμπροσθεν μέρεος κατὰ τὸν χόνδρον ἵζεται, οἶον τέ ἐστι καὶ ἐντιθέναι τι διόρθωμα ἐσ τούς μυκτήρας· ἦν δὲ μῆ, ἀνορθοῦν μὲν χρῆ πάντα τὰ τοιαῦτα, τοὺς δακτύλους ἐς τοὺς μυκτήρας ἐντιθέντα, ἦν εὐδεχηται, ἦν δὲ μῆ, πάγχυ ὑπάλειπτρον, μὴ ἐς τὸ ἐμπροσθεν τῆς ρινὸς ἀνάγοντα τοῖς δακτύλοισι, ἀλλ' ἢ ἱδρυται. ἐξωθεὶν δὲ τῆς ρινὸς ἐνθεν καὶ ἐνθεὶ ἀμφιλαμβάνοντα τοῖς δακτύλοισι, συναναγκάζειν τε ἁμα καὶ ἀναφέρειν ἐς τὸ ἀνω. καὶ ἦν μὲν πάνυ ἐν τῷ ἐμπροσθεν τὸ κάτηγμα ὧν, οἶον τέ τι καὶ ἐσω τῶν μυκτήρων ἐντιθέναι, ὥσπερ ἤδη εὐρηται, ἦ ἄχυνη τὴν ἄφ᾽ ἡμιτυβίου ἦ ἄλλο τι τοιοῦτον, ἐν οἴδου ἀείσωστα, μάλλον δὲ εν Καρχηδονίῳ δέρματε ἔρράψαντα: σχηματίζαντα τὸ ἀρμοσσον σχῆμα τῷ χωρίῳ, ένα ἐγκείσεται. ἦ μὲντοι προσωτέρω ὧ τὸ κάτηγμα, οὐδὲν οἶον τε ἐσω ἐντιθέναι καὶ γὰρ εἰ ἐν τῷ ἐμπροσθεν ἀσηρὸν τὸ φόρημα, πῶς γε δὴ οὐκ ἐν τῷ ἑσωτέρῳ; τὸ μὲν οἷον πρῶτον καὶ ἐξωθεὶν ἀναπλάσασθαι καὶ ἐσωθεὶν ἀφειδήσαντα χρῆ ἀναγαγεῖν ἐς τὴν ἀρχαίην φύσιν καὶ διορθώσασθαι. κάρτα γὰρ οὐκ ἐν θεῖ καταγείσα ἀναπλάσσεσθαι, μάλιστα μὲν αὐθήμερον, ἥν δὲ μῆ, ὄλγῳ ὑπερον ἄλλα καταβλακεύουσιν οἱ ἴητροι, καὶ ἀπαλωτέρως τὸ πρῶτον άπτονται ἢ ὅς χρῆ· παραβάλλοντα γὰρ τοὺς δακτύλους χρῆ ἐνθεὶ καὶ ἐνθεὶ κατὰ τὴν φύσιν τῆς ρινὸς ὡς κατωτάτῳ, κατωθεὶν συναναγκάζειν, καὶ οὔτω μάλιστα ἀνορθοῦσθαι σὺν τῇ ἐσωθεὶ διορθώσει

1 εἰ ... εἰτ. 2 αὐθήμερος. 3 ἀνορθοῦντα Κω.
depression and tends to become snub, if the depression is in the front part of the cartilage, it is possible to insert some rectifying support into the nostrils. Failing this, one should elevate all such cases, if possible by inserting the finger into the nostrils, but if not, a thick spatula should be inserted, directing it with the fingers, not to the front of the nose, but to the depressed part: then getting a grip on each side of the nose outside with the fingers, combine the two movements of compression and lifting. If the fracture is quite in front, it is possible, as was said, to insert something into the nostrils, either lint from linen or something of the kind, rolling it up in a rag, or better, sewing it up in Carthaginian leather, adapting its shape to fit the part where it will lie. But if the fracture be further in, nothing can be inserted; for if it is irksome to endure anything in front, how should it not be more so further in? The first thing, then, is to reshape it from outside, and internally to spare no pains in adjusting it and bringing it to its natural position; for it is quite possible for a broken nose to be reshaped, especially on the day of the accident, or, failing that, a little later. But practitioners act feebly, and treat it at first more gently than they should. For one ought to insert¹ the fingers on each side as far as the conformation of the nose allows, and then force it up from below, thus best combining elevation with the rectification from within. Further, no practi-

¹ Editors discuss the obscurity of this passage at great length. The main point is whether the fingers are inserted or applied to the outside of the nose. I follow Ermerins and Petrequin as against Littré-Adams; though there is much to be said on both sides.
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[διορθοῦντα]. 1 ἔπειτα δὲ ἐς ταῦτα ἴτητος οὐδεὶς ἄλλος ἐστὶ τοιοῦτος, εἰ ἐθέλοι καὶ μελεταῖς καὶ τολμᾶν, ὡς οἱ διάκτυλοι αὐτοῦ οἱ λιχανοῦ οὕτως γὰρ κατὰ φύσιν μάλιστα εἰσίν. παραβάλλοντα γὰρ χρῆ τῶν διακτύλων ἐκατέρω, παρὰ πᾶσαν τὴν ρίνα ἐρείδουτα, ἤσυχως οὕτως ἐχειν, μάλιστα μὲν, εἰ οἶνον τε εἰη, αἰεὶ, ἐστ` ἄν κρατηθῇ εἰ δὲ μὴ, ὡς πλείστον χρόνῳ, αὐτοῦ, ὡς εἰρήται εἰ δὲ μὴ, ἡ παῖδα ἡ γυναίκα τινα: μάλθακας γὰρ τὰς χεῖρας δεὶ εἰναι οὕτω γὰρ ἄν κάλλιστα ἰτηρευθεῖν ὑτέως ἡ μιὰ μὴ ἐς τὸ σκολιῶν, ἀλλ` ἐς τὸ κατὸ ἱδρυμένη, ἱσόρροπος εἰη. ἐγὼ μὲν οὖν αὐθεῖας ποι γίναι εἶδον ἢ τις οὕτως καταγείσα οὐχ οὐρ τε διορθωθῆναι αὐτίκα πρὶν πωρωθῆναι συναναγκαζομένη ἐγένετο, εἰ τις ἄρθως ἐθέλοι ἰτηρεῦειν ἀλλ` γὰρ οἱ ἄνθρωποι αἰσχροὶ μὲν εἰναι πολλοὺ ἀποτιμῶσι, μελεταν δὲ ἀμα μὲν οὐκ ἐπίστανται, ἀμα δὲ οὐ τολμῶσιν, ἢν μὴ ὀδυνών- ται, ἥ θάνατον δεδοκώσωσιν καίτοι οἶκοχρόνοις ἡ πώρωσις τῆς μοῖρας ἐν γὰρ δέκα ἡμέρῃσι 50 κρατῶνται, ἢν μὴ ἐπισφακελίσῃ.

XXXVIII. Ὄποσοισι δὲ τὸ ὀστέον ἐς τὸ πλάγιον κατάγνυται, ἡ μὲν ἱάσις ἡ αὐτή την δὲ διορθῶσιν δηλοῦντι χρὴ ποιεῖσθαι οὐκ ἱσόρροπον ἁμφοτέρως, ἀλλὰ τὸ τε ἐκκεκλιμένον 2 ὠθεῖν ἐς τὴν φύσιν, ἐκτὸσθεν ἀναγκάζοντα καὶ ἐσματευόμενον ἐς τοὺς μυκτῆρας, καὶ τὰ ἐσω ῥέσαιν ἄρθρον ἄλκνως, ἐστ` ἄν κατορθώσῃς, εὖ εἰδότα ότι, ἢν μὴ αὐτίκα κατορθώσῃται, οὐχ οἶνον τε μὴ οὐχὶ διεστράφθαι τὴν ρίνα. ὅταν δὲ ἄγάγης ἐς

1 Galen. Omit most MSS., Littré, etc.
tioner is so suitable for the job as are the index fingers of the patient himself, if he is willing to be careful and courageous, for these fingers are especially conformable to the nose. He should insert the fingers alternately, making pressure along the whole course of the nose, and keeping it steady; especially let him continue it, if he can, till consolidation occurs, failing that, as long as possible. As was said, he should do it himself; but if not, a boy or woman must do it, for the hands should be soft. This is the best treatment when the nose is not distorted laterally, but keeps evenly balanced though depressed. Now, I never saw a nose fractured in this way which could not be adjusted by immediate forcible manipulation before consolidation set in, if one chose to treat it properly. But while men will give much to avoid being ugly, they do not know how to combine care with endurance, unless they suffer pain or fear death. Yet the formation of callus in the nose takes little time, for it is consolidated in ten days, unless necrosis supervenes.

XXXVIII. In cases where the bone is fractured with deviation, the treatment is the same. Adjustment should obviously not be made evenly on both sides, but press the bent-out part into its natural position by force from without, and, introducing the finger into the nostrils, boldly rectify the internal deviation till you get it straight, bearing in mind that, if it is not straightened at once, the nose will infallibly be distorted. And when you bring it to

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1 This seems the surgical implication of ἐκάτερον. Cf. Sury. X.
ΠΕΡΙ ΑΡΩΡΩΝ

10 τὴν φύσιν, προσβάλλοντα χρή ἐς τὸ χωρίον ἢ
tοὺς δακτύλους ἢ τὸν ἐνα δάκτυλον, ἢ ἐξέσχεν
ἀνακωχεῖν ἢ αὐτὸν ἢ ἄλλον τινά, ἐστ' ἄν
κρατυνθῇ τὸ τρῶμα. ἀτὰρ καὶ ἐς τὸν μυκτῆρα
tὸν σμικρὸν δάκτυλον ἀπωθέοντα ἄλλοτε καὶ
ἄλλοτε διορθοῦν χρή τὰ ἐγκλιθέντα. ὃ τι δ' ἄν
φλεγμονής ὑπογίνηται τούτοις, δεῖ τῷ σταίτε
χρησθαι τοῖς μέντοι δακτύλοις προσέχειν
ὀμοίως καὶ τοῦ σταίτος ἐπικειμένου.

20 καταγη, ἀνάγκη τὴν ρίνα ἀκρὴν παρεστράφθαι.
χρῆ ὅτι τοῖς τοιουτοῖς ἐς τὸν μυκτῆρα ἄκρου
dιόρθωμα τι τῶν εἰρημένων ἢ ὃ τι τοιουτοῖς
ἐνοικεν ἐντιθέναι. πολλὰ δ' ἣν τις εὑροί τὰ
ἐπιτιθεία, ὅσα μήτε ὀδήμην ἵσχει, ἄλλος τε καὶ
προσηνέα ἐστίν· ἐγὼ δὲ ποτε πλεύμονος προ-
βάτου ἀπότριμμα ἐνέθηκα, τούτο γὰρ πῶς
παρέτυχεν οἱ γὰρ σπόγγοι ἐντιθέμενου ὑγρόσ-
ματος δέχονται. ἔπειτα χρὴ Καρχιδονίου δέρ-
ματος λοσόν, πλάτος ὡς τοῦ μεγάλου δακτύλου
τετμημένον, ἢ ὁπως ἄν συμφέρῃ, προσκολλήσαι
ἐς τὸ ἐκτοσθεν πρὸ τὸν μυκτῆρα τὸν ἐκκεκλι-
μένον. κάπετα κατατείναι τοῖς ἰμάντα ὁπως
ἄν συμφέρῃ μᾶλλον δὲ ὀλίγῳ τεῖνειν χρῆ, ὡστε
ὄρθὴν καὶ ἀπαρτῆ τὴν ρίνα εἶναι. ἔπειτα—
μακρὸς γὰρ ἐστώ ὁ ἰμάς—κάτωθεν τοῦ ὁτὸς
ἀγαγόντα αὐτὸν ἀναγαγεῖν περὶ τὴν κεφαλῆν
καὶ ἔξεστι μὲν κατὰ τὸ μέτωπον προσκολλήσαι
tὴν τελευτὴν τοῦ ἰμάντος, ἔξεστι δὲ καὶ μακρό-
tερον [ἀγείν, ἔπειτα] περιελέσσοιτα τὴν
40 κεφαλῆν καταδείν. τοῦτο ἀμα μὲν δικαίην τὴν

1 ἐγκεκλιμένον.
2 ὡστε.
the normal, one or more fingers should be applied at the place where it stuck out, and either the patient or someone else should support it till the lesion is consolidated. One should also insert the little finger from time to time into the nostril and adjust the depressed part. If inflammation arises in these cases, one should use the dough, but keep up the finger application as before, even when the dough is on.

If fracture with deviation occurs in the cartilage, the end of the nose will infallibly be distorted. In such cases, insert one of the internal props mentioned above, or something of the kind, into the nasal opening. One could find many suitable substances without odour and otherwise comfortable. I once inserted a slice from a sheep's lung which happened to be handy; for when sponges are put in, they absorb moisture. Then one should take the outer layer of Carthaginian leather, cut a strip of a thumb's breadth, or what is suitable, and gum it to the outer part of the nostril on the bent side. Next, make suitable tension on the strap—one should pull rather more than suffices to make the nose straight and outstanding. Then—the strap should be a long one—bring it under the ear and up round the head. One may gum the end of the strap on to the forehead. One may also carry it further, and after making a turn round the head, fasten it off. This gives an adjustment which is at

1 ἀπαρτητὴν Kw. ἀπαρτῆ Galen, Littré, vulg.
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dιόρθωσιν ἔχει, ἀμα δὲ εὐταμίευτον, καὶ μᾶλλον, ἢν ἑθέλῃ, καὶ ἴσον τὴν ἀντιρροπὴν ποιήσεται τῆς ῥινός. ἀτὰρ καὶ ὁπόσοιον ἐσ τὸ πλάγιον ἢ ρὶς κατάγιυται, τὰ μὲν ἀλλὰ ἤτρευειν χρὴ ὡς προείρηται προσδεῖται δὲ τοῖς πλείστοις καὶ τοῦ ἱμάντος πρὸς ἄκρην τὴν ῥῖνα προσκολληθῆναι τῆς ἀντιρροπῆς εἴνεκα.

XXXIX. Ὅποσοις δὲ σὺν τῇ κατήξει καὶ ἐλκεά προσχίνεται, οὐδὲν δεὶ ταράσσεσθαι διὰ τοῦτο: ἀλλ' ἐπὶ μὲν τὰ ἐλκεα ἐπιτιθέναι ἢ πισοπὴν ἢ τῶν ἐναίμων τις εὐαλθεά γὰρ τῶν τοιούτων τὰ πλεῖστά ἐστιν ὀμοίως, κἂν ὡστὲ μέλλῃ ἀπιέναι. τὴν δὲ διόρθωσιν τὴν πρώτην ἄκομως χρὴ ποιεῖσθαι, μηδὲν ἐπιλείποντα, καὶ τὰς διορθώσιας τοῖς δακτύλοις ἐν τῷ ἐπείτα χρόνῳ ἡ χαλαρωτέροισι μὲν χρεόμενον, χρεόμενον δὲ εὐπλαστότατον γὰρ τὶ παντὸς τοῦ σώματος ἢ ρὶς ἐστὶν. τῶν δὲ ἱμάντων τῇ κολλήσει καὶ τῇ ἀντιρροπῇ παντόπασιν οὐδὲν κωλύει χρῆσθαι, οὔτ' ἢν ἐλκος ἢ, οὔτ' ἢν ἐπιφλεγμήνῃ.

14 ἀλυπόταται γὰρ εἰσιν.

XI. Ἡν δὲ οὐς καταγῇ, ἐπιδέσις μὲν πᾶσαι πολέμιαι: οὐ γὰρ οὕτω τοις χαλαρῶν περιβάλλοι. ἢν δὲ μᾶλλον πιέζῃ, πλέων κακὸν ἐργάσεται: ἐπεὶ καὶ υγιὲς οὖς, ἐπιδέσει πιεχθεῖ, ὀδυνηρῶν καὶ σφυγματῶδες καὶ πυρετῶδες γίνεται. ἀτὰρ καὶ τὰ ἐπιπλάσματα, κάκιστα μὲν τὰ βαρύτατα τὸ ἐπίπαν ἀτὰρ καὶ πλείστα φλάβρα καὶ ἀποστατικά, καὶ μῦζαν τε ὑποποιεῖι [πλεῖω].

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1 ποιήσει. 2 τοῖς . . . χρόνοις. 3 περιβάλλει. 4 Omit.

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ON JOINTS, xxxviii.—xl.

once normal and easily arranged; and one can make the counter-deviation of the nose more or less as one chooses. Again, when the [bone of the] nose is fractured with deviation, besides the other treatment mentioned, it is also necessary in most cases that some of the leather should be gummed on to the tip of the nose to make counter-deviation.  

XXXIX. In cases where the fracture is complicated with wounds, there should be no alarm on that account, but one should apply an ointment containing pitch or some other remedy for fresh wounds; for the majority of such cases heal no less readily, even if bones are going to come away. The first adjustment should be made without delay and with completeness; the later rectifications with the fingers are to be done more moderately, yet they are to be done, for of all parts of the body the nose is most easily modelled. There is absolutely no objection to the gumming on of straps and counter-deviation, not even if there is a wound or inflammation supervening, for the manipulations are quite painless.

XL. If the ear is fractured, all bandaging is harmful, for one cannot apply a circular bandage so as to be lax; and if one uses more pressure one will do further damage, for even a sound ear under pressure of a bandage becomes painful, throbbing, and heated. Besides, as to plasters, the heaviest on the whole are the worst; they have also for the most part harmful qualities producing abscess, excessive formation of mucus, and afterwards troublesome dis-

1 Galen found this gummed leather method very unsatisfactory; "if you pull hard enough to do any good, it comes off" (XVIII (1) 481).
ΠΕΡΙ ΑΡΘΩΝ

καπετα ἐκπυήσιας ἀσηράς· τούτων δὲ ἦκιστα
10 οὐς καταγέν προσδείται· ἀγχίστα μὴν, εἰτερ χρῆ, τὸ γλίσχρον ἀλητὼν, χρῆ δὲ μηδὲ τούτο βάρος ἔχειν. ψαύειν δὲ ὡς ἦκιστα συμφέρειν ἀγαθὸν γὰρ φάρμακον ἔστιν ἐνίοτε καὶ τὸ μηδὲν προσφέρειν, καὶ πρὸς τὸ οὐς καὶ πρὸς ἄλλα πολλά. χρῆ δὲ καὶ τὴν ἐπικοίμησιν φυλάσσεσθαι· τὸ δὲ σῶμα ἵσχυαίνειν, καὶ μᾶλλον ὦ ἂν κίνδυνος ἢ ἐμπυον τὸ οὐς γενέσθαι· ἄμεινον δὲ καὶ μαλθάζαι τὴν κοιλῆν· ἢν δὲ καὶ εὐήμετος ἢ ἢ, ἐμεῖν ἐκ συρμαισμοῦ. ἢν δὲ ἐς ἐμπύησιν ἐλθῇ, 20 ταχέως μὲν οὐ χρῆ στομοῦν πολλὰ γὰρ καὶ τῶν δοκεόντων ἐκπυγίσθαι ἀναπώντα ἀπε; κην μηδὲν τις καταπλάσση· ἢν δὲ ἀναγκασθῇ στομώσαι, τάχιστα μὲν ὑγιὲς γίνεται, ἢν τις πέρην διακαύσῃ εἰδέναι μέντοι χρῆ σαφῶς ὅτι κυλλὸν ἔσται τὸ οὖς, καὶ μεῖον τοῦ ἑτέρου, ἢν πέρην διακαύσῃ· ἢν δὲ μὴ πέρην καίηται, τάμνειν χρῆ τὸ μετέωρον, μὴ πάνω σμικρὴν τομῆν· διὰ παχυτέρου καὶ τὸ πῦὸν εὐρίσκεται ἢ ὃς ἂν τις δοκεῶ· ὃς δὲ ἐν κεφαλαίῳ εἰπεῖν, 30 καὶ πάντα τάλλα τὰ μυξώδεα καὶ μυξοποιά, ἀτε γλίσχρα ἐόντα, ὑποθεγαγομένα διοικηθάνει ταχέως ύπὸ τοὺς δακτύλους καὶ ἐνθα καὶ ἐνθα· διὰ τοῦτο διὰ παχυτέρου εὐρίσκουσι τὰ τοιαῦτα οἱ ἠτροὶ ἢ ὡς οἴονται· ἐπεὶ καὶ τῶν γαγγλιωδέων ἐνία, ὁσα ἂν πλαδαρὰ ἢ, καὶ μυξώδεα σάρκα ἃ, πολλοὶ στομοῦσιν, οὐκενοί στρέμμα ἀνευρήσειν ἐς τὰ τοιαῦτα· ἢ μὲν οὖν γνώμη τοῦ ἠτροῦ ἐξαπατᾶται· τῷ δὲ πρήγματι τῷ τοιούτῳ οὐδέμια βλάβη στομωθέντι· ὡσα δὲ ὑδατώδεα χωρία

1 εὐεμέτης Kw.  
2 εἰρήσθαι.
ON JOINTS, xi.

charges of pus. A fractured ear is far from needing these as well. If need be, the best application is the glutinous flour plaster; but even this should not be heavy. It is well to touch the part as little as possible, for it is a good remedy sometimes to use nothing, both in the case of the ear and many others. Care must be taken as to the way of lying. Keep the patient on low diet, the more so if there is danger of an abscess in the ear. It is also good to loosen the bowels, and, if he vomits easily, cause emesis by "syrmaism." 1 If it comes to suppuration, do not be in a hurry to open the abscess, for in many cases when there seems to be suppuration, it is absorbed, and that without any application. If one is forced to open an abscess, it will heal most quickly by cauterising right through; but bear well in mind that the ear, if cauterised right through, will be deformed and smaller than the other. If it is not cauterised through, one should make an incision in the swollen part, not very small, for the pus will be found under a thicker covering than one would expect. And, speaking generally, all other parts of a mucous nature, or which secrete mucus, being viscous slip about readily hither and thither when palpated, wherefore practitioners find them thicker to penetrate than they expected. Thus, in the case of some ganglionic tumours which are flabby and have mucoid flesh, many open them, thinking to find a flux of humours to such parts. The practitioner is deceived in his opinion; but in practice no harm is done by such a tumour being opened. Now, as to watery parts,

1 An emetic of radishes and salt water (Erotian): cf. Herod II. 88.
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40 ἐστὶν ἡ μύξης πεπληρωμένα, καὶ ἐν οἷοις χωρίσωσιν ἐκασταθάνατον φέρει στομούμενα ἤ καὶ ἄλλοιας βλάβας, περὶ τούτων ἐν ἄλλῳ λόγῳ γεγράφεται. ὅταν οὖν τάμη τις τὸ οἷς, πάντων μὲν καταπλασμάτων, πάσης δὲ μοτώσιος ἀπέχεσθαι χρή ἵπτρευειν δὲ ἡ ἐναίμω ἡ ἄλλῳ τῷ οὗ μὴ βάρος μῆτε πόνου παρασχῆσει· ἢν γὰρ ὁ χόνδρος ἄρξηται ψιλούσθαι, καὶ ὑποστάσιας ἴσχυ[πυρώδεις ἡ χολώδεις], ὑ)[χλώδες][καὶ] μοχθηρὸν γίνεται δὲ τούτῳ δὲ ἐκείνας τὰς ἴσιας.

50 πάντων δὲ τῶν παλιγκοτησάντων ἡ πέρην διά-
51 καυσὶς αὐταρκέστατον.

ΧΛΙ. Σπόνδυλοι δὲ οἱ κατὰ ράχιν, ὀσοισὶ μὲν ὑπὸ νουσημάτων ἐλκονται ἐς τὸ κυφόν, τὰ μὲν πλείστα ἦδύνατα λύσθαι, ποτὶ καὶ ὅσα ἀνωτέρω τῶν φρενῶν τῆς προσφύσιος κυφοῦται. τῶν δὲ κατωτέρω μετεζητερα λύσουσι κιρσοὶ γενόμενοι ἐν τοῖς σκέλεσι, μᾶλλον δ' ἐπὶ ἐγχυμόμενοι κιρσοὶ ἐν τῇ κατὰ ῥυπήν φλεβί· οἴσι δ' ἄν τὰ κυφώματα λύνηται, ἐγχύμονται δὲ ἐν τῇ κατὰ βουβῶνα· ἡδη δὲ τισιν ἐλυσε καὶ δυσεντερὴ πολυχρόνιος γενομένη. καὶ οἴσι μὲν κυφοῦται ράχις παιοὶν ἐούσι, πρὶν ἢ τὸ σῶμα τελειωθῆναι ἐς αὐξήσιω τούτως μὲν οὔδε συναύξεσθαι ἐθέλει κατὰ τὴν ράχιν τὸ σῶμα, ἀλλὰ σκέλεα μὲν καὶ χεῖρες τελειοῦνται ταῦτα δὲ ἐνδειστερα γίνεται. καὶ ὅσοισιν ἂν ἡ ἀνωτέρω τῶν φρενῶν τὸ κυφος, τούτως μὲν αἰ τε πλευραί οὔκ ἐθέλουσιν ἐς τὸ εὐρὺ αὐξῆσθαι, ἀλλὰ ἐς τοῦμπροσθεν, τὸ δὲ στήθος οξὺ γίνεται,

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or those filled with mucus, and in what parts severally opening brings death or other damage, these matters will be discussed in another treatise.¹ When, then, one incises the ear, all plasters² and all plugging should be avoided. Treat with an application for fresh wounds, or something else neither heavy nor painful. For if the cartilage begins to get denuded and has troublesome abscesses,³ it is bad, and this is the result of that treatment [viz. plasters and plugging with tents]. Perforating cautery is most effective by itself for all supervening aggravations.

XLI. When the spinal vertebrae are drawn into a hump by diseases, most cases are incurable, especially when the hump is formed above the attachment of the diaphragm. Some of those lower down are resolved when varicosities form in the legs, and still more when these are in the vein at the back of the knee. In cases where curvatures resolve, varicosities may also arise in the groin; and, in some, prolonged dysentery causes resolution. When hump-back occurs in children before the body has completed its growth, the legs and arms attain full size, but the body will not grow correspondingly at the spine; these parts are defective. And where the hump is above the diaphragm, the ribs do not enlarge in breadth, but forwards, and the chest becomes pointed.

¹ Not extant.
² "Plasters bandaged on": cf. Wounds in the Head. XVII.
³ Kw.'s reading.

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¹ Littré, Kw. omit.
² ὀξλώδεας, Kw. The MSS. are very confused.
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ἀλλ' οὖ πλατύ, αὐτοὶ τε δύσπνοι γίνονται καὶ κερχνώδεστε ἦσον γὰρ οὐρυχωρίην ἐχουσίν αἰ κοι- λίαι αι τὸ πνεῦμα δεχόμεναι καὶ προπέμπονσαι. καὶ γὰρ δὴ καὶ ἀναγκάζονται κατὰ τὸν μέγαν ἑπώνυμον λορδὸν καὶ ¹ αὐχένα ἔχειν, ὡς μὴ προπετῆς ἢ αὐτοῖς ἡ κεφαλῆς στενοχωρίην μὲν οὖν πολλὴν τῇ φάρυγγι παρέχει καὶ τοῦτο ἐστὶν ἐπορεύσεις καὶ γὰρ τοῖς ὅρθοίσι φύσει δύσ- πνοιαν παρέχει τοῦτο τὸ ὀστέον, ἢν ἐσω ῥέσῃ, ἐστὶν ἀναπνευσθῇ. διὸν τὸ τοιοῦτον σχῆμα ἐξεχέβρογχοι οἱ τοιοῦτοι τῶν ἀνδρώπων μάλ- λον φαίνονται ἢ οἱ ὕψιεσ. φυματίαι τε ὡς ἐπὶ τὸ πολὺ κατὰ τὸν πλεύρων εἰσιν οἱ τοιοῦτοι σκλη- ρῶν φυμάτων καὶ ἀπέπτων καὶ γὰρ ἡ πρὸφασίς τοῦ κυφώματος καὶ ἡ σύντασις τοῖς πλεῖστοις διὰ τοιαύτας συστροφὰς γίνεται, ἢσιν ἂν κοινωνή- σωσιν οἱ τόνοι οἱ σύνεγγυς. ὅσοι δὲ κατωτέρω τῶν φρειῶν τὸ κύφωμα ἐστὶν, τοῦτοις νοσήματα μὲν ἐνίοισι προσγίνεται νεφριτικὰ καὶ κατὰ κύστιν ἅτὰρ καὶ ἀποστάσιες ἐμπνευματικαὶ κατὰ κενεώνας καὶ κατὰ βουβώνας, χρόνιαι καὶ δυσαλθέες, καὶ τοῦτων ὑδετηρίᾳ λύει τὰ κυφώ- ματα. ἵσχύε ὧς καὶ τοιούτωσιν ἢτὶ ἀσαρκότερα γίνε- ται ἢ τοῖς ἄνωθεν κυψίοσιν ἢ μὲντοι σύμπασα ῥάχις μακρότερη τοῦτοις ἢ τοῖς ἄνωθεν κυφώσιν. ἦβθη δὲ καὶ γένειου βραδύτερα καὶ ἀετελέστερα, καὶ ἀγονώτεροι ὡς τῶν ἄνωθεν κυφῶν. οἴσι δὲ ἂν ἥξιμενοισι ὅδη τὸ σῶμα ἡ κύψις γενηται, τοῦτοις ἀπαντικρίζοντες κάσισιν ποιεῖ η

¹ τὸν.
instead of broad; the patients also get short of breath and hoarse, for the cavities which receive and send out the breath have smaller capacity. Besides, they are also obliged to hold the neck concave at the great vertebra,\(^1\) that the head may not be thrown forwards. This, then, causes great constriction in the gullet, since it inclines inwards; for this bone, if it inclines inwards, causes difficult breathing even in undeformed persons, until it is pushed back. In consequence of this attitude, such persons seem to have the larynx more projecting than the healthy. They have also, as a rule, hard and unripened\(^2\) tubercles in the lungs; for the origin of the curvature and contraction is in most cases due to such gatherings, in which the neighbouring ligaments take part. Cases where the curvature is below the diaphragm are sometimes complicated with affections of the kidneys and parts about the bladder, and besides there are purulent abscessions in the lumbar region and about the groins, chronic and hard to cure; and neither of these causes resolution of the curvatures. The hips are still more attenuated in such cases than where the hump is high up; yet the spine as a whole is longer in these than in high curvatures. But the hair on the pubes and chin is later and more defective, and they are less capable of generation than those who have the hump higher up. When curvature comes on in persons whose bodily growth is complete, its occurrence produces an apparent\(^3\) crisis

\(^1\) Axis or second cervical, according to Galen, but perhaps the seventh. Cf. XLV.

\(^2\) Unmatured or softened.

\(^3\) Or, "to begin with": most translators, "obviously."
κύφωσις: ἀνὰ χρόνου μέντοι ἐπισημαίνει τὶ τῶν αὐτῶν, ὡσπερ καὶ τοῖς νεωτέροις, ἢ πλέον ἢ ἔλασσον. ἦσον δὲ κακοήθως ὡς τὸ ἐπίπταν μὴν τοιαύτα πάντα ἔστιν. πολλοὶ μέντοι ἡδὴ καὶ εὐφόρως ἤνεγκαν καὶ ὑγιεινῶς τὴν κύφωσιν ἄχρι γῆρας, μάλιστα δὲ οὕτω, οἷς ἂν εἰ τὸ εὐσαρκὸν καὶ πιμελῶδες προτράπηται τὸ σῶμα· ὅλιγοι μὴν ἡδὴ καὶ τῶν τοιούτων ὑπὲρ ἐξήκοντα ἐτή ἐβίώσαν· οἱ δὲ πλεῖστοι βραχυβιώτεροί εἰσιν. ἔστι δ’ οἷς καὶ ἂς τὸ πλάγιον σκολιοῦνται σπόνδυλοι ἡ τῇ ἡ τῇ πάντα μὴν ἡ τὰ πλεῖστα τὰ τοιαύτα γίνεται διὰ συστροφῆς τὰς ἐσωθεν τῆς ῥάχιος· προσσυμβάλλεται δὲ ἐνίοισι σὺν τῇ νοῦσῳ καὶ τὰ σχῆματα, ἐφ’ ὅποια ἂν ἐθυσθέωσι κεκλίσθαι. ἀλλὰ περὶ μὲν τούτων ἐν τοῖς χρονίοις κατὰ πλεύμονα νοσήμασιν εἰρήσεται· ἐκεῖ γὰρ εἰσιν αὐτῶν χαρισταται προγνώσιες περὶ τῶν μελλόντων ἔσεσθαι.

XLII. "Οσοὶ δ’ ἐκ καταπτώσιος ῥάχις κυφοῦται, ὅλιγα δ’ τούτων ἐκρατήθη ὡςτε ἐξιθυδηναι. τούτῳ μὲν γὰρ, αἰ ἐν τῇ κλίμακι κατασείσεις οὐδένα πώ ἐξιθυδηναι, ὦν γε ἐγὼ οἶδα· χρέωνται δὲ ὅι ἦτροι μάλιστα αὐτῇ οἱ ἐπιθυμεόντες ἐκχανοῦν τῶν πολὺν ὄχλον τοῖς γὰρ τοιούτοις ταῦτα θανμᾶσι ἔστιν, ἣν ἡ κρεμάμενον ἱδωσιν ἡ ἐπιτεύμενον, ἡ ὅσα τοῖς τοιούτοις ἔοικε, καὶ ταῦτα κληίζουσιν αἰεί, καὶ οὐκέτι αὐτοῖς μέλει ὁποιόν τι ἀπέβη ἀπὸ τοῦ χειρίσματος, εἴτε κακοῦ εἴτε ἀγαθοῦ. οἱ μὲντοι ἦτροι οἱ τὰ τοιαύτα ἐπιτηδεύοντες σκαῖοι εἰσιν, οὔς γε ἐγὼ ἐγνων τὸ μὲν γὰρ ἐπινόημα ἀρχαῖον, καὶ ἐπαινέω ἐγώνη σφόδρα τὸν πρῶτον ἐπί-
in the disease then present. In time, however, some of the same symptoms found in younger patients show themselves to a greater or lesser degree; but in general they are all less malignant. Many patients, too, have borne curvature well and with good health up to old age, especially those whose bodies tend to be fleshy and plump; but few even of these survive sixty years, and the majority are rather short-lived. There are some in whom the vertebrae are curved laterally to one side or the other. All such affections, or most of them, are due to gatherings on the inner side of the spine, while in some cases the positions the patients are accustomed to take in bed are accessory to the malady. But these will be discussed among chronic diseases of the lung; for the most satisfactory prognoses as to their issue come in that department.

XLII. When the hump-back is due to a fall, attempts at straightening rarely succeed. For, to begin with, succussions on a ladder never straightened any case, so far as I know, and the practitioners who use this method are chiefly those who want to make the vulgar herd gape, for to such it seems marvellous to see a man suspended or shaken or treated in such ways; and they always applaud these performances, never troubling themselves about the result of the operation, whether bad or good. As to the practitioners who devote themselves to this kind of thing, those at least whom I have known are incompetent. Yet the contrivance is an ancient one, and for my part I have great admiration for the
珀尔·阿俄翁

νοήσαντα καὶ τοῦτο καὶ ἄλλο πάν ὁ τι μηχάνημα κατὰ φύσιν ἐπενοήθη: οὐδὲν γὰρ μοι ἀέλπτον, εἰ τις καλῶς σκευάσας καλῶς κατασείσειε, κἂν ἐξίθυνον· ἔνν. αὐτὸς μὲντοι κατηγχύνθην πάντα τὰ τοιούτωτα ἤτρεύειν οὔτω, διὰ τοῦτο ὅτι πρὸς ἀπατεώνων μᾶλλον οἱ τοιοῦτοι τρόποι.

ΧΛΠ. Ὅποσοισι μὲν οὖν ἔγγοι τοῦ αὐχένος ἢ κύφωσις γίνεται, ἢςον εἰκὸς ὑφελεῖν τὰς κατατάσσεις ταύτας τὰς ἐπὶ τὴν κεφαλὴν· σμικρὸν γὰρ τὸ βάρος ἡ κεφαλὴ καὶ τὰ ἀκρώμια καταρρέονται: ἀλλὰ τοὺς γε τοιούτους εἰκὸς ἐπὶ τοὺς ¹ πόδας κατασειθέντας μᾶλλον ἐξίθυνθην. μὲξων γὰρ οὔτως ἡ καταρρόπιθ ἡ ἐπὶ ταῦτα· ὁσοὶ δὲ κατωτέρω τὸ ὑβώμα, τούτοις εἰκὸς μᾶλλον ἐπὶ κεφαλῆς κατασείσθαι. εἰ οὖν τὸς ἐθέλοι κατασείειν, ὁρθῶς ἄν ὁδὲ σκευάζοι τὴν μὲν κλίμακα χρῆ σκυτίνοις ὑποκεφαλαίοις πλαγίοις, ὡς ἐρυνείς, καταστρῶσαι εἰ πρὸςδε δεμένοις, ὅλγῳ πλέον καὶ ἐπὶ μῆκος καὶ ἐνθεν καὶ ἐνθεν, ἢ ὅσον ἄν τὸ σῶμα τοῦ ἀνθρώπου κατασχοι ἐπείτα τὸν ἀνθρώπον ὑπτιον κατακλίναι ἐπὶ τὴν κλίμακα χρῆ· κάπειτα προσδήσαι μὲν τοὺς πόδας παρὰ τὰ σφυρὰ πρὸς τὴν κλίμακα μη διαβεβότας, δεσμῷ εὐόχῳ μὲν, μαλθακῷ δὲ προσδήσαι δὲ κατωτέρω εκάτερον τῶν γουρατῶν καὶ ἀνωτέρω· προσδήσαι δὲ καὶ κατὰ τὰ ἵσχια κατὰ δὲ τοὺς κενεώνας καὶ κατὰ τὸ στῆθος χαλαρῆσει ταινίησι ² περιβαλεῖν οὕτως, ὅπως μὴ κωλύσῃ ³ τὴν κατάσεισιν· τὰς δὲ χεῖρας παρὰ τὰς πλευρὰς πιορατείναντα προσκαταλαβεῖν πρὸς αὐτὸ τὸ σῶμα, καὶ μη πρὸς τὴν κλίμακα· ὅταν

² Omit Erm., Kw.

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man who first invented it, or thought out any other mechanism in accordance with nature; for I think it is not hopeless, if one has proper apparatus and does the succussion properly, that some cases may be straightened out. For myself, however, I felt ashamed to treat all such cases in this way, and that because such methods appertain rather to charlatans.

XLIII. In cases where the curvature is near the neck, extension of this kind with the head downwards is naturally less effective; for the downward-pulling weight of the head and shoulders is small. Such cases are more likely to be straightened out by succussion with the feet downwards; for the downward pull is greater thus than in the former position. Cases where the hump is lower may more appropriately undergo succussion head downwards. If then one desires to do succussion, the following is the proper arrangement. One should cover the ladder with transverse leather or linen pillows, well tied on, to a rather greater length and breadth than the patient's body will occupy. Next, the patient should be laid on his back upon the ladder; and then his feet should be tied at the ankles to the ladder, without being separated, with a strong but soft band. Fasten besides a band above and below each of the knees, and also at the hips; but the flanks and chest should have bandages passed loosely round them, so as not to interfere with the succussion. Tie also the hands, extended along the sides, to the body itself, and not to the ladder. When you have

\[\text{\footnotesize 2 \, \kappa\lambda\alpha\rho\dot{\eta} \tau\alpha\nu\eta.} \]

\[\text{\footnotesize 3 \, \kappa\alpha\lambda\upsilon\sigma\epsilon\iota.} \]
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dε ταύτα κατασκευάσης οὕτως, ἀνέλκειν τὴν κλίμακα ἃ πρὸς τύρσιν τινὰ ύψηλὴν ἢ πρὸς ἀέτωμα οὖκ οὐκόν· τὸ δὲ χωρίον ἴνα κατασείεις· ἀντίτυπον ἐστώ· τοὺς δὲ ἀντιτείνοντας εὐπαιδεύ-
tous χρή εἶναι, ὅπως ὁμαλῶς [καὶ καλῶς] 2 καὶ ἵσορρόπως καὶ ἐξαπιναίως ἀφίσσουσι, καὶ μήτε ἡ κλίμαξ ἐτερόρροπος ἐπὶ τὴν γῆν ἀφίξεται, μήτε αὐτοὶ προπετεές ἔσονται. ἀπὸ μὲντοι τύρ-σιοι ἀφιεῖς ή ἀπὸ ἱστοῦ καταπετηγότος καρ-χήσιον ἔχοντος ἐτι κάλλιον ἀν τις σκευάσαιτο, ὡστε ἀπὸ τροχιλῆς τὰ χαλώμενα εἶναι ὅπλα ἡ ἀπὸ ὄνον. ἀρδέσ μὴν καὶ μακρολογεῖν περὶ τούτων· ὁμοῖς δὲ ἐκ τούτων ἂν τῶν κατασκευῶν κάλλιστ' 3 ἂν τις κατασκεισθείη.

XLIV. Εἰ μὲντοι κάρτα ἄνω εἴη τὸ ὑβώμα, δέοι δὲ κατασείειν πάντως, ἐπὶ πόδας κατασείειν λυσίτελει, ὥσπερ ἡδὴ εἰρήται· πλεῖων γὰρ οὕτω γίνεται ἡ καταρρόπη ἐπὶ ταύτα. ἐρμάσαι δὲ χρή κατὰ μὲν τὸ στῆθος πρὸς τὴν κλίμακα προσδήσαντα ἰσχυρῶς, κατὰ δὲ τὸν αὐχένα ὡς χαλαρωτάτη ταυνίη, ὅσον τοῦ κατορθοῦσθαι εἰνεκα· καὶ αὐτὴν τὴν κεφαλῆν κατὰ τὸ μέτωπον προσδήσαι πρὸς τὴν κλίμακα· τὰς δὲ χεῖρας παρατανύσαντα πρὸς τὸ σῶμα προσδήσαι, καὶ μὴ πρὸς τὴν κλίμακα· τὸ μέντοι ἀλλο σῶμα ἀδετον εἶναι χρῆ, πλῆν, ὅσον τοῦ κατορθοῦσθαι εἰνεκα, ἀλλη καὶ ἀλλη ταυνή χαλαρη' περι-βεβλήσαται· ὅπως δὲ μὴ κωλύσων οὕτοι οἱ δεσμοὶ τὴν κατάσεισιν, σκοπεῖν· τὰ δὲ σκέλεα πρὸς μὲν τὴν κλίμακα μή προσδεδέσθω, πρὸς ἅλληλα δὲ, ὡς κατὰ τὴν ράχιν ἱθυρροπα ἥ· ταύτα μὲντοι τοιούτοτρόπως ποιητέα, εἰ πάντως 286
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arranged things thus, lift the ladder against some high tower or house-gable. The ground where you do the succussion should be solid, and the assistants who lift well trained, that they may let it down smoothly, neatly, vertically, and at once, so that neither the ladder shall come to the ground unevenly, nor they themselves be pulled forwards. When it is let down from a tower, or from a mast fixed in the ground and provided with a truck, it is a still better arrangement to have lowering tackle from a pulley or wheel and axle. It is truly disagreeable to enlarge on these matters; but all the same, succussion would be best done by aid of this apparatus.¹

XLIV. If the hump is very high up and succussion absolutely required, it is advantageous to do it towards the feet, as was said before; for in this direction the downward impulsion is greater. One should fix the patient by binding him to the ladder firmly at the chest, but at the neck with the loosest possible band sufficient to keep it straight; bind the head itself also to the ladder at the forehead. Extend the arms along, and fasten them to, the body, not to the ladder. The rest of the body should not be tied, except in so far as is requisite to keep it vertical with a loose band round it here and there. But see that these attachments do not hinder the succussion. Do not fasten the legs to the ladder, but to one another, that they may hang in a straight line with the back. This is the sort of thing that

¹ Surgeons will remember that methods no less violent than these and those described below were practised for a time on high authority at the end of last century.

¹ κατασεισεῖς. ² Απολλ., Galen, but most omit. ³ μάλιστα.
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dεοι ἐν κλίμακι καταστεισθήματι αἰσχροὶ μέντοι
καὶ ἐν πάσῃ τεχνῇ, καὶ οὐχ ἦκι στα ἐν ἰατρικῇ,
pολὺν ὀχλον καὶ πολλήν ὄψιν καὶ πολλῶν λόγων
παρασχοῦντα, ἐπειτὰ μηδέν ὀφελῆσαι.

XLV. Χρῆ δὲ πρῶτον μὲν γινώσκειν τὴν φύσιν
τῆς ράχιος, ὅτι τῆς ἐστὶν· ἐς πολλὰ γὰρ νουσή-
ματα προσδέοι ἀν αὐτῆς. τοῦτο μὲν γὰρ, τὸ
πρὸς τὴν κοιλίην ῥέπον οἱ σπόνδυλοι ἐντὸς ἄρτιοι
ἐἰσὶν ἀλλήλοις, καὶ δέδενται πρὸς ἀλλήλους
dεσμῷ μυζώδει καὶ νευρῶδει, ἀπὸ χοῦνδρων ἀπο-
πεφυκότι ἄχρι πρὸς τὸν νωτιαῖον. ἀλλοὶ δὲ
τινες τὸν νευρῶδες διανταῖοι πρόσφυτοι παρα-
tέτανται ἐνθὲν καὶ ἐνθὲν αὐτῶν. αὖ δὲ φλεβῶν
καὶ ἀρτηρίων κοινωνία ἐν ἔτερῳ λόγῳ δεδηλώσον-
tαι, ὅσα τε καὶ οἶαι, καὶ ὅθεν ὲρμημέναι, καὶ
ἐν οὕσιν¹ οἷα δύνανται, αὐτὸς δὲ ὁ νωτιαῖος
οἶσιν ἐλύτρωται ἐλύτρωσιν καὶ ὅθεν ὲρμημένοις,
καὶ ὅτι κραίνουσι καὶ οἷσιν κοινωνέουσι, καὶ οἷα
dυναμένοισι· ἐν δὲ τῷ ἑπέκειμα ἐν ἄρθροις γε-
γεγυγλύμωνται πρὸς ἀλλήλους οἱ σπόνδυλοι. τόνοι
dὲ κοινοὶ παρὰ πάντας καὶ ἐν τοῖσιν ἔξω μέρεσι
καὶ ἐν τοῖσιν ἔσω παρατέτανται ἀποφυσίς τε
ἐστὶν ὥστεν ἐς τὸ ἔξω μέρος ἀπὸ πάντων τῶν
σπονδύλων, μία ἀπὸ ἔνοικαστοῦ, ἀπὸ τὸ τῶν
μεζόνων ἀπὸ τὸ τῶν ἐλασσόνων. ἔπὶ δὲ τῆσιν
ἀποφύσεις ταὐτησι χονδρίων ἐπιφύσεις, καὶ ἀπὸ
ἐκείνων νεύρων ἀποβλάστησις ἡ δελφισμένη τοῖσιν
ἐξωτάτω τοῖσισι. πλευραὶ δὲ προσπεφύκασιν,
ἐς τὸ ἔσω μέρος τὰς κεφαλάς ῥέπουσιν μᾶλλον ἡ
ἐς τὸ ἔξω· καθ' ἕνα δὲ ἐκαστὸν τῶν σπονδύλων
προσήρθρωνται καμπυλώταται δὲ πλευραὶ ἀν-

¹ οἷς.
must be done if succussion on a ladder is absolutely required; but it is disgraceful in any art, and especially in medicine, to make parade of much trouble, display, and talk, and then do no good.

XLV. One should first get a knowledge of the structure of the spine; for this is also requisite for many diseases. Now on the side turned towards the body cavity, the vertebrae are fitted evenly to one another and bound together by a mucous and ligamentous connection extending from the cartilages right to the spinal cord. There are also certain ligamentous cords extending all along, attached on either side of them. The communications of the veins and arteries will be described elsewhere as regards their number, nature, origin, and functions; also the spinal cord itself with its coverings, their origin, endings, connections and functions. Posteriorly, the vertebrae are connected with one another by hinge-like joints. Cords common to them all are stretched along both the inner and outer sides. From every vertebra there is an outgrowth (apophysis) of bone posteriorly (lit. “to the outer part”), one from each, both the larger and smaller; upon the apophyses are epiphyses of cartilage, and from these there is an outgrowth of tendons, which are in relation with the outermost cords. The ribs are articulated severally with each of the vertebrae, their heads being disposed rather inwards (forwards) than outwards (backwards). Man’s ribs are the most curved,

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1 Intervertebral cartilage: reference to its mucous centre and cartilaginous anterior layer.

2 Both these and those mentioned above seem to be the anterior and posterior common ligaments. “Inner” and “outer” = our “front” and “back.”
θρόπου εἰς ῶπαβοειδέα τρόπον, τὸ δὲ μεσηγὸν τῶν πλευρῶν καὶ τῶν ὀστέων τῶν ἀποπεφυκότων ἀπὸ τῶν σπονδύλων ἀποπληρέουσιν ἐκατέρωθεν οἱ μῦες ἀπὸ τοῦ αὐχένου ἀρξάμενοι, ἀχρί τῆς προσφύσιος. αὐτῇ δὲ ἡ ῶραχις κατὰ μῆκος ἰθυσκόλιος ἐστὶν· ἀπὸ μὲν τοῦ ἱεροῦ ὀστέου ἀχρὶ τοῦ μεγάλου σπονδύλου, παρ’ ὅν προσήρτηται τῶν σκελεῶν ἡ πρόσφυσις, ἀρχὶ μὲν τούτῳ κυφῆς κύστις τε γὰρ καὶ γοναὶ καὶ ἀρχὸν τὸ χαλαρὸν ἐν τούτῳ ἐκτισται. ἀπὸ δὲ τούτου ἀρχὶ φρενῶν προσαρτήσιος, ῶθυλόρδη καὶ παραφύσια ἔχει μιὼν τοῦτο μοῦν τὸ χορίον ἐκ τῶν ἐσωθεὶν μερῶν, ἂς δὴ καλούσιν ψόας. ἀπὸ δὲ τούτου ἀρχὶ τοῦ μεγάλου σπονδύλου του ὑπὲρ τῶν ἐπωμίδων, ἴθυκύφη ἐτὶ δὲ μᾶλλον δοκεῖ ἡ ἐστίν· ἡ γὰρ ἀκάνθα κατὰ μέσον υψηλοτάτας τὰς ἐκφύσιας τῶν ὀστέων ἔχει, ἐνθὲν δὲ καὶ ἐνθὲν ἐλάσσους. αὐτὸ δὲ τὸ ἄρθρον τὸ τοῦ αὐχένου λορδῶν ἐστίν.

XLVI. Ὀπόσοισι μὲν ὀὖν κυφώματα γίνεται κατὰ τοὺς σπονδύλους, ἐξωσις μὲν μεγάλη ἀπορραγείσα ἀπὸ τῆς συμφύσιος ἡ ἔνοσ σπονδύλου καὶ πλεύσων οὐ μάλα πολλοῖσι γίνεται, ἀλλ’ ὀλύγοισι. οὐδὲ γὰρ τὰ τρόματα τὰ τοιαύτα ῶρηδίων γίνεσθαι· οὔτε γὰρ ἐς τὸ ἐξωσθῆναι ῶρηδίων ἐστίν, εἰ μὴ ἐκ τοῦ ἐμπροσθεν ἵσχυρῳ τινὶ τρωθείς διὰ τῆς κοιλίης (οὐτώ δὲ ἄν ἀπόλοιπτο), ἡ εἰ τις ἄφι υψηλοῦ τοῦ χωρίου πεσὼν ἐρείσει τοῖς ἱσχύσιν θυελλῶν ἂς τοῖς ὑμοίσιν (ἀλλὰ καὶ οὔτως ἄν ἀποθάνοι), παραρκήμα δὲ οὐκ ἄν ἀποθάνοι· ἐκ δὲ τοῦ ὅπωσθεν ὃς ῶρηδίων τοιαύτης ἐξαλσισθηθῇ ἐς τὸ ἔσω, εἰ μὴ ὑπερβαρὺ τι ῶχθος ἐμπέσον τῶν τε γὰρ ὀστέων τῶν ἐκπεφυκότων ἐξω ἐν
ON JOINTS, xlv.-xlvi.

and they are bandy-shaped. As to the part between the ribs and the bony outgrowths (apophyses) of the vertebrae, it is filled on each side by the muscles which begin at the neck and extend to the attachment\(^1\) [of the diaphragm]. The spine itself is curved vertically through its length. From the sacrum to the great vertebra,\(^2\) near which the origin of the legs is inserted, all this is curved outwards; for the bladder, generative organs, and loose part of the rectum are lodged there. From this point to the attachment of the diaphragm it curves inwards; and this part only of the inside has attachments of muscles, which they call “psoai.” From this to the great vertebra\(^3\) over the shoulder-blades it is curved outwards, and seems to be more so than it is; for the ridge has the outgrowths of bone highest here, while above and below they are smaller. The articulation of the neck itself is curved inwards.

XLVI. In cases then of outward curvature at the vertebrae, a great thrusting-out and rupture of the articulation of one or more of them does not very often occur, but is rare. Such injuries, indeed, are hard to produce; nor is it easy for outward thrusting to be brought about, unless a man were violently wounded from the front through the body cavity—and then he would perish—or if a man falling from a height came down on his buttocks or shoulders—but then he would die also, though he might not die at once. And from behind it would not be easy for such sudden luxation to take place inwards, unless some very heavy weight fell on the spine; for each of the external bony epiphyses is of

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1 “To their attachment” (Petrequin).
2 Fifth lumbar.
3 Seventh cervical.
ΠΕΡΙ ΑΡΩΡΩΝ

ἐκαστὸν τοιοῦτὸν ἔστιν, ὡστε πρόσθεν ἂν αὐτὸ καταγηναί πρὶν ἡ μεγάλην ῥοπὴν ἔσω ποιήσαι, τοὺς τε συνδέσμους βιησάμενον καὶ τὰ ἄρθρα τὰ ἐνηλλαγμένα. Ὅ τε ἀὖ νωτιαῖος ποινῇ ἂν, εἰ ἐξ ὅλιγον χωρίῳ τῇ περικαμπῇ ἔχοι, τοιαύτην ἐξαλίσθην ἐξαλλομένου σπονδύλου· ὁ τε ἐκπηδήσας σπόνδυλος πιέζῃ ἂν τὸν νωτιαίον, εἰ μή καὶ ἀπορρίξειν. πιεχθεὶς δ’ ἂν καὶ ἀπολελαμμένος πολλῶν ἂν καὶ μεγάλων καὶ ἑπικαίρων ἀπονάρκωσιν ποιήσειν· ὡστε οὐκ ἂν μέλοι τῷ ἵπτρῳ ὀπως χρὴ τὸν σπόνδυλον κατορθώσαι, πολλῶν καὶ βιαίων ἅλλων κακῶν παρεόντων. ὡστε δὴ οὐδ’ ἐμβαλείν οἵν τε πρόδηλον τὸν τοιοῦτον οὔτε κατασείσει οὔτε ἅλλῳ τρόπῳ οὔδενί, εἰ μή τις διαταμὸν τὸν ἄνθρωπον, ἐπείτα ἐσμασάμενος ἐς τὴν κοιλίην, ἐκ τοῦ ἐσώθεν τῇ χειρὶ ἐς τὸ ἔξω ἄντωθέον καὶ τοῦτο νεκρῷ μὲν οἴνον τε ποιεῖν, ξόντι δὲ οὖ πάνω. διὰ τὸ ὅν παῦ οὐντα γράφο; ὅτι οἰόνται τινες ἤτρευκέναι ἄνθρωποις οἴσιν ἔσωθεν ἐνέπεσον σπόνδυλοι, τελέως ὑπερβάντες τὰ ἄρθρα· καίτοι γε ῥήστην ἐς τὸ περιγενέσθαι τῶν διαστροφέων ταύτῃ ἐνοῦ νομίζοντι καὶ οὔδεν δεῖσθαι ἐμβολῆς, ἀλλὰ ἀυτόμαται ὑγεία γίνεσθαι τὰ τοιαῦτα. ἀγνοεοῦσι δὴ πολλοὶ, καὶ κερδαίνουσιν ὅτι ἀγνοεοῦσιν πείδουσι γὰρ τοὺς πέλας.

ἐξαπατώνται δὲ διὰ τόδε· οἰόνται γὰρ τὴν ἀκανθαν τῇ ποιήσεσθαι κατὰ τὴν βάχυν ταύτῃ τοὺς σπονδύλους αὐτοὺς εἰναι, ὅτι στρογγύλου αὐτῶν ἐκαστὸν φαίνεται ψανόμενον, ἀγνοεῖτε ὅτι τὰ ὅστεα ταῦτα ἐστὶ τὰ ἀπὸ τῶν σπονδύλων πεφυκότα, περὶ ὅν ὁ λόγος ὀλίγῳ πρόσθεν εἰρηται· οἱ δὲ σπόνδυλοι πολὺ προσωποὶ.
such a nature as to be fractured itself before overcoming the ligaments and interconnecting joints and making a great deviation inwards. The spinal cord, too, would suffer, if the luxation due to jerking out of a vertebra had made so sharp a curve; and the vertebra in springing out would press on the cord, even if it did not break it. The cord, then, being compressed and intercepted, would produce complete narcosis of many large and important parts, so that the physician would not have to trouble about how to adjust the vertebra, in the presence of many other urgent complications. So, then, the impossibility of reducing such a dislocation either by succussion or any other method is obvious, unless after cutting open the patient, one inserted the hand into the body cavity and made pressure from within outwards. One might do this with a corpse, but hardly with a living patient. Why then am I writing this? Because some think they have cured patients whose vertebrae had fallen inwards with complete disarticulation; and there are even some also who think this is the easiest distortion to recover from, not even requiring reduction, but that such injuries get well of themselves. There are many ignorant practitioners; and they profit by their ignorance, for they get credit with their neighbours. Now this is how they are deceived. They think that the projecting ridge along the spine represents the vertebrae themselves, because each of the processes feels rounded on palpation; not knowing that these bones are the natural outgrowths from the vertebrae which were discussed a little above. But
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tέρω ἀπείσων· στενοτάτην γὰρ πάντων τῶν ξώνων ὀνύθρωπος κοιλίην ἔχει, ὥς ἐπὶ τῷ μεγέθει, ἀπὸ τοῦ ὁπισθεὶ ἐς τὸ ἐμπροσθεν, ποτὶ καὶ κατὰ τὸ στῆθος. ὅταν οὖν τι τούτων τῶν ὀστέων τῶν ὑπερεχόντων ἱσχυρὸς καταγῆ, ἢν τε ἐν ἢν τε πλείω, ταύτῃ ταπεινότερον τὸ χωρίον γίνεται ἢ τὸ ἐνθεν καὶ ἐνθεν, καὶ διὰ τοῦτο ἐξαπατώνται, οἵμενοι τοὺς σπονδύλους ἐσω ὀὐχεσθαί. προσεξα-
πατά δὲ ἐτὶ αὐτοὺς καὶ τὰ σχήματα τῶν τετρω-
mένων· ἢ μὲν γὰρ πειρόμεναι καμπύλλεσθαι, ὀδυνάστα, περιτενέος γιαμομένου ταύτη τοῦ δέρ-
ματος ἢ τέτρωνται, καὶ ἀμα τὰ ὀστέα τὰ κατεπ-
γότα ἐνθράσσει οὐτω μᾶλλον τὸν χρώτα. ἢν δὲ
λορδαίνωσι, ράον εἰσίν· χαλαρώτερον γὰρ τὸ
δέρμα κατὰ τὸ τρόμα ταύτη γίνεται, καὶ τὰ
ὀστέα ἡσοῦν ἐνθράσσει ἀτὰρ καὶ ἢν τὶς ψαύη
αὐτῶν, κατὰ τοῦτο ὑπείκουσι λορδοῦντες, καὶ τὸ
χωρίον κενεῦν καὶ μαλθακὸν ψαύμενον ταύτη
φαίνεται. ταῦτα πάντα τὰ εἰρημένα προσεξα-
πατά τοὺς ἱπτρούς. ὑγιεῖς δὲ ταχέως καὶ ἀσινεὲς
αὐτοματοί οἱ τοιοῦτοι γίνονται· ταχέως γὰρ
πάντα τὰ τοιαῦτα ὀστέα ἐπιπωροῦται, ὅσα
χαύνα ἔστω.

XLVII. Σκολιαίνεται μὲν οὖν ράχις καὶ υγιαί-
nουσι κατὰ πολλοὺς τρόπους· καὶ γὰρ ἐν τῇ
φύσει καὶ ἐν τῇ χρήσει οὕτως ἔχει· ἀτὰρ καὶ ὑπὸ
γήρας καὶ ὑπὸ ὁδυνημάτων 1 συνδοτική ἔστων.
αἱ δὲ ὅτι κυфώσεις αἱ ἐν τοῖς πτώμασιν ὡς ἐπὶ
tὸ πολὺ γίνονται, ἢν ἢ τοῖς ἵσχυσισι ἔρεισι ἢ ἐπὶ
tοὺς ὀμοὺς πέσῃ. ἀνάγκη γὰρ ἐξω φαίνεσθαι
ἐν τῷ κυφώματι ἕνα μὲν τινα ψυχλότερον τῶν
σπονδύλων, τοὺς δὲ ἐνθεν καὶ ἐνθεν ἐπὶ ἡσσοῦ.
the vertebrae are much farther in front; for man has the narrowest body cavity of all animals relatively to his size and measured from behind forwards, especially in the thoracic region. Whenever, therefore, there is a violent fracture of these projecting processes, either one or more, the part is more depressed there than on either side; and therefore they are deceived, and think the vertebrae have gone inwards. And the attitudes of the patients help to deceive them still more; for if they try to bend forwards, they suffer pain, the skin being stretched at the level of the injury, while at the same time the fractured bones disturb the flesh more; but if they hollow their backs, they are easier, for thereby the skin gets more relaxed at the wound, and the bones cause less disturbance. Again, if one feels them, they shrink at the part, and bend inwards; and the region appears hollow and soft on palpation. All these things contribute to deceive the physicians, while such patients recover of themselves quickly and without damage; for callus forms rapidly on all bones of this kind, by reason of their being porous.

XLVII. Curvature of the spine occurs even in healthy persons in many ways, for such a condition is connected with its nature and use; and besides, there is a giving way in old age, and on account of pain. But the outward curvatures due to falls usually occur when the patient comes down on his buttocks or falls on his shoulders; and, in the curvature, one of the vertebrae necessarily appears to stand out more prominently, and those on either

\[1 \delta\delta\nu\nu\nu\nu\upsilon\upsilon\upsilon\upsilon\text{ Kw.}\]
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10 οὔκον εἰς ἐπὶ πολὺ ἀποπετηθηκῶς ἀπὸ τῶν ἀλλῶν ἐστίν, ἀλλὰ σμικρὸν ἐκαστὸς συνδιδοί, ἀθρόον δὲ πολὺ φαίνεται. διὰ οὖν τούτο καὶ ὁ νωτιαῖος μυελὸς εὑφόρως φέρει τὰς τοιούτας διαστροφὰς, ὅτι κυκλώδης αὐτῷ ἡ διαστροφὴ γίνεται, ἀλλ' οὖ γωνιώδης.

Χρὴ δὲ τὴν κατασκευὴν τοῦ διαναγκασμοῦ τοιχῆδε κατασκευᾶσαι. Ἐξεστὶ μὲν ξύλον ἵσχυρὸν καὶ πλατύν, ἐντομὴν παραμικέα ἔχον, κατορύξαι· ἔξεστι δὲ ἀντί τοῦ ξύλου εὕ τοίχῳ ἐντομὴν παραμικέα ἐνταμεῖν, ἢ πίχει ἀνωτέρω τοῦ ἐδάφεος, ἢ ὀπως ἢν μετρίως ἐχρ' ἔπειτα οἰον στύλων δρύινων τετράγωνων πλάγιων παραβάλλων, ἀπολείποντα ἀπὸ τοῦ τοίχου ὅσον παρελθεῖν τινά, ἢν δὲ· καὶ ἐπὶ μὲν τὸν στύλον ἐπιστορέσαι ἢ χλαίνας ἢ ἄλλο τι, ὁ μαλθακὸν μὲν ἐσταί, ὑπεῖξε δὲ μὴ μέγα· τὸν δὲ ἀνθρωπὸν πυρίησαι, ἢν ἐνδέχηται, ἢ πολλῷ θερμῷ λούσαι· κάπειτα πρηνέα κατακλίναι κατατεταμένου, καὶ τὰς μὲν χειρᾶς αὐτοῦ παρατείναντα κατὰ φύσιν προσδήσαι πρός τὸ σῶμα, ἵμαντι δὲ μαλθακῶς, ἱκανῶς πλατῆς τε καὶ μακρῷ, ἐκ δύο διανταίων συμβεβλημένῳ μέσῳ, κατὰ μέσον δὲ τὸ στῆθος δις περιβεβλῆσθαι χρῆ ὡς ἐγγυτάτω τῶν μασχαλέων· ἐπειτα τὸ περισσεῦν τῶν ἱμάντων κατὰ τὴν μασχάλην ἐκάτερον περὶ τοῦ ὦμους περιβεβλήσθω· ἐπειτα αἱ ἀρχαὶ πρὸς ξύλον ὑπερειδέσ τι προσδεδέσθωσαν, ἀρμοζουσαι τὸ μῆκος τῷ ξύλῳ τῷ ὑποτεταμένῳ, πρὸς ὅ τι πρόσβαλλον τὸ ὑπερειδές ἀντιστηρίζοντα κατατείνειν. τοιοῦτοι δὲ τινὶ ἐτέρῳ δεσμῷ χρὴ ἀνωθεν τῶν γουνάτων δήσαντα καὶ ἀνωθεν τῶν πτερνέων τὰς ἀρχας τῶν ἱμάντων πρὸς τοιούτων 296
ON JOINTS, xlvii.

side less so. It is not that one has sprung out to a distance from the rest; but each gives way a little, and the displacement taken altogether seems great. This is why the spinal marrow does not suffer from such distortion, because the distortion affecting it is curved and not angular.¹

The apparatus for forcible reduction should be arranged as follows. One may fix in the ground a strong broad plank having in it a transverse groove. Or, instead of the plank, one may cut a transverse groove in a wall, a cubit above the ground, or as may be convenient. Then place a sort of quadrangular oak board parallel with the wall and far enough from it that one may pass between if necessary; and spread cloaks on the board, or something that shall be soft, but not very yielding. Give the patient a vapour bath if possible, or one with plenty of hot water; then make him lie stretched out in a prone position, and fasten his arms, extending them naturally, to the body. A soft band, sufficiently broad and long, composed of two strands, should be applied at its middle to the middle of the chest, and passed twice round it as near as possible to the armpits; then let what remains of the (two) bands be passed round the shoulders at each side, and the ends be attached to a pestle-shaped pole, adjusting their length to that of the underlying board against which the pestle-shaped pole is put, using it as a fulcrum to make extension. A second similar band should be attached above the knees and above the heels, and the ends of the straps fastened to

¹ In spite of this, the strange contradiction "angular curvature" has come to be the technical term for hump-back.
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τι ξύλον προσδήσαι: ἄλλῳ δὲ ἰμάντι πλατεῖ καὶ μαλθακῷ καὶ δυνατῷ, ταινιοειδεῖ, πλάτος ἐχοντι καὶ μήκος ἰκανόν, ἵσχυρὸς περὶ τὰς ἵξυας κύκλῳ περιδεδέσθαι ὡς ἐγγύτατα τῶν ἵσχιων· ἔπειτα το περισσεύον τῆς ταινιοειδεός, ἀμα ἀμφοτέρας τὰς ἀρχὰς τῶν ἰμάντων, πρὸς τὸ ξύλον προσδήσαι τὸ πρὸς τῶν ποδῶν κατειπτα κατατείνειν ἐν τούτῳ τῷ σχήματι ἐνθα καὶ ἐνθα, ἀμα μὲν ἵσοφρόπως, ἀμα δὲ ἐς ἰθύ. οὐδὲν γὰρ ἀν μέγα κακὸν ἡ τοιαύτη κατάτασις ποιήσειν, εἰ χρηστῶς σκευασθεῖν, ἐὰν μῆ ἀρα ἐξεπίτηδες τις βούλοιτο σώεσθαι, τὸν δὲ ἵπτρον κρή ἢ ἄλλον, ὅστις ἵσχυρὸς καὶ μή ἀμαθὴς, ἐπιθέντα τὸ θέναρ τῆς χειρὸς ἐπὶ τὸ ὑβωμα, καὶ τὴν ἐτέρην χεῖρα προσπεθέντα ἐπὶ τὴν ἐτέρην, καταναγκάζειν, προσυνιέντα ἄν τε ἐς ἰθύ ἐς τὸ κάτω πεφύκῃ καταναγκάζεσθαι, ἢν τε πρὸς τῆς κεφαλῆς, ἢν τε πρὸς τῶν ἵσχιων. καὶ ἀσινεστάτη μὲν αὐτῇ ἡ ἀνάγκη· ἀσίνης δὴ καὶ ἐπικαθέξεσθαι τινα ἐπὶ τὸ κύφωμα, αὐτοῦ ἀμα κατατεινομένου, καὶ ἐνσεῖσαι μετεωρισθέντα. ἀτὰρ καὶ ἐπιβῆναι τῷ ποδὶ καὶ ὄχθηναι ἐπὶ τὸ κύφωμα· ἢσύχως τε ἐπευσεῖσαι οὐδὲν κωλυει· τὸ τοιοῦτον δὲ ποιῆσαι μετρίως ἐπιτήδειος ἄν τις εἰ ὅ ἀμφὶ παλαιστρὴν εἰθισμένων. δυνατωτάτη μὲν τῶν ἀναγκῶν ἐστὶν, εἰ ὁ μὲν τοῖχος ἐντε- τμημένος ἢ τὸ δὲ ξύλον τὸ κατωρυγμένον, ἢ ἐντέτμηται, κατωτέρω εἰ ὅ της ῥάχιος τοῦ ἀνθρώ- πον· ὁπόσῳ δὲ ὅκη μετρίως ἔχειν, σανὶς δὲ φιλυρίνη, μὴ λεπτή, ἐνείη, ἢ καὶ ἄλλον τινὸς ξύλου· ἔπειτα ἐπὶ μὲν τὸ ὑβωμα ἐπιτεθείη ἢ τρύχιον τι πολύπτυχον ἢ σμικρόν τι σκύτων ὑποκεφαλαίων· ὡς ἐλάχιστα μὴν ἐπικείσθαι

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a similar pole. With another soft, strong strap, like a head-band, of sufficient breadth and length, the patient should be bound strongly round the loins, as near as possible to the hips. Then fasten what is over of this band, as well as the ends of both the other straps, to the pole at the foot end; next, make extension in this position towards either end simultaneously, equally and in a straight line. Such extension would do no great harm, if well arranged, unless indeed one deliberately wanted to do harm. The physician, or an assistant who is strong and not untrained, should put the palm of his hand on the hump, and the palm of the other on that, to reduce it forcibly, taking into consideration whether the reduction should naturally be made straight downwards, or towards the head, or towards the hips. This reduction method also is very harmless; indeed, it will do no harm even if one sits on the hump while extension is applied, and makes succussion by raising himself; nay, there is nothing against putting one's foot on the hump and making gentle succussion by bringing one's weight upon it. A suitable person to perform such an operation properly would be one of those habituated to the palaestra. But the most powerful method of reduction is to have the incision in the wall, or that in the post embedded in the ground, at an appropriate level, rather below that of the patient's spine, and a not too thin plank of lime or other wood inserted in it. Then let many thicknesses of cloth or a small leather pillow be put on the hump. It is well that

1 σκευασθή.
συμφέρει, μόνον προσωπικούς ως μή ἡ σανίς ὑπὸ σκληρότητος ὑδύνην παρὰ καίρον προσπαρέχῃ κατ᾽ ἵνα δὲ ἔστω ὡς μάλιστα τῇ ἐντομῇ τῇ ἐς τὸν τοίχον τὸ ὑβωμα, ὡς ἂν ἡ σανίς, ἡ μάλιστα ἐξέστηκε, ταύτη μάλιστα πιεῖτε ἐπιτεθείσα. ὅταν δὲ ἐπιτεθῇ, τὸν μὲν τινα καταναγκάζειν χρῆ τὸ ἀκρον τῆς σανίδος, ἢν τε ἑνά δή ἢν τε δύο, τοὺς δὲ κατατείνειν τὸ σῶμα κατὰ μήκος, ὡς πρόσθεν εἰρηταί, τοὺς μὲν τῇ, τοὺς δὲ τῇ. ἐξέστη δὲ καὶ ὁνίσκοις τὴν κατάτασιν ποιεῖσθαι, ἢ παρακατορύζαντα παρὰ τὸ ἔξολον, ἢ ἐν αὐτῷ τῷ ἔξολῳ ταῖς φλιαῖς τῶν ὁνίσκων ἐντεκτηνάμενον, ἢν τε ὅρθως ἑθέλη, ἐκατέρωθεν σμικρὸν ύπερεχούσας, ἢ τε κατὰ κορυφῆν τοῦ ἔξουλον ἐνθεν καὶ ἐνθεν. αὕτη αἱ ἀνάγκαι εὐταμίευτοι εἰσὶ καὶ ἐς τὸ ἵσχυρότερον καὶ ἐς τὸ ἥσσον, καὶ ἱσχύν ἐχουσι τοιαίτην, ὡστε καὶ εἰ τις ἐπὶ λύμη βούλοιτο, ἀλλὰ μὴ ἐπὶ ἱπτρείη, ἢς τοιαύτας ἀνάγκας ἀγαγεῖν καὶ τοῦτο ἵσχυρὸς δύνασθαι: καὶ γὰρ ἂν κατατείνων κατὰ μήκος μοῦνον ἐνθεν καὶ ἐνθεν οὔτω καὶ ἀλλιῶν ἀνάγκην οὐδεμίην προστιθείς, ὑμώς κατατείνειεν ἂν τις ἀλλὰ μὴν καὶ ἢν μὴ κατατείνων, αὐτὴ δὲ μοῦνον τῇ σανίδι οὔτως ἐποίη τις, καὶ οὔτως ἂν [ἰκανῶς] καταναγκάσειεν. καλαὶ οὐν αἱ τοιαύται ἱσχὺς εἰσίν, ἢσιν ἐξέστι καὶ ἀσθενεστέρησι καὶ ἵσχυροτέρησι χρῆσθαι αὐτῶν ταμειύνοντα. καὶ μὲν δὴ καὶ κατὰ φύσιν γε ἀναγκάζουσι: τὰ μὲν γὰρ ἐξεστώτα ἐς τὴν χώρην ἀναγκάζει η ἱπτωσις ἰέναι, τὰ δὲ συνεληλυθότα κατὰ φύσιν κατατείνουσι αἱ κατὰ φύσιν κατατάσιες. οὐκοιν [ἡγὼ] ἐχω τοῦτον ἀνάγκας

1 κατατανάσειεν.  
2 καὶ ἐν.  
3 Kw. omits.  
4 Kw. omits.
ON JOINTS, xlvii.

it should be as small as possible, only sufficient to prevent the plank from causing needless additional pain by its hardness. Let the hump come as nearly as possible in line with the groove in the wall, so that the plank, when in place, makes most pressure on the most projecting part. When it is put in place, an assistant, or two if necessary, should press down the extremity of the plank, while others extend the body lengthwise, some at one end, some at the other, as was described above. But it is possible to make extension by wheel and axle, either embedded in the earth by the board, or with the supports of the axle carpentered on to the board itself: either projecting upwards a little, if you like, or on the top of the board at each end.¹ This reduction apparatus is easy to regulate as regards greater or less force, and has such power that, if one wanted to use such forcible manœuvres for harm and not for healing, it is able to act strongly in this way also. For even by making traction lengthwise, only at both ends and without any other additional force, one would produce extension. On the other hand, if, without making traction, one only pressed downwards with the plank in this way, one would get reduction thus also. Such forces, then, are good where it is possible for the operator to regulate their use as to weaker or stronger, and, what is more, they are exerted in accordance with nature; for the pressure forces the protruding parts into place, and the extensions according to nature draw asunder naturally the parts which have come together. For my part, then, I know no better or more correct modes of

¹ (? Projecting horizontally.
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καλλίους οὐδὲ δικαιοτέρας· ἢ γὰρ κατ’ αὐτὴν τὴν ἀκανθαν ἰθυμορίον τῆς κατατάσσον κάτωθεν τε καὶ κατὰ τὸ ἱερὸν ὀστέον καλεόμενον οὐκ ἐξεῖ ἐπιλαβήν οὐδὲμέν ἣν οὐκ εἴδεν δὲ κατὰ τὸν αὐχένα καὶ κατὰ τὴν κεφαλὴν ἐπιλαβήν μὲν ἐξει, ἀλλ’ ἐσιδεῖν γε ἀπρεπὴς παύτη τοι γινομένη ἡ κατάτασις καὶ ἀλλὰς βλάβας ἄν προσπαρέχοι πλεονασθείσα. ἐπειρήθην δὲ δὴ ποτε ὑπτίου τὸν ἀνθρωπὸν κατατένων, ἀσκὸν ἀφύσιτον ὑποθέετι ὑπὸ τὸ ὑβωμά. καπείτα αὐλῆ ἐκ χαλκείου ἐς τὸν ἀσκὸν τὸν ὑποκείμενον εἰνεῖαι φυσαν ἀλλὰ μοι οῦκ ἐνπορεῖτο· ὅτε μὲν γὰρ εὐ κατατείνωιμι τὸν ἀνθρωπὸν, ἀςατο ὁ ἀσκὸς, καὶ οὐκ ἡδυματὸ ἡ φυσα ἐςαναγκάζεσθαν καὶ ἀλλως ἔτοιμον περιολισθάνειν ἦν, ἀτε ὅ το αὐτὸ ἀναγκαζόμενον τὸ τε τοῦ ἀνθρώπου υβωμα καὶ τὸ τοῦ ἀσκοῦ πληρομένου κύρτωμα. ὅτε δὲ αὐ μῆ κάρτα κατατείνοιμι τὸν ἀνθρωπὸν, ὁ μὲν ἀσκὸς ὑπὸ τῆς φύσης ἐκυρτοῦτο· ὁ δὲ ἀνθρωπὸς πάντη μᾶλλον ἐλορδαίνετο ἡ ἡ συνεφερεν. ἐγραψα δὲ ἐπίτηθες τούτο· καλὰ γὰρ καὶ ταῦτα τὰ μαθηματὰ ἐστιν, ἀ πειρηθεῖνα ἀπορηθεῖνα ἐφάνη, καὶ δ’ ἀσσα

110

120

128 ἡ πορηθηθη.

XLVIII. ὁ πόσοισι δὲ ἔστ’ ἐσο σκολιαίνουται οἱ σπὸνδυλοι ὑπὸ πτώματος, ἢ καὶ ἐμπεσόντος τινὸς βαρέος, εἰς μὲν οὐδεὶς τῶν σπονδύλων μέγα ἐξίσταται κάρτα ως ἐπὶ τὸ πολὺ ἐκ τῶν ἄλλων, ἢν δὲ ἐκστὴ μέγα ἡ εἰς ἡ πλειονες, θάνατον φέρουσιν ὁσπερ δὴ καὶ πρόσθελε εὐρηταί, κυκλώδης καὶ αὐτή καὶ οὐ γωνίωδης γίνεται ἡ παραλλαγή. οὕρα μὲν οὖν τοῖς τοιούτοισι καὶ ἀπόπατος μᾶλλον ἠσταται ἡ τοῖς ἐξω κυφοῖσι, 302
reduction than these. For straight-line extension on the spine itself, from below, at the so-called sacred bone (sacrum), gets no grip; from above, at the neck and head, it gets a grip indeed, but extension made here looks unseemly, and would also cause harm if carried to excess. I once tried to make extension with the patient on his back, and, after putting an unblown-up bag under the hump, then tried to blow air into the bag with a bronze tube. But my attempt was not a success, for when I got the man well stretched, the bag collapsed, and air could not be forced into it; it also kept slipping round at any attempt to bring the patient's hump and the convexity of the blown-up bag forcibly together; while when I made no great extension of the patient, but got the bag well blown up, the man's back was hollowed as a whole rather than where it should have been. I relate this on purpose; for those things also give good instruction which after trial show themselves failures, and show why they failed.

XLVIII. In cases where the vertebrae are curved inwards from a fall or the impact of some heavy weight, no single vertebra is much displaced from the others as a rule; and if there is great displacement of one or more, it brings death. But, as was said before, this dislocation also is in the form of a curve and not angular. In such cases, then, retention of urine and faeces is more frequent than in outward curvatures;

1 "On essay show there's no way" might indicate the play on words.
ΠΕΡΙ ΑΡΩΜΩΝ

10 καὶ πόδες καὶ ὅλα τὰ σκέλεα ψύχεται μᾶλλον, καὶ θανατηφόρα ταῦτα μᾶλλον ἐκεῖνων, καὶ ἦν περιγένωνται δὲ, ῥυώδεσ τὰ οὕρα μᾶλλον οὕτω, καὶ τῶν σκελεῶν ἀκρατέστεροι καὶ ναρκωδέστεροι ὃν δὲ καὶ ἐν τῷ ἄνω μέρει μᾶλλον τὸ λόρδωμα γένηται, παντὸς τοῦ σώματος ἀκρατεῖς καὶ νεναρκωμένου γίνονται. μηχανὴν δὲ οὐκ ἔχω σύνεμὴν ἔγωγε, ὅπως χρῆ τὸν τοιοῦτον ἐς τὸ αὐτὸ καταστῆσαι, εἰ μὴ τίνα ἢ κατὰ ἑ τῆς κλίμακος κατάσεισις ὀφελεῖν οὐ τε ἐ∊ῇ, ἢ καὶ

20 ἄλλῃ τις τοιαύτῃ ὶσις ἢ κατάτασις, οὕτε πολὺ τρόφθην εἰρήται. κατανάγκασιν δὲ σὺν τῇ κατατάσσει σύνεμήν ἔχω, ἤτις ἄν γίνοιτο ὡσπερ τῷ κυφώματι τὴν κατανάγκασιν ἡ σανίς ἐποιεῖτο. πῶς γὰρ ἂν τὶς ἐκ τοῦ ἔμπροσθεν διὰ τῆς κοιλίας ἀναγκάσαι δύναιτο; οὐ γὰρ οἶνον τε. ἄλλα μὴν οὔτε βῆχις οὔτε πταρμοὶ σύνεμὴν δύναμιν ἔχουσιν, ὡστε τῇ κατατάσσει συντιμωρεῖν ὡς μὴν οὔτε ἔνεσις φύσις ἐνιμένης ἐς τὴν κοιλίαν οὐδὲν ἄν δυνηθείη. καὶ μὴν αἱ

30 μεγάλαι σικύαι προσβάλλομεναι ἀνασπάσιοι εἰνεκα δήθεν τῶν ἔσω ῥεπόντων σπουδύλων μεγάλη ἀμαρτας γνώμης ἐστιν· ἀπωθέουσι γὰρ μᾶλλον ἡ ἀνασπάσις· καὶ οὖθα αὐτὸ τοῦτο γνησίως κουσί οἱ προσβάλλοντες· ὅσω γὰρ ἂν τὶς μέξω προσβάλλῃ, τοσοῦτῳ μᾶλλον λορδοῦνται οἱ προσβληθέντες, συναναγκαζομένου ἄνω τοῦ δέρματος. τρόπους τε ἄλλους κατατάσσων· ἡ οὕτω πρόσθεν εἰρηναι, ἔχοιμι ἄν εἰπεῖν ἀρμόσαι· οὕς ἂν τὶς δοκέω· τῷ παθήματι μᾶλλον· ἄλλῳ οὖ κάρτα πιστεῦω αὐτοῖσι· διὰ τοῦτο οὐ γράφω. ἀθρόου δὲ συνιέναι χρῆ περὶ τῶν τοιοῦ·
the feet and lower limbs as a whole more usually lose heat, and these injuries are more generally fatal. Even if they survive, they are more liable to incontinence of urine, and have more weakness and torpor of the legs; while if the incurvation occurs higher up, they have loss of power and complete torpor of the whole body. For my part, I know of no method for reducing such an injury, unless succession on the ladder may possibly be of use, or other such extension treatment as was described a little above. I have no pressure apparatus combined with extension, which might make pressure reduction, as did the plank in the case of humpback. For how could one use force from the front through the body cavity? It is impossible. Certainly neither coughs nor sneezings have any power to assist extension, nor indeed would inflation of air into the body cavity be able to do anything. Nay more, the application of large cupping instruments, with the idea of drawing out the depressed vertebrae, is a great error of judgment, for they push in rather than draw out; and it is just this which those who apply them fail to see. For the larger the instrument applied, the more the patients hollow their backs, as the skin is drawn together and upwards. I might mention other modes of extension, besides those related above, which would appear more suitable to the lesion; but I have no great faith in them, and therefore do not describe them. As to cases like those summarily mentioned, one
ΠΕΡΙ ΑΡΘΡΩΝ

tων, ὅν ἔν κεφαλαίῳ εἶρηται, ὅτι τὰ μὲν ἐσ
tὸ λυρδὸν ῥέψαντα ὀλέθρια ἔστιν καὶ συνάμωρα,
tὰ δὲ ἐσ τὸ κυφὸν ἁσινέα θανάτου, καὶ οὖρων
χεισίων καὶ ἀποναρκοσίων τὸ ἐπίπαν· οὐ γὰρ
ἐντείνει τοὺς όχετοὺς τοὺς κατὰ τὴν κοιλὴν,
οὐδὲ κωλύει εὐρόους εἶναι ἢ ἐς τὸ ἔξω κύψωσις·
ἤ δὲ λόρδωσις ταῦτα τε ἀμφότερα ποιεῖ καὶ ἐς
tὰ ἄλλα πολλὰ προσγίνεται. ἐπεὶ τοι πολὺ

50 πλέονες σκελέων τε καὶ χειρῶν ἀκρατεῖς γίνονται,
καὶ καταναρκοῦνται τὸ σῶμα, καὶ οὐρα ἵσχεται
αὐτοῖς οἴσιν ἃν μὴ ἐκστῇ μὲν τὸ ὑβωμα μήτε
ἔσο οἱ τέ έξω, σεισθέωσι δὲ ἱσχυρῶς ἐς τὴν
ἰθυφόρην τῆς ράχιος· οἴσι δ' ἂν ἐκστῇ τὸ ὑβωμα,

55 ἓσον τοιαύτα πάσχοσι.

XLIX. Πολλὰ δὲ καὶ ἄλλα ἐν ἤητρικῇ ἃν τις
tοιαύτα κατίδοι, ὃν τὰ μὲν ἵσχυρὰ ἁσινέα ἔστι
καὶ καθ' ἐσωτὰ τὴν κρίσιν ὄλην λαμβάνοντα τοῦ
νοσῆματος, τὰ δὲ ἀσθενέστερα συνάμωρα, καὶ
ἀποτόκους νοσήματων χρονίους ποιέοντα καὶ
κοινωνέοντα τῷ ἄλλῳ σώματι ἐπὶ πλέον. ἐπεὶ
καὶ πλευρέων κατηξίως τοιούτων τι πέπονθεν· οἴσι
μὲν γὰρ ἂν καταγῇ πλευρῇ, ἡ μὴ ἡ πλέονες, ὡς
tοῖς πλείστοισι κατάγνυται, μὴ διασχόντα τὰ

10 ὀστέα ὡς τὸ ἔσω μέρος μὴ δε ψιλωθέντα, ὄλγοι
μὲν ὡς ἐπυρέτησαν· ἀτὰρ οὔδε ἄμα πολλοὶ ἡ ἐπ
πυρσαν, οὔδε ἐμπνοοὶ πολλοὶ γίνονται, οὔδε ἐμμο.
τοι οὔδε ἐπισφακελίσιες τῶν ὀστέων· δίαιτα τε
φαύλη ἄρκει· ἢν γὰρ μὴ πυρετὸς συνεχής ἐπιλαμ-
βάνηται αὐτούς, κενεαγγεῖν κάκιον τοῖς τοιοῦτο-
σιν ἡ μὴ κενεαγγεῖν, καὶ ἐπωδυνέστερον καὶ πυρε-
tωδέστερον καὶ βηχώδεστερον· τὸ γὰρ πλήρωμα

1 ὃσ.
ON JOINTS, xlviii.-xl ix.

must bear in mind generally that inward deviations cause death or grievous injury, while those in the form of a hump are not as a rule injuries which cause death, retention of urine, or loss of sensation; for external curvature does not stretch the ducts which pass down the body cavity, nor does it hinder free flow, while inward curvature does both these things, and has many other complications. In fact, many more patients get paralysis of legs and arms, loss of sensation in the body, and retention of urine when there is no displacement either inwards or outwards, but a severe concussion in the line of the backbone; while those who have a hump displacement are less liable to such affections.

XLIX. One may observe in medicine many similar examples of violent lesions which are without harm, and contain in themselves the whole crisis of the malady, while slighter injuries are malignant, producing a chronic progeny of diseases and spreading widely into the rest of the body. Fracture of the ribs is such an affection; for in cases of fractured ribs, whether one or more, as the fracture usually occurs, the bones not being separated and driven inwards or laid bare, we rarely find fever; neither does it come to spitting of blood in many cases, nor do they get empyema or wounds requiring plugs, neither is there necrosis of the bones. An ordinary regimen suffices; for if the patients are not attacked by chronic fever, it is worse to use abstinence in such cases than to avoid it; and it involves greater liability to pain, fever, and coughing; for a moderate fullness

1 *I.e.* it is confined to the injury itself, and steady recovery ensues.
ΠΕΡΙ ΑΡΘΡΩΝ

tὸ μέτριον τῆς κοιλίης, διόρθωμα τῶν πλευρῶν γίνεται· ἢ δὲ κένωσις κρεμασμὸν μὲν τῆς πλευ-
20 ρῆσι ποιεῖ· ὡδὲ κρεμασμός, ὀδύνη. ἐξωθέν τε αὖ φαύλη ἐπίδεσις τοῖς τοιούτοις ἄρκει· κηρωτῇ καὶ σπλήνει καὶ ὀθονίοις ῥήσυχως ἐρείδουτα, ὄμαλὴν τὴν ἐπίδεσιν ποιεῖσθαι καὶ ἐριῶδες τι προσεπιθέντα. κρατύνεται δὲ πλευρὴ ἐν εἴκοσι ἡμέρησιν· ταχεῖα γὰρ αἱ ἐπιπωρώσιες τῶν τοιούτων ὀστέων.

1. Ἀμφιφλασθεῖσσας μέντοι τῆς σαρκὸς ἀμφὶ τῆς πλευρῆς ἢ ὑπὸ πληγῆς ἢ ὑπὸ πτώματος ἢ ὑπὸ ἀντερείσιος ἢ ἄλλου τινὸς τοιούτοτρόπου, πολλοὶ ἤδη πολὺ αἶμα ἐντυσαν· οἱ γὰρ όχετοι οἱ κατὰ τὸ λαπαρὸν τῆς πλευρῆς ἐκάστης παρατετα-
26 μένοι, καὶ οἱ τόνοι ἀπὸ τῶν ἐπικαιριστῶν τῶν ἐν τῷ σῶματι τἀς ἀφορμὰς ἔχουσιν· πολλοὶ οὖν ἤδη βιχώδεις καὶ φυματία καὶ ἐμπυοὶ ἐγένοντο καὶ ἐμμοτοι, καὶ ἡ πλευρὴ ἐπεσφακέλισεν αὐτοῖς.

10 ἀτὰρ καὶ οἶσιν μηδὲν τοιοῦτον προσεγένετο, ἀμφι-
φλασθεῖσας τῆς σαρκὸς ἀμφὶ τῆς πλευρῆς, ὀμοί δὲ βραδύτερον ὀδυνώμενον παῦονται οὕτωι οὐ-
30 σιν ἀν πλευρῇ καταγῇ, καὶ ὑποστροφὰς μᾶλλον ἴσχει ὀδυνημάτων τὸ χωρίον ἐν τοῖς τοιούτοις τρώμασιν ἢ τοῖς ἐτέροιςιν. μᾶλα μὲν οὖν μετε-
ξέτεροι καταμελέουσιν τῶν τοιούτων σινέων, μᾶλλον ἢ ἢ πλευρῇ καταγῇ αὐτοῖς· ἀτὰρ καὶ ἴσιος σκεθροτέρης οἱ τοιοῦτοι δέονται, εἰ σωφρονοίν· τῇ τε γὰρ διαίτῃ συμφέρει συνε-
20 στάλθαι, ἀτρεμεῖν τε τῷ σῶματι ὡς μάλιστα, ἀφροδισίων τε ἀπέχεσθαι βρωμάτων τε λιπαρῶν καὶ κερχυώδεων, καὶ ἵσχυρῶν πάντων, φλέβα τε κατ' ἠγκώνα τέμνεσθαι, σιγὰν τε ὡς μάλιστα,
of the body cavity tends to adjust the ribs, while emptiness leaves them suspended, and the suspension causes pain. Externally, a simple dressing suffices in such cases, with cerate, compresses and bandages, applying them smoothly with gentle pressure, adding also a little wool. A rib consolidates in twenty days, for callus forms rapidly in bones of this kind.

L. When, however, the flesh is contused about the ribs, either by a blow, fall, encounter, or something else of the sort, we find that many have considerable haemoptysis. For the canals extending along the yielding part of each rib, and the cords,¹ have their origin in the most important parts of the body. Thus we find that many get coughs, tubercles, and internal abscesses, and require plugging with lint; also necrosis of the rib is found in these patients. Besides, when nothing of this kind occurs after concussion of the flesh about the ribs, still these patients get rid of the pain more slowly than in cases where a rib is broken; and the part is more liable to recurrences of pain after such injuries than in the other cases. It is true that many neglect such injuries, as compared with a broken rib; yet such need the more careful treatment, if they would be prudent. It is well to reduce the diet, keep the body at rest as far as possible, avoid sexual intercourse, rich foods and those which excite coughing, and all strong nourishment; to open a vein at the elbow, observe silence as much as possible, dress

¹ Nerves.
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ἐπιδείσθαι τε τὸ χωρίον τὸ φλασθὲν σπλήνεσι μὴ πολυπτύχοις, συνχοισὶ δὲ καὶ πολὺ πλα-
tυέρουσι πάντη τοῦ φλάσματος, κηρωτῇ τε ὑποχρείων, ὁδοίοισι τε πλατέσι σὺν ταινίῃς πλατείησι καὶ μαλθακῆς ἐπίδειν, ἐρείδειν τε μετρίως, ὥστε μὴ κάρτα πεπιέθηαι φάναι τὸν ἐπιδεδεμένον, μὴ δ' αὖ χαλαρὸν' ἀρχεσθαι δὲ τὸν ἐπιδέοντα κατὰ τὸ φλάσμα, καὶ ἐρημεῖσθαι ταύτη μάλιστα, τὴν δὲ ἐπίδεσιν ποιεῖσθαι ὡς ἀπὸ δύο ἄρχεων, ἐπίδειν τε, ὅνα μὴ περίρρεπες τὸ δέρμα τὸ περὶ τὰς πλευρὰς ἥ, ἀλλ' ἰσόρροπον ἐπίδειν δὲ ἡ καθ' ἐκάστην ἡμέρην ἦ παρ' ἐτέρην, ἀμεινὸν δὲ καὶ κοιλίην μαλθάξαι κούφῳ τινὶ ὅσον κενώσιος εἶνεκεν τοῦ σίτου, καὶ ἐπὶ μὲν δέκα ἡμέρας ἵσχυαίειν, ἔπειτα ἀναθέρεσαι τὸ σῶμα καὶ ἀπαλώναι τῇ δὲ ἐπιδέσει, ἐστι' ἄν μὲν ἵσχυαίης, ἐρημεῖσμενή μάλλον χρήσθαι, ὁπόταν δὲ ἐς τὸν ἀπαλυσμὸν ἄγης, ἐπιχαλαρωτέρῃ. καὶ ἤν μὲν αἷμα ἀποπτύσῃ καταρχᾶς, τεσσαρακοι-
θήμερον τὴν μελέτην καὶ τὴν ἐπίδεσιν ποιεῖσθαι χρή' ἦν δὲ μὴ πτύσῃ τὸ αἷμα, ἀρκεῖ ἐν εἰκοσιν ἡμέρησιν ἡ μελέτη ὡς ἐπὶ τὸ πολὺ τῇ ἵσχυϊ δὲ τοῦ τρόματος τοὺς χρόνους προτεκμαίρεσθαι χρή. ὅσοι δ' ἄν ἀμελήςωσι τῶν τοιούτων ἀμφιφλασμάτων, ἦν καὶ ἀλλο μηδὲν αὐτοῖσι φλαῦρον μέζον γενηται, ὅμως τὸ γε χωρίον ἀμφιφλασθὲν μυξώδεστέρην τὴν σάρκα ἵσχει ἦ πρόσθεν εἰχει. ὅπου δὲ τὶ τοιοῦτον ἐγκατα-
λείπεται, καὶ μὴ εὐ ἐξίπουται τῇ γε ἀλθέξει, φαυλότερον μὲν, ἦν παρ' αὐτὸ τὸ ὁστέον ἐγκατα-
λειφθῇ τὸ μυξώδες' οὔτε γὰρ ἐτὶ ἡ σάρξ ὅμοιος ἄπτεται τοῦ ὁστέου, τὸ τε ὁστέον νοση-
ON JOINTS, l.

the contused part with pads not much folded, but numerous, and extending in every direction a good way beyond the contusion. Anoint first with cerate, and bandage with broad, soft linen bands, making them suitably firm, so that the patient says there is no great pressure, nor on the other hand is it slack. The dresser should begin at the contusion, and make most pressure there; and the bandaging should be done as with a two-headed roller, in such a way that the skin may not get in folds at the ribs, but lie evenly. Change the dressing every day or every other day. It is rather a good thing to relax the bowels with something mild, sufficiently to clear out the food, and give low diet for ten days. Then nourish the body and plump it up. During the attenuation period, use rather tighter bandaging, but more relaxed when you come to the plumping up. If there is haemoptysis to begin with, the treatment and bandaging should be kept up for forty days; if there is no haemoptysis a twenty-day course of treatment usually suffices. The forecast as to time should be made from the gravity of the wound. In cases where such contusions are neglected, even if nothing worse happens to them, still the tissues in the contused part contain more mucus than they did before. When anything of this kind is left behind and not well squeezed out by the curative process, it is worse if the mucoid substance is left in the region of the bone itself; for the flesh no longer adheres so closely to the bone, and the

1 Cf. Fract. XXI for ἑκχρωμένος.

1 ἑνεκέρειν.
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ρότερον γίνεται, σφακελίσμοι τε χρόνιοι ὀστέου πολλοῖσιν ἥδη ἀπὸ τῶν τοιούτων προφασίων ἐγένοντο. ἀτὰρ καὶ ἢ ἣν μὴ παρὰ τὸ ὀστέον, ἄλλ' αὐτή ἢ σάρξ μυξώδης ἦ, ὅμως ὑποστροφαί 30 γίνονται καὶ ὄδυναι ἀλλοτε καὶ ἀλλοτε, ἢν τις τῶ ἱερών ποιῆσας· καὶ διὰ τοῦτο τῇ ἑπιδέσει χρῆσθαι χρῆ, ἣν μὲν ἀγαθῆ, ἣν μὲν ἐπὶ πολὺ προηκύοσι, ἢς ἄν ἄνθρῳ καὶ ἄναποθῇ τὸ ἑκχύμωμα τὸ ἐν τῇ φλάσει ἐγγενομενον, ἀνθηθῇ καὶ σαρκὶ ὕμει τῷ χωρίῳ, ἄψηται δὲ τοῦ ὀστέον ἢ σάρξ. οἷσι δ' ἄν ἀμεληθέεσι χρονιωθῇ καὶ ὄδυνώδες τὸ χωρίον γενήται, καὶ ἢ σάρξ ὑπόμυξος [ἡ], 1 τουτούσι καύσις ἤσις ἀρίστη. καὶ ἢν μὲν αὐτῇ ἢ σάρξ μυξώδης ἦ, 70 ἀχρὶ τοῦ ὀστέου καίειν χρῆ, μὴ μὴν διαθερμανθῆναι τὸ ὀστέον· ἢν δὲ μεσημῖ τῶν πλευρῶν ἦ, ἐπιπολῆς μὲν οὐδὲ οὕτω χρῆ καίειν, φυλάσσεσθαι μὲντοι μὴ διακαύσης πέρην. ἢν δὲ πρὸς τῷ ὀστέῳ δοκῇ εἶναι τὸ φλάσμα, καὶ ἐτί νεαρῷν ἦ, καὶ μὴν σφακελίσῃ τὸ ὀστέον, ἢν μὲν κάρτα ὀλύγον ἦ, οὕτω καίειν χρῆ ὀσπερ εἰρηται· ἢν μὲντοι παραμηχής ἢ ὁ μετεωρισμὸς οί κατὰ τὸ ὀστέον, πλέωνας ἐσχάρας ἐμβάλλειν χρῆ· περὶ δὲ σφακελίσμοι 79 πλευρῆς ἢμα τῇ τῶν ἐμμοῦτον ῦητρεῖ ἐιρήσεται.

LI. Ἄν δὲ μηροῦ ἄρθρον ἢς ἵσχιον ἐκπέσῃ, ἐκπίπτει δὲ κατὰ τέσσαρας τρόπους, ἐς μὲν τὸ ἐς ὁλῷ πλειστάκις, ἐς δὲ τὸ ἐς τῶν ἄλλων πλειστάκις· ἐς δὲ τὸ ὑπισθὲν καὶ τὸ ὑπροσθὲν ἐκπίπτει μὲν, ὀλιγάκις δέ. ὑπόσοισὶ μὲν ὄν ἄν ἐκβῇ ἢς τὸ ἐς, μακρότερον τὸ σκέλος φαίνεται, παραβαλλόμενου πρὸς τὸ ἔτερον, διὰ δισσᾶς προ-

1 B Kw. and most MSS. omit
latter becomes more subject to disease. Chronic necroses of bone are found to arise in many cases from causes like these. Besides, even if the mucoid part is not along the bone, but involves the flesh itself, still relapses occur, and periodical pains, whenever one happens to have bodily trouble; and therefore one should use bandaging, both careful and prolonged, for some time, till the exudation formed in the bruise is dried up and consumed, the part filled with healthy flesh, and the flesh firmly attached to the bone. In neglected cases which have become chronic, when the part is painful and the flesh rather mucous, the best treatment is cauterising. If the flesh itself is mucous, one should cauterise down to the bone, but avoid greatly heating the latter. If it is intercostal, the cauterisation should, even so, not be superficial; yet one should take care not to burn right through. If the contusion appears to have reached the bone, and is still fresh, and the bone not yet necrosed, if it be quite small, one should cauterise as directed; but if there is an elongated tumefaction over the bone, one should make several eschars. Necrosis of a rib will be considered along with the treatment of patients with discharging abscesses.

LI. When the head of the thigh-bone is dislocated from the hip, it is dislocated in four ways, far most frequently inwards; and of the others the most frequent is outwards. Dislocation backwards and forwards occurs, but is rare. In cases where it is displaced inwards, the leg appears longer when placed beside the other, naturally so, for a double
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φάσιας εἰκότως· ἐπὶ τε γὰρ τὸ ἀπὸ τοῦ ἰσχίου πεφυκός ὁστέον, τὸ ἀνώο φερόμενον πρὸς τὸν κτένα, ἐπὶ τούτῳ ἡ ἐπιβασίς τῆς κεφαλῆς τοῦ μηροῦ γίνεται, καὶ ὁ αὐχὴν τοῦ ἄρθρου ἐπὶ τῆς κοτύλης ὁχεῖται: ἐξωθεὶν τε αὐ γλουτὸς κοίλος φαίνεται, ἀτε ἐσῳ ἰεψάσης τῆς κεφαλῆς τοῦ μηροῦ, τὸ τε αὐ κατὰ τὸ γόνυ τοῦ μηροῦ ἀκρον ἀναγκάζεται ἐξω ῥέπειν, καὶ ἡ κυήμη καὶ ὁ ποὺς ὀσιὰντὸς. ἀτε οὖν ἐξω ῥέποιντος τοῦ ποδὸς, οἱ ἕτηροι δὲ ἀπειρίην τὸν ὑγιέα πόδα πρὸς τοῦτον προσίσχουσιν, ἀλλ' οὐ τοῦτον πρὸς τὸν ὑγιέα· διὰ τὸ τοῦτο πολὺ μακρότερον φαίνεται τὸ σιναρὸν τοῦ ὑγιέος· πολλαχῇ δὲ καὶ ἄλλῃ τὰ τοιαῦτα παρασύνεσιν ἔχει. οὖ μὴν οὐδὲ συγκάμπτειν δύνανται κατὰ τὸν βουβώνα ὤμοιός τῷ ὑγιεί· ἀτὰρ καὶ φαινομένη ἡ κεφαλῆς τοῦ μηροῦ κατὰ τὸν περίμαυν ὑπερογκέουσα εὐδήλος ἔστιν. τὰ μὲν οὖν σημεία ταῦτα ἔστιν, οἷσιν ἂν ἐσῳ ἐκπεπτώκη 26 ὁ μηρὸς.

ΛΠ. Οἴσι μὲν οὖν ἂν ἐκπεσῶν μὴ ἐμπέσῃ, ἀλλὰ καταπορηθῇ καὶ ἄμεληθῇ, ἡ τε ὀδοιπορίᾳ περιφοράδην τοῦ σκέλους ὄσπερ τοῖς βουβοῖς γίνεται, καὶ ἡ ὀχησὶς πλείστῃ αὐτοῖς ἐπὶ τοῦ ὑγιέος σκέλους ἔστιν. καὶ ἀναγκαζόνται κατὰ τὸν κενεῶνα καὶ κατὰ τὸ ἄρθρον τὸ ἐκπεπτώκος κοίλοι καὶ σκολεῖς εἶναι· κατὰ δὲ τὸ ὑγιές ἐς τὸ ἐξω ὁ γλουτὸς ἀναγκάζεται περιφερῆς εἶναι· εἰ γὰρ τις ἐξω τῷ ποδὶ τοῦ ὑγιέος σκέλους βαῖνοι, 10 ἀπωθέοι ἂν τὸ σῶμα τὸ ἄλλο ἐς τὸ σιναρὸν σκέλος τῆς ὀχησὶν ποιεῖσθαι· τὸ δὲ σιναρὸν οὐκ

1 καὶ = ἡ. Cf. Thucyd. ΠΙ. 35.
reason; for the dislocation of the head of the femur takes place on to the bone arising from the ischium and passing up to the pubes, and its neck is supported against the cotyloid cavity.\(^1\) Besides, the buttock looks hollow on the outer side, because the head of the femur is turned inwards; again, the end of the femur at the knee is compelled to turn outwards, and the leg and the foot likewise. Thus, as the foot inclines outwards, practitioners through inexperience bring the foot of the sound limb to it, instead of bringing it to the sound one. This makes the damaged limb appear much longer than the sound one; and this sort of thing causes misapprehension in a variety of other ways. The patients, moreover, cannot bend at the groin so well as one with a sound limb; and for the rest, on palpating the head of the femur, it is manifest as an abnormal prominence at the perineum.\(^2\) These then are the signs in cases of internal dislocation of the thigh.

LI. In cases where the dislocation is not reduced, but is given up or neglected, progression is accomplished, as in oxen, by bringing the leg round; and they throw most of their weight on the sound leg. They are also of necessity curved in and distorted in the region of the loin and the dislocated joint, while on the sound side the buttock is necessarily rounded outwards. For if one were to walk with the foot of the sound leg turned out, he would thrust the body over, and put its weight on the injured leg;

\(^1\) I.e. lower rim of the acetabulum; so Littré, Pq. Adams suggests the perforation below the pubic bone (thyroid). As already remarked the frequency and nature of this dislocation are hard to understand.

\(^2\) Evidently understood in a wide sense, to include inner part of groin.
ΠΕΡΙ ΑΡΩΡΩΝ

ἀν δύνατο ὁχεῖν· πῶς γὰρ; ἀναγκάζεται οὐθὲν οὖτω κατὰ τὸν ὑγιείον σκέλεως τὸ ποδὶ ἔσω βαίνειν. ἀλλὰ ἡ ἐξω ὡς γὰρ ὁχεῖ μάλιστα τὸ σκέλος τὸ ὑγιεῖς καὶ τὸ ἐωτοῦ μέρος τοῦ σώματος καὶ τὸ τοῦ συναρών σκέλεος μέρος. κοιλαίνομενοι δὲ κατὰ τὸν κενεδόνα καὶ κατὰ τὰ ἀρθρα, σμικροὶ φαίνονται καὶ ἀντερείδεσθαι ἀναγκάζονται πλάγιοι κατὰ τὸ ὑγιεὶς σκέλος. δέονται γὰρ ἀντικοντόσιος ταύτη· ἐπὶ τούτῳ γὰρ οἱ γλουτοὶ ἐπονυσί, καὶ τὸ ἄχθος τοῦ σώματος ὁχεῖται ἐπὶ τούτῳ ἀναγκάζονται δὲ καὶ ἐπικύπτειν· τὴν γὰρ χεῖρα την κατὰ τὸ σκέλος τὸ συναρών ἀναγκάζονται κατὰ πλάγιοι τὸν μηρὸν ἐρείδειν· οὐ γὰρ δύναται τὸ συναρών σκέλος ὅχειν τὸ σῶμα ἐν τῇ μεταλλαγῇ τῶν σκελέων, ἢ μὴ κατέχηται πρὸς τὴν γῆν πιεζόμενον. ἐν τοιούτουι οὖν τοῦτο σχήμασιν ἀναγκάζονται ἑσχηματίσθαι, οἷον ἀν ἐσω ἐκβὰν τὸ ἀρθρον μὴ ἐμπέσῃ, οὐ προβουλεύσαντος τοῦ ἀνθρώπου ὅπως ἀν ῥήηστα ἑσχηματισμένων ἦ, ἀλλ᾽ αὐτή ἡ συμφορὴ διδάσκει εκ τῶν παρεόντων τὰ ῥήηστα αἰρεῖσθαι. ἐπεὶ καὶ ὅποιοι ἐλκος ἐχοντες ἐν τοδὴ ἡ κυνῆς οὐ κάρτα δύνανται ἐπιβαίνειν τῷ σκελεί, πάντες, καὶ οἱ νηπίοι, οὕτως ὄδοιποροῦσιν· ἐξω γὰρ βαίνονσι τῷ συναρώ σκελεί· καὶ δισσὰ κερδαίνουσι, δισσῶν γὰρ δέονται· τὸ τε γὰρ σῶμα οὐκ ὅχεῖται ὁμοίως ἐπὶ τοῦ ἑξῳ ἀποβαινομένου ὡσπερ ἐπὶ τοῦ ἓσω· οὐδὲ γὰρ κατ᾽ ἱθυωρίην αὐτῶ γίνεται τὸ ἄχθος, ἀλλὰ πολὺ μάλλον ἐπὶ τοῦ ὑποβαινομένου· κατ᾽ ἱθυωρίην γὰρ αὐτῶ γίνεται τὸ ἄχθος, ἐν τε αὐτῇ τῇ ὀδοιπορίᾳ καὶ τῇ μεταλλαγῇ τῶν σκελέων. 316
and the injured limb could not carry it. How should it? He is thus obliged to walk with the foot of the sound leg turned in and not out; for in this way the sound limb is best able to carry both its own share of the body and that of the injured one. But, owing to the inward curvature at the loin and at the joints, they appear short, and patients have to support themselves laterally on the side of the sound leg with a crutch. They want a prop there, because the buttocks incline that way, and the weight of the body lies in that direction. They are also obliged to stoop; for they have to press the hand on the side of the injured leg laterally against the thigh, since the injured limb cannot support the body during the change of legs, unless it is kept down on the ground by pressure. Such then are the attitudes which patients are obliged to assume in unreduced internal dislocation of the hip—not as a result of previous deliberation by the patient as to what will be the easiest attitude; but the lesion itself teaches him to choose the easiest available. So too those who, when they have a wound on the foot or leg, can hardly use the limbs—all of them, even young children, walk in this way. They turn the injured leg out in walking, and get a double boon to match a double need; for the body is not borne equally on the limb brought outwards and on that brought in, since the weight is not perpendicular to it, but comes much more on the limb that is brought under; the weight is perpendicular to the latter both in actual walking and in the
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ἐν τούτῳ τῷ σχῆματι τάχιστα ἀν δύναιτο ὑπο
tιθέναι τὸ ὑγίες σκέλος, ἦν τῷ μὲν σιναρῆ
ἐξωτερῶ βαινοῦ, τῷ δὲ ὑγιεί ἐσωτερῶ. περὶ οὐ
οὗν ὁ λόγος, ἀγαθὸν εὐρίσκεσθαι αὐτὸ ἐως
τῷ σῶμα ἐς τὰ ρήματα τῶν σχημάτων. ὅσοις μὲν
οὗν μήπω τετελειωμένοισιν ἐς αὐξησιν ἐκπεσῶν
μή ἐμπέσῃ, γυνοῦται ὁ μηρὸς καὶ ἡ κυνῆ καὶ
ὁ ποὺς· οὗτο γὰρ τὰ ὀστέα ἐς τὸ μῆκος ὀμοίως
αὐξᾶται, ἀλλὰ βραχύτερα γίνεται, μᾶλλον δὲ
tὸ τοῦ μηροῦ, ἄσαρκον τε ἀπαν τὸ σκέλος καὶ
ἀμυν καὶ ἐκτεθηλυσμένον καὶ λεπτὸτερον γίνε
tαι, ἀμα μὲν διὰ τὴν στέρησιν τῆς χώρης τοῦ
ἄρθρου, ἀμα δὲ ότι ἀδύνατον χρῆσθαι ἐστιν,
ὅτι οὐ κατὰ φύσιν κεῖται χρῆσις γὰρ μετε-
ξετέρη ῥύεται τῆς ἀγαν ἐκθηλύσιον· ῥύεται δὲ
τι καὶ της ἐπὶ μῆκος ἀναυξήσιος. κακοῦται μὲν
οὗν μᾶλλον οἰσιν ἀν ἐν γαστρὶ έούσιν ἐξαρ-
θρήσῃ τούτῳ τὸ ἄρθρον, δεύτερον δὲ οἰσιν ἀν ὡς
νηπιωτάτοιοι έούσιν, ἤκιστα δὲ τοῖσι τετελειω-
μένοισιν. τοῖσι μὲν οὖν τετελειωμένοισιν εἰρηται
οἷς τῆς ἡ ὁδοιπορίη γίνεται· οἰσι δ᾽ ἀν νηπίουσιν
εούσιν ἡ συμφορή αὕτη γένηται, οἱ μὲν πλείστοι
καταβλακεύονσι τὴν διόρθωσιν τοῦ σώματος,
ἀλλὰ [κακῶς] εἰλέονται ἐπὶ τὸ ὑγίες σκέλος,
tῆς χειρὶ πρὸς τὴν γῆν ἀπερειδόμενοι τῇ κατὰ τὸ
ὑγίες σκέλος. καταβλακεύονσι δὲ ἐνοι τὴν ἐς
ὄρθον ὁδοιπορίην καὶ οἰσιν ἂν τετελειωμένοισι
αὕτη ἡ συμφορή γένηται. ὁπόσοι δ᾽ ἀν νηπίοι
ἐούσι ταύτῃ τῆς συμφορῆς χρησάμενοι ὀρθῶς
παιδαγωγηθέοσι, τοῖ μὲν ὑγιεῖ σκέλει χρέονται
ἐς ὀρθοῦ, ὑπὸ δὲ τὴν μασχάλη τὴν κατὰ τὸ

1 εἰ. 2 καταμβλακεύονσι bis.
ON JOINTS, l. ii.

change of legs. It is in this attitude, with the injured leg rather outwards and the sound one rather inwards, that one can most rapidly put the sound limb under. As regards our subject, then, it is good that the body finds out for itself the easiest posture. When it is in persons who have not yet completed their growth that the hip remains unreduced after dislocation, the thigh is maimed, and the leg and foot also. The bones do not grow to their normal length, but are shorter, especially that of the thigh; while the whole leg is deficient in flesh and muscle, and becomes flaccid and attenuated. This is due at once to the head of the bone being out of place and to the impossibility of using it in its abnormal position; for a certain amount of exercise saves it from excessive flaccidity, and in some degree prevents the defective growth in length. Thus the greatest damage is done to those in whom this joint is dislocated in utero; next, to those who are very young; and least to adults. In the case of adults, their mode of walking has been described; but when this accident occurs in those who are very young, for the most part they lack energy to keep the body up, but they crawl about [miserably] on the sound leg, supporting themselves with the hand on the sound side on the ground. Some even among those to whom this accident happens when adult lack the energy to walk standing up; but when persons are afflicted by this accident in early childhood and are properly trained, they use the sound leg to stand up

3 Kw. omits; also B and the best MSS.
4 Kw.'s correction for παιδαγωγηθῶσι codd.
5 χρεωνται Kw.
ΠΕΡΙ ΑΡΩΡΩΝ

υγιεσ σκέλος σκίπωνα περιφέρουσι, μετεξέτεροι
de καὶ ὑπ' ἀμφοτέρας τὰς χεῖρας· τὸ δὲ σιναρὸν
σκέλος μετέωρον ἔχουσι, καὶ τοσοῦτω ῥήμοις
eἰσίν, ὡς ἂν αὐτοῖσιν ἐλασσον τὸ σκέλος τὸ
σιναρὸν ḫ; τὸ δὲ υγιεσ ἵσχυει αὐτοῖσιν οὐδὲν
80 ἱσσον ἡ εἰ καὶ ἀμφοτερα υγιεά ἡν. θηλύνονται
de πᾶσιν τοῖσι τοιούτοισι η ἕρκες τοῦ σκέλεος,
μᾶλλον δὲ τι θηλύνονται αἱ ἐκ τοῦ ἐξω μέρεος ἡ
83 αἱ ἐκ τοῦ ἐσω ως ἐπὶ πολύ.

ΛΙΙΙ. Μυθολογοῦσιν1 δὲ τινες, ὅτι αἰ 'Ἀμαξωνι-
δες τὸ ἀρσεν γένος τὸ ἐωτῶν αὐτίκα νηπιον ἐὼν
ἐξαρθρέουσιν, αἱ μὲν κατὰ [τὰ] 2 γούνατα, αἱ δὲ
κατὰ τὰ ἵσχια, ὥς δῆθεν χωλά γύνιτο, καὶ μὴ
ἐπιβουλεύοι τὸ ἀρσεν γένος τῷ θῆλει· χειρώναξιν
ἀρα τούτοισι χρέουται,3 ὁπόσα ἡ σκυτείης ἔργα ἡ
χαλκείης, ἡ ἅλλο τι ἔδραίον ἔργον. εἰ μὲν οὖν
ἀληθέα ταύτα ἔστιν, ἐγώ μὲν οὐκ οἶδα· ὅτι δὲ
γύνιτο ἀν τοιαύτα οἶδα, εἰ τις ἐξαρθρέωι αὐτίκα
νηπία ἐώντα. κατὰ μὲν οὖν τὰ ἵσχια μὲζον τὸ
διαφορὸν ἐστίν ἐς τὸ ἐσω ἡ ἐς τὸ ἐξω ἐξαρθρῆσαι
catá dé tâ gôunáta diáferéi méν tî, ἐlaßou dé
Dé diáferéi. tòpòs dé ekatérou toutoù xolómatos
ίδιος ἔστιν· κυκλουνται 4 μὲν γὰρ μᾶλλον οἰσιν ἂν
ἐς τὸ ἐξω ἐξαρθρήσῃ· ὀρθοὶ δὲ ἱσσον ἱστανται
οἰσιν ἂν ἐς τὸ ἐσω ἐξαρθρήσῃ. ὁσαύτως δὲ καὶ
ἡν παρὰ τὸ σφυρὸν ἐξαρθρήσῃ, ἦν μὲν ἐς τὸ ἐξω
μέρος, κυκλοὶ μὲν γίνονται, ἐστάνται δὲ δύνανται
ἡν δὲ ἐς τὸ ἐσω μέρος, βλαïσοι μὲν γίνονται,
20 ἱσσον δὲ ἐστάναι δύνανται. ἥ γε μὴν συναύξησις
tôn ὀστέων τοιῆδε γινεται· οἰσι μὲν ἂν τὸ κατὰ τὸ

1 Μυθολογοῦσι Kw.
2 Littre's insertion, but Galen also has it.
3 χρέωνται Kw.
4 Erm. Pq. for γινοῦνται vulg.
ON JOINTS, lII.-lIII.

on, but carry a crutch under the armpit on that side, and some of them under both arms. As for the injured leg, they keep it off the ground, and do so the more easily, because in them the injured leg is smaller; but their sound leg is as strong as if both were sound. In all such cases the fleshy parts of the leg are flaccid; and, as a general rule, they are more flaccid on the outer than on the inner side.

LIII. Some tell a tale how the Amazons dislocate the joints of their male offspring in early infancy (some at the knees and some at the hips), that they may, so it is said, become lame, and the males be incapable of plotting against the females. They are supposed to use them as artisans in all kinds of leather or copper work, or some other sedentary occupation. For my part, I am ignorant whether this is true; but I know that such would be the result of dislocating the joints of young infants. At the hips there is a marked difference between inward and outward dislocation; but at the knees, though there is a certain difference, it is less. In each case there is a special kind of lameness. Those in whom the dislocation [at the knee] is outwards are more bandy-legged, while those in whom it is inwards are less able to stand erect. Similarly, when the dislocation is at the ankle, if it is outwards, they become club-footed, but are able to stand; while if it is inwards, they become splay-footed, and are less able to stand. As regards growth of the bones, the following is what happens: when the bone of the

1 i.e. the knock-kneed.
2 i.e. leg outwards and foot inwards, and vice versa. The knock-kneed and splay-footed are worse off than the bandy-legged and club-footed.
σφυρών ὁστέον τὸ τῆς κυνῆς ἕκστη, τοῦτοισι μὲν τὰ τοῦ ποδὸς ὁστέα ἥκιστα συναὐξέται, ταῦτα γὰρ ἐγγυτάτω τοῦ τρώματός ἐστὶν, τὰ δὲ τῆς κυνῆς ὁστέα αὐξέται μὲν, οὐ πολὺ δὲ ἐνδεστέρως, αἱ μὲντοι σάρκες μινύθουσι. οἴσι δ’ ἄν κατὰ μὲν τὸ σφυρὸν μὲν ὁ ἄρθρον κατὰ φύσιν, κατὰ δὲ τὸ γόνυ ἐξεστήκη, τοῦτοισι τὸ τῆς κυνῆς ὁστέον οὐκ ἔθελει συναὐξάνεσθαι ὁμοίως, ἀλλὰ βραχύτερον γίνεται, τοῦτο γὰρ ἐγγυτάτω τοῦ τρώματός ἐστὶν, τοὺς μὲντοι ποδὸς τὰ ὁστέα μινύθει μὲν, ἀτὰρ οὐχ ὁμοίως, ὡσπερ ὀλίγον τι πρόσθεν εὑρηταί, ὅτι τὸ ἄρθρον τὸ παρὰ τὸν πόδα σωόν ἔστιν. εἰ δέ οἱ χρῆσθαι ἑδύνατο, ὡσπερ καὶ τῷ κυλλῷ ἐτὶ ἄν ἰσοσιὸν ἔμινύθη τὰ τοῦ ποδὸς ὁστέα τοῦτοισιν. οἴσι δ’ ἄν κατὰ τὸ ἰσχίον ἡ ἐξάρθρησις γένηται, τοῦτοισι τοῦ μηροῦ τὸ ὁστέον οὐκ ἔθελει συναὐξάνεσθαι ὁμοίως, τοῦτο γὰρ ἐγγυτάτῳ τοῦ τρώματος ἐστὶν, ἀλλὰ βραχύτερον τοῦ ύγιέος γίνεται· τὰ μὲντοι τῆς κυνῆς ὁστέα οὐχ ὁμοίως τοῦτοισιν ἀνανεά γίνεται, οὐδὲ τὰ τοῦ ποδὸς, διὰ τοῦτο δέ, ὅτι τὸ τοῦ μηροῦ ἄρθρον τὸ παρὰ τὴν κυνῆν ἐν τῇ ἐνωτοῦ φύσει μένει, καὶ τὸ τῆς κυνῆς τὸ παρὰ τὸν πόδα· σάρκες μὲντοι μινύθουσι παντὸς τοῦ σκέλεσιν τοῦτοισιν. εἰ μὲντοι χρῆσθαι τῷ σκέλει ἑδύνατο, ἐτὶ ἄν μᾶλλον τὰ ὁστέα συνιμμύξαντο, ὡς καὶ πρόσθεν εὑρηταί, πλὴν τοῦ μηροῦ, κἂν ἰσοσιὸν ἀσαρκα εἴη, ἀσαρκότερα δὲ πολλῷ ἤ εἰ υγιέα ἦν. σημεῖον δὲ ὅτι ταῦτα τοιαύτα ἐστὶν· ὅποσοι γὰρ, τοῦ βραχίωνος ἐκπεσόντος, γαλαγκὼν ἐγαίεοντο ἐκ γενέης, ἦ καὶ ἐν αὐξῆσει πρὶν 2 τελειωθῆναι, οὕτω τὸ μὲν ὁστέον τοῦ βραχίωνος βραχύ ἴσχυσοι, τὸν

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leg at the ankle is dislocated, the bones of the foot show least growth, for they are nearest the injury, but growth of the leg-bones is not very deficient; the tissues however are atrophied. In cases where the ankle-joint keeps its natural position while there is dislocation at the knee, the bone of the leg will not grow like the other, but is shortened; for this is nearest the injury. The bones of the foot are atrophied, but not to the same extent as was noticed a little above, because the joint at the foot is intact; and should they be able to use the part, as is the case even in club-foot, the bones of the foot in their case would be still less atrophied. When the dislocation occurs at the hip, the thigh-bone will not grow like the other, for it is nearest the injury; but it gets shorter than the sound one; the bones of the leg, however, do not stop growing in the same way, nor do those of the foot, because the end of the thigh-bone at the knee keeps its natural place, also that of the leg at the foot; but the tissues of the whole leg are atrophied in these cases. But if they were able to use the leg, the bones would correspond in growth to a still greater extent, the thigh excepted, as was said before; and they would be less deficient in flesh, though much more so than if the limb were sound. Here is a proof that these things are so: those who become weasel-armed owing to dislocation of the shoulder either congenitally or during adolescence, and before they become adults, have the bone of the upper arm short, but the forearm and

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1 This is curious phrasing. Cf. remarks on the astragalus in Introduction and notes on ankle dislocation, Mochl. XXX.
2 καὶ πρὶν Kw.
ΠΕΡΙ ΑΡΘΡΩΝ

dὲ πῆχυν καὶ ἀκρην τὴν χειρὰ ὀλίγῳ ἐνδεστέρην τοῦ ύγίεος, διὰ ταύτας τὰς προφάσιας τὰς εἰρη-μένας, ὅτι ὁ μὲν βραχίων ἐγγυτάτω [τοῦ ἄρθρου] τοῦ τρόματος ἔστιν, ὡστε διὰ τοῦτο βραχύτερος ἔγένετο· ὦ δὲ αὖ πῆχυς διὰ τοῦτο οὐχ ὀμοίως ἐνακούει τῆς συμφορῆς, ὅτι τὸ τοῦ βραχίωνος ἄρθρου τὸ πρὸς τοῦ πῆχεος ἐν τῇ ἀρχαίᾳ φύσει μένει, ἥ τε αὖ χειρ ἀκρη ἔτι τιμοτέρῳ ἀπεστιν ἡ ο πῆχυς ὑπὸ τῆς συμφορῆς. διὰ ταύτας οὖν τὰς εἰρημένας προφάσιας, τῶν ὡστε νῦ τὰ τε μὴ συναυξανόμενα οὐ συναυξάνεται, τὰ τε συναυ-ξανόμενα συναυξάνεται. ἐς δὲ τὸ εὐσαρκοῦ τῇ χειρὶ καὶ τῷ βραχίων ἡ ταλαιπωρίη τῆς χειρὸς μέγα προσωφελεῖ· ὅσα γὰρ χειρῶν ἔργα ἔστι, τὰ πλεῖστα προθυμέονται οἱ γαλαγίγκωνες ἐργάζεσθαι τῇ χειρὶ ταύτῃ, ὅσα περ καὶ τῇ ἐτέρῃ δύνανται

70 οὐδεν ἐνδεστέρως τῆς ἀσινεός· οὐ γὰρ δεῖ ὅχεισθαι τὸ σώμα ἐπὶ τῶν χειρῶν ὡς ἐπὶ τῶν σκελέων, ἀλλὰ κοῦφα αὐτοῦσι τὰ ἔργα ἐστίν. διὰ δὲ τῆς χρῆσιν οὐ μινύθουσιν αἱ σάρκες αἱ κατὰ τὴν χειρὰ καὶ κατὰ τὸν πῆχυν τοῖσι γαλαγίγκωσιν· ἀλλὰ καὶ ὁ βραχίων τι προσωφελεῖται ἐς εὐσαρ-κήν διὰ ταύτα.· ὅταν δὲ ἱσχίον ἑκπαλῆς γένηται ἐς τὸ ἔσω μέρος ἐκ γενεῖς, ἡ καὶ ἐτι κηπίῳ ἑόντι, μινύθουσιν αἱ σάρκες διὰ τοῦτο μᾶλλον ἦ τῆς χειρὸς, ὅτι οὐ δύνανται χρῆσθαι τῷ σκέλει.


LIV. Ὀπόσοις [3] δ’ ἂν ἐς τὸ ἔξω ἢ τοῦ μηροῦ κεφαλῆς ἐκβῇ, τοῦτοὶ βραχύτερον μὲν τὸ σκέλος

1 ταύτην. 2 Kw. omits. 3 Oisi.
hand little inferior to those on the sound side, for the reasons that have been given, viz., that the upper arm is nearest the injury, and on that account is shorter.\footnote{Kw. puts τοῦ ἀφθονον in brackets. It appears a needless gloss.} The forearm, on the contrary, is not equally influenced by the lesion, because the end of the humerus which articulates with the ulna retains its old position. And the hand, again, is still further away from the lesion than is the forearm. For the aforesaid reasons, then, the bones which do not grow normally are defective in growth, and those which do grow maintain their growth. Manual exercise contributes greatly to the good flesh-development in hand and arm. In fact, taking all sorts of handiwork, the weasel-armed are ready to do with this one most of what they can do with the other arm, and do the work no less efficiently than with the sound limb; for it is not necessary for the body weight to be supported on the arms as on the legs, and the work done by them [\textit{i.e.} the weasel-armed]\footnote{Littré, Adams, Erm. read ἀυτήσι and refer it to the hands. But hands and arms may do hard work.} is light. Owing to use, the flesh of the hand and forearm is not atrophied in the weasel-armed; and even the upper arm gains some further development from this. But when the hip is dislocated inwards, either congenitally or in one still a child, there is more atrophy of flesh than in the arm, just because they cannot use the leg. A special piece of evidence that this is the case will be found in what is about to be said a little below.

LIV. In cases where the head of the thigh-bone is dislocated outwards, the leg is seen to be shorter,
ΠΕΡΙ ΑΡΘΡΩΝ

φαίνεται παρατεινόμενον παρὰ τὸ ἑτερον, εἰκότως·
οὐ γὰρ ἐπ’ ὀστεόν ἢ ἐπίβασις τῆς κεφαλῆς τοῦ
μηροῦ ἐστὶν, ὥς ὅτε έσω ἐκπεττωκεν, ἀλλὰ παρ’
ὀστεόν παρεγκεκλιμένην τὴν φύσιν ἔχον, ἐν σαρκὶ
δὲ στηρίζεται υγρῇ καὶ υπεικουσῇ· διὰ τούτο μὲν
βραχύτερον φαίνεται. ἐσωθεν δὲ ὁ μηρὸς παρὰ
tὴν πλινχάδα καλεομένην κοιλότερος καὶ ἁσαρ-
κότερος φαίνεται 1 ἐξωθεν δὲ ὁ γλουτὸς κυρτότερος,
ἀτε ἐς τὸ ἔξω τῆς κεφαλῆς τοῦ μηροῦ ἀλισθηκυνήσ.”
ἀτὰρ καὶ ἀνωτέρω φαίνεται ὁ γλουτὸς ἀτε ὑπει-
ξάσης τῆς σαρκὸς τῆς ἑνταῦθα τῇ τοῦ μηροῦ
κεφαλῆς τὸ δὲ παρὰ τὸ γόνυ τοῦ μηροῦ ἄκρον
ἔσω ῥέσου φαίνεται, καὶ ἡ κυνῆ καὶ ὁ ποὺς;
ἀτὰρ οὐδὲ συγκάμπτειν ωσπερ τὸ ὑγίες σκέλος
dύνανται. τὰ μὲν οὐν σημεῖα ταύτα τοῦ ἔξω
18 ἐκπεττώκοτος μηροῦ ἐστίν.

LV. Οἶσι μὲν οὖν ἂν τετελειωμένοισιν ἥδη
ἐκπεσον τὸ ἄρθρον μὴ ἐμπέσῃ, τοῦτοισι βραχύτε-
ρον μὲν φαίνεται τὸ σύμπαν σκέλος, ἐν δὲ τῇ
ὀδοιπορίᾳ τῇ μὲν πτέρυγι οὐ δύνανται καθικνείσ-
θαι [ἐπὶ] 2 τῆς γῆς, τῷ δὲ στήθει τοῦ ποδὸς
βαίνουσι ἐπὶ τὴν γῆν· ὀλύγον δὲ ἐς τὸ ἔσω μέρος
ῥέσου τοῖσι δακτύλοισι ἄκροισιν. ὥστε ἐς
dύναται τὸ σῶμα τὸ σωματὲν σκέλος τοῦτοισι
πολλῷ μᾶλλον ἢ οἷς ἂν ἐς τὸ ἔσω μέρος ἐκπε-
πτώχη, ἀμα μὲν ὅτι ἡ κεφαλὴ τοῦ μηροῦ καὶ ὁ
αὐχὴν τοῦ ἄρθρου πλάγιοι φύσει πεθυκὼς ὑπὸ
συχνῶ μέρει τοῦ ἰσχίου τὴν ὑπόστασιν πεποίη-
tαι, ἀμα δὲ ὅτι ἄκρος ὁ ποὺς οὐκ ἐς τὸ ἔξω μέρος
ἀναγκάζεται ἐκκεκλίσθαι, ἀλλ’ ἐγγὺς τῆς θυσωρίης
tῆς κατὰ τὸ σῶμα καὶ τείνει καὶ ἐσωτέρω. ὅταν
οὖν τρίβουν μὲν λάβῃ τὸ ἄρθρον ἐν τῇ σαρκὶ ἐς ἦν
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when put beside the other. Naturally so, for it is no longer on bone that the head of the thigh-bone has its support, as when it was displaced inwards; but it lies along the natural slope of the hip-bone, and is sustained by soft and yielding flesh; wherefore it is seen to be shorter. The thigh on the inside at what is called the fork appears more hollow and less fleshy, while the buttock is rather more rounded on the outside, since the head of the bone is displaced outwards; besides this, the buttock is seen to be higher, since the flesh at that part gives way before the head of the thigh-bone. But the end of the bone at the knee is seen to turn inwards, and with it the leg and foot; for the rest, they cannot bend it in the same way as the sound leg. These then are the signs of dislocation of the thigh outwards.

LV. In cases of adults, when the joint is not reduced after dislocation, the whole leg is seen to be shorter; and in walking they cannot reach the ground with the heel, but go on the ball of the foot, and turn the toes a little inwards. But the injured leg can bear the weight of the body much better in these cases than where there has been dislocation inwards, partly because the head and neck of the thigh-bone, being naturally oblique, have got a lodging under a large part of the hip, and partly because the foot is not obliged to incline outwards, but is near the vertical line of the body, and even tends rather inwards. As soon, then, as the articular part forms a friction-cavity in the flesh where it is

1 ἑπεται. 2 Omit B Kw.
ΠΕΡΙ ΑΡΘΡΩΝ

ἐξεκλίθη, ἢ δὲ σὰρξ γλυσχραυνθῇ, ἀνώδυνον τῷ χρόνῳ γίνεται· ὅταν δὲ ἀνώδυνον γένηται, δύνανται μὲν ὁδοιπορεῖν ἄνευ ξύλου, ἡν ἄλλως βούλων· 

20 δύνανται δὲ ὥσπερ τὸ σῶμα ἐπὶ τὸ σιναρὸν σκέλος. διὰ οὖν τὴν χρῆσιν ᾣσον τοῖς τοιούτοις ἐκθηλύνονται αἱ σάρκες ἢ σφίν ὀλύγον πρόσθεν εἰρηται· ἐκθηλύνονται δὲ ἢ πλεῖον ἢ ἔλασσον μᾶλλον δὲ τι ἐκθηλύνονται κατὰ τὸ ἔσω μέρος ἢ κατὰ τὸ ἐξ ὧς ἐπὶ τὸ πολὺ. τὸ μέντοι ὑπόδημα μετεξέτεροι τούτων ὑποδείσθηκαν οὐ δύνανται, διὰ τὴν ἀκαμπτὴν τοῦ σκέλεος, οἱ δὲ τινες καὶ δύνανται. οἷς ἀν ἐν γαστρὶ εὕσσων ἐξαρθρήσῃ τοῦτο τὸ ἄρθρον, ἢ ἐτι ἐν αὐξήσει ἐούσι βή ἐκπέσον μὴ ἐμπέσῃ, ἢ καὶ ὑπὸ νουσοῦ ἐξαρθρήσῃ τοῦτο τὸ ἄρθρον καὶ ἐκπαλίσῃ— 

30 πολλὰ γὰρ τοιαύτα γίνεται· καὶ ἐνίων μὲν τῶν τοιούτων ἢν ἐπισφακελίσῃ ὁ μηρός, ἐμπυήματα χρόνια καὶ ἐμμοτα γίνεται, καὶ ὀστέως ψυλλώσεις ἐνίοισιν ὀμοίως δὲ καὶ οἷς ἐπισφακελίζει καὶ οἷς μὴ ἐπισφακελίζει, τοῦ μηροῦ τὸ ὀστεῶν πολλῷ βραχύτερον γίνεται, καὶ οὐκ ἐθέλει συναύξεσθαι ὦσπερ τοῦ ὑγιέος· τὰ μέντοι τῆς κυήμης βραχύτερα μὲν γίνεται ἢ τὰ τῆς ἐτέρης, ὀλίγῳ δὲ, διὰ τὰς αὐτὰς προφάσιας αἱ καὶ πρόσθεν εἰρηται· ὁδοιπορεῖν τε δύνανται οἱ τοιοῦτοι, οἱ μὲν τινες αὐτῶν τούτων τὸν τρόπον ὦσπερ οἴσι τετελειωμένοισιν ἐξέπεσε καὶ μὴ ἐνέπεσεν, οἱ δὲ καὶ βαίνοντι μὲν παντὶ τῷ ποδί, διαφέρετοι δὲ ἐν τῇ ὡς ὁδοιπορίσιν, ἀναγκαζόμενοι διὰ τὴν βραχύτητα τοῦ σκέλεος· ταύτα δὲ 1 τοιαύτα γίνεται, ἢν ἐπιμελέως μὲν παιδαγω- 

40 γηθέωσιν 2 ἐν τοῖς σχήμασι καὶ ὅρθως ἐν οἷς 328
dislocated, and the flesh gets lubricated, it in time becomes painless; and when it becomes painless, they can walk without a crutch, at least should they wish to do so, and can put the weight of the body on the injured leg. Owing to the exercise, the flesh becomes less flaccid in such cases than in those mentioned just above; yet it does get more or less flaccid; and as a rule there is rather greater flaccidity on the inner than on the outer side. Some of these patients are unable to put on a shoe, owing to the stiffness of the leg; but some manage it. In cases where this joint is dislocated before birth, or is forcibly put out and not reduced during adolescence, or when the joint is dislocated and started from its socket by disease—such things often happen—if necrosis of the thigh-bone occurs in some of these cases, chronic abscesses are formed, requiring tents; if and in some there is denudation of bone. Likewise, both where there is and where there is not necrosis of the bone, it becomes much shorter, and will not grow correspondingly with the sound one. The bones of the lower leg, however, though shorter than those of the other, are but slightly so, for the same reasons as those given above. These patients can walk, some of them in the aforesaid fashion, like adults who have an unreduced dislocation; while others use the whole foot, but sway from side to side in their gait, being compelled to do so through the shortness of the leg. But such results are only attained if they are carefully instructed in the correct

1 *I.e.* drainage apparatus.

1 μέντων Kw.  2 Kw.'s correction.
ΠΕΡΙ ΑΡΩΡΩΝ

dei, prīn kratuνthēmai ēs tīn ódouπorīn, ēπι-

50 melēwos dē kai órthōs, ēpīn kratuνthōs. plēisēthē

dē ēπιmelēiēs dēoνtai oīsīn ἀν νηπιωτάτοιοιν

ēōs iūn αὐτή ἡ συμφορὴ γένηται ἡν γὰρ ἀμελη-

θῶσι νηπίου παντάπασι καὶ

ἀναυξές ὅλον τοῦ σκέλος γίνεται. αἱ dē σάρκες

tou súμπαντος σκέλεως μινύθουσι μᾶλλον ἡ τοῦ

υγιέος: πάνυ μὲν πολλῷ ἧσουν τοῦτοι μινύθουσι

ἡ οἴσιν ἀν ἔσω ἐκπεπτώκη, διὰ τὴν χρῆσιν καὶ τὴν

talaiπωρίνην, οἶον εὐθέως δύνασθαι χρῆσθαι τῷ

σκέλει, ὡς καὶ πρόσθεν ὀλίγῳ περὶ τῶν γαλιαγ-

κώνων εἰρηται.

LVI. Εἰσὶ dē tīnes, ὃν τοῦσι μὲν ἐκ γενεῆς

αὐτίκα, τοῦσι dē kai ὑπὸ νοῦσου ἀμφοτέρων τῶν

σκέλεων ἔξεστι τὰ ἄρθρα ἐς τὸ ἔξω μέρος,

toῦτοιν ὃν τὰ μὲν ὅστεά ταῦτα παθήματα

πάσχει· αἱ μὲντοι σάρκες ἥκιστα ἐκθελύνονται

toῦσι τοὐτοῖσιν· εὐσάρκη 1 dē kai tā skéleas

γίνεται, πλὴν εἰ τί ἄρα κατὰ τὸ ἔσω μέρος

ἐλλεῖπτοι 2 ὀλίγον. διὰ τοῦτο dē εὐσάρκα ἐστιν,

ὅτι ἀμφοτέροις τοῦσι σκέλεσι όμοίως ἡ χρῆσις

γίνεται· ὀμοίως γὰρ σαλεύουσιν εἰν τῇ ὄδουποιρῇ

ἐνθα καὶ ἐνθα· ἐξεχέγγουσιν δὲ οὕτωι ἰσχυρῶς

φαίνονται 3 διὰ τὴν ἐκκατάσειν τῶν ἄρθρων. ἦν dē

μὴ ἐπισφακελίσθη αὐτοῖσι τὰ ὅστεα, μηδὲ κυφὸι

ἀνωτέρω τῶν ἰσχίων γένωνται· ἔνιοις γὰρ καὶ
toιαῦτα καταλαμβάνει· ἦν οὖν μὴ τοιοῦτον τι

tγένηται, ἰκανῶς ὑγιηρῷ ταλλὰ διαφέρονται·

ἀναυξίστεροι μέντοι τὸ πᾶν σῶμα οὕτωι γίνον-

ται, πλὴν τῆς κεφαλῆς.

LVII. Ὁσοὶ συ ὁ ἄν ἐς τοῦτοισθεν ἢ κεφαλῇ

tou μηροῦ ἐκπέσῃ· ὀλίγοισι dē ἐκπίπτει· οὕτωι

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attitudes before they have acquired strength for walking, and carefully and rightly guided when they are strong. The greatest care is required in cases where this lesion occurs when they are very young; for if they are neglected when infants, the whole leg gets altogether useless and atrophied. The flesh is attenuated throughout the leg, compared with the sound one; but the attenuation is much less in these cases than where the dislocation is inwards, owing to use and exercise, since they can use the leg at once, as was said a little before concerning the weasel-armed.

LVI. There are some cases in which the hip-joints of both legs are dislocated outwards, either immediately at birth or from disease. Here the bones are affected in the same way as was described, but there is very little flaccidity of the tissues in such cases; for the legs keep plump, except for some little deficiency on the inner side. The plumpness is due to the fact that both legs get exercised alike; for they have an even swaying gait to this side and that. These patients show very prominent haunches, because of the displacement of the hip-joints; but if no necrosis of the bones supervenes, and they do not become humped above the hips—for this is an affection which attacks some—if nothing of this sort occurs, they are distinguished by very fair health in other respects. Still, these patients have defective growth of the whole body, except the head.

LVII. In cases where the head of the thigh-bone is dislocated backwards—this is a rare dislocation—
ΠΕΡΙ ΑΡΘΡΩΝ

ἐκτανύειν οὐ δύνανται τὸ σκέλος, οὔτε κατὰ τὸ ἄρθρον τὸ ἐκπεσὸν οὔτε τι κάρτα κατὰ τὴν ἴγνυμὴν ἀλλ’ ἥκιστα τῶν ἐκπαλαθησίων οὕτωι [μᾶλλον] ἐκτανύουσι καὶ τὸ κατὰ τὸν βουβδώνα καὶ τὸ κατὰ τὴν ἴγνυμὴν ἄρθρον. προσσυνιέναι μὲν οὖν καὶ τόδε χρῆ—ἐὔχρηστον γὰρ καὶ πολλοῦ ἄξιόν ἐστι καὶ τοὺς πλείστους λήθει—ὁτι οὐδ’ ἴγναίνοντες δύνανται κατὰ τὴν ἴγνυμὴν ἐκτανύειν τὸ ἄρθρον, ἦν μὴ συνεκτανύσωσι καὶ τὸ κατὰ τὸν βουβδώνα ἄρθρον, πλην ἦν μὴ πάνυ ἄνω ἀείρωσι τὸν πόδα, οὔτω δ’ ἄν δύναντο: οὐ τοῖνυν οὐδὲ συγκάμπτειν δύνανται τὸ κατὰ τὴν ἴγνυμὴν ἄρθρον ὁμοίως, ἄλλα πολὺ χαλεπώτερον, ἦν μὴ συγκάμψωσί καὶ τὸ κατὰ τὸν βουβδώνα ἄρθρον. πολλὰ δὲ καὶ ἄλλα κατὰ τὸ σῶμα τοιαύτας ἀδελφίξιας ἔχει, καὶ κατὰ νεύρων συντάσσιας καὶ κατὰ μυών σχῆματα, καὶ πλείστα τε καὶ πλείστου ἄξια γινώσκεσθαι ἢ ὲς τις οἴεται, καὶ κατὰ τὴν τοῦ ἐντέρου φύσιν καὶ τὴν τῆς συμπάσης κοιλῆς, καὶ κατὰ τὰς τῶν ύστερων πλάνας καὶ συντάσσιας: ἀλλὰ περὶ μὲν τούτων ἐτέρωθι λόγος ἐσται ἡδελφισμένος τοῖσι νῦν λεγομένοισι. περὶ οὖ δὲ ὁ λόγος ἔστιν, οὔτε ἐκτανύειν δύνανται, ὡσπερ ἡδὴ εἰρηται, βραχύτερον τε τὸ σκέλος φαίνεται, διὰ δισσάς προφάσιας: ὅτι τε οὐκ ἐκτανύεται, ὅτι τε πρὸς τὴν σάρκα ἀδιάσηθη ἡ τοῦ πυγαίου· ἡ γὰρ φύσις τοῦ ἴσχιον τοῦ ὀστέου ταύτη, ἢ καὶ ἡ κεφαλὴ καὶ ὁ αὐχήν τοῦ μηροῦ γίνεται, ὅταν δὲ ἔξαρθρῆσθη, καταφερήσει τι πέφυκεν ἐπὶ τοῦ πυγαίου τὸ ἔξω μέρος. συγκάμπτειν μέντοι δύνανται, ὅταν μὴ ἡ ὀδύνη κωλύῃ καὶ ἡ κυῆμη τε καὶ ὁ ποὺς ὀρθὰ

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the patients cannot extend the leg at the dislocated joint, nor indeed at the ham; in fact, of all displacements, those who suffer this one make least extension, both at the groin and at the ham. One should also bear the following in mind—it is a useful and important matter, of which most are ignorant—that not even sound individuals can extend the joint at the ham, if they do not extend that at the groin as well, unless they lift the foot very high; then they could do it. Nor can they as readily flex the joint at the ham, unless they flex that at the groin as well, but only with much greater difficulty. Many parts of the body have affinities of this kind, both as regards contraction of cords and attitudes of muscles; and they are very numerous, and more important to recognise than one would think, both as regards the nature of the intestine and the whole body cavity, also the irregular movements and contractions of the uterus. But these matters will be discussed elsewhere in connection with the present remarks. To return to our subject—as already observed, the patients cannot extend the leg, also it appears shorter, for a double reason; both because it is not extended, and because it has slipped into the flesh of the buttock; for the hip-bone, at the part where the head and neck of the femur lie when dislocated, has a natural slope towards the outer side of the buttock. They can however flex the limb, when pain does not prevent it; and the lower leg and foot appear fairly straight,

1 Omit Galen, Littré, Ern.
ΠΕΡΙ ΑΡΘΡΩΝ

ἐπιεικῶς φαίνεται, καὶ οὔτε τῇ οὔτε τῇ πολὺ ἐκκεκλιμέναι· κατὰ δὲ τὸν βουβώνα δοκεῖ τι ἡ σάρξ λαπαρωτέρη εἶναι ποτὶ καὶ ψαυμένη, ἀτε τοῦ ἄρθρου ἐς τὰ ἐπὶ θάτερα μέρη ὁλισθηκότος· κατὰ δὲ αὐτὸ τὸ πυγαῖον διαψαυμένη ἡ κεφαλὴ τοῦ μηροῦ δοκεῖ τι ἐξογκείν καὶ μᾶλλον. τὰ μὲν οὖν σημεῖα ταὐτά ἐστιν, ὥ ἂν ἐς τὸ ὁπίσθεν ἐκπεπτώκη ὁ μηρός.

LVIII. Ὡτε οὖν ἐνί οὐν τετελειωμένῳ ἤδη ἐκπεσὸν μὴ ἐμπέσῃ, ὀδοιπορεῖν μὲν δύναται, ὅταν ὁ χρόνος ἐγγένηται καὶ ἡ ὀδύνη παύσηται, καὶ ἔθισθη τὸ ἄρθρον ἐν τῇ σαρκὶ ἐνστρωφάσθαι. ἀναγκάζεται μὲντοι ἵσχυρὸς συγκάμπτειν ἡ κατὰ τὸς βουβώνας ὀδοιπορέων, διὰ διοστὰς προφάσιας, ἀμα μὲν ὅτι πολλῷ βραχύτερον τὸ σκέλος γίνεται διὰ τὰ προειρημένα, καὶ τῇ μὲν πτέρυγῃ καὶ πάνω πολλῷ δεῖται ψαυμέν ἡ γῆς. εἰ γὰρ πειρήσατο καὶ ἐπ᾽ ὀλίγον τοῦ ποδὸς ἐκχοθῆναι, μηδὲν ἄλλῳ ἀντιστηριζομένος, ἐς τοῦπίσω ἀν πέσοι· ἡ γὰρ ῥοπὴ πολλὴ ἂν εἴη, τῶν ἵσχιῶν ἐπὶ πολὺ ἐς τοῦπίσω ὑπερέχοντων ὑπὲρ τοῦ ποδὸς τῆς βάσιος καὶ τῆς ράχιος ἐς τὰ ἵσχια ῥεπούσης. μόλις δὲ τῷ στήθει τοῦ ποδὸς καθικνεῖται, καὶ οὔδὲ οὔτως, ἢν μὴ κάρψῃ αὐτῶς ἐωυτὸν κατὰ τοὺς βουβῶνας, καὶ τῷ ἐτέρῳ σκέλει κατὰ τὴν ἴγνυμν ἐπισυγκάμψῃ. ἐπὶ δὲ τοῦτοις ἀναγκάζεται ὡστε τῇ χειρὶ τῇ κατὰ τὸ σωματίν σκέλος ἐρείδεσθαι ἐς τὸ ἄνω τοῦ μηροῦ ἐφ᾽ ἐκάστῃ συμβάσει. ἀναγκάζει οὖν τι καὶ τοῦτο αὐτὸ ὡστε κάμπτεσθαι κατὰ τοὺς βουβῶνας· ἢν γὰρ τῇ μετάλλαγῃ τῶν σκελέων ἐν τῇ ὀδοιπορ. ἡ

1 συγκάμπτειν. 2 ὀδοιπορεῖν.
without much inclination to either side. At the groin the flesh seems rather relaxed, especially on palpation, since the joint\(^1\) has slipped to the other side; while at the buttock itself the head of the bone seems, on deep palpation, to stick out abnormally. These then are the signs in a case of dislocation of the thigh backwards.

LVIII. When the dislocation occurs in an adult, and is not reduced, the patient can walk, indeed, after an interval, when the pain subsides, and the head of the bone has become accustomed to rotate in the tissues; but he is obliged in walking to flex his body strongly at the groin, for a double reason, both because the leg is much shorter, owing to the causes above mentioned, and is very far from touching the ground with the heel; for if he should try even for a moment to have his weight on the foot with no opposite support, he would fall backwards, as there would be a great inclination that way, the hips coming far beyond the sole of the foot behind, and the spine inclining towards the hips.\(^2\) He hardly reaches the ground with the ball of the foot, and cannot do this without a simultaneous flexure of the other leg at the ham. Besides, he is forced at every step to make pressure with the hand at the side of the injured leg on the upper part of the thigh. This of itself would compel him to bend the body somewhat at the groin; for at the change of

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\(^1\) "Joint" here means "articular head."

\(^2\) L. and Erm. put the above from "for if he should try" after "displaced backwards at the hip." It gives better sense, but has no authority.

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\(^3\) Littré, followed by Ermerins, rearranges the text in an arbitrary manner.
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οὐ δύναται τὸ σῶμα ὀχεῖσθαι ἐπὶ τοῦ συναρῳ σκέλεσιν, ἣν μὴ προσκατερείδηται τὸ συναρὸν πρὸς τὴν γῆν ὑπὸ τῆς χειρᾶς, οὐχ  ὑφεστεῶτος τοῦ ἄρθρου ὑπὸ τὸ σῶματι, ἀλλὰ ἐς τὸ ὀπίσθεν ἐξεστεῶτος κατὰ τὸ ἱσχίον. ἀνευ μὲν οὖν ξύλον δύνανται ὕδωρ πορεῖν οἱ τοιοῦτοι, ἥν ἄλλως ἔθισθέωσιν, διὰ τούτῳ, ὅτι ἡ βάσις τοῦ ποδοῦ κατὰ τὴν ἀρχαίν ἱδυωρίαν ἐστίν, ἀλλὰ οὐκ ἐς τὸ ξύλον ἔκκεκλιμένην διὰ τούτῳ οὖν ὕδευ δέονται τῆς ἀντικοντώσιος. ὅσοι γὰρ μέντοι βούλονται ἄντι τῆς τοῦ μηροῦ ἐπιλαβῆς ὑπὸ τὴν μασχάλην τὴν κατὰ τὸ συναρὸν σκέλος ὑποτιθέμενοι σκίπωνα ἀντερείδειν, ἐκεῖνοι, ἤμ  μὲν μακρότερον τῶν σκίπωνα ὑποτιθέμεντο, ὀρθότερον μὲν ὑδοποροῦσι, τῷ δὲ ποδὶ πρὸς τὴν γῆν οὖν ἐρείδονται· εἰ δ′ αὐτὸ βούλονται ἐρείδεσθαι τῷ ποδὶ, βραχύτερον μὲν τὸ ξύλον φοριτέον, κατὰ δὲ τοὺς βούβδονας ἐπισυνγκάμπτεσθαι ἀν δέοι αὐτούς. τῶν δὲ σαρκῶν αἱ μυνθῆσις κατὰ λόγον γίγνονται καὶ τοῦτοισι, ὁσπέρ καὶ πρόσθεν εἰρηταὶ· τοῖσι μὲν γὰρ μετέωρον ἔχουσι τὸ σκέλος καὶ μηδέν ταλαιπώρεουσι, τοῦτοισι καὶ μᾶλλον μινύθουσιν· οὖ δ′ ἄν πλείστα χρέωνται τῇ ἐπιβάσει, τοῦτοισιν ἤκιστα μινύθουσιν. τὸ μέντοι ὑγίες σκέλος οὐκ ὠφελεῖται, ἀλλὰ μᾶλλον καὶ ἱσχυμονέστερον γίνεται, ἥν χρέωνται τῷ συναρῷ σκέλει ἐπὶ τὴν 

50 ἑλικόν συνυποτούργεον γὰρ ἐκεῖνον ἐξεστείχον τε ὑπαναγκάζεται εἶναι, καὶ κατὰ τὴν ἑλικήν συγκάμπτεσιν, ἥν γε μὴ προσχρέπτεται τῷ συναρῳ ἐπὶ τὴν γῆν, ἀλλὰ μετέωρον ἐχον σκίπωνα ἀντερείδηται, οὕτω δὲ καρποῦ τοῖσιν γίνεται τὸ ὑγίες σκέλος· ἐν τῇ γὰρ τῇ φύσει διαίταται, καὶ τὰ
ON JOINTS, lviii.

legs in walking, the body weight cannot be carried by the injured leg unless it be further pressed to the ground by the hand, the articular head not being in line under the body, but displaced backwards at the hip.¹ Still, such patients can walk without a crutch, at any rate after practice, for this reason, viz., that the sole of the foot keeps its old straight line, and is not inclined outwards; wherefore they have no need for counter-propping. Those who prefer, instead of the grasp on the thigh, to have the support of a crutch under the arm on the side of the injured leg, if they have a rather long crutch, walk more erect; but they do not press with the foot on the ground. But if they want to make pressure with the foot, a shorter crutch must be carried; and they must also flex the body at the groin. Wasting of the flesh takes place in these cases also according to rule, as was said before; in those who keep the leg off the ground and give it no exercise the wasting is greatest, while in those who use it most in walking it is least. Still, the sound leg gets no benefit, but rather becomes also somewhat deformed, if patients use the injured leg on the ground; for in giving assistance to the latter, it is forced outwards at the hip, and bends at the ham; but if one does not use the injured leg on the ground as well, but, keeping it suspended, gets support from a crutch, the sound limb thus becomes strong; for it is employed in the natural way, and

¹ See previous note.

¹ ἄτε ὄβχ一本书.
³ Omit. ² εἰ. ⁴ ἦν δὲ.
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γυμνάσια προσκρατώνει αυτό. φαίη μὲν οὖν ἂν τις, ἕξω ἱπτρικῆς τὰ τοιαύτα εἶναι· τί γὰρ δήθεν δεῖ περὶ τῶν ἡδῆ ἀνηκέστων γεγονότων ἐτὶ προσυπιέναι; πολλοὺ δὲ δεὶ οὕτως ἔχειν· τῆς γὰρ αὐτῆς γνώμης καὶ ταύτα συνιέναι· οὐ γὰρ οἶνον τε ἀπαλλοτριώθηναι ἀπ’ ἀλλήλων. δὲι μὲν γὰρ ἐς τὰ ἀκεστὰ μηχανάσθαι, ὅπως μὴ ἀνηκεστὰ ἔσται, συνιέντα ὅπη ἢν μᾶλλον κωλυτέα ἐς τὸ ἀνήκεστον ἐλθεῖν· δεὶ δὲ τὰ ἀνήκεστα συνιέναι, ὡς μὴ μᾶτην λυμαίνηται· τὰ δὲ προρρήματα λαμπρὰ καὶ ἀγωνιστικὰ ἀπὸ τοῦ διαγινώσκειν ὅπη ἐκαστὸν καὶ οὖσα καὶ ὅποτε τελευτήσει, ἢν τε ἐς τὸ ἀκεστὸν τράπηται, ἢν τε ἐς τὸ ἀνήκεστον. ὁπόσοις δ’ ἂν ἐκ γενεῖς ἦ καὶ ἄλλως πως ἐν αὐξήσει ἐσύσιν οὐτως ὀλίσθῃ τὸ ἄρθρον ὅπισώ καὶ μὴ ἐμπέσῃ, ἢν τε βίη ὀλίσθῃ, ἢν τε καὶ ὑπὸ νοῦσον—πολλὰ γὰρ τοιαύτα ἕξαρθρήματα γίνεται ἐν νοῦσοιοι· οἷα δὲ τινὲς ἔτιναι οἱ νοῦσοι, ἐν ἕστιν ἔξαρθρεῖται τα τοιαύτα, ὡς τερεν γεγράψεται—ἢν οὖν ἐκστὰν μὴ ἐμπέσῃ, τοῦ μὲν μηροῦ τὸ ὀστεόν βραχὺ γίνεται, κακοῦται δὲ καὶ πᾶν τὸ σκέλος, καὶ ἀναυξέστερον γίνεται καὶ ἀσαρκότερον πολλῷ διὰ τὸ μὴ ἔδει προσχρήσθαι αὐτῶ· κακοῦται γὰρ τούτοις καὶ τὸ κατὰ τὴν ἴμπυγν ἄρθρον· τὰ γὰρ νεῦρα ἐντεταμένα γίνεται διὰ τὰ πρόσθεν εἰρήμενα. διὸ οὐ δύναται τὸ κατὰ τὴν ἴμπυγν ἄρθρον ἐκτανύειν, οἷον ἄν οὕτως ἱσχίον ἐκπέσῃ. ὡς γὰρ ἐν κεφαλαίῳ εἰρήσθαι, πάντα τὰ ἐν τῷ σώματι, ὁπόσα ἐπὶ χρήσει γέγονεν, χρεομένοις μὲν μέτρια καὶ γυμναξομένοις ἐν τῇ σταλα-πώρισιν, ἐν ἓσιν ἐκάστα εἴδισται, οὕτω μὲν
the exercises strengthen it more. One might say that such matters are outside the healing art. Why, forsooth, trouble one's mind further about cases which have become incurable? This is far from the right attitude. The investigation of these matters too belongs to the same science; it is impossible to separate them from one another. In curable cases we must contrive ways to prevent their becoming incurable, studying the best means for hindering their advance to incurability; while one must study incurable cases so as to avoid doing harm by useless efforts. Brilliant and effective forecasts are made by distinguishing the way, manner and time in which each case will end, whether it takes the turn to recovery or to incurability. In cases where such a dislocation backwards occurs and is not reduced, whether congenitally or during the period of growth, and whether the displacement is due to violence or disease—many such dislocations occur in diseases, and the diseases which cause such dislocations will be described later—if, then, the displacement is unreduced, the thigh-bone gets short, and the whole leg deteriorates, and becomes much more undeveloped and devoid of flesh, because it gets no exercise. For in these cases, the joint at the ham is also maimed, since the ligaments get contracted, for the reasons given above; and therefore patients in whom the leg is thus dislocated cannot extend the joint at the ham. Speaking generally, all parts of the body which have a function, if used in moderation and exercised in labours to which each is accustomed, become thereby healthy and well-
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υγηρὰ καὶ αὐξίμα καὶ εὐγηρὰ γίνεται· μὴ χρεομένοις δέ, ἀλλ' ἐλυσύοις, νοσηρότερα γίνε
tαι καὶ ἄναξέα καὶ ταχύγηρα. ἐν δὲ τούτοις ὁ
χρήματα τὰ ἀρθρα τοῦτο πέπονθε καὶ τὰ νεῦρα, ἢν
μὴ τις αὐτοῖς χρέηται· κακοῦνται μὲν
οὖν διὰ ταύτας προφάσιας μᾶλλον τι ἐν
τούτῳ τῷ τρόπῳ τοῦ ὀλισθήματος ἢ ἐν τοῖς
ἀλλοίσιν· ὅλων γὰρ τὸ σκέλος ἄναξὲς γίνεται,
kai τῇ ἀπὸ τῶν ὀστέων φύσει καὶ τῇ ἀπὸ τῶν
σαρκῶν. οἱ οὖν τοιοῦτοι ὀφταν ἀιδρωθῶσι,
μετέωρον καὶ συγκεκαμμένον τὸ σκέλος ἱσχύειν,
ἐπὶ δὲ τοῦ ἑτέρου ὀχέονται, καὶ τῷ ξύλῳ
ἀντιστηριζόμενοι, οἱ μὲν ἐνί, οἱ δὲ δυσὶν.

ΛΙΧ. Οἶσι δ' ἀν ἐς τοῦμπροσθεν ἡ κεφαλὴ
tοῦ μηροῦ ἐκπέσῃ—ὀλύγοις δὲ τοῦτο γίνεται—
οὔτοι ἑκτανύειν μὲν τὸ σκέλος δύνανται τελέως,
συγκάμπτειν δὲ ἡμιστα οὔτοι δύνανται τὰ κατὰ
tὸν θούβωνα· πονεόουσι δὲ, καὶ ἢν κατὰ τὴν
ἰγνύην ἄναγκαζωνται συγκάμπτειν. μῆκος δὲ
tοῦ σκέλους παραπλησίου φαίνεται, κατὰ μὲν
tὴν πτέρυγην καὶ πάνω· ἄκρος δὲ ὁ πους ἡςόν
τι προκύπτειν ἐθέλει.1 ὅλον δὲ τὸ σκέλος ἐχει
tὴν ἑυγείρην τὴν κατὰ φύσιν, καὶ οὔτε τῇ οὔτε
τῇ ῥέπει. ὀδυνώνται δὲ αὐτικα οὔτοι μάλιστα,
kai οὔρον ἵσχεται τὸ πρῶτον τούτοις μᾶλλον
tι ἡ τοῖς ἄλλοισιν ἐξαρθρήμασιν· ἐγκεῖται γὰρ
ἡ κεφαλὴ τοῦ μηροῦ ἐγγυτάτω τούτοις τῶν
tῶν τόνων τῶν ἐπικαίρων. καὶ κατὰ μὲν τὸν θού-
βωνα ἐξόγκεον τε καὶ κατατεταμένον τὸ χωρίον
φαίνεται, κατὰ δὲ τὸ πυγαῖν ἑτολίδῳ δεστερον
καὶ ἀσαρκότερον. ταῦτα μὲν οὖν σημεῖα ἔστι
τὰ εἰρημένα, ὡς ἂν οὕτως ἐκπεπτώκη ὁ μηρός.

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Developed, and age slowly; but if unused and left idle, they become liable to disease, defective in growth, and age quickly. This is especially the case with joints and ligaments, if one does not use them. For these reasons, patients are more troubled by this sort of dislocation than by the other; for the whole leg is atrophied in the natural growth both of bone and flesh. Such patients, then, when they become adults, keep the leg raised and contracted, and walk on the other, supporting themselves, some with one and some with two crutches.

LIX. Those in whom the head of the thigh-bone is dislocated forwards—a rare occurrence—can extend the leg completely, but are least able to flex it at the groin; and they suffer pain even if they are compelled to bend it at the ham. The length of the leg seems about equal, and quite so at the heel; but there is less power of pointing the foot. The whole leg preserves its natural straight line, inclining neither to one side nor the other. It is in these cases that the immediate pain is greatest, and retention of urine occurs from the first more than in other dislocations; for the head of the femur in these cases lies very close to important cords. The region of the groin appears prominent and tense; but at the buttock it is rather wrinkled and fleshless. The above-mentioned signs, then, occur in patients whose thigh is put out in this way.

1 ἐθέλει = ἰδώραι, says Galen, comparing Ἰλιάδ XXI. 366.
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LX. Ὁπόσουσι μὲν οὖν ἂν ἡδὴ ἠνδρωμένουσι τοῦτο τὸ ἄρθρον ἐκπεσόν μὴ ἐμπέσῃ, οὕτω, ὥσποταν αὐτοίσιν ἡ ὀδύνη παῦσηται καὶ τὸ ἄρθρον ἐθισθῇ ἐν τῷ χωρίῳ τούτῳ στρωφᾶσθαι, ὡν ἐξέπεσεν, οὕτω διόνται σχέδον εὐθὺς ὁρθοὶ ὀδοιπορεῖν ἀνευ̂ν ξύλου, καὶ πάνν μέντοι εὐθέες, ἐπὶ δὲ τὸ σιναρόν, ἀτε οὔτε κατὰ τὸν βουβώνα εὐκαμπτοὶ ἐώντες, οὔτε κατὰ τὴν ἴγνυσιν· διὰ οὖν τοῦ βουβώνος τὴν ἀκαμπτὴν εὐθυτέρῳ ὀλω 10 τῷ σκέλει ἐν τῇ ὀδοιπορῇ χρέονται ἢ οὔτε ἴγνυ湿润. καὶ σύρουσι δὲ ἐνίοτε πρὸς τὴν γῆν τὸν πόδα, ἀτε οὖ ρηίδεις συγκαμπτοῦντες τὰ ἄνω ἄρθρα, καὶ ἀτε παντὶ βαίνοντες τῷ ποδί. οὔδὲν γὰρ ἴγνυον τῇ πτέρνῃ οὕτω βαίνονσιν ἢ τῷ ἐμπροσθεν· εἰ δὲ γε ἴδυναν μέγα προβαίνειν, κἂν πάνν πτερυοβάται ἴγνυν· καὶ γὰρ οἱ ἴγνυμοντες, ἢσω ἢν μέξον προβαίνοντες ὀδοιπορέωσι, τοσοῦτο μᾶλλον πτερυοβάται εἰσι, τιθέντες τὸν πόδα, αἴροντες τὸν ἐναντίον. ὁπόσουσι δὲ δὴ 20 οὕτως ἐκπέπτωκε, καὶ ἐτι μᾶλλον τῇ πτέρνῃ προσεγχρίμπτοουσιν ἢ τῷ ἐμπροσθεν· τὸ γὰρ ἐμπροσθεν τοῦ ποδός, ὅποταν ἐκτεταμένοι ἢ τὸ ἀλλο σκέλος, οὐχ ὧμοιος δύναται ἐς τὸ πρόσω καμπύλλεσθαι, ὡσπερ ὅταν συγκεκαμμένοι ἢ τὸ σκέλος· οὐκ αὖ σιμοῦσθαι δύναται ὁ ποὺς, συγκεκαμμένου τοῦ σκέλους, ὡς ὅταν ἐκτετα- μένοι ἢ τὸ σκέλος. ὕγιανουσι τε οὖν ἡ φύσις οὕτω πέφυκεν, ὡσπερ εἰρήται· ὅταν δὲ ἐκπεσὸν μὴ ἐμπέσῃ τὸ ἄρθρον, οὕτως ὀδοιπορέουσιν ὡς 30 εἰρήται, διὰ τὰς προφάσιας ταύτας τὰς εἰρη- μένας· ἀσαρκότερον μέντοι τὸ σκέλος τοῦ ἐτέρου γίνεται, κατά τε τὸ πυγαίον, κατά τε τὴν 342
ON JOINTS, lx.

LX. In cases where this dislocation occurs in those already adult and is not reduced, these patients, when their pain subsides and the head of the bone has got accustomed to turning in the locality where it was displaced, are able to walk almost at once erect without a crutch, and even quite straight up, so far as the injured part is concerned, seeing that it cannot easily bend either at the groin or ham. Thus, owing to the stiffness at the groin, they keep the whole leg straighter in walking than when it was sound. And sometimes they drag the foot along the ground, seeing that they cannot easily flex the upper joints, and that they walk on the whole foot. In fact, they walk as much on the heel as on the front part; and if they could take long strides, they would be purely heel-walkers. For those with sound limbs, the longer the strides they take in walking, the more they go on their heels when putting down one leg and raising the other; but those who have this form of dislocation press upon the heel even more than on the front of the foot. For the front of the foot cannot be so well bent down when the leg is extended as when it is flexed; nor, on the other hand, can the foot be bent upwards when the leg is flexed so well as when it is extended. This is what happens in the natural sound condition, as was said; but when the joint is dislocated and not reduced, they walk in the way described, for the reasons given above. The leg, however, becomes less fleshy than the other, both

1 Kw. omits.  
2 ἔπι γέ.  
3 χρέωνται.  
4 συγκεκλιμένου.
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γαστροκυημήνην, καὶ κατὰ τὴν ὀπίσθεν ἕξων. οὕσι δ’ ἂν υπῆρχοισιν ἔτι ἐδοῦσι τὸ ἀρθρον [οὕτως] ὀλισθὼν μὴ ἐμπέσῃ, ἢ καὶ ἐκ γενεῆς οὕτω γένηται, καὶ τούτοις τὸ τοῦ μηροῦ ὀστέων μᾶλλον τι μινύθει ἢ τὰ τῆς κνήμης καὶ τὰ τοῦ ποδός. ἡκιστὰ μὴν ἐν τούτῳ τῷ τρόπῳ τοῦ ὀλισθήματος ὁ μηρὸς μείονται. μινύθουσι μέντοι αἱ σάρκες πάντη, μάλιστα δὲ κατὰ τὴν ὀπίσθεν ἕξων, ὡσπερ ἡδη καὶ πρόσθεν εἰρήται. ὀπόσοι μὲν οὖν ἂν τιθημηθέωσιν ὀρθῶς, οὕτωι μὲν δύνανται προσχρῆσθαι τῷ σκέλει αὐξανόμενοι, βραχυτέρῳ μὲν τινὶ τοῦ ἐτέρου ἐωτί, ὡμος δὲ ἐρείδομενοι ξύλῳ ἐπὶ ταῦτα, ἢ τὸ σιναρὸν σκέλος: οὐ γὰρ κάρτα δύνανται ἀνευ τῆς πτέρυγης τῶ στήθει τοῦ ποδὸς χρῆσθαι, ἐπικαθιεῖntes ὡσπερ ἐν ἐπέρουσι χωλεύματι ἐνοὶ δύνανται αἴτιον δὲ τοῦ μὴ δύνασθαι τὸ ὀλίγῳ πρόσθεν εἰρημένον. διὰ οὖν τούτῳ προσδέονται ξύλου. ὀπόσοι δ’ ἂν καταμεληθέωσι καὶ μηδὲν χρῄζωται ἐπὶ τὴν γῆν τῷ σκέλει, ἀλλὰ μετέωρον ἔχωσι, τούτοις μινύθει μὲν τὰ ὀστέα ἐς αὐξήσιν μᾶλλον ἢ τοῖς χρεομένοισιν μινύθουσι δὲ [καὶ] αἱ σάρκες πολὺ μᾶλλον ἢ τοῖς χρεομένοισι: κατὰ δὲ τὰ ἀρθρα ἐς τὸ εὐθῖ πηροῦται τούτοις τὸ σκέλος μᾶλλον τι ἡ οἶσι 

57 ἃν ἄλλως ἐκπεπτώκη.

LXI. Ὡς μὲν οὖν ἐν κεφαλαῖῳ εἰρήσθαι, τὰ ἀρθρα τὰ ἐκπίπτοντα καὶ τὰ ὀλισθάνοντα ἀνύσως αὐτὰ ἐωυτόσιν ἐκπίπτει καὶ ὀλισθάνει, ἀλλοτε μὲν πολὺ πλέον, ἀλλοτε δὲ πολὺ ἐλασσον, καὶ οἴσι μὲν ἂν [πολὺ]¹ πλέον ὀλίσθη ἢ ἐκπέσῃ, χαλεπώτερα ἐμβάλλειν τὸ ἐπίπαν ἐστὶ, καὶ ἴν μὴ ἐμβιβασθῇ, μέξους καὶ ἐπιδηλοτέρας τὰς

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at the buttock and calf and all down the back of it. In those cases too where it is dislocated in childhood and not reduced, or where dislocation occurs congenitally, the thigh-bone is rather more atrophied than the bones of the leg and foot; but atrophy of the thigh-bone is least in this form of dislocation. The tissues are atrophied in the whole limb, but especially down the back of it, as was said before. Those, then, who are properly cared for are able to use the leg when they grow up, though it is a little shorter than the other; yet they do it by having a support on the side of the injured limb, for they have not much ability to use the ball of the foot without the heel, bringing it down, as some can do in other forms of lameness. The reason of their not being able is that mentioned a little above; and this is why they require a staff. In those who are neglected, and never use the leg to walk with, but keep it in the air, the bones are more atrophied than in those who do use it; and the tissues are much more atrophied than in those who use the leg. As regards the joints, the lesion keeps the leg straighter in these patients than in those who have other forms of dislocation.

LXI. To sum up—dislocations and slipping [separation] of joints vary among themselves in amount, and are sometimes much greater, sometimes much less. In cases where the slipping or dislocation is greater, it is, in general, harder to reduce; and, if unreduced, the resulting lesions and disabilities are

1 It is usual to make ὀλισθάνειν, ὀλισθήμα refer to "partial dislocation"; but this hardly suits the context, or the reference to shoulder and hip-joints.

1 Kw. omits.
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πηρώσιας καὶ κακώσιας ἵσχει τὰ τοιαύτα, καὶ ὅστεων καὶ σαρκῶν καὶ σχημάτων· ὅταν δὲ μεῖον ἐκπέσῃ καὶ ὀλίσθῃ, ῥηίδιον μὲν ἐμβάλλει τὰ τοιαύτα τῶν ἐτέρων γίνεται· ἂν δὲ καταπορηθῇ ἢ ἀμεληθῇ ἐμπεσεῖν, μείους καὶ ἁσινεστεραί αἱ πηρώσιες γίνονται τούτους ἢ οἶσιν ὴλίγοι πρόσθεν εἰρήται. τὰ μὲν οὖν ἄλλα ἁρθρα καὶ πάντα πολὺ διαφέρει εἰς τὸ ὅτε μὲν μεῖον, ὅτε δὲ μέξον τὸ ὀλίσθημα ποιεῖσθαι· μηροῦ δὲ καὶ ἃρακίωνος κεφαλαί παραπλησιώτατα ὄλισθάνουσιν αὐτὴ ἐως ἐκατέρῃ· ἀτε γὰρ στρογγύλαι μὲν αἱ κεφαλαὶ έοῦσαι, ἀπλὴν τὴν στρογγύλωσιν καὶ ἃρακρῆν ἔχουσι, κυκλοτερεῖς δὲ αἱ κοιλίαι ἐοῦσαι αἱ δεχόμεναι τὰς κεφαλὰς, ἀρμόζουσι δὲ τῇσι κεφαλῆσιν· διὰ τοῦτο οὐκ ἐστιν αὐτῆσι τὸ ἡμισὶν ἐκστήναι τοῦ ἁρθρου· ὀλισθάνοι γὰρ ἄν διὰ τὴν περιφερείαν, ἢ ἂν τὸ ἔξω ἢ ἂν τὸ ἐσώ. περὶ οὐ οὖν ὁ λόγος, ἐκπίπτουσι τελέως ἢδη, ἐπεῖ ἄλλως γε οὖκ ἐκπίπτουσι· ὡμως δὲ καὶ ταῦτα ὅτε μὲν πλεῖον ἀποπηδᾷ ἀπὸ τῆς φύσιος, ὅτε δὲ ἐλασσοῦν μᾶλλον δὲ τι μηρὸς τοῦτο βραχίωνος πέπτοιθεν.

LXII. Ἐπεὶ ἔνια καὶ τῶν ἐκ γενεῖς ὀλίσθη-μάτων, ἢν μικρὸν ὀλίσθη, οἷα τε ἐς τὴν φύσιν ἄγεσθαι, καὶ μάλιστα τὰ παρὰ τοῦ ποδὸς ἁρθρα. ὀπόσοι ἐκ γενεῖς κυλλοί γίνονται, τὰ πλεῖστα τούτων ἴσιμά ἐστιν, ἢν μὴ πάνω μεγάλη ἢ ἐκκλίσις ἢ, ἢ καὶ προαυξέων γεγονότων ἡδὴ τῶν παιδίων συμβῆ. ἀριστον μὲν οὖν ὡς τάχιστα ἰητρεύειν τὰ τοιαύτα, πρὸν πάνω μεγάλην τὴν ἐνδειαν τῶν ὅστεων τῶν ἐν τῷ ποδὶ γενέσθαι, πρὸν τε πάνω μεγάλην τὴν ἐνδειαν τῶν σαρκῶν.
ON JOINTS, lxi.–lxii.

greater and more manifest in the bones, the soft parts, and the attitudes. When there is less displacement, either with dislocation or separation, reduction is easier than in other cases; and if they are not reduced, owing to inability or neglect, the resulting deformities are smaller and less serious than in the cases just mentioned. Joints in general, then, differ very much in having their displacements sometimes less and sometimes greater; but the heads of the thigh and arm-bones each slip out in very similar ways; for the heads, being rounded, have a smooth and regular spherical surface, and the cavities which receive them, being also circular, fit the heads. Wherefore it is impossible for them to be put half out; for owing to the circular rim, it would slip either out or in. As regards our subject, then, they are put quite out, since otherwise they are not put out at all. Yet even these joints spring away, sometimes more, sometimes less, from the natural position. This is more pronounced in the thigh-bone than in the arm.

LXII. There are certain congenital displacements which, when they are slight, can be reduced to their natural position, especially those at the foot-joints. Cases of congenital club-foot are, for the most part, curable, if the deviation is not very great or the children advanced in growth. It is therefore best to treat such cases as soon as possible, before there is any very great deficiency in the bones of the foot, and
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tῶν κατὰ τὴν κυήμην εἶναι. τρόπος μὲν οὖν κυλλόσιος ὦν χ εἶ, ἀλλὰ πλείονες, τὰ πλεῖστα μὴν οὖκ ἐξηθρηκότα παντάπασιν, ἀλλὰ δὴ ἔθος σχήματος ἐν τινι ἀπολήψει τοῦ ποδος κεκυλλωμένα. προσέχειν δὲ καὶ ἐν τῇ ἱητρείᾳ τοισίδε χρή ἀπωθεῖν μὲν καὶ κατορθοῦν τῆς κυήμης τὸ κατὰ τὸ σφυρὸν ὡστέον τὸ ἐξώθεν ἐς τὸ ἔσω μέρος, ἀντωθεῖν δὲ ἐς τὸ ἔξω μέρος τὸ τῆς πτέρυγης τὸ κατὰ τὴν ἴξιν, ὅπως ἀλλήλοις ἀπαντήσῃ τὰ ὡστέα τα ἔξισχοντα κατὰ μέσον τε καὶ πλάγιον τοῦ πόδα· τοὺς δ᾽ αὐ ἀκτύλουσ ἀθρόουσ σὺν τῷ μεγάλῳ δακτύλῳ ἐς τὸ ἔσω μέρος ἑγκλίνειν καὶ περιαναγκάζειν οὕτως· ἐπιδεῖν δὲ κηρωτῇ ἑρημικωμένῃ εὖ, καὶ σπλήνεσθαι καὶ θηνόσις μαλθακοίσι μὴ ὀλίγοσι, μηδὲ ἄγαν πιέζοντα· οὕτω δὲ τὰς περιαγωγὰς ποιεῖσθαι τῆς ἐπιδέσιος, ὡσπερ καὶ τῇς χερσῖν ἡ κατάρθωσις ἵνα τοῦ ποδός, ὅπως ὁ ποὺς ὀλίγως μᾶλλον ἐς τὸ βλαισὸν ἰέπων φαίνηται. ἰχνὸς δὲ τι χρὴ ποιεῖσθαι ἡ δέρματος μὴ ἄγαν σκληροῦν, ἡ μολύβδινον,1 προσεπιδεῖν δὲ, μὴ πρὸς τὸν χρόδα τιθέντα, ἀλλ᾽ ὅταν ἴδῃ τοὺς υπάταισιν θονίσαις μέλλης ἐπιδεῖν. ὅταν δὲ ήδη ἐπιδειμένος ἡ, εἰνός τινος τῶν θονίων χρή, οἷον ἐπιδεῖται, τὴν ἄρχην προσράψῃ πρὸς τὰ κατὰ τοῦ ποδος ἐπιδέσματα κατὰ τὴν ἴξιν τοῦ μικροῦ δακτύλου· ἐπειτὰ ἐς τὸ ἀνῷ τείνοντα ὅπως ἄν δοκη μετρίως ἐχειν, περιβάλλειν ἀνωθεῖν τῆς γαστροκυμημῆς, ὡς μόνιμων ἢ, κατατεταμένων οὕτως. ἀπλὸ δὲ λόγῳ, ὡσπερ κηροπλαστέοντα, χρὴ ἐς τὴν φύσιν τῆς δικαίην ἄγειν καὶ τὰ ἐκκεκλιμένα καὶ τὰ συντεταμένα παρὰ τὴν φύσιν,

1 μολύβδιον.
before the like occurs in the tissues of the leg. Now the mode of club-foot is not one, but manifold; and most cases are not the result of complete dislocation, but are deformities due to the constant retention of the foot in a contracted position.\(^1\) The things to bear in mind in treatment are the following: push back and adjust the bone of the leg at the ankle from without inwards, making counter-pressure outwards on the bone of the heel where it comes in line with the leg, so as to bring together the bones which project at the middle and side of the foot; at the same time, bend inwards and rotate the toes all together, including the big toe. Dress with cerate well stiffened with resin, pads and soft bandages, sufficiently numerous, but without too much compression. Bring round the turns of the bandaging in a way corresponding with the manual adjustment of the foot, so that the latter has an inclination somewhat towards splay-footedness.\(^2\) A sole should be made of not too stiff leather or of lead, and should be bound on as well, not immediately on to the skin, but just when you are going to apply the last dressings. When the dressing is completed, the end of one of the bandages used should be sewn on to the under side of the foot-dressings, in a line with the little toe; then, making such tension upwards as may seem suitable, pass it round the calf-muscle at the top, so as to keep it firm and on the stretch.\(^3\) In a word, as in wax modelling, one should bring the parts into their true natural position, both those that are twisted and

\(^1\) I.e. “an unnatural contraction of the muscles, ligaments and fasciae.”

\(^2\) I.e. valgus (outward distortion).

\(^3\) I.e. so as to hold up the outer side of the foot.
καὶ τῇσι χερσὶν οὕτω διορθοῦντα, καὶ τῇ ἐπιδέσει ὤσαύτως, προσάγειν δὲ οὐ βιαίως, ἀλλὰ παρηγο-ρικῶς: προσράπτειν δὲ τὰ ὀνόμα, ὅπως ἂν συμ-φέρῃ τὰς ἀναλήψιας ποιεῖσθαι. ἀλλὰ γὰρ ἄλλας τῶν χωλωμάτων δεῖται ἀναλήψιος. ὑποδημάτιον δὲ ποιεῖσθαι 1 μολύβδινον, ἐξώθεν τῆς ἐπιδέσιος ἐπιδεδεμένον, οἶον αἱ Χίαι [κρητίδες] 2 μυθοῦν εἶχον. ἀλλ' οὔδὲν αὐτοῦ δεῖ, ἣν τις ὄρθως μὲν τῇσι χερσὶ διορθώσῃ, ὄρθως δὲ τοῖσιν ὀθονίοισιν ἐπιδέε, ὄρθως δὲ καὶ τὰς ἀναλήψιας ποιοῖτο. 3 ἡ μὲν οὖν ἱσις αὐτὴ, καὶ οὔτε τομὴς οὔτε καύσιος οὔδὲν δεῖ, οὔτ' ἄλλης ποικιλῆς. θᾶσσον γὰρ ἐνακούει τὰ τοιαῦτα τῆς ἤτρείης ἢ ὡς ἂν τις οἴοτο. προσνικάν μέντοι χρῆ τῷ χρόνῳ, ἣν ἂν αὐξηθῇ τὸ σῶμα ἐν τοίσι δικαίωσί σχήμασιν. ὅταν δὲ ἐσ ὑποδημάτος λόγον ἢ, ἀρβύλαι ἐπιτη-δεῶταται αἱ πηλοπατίδες καλέομεναι τούτῳ γὰρ ὑποδημάτων ἦκιστα κρατεῖται ὑπὸ τοῦ ποδὸς, ἀλλὰ κρατεῖ μᾶλλον ἐπιτηδείους δὲ καὶ ὁ

1 ποιείν.
2 κρητίδες Galen: omit Kw. and MSS. As Kw. shows, it is inserted from the Commentary.
3 ποιήται.
4 οὐ χρῆ.
5 γίνεται.
those that are abnormally contracted, adjusting them in this way both with the hands and by bandaging in like manner; but draw them into position by gentle means, and not violently. Sew on the bandages so as to give the appropriate support; for different forms of lameness require different kinds of support. A leaden shoe shaped as the Chian boots used to be might be made, and fastened on outside the dressing; but this is quite unnecessary if the manual adjustment, the dressing with bandages, and the contrivance for drawing up are properly done. This then is the treatment, and there is no need for incision, cautery, or complicated methods; for such cases yield to treatment more rapidly than one would think. Still, time is required for complete success, till the part has acquired growth in its proper position. When the time has come for footwear, the most suitable are the so-called "mud-shoes," for this kind of boot yields least to the foot; indeed, the foot rather yields to it. The Cretan form of footwear is also suitable.

LXIII. In cases where the leg-bones are dislocated and, making a wound, project right through at the ankle-joint, whether it be towards the inner or outer side, do not reduce such a lesion; but let any practitioner who chooses do so. For you may be certain that where there is permanent reduction the patients will die, and life in such cases lasts only a few days. Few go beyond seven days.

1 Erotian says it was a "woman's boot." In Galen's time it was quite forgotten.
2 "Reaching to the middle of the leg." Galen.
3 "The most wonderful chapter in ancient surgery." Adams.
4 I.e. leave it to anyone reckless enough.
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10 ἐστὶν ἀτάρ καὶ γαγγραινοῦσθαι ἱκνεῖται τήν κνήμην καὶ τὸν πόδα. ταύτα βεβαιῶς εἰδέναι χρη οὕτως ἐσόμενα· καὶ οὐκ ἂν μοι δοκεῖ οὐδὲ ἐλλέβορος ὥφελήσειν ἀυθημεροῦν τε δοθεῖς καὶ αὖθις πινόμενος, ἀγχιστα δὲ εἴπερ τι τοιοῦτο[ν].1 οὐ μέντοι γε οὐδὲ τούτῳ δοκέω. ἦν δὲ μὴ ἐμβληθῇ, μηδὲ ἀπ’ ἀρχῆς μηδεῖς πειρήθη ἐμβάλλειν, περιγίνονται οἱ πλείστοι αὐτῶν. χρη δὲ ἡμῶσθαι μὲν τήν κνήμην καὶ τὸν πόδα οὕτως, ὡς αὐτὸς ἐθέλει, μονὸν δὲ μὴ ἀπαυωρεύμενα μηδὲ

20 κινεύμενα ἐστώ. ἰητρεύειν δὲ πισσηρῆ καὶ σπλήνεις ὄνηροισιν ὀλύγοιςι, μὴ ἄγαν ψυχροῦσιν. ψῦχος γὰρ ἐν τοῖσι τοιοῦτοισι σπασμοῦ ἐπικαλεῖται. ἐπιτήδεια δὲ καὶ φύλλα σεῦτοι η βηχίου η ἄλλου τινός τῶν τοιούτων ἐν οὐνο μέλανι αὐστηρῷ ἡμεθῆθα ἐπιτιθέντα ἰητρεύειν ἐπὶ τῷ ἐλκοῦ ἐπὶ τὲ περιέχοντα, κηρωτῇ δὲ χλερῆ ἐπιχρίειν 3 αὐτὸ τὸ ἐλκοῦ· ἦν δὲ ἡ ὥρη χειμερινῆ ἦ, καὶ ἔρια ῥυπαρὰ οὐνό καὶ ἐλαῖος καταβραίνοντα χλεροῖςιν ἀνωθὲν ἐπιτεύγγειν.

30 καταδεῖν δὲ μηδενι μηδενί 4 μηδενί· εὖ γὰρ εἰδέναι χρη ὅτι πίεξις καὶ ἀχθοφορὴ πᾶν κακόν τοῦσι τοιούτωσιν ἐστὶν. ἐπιτήδεια δὲ πρὸς τὰ τοιαῦτα καὶ τῶν ἐναίμων μετεξέτερα, ὅσοισιν αὐτῶ συμφέρει· ἔρια δὲ ἐπιτιθέντα, οὕνω ἐπιτείγγοντα, πολὺν χρόνον ἐὰν· τὰ δὲ ὀλυγμερώτατα τῶν ἐναίμων καὶ ὁσα ῥητήν προσκαταλαμβάνεται οὐχ ὁμοίως ἐπιτήδεια ἐκεῖνοισιν ἐστὶν. χρονίῃ ἢ κάθαρσις τῶν ἐλκεῶν γίνεται τούτων· πολὺν γὰρ χρόνον πλαδαρῆ γίνε-40 ταί τινὰs δὲ τούτων χρῆστον ἐπιδεῖν. εἰδέναι

1 ωφελήσαι.
ON JOINTS, lxiii.

(tetanus) is the cause of death; but gangrene of the leg and foot is also a sequel. It should be well known that this will happen; and I do not suppose that even hellebore, given on the day of the accident and repeated, would do good. If anything would help, something of this kind would come nearest; but I have no confidence even in that. But if there is no reduction or attempt at reduction to begin with, most of them survive. The leg and foot should be disposed as the patient himself wishes, only avoiding an unsupported position or movement. Treat with pitch cerate and a few compresses steeped in wine, not too cold; for cold in such cases evokes spasm. Other suitable applications are leaves of beet or colt's-foot or something similar, half-boiled in dark astringent wine, and applied both to the wound and the parts around it. Anoint the wound itself with warm cerate, and, if it is winter, apply an upper moist dressing of crude wool, sprinkling it with warm wine and oil; but avoid all bandaging and dressing with plasters, for one must bear well in mind that pressure and weight do nothing but harm in such cases. Some of the applications for fresh wounds are also suitable for these injuries, in cases where they are useful. Cover with wool, moistening it with wine, and leave on a long time. The wound remedies which last a very short time, and those incorporated with resin, are not so suitable for those patients; for the cleansing of these wounds then takes more time, since the flabby moist stage is prolonged. Bandaging is good for some of these cases. Finally, one should bear

2 τοιοῦτον Galen. 3 ἵππαρκλείν. 4 Omit Kw. and many MSS.
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μὲν δὴ ποι σάφα χρὴ ὅτι ἀνάγκη τῶν ἀνθρωπῶν χωλόν αἰσχρός γενέσθαι καὶ γὰρ ὁ ποὺς ἐς τὸ ἄνω ἀνέσπασται τῶν τοιούτων, καὶ τὰ ὀστέα τὰ διολισθήσαντα ἐξώ ἐξέχοντα φαίνεται· οὔτε γὰρ ψυλλοῦταί τῶν τοιούτων ὀστέων οὐδὲν ἀς ἐπιτοπολύ, εἰ μὴ κατὰ βραχῦ τι, οὐδὲ ἀφίσταται, ἀλλὰ περιωτευόμεθα λεπτήσιν ὀστεύλησι καὶ ἀσθενέσι, καὶ ταύτα ἡν ἀπεμέλον τολύν χρόνου· ἂν 1 δὲ μὴ, ἐλκύδριον ἑγκαταλείφθηναι κίνδυνον ἀναλθέως. ὃμως δὲ, περὶ οὐ τὸ λόγος, οὗτῳ μὲν ἤτρευμομενοι σῶζονται, ἐμβληθέντος δὲ τοῦ ἀρθροῦ καὶ ἐμμείναντος, ἀποθνήσκουσιν.

ΛΧΙV. Οὔτος δὲ λόγος οὗτος, ἂν καὶ τὰ τοῦ πήχεος ὀστέα τὰ παρὰ τὸν καρπὸν τῆς χειρὸς ἔλκος ποιησάντα ἐξίσχῃ, ἂν τε ἐς τὸ ἐστὶν μέρος τῆς χειρὸς, ἂν τε ἐς τὸ ἐξω. σάφα γὰρ ἐπίστασθαι χρὴ ὅτι ἀποθανεῖται ἐν ὀλίγησιν ἡμέρησι τοιούτω θανάτῳ, οὕσπερ καὶ πρὸς ἑρημαὶ δὴ ἄν ἐμβληθέντα τὰ ὀστέα ἐμμένῃ.2 οἷσι δὲ ἂν μὴ ἐμβληθῇ μηδὲ πειρηθῇ ἐμβάλλεσθαι, οὗτοι πολὺ πλείονες περίγυνονται. ἤτρευθε δὲ τοιαύτη τοῖς τοιούτοις ἐπιτηδείᾳ, οὕσπερ ἑρημαὶ τὸ δὲ σχῆμα αἰσχρὸν τοῦ χωλόματος ἀνάγκη εἶναι, καὶ τοὺς δακτύλους τῆς χειρὸς ἀσθενέας καὶ ἀχρείους· ἂν μὲν γὰρ ἐς τὸ ἐστιν μέρος ὀλίσθη τὰ ὀστέα, συγκάμπτειν οὐ δύνανται τοὺς δακτύλους· ἂν δὲ ἐς τὸ ἐξω μέρος, ἐκτανῦειν οὐ δύνανται.

ΛΧV. Ὁ σοισὶ δὲ ἂν κυήμης ὀστέου, ἔλκος ποιησάμενον παρὰ τὸ γόνοι, ἐξῳ ἐξίσχῃ, ἂν τε ἐς τὸ ἐξῳ μέρος, ἂν τε ἐς τὸ ἐσς, τούτῳ ἂν μὲν τις ἐμβάλην, ἐτὶ ἑτοιμότερος ὁ θαύιστος ἐστιν ἥπερ τοῖς ἑτέροις, καὶ περὶ κακείνους ἐτοιμος

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clearly in mind that the patient will necessarily be deformed and lame; for the foot is drawn up, and the projection of the dislocated bones is obvious. There is no denudation of the bones as a rule, except to a slight extent, nor do they come away; but they get scarred over with thin and weak tissue—that is, if the patients keep at rest for a long time; otherwise there is risk of a small incurable ulcer being left. However, to return to our subject, those thus treated are saved; but if the joint is reduced and keeps its place, they die.

LXIV. The same remarks apply to cases where the bones of the forearm make a wound and stick out at the wrist, whether on the inner or outer side of the hand. For one should understand clearly that the patient will die in a few days in the way which was mentioned above, if the bones are reduced and keep in place; but if there is no reduction or attempt at reduction, the great majority survive. The suitable treatment in such cases is such as was described, but the lesion is necessarily a deformity, and the fingers are weak and useless; for if the bones are displaced inwards, they cannot flex the fingers, if outwards, they cannot extend them.2

LXV. In cases where a bone of the leg makes a wound at the knee and projects either to the outer or inner side, death is more imminent, if one reduces the dislocation, than in the other cases, though it is

1 Our "forwards or backwards."

2 See note on wrist dislocation.
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εών. ἣν δὲ μὴ ἐμβαλὼν ἤτρεύσης, ἐλπίδες μὲν σωτηρίας οὕτω μόνως εἰσίν· κινδυνωδέστερα δὲ ταῦτα τῶν ἐτέρων γίνεται καὶ ὅσοι ἂν ἄνωτέρω καὶ ὅσοι ἂν ἰσχυρότερα ἡ καὶ ἀπὸ ἰσχυρότερων ὀλισθήκη. ἣν δὲ τὸ ὀστέον τὸ τοῦ μηροῦ τὸ πρὸς τοῦ γόνατος ἐλκος ποιησάμενον ἐξολίσθη, ἐμβληθέν μὲν καὶ ἐμμείναν, ἐτὶ βιαίοτερον καὶ θάσσων τὸν θάνατον ποιήσει τῶν πρόσθεν εἰρη-μένων. 1 μὴ ἐμβληθέν δὲ πολὺ κινδυνωδέστερον ἡ τὰ πρόσθεν· ὦμοις δὲ μοῦνῃ ἐλπίς αὕτη σωτηρίας.

ΛΞVI. Ωυτὸς δὲ λόγος καὶ περὶ τῶν κατὰ τὸν ἀγκώνα ἄρθρων, καὶ περὶ τῶν τοῦ πῆχεος καὶ βραχίονος· ὅσα γὰρ ἂν τούτων ἐξαρθρήσαντα ἐξίσχη ἐλκος ποιησάμενα, πάντα, ἢν ἐμβληθῇ, θάνατον φέρει, μὴ ἐμβληθέντα 2 δὲ, ἐλπίδα σωτηρίας· χώλωσις δὲ ἔτοιμη τοῖσι περιγυμνομένοις. θανατωδέστερα δὲ τοῖσιν ἐμβαλλομένοισιν ἐστὶ τὰ ἄνωτέρω τῶν ἄρθρων, ἀτὰρ καὶ τοῖσι μὴ ἐμβαλλομένοισι κινδυνωδέστερα αὕτα ταῦτα. εἰ δὲ τινὶ τὰ ἄνωτατα ἄρθρα ἐξαρθρήσαντα ἐλκος ποιησάντα ἐξίσχοι, ταῦτα δὲ ἂν ἐτὶ καὶ ἐμβαλλόμενα ταχυθανατώτατα ἂν 3 εἰ ἢ καὶ μὴ ἐμβαλλόμενα κινδυνωδέστατα· ἤτρεύτη δὲ Ἦδη εἰρηται οὐ τις ἐμὸι δοκεῖ ἐπιτηδειοτάτη εἶναι τῶν τοιούτων.

ΛΞVII. ἢ Οσοισι δὲ ἄρθρα διακτύλων, ἣ ποδὸς ἦ χειρός, ἐξαρθρήσαντα ἐλκος ποιησάμενα

1 ἡ τὰ πρόσθεν εἰρημένα.
2 ἐμβαλλόμενα.
3 Use of double ἄν characteristic. Even a triple ἄν is found (J. XLVI). Cf. Vul. CAP. IV., Acut. I, Fract. XXVIII, and (for triple ἄν) Thuc. II. 94.—Pq.

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imminent in them too. If you treat it without reduction, this method, and this only, gives hope of recovery. These cases are the more dangerous, the higher the joint is, and the stronger the dislocated parts and those from which they are dislocated. If the thigh-bone at the knee makes a wound and is dislocated through it, when reduced and kept in place it will cause still more prompt and violent death than in the cases mentioned above; when not reduced, there is far more danger than in the former cases, yet this is the only hope of safety.

LXVI. The same remarks apply to the bones forming the elbow-joints, both those of the forearm and upper arm; for if any one of them is dislocated and projects, making a wound, they all bring a fatal issue if reduced; but if not reduced, there is hope of recovery, though those who survive are certain to be maimed. More fatal when reduced are compound dislocations of the more proximal joints; and they too involve greater danger even when unreduced. If anyone has the uppermost joints dislocated and projecting through the wound made, it is there that reduction brings swiftest death; and there too is most danger, even without reduction.¹ The kind of treatment which seems to me most suitable in such cases has already been described.

LXVII. When the joints of the fingers or toes are dislocated and project through a wound, the

¹ These two sentences seem to be of general application, not confined to the elbow—as in Littre's and Petrequin's versions.
ΠΕΡΙ ΑΡΩΡΩΝ

ἐξέσχε, μὴ κατεγγύτος τοῦ ὀστέου, ἀλλὰ κατ' αὐτὴν τὴν σύμφυσιν ἀποσπασθέντος, τούτωσιν ἢν ἐμβληθέντα ἐμμείνῃ, ἐνι μὲν τις κίνδυνος σπασμοῦ, ἢν μὴ χρηστῶς ἤπερεύωνται· ὁμοιὸς δὲ τι ἄξιον ἐμβάλλειν, προειπότα ὅτι φυλακῆς πολλῆς καὶ μελέτης δεῖται. ἐμβάλλειν μέντοι ῥήστον καὶ δυνατώτατον καὶ τεχνικώτατον ἐστι τῷ μοχλίσκῳ, ὥσπερ καὶ πρόσθεν εἰρηταὶ ἐν τοῖς καταγυμναίοις καὶ ἐξίσχουσι ὀστέοισιν ἐπείτα ἀτρεμεῖν ως μάλιστα χρῆ, καὶ κατακεῖσθαι καὶ ὀλιγοσιτεῖν ἄμεινον δὲ καὶ φαρμακεύσαι ἀνω κούφῳ τινὶ φαρμάκῳ, τὸ δὲ ἐλκος ἤπερεύειν̂ μὲν ἢ ἐναίμοιοι τόσιν ἐπιτέγκτοις ἢ πολυοφθαλμοῖς ἢ οἰσι κεφαλῆς ὀστέα κατεγγύτα ἤπερεύεται, κατάψυχον δὲ κάρτα μηδὲν προσφέρειν. ἡκιστα μὲν οὖν τὰ πρώτα ἄρθρα κινδυνώδει ἐστὶ, τὰ δὲ ἐτὶ ἀνωτέρω̂ κινδυνώδεστερα. ἐμβάλλειν δὲ 10 χρῆ ἀνθημερὸν ἢ τῇ ὑστεραίῃ, τριταίῳ δὲ καὶ τεταρταίῳ ἡκιστα· τεταρταίᾳ γὰρ ἐστὶ ἐπισημαίνει τής παλληκοτής μάλιστα. οἷον ἄν οὖν μὴ αὐτίκα ἐγγενήται ἐμβάλλειν, ὑπερ- βαίνειν χρῆ ταύτης τὰς ἐιρημένας ἡμέρας· ὃ τι γὰρ ἄν ἐσω δέκα ἡμερέων ἐμβάλλῃς, στὰν καταληπτέον. ἢ δὲ ἅρα ἐμβεβλημένῳ σπασμῷ ἐπιγενήται, ἐκβάλλειν τὸ ἄρθρον δὲ ταχὺ, καὶ θερμῷ τέγγειν ὡς πλειστάκις, καὶ τὸ ὦλον σῶμα θερμῶς καὶ λιπαρῶς καὶ μαλθακῶς ἐχειν, μάλιστα 20 κατὰ τὰ ἄρθρα· κεκάμφθαι δὲ μᾶλλον ἢ ἐκτεταμ- θαὶ πάν τὸ σῶμα χρῆ. προσδέχεσθαι μέντοι χρῆ κατὰ τοὺς δακτύλους τὰ ἄρθρα τὰ ἐμβαλλόμενα ἀποστατικὰ ἐσεσθαι· τὰ γὰρ πλεῖστα οὕτω ἥγεται, ἢν καὶ οὕτων φλεγμονῆς ὑπογενήται, ὡς, 30 358
bone being not fractured, but torn away at the connection, in these cases reduction and fixation involve some danger of spasm, if they are not skilfully treated; still, it is worth while to reduce the dislocation, giving warning beforehand as to the necessity for great caution and care. The easiest and most powerful reduction, and that most in accord with art, is that with the small lever, as described before in relation to fractured and protruding bones. Afterwards the patient should keep as quiet as possible, lie down, and take little food. It is rather advantageous to give a mild emetic. Treat the wound either with moist applications for fresh cuts, chamomile,\(^1\) or remedies used for head fractures; but do not apply anything very cold. The distal joints, then, are least dangerous, the higher ones more so. One should make reduction on the first or following day, but not on the third or fourth, since the onset of exacerbations occurs mostly on the fourth day. In cases, then, where immediate reduction fails, one should pass over the aforesaid days. Any case you reduce within ten days is liable to spasm. If spasm supervenes after reduction, one ought to dislocate the joint quickly, make frequent warm affusions, and keep the whole body warmly, comfortably and softly at rest, especially at the joints. The whole body should be rather flexed than extended. In any case one must expect the articular ends of the phalanges to come away after reduction; for this happens in most cases, if there is any amount of inflammation. So, were it not that the surgeon

\(^1\) "Ox-eye." Galen.
ΠΕΡΙ ΑΡΘΡΩΝ

εἰ μὴ δι’ ἀμαθίην τῶν δημοτέων ἐν αὐτῇ ἐμμέλλειν ὁ ἰητρὸς ἐσεσθαι, οὐδὲν ἄν πάντως οὐδ’ ἐμβάλλειν ἔδει. τὰ μὲν οὖν κατὰ τὰ ἀρθρα ὄστεα ἐξίσχοντα ἐμβαλλόμενα οὕτω κινδυνώδεα ἐστιν, ὡς εὑρήται.

LXVIII. "Ὅσα δὲ κατὰ τὰ ἀρθρα τὰ κατὰ τοὺς δακτύλους ἀποκόπτεται τελέως, ταῦτα ἁσινέα τὰ πλειστά ἐστιν, εἰ μὴ τις ἐν αὐτῇ τῇ τρώσει λειποθυμήσας βλαβεῖν· καὶ ἱητρείᾳ φαύλῃ ἀρκέσει τῶν τοιούτων ἐκκένων. άτὰρ καὶ ὅσα μὴ κατὰ τὰ ἀρθρα, ἄλλα κατ’ ἄλλην τινὰ ἐξιν τῶν ὄστεών ἀποκόπτεται, καὶ ταῦτα ἁσινεά ἐστί, καὶ ἐτι εὐαλθέστερα τῶν ἔτερων· καὶ ὅσα κατὰ τοὺς δακτύλους ὄστεα κατεγύτα 1 ἐξίσχει μὴ κατὰ τὸ ἀρθρον, καὶ ταῦτα ἁσινέα ἐστίν ἐμβαλλόμενα. ἀποκόψιες δὲ τελείαι ὄστεων καὶ κατὰ τὰ ἀρθρα καὶ ἐν ποδὶ καὶ ἐν χειρὶ καὶ ἐν κυήμη, τοῖσι παρὰ τὰ σφυρά καὶ ἐν πῆχει, τοῖσι παρὰ τοὺς καρποὺς, τοῖσι πλειστοῖσιν ἀποκοπτομένουσιν ἁσινέα γίνεται, ὅσα ἄν μὴ αὐτικά λειποθυμή ἀνατρέψῃ ἢ τεταρταίουσιν ἑοῦσι πυρετὸς συνε- χῆς ἐπιγένεται.

LXIX. Ἀποσφακελίσιες μέντοι σαρκῶν, καὶ ἐν τρώμασιν αἱμορρόοιςι γενομένοιςι η ἀπο- σφιγξεῖσιν ἱσχυράις, καὶ ἐν ὄστεων κατήγμασι γενομένοιςι 2 πιεχθείσι μᾶλλον τι τοῦ καιροῦ, καὶ ἐν ἄλλοις δεσμοίσι βιαίουσιν, ἀποληθέντα 3 ἀποπίπτει πολλοίς, καὶ οἱ πολλοὶ περιγίνονται τῶν τοιούτων, καὶ οἴσι μηροὺ μέρος τι ἀπο- πίπτει καὶ τῶν σαρκῶν καὶ τοῦ ὄστεου, καὶ οἴσι βραχίονος, ἡσυν 4 δὲ πῆχεος τε καὶ

1 καταγέντα. 2 Kw. omits. 3 ἀπομελανθέντα. 4 ἡσόνως.
is likely to incur blame owing to the ignorance of the vulgar, he should by no means make the reduction. The dangers, then, of reducing bones which project through the skin at the joints are such as have been described.¹

LXVIII. Cases of complete amputation of fingers or toes at the joints are usually without danger—unless a patient suffers from collapse at the time of injury—and ordinary treatment will suffice for such wounds. Again, where the amputation is not at a joint, but somewhere in the line of the bones, these cases also are not dangerous, and heal even more readily than the former; and if the projection of fractured finger-bones is not at a joint, reduction is without danger in these cases also. Complete amputations even at the joints both of the foot and hand, or of the leg at the ankle, and of the forearm at the wrist, are in most cases without danger, unless syncope overcomes them at once, or continuous fever supervenes on the fourth day.²

LXIX. As for gangrene of the tissues occurring in wounds with supervening haemorrhage, or much strangulation, and in fractures which undergo greater compression than is opportune, and in other cases of tight bandaging, the intercepted ³ parts come away in many cases. The majority of such patients survive, even when a part of the thigh comes away with the soft parts and the bone, also part of the arm, but these less frequently. When the forearm or leg

¹ Surgeons such as Antyllus and Heliodorus probably performed amputation or resection in these cases. Even Paulus (VI. 121) is surprised at the timidity of Hippocrates.
² This chapter seems to refer to cases of injury, not surgical "resection" as Adams.
³ Or "blackened" (ἀπομελανθέντα, Kw.).
ΠΕΡΙ ΑΡΘΡΩΝ

10 κυήμης ἀποπεσούσης, καὶ ἐτι εὐφορωτέρως περιγύνονταί. οἰσὶ μὲν οὖν κατεαγέντων τῶν ὀστέων ἀποσφύγξεις αὐτίκα ἔγενοντο καὶ μελασμοὶ, τοῦτοι μὲν ταχεῖα αἱ περιφρήξεις γίνονται τοῦ σώματος, καὶ τὰ ἀποπίπτοντα ταχέως ἀποπίπτει, ἑδη τῶν ὀστέων προενδεδωκότων. οἰσὶ δὲ ύγίεων ἑώτων τῶν ὀστέων οἱ μελασμοὶ γίνονται, αἱ μὲν σάρκες ταχέως θυσίσκουσι καὶ τοῦτοι, τὰ δὲ ὀστέα βραδέως ἀφίσταται, ἢ ἂν τὰ ὀρια τοῦ μελασμοῦ γένηται καὶ ἡ ψιλώσις τοῦ ὀστέου.

20 χρῆ δὲ, ὅσα ἂν κατωτέρω τοῦ σώματος τῶν ὀρίων τοῦ μελασμοῦ ἢ, ταῦτα, ὅταν ἡδη πάμπαν τεθνήκη καὶ ἀναλγεά ἢ, ἀφαιρεῖν κατὰ τὸ ἄρθρον, προμηθεύμενον ὅπως μὴ τι τρώσῃς· ἢν γὰρ ὀδύνηθη ἀποταμνόμενος καὶ μῖτὼ κυρίσῃ τὸ σῶμα τεθνέος ταῦτη ἢ ἀποτέμνεται, κάρτα κινδυνος ὑπὸ τῆς ὀδύνης λειποθυμίσαι· αἱ δὲ τοιαύται λειποθυμίαι πολλοὺς παραχρήμα ἡδη ἀπώλεσαν. μηροῦ μὲν οὖν ὀστέου, ψιλωθὲν ἐκ τοιούτου τρόπου, ὕγδοικοσταίγου εἴδον ἐγὼ ἀποστάν· ἢ μέντοι κυήμη τούτω τῷ ἀνθρώπῳ κατὰ τὸ γόνυ ἀφηρέθη ἐκοσταίγ., ἐδόκει δὲ μοι καὶ ἐγγυτέρω· οὖ γὰρ ἁμα, ἀλλ' ἐπὶ τὸ προμηθέστερον ἐδοξέ μοι τι ποιεῖν.1 κυήμης δὲ ὀστέα ἐκ τοιούτου μελασμοῦ, μάλα κατὰ μέσην τὴν κυήμην ἑώτα, ἐξηκοσταία μοι ἀπέπεσεν, ὅσα ἐψιλώθη αὐτῶν. διενέγκοι μὲν γὰρ ἂν τι καὶ ἰητρεία ἰητρείας ἐς τὸ ἥσσον τε καὶ βραδύτερον τὰ ὀστέα ψιλούμενα ἀποπίπτειν· διενέγκοι δ'  

1 Kw. ἐδόκει; omit ἁμα and μοι. Reinhold's emendation: οὖ γὰρ εἶα με . . . ἐταξέ μοι.
ON JOINTS, lxix.

comes away, they survive still more easily. Now, in cases of fractured bones, when strangulation sets in at once with lividity, lines of demarcation are rapidly developed on the part, and that which is coming away does so quickly, the bones having already yielded; but in cases where the lividity comes on while the bones are sound, the flesh dies rapidly here also, but the bones separate slowly along the border of the lividity and denudation of the bone. As regards parts of the limb which are below the limit of mortification, when they are quite dead and painless, they should be taken off at the joint, taking care not to wound any live part. For if the patient suffers pain during the amputation, and the limb happens to be not yet dead at the place where it is cut away, there is great risk of collapse from pain; and collapses of this kind have brought sudden death to many. I have seen a thigh-bone, denuded in this way, separate on the eightieth day. The leg in this patient was removed at the knee on the twentieth day, and I thought it might have been done higher up—not all at once, of course—but I resolved to act rather on the safe side.¹ The bones of the leg in a similar case which I had of gangrene just in the middle of the leg came away on the sixtieth day, so far as they were denuded. One or another kind of treatment would make a great difference in the rapidity or slowness with which the denuded bones come away. So too pressure, if

¹ Seems to be the sense of a very obscure passage. "Sooner" gives best sense, but is a curious meaning for ἔγγυτέρω. "Too early, for it appeared to me that this should be done more guardedly" (Adams, Littré) does violence to the text. Galen apparently understood "higher up"; for he says Ἡ means that it is safer to amputate at a joint.
ΠΕΡΙ ΑΡΘΡΩΝ

ἀν τι καὶ πίεξις πιέξιος καὶ ἐπὶ τὸ ἵσχυρότερον τε καὶ ἀσθενέστερον, καὶ ἐς τὸ θάσσων τε καὶ βραδύτερον ἀπομελανθέντα ἀποθανεῖν τὰ νεῦρα καὶ τὰς σάρκας καὶ τὰς ἀρτηρίας καὶ τὰς φλέβας,

ἐπεὶ ὅσα μῆ ἵσχυρὸς ἀποληψθέντων θυνήσκει, ἕνια τῶν τοιούτων οὐκ ἀφικνεῖται ἐς ὀστέων ψυλώματα, ἀλλὰ ἐπιπολαιότερα ἐκπίπτει· ἕνια 

δὲ οὐδὲ ἐς νεῦρων ψυλώματα ἀφικνεῖται, ἀλλὰ ἐπιπολαιότερα ἐκπίπτει. διὰ οὖν ταύτας τὰς εἰρημένας προφάσιας οὐκ ἔστιν ἐν οὐνομα ἀριθμοῦ τῷ χρόνῳ θέσθαι, ἐν ὀπόσῳ ἔκαστα τούτων κρίνεται.

Προσδέχεσθαι δὲ μάλα χρῆ τοιαῦτα ἰήματα· ἐσιδεῖν γὰρ φοβερότερά ἐστίν τινι ἡ ἰητρεύειν· καὶ ἰητρεύῃ πραεὶ ἄρκει πάσι τοιούτοις· αὐτὰ γὰρ ἑωτὰ κρίνει μοῦνον· τῆς δὲ διαίτης ἐπι- 

μελεῖσθαι χρῆ ὡς κατὰ δύναμιν ἀπύρετος ἦ, καὶ ἐν σχήμασι δικαίοισι εὐθεῖσειν τὸ σῶμα· δίκαια δὲ ταύτα μηδὲ μετέωρον ποιεῖν, μηδὲ ἐς τὸ κάτω ἑπτοῦ, ἀλλὰ μάλλον ἐς τὸ ἄνω, ποτὲ καὶ ἔστιν τὸν τελείως περιβραγη· αἰμορραγεῖον γὰρ ἐν τούτῳ 

τῷ χρόνῳ κίνδυνος· διὰ τούτῳ οὖν οὗ χρῆ κατάρβοπα τὰ τρώματα ποιεῖν, ἀλλὰ τάναντία. ἐπεὶ 

ὅταν γε χρόνος ἐγγενῆται πλείων καὶ καθαρὰ τὰ ἐλκεα γένηται, οὐκ ἐτὶ τὰ αὐτὰ· σχήματα ἐπιτηδειά ἐστιν, ἀλλὰ ἡ εὐθεία θέσις, καὶ ἐμοτε ἐπὶ τὸ κατάρβοπον ἑπτοῦ· ἀνὰ χρόνον γὰρ ἐνίοιοι τούτων ἀποστάσιες πῦνο γίνονται, καὶ ὕποδεσμίδων δέονται. προσδέχεσθαι δέ χρῆ 

τοὺς τοιούτους ἀνὰ χρόνον ὑπὸ δυσεντερίης πιέξεσθαι· καὶ γὰρ ἐπὶ τοίσι μελανομένοισι, 

τοίσι πλείστοισιν ἐτιγίνεται δυσεντερίη, καὶ ἐπὶ
stronger or weaker, would make a difference in the rapidity or slowness of the blackening and mortification of the ligaments, flesh, arteries and veins. For where the parts perish without great strangulation, the denudation sometimes does not extend to the bones, but the more superficial tissues are thrown off; sometimes the denudation does not even extend to the ligaments, but the more superficial parts are thrown off. For the said reasons, then, one cannot fix on one definite time in which each of these cases is determined.

One should be quite ready to treat such cases, for they are more formidable to look at than to cure; and mild treatment is sufficient, for they determine their own process. One must be careful as to diet, so that the patient may be, so far as possible, without fever, and place the limb in a correct attitude. Correct attitudes are neither elevated nor sloping downwards, but rather upwards, especially before the line of demarcation is fully developed; for there is danger of haemorrhage in this period. Wherefore do not keep the injured part dependent, but the reverse. When a considerable time has elapsed, and the wounds are cleansed, the suitable attitude is no longer the same as before, but the horizontal position, and sometimes one sloping downwards; for in time purulent collections form in some of these cases, and they require under-bandages.\(^1\) One must expect such patients to be troubled, after a time, with dysentery; for dysentery supervenes in most cases

\(^1\) See Introduction.
ΠΕΡΙ ΑΡΘΡΩΝ

τῆσιν αἴμορραγίσισιν\(^1\) ἐξ ἐλκέων ἐπιγίνεται ἰδὲ ὡς ἐπὶ τὸ πολὺ κεκριμένων ἦδη τῶν μελασμῶν καὶ τῆς αἴμορραγίας, καὶ ὁρμᾶται μὲν λαύρως καὶ ἱσχυρῶς· ἀπὸ ὅπετε πολυήμερος γίνεται οὔτε θανατώδης· οὔτε γὰρ μάλα ἀπόσιτοι γίνονται οἱ τοιοῦτοι, οὔτε ἀλλὰς συμφέρει 76 κενεαγγεῖν.

IXX. Μηροῦ δὲ ὀλίσθημα κατ' ἱσχίον ὀδε χρη ἐμβάλλειν, ἢν ἐς τὸ ἔσω μέρος ὠλισθήκη' ἀγαθὴ μὲν ἢδε καὶ δικαίη καὶ κατὰ φύσιν ἢ ἐμβολῆ, καὶ δὴ τι καὶ ἄγωνιστικὸν ἔχουσα, ὅστις γε τοῖσι τοιούτουσιν ἦδεται κομψευόμενος. κρεμάσαι χρη τὸν ἀνθρωπὸν τῶν ποδῶν πρὸς μεσόδημην δεσμῷ δυνατῷ μὲν, μαλθακῷ δὲ καὶ πλάτος ἔχοντι· τοὺς δὲ πόδας διέχειν χρῆ ὅσον τέσσαρας δακτύλους ὑπ' ἄλληλων, ἢ καὶ ἐλασσον· χρῆ δὲ καὶ ἐπάνωθεν τῶν ἐπιγούνιδων προσπεριβεβλήσῃ πλατεῖ ἵματι καὶ μαλθακῷ, ἀνατείνοντι ἐς\(^2\) τὴν μεσόδημην· τὸ δὲ σκέλος τὸ συναρπὸν ἐντετάσθαι χρὴ ὡς δύο δακτύλους μάλλον τοῦ ἑτέρου· ἀπὸ τῆς γῆς τὴν κεφαλὴν ἀπεχέτω ὡς δύο πήχεας, ἢ ὅλγῳ πλέον ἢ ἐλασσον· τὰς δὲ χείρας παρατεταμένας παρὰ τὰς πλευρὰς προσδεδεμένος ἐστώ μαλθακῷ τινὶ· πάντα δὲ ταῦτα υπὶ τῷ κατακειμένῳ κατασκευασθῆτω, ὡς ὅτι ἐλαχιστὸν χρόνον κρέμηται. ὅταν δὲ κρεμασθῇ, ἀνδρα χρη ἐνπαίδευτον καὶ μὴ ἔσθενεά, ἐνείραντα τὸν πήχυν μεσημνὺ τῶν μηρῶν, εἶτα θέσθαι τὸν πήχυν μεσημνὺ τοῦ τε περιναίου καὶ τῆς κεφαλῆς τοῦ μηροῦ τῆς ἐξεστηκνίσης, ἐπείτα συνάψαντα τὴν ἑτέρην χείρα πρὸς τὴν διηρμένην, παραστάντα ὅρθον παρὰ τὸ σώμα τοῦ κρεμα-

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of mortification, and in haemorrhage from wounds. It comes on as a rule when the mortification or haemorrhage has been determined, and is copious and violent at the start, but neither lasts long nor is dangerous to life. The patients in such cases do not lose their appetite much, nor is there any advantage in a restricted diet.

LXX. Dislocation of the thigh at the hip should be reduced as follows, if it is dislocated inwards. It is a good and correct method, and in accord with nature, and one too that has something striking about it, which pleases a dilettante in such matters. One should suspend the patient by his feet from a cross-beam with a band, strong, but soft, and of good breadth. The feet should be about four fingers apart, or even less. He should also be bound round above the knee-caps with a broad, soft band stretching up to the beam; and the injured leg should be extended about two fingers' breadth further than the other. Let the head be about two cubits, more or less, from the ground. The patient should have his arms extended along the sides and fastened with something soft. Let all these preparations be made while he is lying on his back, that the period of suspension may be as short as possible. When he is suspended, let an assistant who is skilful and no weakling insert his forearm between the patient's thighs, and bring it down between the perineum and the head of the dislocated bone. Then, clasping the inserted hand with the other, while standing erect beside the suspended patient, let him suddenly

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1 τοῖς αἵματος <br>2 πρὸς.
ΠΕΡΙ ΑΡΩΡΩΝ

μένου, ἐξαπίνης ἐκκρεμασθέντα μετέωρον αἰωρηθήναι ὡς ἱσορροπώτατον. αὐτὴ δὲ ἡ ἐμβολὴ παρέχεται πάντα ὅσα χρῆ κατὰ φύσιν αὐτὸ τε γὰρ τὸ σῶμα κρεμάμενον τῷ ἑωυτοῦ βάρει κατάτασιν ποιεῖται, ὃ τε ἐκκρεμασθεῖς ἀμα μὲν τῇ κατατάσσει ἀναγκάζει ὑπεραιρεῖσθαι τὴν κεφαλὴν τοῦ μηροῦ ὑπὲρ τῆς κοτύλης, ἀμα δὲ τῷ ὀστέῳ τοῦ πῆχεος ἀπομοχλεύει καὶ ἀναγκάζει ἐς τὴν ἀρχαίνα φύσιν ὀλισθάειν. χρῆ δὲ παγκάλως μὲν τοῖς ἀποσῳ ἐσκευάσθαι, φρονεόντα δὲ καὶ ὡς ἵσχυρότατον¹ τὸν ἐξαιω-37 ρούμενον εἶναι.

Α.ΧΧΙ. Ὡς μὲν οὖν καὶ πρόσθεν εἰρηται, μέγα τὸ διαφέρον ἐστὶ τῶν φυσών τοῖς ἀνθρώποισιν ἐς τὸ εὐεμβλητὰ εἶναι καὶ δυσἐμβλητὰ [τὰ ἄρθρα]² καὶ διότι μέγα διαφέρει, εἰρηται πρόσθεν ἐν τοῖς περὶ ὅμουν. ἐνίοισι γὰρ ὁ μηρὸς ἐμπίπτει ἀπ’ οὐδεμίᾶς παρασκευῆς, ἀλλ’ ὀλίγης μὲν κατατάσσοσ, ὅσον τῆς χερσὶ κατιθὺναι, βραχεῖς δὲ κιγκλίσοις πολλοῖσι δὲ συγκάμψαι τὸ σκέλος κατὰ τὸ ἄρθρον ἐνέπεσεν, ἤδη ἀμφίσφαλσιν ποιησάμενοι. ἀλλὰ γὰρ τὰ πολὺ πλεῖσίν οὐκ ἐνακούει τῆς τυχούσης παρασκευῆς διὰ τοῦτο ἐπιστασθαι μὲν χρῆ τὰ κράτιστα περὶ ἐκάστου ἐν πάσῃ τῇ τεχνῇ χρῆσθαι δὲ οἰσιν ἄν δόξῃ ἐκάστοτε. εἰρηται μὲν οὖν τρόποι κατατασιῶν καὶ ἐν τοῖς ἐμπροσθὲν γεγραμμένοισιν, ὡστε χρῆσθαι τούτων ὅσις ἄν παρατύχῃ. δεὶ γὰρ

¹ According to Littré and Petrequin, the patient is meant; but Littré emends to ἱσχυρότατον. The καὶ favours reference to the assistant; as in the Latin interpreters and Ermerins.
² Omit Galen, Littré.
suspend himself from him, and keep himself in the air as evenly balanced as possible. This mode of reduction provides everything requisite according to nature, for the body itself when suspended makes extension by its own weight; the assistant who is suspended, while making extension, forces the head of the bone to a position above the socket, and at the same time levers it out with the bone of his forearm, and makes it slip into its old natural place. But the bandages must be perfectly arranged, and care taken that the suspended assistant is the strongest available.  

LXXI. Now, as was said before, there is a great difference in the constitution of individuals, as regards ease and difficulty in reducing their dislocated joints; and the reason of this great difference was given before in the part about the shoulder. Thus in some, the thigh is put in without any apparatus, by the aid of slight extension, such as can be managed with the hands, and a little jerking; while in many, flexion of the leg at the joint and making a movement of circumduction is found to reduce it. But the great majority do not yield to ordinary apparatus; wherefore one should know the most powerful methods which the whole art provides for each case, and use them severally where they seem appropriate. Now methods of extension have been described in previous chapters, so that one may use any one of them which happens to be available.  

1 Pq. renders, "the patient very strongly suspended," so also Littré; but there are surely two injunctions. Adams, "the person suspended along with the patient [should] have a sufficiently strong hold." Littré's ἓχυρώτατον applied to the assistant.  

2 Cf. VII.
ΠΕΡΙ ΑΡΘΡΩΝ

ἀντικατατετάσθαι ἵσχυρῶς, ἐπὶ θάτερα μὲν τοῦ σκέλεος, ἐπὶ θάτερα δὲ τοῦ σώματος· ἦν γὰρ εὖ καταταθῆ, ὑπεραιωρθήσεται ἡ κεφαλὴ τοῦ μηροῦ ὑπὲρ τῆς ἀρχαίης ἐδρῆς· καὶ ἦν μὲν ὑπεραιωρθῆσεν οὕτως, οὐδὲ κωλύσαι ἐτι ῥηίδιον ἤσεθαι αὐτὴν εἰ τῇ ἑωτυτῆς ἐδρῆν, ἀφετε ἦδη πᾶσα ἄρκει μόχλευσις τε καὶ κατόρθωσις· ἀλλὰ γὰρ ἐλλείποντοι εἰ τῇ κατατάσις· διὰ τούτου ὄχλοι πλείω παρέχει ἡ ἐμβολή. χρῆ οὖν ἕν 1 οὐ μοῦνον παρὰ τὸν πόδα τὰ δεσμὰ ἐξηρτήσθαι, ἀλλὰ καὶ ἀνώθεν τῶν γούνατος, ὅπως 2 μὴ κατὰ τὸ τοῦ γούνατος ἄρθρον εἰ τῇ τανύσει ἡ ἐπίδοσις 3 ἢ μᾶλλον ἡ κατὰ τὸ τοῦ ἵσχίου ἄρθρον. οὕτω μὲν οὖν χρῆ τὴν κατάτασιν τὴν πρὸς τὸ τοῦ ποδὸς μέρος ἐσκευάσθαι· ἀτὰρ καὶ τὴν ἐπὶ θάτερα κατάτασιν, τὴν μοῦνον ἐκ τῆς περὶ τὸ στήθος καὶ τὰς μασχάλας περιβολῆς ἀντιτείνεσθαι, ἀλλὰ καὶ ἰμάντι μακρῷ, διπτύχῳ, ἴσχυρῷ, προσημεῖ, παρὰ τὸν περίναιον βεβλημένῳ, παρατεταμένῳ, ἐπὶ μὲν τὰ ὁπίσθεν παρὰ τὴν ράχιν, ἐπὶ δὲ τὰ ἐμπρόσθεν παρὰ τὴν κληθήδα, προσηρτημένῳ πρὸς τὴν ἀρχήν τὴν ἀντικατατείνουσαν, οὕτω διαναγκάζεσθαι, τοῖσι μὲν ἑνθα διατειναμένουσι, τοῖσι δὲ ἑνθα, ὅπως δὲ ὁ ἰμᾶς ὁ παρὰ τὸν περίναιον μὴ περὶ τὴν κεφαλὴν τοῦ μηροῦ παρατεταμένος ἔσται, ἀλλὰ μεσημῖ τῆς κεφαλῆς καὶ τοῦ περίναιου, ἐν δὲ τῇ κατατάσιν κατὰ μὲν τὴν κεφαλὴν τοῦ μηροῦ ἐρείσας τὴν πυγμῆν ἐς τὸ ἔξω ὅθεντο. ἦν δὲ μετεωρίζεται ἐλκομένοις, διέροσα τὴν χεὶρα καὶ ἐπισυνάψας τῇ ἐτέρῃ χειρὶ ἀμα συγκατατεινέτω, ἀμα δὲ ἐς τὸ ἔξω συναναγκαζότω. ἀλλος δὲ τῆς τὸ παρὰ τὸ γόνυ τοῦ μηροῦ ἵστυχως ἐς τὸ ἔσω μέρος κατορθοῦτω.
There must be strong extension both ways, of the leg in one direction, and of the body in the other; for if good extension is made, the head of the thigh-bone will be lifted over its old seat, and when so brought up, it becomes difficult even to prevent it from settling into its position, so that any leverage and adjustment suffices; but it is in extension that operators fail, and that is why the reduction gives more trouble. One should attach the bands, not only at the foot, but also above the knee, so that, in stretching, the giving way may not occur at the knee-joint rather than at the hip. This then is how the extension towards the foot end should be arranged; but there should be also counter-extension in the other direction, not only from a band round the chest and under the armpits, but also from a long double strap, strong and soft, passed round the perineum and stretched behind along the spine, and in front by the collar-bone attached to the source of the counter-extension. With the cords so arranged, some are stretched in one direction, some in the other, taking care that the strap at the perineum is not stretched over the head of the thigh-bone but between it and the perineum. During extension, let the fist be pressed against the head of the thigh-bone and thrust it outwards. If the pulling lifts up the patient, insert one hand between the thighs and, clasping it with the other, combine extension with pressure outwards. Let another person make adjustment by pushing the knee end of the bone gently inwards.

1 δέ.
2 ἰνα.
3 ἐπίδοσις Littre, Petrequin, and codd., except B. ἐπίδοσις B, Ern., Kw.
ΠΕΡΙ ΑΡΩΡΩΝ

LXXII. Εἴρηται δὲ καὶ πρόσθεν ἢδη ὅτι ἐπάξιον, ὡστὶ ἐν πόλει πολυανθρώπῳ ἤπτευει, ξύλον κεκτήσθαι τετράγωνον ὡς ἐξύπηχυ, ἢ ὅλιγον μέξον, εὗρος δὲ ὡς δίπηχυ, πάχος δὲ ἄρκει σπιθαμίαιον ἔπειτα κατὰ μήκος μὲν ἔνθεν καὶ ἔνθεν ἐντομὴν ἔχειν χρῆ, ὡς μὴ ὑψηλότερη τοῦ καιροῦ ἢ μηχανής ἢ ἔπειτα φλιᾶς βραχείας, ἵσχυρὰς καὶ ἵσχυρὸς ἐνημοσυνέκας, ὅνισκον ἔχειν ἐκατέρωθεν· ἔπειτα ἄρκει μὲν ἐν τῷ ἡμίσει τοῦ ξύλου—οὔθεν δὲ κωλύει καὶ διὰ παντός—ἐντετμῆσθαι ὡς καπέτους μακρὰς πέντε ἢ έξ, διαλειπούσας ἢ π' ἀλλήλων ὡς τέσσαρας δακτύλους, αὐτὰς δὲ ἄρκει εὗρος τριδακτύλους εἶναι καὶ βάθος οὗτως. ἔχειν δὲ κατὰ μέσον τὸ ξύλον καὶ καταγλυφὴν χρῆ βαθυτέρην, ἔπει τετράγωνον, ὡς τριῶν δακτύλων· καὶ ἐς μὲν τὴν καταγλυφὴν ταύτην, ὅταν δοκῇ προσδεῖν, ξύλον ἐμπηγνύναι ἐνάρμοζον τῇ καταγλυφῇ, τὸ δὲ ἄνω στρογγύλον· ἐμπηγνύναι δὲ, ἐπὶν ποτὲ δοκῇ συμφέρειν, μεσημβροτοπεῖν καὶ τῆς κεφαλῆς τοῦ μηροῦ. τὸστὸ τὸ ξύλον ἐστιοθες κωλύει τὴν ἐπίδοσιν ἐπὶδιδόναι τὸ σῶμα τοῦ σπὸρο ποδῶν ἐλκουσίων· ἐνίοτε γὰρ ἄρκει αὐτὸ τὸ ξύλον τοῦτο ἄντι τῆς ἀνωθὲν ἀντικατατάσσεις· ἐνίοτε δὲ καὶ κατατεινομένου τοῦ σκέλεσι ἔνθεν καὶ ἔνθεν, αὐτὸ τὸ ξύλον τοῦτο, χαλαρὸν ἐγκείμενον ἢ τῇ ἢ τῇ, ἐκροχλεύειν ἐπιτήδειον ἂν εἴη τὴν κεφαλὴν τοῦ μηροῦ ἢ τὸ έξώ μέρος. διὰ τούτο γὰρ καὶ οἱ κάποτοι ἐντετμέαται, ὡς καθ' ὀποίῃ ἂν αὐτέων ἀρμόσῃ, ἐμβαλλόμενος ξύλινος μοχλὸς μοχλεύοι, ἡ παρὰ τὰς κεφαλὰς τῶν ἄρθρων, ἢ κατὰ κεφαλὰς τελέως ἐρειδόμενος ἀμα τῇ κατατάσσει, ἢν τε ἐς τὸ έξω μέρος συμφέρη
ON JOINTS, lxxii.

LXXII. It was said before ¹ that it is worth while for one who practises in a populous city to get a quadrangular plank, six cubits long or rather more, and about two cubits broad; while for thickness a span is sufficient. Next, it should have an incision at either end of the long sides, that the mechanism may not be higher than is suitable.² Then let there be short strong supports, firmly fitted in, and having a windlass at each end. It suffices, next, to cut out five or six long grooves about four fingers' breadth apart; it will be enough if they are three fingers broad and the same in depth, occupying half the plank, though there is no objection to their extending the whole length. The plank should also have a deeper hole cut out in the middle, about three fingers' breadth square; and into this hole insert, when requisite, a post, fitted to it, but rounded in the upper part. Insert it, whenever it seems useful, between the perineum and the head of the thigh-bone. This post, when fixed, prevents the body from yielding when traction is made towards the feet; in fact, sometimes the post of itself is a substitute for counter extension upwards. Sometimes also, when the leg is extended in both directions, this same post, so placed as to have free play to either side, would be suitable for levering the head of the thigh-bone outwards. It is for this purpose, too, that the grooves are cut, that a wooden lever may be inserted into whichever may suit, and brought to bear either at the side of the joint-heads or right upon them, making pressure simultaneously with the extension, whether the leverage is required

¹ Fract. XIII. The Scamnum or "Bench" of Hippocrates.
² I.e. the supports should be "let in," not fixed on the top.
ΠΕΡΙ ΑΡΘΡΩΝ

ἐκμοχλεύεσθαι, ἢν τε ἐσ, καὶ ἢν τε στρογγύλου τὸν μοχλὸν συμφέρῃ εἶναι, ἢν τε πλάτος ἔχοντα· ἄλλος γὰρ ἄλλῳ τῶν ἄρθρων ἁρμόζει. εὐχρηστός δὲ ἐστιν ἐπὶ πάντων τῶν ἄρθρων ἐμβολῆς τῶν κατὰ τὰ σκέλεα αὕτη ἡ μόχλευσις σὺν τῇ κατατάσει. περὶ οὖν ὁ λόγος ἐστὶ, στρογγύλος ἁρμόζει ὁ μοχλὸς εἶναι τῷ μέντοι ἑξὸς ἐκπεπτωκότι ἄρθρῳ πλατὺς ἁρμόζει εἶναι. ἀπὸ τούτων τῶν μηχανῶν καὶ ἀναγκέων οὐδὲν ἄρθρον μοι δοκεῖ οἷον τε εἶναι ἀπορηθῆναι ἐμ-43

πεσεῖν.

LXXIII. Ἐυροὶ δ' ἂν τις καὶ ἄλλους τρόπους τούτου τοῦ ἄρθρου ἐμβολῆς· εἰ γὰρ τὸ ξύλον τὸ μέγα τοῦτο ἑχοι κατὰ μέσον καὶ ἐκ πλαγίων φλιᾶς δύο ὡς ποδιαίας,1 ὕψος δὲ ὅπως ἂν δοκεῖ συμφέρειν, τὴν μὲν ἔνθεν, τὴν δὲ ἔνθεν· ἐπειτα ξύλον πλάγιον ἐνείη ἐν τῇ σφίλησιν ὡς κλιμακτήρ, ἐπειτα διέρσαί 2 τὸ ύψις σκέλος μεσηγῆ τῶν φλιῶν, τὸ δὲ σιναρῶν ἀνωθεν τοῦ κλιμακτήρος ἑκεῖν3 ἐνάρμοζον ἀπαρτὶ πρὸς τὸ ύψος καὶ πρὸς τὸ ἄρθρον, ἢ ἐκπεπτωκένυ ῥηίδιον δὲ [χρῆ]4 ἁρμόζειν· τὸν γὰρ κλιμακτήρα ψηλότερον τινι χρῆ ποιεῖν τοῦ μετρίου, καὶ ἰμάτιον πολύπτυχον, ὡς ἂν ἁρμόσῃ, ὑποτείνειν ὑπὸ τὸ σώμα. ἐπειτα χρῆ ξύλον ἑχον τὸ πλάτος μέτριον, καὶ μῆκος ἄχρι τοῦ σφυροῦ υποτεταμένον, ὑπὸ τὸ σκέλος εἶναι, ἱκνεύμενον ἐπέκεινα τῆς κεφαλῆς τοῦ μηροῦ

1 ποῦς μῆκος Paulus VI. 118. 2 εἰ διέρσαιεν Kw., εἰ εἴσειεν Apoll. 3 ἑχοι. 4 Omit.
ON JOINTS, LXXII.–LXXIII.

outwards or inwards, and whether the lever should be rounded or broad, for one form suits one joint, another another. This leverage, combined with extension, is very efficacious in all reductions of the leg-joints. As regards our present subject, it is proper that the lever be rounded; but for an external dislocation of the joint, a flat one will be suitable. It seems to me that no joint is incapable of reduction with these mechanical forces.

LXXIII. One might find other ways of reducing this joint. This big plank might have two props at the middle and to the sides,¹ about a foot long—height as may seem suitable—one on one side, the other on the other; then a crossbar of wood should be inserted in the props like a ladder-step. One might then insert ² the sound leg between the props, and have the injured one on the top of the bar, fitting exactly to its height and to the joint where it is dislocated. This is easily arranged; for the crossbar should be put somewhat higher than is sufficient, and a folded garment spread under the patient, so that it fits. Then a piece of wood of suitable breadth and of a length sufficient to reach to the ankle should be extended under the leg, going up as far as possible beyond the head of the thighbone.

¹ These props seem to have been removable and at the sides of the hole for the perineal post, which was κατὰ μέσον; not fixtures at the sides of the “bench,” as usually figured. See the description in Paulus (VI 118). The wooden cross-piece must have been either very thick or much shorter than three feet, to stand the pressure required. It could be put either at the top, when the whole resembled the letter π, or lower down, when it resembled ζέα (II). This also shows that the arrangement was not very wide.

² ἵππες surely implies that the props were not far apart.
ΠΕΡΙ ΑΡΘΡΩΝ

ως οίον τε προσκαταδεδέσθαι δὲ χρῆ πρὸς τὸ σκέλος, ὅπως ἄν μετρίως ἔχῃ. καπεῖτα κατατεινομένου τοῦ σκέλος, εἴτε ξύλῳ ὑπεροείδει, εἴτε τοι̣ ὑπὸ τοὺς κατατασίων, ὁμοῦ χρῆ καταναγκάζεσθαι τὸ σκέλος περὶ τὸν κλιμακτήρα ἐς τὸ κάτω μέρος σὺν τῷ ξύλῳ τῷ προσδεδεμένῳ τὸν ἐς τινα κατέχει τῶν ἀνθρώπων ἀνωτέρω τοῦ ἀρθροῦ κατὰ τὸ ἱσχύον. καὶ γὰρ οὕτως ἀμα μὲν ἡ κατάτασις ὑπεραιροῖτο τὴν κεφαλὴν τοῦ μηροῦ ὑπὲρ τῆς κοτύλης, ἀμα δὲ ἡ μόχλευσις ἀποθέει τὴν κεφαλὴν τοῦ μηροῦ ἐς τὴν ἀρχαίν φύσιν. αὐταί πάσαι αἱ εἰρημέναι ἀνάγκαι ἱσχυραὶ καὶ πᾶσαι κρέσσους τῆς συμφορῆς, ἢν τις ὀρθῶς καὶ καλῶς σκευάζῃ. ὁσπερ δὲ καὶ πρόσθεν ἦδη εἰρηται, πολὺ τι ἀπὸ ἁσθενεστέρων κατατασίων καὶ φαυλοτέρης κατασκευῆς τοῖς πλείστοις ἐμπίπτει.

LXXIV. Η' ἢν δὲ ἐς τὸ ἐξω κεφαλὴ μηροῦ ὀλίσθη, τὰς μὲν κατατάσιας ἐνθα καὶ ἐνθα οὕτω χρῆ ποιεῖσθαι ὡσπερ εἰρηται, ἢ τοιοῦτοτρόπως τὴν δὲ μόχλευσιν πλάτος ἐχουτὶ μοχλῷ μοχλεύουσιν χρῆ ἀμα τῇ κατατάσει, ἐκ τοῦ ἐξω μέρους ἐς τὸ ἐσω ἀναγκαίζοντα, κατὰ γε αὐτῶν τῶν γλυτῶν τιθέμενον τὸν μοχλὸν καὶ ὀλίγῳ ἀνωτέρω ἐπὶ τὸ ὕγιες ἱσχύον κατὰ τῶν γλυτῶν ἀντιστηριζέτω τις τῆσι χερσίν ὃς μὴ ὑπείκῃ τῷ σῶμα, ἦ ἐτέρῳ τινὶ τοιοῦτῳ μοχλῷ ὑποβάλλων καὶ ἐρείσας, ἐκ τῶν καπέτων τὴν ἀρμόζουσαν ἀντικατεχέτω τοῦ δὲ μηροῦ τοῦ ἐξηρθηκότος τὸ παρὰ τὸ γόνυ ἐσωθεν ἐξω παραγέτω ἡσύχως. ἢ δὲ κρέμασις οὗχ

1 ὑπεραιρείς ἄν.
bone; it should be attached to the leg in a suitable manner. Then, while the leg is being extended either by a pestle-shaped rod or any of the above modes of extension, one should simultaneously force the leg with the wood attached to it downwards over the crossbar; while an assistant holds down the patient at the hip above the joint. For thus the extension will raise the head of the thigh-bone over its socket, while the leverage will thrust it back into its natural place.  

All these forcible methods of reduction are strong, and all are able to overcome the lesion, if one makes a proper and good application of them; but, as was said before, in the majority of cases the joint is put in with much weaker extensions and more ordinary apparatus.

LXXIV. When a thigh-bone head slips outwards, extension should be made in both directions as described, or in similar fashion. The leverage should be done with a broad lever simultaneously with the extension, forcing it from without inwards, the lever being applied to the buttock itself and a little above it. Let someone give counter-support to the hip on the sound side at the buttock with his hands, that the body may not yield, or make counter-pressure by slipping a similar lever under the joint, using a suitable groove as fulcrum. Let the bone of the dislocated thigh be gently brought from within outwards at the knee. The suspension method will

1 An imitation of the method of reducing the shoulder-joint (VII).

2 σκευάζχαι, as Apollonius.  
3 πλείστοις.  
4 έ is for έκ Kw., following Erm.'s conjecture.
ΠΕΡΙ ΑΡΘΡΩΝ

ἀρµῶσει τοῦτῳ τῷ τρόπῳ τῆς ὀλισθήσιος τοῦ ἀρθροῦ. ὁ γὰρ πῆχυς τοῦ ἐκκεραμαμένου ἀπωθεοῦν ἂν τὴν κεφαλὴν τοῦ μηροῦ ἀπὸ τῆς κοτύλης. τὴν μέντοι σὺν τῷ ἔνλῳ τῷ ὑποτεινομένῳ μόχλευσιν μηχανήσατ' ἂν τις ὥστε ἀρµῶζειν καὶ τούτῳ τῷ τρόπῳ τοῦ ὀλισθήματος, ἔξωθεν προσαρτῶν.

20 ἀλλὰ τί καὶ δεὶ [πλείω λέγειν]; ἡν γὰρ ορθῶς μὲν καὶ εὐ κατατείνηται, ὀρθῶς δὲ μοχλεύστω, τῇ οὐκ ἂν ἐμπέσοι ἀρθροῖν οὕτως ἐκπεπτωκός;

LXXV. "Ἡν δὲ ἐς τούπισθεν μέρος ἐκπεπτωκὴ ὁ μηρός, τὰς μὲν κατατάσσεις καὶ ἀντιτάσσεις οὕτω δεῖ ποιεῖσθαι, καθὰπερ ἐρηται ἐπιστροφοῦσαντα δὲ ἐπὶ τὸ ξύλον ἰμάτιον πολὺπτυχον, ὡς μαλακώτατον ἃ, πρηνέα κατακλίναντα τὸν ἀνθρώπον, οὕτω κατατείνεται ἄμα δὲ τῇ κατατάσει χρὴ τῇ σανίδι καταναγκάζειν τὸν αὐτὸν τρόπον ὡς τὰ ύβωματα, κατ' έξιν τοῦ πυγαίου ποιησάμενον τὴν σανίδα, καὶ μᾶλλον ἐς τὸ κάτω μέρος ἢ ἐς τὸ ἄνω τῶν ἵσχιῶν καὶ ἡ ἔντομη ἢ ἐν τῷ τοίχῳ τῇ σανίδι μη ἐνθεῖα ἐστῶ, ἀλλ' ὅλγον καταφερῆς πρὸς τὸ τῶν ποδῶν μέρος. αὐτή ἢ ἐμβολὴ κατὰ φύσιν τε μάλιστα τῷ τρόπῳ τούτῳ τοῦ ὀλισθήματος ἐστὶ καὶ ἀμα ἱσχυροτάτη. ἀρκέσειε δ' ἂν ἵσως ἀντὶ τῆς σανίδος καὶ ἐφεξομενον τινα, ἢ τῆς χερσιν ἐρεισάμενον ἢ ἐπίβαντα ἐξαπίνης ὁμοίως ἐπαωρηθῆναι ἄμα τῇ κατατάσει. ἀλλή δὲ οὐδεμίῃ ἐμβολῇ τῶν πρόσθεν εἰρημένων κατὰ φύσιν ἐστὶ τῷ τρόπῳ τούτῳ τοῦ ὀλισθήματος.

LXXVI. "Ἡν δὲ ἐς τὸ ἐμπροσθεν ὀλίσθῃ, τῶν μὲν κατατασίων ὁ αὐτὸς τρόπος ποιητέος· ἄνδρα δὲ χρή ὡς ἱσχυρότατον ἀπὸ τῶν χειρῶν καὶ ὡς εὐπαιδευτότατον, ἐνερεῖσαντα τῷ θείαρ τῆς χειρὸς.
not suit this form of dislocation, for the forearm of the person who hangs himself on would push the head of the thigh-bone away from its socket; but one might arrange the leverage with the board attached so as to suit this form of dislocation also, fitting it to the outside. But what need is there [to say more]? For if the extension is correct and good, and the leverage correct, what dislocation of this kind would not be reduced?

LXXV. If the thigh is dislocated backwards, extension and counter-extension should be made in the way described. Spreading a folded cloak on the plank, so that it may be as soft as possible, with the patient lying prone, one should make extension thus, and simultaneously make downward pressure with the plank, as in cases of hump-back, putting the board in a line with the buttock, and rather below than above the hip. Let the groove in the wall for the board be not level, but sloping a little down towards the feet. This mode of reduction is most naturally in accord with this form of dislocation, and at the same time very powerful. Instead of the board it would, perhaps, suffice for someone to sit on the part, or make pressure with his hands or with the foot, in each case bringing his weight suddenly to bear at the moment of extension. None of the other modes of reduction mentioned above is in natural conformity with this dislocation.

LXXVI. In dislocation forwards, the same extensions are to be used; and the strongest-handed and best-trained assistant available should make pressure

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1 ἄπωθοιν. 2 Omit Kw. and a few MSS. 3 ἀς.
ΠΕΡΙ ΑΡΘΡΩΝ

τῆς ἐτέρης παρὰ τὸν βουβῶνα, καὶ τῇ ἐτέρῃ χειρὶ τὴν ἑωυτῶν χείρα προσκαταλαβόντα, ἀμα μὲν ἐς τὸ κάτω ὥθειν τὸ ὀλίσθημα, ἀμὰ δὲ ἐς τὸ ἐμπροσθεν τοῦ γόνατος μέρος. οὕτος γὰρ ὁ τρόπος τῆς ἐμβολῆς μάλιστα κατὰ φύσιν τοῦτῳ τῷ ὀλισθήματι ἐστὶν. ἀτὰρ καὶ ὁ κρεμασμὸς ἐγγύς τι τοῦ κατὰ φύσιν. δεὶ μέντοι τὸν ἐκκρεμαμένου ἐμπειρον εἰναι, ὡς μὴ ἐκμοχλεύῃ τῷ πἰῆχει τὸ ἀρθρον, ἀλλὰ περὶ μέσον τοῦ περίναιον καὶ κατὰ τὸ ιερὸν ὀστέον τὴν ἐκκρέμασιν ποιῆται.

LXXVII. Εὐδοκιμεῖ δὲ δὴ καὶ [ὁ πειραθέους] ἀσκῷ τοῦτο τὸ ἀρθρον ἐμβάλλεσθαι καὶ ἡδὴ μὲν τινας εἰδον οἴτινες ὑπὸ φαυλότητος καὶ τὰ ἔξω ἐκκεκλιμένα καὶ τὰ ὅπισθεν ἀσκῷ ἐπειρῶντο ἐμβάλλειν, οὔ γιγνώσκοντες ὅτι ἐξεβάλλων αὐτὸ μᾶλλον ἡ ἐνέβαλλων: ὁ μὲντοι πρῶτος ἐπινοήσας δῆλον ὅτι πρὸς τὰ ἔσω ὀλισθηκότα ἀσκῷ ἐμβάλλειν ἐπειρήσατο. ἐπίστασθαι μὲν οὖν χρὴ ὡς χρηστέουν ἀσκῳ, εἰ δέοι χρήσθαι διαγινώσκειν δὲ χρη 2 ὅτι ἐτερὰ πολλὰ ἀσκοῦν κρέσσων ἐστὶν. χρη δὲ τὸν μὲν ἀσκῶν καταθείναι 3 ἐς τοὺς μηροὺς ἅφυσητον ἑόντα, ὡς ἄν δύναιτο ἀνωτάτῳ πρὸς τὸν περίναιον ἀνάγοντα: ἀπὸ δὲ τῶν ἐπιγουνίδων ἀρξάμενον, ταίνη πρὸς ἀλλήλους τοὺς μηροὺς καταδῆσαι ἄχρι τοῦ ἠμίσεως τῶν μηρῶν ἐπείτα ἐς ἑνὰ τῶν ποδῶν, 4 τῶν λευμένου, ἐνθέντα αὐλὸν ἐκ χαλκείου, φύσαν ἑσαναγκάζειν ἐς τὸν ἀσκόν· τὸν δὲ ἀνθρωπον πλάγιον κατακείσθαι, τὸ σιναρὸν σκέλος ἐπιπολῆς ἑχοντα. ἢ μὲν οὖν παρασκευὴ αὐτή

1 Omit Kw. and most MSS. 2 δεὶ.
at the groin with the palm of one hand, grasping it with the other, and pushing the dislocated part downwards, while at the same time the part at the knee is brought forwards.\(^1\) This mode of reduction is in most natural accord with this dislocation. For the rest, suspension rather approaches the natural method; but the man who hangs himself on must be experienced, so as not to lever out the joint with his arm, but make the suspension weight act at the middle of the perineum, and over the sacrum.

LXXVII. Finally, there is an approved method of reducing this joint also with a bag;\(^2\) and I have seen some who, through incompetence, kept trying to reduce even external and posterior dislocations with a bag, not knowing that they were putting it out rather than putting it in. The first inventor of the method, however, obviously used the bag in trying to reduce inward dislocations. One ought, therefore, to know how to use it, if required, while bearing in mind that many other methods are more effective. The bag should be applied to the thighs uninflated, and brought up as close as possible to the perineum. Bind the thighs to one another with a band extending from above the knee-caps half-way up the thighs; then, inserting a brass tube into one of the feet\(^3\) which has been untied, force air into the bag. The patient should lie on his side with the injured leg on top. This, then, is the arrangement;

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\(^1\) In the "Apollonius" illustration he makes pressure with one hand on top of the other.

\(^2\) I.e. wine-skin. Cf. use for spine (XLVII).

\(^3\) Of the wine-skin.
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ἐστὶν· σκευάζονται δὲ κάκιον οἱ πλείστοι ἡ ώς ἐγὼ εἴρηκα· οὐ γὰρ καταδέουσι τοὺς μηροὺς ἐπὶ συχνόν, ἀλλὰ μοῦνον τὰ γόνατα, οὐδὲ κατατείνουσι· χρὴ δὲ καὶ προσκατατείνειν· ὅμως δὲ ἢδη τινὲς ἐνέβαλον ῥημίδιον πρήγματος ἐπιτυχόντες. εὐφόρως δὲ οὐ πάνιν ἔχει διαναγκάζεσθαι οὕτως· δὲ γὰρ ἁσκὸς ἐμφυσώμενος οὐ τὰ ὄγκηρότατα αὐτοῦ ἔχει πρὸς τῷ ἀρθρῷ τῆς κεφαλῆς, ἣν δὲι μάλιστα ἐκμοιχλεύσασθαι, ἀλλὰ καθ' ἐωτὸν αὐτὸς μέσος καὶ τῶν μηρῶν ἰσως ἢ κατὰ τὸ μέσον ἢ ἔτι κατωτέρω· οὐ τε αὐ μηροὶ φύσιν γαυσοὶ πεφύκασιν, ἀνωθέν γὰρ σαρκώδεις τε καὶ σύμμηροι, ἐς δὲ τὸ κάτω ὑπόξηροι, ὥστε καὶ ἢ τῶν μηρῶν φύσις ἐπαναγκάζει τὸν ἁσκὸν ἀπὸ τοῦ ἐπικαιροτάτου χωρίου. εἰ τε οὖν τις συμκρόν ἐνθῆσει τὸν ἁσκόν, συμκρῆ ἢ ἴσχυς ἐόνσα ἀδύνατος ἐσται ἀναγκάζειν τὸ ἀρθρὸν. εἰ δὲ δεῖ ἁσκὸ χρῆσθαι, ἐπὶ πολὺ οἱ μηροὶ συνδετέοι πρὸς ἀλλήλους, καὶ ἁμα τῇ κατατάσει τοῦ σῶματος ὁ ἁσκὸς φυσιτεὸς· τὰ δὲ σκέλεα ἀμφότερα ὁμοῦ καὶ καταδεῖν ἐν τούτῳ τῷ τρόπῳ τῆς ἐμβολῆς ἐπὶ τὴν τελευτήν.

IXXVIII. Χρὴ δὲ περὶ πλείστου μὲν ποιεῖσθαι ἐν πάσῃ τῇ τέχνῃ ὅπως ὑγίεα ποιήσῃς τὸν νοσεόντα· εἰ δὲ πολλοὶς τρόποις οἶνον τε εἰῆ ὑγιεὰ ποιεῖν, τὸν ἁγχλότατον χρὴ ἀἱρεῖσθαι· καὶ γὰρ ἁνδραγαθικώτερον τοῦτο καὶ τεχνικώτερον, ὅστις μὴ ἐπιθυμεί δημοειδεῖς κυβδηλίς. περὶ οὖν οὖν ὁ λόγος ἐστί, τοιαίδε ἂν τινες κατοικίδιοι κατατάσσεις εἰεν τοῦ σῶματος, ὡστε ἐκ τῶν παρεόντων τὸ εὔπορον εὐρίσκεσθε· τοῦτο μὲν εἰ τὰ δεσμὰ τὰ ἰμάντια μὴ παρεῖη τὰ
but most operators make less suitable preparation than that which I have described. They do not fasten the thighs together over a good space, but only at the knees; nor do they make extension, though there should be extension as well. Still, some are found to have made reduction, chancing upon an easy case. But the forcible separation is by no means lightly accomplished thus; for the inflated bag does not present its largest part at the articular head of the bone, which it is especially requisite to get levered out, but at its own middle, and perhaps at the middle of the thighs, or still lower down. The thighs, too, have a natural curve; for at the top they are fleshy and close together, but taper off downwards, so that the natural disposition of the thighs also forces the bag away from the most opportune place. If one inserts a small bag, its power being small, it will be unable to reduce the joint. So, if one must use a bag, the thighs are to be bound together over a large space, and the bag inflated simultaneously with the extension of the body; also tie both legs together at their extremity, in this form of reduction.

LXXVIII. What you should put first in all the practice of our art is how to make the patient well; and if he can be made well in many ways, one should choose the least troublesome. This is more honourable and more in accord with the art for anyone who is not covetous of the false coin of popular advertisement. To return to our subject—there are certain homely means of making extension, such as might readily be found among things at hand. First, supposing no soft supple leather holdfasts are
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μαλθακά καὶ προσηνέα, ἀλλ' ἡ σιδήρεα 1 ἡ ὀπλα ἡ σχοινία, ταυτίσι πρή ἡ ἐκρήγμασι τρυχίων ἐρινών περιελίσσει ταύτῃ μᾶλιστα ἡ μέλλει τα δεσμὰ καθέξειν, καὶ ἔτι ἐκ πλέον ἐπειτα οὔτω δεῖν τοῖς δεσμοῖς τοῦτο δὲ, ἐπὶ κλίνῃς πρή ἡ ἢ ἐπὶ ἰσχυρότατη καὶ μεγίστη τῶν παρευσέων κατατετάσθαι καλῶς τῶν ἀνθρωπων τῆς δὲ κλίνης τοὺς πόδας, ἡ τοὺς πρὸς κεφαλῆς ἡ τοὺς πρὸς ποδῶν, ἐρημεῖσθαι πρὸς τὸν οὐδόν, εἰ te ἐξαθένευ συμφέρει, εἰ te ἐσωθεν· παρὰ δὲ τοὺς ἐτέρους πόδας παρεμβεβλῆσθαι ξύλον τετράγωνον πλάγιον, διήκον ἀπὸ τοῦ ποδὸς πρὸς τὸν πόδα, καὶ ἢ μὲν λεπτὸν ὡ τὸ ξύλον, προσδεδέσθω πρὸς τοὺς πόδας τῆς κλίνης, ἢν δὲ παχῦ ἢ, μηδέν 2 ἐπειτὰ τὰς ἀρχαῖς πρῃ τῶν δεσμῶν καὶ τῶν πρὸς τῆς κεφαλῆς καὶ τῶν πρὸς τῶν ποδῶν προσδῆσαι ἐκατέρας πρὸς ὑπερου ἡ πρὸς ἄλλο τι τοιοῦτον· ὡ δὲ δεσμὸς ἐχέτω ἴδιωρίην κατὰ τὸ σώμα ἡ καὶ ὀλίγω ἀνωτέρω, συμμέτρως δὲ ἐκτετάσθω πρὸς τὰ ὑπερα, ὡς, ὰρθὰ ἐστεώτα, τὸ μὲν παρὰ τὸν οὐδόν ἐρείδηται, τὸ δὲ παρὰ τὸ ξύλων τὸ παραβεβλημένον κάπειτα οὔτω τὰ ὑπερα ἀνακλῶντα πρὴ τὴν κατάτασιν ποιεῖν. ἀρκεῖ δὲ καὶ κλίμαξ ἰσχυρῶς ἐχουσα τοὺς κλιμακτῆρας, ὑποτεταμένη ὑπὸ τὴν κλίνην, ἀντὶ τοῦ οὐδοῦ τε καὶ ξύλου τοῦ παρατεταμένου, ὡς τὰ ὑπερα, πρὸς τῶν κλιμακτῆρος τοὺς ἀρμόζοντας ἐνθεν καὶ ἐνθεν προσεσπεισμένα, ἀνακλώμενα, οὔτω τὴν κατάτασιν ποιήται τῶν δεσμῶν.

3 Ἐμβάλλεται δὲ μηροῦ ἄρθρου καὶ τόνδε τὸν

1 σειραλ.
available, one might still wrap up iron chains, ship's tackle, or cords, in scarves, or torn woollen rags, especially at the part where they are fastened on, and somewhat further, and then proceed to bind them on as holdfasts. Again, one should use a bed, the strongest and largest available, for making good extension; \(^1\) the legs of the bed either at the head or foot should press against the threshold, outside or inside, as is opportune, and a quadrangular plank should be laid crosswise against the other legs, reaching from one to the other. If the plank is thin, let it be fastened to the legs of the bed; but if thick, this is unnecessary. Next, one should tie the ends of the bands, both those at the head and those at the feet respectively, to a pestle, or some other such piece of wood. Let the bands be in line with the body, or slanting a little upwards, and evenly stretched to the pestles, so that, when they are vertical, one is pressed against the threshold, the other against the plank laid across; and then one should make the extension by drawing back the pestles thus arranged. A ladder with strong crossbars stretched under the bed is a good substitute for the threshold and cross-beam, so arranged that the pestles may get their fulcrum at either end against suitable crossbars, and, when drawn back, may thus make extension on the bands.

The thigh-joint is also reduced in the following

\(^1\) Littré and Petrequin render \(\kappa\alpha\tau\alpha\tau\epsilon\tau\alpha\sigma\theta\alpha\) simply "coucher"; but the word is used throughout for surgical "extension." Adams: "the patient should be comfortably laid."

\(^2\) \(\alpha\nu\ \delta\epsilon\iota\) (Kw.'s conjecture from \(\alpha\nu\delta\epsilon\nu\) of BMV).
περὶ ἀρϑών

τρόπον, ἢν ἐς τὸ ἔσω ὀλυσθῆκη καὶ ἐς τὸ ἔμπροσθεν κλίμακα γὰρ χρῆ καταρύζαντα ἐπικαθίσαι τὸν ἀνθρωπον, ἐπείτα τὸ μὲν υγιὲς σκέλος ἰσύχως κατατείναντα προσδήσαι, ὅπου ἀν ἀρµῶσῃ ἐκ δὲ τοῦ σιναροῦ ἐς κεράμιον υδωρ ἐγχέας ἐκκρεμάσαι, ἢ ἐς σφυρίδα λίθους ἐμβαλῶν. ἔτερος τρόπος ἐμβολῆς, ἢν ἐς τὸ ἔσω ὀλυσθῆκη στρωτήρα χρῆ καταδήσαι μεταξὺ δύο στῦλων ύψους 50 ἑχοντα σύμμετρον προεχέτω δὲ τοῦ στρωτῆρος κατὰ τὸ ἐν μέρος ὑπὸσον τὸ πυγαῖον1 περιδήσας δὲ περὶ τὸ στήθος τοῦ ἀνθρώπου ἱμάτιον, ἐπικαθίσαι τὸν ἀνθρωπον ἐπὶ τὸ προεχον τοῦ στρωτῆρος ἐίτα προσλαβεῖν τὸ στήθος πρὸς τὸν στῦλον πλατεὶ τινί ἐπείτα τὸ μὲν υγιὲς σκέλος κατεχέτω τις, ὡς μὴ περισφάλληται ἐκ δὲ τοῦ σιναροῦ ἐκκρεμάσαι βάρος, ὅσον ἀν ἀρµῶσῃ, ὡς 58 καὶ πρόσθεν ἡδὴ εὑρήται.

LXXIX. Πρῶτον μὲν οὖν δεῖ εἰδέναι ὅτι πάντων τῶν ὀστέων αἱ συµβολαὶ εἰσιν ὡς ἐπὶ πολὺ ἡ κεφαλὴ καὶ ἡ κοτύλη· ἐφ’ ὄν δὲ καὶ ἡ χώρα κοτυλοεἰδῆς καὶ ἐπίµακρος· ἐνιαὶ δὲ τῶν χωρεῶν γλυνοειδεῖς εἰσίν. ἀεὶ δὲ ἐμβάλλειν δεῖ πάντα τὰ ἐκπίπτοντα ἄρθρα, μάλιστα μὲν εὐθὺς παραχρήμα ἐτὶ θερμῶν ἑόντων· εἰ δὲ μή, ὡς τάχιστα· καὶ γὰρ τῷ ἐμβάλλοντι ῥητέρον καὶ θάσσον ἐστὶν ἐμβάλλειν, καὶ τῷ ἀσθενεύοντι πολὺ ἀπο- 10 νωτέρη ἢ ἐμβολὴ ἢ πρὶν διοιδεῖν ἐστίν. δεῖ δὲ

1 πυγαῖον Littiv.; πυγμαιον Rq.; πυγαῖον vulg., Kw.

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manner, if it is dislocated inwards or forwards. One should fix a ladder in the ground, and seat the patient upon it; then, gently extending the sound leg, fasten it at a suitable point, and from the injured limb suspend a jar and pour in water, or a basket and put in stones. Another way of reducing it, if dislocated inwards:—Fasten a crossbar between two props at a moderate height, and let one end of it project a buttock's length.\(^1\) After passing a cloak round the patient's chest, seat him on the projecting crossbar, and then fasten his chest to the upright with a broad band. Let an assistant hold the sound leg, to prevent him from slipping round, and hang a suitable weight from the injured one, as has already been described.\(^2\)

LXXIX. One must know, to begin with, that the connections between all bones are as a rule the head and the socket. In some, the cavity is large and cup-shaped; but in others, the cavities are shallowly concave. One must always reduce any dislocated joint, preferably at once, and while the parts are still warm; failing that, as soon as possible, for reduction before swelling sets in is accomplished much more easily and quickly by the operator, and is much less painful for the patient. When you are

\(^1\) "What a measure!" says Petrequin, and suggests πυγμαίον. Littré reads πηχυαίον, "a cubit." The reading of the MSS. is supported by Apollonius (both text and illustration), though it is hard to see why the patient should not sit between the posts.

\(^2\) According to Galen, the treatise ended here. The rest is a sort of appendix of fragments, some of them (e.g. LXXX) perhaps genuine parts which were lost and subsequently rediscovered. Most is from Mochlicon, as explained in the Introduction.
πάντα τὰ ἄρθρα, ὅποταν μέλλης ἐμβάλλειν, προαναμαλάξαι καὶ διακιγκλίσαι· ὅτι γὰρ ἐθέλει ἐμβάλλεσθαι. ἐπεὶ δὲ τὰς τῶν ἄρθρων ἐμβολάς ἱσχυσίνειν δεῖ τὸν ἄνθρωπον, μᾶλλον μὲν περὶ τὰ μέγιστα ἄρθρα καὶ χαλεπώτατα ἐμβάλλεσθαι, ἥκιστα δὲ περὶ τὰ ἑλάχιστα καὶ ῥηίδια.

ΧΧΧ. Δακτύλων δὲ ἦν ἐκπεσῆ ἄρθρον τι τῶν τῆς χειρός, ἦν τε τὸ πρῶτον, ἦν τε τὸ δεύτερον, ἦν τε τὸ τρίτον, ωτός [καὶ ἴσος] τρόπος τῆς ἐμβολῆς· χαλεπώτερα μέντοι ἦν τὰ μέγιστα τῶν ἄρθρων ἐμβάλλειν. ἐκπίπτει δὲ κατὰ τέσσαρας τρόποις, ἢ ἄνω ἢ κάτω ἢ ἐς τὸ πλάγιον ἐκατέρωθεν, μᾶλλον μὲν ἢς τὸ ἄνω, ἥκιστα δὲ ἢς τὰ πλάγια, ἐν τῷ σφόδρα κινεῖσθαι. ἐκατέρωθεν δὲ τῆς χώρης, οὐ ἐκβέβηκεν, ὡσπερ ἀμβη ἐστίν. ἦν μὲν οὖν ἢς τὸ ἄνω ἐκπέση ἢ ἢς τὸ κάτω διὰ τὸ λειτοτερὴν εἶναι ταύτην τὴν χώρην, ἢ ἐκ τῶν πλαγίων, καὶ ἀμα μικρῆς ἐσθε σῆς τῆς ὑπερβάσιος, ἦν μεταστῇ τὸ ἄρθρον, ῥηίδιον ἐστὶν ἐμβάλλειν. τρόπος δὲ τῆς ἐμβολῆς ὁδε· περιελέξει τὸν δάκτυλον ἄκρον ἢ ἐπιδέσματι τινὶ ἢ ἄλλῳ τρόπῳ τοιούτῳ τινὶ, ὅπως, ὅποταν κατατέθης ἄκρον λαβόμενος, μὴ ἀπολισθαί· ὅταν δὲ περιελέξης, τὸν μὲν τινὰ διαλαβέσθαι ἄνωθεν τοῦ καρποῦ τῆς χειρός, τὸν δὲ τοῦ κατειλημμένου· ἐπείτα κατατέθην πρὸς ἑωτὸν ἄμφοτέρους εὗ μάλα, καὶ ἀμα ἢποσαι τὸ ἐξεστηκὸς ἄρθρον ἢς τὴν χώρην. ἦν δὲ ἢς τὰ πλάγια ἐκπεσῆ, τῆς μὲν κατατάσσος ωτοῖς τρόποις· ὅταν δὲ ἢ δῆ δοκῇ σοι ὑπερβεβηκέναι τῆν γραμμήν, ἢμα χρὴ κατατείνατας ἢποσαι ἢς τὴν χώρην εὑδὸς, ἢτερον δὲ τινὰ ἢκ τοῦ ἑτέρου
ON JOINTS, lxxix.—lxxx.

going to put in any joint, you must always first make it supple and move it about, for it will thus be more easily reduced. In all cases of reduction, the patient must be put on restricted diet, especially when the joints are very large and very difficult to put in, and least so when they are very small and easy.

LXXX. If any of the finger-joints, whether first, second, or third, is dislocated, the mode of reduction is identically the same, though the largest joints are always the hardest to put in. Dislocation takes place in four ways, up or down 1 or to either side; chiefly upwards, most rarely to the sides, in some violent movement. On each side of the part whence it is displaced there is a sort of rim. Thus, if the displacement is upwards or downwards, it is easier to reduce, because this part is smoother than that at the sides, and the obstacle to get over is small, if the joint is dislocated. The mode of reduction is as follows:—Wrap a bandage or something of the kind round the end of the finger, in such a way that it will not slip off when you grasp the end and make extension. When it is applied, let one person take hold of the wrist from above, the other of the part wrapped up. Next, let each make vigorous extension in his own direction, and at the same time push back the projecting joint into place. In case of lateral dislocation, the mode of extension is the same. When you think it has passed over the line of the joint, push it at once into place, while keeping up the extension; an assistant should keep guard over

1 Or “backwards” or “forwards.”

1 Omit B, Kw. 2 κοτειλιμένου Weber. 3 ἀμβην (Kw.’s conjecture).
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μέρεσ τοῦ δακτύλου φυλάσσειν καὶ ἀνωθεῖν, ὅπως μὴ πάλιν ἐκεῖθεν ἀπολίσθη. ἐμβάλλουσι δὲ ἐπιεικέως καὶ αἱ σαῦραι αἱ ἐκ τῶν φοινίκων πλεκόμεναι, ἢν κατατεῖνης ἔυθεὶ καὶ ἑυθεὶ τὸν δακτύλου, λαβόμενος τῇ μὲν ἐτέρῃ τῆς σαῦρης, τῇ δὲ ἐτέρῃ τοῦ καρποῦ τῆς χειρός. ὅταν δὲ ἐμβάλλης, ἐπίδειν δεὶ ὀδονίουσιν ὡς τάχιστα, λεπτοτάτοις κεκηρωμένοις κηρωτῇ μῆτε λίθν μαλακῇ μῆτε λίθν σκληρᾷ, ἀλλὰ μετρίως ἔχοσθη. ἢ μὲν γὰρ σκληρῇ ἀφέστηκεν ἀπὸ τοῦ δακτύλου, ἢ δὲ ἀπαλῇ καὶ υγρῇ διατήκεται καὶ ἀπόλλυται, θερμαινομένου τοῦ δακτύλου. λύειν δὲ ἄρθρον δακτύλου τριταῖον ἢ τεταρταῖον τὸ δὲ ὅλου, ἢν μὲν φλεγμήνῃ, πυκνότερον λύειν, ἢν δὲ μῆ, ἀραιότερον κατὰ πάντων δὲ τῶν ἄρθρων ταῦτα λέγω. καθίσταται δὲ τοῦ δακτύλου τὸ ἄρθρον τεσσαρεσκαϊδεκαταῖον. ὁ αὐτὸς δὲ ἐστὶ θεραπεῖς τρόπος δακτύλων χειρός τε καὶ ποδὸς.

LXXXI. Παρὰ πάσας δὲ τὰς τῶν ἄρθρων ἐμβολὰς δεὶ ἱσχυάνειν καὶ λιμαγχοῦσιν καὶ ἄχρι ἐβδόμης καὶ εἴ φλεγμαίνωι, πυκνότερον λύειν, εἰ δὲ μῆ, ἀραιότερον ἤσυχήν δὲ δεὶ ἐχεῖν ἀεὶ τὸ πόνεον ἄρθρον, καὶ ὡς κάλλιστα ἐσχηματισμένον κεῖσθαι.

LXXXII. Γόνυ δὲ εὐπρόστερον ἀγκώνος διὰ τῆς εὐσταλίας καὶ τῆς εὐφυίας, διὸ καὶ ἐκπίπτει καὶ ἐμπίπτει ῥίον ἐκπίπτει δὲ πλειστάκις ἔσω, ἀτὰρ καὶ ἐξώ καὶ ὅπισθεν. ἐμβολαῖ δὲ, ἔκ τοῦ
the other side of the finger and make counter-pressure, to prevent another dislocation to that side. The "lizards" \(^1\) woven out of palm tissue are satisfactory means of reduction, if you make extension of the finger both ways, grasping the "lizard" at one end and the wrist at the other. After reduction you must apply at once very light bandages soaked in cerate, neither too soft nor too hard, but of medium consistency; for the hard gets detached from the finger, while the soft and moist is melted and disappears as the finger gets warm. Change the dressing of a finger-joint on the third or fourth day; in general, if there is inflammation, change it oftener; if not, more rarely. I apply this rule to all joints. A finger-joint is healed in fourteen days. The mode of treatment is the same for fingers and toes.

LXXXI.\(^2\) In all reductions of joints, the patient should have attenuating and starvation diet up to the seventh day; if there is inflammation, change the dressing oftener; if not, more rarely. The injured joint should be kept always at rest, and be placed in the best possible attitude.

LXXXII.\(^3\) The knee is more favourable for treatment than the elbow, because of its compact and regular form, whence it is both dislocated and reduced more easily. It is most often dislocated inwards, but also externally and backwards. Modes

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\(^1\) Hollow cylinders of plaited material which contract on being pulled out. Once a well-known toy. Also mentioned by Diocles, who calls them "the lizards which the children plait." Aristotle (P.A. IV. 9) calls them πλεγμάτα, and compares them with the suckers of cuttlefish.

\(^2\) An insertion repeated from §§ LXXIX (end) and LXXX.

\(^3\) From Fract. XXXVIII and Mochl. XXVI
ΠΕΡΙ ΑΡΩΡΩΝ

συγκεκάμφθαι ἡ ἐκλακτίσαι ὁξέως, ἢ συνελίξας ταῦτα ὡγκού, ἐν τῇ ἵγυρῃ θείς, ἀμφί τοῦτον ἐξαίφνης ἢ ὁκλασίν ἀφιέναι τὸ σῶμα. δύναται δὲ καὶ κατατεινόμενον μετρίως, ὤσπερ ὅγκον, ἐμπτέτειν τὰ ὁπισθεν τὰ δὲ ἐνθα καὶ ἐνθα, ἐκ τοῦ συγκεκάμφθαι ἡ ἐκλακτίσαι, ἀτὰρ καὶ ἐκ κατατάσσιος μετρίης. ἦ διόρθωσις ἀπασὶ κοινῆ. ἢν δὲ μὴ ἐμπέσῃ τοῖς μὲν ὁπισθεν, συγκάμπτειν οὐ δύναται, ἀτὰρ οὐδὲ τοῖσι ἀλλοισι πάνυ. μινύθει δὲ μηροῦ καὶ κυήμας τοῦμπροσθεν. ἦν δὲ ἐς τὸ ἐσω, βλαστότεροι, μινύθει δὲ τὰ ἐξω. ἢν δὲ ἐς τὸ ἐξω, γαυσότεροι, χωλοὶ δὲ ἕσον· κατὰ γὰρ τὸ παχύτερον ὀστέον ὁχεῖ, μινύθει δὲ τὰ ἐσω. ἐκ γενεῆς δὲ καὶ ἐν αὐξήσει κατὰ λόγον τὸν πρὸσθεν.

LXXXIII. Τὰ δὲ κατὰ τὰ σφυρὰ κατατάσσιος ἵσχυρῆς δεῖται, ἢ τῆς χερσίν ἢ ἀλλοισι τοιούτοισιν, πάντως καταρθώσιος δὲ ἀμα μιμότερα ποιεύσιης· κοινὸν δὲ τοῦτο ἀπασὶν.

LXXXIV. Τὰ δὲ ἐν ποδὶ ὡς καὶ τὰ ἐν χειρὶ 2 ύγιεῖς. 3

LXXXV. Τὰ δὲ τῆς κυήμας συγκοινωνεῖτα καὶ ἐκπεσόντα ἐκ γενεῆς, ἢ καὶ ἐν αὐξήσει 3 ἐξαρθρήσαντα, ταύτα ἢ καὶ ἐν χειρί.

LXXXVI. Ὁκόσοι δὲ πηδήσαντες ἁνώθεν

1 τοῖσιν. 2 ύγιῇ Mochl. 3 μὴ ἐμπεσόντα Mochl.
of reduction: by flexion or a sharp kick upwards (? jerking the leg upwards), or placing a rolled bandage in the ham, on which the patient brings the weight of his body by crouching suddenly. Suitable extension can reduce backward dislocations, as with the elbow. Those to one or the other side are put in by flexion or leg-jerking, and also by suitable extension. Adjustment\textsuperscript{2} is the same for all. If there is no reduction, in posterior cases patients cannot flex the limb, but they can hardly do so in the others; there is atrophy of the thigh and leg in front. If inwards, they are more knock-kneed, and there is atrophy of the outer side; if outwards, they are more bandy, but not so lame, for the weight comes on the larger bone; the inner side atrophies. Cases which occur congenitally or during adolescence follow the rule given above.

LXXXIII.\textsuperscript{3} Dislocations at the ankle require strong extension, either with the hands or other such means, and a rectification involving the two\textsuperscript{4} combined. This is common to all.

LXXXIV. Dislocations in the foot heal in the same way as those in the hand.

LXXXV. The bones connecting the foot with the leg, whether dislocated from birth or put out during adolescence, follow the same course as those in the hand.

LXXXVI. Those who in leaping from a height

\textsuperscript{1} In Hippocrates \textit{Concii Prenotiones} 108 it is applied to involuntary "jerking of the legs."

\textsuperscript{2} The slight variation in \textit{Morch}. XXVI seems to favour Pq.'s rendering. "This (\textit{i.e.} extension) is common to all cases."

\textsuperscript{3} Partly repeated in § LXXXVII.

\textsuperscript{4} Extension and counter-extension? Extension and adjustment? It seems an obscure summary of \textit{Fract.} XIII.
ΠΕΡΙ ΑΡΘΡΩΝ

ἐστηρίζαντο τῇ πτέρνῃ, ὡστε διαστήματα τὰ ὀστέα καὶ φλέβας ἐκχυμωθῆναι καὶ νεῦρα ἀμφί-
φλασθῆναι, ὅποταν γένηται οἶα τὰ δεινὰ, κῑν-
δυνὸς μὲν σφακελίζαντα τὸν ἀιώνα πρῆγματα
παρασχεῖν ῥοιόδη μὲν τὰ ὀστέα, τὰ δὲ νεῦρα
ἀλλήλοις κοινωνέοντα. ἔπει καὶ οἶσιν ἂν μά-
λιστα καταγείσιν ἢ ὑπὸ τρόμοματο ἢ ἐν κνήμη
ἡ ἐν μηρᾶ, ἢ νεῦρων ἀποπληθέντων ἂ κοινωνεῖ
tούτων, ἢ ἐκ κατακλίσιος ἀμελεός, ἐμελάνθη ἡ
πτέρνη, καὶ τούτοις τὰ παλιγκοτέοντα ἢ τῶν
tοιούτων. ἔστω ὅτε καὶ πρὸς τῷ σφακελισµῷ
γίνονται πυρετοὶ ὁξεῖς λυγμώδεις, γνώμης ἀπ-
τόμενοι, ταχυθάνατοι, καὶ ἐτὶ φλεβῶν αἰμορ-
ροιέων πελιώσιες. σημεῖα δὲ τῶν παλιγκοτη-
σάντων, ἢν τὰ ἐκχυμώματα καὶ τὰ μελάσματα
καὶ τὰ περὶ ταύτα ὑπόσκληρα καὶ ὑπέρνθρα. ἢ
ἡν δὲ σὺν σκληρύσματι πελιδυσθῆ, κῑνδυνὸς
μελανθῆναι. ἢν δὲ ὑποπέλια ἡ, ἢ καὶ πέλια
μᾶλα καὶ ἐκχυμώμενα, ἡ ὑπόχλωρα καὶ μιαλ-
κά, ταῦτα ἐπὶ πάσι τοῖς τοιοῦτοις ἀγαθά.
ἡσις, ἡν μὲν ἀπύρετος ἡ, ἐλλέβορον ἢν δὲ μή,
μὴ ἀλλὰ ποτὸν ἀνύγλυκυ, εἰ δέοι. ἐπίδεσις δὲ
ἀρθρῶν ἐπὶ δὲ πάντα, μᾶλλον τοῖς φλάσμασιν,
θυνίσαι πλεόσι καὶ μαλθακωτέροις τιεξις
ἡσοςον, προσπεριβάλλειν δὲ τὰ πλεῖστα τῇ πτέρ-
νῃ. τὸ σχῆμα, ὡπερ ἡ ἐπίδεσις, ὡς μὴ ἐξ τὴν
πτέρνην ἀποπιέζειται, νάρθηξι δὲ μὴ χρῆσθαι.

LXXXVII. Οἴσι δὲ ἂν ἐκβῆ ὁ ποὺς ἢ αὐτὸς
ἡ σὺν τῇ ἐπιφύσει, ἐκπίπτει μὲν μᾶλλον ἐς τὸ
ἔσω. ἢν δὲ μὴ ἐμπέσῃ, λεπτύνεται ἀνά χρόνον

1 ὑπέρνθρα ἡ Mochl.
ON JOINTS, lxxxvi.—lxxxvii.

come down on the heel, so that the bones are separated, and there is extravasation of blood and contusion of ligaments—when grave injuries such as these occur, there is danger of necrosis and life-long trouble; for the bones slip easily, and the ligaments are in connection with one another. Further, when in cases of fracture especially, or a wound either of leg or thigh, or when the ligaments joining up with these parts are torn away, or from carelessness as to position in bed, mortification of the heel has set in, in these patients also such causes give rise to exacerbations. Sometimes acute fevers follow the necrosis, with hiccoughs, affecting the mind and rapidly fatal; there are also lividities from haemorrhage. Signs of exacerbation are ecchymoses, blackenings of the skin with some induration and redness of the surrounding parts. If the lividity is accompanied with hardness, there is danger of mortification; but if the part is sublivid or even very livid after ecchymosis, or greenish yellow and soft, these are good signs in all such cases. Treatment: if there is no fever, hellebore, otherwise not, but let him drink oxymel, if required. Bandaging: that used for joints; over all, especially in contusions, use plenty of soft bandages; pressure, rather slight; additional bandaging, especially round the heel. Attitude: the same object as in bandaging, so as to avoid pressure on the heel. Do not use splints.

LXXXVII. In cases where the foot is dislocated, either by itself or with the epiphysis, it is usually displaced inwards; and if not reduced, the hip,
ΠΕΡΙ ΑΡΘΡΩΝ

tό τε ἵσχίον καὶ ὁ μηρός, καὶ κυήμης τὸ ἀντίον
tοῦ ὀλισθήματος. ἐμβολὴ δὲ ἄλλη,1 ὅσπερ
carpou, κατάτασις δὲ ἵσχυρὴ ἤσις δὲ, νόμος
ἀρθρων. παλιγκοτεί, ἦσον δὲ καρποῦ, ἢν
ἡσυχίασμοιν. διαίτα μείων ἐλινύουσι. τό δὲ
9 ἐκ γενεῆς ἢ ἐν αὐξήσει, κατὰ λόγου τὸν πρότερον.

1 δὲ ἄλλη omit Mochl. and translators, except Py.
thigh and leg become in time attenuated on the side opposed to the dislocation. Reduction in other respects as for the wrist; but strong extension is required. Treatment: that customary for joints. Exacerbation occurs, but less than in wrist cases, if the patients keep at rest. Diet more reduced; they do no work. Congenital and adolescent cases follow the rule given before.¹

¹ See notes on these chapters in Mochlicon, pp. 425–429.
ΜΟΧΛΙΚΟΝ

1. 'Οστέων φύσις: δακτύλων μὲν ἀπλὰ καὶ ὀστέα καὶ ἀρθρα, χειρῶς δὲ καὶ ποδὸς πολλά, ἄλλα ἀλλόως συνηρθρωμένα: μέγιστα δὲ τὰ ἀνωτάτω. πτέρυγας δὲ ἐν, οἰον ἐξω φαίνεται, πρὸς δὲ αὐτὴν οἱ ὁπίσθιοι τένοντες τείνουσιν. κυήμας δὲ δύο, ἀνωθὲν καὶ κάτωθεν συνεχόμενα, κατὰ μέσον δὲ διέχουτα σμικρῶν τὸ ἔξωθεν, κατὰ τῶν σμικρῶν δάκτυλου λεπτότερον βραχεῖ, πλεῖστον δὲ ταύτη διεχούσῃ καὶ σμικροτέρῃ ῥοπῇ κατὰ γόνω, καὶ ὁ τένων ἐξ αὐτοῦ πέφυκεν, ὁ παρὰ τὴν ἰγνύμην ἐξω. ἔχουσι δὲ κάτωθεν κοινὴν ἐπίφυσιν πρὸς ἢν ὁ ποὺς κινεῖται: ἄλλην δὲ ἀνωθὲν ἔχουσιν ἐπίφυσιν, ἐν ἢ τὸ τοῦ μηροῦ ἀρθρον κινεῖται, ἀπλόον καὶ εὐσταλές ὡς ἐπὶ μήκει· εἴδος κονδυλῶδες, ἔχον ἐπιμυλίδα: αὐτὸς δὲ ἐγκυρτός ἐξω καὶ ἐμπροσθεν· ἢ δὲ κεφαλή ἐπίφυσις ἄστι στρογγυλή, ἐξ ἢς τὸ νεῦρον τὸ ἐν τῇ κοτύλῃ τοῦ ἰσχίου πέφυκεν· ὑποπλάγιον δὲ καὶ τοῦτο προσηρτηταὶ, ἢσον δὲ βραχίονος. τὸ δὲ ἰσχίον προσίσχεται πρὸς τῷ μεγάλῳ σπονδύλῳ τῷ παρὰ τὸ ἱερὸν ὀστέον χονδρονευρώδες δεσμῷ.

1 ΜΟΧΛΙΚΟΣ Litré; and the word is used as a synonym for μοχλάσκως in XLIII: but ΜΟΧΛΙΚΟΝ is supported by the MSS., and by the analogy of ΠΡΟΦΝΩΣΤΙΚΟΝ and ΠΡΟΦΡΗΣΙΚΟΝ. Cf. also Galen XVIII.(2) 327.
INSTRUMENTS OF REDUCTION

I. Nature of bones. In the fingers and toes, both bones and joints are simple; but in hand and foot they are diverse and diversely articulated, the uppermost being largest. The heel has a single bone which appears as a projection, and the hind tendons pull upon it. There are two leg-bones joined together above and below, but slightly separated in the middle. The outer one, towards the little toe, is rather more slender, most so in the separated part, and in the smaller inclination at the knee;¹ and the tendon on the outer side of the ham has its origin from it. They have below a common epiphysis on which the foot moves; and above they have another epiphysis, in which the articular end of the thigh-bone moves. This is simple and compact, considering the length of the bone; it is knuckle-shaped, and has a knee-cap. The bone itself is curved outwards and forwards; its head is a spherical epiphysis, from which the ligament arises which has its attachment in the cavity² of the hip, this (tendon)³ is inserted rather obliquely, but less so than that of the arm.⁴ The hip-bone is attached to the great vertebra⁵ next the sacrum by a fibro-cartilaginous ligament.

¹ Or, "with the greatest deviation (from the vertical) at this point, and less at the knee"; but the passage is obscure.
² Acetabulum.
³ Ligamentum teres.
⁴ Long head of the biceps.
⁵ Fifth lumbar.
Ράχις δὲ ἀπὸ μὲν τοῦ ἱεροῦ ὡστέου μέχρι τοῦ μεγάλου σπονδύλου κυψή. κύστις τε καὶ γούνη καὶ ἄρχοι τὸ ἐγκεκλιμένον ἐν τούτῳ. ἀπὸ δὲ τούτου ἄχρι φρενῶν ἦλθεν ἡ ἱδύλλορδος, καὶ αἱ ψόαι κατὰ τοῦτο ἐντεῦθεν δὲ ἄχρι τοῦ μεγάλου σπονδύλου τοῦ ὑπὲρ τῶν ἐπωμίδων ἱδυκυψής· ἐτὶ δὲ μᾶλλον δοκεῖ ἡ ἐστὶν ἀἱ γὰρ ὀπίσθεν τῶν 30 σπονδύλων ἀποφύσιες ταύτῃ ύψηλόταται· τὸ δὲ τοῦ αὐχένου ἄρθρου λορδῶν. σπονδύλοι δὲ ἐσωθὲν ἄρτιοι πρὸς ἀλλήλους, ἀπὸ δὲ τῶν ἐξωθέν χώνδρων νεύρω συνεχόμενοι· ἢ δὲ συμμετρωσις αὐτῶν ἐν τῷ ὀπίσθεν τοῦ νοτιᾶον· ὀπίσθεν δὲ ἐχουσίν ἐκφύσιν οὔσιαν ἐχοῦσαν ἐπίφυσιν χώνδρωδεα· ἐτθεν νεύρων ἀποφύσις καταφερής, ὡσπερ καὶ οἱ μῦς παραπεφύκασιν ἀπὸ αὐχένος ἐς ὀσφύν, πληροῦντες δὲ πλευρέων καὶ ἀκάνθης τὸ μέσον. πλευράι δὲ κατὰ τὰς διαφύσιας τῶν 40 σπονδύλων νευρίῳ προσπεφύκασιν ἀπ' αὐχένος ἐς ὀσφύν ἐσωθὲν, ἐπίπροσθεν δὲ κατὰ τὸ στήθος χαῦνον καὶ μαλθακὸν τὸ ἄκρον ἐχουσαί εἴδως ραίβοιεσθατον τῶν ςώων· στενότατος γὰρ ταύτῃ ὁ ἄνθρωπος ἐπ' θάγκον· ἡ δὲ μὴ πλευραί εἰσιν, ἐκφύσις πλαγίη, βραχεία καὶ πλατεία· ἐφ' ἐκάστῳ σπονδύλῳ νευρίῳ προσπεφύκασιν.

Στήθος δὲ συνεχὶς αὐτῷ ἑωυτῷ, διαφύσια ἐχοῦν πλαγίια, ἡ πλευραί προσηρτηνται, χαῦνον δὲ καὶ χονδρώδες. κληίδες δὲ περιφερέεις ἐς 50 τοὺμπροσθεν, ἐχουσαι πρὸς μὲν τὸ στήθος βραχείας κινήσιας, πρὸς δὲ τὸ ἀκρόμιον συχοστέρας. ἀκρόμιον δὲ ἐς ύμοιπλατέως πέφυκεν, ἀνομοιως δὲ τοιςι πλείστοιςι· ὑμοπλατή δὲ
The spine from the end of the sacrum to the great vertebra is convex backwards. The bladder, generative organs, and inclined portion of the rectum are in this part. From here to the diaphragm it ascends in a forward curve, and there are the psoa-muscles; but thence up to the great vertebra above the shoulders it rises in a curve backwards, and seems more convex than it is, for the backward processes of the vertebrae are here at their highest. The neck-joint is concave behind. The vertebrae on the inside are fitted to one another, being held together by a ligament from the outer side of the cartilages; but their jointing (synarthrosis) is behind the spinal cord, and they have posteriorly a sharp process with a cartilaginous epiphysis. Hence arise the ligaments which pass downwards, just as muscles also are disposed at the side from neck to loins, filling up the part between the ribs and the spinal ridge. The ribs are attached by a ligament at the intervals between the vertebrae from neck to loins behind, but in front to the breast-bone, having the termination spongy and soft. In shape they are the most curved of any animal; for man is flattest here in proportion to his size. Where there are no ribs, there is a short and broad lateral process; they are connected with each vertebra by a small ligament.

The sternum is a continuous bone, having lateral interstices where the ribs are inserted; it is spongy and cartilaginous. The collar-bones are rounded in front, having slight movements at the sternal end, but more extensive ones at the acromion. The acromion has its origin from the shoulder-blades in a different way from that in most animals.² The

² See notes on Joints XIII.
χονδρώδης τὸ πρὸς ῥάχιν, τὸ δ’ ἄλλο χαύνη, τὸ ἰμώμαλον ἔξω ἔχουσα, αὐχένα δὲ καὶ κοτύλην ἔχουσα χονδρώδεα, ἐξ ἧς αἱ πλευραὶ κίνησιν ἔχουσι, εὐαπὸλυτος ἐῴσα ὀστέων, πλήν βραχίονος. τούτον δὲ ἐκ τῆς κοτύλης νευρῆ ἢ κεφαλή ἐξήρτηται, χόνδρον χαύνου περιφερή ἐπίφυσιν ἔχουσα: αὐτὸς δ’ ἐγκυρτὸς ἔξω καὶ ἐμπροσθὲν πλάγιος, οὐκ ὄρθος πρὸς κοτύλην τὸ δὲ πρὸς ἀγκώνα αὐτοῦ πλατὺ καὶ κονδυλώδες καὶ βαλβιδώδες καὶ στερεὸν, ἐγκοιλον ὀπισθεῖν, ἐν ὃ ἡ κορώνη ἢ ἐκ τοῦ πίθεος, ὅταν ἐκταθῇ ἢ χεῖρ, ἐνεστῶν ἐς τοῦτο καὶ τὸ ναρκῶδες νέρον, ὅ ἐκ τῆς διαφύσιος τῶν τοῦ πίθεος ὀστέων, ἐκ μέσων ἐπιφυκε καὶ περαιώτει.

Π. Ἡς δὲ κατεγείσα ἀναπλάσσεσθαι οὖν τε αὐθωρών. κην μὲν οὖν ὁ χόνδρος, ἐντίθεσθαι2 ἄχυρην ὀθονίου, ἐναποδεοῦτα λοπῷ Καρχηδοίνῳ, ἢ ἐν ἄλλῳ ὅ μὴ ἐρεθεῖτ’ τῷ λοπῷ δὲ τὰς παράλυξιας παρακολλάν καὶ ἀναλαμβάνειν ταῦτα δὲ ἐπίδεσις κακὰ ποιεῖ.3 Ἰῃσὶς ἄλλῃ ἀμα δὲ τῶ συμβαλεῖν σῶν μάνην4 ἢ θείῳ σῶν κηρωτῇ αὐτίκα ἀναπλάσσειν, ἐπείτα ἄνακωχήσειν, τοῦτο δακτύλοισι ἐσματευόμενοι καὶ παραστρέφοντα.

καὶ τὸ Καρχηδοίνου πωροῖτο ἀν καὶ ἦν ἔλκος ἑνή καὶ ἦν ὀστέα ἀπίεναι μέλλῃ—οὐ γὰρ παλιγκοτώτατα—οὕτω ποιητέα.

1 τὸ.
2 ἐντίθεναι: Littre, Kw.
3 καταποιεῖ codd.; κακοποιεῖ M marg.; κακὰ ποιεῖ Lit. conj.
4 ἄλητῳ σῶν μάνην.

1 Long tendon of the biceps.
2 Galen U.P. II. 14. Our “olecranon.” Both processes of the ulna were called κορωνῶν, because of their semicircular shape.
INSTRUMENTS OF REDUCTION, i.–ii.

shoulder-blade is cartilaginous in the part towards the spine, and spongy elsewhere; it has an irregular shape on the outer side, and the neck and articular cavity are cartilaginous. Its disposition allows free movement to the ribs, since it is not closely connected with the bones, except that of the upper arm. The head of this bone is attached to its socket by a small ligament, and has a rounded epiphysis of spongy cartilage. The bone itself is convex outwards and oblique in front, and does not meet the cavity at right angles. Its elbow end is broad, knuckle-shaped, and grooved; it is also solid, and has a hollow at the back, in which the coronoid process of the ulna is lodged when the arm is extended. Here too the cord which stupefies, arising from the interstice between the bones of the forearm, has its issue and termination.

II. A fractured nose is a thing to be adjusted at once. If the cartilage is the part affected, introduce lint, rolling it up in thin Carthaginian leather, or in some other non-irritant substance. Glue strips of the leather to the distorted parts, and raise them up. Bandaging does harm in these cases. Another treatment: while bringing the parts together, apply frankincense or sulphur with cerate; adjust at once. Afterwards keep it up by inserting the fingers, feeling for and reducing the deviation; also the Carthaginian leather. It will consolidate, even though there be a wound; and if bones are going to come away—for there are no very grave exacerbations—this is the treatment to use.

3 Surely our ulnar nerve (funny-bone), though Foës and others call it "a ligament void of sensation."

4 Pp. renders "depresses," reading καταποιεῖ, as opposed to ἀναπλάσσειν.
III. Οὕς κατεαγέν μὴ ἐπιδεῖν, μηδὲ καταπλάσσειν· ἵνα δὲ τι δέη, ὡς κοινφότατον, ἡ κηρωτή· καὶ θείω κατακολλαίν. ὃν δὲ ἐμπνευ ἐς ὁ ἀσέ ἀπὸ παχέος εὐρίσκεται, πάντα δὲ τὰ ὑπόμυξα καὶ τῇ ὑγρῇ σαρκὶ πλήρεα ἔξαπατά· οὐ μὴ βλάβη [γένηται] ́1 στομωθέν τὸ τοιοῦτον ἔστι γὰρ ἄσαρκα καὶ ὑδατώδεα, μύξης πλέα· ὡποῦ δὲ καὶ οἷα ἑόντα θανατώδει ἔστι, παρεθέντα. ́2 ὡτων καυσίς πέρην, τάχιστα ὑγιάζει· κυλλὼν δὲ καὶ μεῖον γίνεται τὸ ὦς, ἤν πέρην καυθή. ἤν δὲ ́1 στομωθή, κούφω ἐναίμο δεῖσει χρῆσθαι.

IV. Γνάθοι δὲ κατασποῦνται μὲν πολλάκις καὶ καθίστανται· ἐκπίπτουσι δὲ ὀλγάκις, μάλιστα μὲν χασμωμένοισιν· οὐ γὰρ ἐκπίπτει, ἤν μὴ τις χανών μέγα παραγάγοι· ἐκπίπτει δὲ μᾶλλον, ὅτι τὰ νεῦρα ἐν πλαγίῳ καὶ λελυγμένα συνδίδοι. σημεῖα· προῖσχει ἡ κάτω γνάθος καὶ παρέστραπται τὰναντία τοῦ ἐκπτόματος· συμβάλλειν οὐ δύνανται· ἤν δὲ ἀμφότεραι, προῖσχουσι μᾶλλον, συμβάλλουσιν ἱσσον, ἀστραβέες· δηλοὶ δὲ τὰ ὀρια τῶν ὀδόντων τὰ ἄνω τοῦσι κάτω κατ’ ἤξιον. ἤν οὖν ἀμφότεραι ἐκπεσοῦσαι μὴ αὐτίκα ἐμπέσωσι, θυήσκουσὶ δεκαταιοῦ οὕτω μᾶλιστα πυρετῶ συνεχεὶ ἱωθῆρ τε καρώσει· οἱ γὰρ μῦς οὕτω τοιοῦτοι. γαστήρ ἐπιταράσσεται ὀλίγα ἄκρητα· καὶ ἤν ἐμέωσι, τοιαῦτα ἐμέουσιν· ἡ δ’ ἐτέρη ἁσινεστήρη. ἐμβολὴ δὲ ἡ αὐτή ἀμφοτέρων· κατακειμένου ἢ καθημένου τοῦ ἀνθρώπου, τῆς

1 Kw. omits. 2 Cf. Art. XL. παρείται.
III. Do not bandage a broken ear, and do not apply a plaster. If one is required, let it be erate plaster as light as possible, and agglutinate with sulphur. When there is suppuration of the ears, it is found at a depth; for all pulpy tissues and those full of moisture are deceptive. There is certainly no harm in opening such an abscess, for the parts are fleshless and watery, full of mucus; but the position and nature of abscesses which cause death are not mentioned. Perforating cautery of the ears cures a case very quickly; but the ear becomes mutilated and smaller if it is burnt through. If an abscess is opened, a light wound application must be used.

IV. The jaw is often partially displaced, and reduces itself. It is rarely put out, and that chiefly when yawning; for it is not put out unless it is drawn to one side during a wide yawn; and dislocation occurs the more because the ligaments, being oblique and twisted, give way. Symptoms: the lower jaw projects and deviates to the side opposite the dislocation; patients cannot close the mouth. If both sides are dislocated, the projection is greater, ability to close the mouth less, no deviation; this is shown by the upper row of teeth corresponding in line with the lower. If, then, bilateral dislocation is not reduced immediately, these patients usually die in ten days with continuous fever, stupor and coma; for such is the influence of the muscles in this region. The bowels are affected, and there are scanty, undigested motions; if there is vomiting, it is of a similar nature. One-sided dislocation is less harmful. Reduction is the same in both cases; the patient being either
κεφαλής ἐχόμενον, περιλαβόντα τὰς γνάθους ἀμφοτέρας ἀμφοτέρησι χερσίν ἔσωθεν καὶ ἐξωθεν, τρία ἂμα ποιήσαν ὃσαὶ ἐς ἄρθρον καὶ ἐς τούτισσω, καὶ συσχεῖν τὸ στόμα. ἦσις μαλάγμασι καὶ σχῆμας καὶ ἀναλίψει γενείου ποιούσι ταῦτα 1 τῇ ἐμβολῇ.

V. "Ὡμος δὲ ἐκπίπτει κάτω ἄλλῃ δὲ οὕτω ἢκουσα. δοκεί μὲν γὰρ ἐς τοῦμπροσθέν ἐκπίπτειν, ὃν οἱ σάρκες αἱ περὶ τὸ ἄρθρον μεμεινθήκασι διὰ τὴν φθίσιν, 2 οίον καὶ τοῖσι βουσὶ χειμῶνος φαίνεται διὰ λεπτότητα. καὶ ἐκπίπτει μᾶλλον τοῖσι δὲ λεπτοῖσιν ἢ ἱσχυοῦσιν ἢ ξηροίσι καὶ τοῖσιν ὑγράσματα περὶ τὰ ἄρθρα ἔχουσιν ἀνεν φλεγμονῆς. αὕτη γὰρ συνεδρέοι δὲ καὶ βουσιν ἐμβάλλοντες καὶ ἀποπεραώντες εξαμαρτάνουσι, καὶ ὅτι διὰ τὴν χρήσιν, ὡς χρήται βοῦς σκέλει, λήθει, καὶ ὅτι κοινῶν καὶ ἀνθρώπῳ οὕτως ἔχοντι τὸ σχῆμα τούτο τοῦ τε Ὀμήρειον καὶ διότι λεπτότατοι βοεῖς τημικαῦτα. ὅσα τοῦ πῆχυν πλάγιον ἀπὸ πλευρέων ἄραντες δρῶσιν, οὐ πάνυ δύνανται δρᾶν, οὐσιν ἀν μὴ ἐμπέσῃ. οὐσι μὲν οὖν ἐκπίπτει μάλιστα, καὶ ὡς ἔχουσιν, εὐρηται. οὐσὶ δὲ ἐκ γενεῆς, τὰ ἐγγύτατα μᾶλλον βραχύνεται υστέα, οὐσιν ἐν τούτῳ οἱ γαλαίγκωνες πῆχυς δὲ ᾫσσον, χεῖρ δὲ ἐπὶ ᾫσσον, τὰ δ' ἀνωθέν 20 οὐδέν καὶ ἀσαρκότατα ἐγγύς μινύθει δὲ μάλιστα

1 ταῦτα.
2 Littre’s correction. φῶς MSS. would give sense, but the writer is evidently copying Joints I.

1 The safety-pin was a very ancient instrument. Cf. Iliad XIV. 180. It is strange that there is no other mention
INSTRUMENTS OF REDUCTION, iv.–v.

lying down or seated, his head fixed, take hold of both sides of the jaw with both hands, inside and out, and perform three actions at once—get it straight, thrust it back, and shut the mouth. Treatment: with emollients, position, and support of the chin; these things co-operate in the reduction.

V. The shoulder is dislocated downwards. I have no knowledge of any other direction. It appears indeed to be dislocated forwards in cases where the tissues about the joint have diminished through wasting disease, as one observes also with cattle in winter, because of their leanness. Dislocation occurs preferably in thin and slight subjects, or those of dry habit; also those who have the region of the joints charged with moisture without inflammation, for this braces them up. Those who use reductions and fixations with fibulae in oxen are in error, and forget that the appearance is due to the way the ox uses its leg, and that this attitude is common also to man in the same condition—also the Homeric quotation, and the reason why oxen are very thin at that time. Actions requiring lateral elevation of the arm from the ribs are quite impossible for patients in whom the joint is not reduced. The subjects, then, most liable to dislocation, and their condition, have been described. In congenital cases, the proximal bones are shortened most, as is the case with the weasel-armed; the forearm less than the arm, the hand still less, and parts above the lesion not at all; the most fleshless parts are near the lesion. Atrophy occurs especially on the side of it in the Hippocratic surgical works. That it was then in surgical use for closing wounds seems indicated by Eur. Bacchae 97.
tà ἐναντία τῶν ὑλισθημάτων, καὶ τὰ ἐν αὐξήσει, ἢσον δὲ τινὶ τῶν ἐκ γενεῆς. καὶ τὰ παραπνῆματα, τὰ κατ’ ἀρθρον βαθέα, νεογενέσι μάλιστα παρ’ ὃμοι γίνεται, καὶ τούτῳιν ὅσπερ τὰ ἑξαρθρήσαντα ποιεῖ. ἦν δὲ ηὐξημένωσι, τὰ μὲν ὅστεα οὐ μειοῦται, οὔτε γὰρ ἔχει ἡ ἄλλα οὐ συναύξεται ὁμοίως, αἱ δὲ μινυθήσεις τῶν σαρκῶν. τούτο γὰρ καθ’ ἠμέρην καὶ αὐξεῖται καὶ μειοῦται, καὶ καθ’ ἡλικίας. καὶ ἦ δύναται σχῆματα, καὶ αὐτὸ σημείων τὸ παρὰ τὸ ἀκρόμιον κατεσπασμένον καὶ κοίλου, διότι ὅταν τὸ ἀκρόμιον ἀποσπασθή καὶ κοίλου ἦ, οὕτωτι τὸν βραχίονα ἐκπεπτωκέναι· κεφαλὴ δὲ τοῦ βραχίονος ἐν τῇ μασχάλῃ φαίνεται· αἵρειν [γὰρ]¹ οὐ δύναται, οὔτε παράγειν ἐνθα καὶ ἐνθα ὄμειδος· ὁ ἐτερὸς ὃμοιος μηνύει. ἐμβολαὶ δὲ· αὐτὸς μὲν τὴν πυγμὴν ὑπὸ μασχάλῃ ὑποθεῖς τὴν κεφαλὴν ἀνωθεῖν, τὴν δὲ χειρὰ ἐπιπαράγειν ἐπὶ τὸ στῆθος. ἀλλὰ· ἐς τοῦτοις περιαναγκάσατι, ὡς ἀμφισφαλῆ. ἀλλὰ· κεφαλὴ μὲν πρὸς τὸ ἀκρόμιον, χειρὶ δὲ ὑπὸ μασχάλην, κεφαλὴν ὑπάγειν βραχίονος, γούνασι δὲ ἀγκῶνα ἀπωθεῖν, ἢ ἀντὶ τῶν γουνάτων τῶν ἀγκῶν τῶν ἐτερον παράγειν ὡς τὸ πρότερον· ἢ κατ’ ὃμοιον ἤσσεθαί, ὑποθεῖς τῇ μασχάλῃ τῶν ὃμοιοι· ἢ τῇ πτέρυγῃ ἐνθείτα ἐκπληρώματα τῇ μασχάλῃ, δεξιὰ δεξιῶν· ἢ περὶ ὑπερον· ἢ περὶ κλιμακτήρα· ἢ περίοδος σὺν τῷ ξύλῳ τὸ ὑπὸ χειρὰ τευμομένῳ. ἦσις· τὸ σχῆμα, πρὸς πλευρῆσι βραχίων, χεῖρ

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INSTRUMENTS OF REDUCTION, v.

opposite to the dislocations, and when they occur during adolescence, but is somewhat less than in congenital cases. Deep suppurations at a joint occur in infants, especially at the shoulder, and have the same effect as dislocations. In adults there is no shortening, for there is no opportunity for one bone to have less growth than another; but there is atrophy of the tissues; for in the young there is increase and decrease, both daily and according to age. [Consider] too the effect of attitudes, and also what is indicated by the hollow at the point of the shoulder, due to avulsion; for when the acromion is torn away and there is a hollow, people think the humerus has been dislocated. If so, the head of the humerus is found in the armpit, the patients cannot lift the arm, nor move it to either side equally; ¹ the other shoulder is an index. Modes of reduction: let the patient put his fist in the armpit, push up the head of the bone, and bring the arm to the chest. Another method: force the arm backwards, so as to make a movement of circumduction. Another: with the head against the point of the shoulder, and the hands under the armpit, lift the head of the humerus, and push back the elbow with the knees, or, instead of using the knees, let the assistant bring the elbow to the side, as above; or suspend the patient on the shoulder, putting it under the armpit, or with the heel, putting plugs into the armpit, using the right heel for the right shoulder, or on a pestle or ladder; or make a circular movement with the wood (lever) fixed under the arm. Treatment; position; arm to

¹ Or, "as before"

¹ Omit.
ΜΟΧΛΙΚΟΝ

άκρη ἄιω, ὠμος ἄιω· σύτως ἐπίδεισις, ἀνάληψις.

50 ἢν δὲ μὴ ἐμπέσῃ, ἀκρώμιον προσλεπτύνεται.

VI. Ἀκρώμιον ἀποσπασθεῖν, τὸ μὲν εἰδος

φαίνεται οἷον περ ὠμον ἐκπεσόντος, στερίσκεται

δὲ οὐδενὸς, ἐς δὲ τὸ αὐτὸ οὐ καθίσταται. σχῆμα

τὸ αὐτὸ ὁ' καὶ ἐκπεσόντι, ἐν ἐπιδέσει καὶ ἀνα-

5 λήψει: ἐπίδεισι καὶ ὡς νόμος.

VII. Ἀγκῶνος ἄρθρον παράλλαξαν μὲν ῥ

πρός πλευρὴν ἢ ἔξω, μένοντος τοῦ ὄξεος τοῦ ἐν

τῷ κοίλῳ τοῦ βραχίωνος, ἐς ἰθ' κατατείνουτα,

4 τὰ ἐξέγοντα ἀνωθεῖν ὀπίσω καὶ ἐς τὸ πλάγιον.

VIII. Τὰ δὲ τελέως ἐκβάντα ἢ ἐνθα·

κατάτασις μὲν ἐν ἢ ὁ βραχίον ἔπιδειταί

σύτω γὰρ τὸ καμπύλον τοῦ ἀγκῶνος οὐ κωλύσει.

ἐκπίπτει δὲ μάλιστα ἐς τὸ πρὸς πλευρέα μέρος.

τὰς δὲ κατορθώσιας, ἀπάγοντα ὅτι πλεῖστον, ὡς

μὴ ψαύῃ τῆς κορώνης ἢ κεφαλῆς, μετέωρον δὲ

περιάγειν καὶ περικάμψαι, καὶ μὴ ἐς ἰθ' ἐβιάζεσθαι,

ἀμα δὲ ὠθείν τάναντια ἐφ' ἐκάτερα,

καὶ παρωθεῖν ἐς χώρην. συνισφελοücü δ' ἀν καὶ

10 ἐπίστρεψις ἀγκῶνος ἐν τοῦτοιν, ἐν τῷ μὲν ἐς

τὸ ὑπτίον, ἐν τῷ δὲ ἐς τὸ πρηνές. ἐμβολὴ δὲ·

8 σχῆματος μὲν ὀλίγον, ἀνωτέρῳ ἄκρην χείρα

ἀγκῶνος ἔχειν, βραχίωνα δὲ κατὰ τὰς 11 πλευράς·

οὕτω δὲ ἡ ἀνάληψις, 12 καὶ εὐφορον, καὶ χρήσις ἐν

τῷ κοίλῳ, ἢν ἃρα μὴ κακῶς πωρωθῇ, πωροῦται

δὲ ταχέως. ἦσις. 13 ὦθονίοις κατὰ τὸν νόμον τὸν

17 ἀρθριτικόν, καὶ τὸ ὄξυ προσεπίδειν.

IX. Παλιγκοτώτατον δὲ ἀγκὼν 14 πυρετοῖσι,

ἵδιν, 15 ἀσώδει, ἀκρηποχόλωρ ἀγκόνος δὲ μάλιστα

ὀπίσω διὰ τὸ ναρκῶδες, δεύτερον τὸ ἐμπροσθεν.

ἵσις ἡ αὐτή 16 ἐμβολαί δὲ τοῦ μὲν ὀπίσω ἐκ-
ribs, hand elevated, shoulder elevated; bandaging and support in this attitude. If not reduced, the point of the shoulder atrophies as well.

VI. Avulsion of the acromion (process of the shoulder-blade), appears in form like a dislocation of the shoulder, but there is no loss of function; yet it does not stay in place when reduced. Position as regards bandaging and support the same as in a case of dislocation; the bandaging follows the customary rule.

VII–XIX. *Mochlicon* VII–XIX corresponds verbally (except a few "various readings" such as occur in different MSS.) with *Joints* XVII–XXIX. Instead of repeating the translation, we may, therefore, attempt a few explanatory notes; for dislocation of the elbow has always been an obscure subject, owing to the complicated form of the joint, and the presence of three bones.

All the chief surgical commentators, Apollonius, Adams, Petrequin, agree that VII represents dislocation of the radius only, in directions which we call "forwards" and "backwards"; though Galen says that *Fractures* XXXVIII, of which it is an epitome, refers to partial lateral dislocations of the ulna. "Diastasis" (X) can hardly mean anything else than dislocation of the radius in the other possible direction—outwards, or away from the ulna.

1 These are given in the notes.
MOXLIKON

τείνοντα¹ κατατείναι. σημεῖον δὲ οὐ γὰρ δύναν-
tαι ἐκτείνειν: τοῦ δὲ ἐμπροσθεὶν οὐ δύνανται συγκάμπτειν. τούτῳ δὲ ἐνθέντα τι σκληρὸν συνειλιγμένον, περὶ τοῦτο συγκάμψαι ἐξ ἐκτάσιος

9 ἐξαίφνης.

Χ. Διαστάσιος δὲ ὡστέον σημεῖον κατὰ τὴν
φλέβα τὴν κατὰ τὸν βραχίονα σχιζομένην

3 διαφανόντι.

XI. Ταῦτα δὲ ταχέως διαπωροῦται· ἐκ γενεῖς
δὲ, βραχύτερα τὰ κάτω ὀστέα τοῦ σίνεος,²
πλεῖστον τὰ ἐγγύτατα πῆχεος, δεύτερον χειρός,
τρίτον δακτύλων. βραχίων δὲ καὶ ὄμος ἐγκρα-
tέστερα διὰ τὴν τροφὴν ἢ δ' ἐτέρη χεῖρ διὰ τὰ
ἐργα πλείω ἐτι ἐγκρατεστέρη. μινύθησις δὲ
σαρκῶν, εἰ μὲν ἔξω ἐξέπεσεν, ἔσω·³ εἰ δὲ μῆ, ἐς
8 τούναντίον ἢ ἢ ἐξέπεσεν.

ΧII.⁴ Ἀγκών δὲ ἢν μὲν ⁵ ἐσω ἢ ἔξω ἐκβη,
κατάτασις μὲν ἐν σχῆματι ἐγγονίζω, κοινῷ τῷ
πῆχει πρὸς βραχίωνα· καὶ μασχάλην ἀναλαβὼν⁶
tαινῷ ἀνακρεμάσαι, ἀγκῶνι δὲ ἀκρῷ ὑποθεῖσ ⁷
τι παρὰ τὸ ἄρθρον βάρος ἐκκρεμάσαι, ἢ χερσὶ
καταναγκάσαι. ὑπεραιωρηθέντος δὲ τοῦ ἄρθρου,
αἱ παραγωγαὶ τοῖς θέναρσιν, όσ τὰ ἐν χερσίν,
ἐπίδεσεν ἐν τούτῳ τῷ σχῆματι, καὶ ἀνάληψις καὶ
9 θέσις.

ΧIII.⁸ Τὰ δὲ ὁπισθεὶν, ἐξαίφνης ἐκτείνοντα
διορθοῦν τοῖς θέναρσιν ἄμα δὲ δεὶ ἐν τῇ διορ-
θώσει, καὶ τοῖς ἑτέροις. ἢν δὲ πρόσθεν,
ἀμφὶ ὀδῷνοι συνειλιγμένοι, εὐογκοῦν, συγκάμπ-
5 τοῦτα ἄμα διορθοῦσθαι.⁹

¹ ἐκτείνοντα. ² τοῦ σίνεος ὀστέα. ³ ἐσωθεν.
INSTRUMENTS OF REDUCTION, IX.-XIII.

As regards complete dislocations, Littré and Adams refer those in VIII to lateral cases, and those in IX to dislocation forwards and backwards; while Petrequin, turning the bend of the elbow inwards, takes the opposite view. The most frequent and mildest form of complete dislocation is that of the forearm backwards (or the humerus forwards), and the Hippocratic writers can only be got to agree with this by assuming the Petrequin attitude; for they evidently describe this form as a dislocation of the humerus inwards (cf. Fract. XL, XLI). The dislocation "backwards" which specially affects the ulnar nerve would thus be our external lateral dislocation of the forearm.

Still, the accounts remain obscure and often difficult to accommodate with facts; nor do we get much help from the existence of a sort of double epitome, XII and XIII repeating VIII and IX from a more practical standpoint, while XIV refers to the radius dislocations noticed above in VII and X.

The account of wrist dislocation (XVI, XVII) combines theoretic clearness with even greater practical obscurity. As Adams says, "in the wrist, nothing is more common than fracture, and nothing more rare than dislocation." Yet the epitomist gives us a neat schematic arrangement of dislocation in all four directions, and says nothing of fracture, unless we take "with the epiphysis" to imply this. The original account is lost; but its essence is doubtless contained in Joints LXIV, on compound dislocations of the wrist.

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4 Variant of VIII.
6 ἀνάλοβιτα.
8 Cf. IX.
5 Omit μὲν.
7 ὑποθεῖτα.
9 δισορθοῦν.
XIV. Ἡν δὲ ἐτεροκλινές ἡ, ἐν τῇ διορθώσει ἀμφότερα χρή ποιεῖν, τῆς δὲ μελέτης τοῦ σχῆμα καὶ ἡ ἐπίδεσις, δύναται γὰρ ἐκ τῆς διατάσεως κοινῆς συμπίπτειν πάντα. ΧV. Τῶν δὲ ἐμβολεῶν αἱ μὲν ἐς ὑπεραιωρῆσιος ἐμβάλλονται, αἱ δὲ ἐκ κατατάσεως, αἱ δὲ ἐκ περισφάλσιος, αὐταὶ δὲ ἐκ τῶν ὑπερβολεῶν τῶν σχημάτων ἡ τῇ τῇ σὺν τῷ τάχει.

XVI. Χειρῶς δὲ ἀρθρον ὀλισθάνει ἡ ἐσώ ἡ ἐξω, ἐσω δὲ τᾷ πλείστα. ἑμεῖς δὲ δέν ἐσω, συγκάμπτων ὅλως σφῶν τοὺς ἀκτύλους οὐ δύναται ἡν δὲ εξω, ἐκτείνει. ἐμβολὴ δὲ ὑπὲρ τραπέζης τοὺς ἀκτύλους ἔχουν, τοὺς μὲν τείνειν, τοὺς δὲ ἀντιτείνειν τὸ δὲ ἔχον ἡ δέναιρ ἡ πτέρνη ἀμα ἀπωθεῖν πρὸσῳ καὶ κάτωθεν, κατὰ τὸ ἐτερον ὑστεῶν ὄγκου τε μαλθακῶν ὑποθείς, κην μὲν ἀνω, καταστρέψας τὴν χειρά, ἡν δὲ κάτω, ὑπτήν. ἵππος, θυονίωσιν.

XVII. Ὅλη δὲ χειρ ὀλισθάνει ἡ ἐσω ἡ ἐξω, μάλιστα δὲ ἐξω, ἡ ἐνθα ἡ ἐνθα. ἐστὶ δ' ὅτε ἡ ἐπίφυσις ἐκείνη ἐστὶ δ' ὅτε τὸ ἐτερον τῶν ὑστεῶν δίεστη. τούτοις κατάτασις ἰσχυρή ποιητή, καὶ τὸ μὲν ἔχον ἀπωθεῖν, τὸ δὲ ἐτερον ἀντωθεῖν, δύο εἶδεν ἀμα καὶ ἐς τούπεσω καὶ ἐς τὸ πλάγιον, ἡ χερσίν ἐπὶ τραπέζης ἡ πτέρνη. παλιγκοτα δὲ καὶ ὑσχήμονα, τῷ χρόνῳ δὲ κρατύνεται ἐς χρῆσιν. ἵππος, θυονίωσιν σὺν τῇ χειρί καὶ τῷ πήχει καὶ νάρθηκας μέχρι δακτύλων τιθέναι ἐν νάρθηξι δὲ τεθέντα ταῦτα πυκνότερον λύειν ἡ τὰ κατήγματα, καὶ καταχύσει πλέον χρήσθαι.

1 Cf. VII. 2 Add τῆς θεραπείας. 3 Add καλ. 4 ἀπαντα.
Here the writer evidently describes dislocation of the bones of the forearm from the wrist; while the epitomist (unless, with Littré and Petrequin, we put some strain on the Greek) speaks of dislocation of the hand, but follows Hippocrates in saying that "when the dislocation is inwards (our 'forwards'), they cannot flex the fingers, when outwards, they cannot extend them."

This is the view of Celsus (VIII. 17), and is most in accordance with modern experience—when the hand is dislocated backwards, the flexor tendons are on the stretch and the fingers cannot be extended, and vice versa, though exceptions have been observed, and the accidents are too rare and complicated for the establishment of neat rules. The typical "dislocation" of the wrist is the fracture of the end of the radius, known as Colles's fracture.

The brief account of congenital dislocation (XVIII) may have been added to complete the picture. The results described are those of all congenital dislocations, as frequently given in Joints. Perhaps, however, "nothing can show more remarkably the attention which our author must have paid to the subject than his being acquainted with a case of such rarity" (Adams).1

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1 Littré treats these subjects at length in his Introductions, and Petrequin at still greater length in his Notes and Excursus. They confirm the observation of Adams that a full discussion would lead to no conclusion, and would be tedious even to professional readers.

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6 Omit ἀλωσι σφών. 6 Add καὶ ἡθένν.
7 πρόσω κάτω, κάτωθεν. 8 δὲ.
10 ὑποί δὲ. 11 ἡ ἐνθα ἡ ἐνθα, μάλιστα δὲ ἐσώ.
12 καὶ ἡ ἐπίφυσις. 13 δὲθέντα.

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MOXAIKON

XVIII. Ἐκ γενεῆς δὲ, βραχυτέρη ἡ χεῖρ γίνεται, καὶ ἡ¹ μινύθησις σαρκῶν μάλιστα ταναντία ἡ ὡς² τὸ ἐκπτωμα· ηὐξημένῳ δὲ τὰ ὅστεα μένει.

XIX. Δακτύλου δὲ ἄρθρον ὀλισθὸν μὲν εὐσημον [οὐ δεὶ γράφειν],³ ἐμβολὴ δὲ αὐτοῦ ἢδε⁴ κατατείναντα ἐς θυ τὸ μὲν ἐξέχον ἀπωθεῖν, τὸ δὲ ἐναντίον ἀντωθεῖν. ὦσις δὲ ἡ προσήκουσα,⁵ τοῖς ὁθονίουσι ἐπίδεσις,⁶ μὴ ἐμπεσὸν γὰρ ἐπιπωροῦται ἐξωθεῖν. ἐκ γενεῆς δὲ ἡ ἐν αὐξήσει ἐξαρθρήσαντα τὰ ὅστεα βραχυντεῖται κατώ,⁷ τοῦ ὀλισθήματος· καὶ σάρκες μινύθουσι ταναντία μάλιστα ἡ ὡς ἐκπτωμα· ηὐξημένῳ δὲ τὰ ὅστεα μένει.

XX. Μηροῦ ἄρθρον ἐκπίπτει κατὰ τρόπους τέσσαρας· ἐσώ πλεῖστα, ἐξω δεύτερου, τὰ δὲ ἄλλα ὁμοίως. σημεῖα· κοινῶν μὲν τὸ ἐτερον σκέλος· ἱδιον δὲ τοῦ μὲν ἐσώ. παρὰ τὸν περίναιον ἐκεῖ δὲ μακρότερον σκέλος, καὶ πολὺ, ἢ ἂν ἐς μέσον ἀμφότερα ἄγων παρατείνης· καὶ γὰρ οὐὶ ἐξο ὁ ποὺς καὶ τὸ γώνον ῥέπει. ἢ ἂν μὲν ὁν ἐκ γενεῆς ἢ ἔν αὐξήσει ἐκπέση, βραχυτέρος ὁ μηρός, ἥσσον δὲ κυήμη, κατὰ λόγον δὲ τάλλα· μινύθουσι δὲ σάρκες, μάλιστα δὲ ἐξω. οὕτωι κατοκύνευσιν ὀρθοῦσθαι, καὶ εἰλέονται ἐπὶ τὸ ύγιες· ἢ ἂν δὲ ἀναγκαζωται, σκιρμοῦν ἐνι ἡ δυσιν ὀδοιπορέουσι, τὸ δὲ σκέλος αἱροῦσιν· ὁς χαρ μεῖον, τὸ σω ῥόμον. ἢν δὲ ηὐξημένουσι, τὰ μὲν ὅστεα μένει, αἱ

¹ Omit ἡ. ² ἡ ἢ. ³ Omit (“probably a gloss.” Kw.). ⁴ Omit αὐτοῦ ἢδε. ⁵ Omit ἡ προσήκουσα. ⁶ Omit ἡ προσήκουσα.
INSTRUMENTS OF REDUCTION, xviii.—xx.

The problem of the knee (XXVI) seems insoluble. All writers, from the author of Mochlicon to Ambroise Paré, copy the statement of Hippocrates (Fract. XXXVII) that dislocation is frequent and of slight severity. We know that it is rare and requires great violence which usually has serious results. Suggestions such as confusion with “internal derangement,” or displacement of the knee-cap, seem unsatisfactory. The existence of some peculiar grip in wrestling which dislocated the knee without further injury seems the most probable explanation. One of the modern causes—being dragged in the stirrup by a runaway horse—was absent in antiquity.

XX. The thigh-joint is dislocated in four ways, most frequently inwards, secondly outwards, in the other directions equally. Symptoms: in general, comparison with the other leg. Peculiar to internal dislocation: the head of the thigh-bone is felt towards the perineum; they do not flex the thigh as on the other side; the leg appears longer, especially if you do not bring both legs to the middle line for comparison, for the foot and knee incline outwards. If then the dislocation is congenital, or occurs during adolescence, the thigh is shortened, the lower leg less so, and the rest in proportion. There is atrophy of the tissues, especially on the outer side. These patients shrink from standing erect, and wriggle along on the sound leg. If they have to stand up, they walk with a crutch or two, and keep the leg up, which they do more easily the smaller it is. In adults the bones are unaltered, but
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dè σάρκες μινύθουσι, ώς προείρηται. οδοι·
πορέουσι δὲ περιστροφάδην, ώς βόες, ἐν δὲ
κενεδον ἱκαμπύλοι, ἐπὶ τὸ υγίες ἐξίσχιοι εόντες·
tῷ μὲν γὰρ ἀνάγκῃ υποβαίνειν ὡς ὀχή, τὸ δὲ
ἀποβαίνειν (οὐ γὰρ δύναται ὁχεῖν), ὡσπερ οἱ ἐν
ποδὶ ἔλκοι ἔχοντες. κατὰ δὲ τὸ υγίες, πλάγιον
ξύλῳ τῷ σώματι ἀντικοντοῦσι, τὸ δὲ σιναρὸν τῇ
χειρὶ υπὲρ τοῦ γόνατος καταναγκάζοσι ὡς ὁχεῖν
ἐν τῇ μεταβάσει τὸ σῶμα. ἑσχὴν κάτωθεν εἰ
χρήται, κάτωθεν ἦσον μινύθει καὶ τὰ ὅστεά,
μᾶλλον δὲ σάρκες.

XXI. Τοῦ δὲ ἔξω τάναντία καὶ τὰ σημεία καὶ
ἀι στάσιες· καὶ τὸ γόνυ καὶ ὁ ποὺς ἔξω ῥέπει
βραχύ. τοῖσι δὲ ἐν αὐξῆσθαι ἢ ἐκ γενεῖς παθοῦσιν
οὐχ ὁμοίως συναύξεται 6 κατὰ τὸν αὐτὸν λόγον·
ἰσχίων ἀνωτέρω τινί, ὡς ὁμοίως. οἰσὶ δὲ πυκνὰ
ἐκπίπτει ής τὸ ἔξω ἄνευ φλεγμονῆς, ὑγροτέρῳ τῷ
σκέλει χρῶνται, ὡσπερ ὁ μέγας τῆς χειρὸς
dάκτυλος· μάλιστα δὲ οὕτος ἐκπίπτει φύσει· οἷς
μὲν ἐκπίπτει μᾶλλον ἦ ἦσον, καὶ οἷς μὲν ἐκπίπ-
τει χαλεπώτερον ἦ ῥήιον, καὶ οἴσων ἐλπὶς θᾶσσων
ἔμπεσείν, καὶ οἴσων οὐκ ἀκὴ τούτον, καὶ οἴσω
πολλάκις ἐκπίπτει, ἦσος τούτον. ἐκ γενεῖς δὲ ἦ
ἐπ' αὐξῆσθαι ἦν νοῦσῳ (μάλιστα γὰρ ἐκ νοῦσου)
ἐστι μὲν [οὖν] 7 οἴσῳ ἐπισφακελίζει τὸ ὀστεόν,
ἀτὰρ καὶ οἴσει μή, πάσχει μὲν πάντα, ἦσον δὲ ἦ
τὸ ἔσω, ἦν χρυστῶς ἐπίμεληθόσων, ὡς τε καὶ ὅλω
βαίνοντας τῷ ποδὶ διαρρίπτειν· διὰ μελέτης

1 τῷ κενεδον. 2 τῇ. 3 πλάγιοι. 4 ἑσχὴν κατωτέρω. 5 κάτω τε. 6 Kw. puts colon after συναύξεται. 7 Omit.

1 Cf. J. LIV.

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there is atrophy of the tissues in the way described. They walk with shambling gait, like oxen, bent in at the loin and projecting at the hip on the sound side; for they have to bring the leg under to serve as support, and keep the other leg out (for it cannot give support), like people with a wound on the foot. On the sound side they use a staff as a lateral prop, and press down the injured limb with the hand above the knee, so as to support the body in the change of step. If the part below the hip is used, there is less atrophy of the bones (below). It occurs more in the tissues.

XXI. In outward dislocation, both symptoms and attitudes are the reverse. Knee and foot incline slightly inwards. In adolescent or congenital patients there is inequality of growth, in the same proportion (as with inward dislocation). Hip somewhat elevated, not corresponding. Those in whom outward dislocation is frequent without inflammation have the limb more charged with humours, as is the case with the thumb; for this is by its nature most liable to dislocation. In some the dislocation is more or less complete; in some it takes place with more or less difficulty; in some there is hope of speedy reduction; in some there is no cure for the condition; in cases of frequent dislocation there is a treatment. In congenital and adolescent cases, and those due to disease (for disease is the principal cause), in some cases there is necrosis of bone, but in others not. They have all the affections above mentioned, but to a less degree than those with internal dislocation, if they are well eared for, so as to balance themselves and walk on the whole foot. The youngest require the greatest care. Left to
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πλείστης τοῖσιν ἕπιστόμους ἐναθέντα κακοῦτα, ἐπιμεληθέντα δὲ ὡφελεῖται τοῖσιν ὅλοισιν, ἃσσον
20 δὲ τι, μινύθουσι.

XXII. Οἶσι δ' ἂν ἀμφότερα οὕτως ἐκπέσῃ, τῶν ὁστῶν ταύτα παθήματα: εὐσαρκοὶ μὲν, πλὴν ἔσωθεν, ἐξεχειλουτοί, ζοικοὶ μηροί, ἢ μὴ ἐπισφα-κελίσῃ. εἰ κυφοὶ τὰ ἀνωθεν ἵσχίων γένοιτο, ύμη-5 ροὶ μὲν, ἀνανεῖς δὲ τὸ σῶμα, πλὴν κεφαλῆς.

XXIII. Οἶσι δὲ ὅπισθεν, σημεῖα: ἐμπροσθεν λαπαρώτεροι, ὅπισθεν ἐξέχουν, ποὺς ὀρθός συγκάμπτειν οὐ δύνανται, εἰ μὴ μετ’ ὀδύνης, ἐκτεινεῖν ἤκιστα: τούτοις σκέλος βραχύτερον. ἀτὰρ οὐδ’ ἐκτανύειν δύνανται κατ’ ἱγνύῃν ἢ ¹ κατὰ βουβώνα, ἢν μὴ πάνω αἷρωσιν, οὐδὲ συγκάμπτειν. ἤγειται ἐν τοῖσι πλείστοισι τὸ ἄνω ἄρθρον τὸ πρῶτον κοινὸ τοῦτο ἄρθροισι, νεύροισι, μυσίν, ἔντεροισιν, ὑστέρησιν, ἀλλοισιν: τούτοις τοῦ ἰσχίου τὸ ἀστέον καταφέρεται εἰς τὸν γλυστον’ διὰ τοῦτο βραχύ, καὶ ότι εἰκεῖσθαι οὐ δύνανται. σάρκες παντὸς τοῦ σκέλος εἰ πᾶσι μινύθουσιν ἕξ’ οἶσι δὲ μάλιστα, καὶ οἱ, ² εἰρηται: τὰ ἔργα τὰ ἐωτοῦ ἑκαστον τοῦ σώματος ἐργαζόμενον μὲν ἰσχύει, ἄργεον δὲ κακοῦτα, πλὴν κόπου, πυρετοῦ, φλεγ-μονῆς. καὶ τὸ ἐξω, ότι ἔσαρκα ὑπείκουσαν, βραχύτερον τὸ δὲ ἐσω, ότι ἐπ’ ὁστέον προέχουν, μακρότερον. ἢν μὲν οὖν ἥξιμενοις μὴ ἐμπέσῃ, ἐπὶ βουβώσι καμπύλοι ὁδοιπορεοῦσι, καὶ ἡ ἔτερῃ

¹ ἢ = “and not” (cf. Surg. XIV); but Kw. reads ήν from J. LVII.
² I.e. “to what extent” (?) ; but Kw. (M) has ἢ.

1 Hardly intelligible without reference to J. LVII.

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itself, the lesion gets worse; if cared for, it improves. There is atrophy of all the parts, but somewhat less (than in dislocation inwards).

XXII. When both hips are thus dislocated, the bones are similarly affected. The patients have well-nourished tissues, except on the outer side; they have prominent buttocks, and arched thighs, unless there is also necrosis of the bone. If they become hump-backed above the hips, they retain health; but the body ceases to grow, except the head.

XXIII. Symptoms of posterior dislocation: anterior region rather hollow, posterior projecting, foot straight; they cannot flex the thigh without pain, nor extend it at all; the limb is shorter in these cases. Note also that people cannot do extension at the knee and not at the groin unless they lift it quite high, nor can they flex. In most cases the proximal joint takes precedence (in function); this applies to the joints, ligaments, muscles, intestines, uterus, and other organs. In these dislocations, the hip-bone is carried to the buttock, which causes the shortening and inability to extend the joint. In all cases there is atrophy of the tissues throughout the leg; in which cases this occurs most, and where, has been explained. Each part of the body which performs its proper function gets strong; but when idle, it deteriorates, unless the inaction is due to fatigue, fever, or inflammation. External dislocation, because it is into yielding tissue, produces shortening: internal, because it is on to projecting bone, lengthening. If then it is unreduced in adults, they walk in a bent attitude at the groins.

1 I.e. movements, including contractions, start from above.
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20 ἵνα ὑπὸ κάμπτεται στήθεσι μόλις καθικινεῖται 
χειρὶ τὸ σκέλος καταλαμβάνει, ἀνεύ ξύλου, ἢν ἔθελωσιν. ὴν μὲν γὰρ μακρότερον ἥ, οὐ βῆσεται ἢν δὲ βαίνῃ, βραχύ. μινύθησις δὲ σαρκῶν, οἷς πόνοι, καὶ ἡ ἑξῆς ἐμπροσθεν, καὶ τὸ ὑγιεῖ κατὰ λόγον. οἴσι δὲ ἐκ γενεῖς ἢ αὐξομένουις ἢ ὑπὸ νουσοῦ ενώσισε καὶ ἔξαρθρα ἐγένετο (ἐν αἰσ, εἰρήσεται), οὕτω μᾶλλον κακοῦνται διὰ τὴν τῶν νεύρων καὶ ἀρθρῶν ἀργήν καὶ τὸ ὑγὸν διὰ τὰ εἰρημένα συγκακοῦνται. συγκεκαμμένον οὕτω
30 ἔχουτες ὀδοιπορεοῦσιν ἐπὶ ξύλου, ἐνὸς ἢ δῦο. τὸ
31 δὲ ὑγιές, εὐσαρκον διὰ χρῆσιν.

XXIV. Οἴσι ἐς τούμπροσθεν, σημεῖα τάναντίας ὁπισθεν λαπαρὸν, ἐμπροσθεν ἑξέχον ἢκιστα συγκάμπτοσιν οὕτω τὸ σκέλος, μάλιστα δὲ ἐκτείνουσι ἔρθος ποὺς, σκέλος ἵσον, πτέρνα, βραχεῖ ἄκρως ἀνέσταλται. [ἡ]³ πονέουσι μάλιστα οὕτω αὐτίκα, καὶ οὐρον ἵσχεται μάλιστα εὖ τούτοις τοῖσιν ἐξαρθρῆμασιν ἐν γὰρ τόνοισιν ἐγκεῖται τοῖσιν ἑπικαίροισιν. τὰ ἐμπροσθέν κατατέταται [ἀναυξέα, νοσώδεα, ταχύγηρα]⁴ τὰ
10 ὁπισθεν στολισώδεις, οἶσιν ἥξυμμενοισιν, ὀδοιπορεοῦσι ὄρθοί, πτέρνη μᾶλλον βαίνοντες εἰ δὲ ἡδύναντο μέγα προβαίνειν, καὶ πάνυ σύρουσι δὲ. μινύθει δὲ ἢκιστα, τούτοις δὲ ἡ χρῆσις αὐτίκα μάλιστα δὲ ὁπισθεν διὰ παντὸς τοῦ σκέλεος, ὀρθότεροι τοῦ μετρίου, ξύλου δέονται κατὰ τὸ

¹ μόγις.
² κινεῖται codd.; ἰκνεῖται Littré.
³ Kw. deletes. Perhaps ἡ emphatic.
⁴ Words from J. LVIII referring to effects of disuse, evidently out of place here.

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and the sound knee is flexed. The ball of the foot barely reaches the ground; they hold the leg with the hand if they choose to walk without a crutch. A crutch for walking should be short; if too long, he will not use the foot. There is wasting of the flesh in painful cases\(^1\) down the front, and on the sound side in proportion. In congenital and adolescent patients, or where the dislocation follows disease (what the diseases are will be explained), these cases especially go to the bad through disuse of the sinews and joints; and the knee shares in the deterioration, for the reasons given. They walk with the leg flexed, on one or two crutches; but the sound limb is well nourished, because it is used.

XXIV. In cases of dislocation forwards the symptoms are reversed; hind region depressed, front projecting. These patients are least able to flex the leg, but have most power to extend it. The foot is straight, and the leg equal to the other, if measured to the heel; the foot is a little drawn up at the tip. Now these patients suffer especially at first, and there is a special liability to retention of urine in these dislocations; for the bone lies upon cords of vital importance. The parts in front are stretched [cease to grow, and are liable to disease and premature age]; the hinder parts are wrinkled. In the case of adults, they walk erect, chiefly on the heel, and, if they could take long strides, would do so entirely; but they drag the leg. There is very little atrophy in these cases on account of the exercise, and it is chiefly in the hinder parts. Because the whole leg is straighter than it should be, they require a crutch

\(^1\) Pq. renders "in those who exercise the limb" (!); surely the sense is, "where it is too painful to use."
σιναρόν. οἴσι δὲ ἐκ γενεῖς ἡ ἀνξομένοισι, χρη- στῶς μὲν ἐπιμεληθεῖσιν ἡ χρήσις, ὦσπερ τοῖσιν ἡμύξημενοισιν· ἀμεληθείσι δὲ βραχύ, ἐκτεταμένοιν· πωροῦται¹ γὰρ τούτοισι, μάλιστα δὲ ς ἢθυ τὰ 20 ἀρθρα: αἱ δὲ τῶν ὅστεών μειώσιες καὶ αἱ τῶν 21 σαρκῶν μινυθήσιες κατὰ λόγον.

XXV. Μηροῦ δὲ κατάτασις μὲν ἵσχυρῆ καὶ ἡ διόρθωσις κοινῆ, ἡ χερσίν ἡ σανίδι ἡ μοχλῶ, τὰ μὲν ἐσω στρογγύλῳ, τὰ δὲ ἐξω πλατεί, μάλιστα δὲ τὰ ἐξω. καὶ τὰ μὲν ἐσω ἁσκοίσων ἀκεσάμενον ἐς τὸ ὑπόξηρον τοῦ μηροῦ, κατα- τάσιος δὲ καὶ συνδέσιος σκελέων· κρεμάσαι διαλείποντα σμικρὸν τοὺς πόδας, ἐπείτα πλέξαντα ἐκκρεμασθῆναι τινα, ἐν τῇ διορθώσει ἀμφότερα ἁμα ποιεῖντα. καὶ τὸν ἐμπροσθεν τοῦτο ἰκανὸν καὶ τοῖσιν ἐτέροισιν, ἦκιστα δὲ τῶ ἐξω. ἡ τοῦ ἐξου ὑπόστασις,² ὦσπερ ὁμοῖο, ὕπο τὴν χεῖρα, οἰς ἐσω· τοῖσι γὰρ ἀλλοισιν ἡσον καταναγ- κάσεις δὲ μετὰ διατάσιοι, μάλιστα τῶν ἐμπροσθεν ἡ ὄσπισθεν, ἡ ποδὶ ἡ χειρὶ ἐφίξεσθαι

15 ἡ σανίδι.

XXVI. Γόνν δὲ εὐνθέστερον ἀγκόνος διὰ τὴν εὐσταλίην καὶ εὐφυίην, διὸ καὶ ἐκπιπτει καὶ ἐμπίπτει ρδιν. ἐκπιπτει δὲ πλειστάκις ἐσω, ἀταρ καὶ ἐξω καὶ ὄσπισθεν. ἐμβολαί δὲ· ἡ ἐκ τοῦ συγκεκάμφθαι, ἡ ἐκλακτίσαι ὄσεως, ἡ συνε- λύξας ταινίης ὄγκον, ἐν ἰγνύῃ θείς, ἀμφὶ τοῦτον ἐξαιφνης ἐς ὁκλασιν ἀφεῖναι τὸ σῶμα, [μάλιστα

¹ πηροῦται, perhaps the correct reading, as in J. L.X. Foës, Littre, Kw.
² ὑπόστασις.
on the injured side. In congenital and adolescent cases, if exercise is well managed, they get on like adults; but in neglected patients, the leg is short and extended. Ankylosis occurs in these cases, with the joints usually in an extended position. The shortening of the bones and atrophy of the tissues are according to rule.

XXV. For the thigh strong extension is required, and the adjustment in all cases is with the hands or a board or lever, rounded for internal, flat for external dislocations. The external cases want it most. As to internal cases, there is a treatment with bags to the tapering part of the thigh, with extension and binding together of the legs. Suspend the patient with his legs slightly parted; then let someone be suspended from him, twisting [his arms between the patient's legs],\(^1\) performing both acts of adjustment at once (extension and leverage outwards). This suffices in anterior dislocation and the rest, but is no good in the external form. The plan with wood beneath the limb, as under the arm in shoulder dislocation, suits internal cases, but is not so good in the others; you will succeed in reducing anterior and posterior cases especially by double extension, using foot or hand or a plank to make pressure from above.

XXVI-XXXI. In these chapters we have an epitome of an obscure subject already given verbally (with a few various readings) in Joints LXXXII-LXXXVII. Instead of repeating the English version, we may therefore attempt some explanation of the difficulties.\(^2\) The chief of these are:—Why is there no mention of the astragalus in ankle dis-

\(^1\) Cf. J. LXX.
\(^2\) For note on § XXVI, see p. 417.
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ἐν τῇ τῶν ὁπισθεν·¹ δύναται δὲ καὶ κατα-
10 τευνόμενα μετρίως, ὀσπερ ἀγκών, ἐμπίπτειν τὰ ὁπισθεν· τὰ δὲ ἐνθα ἢ ἐνθα, ἐκ τοῦ συγκεκάμφθαι ἡ ἐκλακτίσαι ἡ [ἐν] κατατάσσει, [μάλιστα δὲ αὐτῇ ² τὸ ὁπισθεν]. ἀτὰρ καὶ ἐκ κατατάσσιος μετρίης, ἡ διόρθωσις ἀπασὶ κοινῆ. ἦν δὲ μὴ ἐμπέσῃ, τοῖσι μὲν ὁπισθεν συγκάμπτειν οὐ δύνανται, ἀτὰρ οὐδὲ τοίσιν ἀλλοισιν πάνυ τι. μινύθει δὲ μηροῦ καὶ κυνήμης τὸ ἐμπροσθεν. ἦν δὲ ἐς τὸ ἐσω, βλαί-
20 σότεροι, μινύθει δὲ τὰ ἐξω. ἦν δὲ ἐς τὸ ἐξω, γαυσότεροι, χωλοὶ δὲ ἤσον· κατὰ γὰρ τὸ παχύτερον ὡστέον ὁχεὶ· μινύθει δὲ τὰ ἐσω. ἐκ

XXVII. Τὰ δὲ κατὰ σφυρὰ κατατάσσιος ἱσ-
χυρῆς δεῖται, ἡ τῆσι χερσὶν ἡ ἀλλοισι τοιοῦτοισι, κατορθώσιος δὲ ἀμα ἠμφότερα ποιεύσης· κοινὸν
4 δὲ πᾶσιν.

1 XXVIII. Τὰ δὲ ἐν ποδί, ὡς τὰ ἐν χειρὶ, ὕγιη.
XXIX. Τὰ δὲ ἐν τῇ κυνήμη συγκοινωνεῦοντα καὶ μὴ ἐμπεσόντα, ἐκ γενεώς καὶ ἐν αὐξήσει
3 ἐξαρθρήσαντα, ταῦτα ἄ καὶ ἐν χειρὶ.
XXX."Οσοὶ δὲ πηδίσαντες ἀνωθεν ἐστιη-
10 ρίζαντο τῇ πτέρνῃ, ὡστε διαστήματα τὰ ὡστέα καὶ φλέβας ἐκχυμωθῆναι καὶ νεῦρα ἄμφιφλασθῆναι, ὅταν γένηται οία τὰ δεινότατα, κίνδυνος μὲν σφακελίσαντα τὸν αἱώνα πρήγματα παρασχεῖν καὶ ῥοικώδη 3 μὲν τὰ ὡστέα, τὰ δὲ νεῦρα ἀλ-
λῆσοι κοινωνεῦοντα. ἐπεὶ καὶ οἶσιν ἂν κατεα-
γείσιν ἡ ὑπὸ τρόμματος, οία ἐν κυνήμη, ἡ μηρῷ, νεῦρον ἀπολυθέντων ἃ κοινωνεῖ τοιούτωσιν, ἢ ἐξ ἀλλής κατακλύσιοι ἄμελεος ἐμελάνθη 4 ἡ πτέρνῃ, καὶ τούτοισι παλίγκοτα ἐκ τοιούτων. ἐστών ὠτε 426
locations? and, What is meant by the epiphysis of the foot and leg?

We are told (Fract. XII, Mochl. I) that the leg-bones towards the foot have "a common epiphysis" against which (προς ἄν) the foot moves. The bones may be dislocated with the epiphysis, or the epiphysis only may be displaced (Fract. XIII). In the epitome, however, the epiphysis is considered part of the foot, which may be dislocated either with or without it. Littré discusses the subject at great length,¹ and concludes, somewhat doubtfully, that the epiphysis is "la réunion des deux malléoles considérées comme une seule pièce." Its dislocation is the separation of the two bones. But Hippocrates has a special word for each of these, συμφύνας for the union and διώστασις for the separation; and he uses neither here. Adams,² following a suggestion by Gardeil, confines the term to the lower end of the fibula; dislocation of the epiphysis is fracture or displacement of the fibula. He admits, however, that a full discussion would be futile and tedious even to the professional reader. The chief argument in favour of this view is that fracture of the lower end of the fibula frequently accompanies ankle dislocation. On the other hand Fract. XIII seems to distinguish clearly between the epiphysis and either of the leg-bones.

A third view, hardly bolder than that of Adams,

¹ iii. 393 ff.; iv. 45 ff. Petrequin agrees with Littré.
² ii. 522, also 504.

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¹ J. LXXXII omits here and below.
² αὐτῆ.
³ βοιώδεα.
⁴ μελανθῆ.
πρὸς σφακελισμῷ γίνονται πυρετοὶ υπερόξεις, λυγγώδεις, τρομώδεις, γνώμης ἀπτόμενοι, ταχύθανατοί, καὶ ἔτι φλεβῶν αἱ μορφῶν πελιώσιες καὶ γαγγραινώσιες. σημεῖα τῶν παλιγκοτησάντων: ἂν τὰ ἐκχυμώματα καὶ τὰ μελάσματα καὶ τὰ περὶ ταῦτα ὑπόσκληρα καὶ ὑπέρυθρα ἢ ἢ γὰρ σὺν σκληρυσματι πελιωθῆ, κίνδυνος μελανθήματι ἢν δὲ υποπέλια ἢ, καὶ πελιὰ μᾶλα καὶ κεκυμένα,1 ἢ ὑπόχλωρα καὶ μαλθακά, ταῦτα ἐν2 πᾶσι τοῖσι τοιούτοισιν ἀγαθά. ἦςις δὲ: ἢν μὲν ἀπύρετοι ἐώσιν, ἐλλεβορίζειν3 ἢν δὲ μῆ, μή: ἀλλὰ ποτὸν διδόναι ὀξύγλυκυ, εἰ δέοι. ἐπίδεισις δὲ ἢ ἀρθραυ σύνθεσις: ἐτι δὲ4 πάντα μᾶλλον τοῖσι φλάσμασι καὶ θεονίσσθε πλέόσι καὶ μαλθακωτέροισι χρήσασθαι: πιέξις ἢςον· ὕδωρ πλέον·5 προσπεριβάλλειν τὰ πλείστα τῇ πτέρυγῃ τὸ σχῆμα ὀπερ ἢ ἐπίδεισις, ὡς μῆ ἐς τὴν πτέρυγὴν ἀποπλακίζεται: ἀνωτέρω γούνατος ἔστω εὐθετος· νάρθηξι μῆ 30 χρήσασθαι.6

XXXI. Ὑστερῶν δὲ ἐκστή ὁ ποὺς, ἢ μοῦνος 7 ἢ σὺν τῇ ἐπιφύσει, ἐκπέπτει μᾶλλον εἰς τὸ ἔσω· εἰ 8 δὲ μῆ ἐμπέσῃ, λεπτύνεται ἀνὰ χρόνον ἴσχιον καὶ μηροῖ καὶ κνήμης τὸ ἄντιον τοῦ ὀλισθήματος. ἐμβολῆ, ὡς ἢ καρποῦ, κατάτασις δὲ ἴσχυροτέρη· ἦςις, νόμος ἄρθρων· παλιγκοτεῖ ἢςον καρποῦ, ἢν ἡσυχάσῃ· δίαιτα μείων· ἐλινύουσι γὰρ τὰ δὲ ἐκ γενεῆς μὲν ἢ ἐν αὐξήσει, κατὰ λόγον τὸν 9 πρότερον.

XXXII. Ἐπεὶ τὰ σμικρῶν ὀλισθηκότα ἐκ γενεῆς, ἐνια οἷά τε διορθοῦσθαι· μάλιστα δὲ

1 ἐκκεχυμωμένα. 2 ἔπ. 3 ἀπύρετος ἢ, ἐλλέβορον.
INSTRUMENTS OF REDUCTION, xxx.-xxxii.

is that the epiphysis is our astragalus, looked upon either as an annex to the leg-bones or an epiphysis of the foot. This would explain much, e.g., the fact that Hippocrates speaks of dislocation of the leg from the foot (Fract. XIII, Joints LIII, LXIII); for, with the astragalus, the leg-bones would have a convex end; so too the foot is said to move on (πρός) not in this joint. We may also note that the epitomist, taking the epiphysis as part of the foot, adopts the modern view, dislocating the foot from the leg, yet retains the language of his original (Fract. XIV) in saying that the commonest dislocation is inwards. The commonest dislocation is that of the leg inwards and the foot outwards, so we can only make him correct by a bold translation such as that of Gardeil, who renders ὁ πούς ἐκπίπτει μᾶλλον εἰς τὸ ἐσω, "la partie supérieure de l'astragale se place communément en dedans."

The other Hippocratic account of the ankle-joint (Loc. Hom. VI) says, "towards the foot the leg has a joint at the ankles and another below the ankles." The part between is the astragalus; and it is left doubtful whether this belongs to the foot or the leg.1

XXXII. Among slight congenital dislocations, some can be put straight, and especially club-foot.2

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1 So, too, in Joints LIII, we hear of a "bone of the leg at the ankle" which seems distinct from the leg-bones proper, and more closely connected with those of the foot.
2 An almost ludicrous epitome of J. LXII.

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4 ἐπίδεσις δὲ, ἄρθρων σύνδεσις. ἐπίδειν Κ.Λ.  
5 Omit.  
6 χρῆσθαι.  
7 αὐτὸς.  
8 ἤν.
ποδὸς κύλλωσις, κυλλώσιος γὰρ οὐχ εἰς ἐστὶ τρόπος. ἦ δὲ ὅσις τούτου, κηροπλαστεῖν κηρωτῇ ῥητινῶδης, ὧν ὁμαία συχνά, ἢ πέλμα ἢ μολύβδιον προσεπιδεῖν, μῆ χρωτὶ ἀνάληψις, τὰ 7 τε σχῆματα ὁμολογεῖται.

XXXIII. ἦν δὲ ἐξαρθρήσαντα ἐλκος ποιησάμενα ἐξίσχυς, ἐώμενα ἠμείνω, ὡστε δὴ μη ἀπαιωφεύσατο μηδ' ἄπαναγκάζεσθαι. ἦσις δὲ πισσηρὴ ἦ σπλήσεων οἰνηροίςι θερμοϊςι—ἀπασὶ γὰρ τούτοις τὸ ψυχρὸν κακὸν—καὶ φύλλοιςι χειμῶνος δὲ, εἰρίσοις ὑπερπομένους τῆς σκέψης εἴνεκα, μὴ καταπλάσσειν, μηδ' ἐπιδεῖν διαίτα λεπτὴς ψύχος, ἀχθος πολύ, πίεξις, ἀνάγκη, σχῆματος ταξίς εἰ ἔδειν μὲν οὖν ταῦτα πάντα ὀλέθρια. μετρίως δὲ θεραπευθέντες, χωλοὶ αἰσχρῶς ἦν γὰρ παρὰ πόδας γένηται, ποὺς ἀναστάται, καὶ ἦν πὴ ἁλλη, κατὰ λόγον. ὡστεα οὐ μάλα ἄφισται µικρά γὰρ ψιλοῦται, περιωτεῖλοῦται λεπτῶς. τούτων τὰ μέγιστα κινδυνωδέστατα, καὶ τὰ ἀνωτάτω. ἐλπὶς δὲ μοῦνη σωτηρίας, ἐαν µὴ ἐμβάλλῃ, πλὴν τὰ κατὰ δακτύλους καὶ χεῖρα ἄκρης ταῦτα δὲ προειπτέως τοὺς κινδύνους. ἐγχειρεῖν ἐμβάλλειν ἡ τῇ πρώτῃ ἤ τῇ δευτέρῃ, ἦν δὲ µῆ, πρὸς τὰ δέκα· ἦκιστα τεταρταῖα. ἐμβολὴ δὲ, οἱ μοχλίσκοι. ὅσις δὲ, ὡς κεφαλῆς ὁστέων, καὶ θερμῆ ἐλλεβόρῳ δὲ καὶ αὐτίκα ἐπείτα τοῖσιν ἐμβαλλομένοις βέλτιον χρῆσθαι. τὰ δ' ἄλλα εὗ εἰ ἔδειν δει ότι ἐμβαλλομένων θάνατοι τὰ μέγιστα καὶ τὰ ἀνωτάτω

1 κηρωτῇ ῥητινῶδει. 2 προειπτέως. 3 καὶ ἐπείτα.
INSTRUMENTS OF REDUCTION, xxxii.-xxxiii.

Now there is more than one kind of club-foot. Here is the treatment of it: moulding, resined cerate, plenty of bandages, a sandal or sheet of lead bound in with the bandaging, not directly on the flesh; let the slinging up and attitude of the foot be in accordance.

XXXIII. If dislocated bones make a wound and project, they are best let alone, seeing, of course, that they are not left unsupported or subject to violence. Treatment with pitch cerate, or compresses soaked in warm wine (for cold is bad in all these cases), also leaves, and, in winter, crude wool as a protection; do not use a plaster application or bandaging; low diet; cold, heavy weight, constriction, violence, a forcibly ordered attitude—bear in mind that all these are pernicious. Suitably treated, they survive badly maimed; for if the lesion is near the foot, the foot is drawn up; and if anywhere else, there is a corresponding deformity. Bones do not usually come away, for only small surfaces are denuded, and a thin scar forms. In these cases there is greatest danger with the largest and proximal joints. The only hope of safety is not to reduce them, except the fingers and bones of the hand. In these cases let the surgeon explain the risks beforehand. Perform reduction on the first or second day; failing that, about the tenth; by no means on the fourth. Reduction: the small levers. Treatment: as for bones of the head; warmth; it is rather a good thing to give a dose of hellebore to the patients immediately after reduction. As to other bones, one must bear well in mind that their reduction means death, the quicker and more certain the larger and higher up they are. In the
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μάλιστα καὶ τάχιστα. ποὺς δὲ ἐκβάς, σπασμός, γάγγραινα· καὶ γὰρ ἢν ἐμβληθέντι ἐπιγένηται τι
τούτων, ἐκβάλλοντι ἐλπίς, εἰ τις ἀρὰ ἐλπίς· οὐ
γὰρ ἀπὸ τῶν χαλώντων οἱ σπασμοὶ, ἀλλὰ ἀπὸ
tῶν ἐντεινόντων.

XXXIV. Ἀι δὲ ἀποκοπαὶ ἢ ἐν ἄρθρῳ ἢ κατὰ
tὰ ὀστέα, μη ἄνω, ἀλλὰ ἢ παρὰ τῷ ποδὶ ἢ παρὰ
τῇ χειρὶ ἐγγὺς περιγόνουται, ἢν μὴ αὐτίκα μάλα
λειποθυμίῃ ἀπόλωνται. ὅσις, ὡς κεφαλῆς, 5
θεμιᾷ.

XXXV. Ἀποσφακελίσιος μέντοι σαρκῶν, καὶ
ἐν τρώμασι αἷμαρρόσις ἀποσφιγχθέν, καὶ ἐν
ὀστέων κατήγμασι πιεχθέν, καὶ ἐν δεσμοῖς ἀπο-
μελανθέν. καὶ οἴσι μηροὶ μέρος ἀποπίπτει καὶ
Βραχίονος, ὀστέα τε καὶ σάρκες ἀποπίπτουσι,
πολλοὶ περιγόνουται, ὡς τὰ γε ἄλλα εὐφροντερα-
οίς μὲν οὖν κατεαγέντων ὀστέων, αἱ μὲν περιφ-
ρήξις ταχεία, αἱ δὲ τῶν ὀστέων ἀποπτώσις,
ἡ ἢν τὰ ὁρια τῆς ψυλλωσίς ἢ, ταύτῃ ἀποπίπτουσι,
βραδύτερον δὲ. δεὶ 2 δὲ τὰ κατωτέρω τοῦ τρώ-
ματος προσαφαιρεῖν καὶ τοῦ σώματος τοῦ ὑγείος
—προθυρήσκει γάρ—φυλασσόμενον 3 ὀδοὺ ἀμα
γὰρ λειποθυμίᾳ θυνῄσκουσιν. μηροὶ ὀστέων ἀπε-
λύθη ἐκ τοιοῦτον όγδοοκοσταῖον, ἡ δὲ κυνῆ
ἀφηρεθή εἰκοσταῖ. κυνῆς δὲ ὀστέα κατὰ μέσην
ἐξηκοσταῖα ἀπελύθη. ἐκ τοιοῦτων ταχὺ καὶ

1 ἀμα. 2 ἅρη Kw.

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case of a (compound) dislocation of the foot, spasm and gangrene (are to be expected). If anything of this kind supervenes on reduction, there is hope from dislocation, if indeed there is hope at all; for spasms do not come from relaxation of parts, but from their tension.

XXXIV. Amputations at a joint or in the length of the bones, if not high up, but either near the foot or near the hand, usually result in recovery, unless the patients perish at once from collapse. Treatment: as for the head; warmth.

XXXV. (Causes) of gangrene of the tissues are: constriction in wounds with haemorrhage, compression in fractures of bones, and mortification from bandages. Even in cases where part of the thigh or arm falls off and bones and flesh come away, many survive; and in other respects this is rather well borne. In cases of fractured bones, lines of demarcation form quickly; but the falling off of the bones (it is where the limit of the denudation occurs that they fall off) occurs more slowly. One must intervene to remove the parts below the lesion and the sound part of the body (for these parts die first), and be careful; for patients die from pain and collapse combined. A thigh-bone separated in such a case on the eightieth day, but the leg was removed on the twentieth; leg-bones separated at the middle on the sixtieth day. In such cases the compression

1 ἐγγύς corresponds to τοῖς πλείστοις, J. LXXIII; but it is a curious use.
2 J. LXIX.
3 “Should” (Kw.).
4 “Avoid pain”—Kw.’s punctuation.

3 φυλασσόμενον absolute: cf. Head Wounds XVIII. Kw. follows a conjecture of Foës and reads φυλασσόμενον ὀδύνην.
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βραδέως, αἱ πιέξεις αἱ ἰητρικαί. τὰ δὲ ἀλλὰ ὡσα ἴσυχαῖως, τὰ μὲν ὀστέα οὐκ ἀποπιτεῖ οὗδὲ σαρκῶν ψιλοῦται, ἀλλὰ ἐπισολαιότερον.¹ προσ-

20 δέχεσθαι ταῦτα χρή: τὰ γὰρ πλείστα φοβερῶτερα ἢ κακίων. ἢ ἴσις πραεία, θερμῇ διαίτῃ ἔκριβειν κίνδυνος αἰμορραγίῶν, ψύχεος· σχῆματα δὲ ὡς μὲν ἁνάρροπα, ἔπειτα ὑποστάσιος πῦνον εἴνεκα ἐξ ἱσοῦ ἢ ὁσα συμφέρει. ἐπὶ τοῖσι τοιοῦτοι καὶ ἐπὶ τοῖσι μελασμοῖσιν, αἰμορραγίαι, δυσεντερίαι, περὶ κρίσιν, λαύροι μὲν, ὑλιγήμεροι δὲ. οὐκ ἀπόσιτοι δὲ πάνω οὗδὲ πυρετῶδες, οὓδε τι

28 κενεαγγητέον.

XXXVI. Ἐβωσις, ἢ μὲν ἐσω ἐπιθαύνατος, οὕρων σχέσιος, ἀποναρκώσιος.² τὰ δὲ ἐξω, τοῦτων ἠσινέα τὰ πλείστα, πολὺ μᾶλλον ἢ ὁσα σεισθέντα μὴ ἐξέστη. αὐτὰ μὲν ἐωυτοῖσι κρίσιν ποιησάμενα, κείνα δὲ ἐπὶ πλέον τῶν σωματι ἐπιδιδόντα, καὶ ἐν ἐπικαλροις έόντα.

Οἶνον πλευραί καταγείσαι μὲν, ὅλιγαι πυρετῶδες καὶ αἵματος πτύσιος καὶ σφακελισμοῦ, ἢν τε μία, ἢν τε πλείους μὴ καταγη ἐσω δὲ.³

10 καὶ ἴσις φαύλη, μὴ κενεαγγηόντα, ἢν ἀπύρετος ἢ. ἐπίδεσις ὡς νόμος· ἢ δὲ πώρωσις ἐν εἴκοσι ἠμέρησιν, χαύνον γάρ. ἢν δ’ ἀμφιφλασθῇ, φυματίαι, καὶ βηχώδεις, καὶ ἐμμοτοι, καὶ πλευρας ἐσφακελίσαν παρά γὰρ πλευρὴν ἐκάστην ἀπὸ

15 πάντων τόνων εἰσίν.

XXXVII. Τὰ δὲ ἀπὸ καταπτώσιος ἴσον

¹ ἐπισολαιότερα. ² εἴνεκα understood. ³ μὴ καταγείσαι δὲ ... Kw. He suspects a mutilation in the text.

¹ "Which have been gently constricted." Littré (Adams).
used during treatment makes it quick or slow. For the rest, in cases of mild character the bones do not come away, nor are they denuded of flesh; but the mortification is more superficial. One should take on these cases, for they are most of them more terrifying than dangerous. Treatment: gentle, with warmth and strict diet; dangers: haemorrhage, chill; attitudes rather elevated; afterwards, because of collection of pus, on a level, or whatever suits. Haemorrhage supervenes in such cases, also in mortification, and dysentery at the crisis, copious, but of short duration. Patients do not lose their appetites much, nor are they feverish; and there is no reason why one should starve them.

XXXVI. Spinal curvature: inwards it is fatal, from retention of urine and loss of sensation; external curvatures are most of them without serious lesions, much more so than cases of concussion without displacement, for they make their own crisis; but the latter have a greater effect on the body and on parts of vital importance.

So, too, fractured ribs rarely give rise to fever, spitting of blood, or necrosis, where there is one or more fractured, if it is not broken inwards; and the treatment is simple, without starvation diet, if there is no fever. Bandaging as customary. Callus forms in twenty days, for the bone is spongy. But if there is great contusion, tubercles, chronic coughs and suppurating wounds supervene, with necrosis of the ribs; for along each rib there are cords coming from all parts.

XXXVII. Curvatures due to a fall are less sus-

2 Or, "if not splintered," Littré (Adams); "if they are not broken (but contused)," Kw.
δύναται ἐξιθύνεσθαι· χαλεπώτερα δέ τὰ ἄνω φρενῶν ἐξιθύνεσθαι. οἵσι δὲ παίσιν, οὐ συν-
αύξεται, ἀλλ' ἡ σκέλη καὶ χεῖρες καὶ κεφαλῆς
ηύξημένοις ὑβώσις, παραχρῆμα μὲν τῆς νοσοῦν
μᾶς, ἀνά χρόνου δ' ἐπισημαίνεται. 1 ἂντερ
καὶ τοῖς νεωτέρουσιν, ἦσον δὲ κακοήθως. εἰσὶ
δὲ οὗ εὐφόρως ἤγεγκαν, οἵσιν ἄν ἐς εὐσάρκον καὶ
πιμελῶδες τράπηται· ὁλογι δὲ τούτων περὶ
ἐξήκοντα ἐτεα ἐβιώσαν. ἀτὰρ καὶ ἐς τὰ πλάγια
diastérmata γίνεται· συναίτια δὲ καὶ τὰ
σχήματα ἐν οἴσιν ἄν κατακέωνται· καὶ ἔχει
προγνώσιας.

Πολλοὶ δὲ καὶ αἶμα ἐπτυσαν καὶ ἐμπυοι
ἐγένοντο. ἡ δὲ μελέτη, ὑσις, ἐπίδεσις ὡς νόμος
διάτης τὰ πρώτα ἀτρεκέως, ἐπειτὰ ἀπαλύνεως
ἡσυχίᾳ, σιγῇ σχῆματα, κοιλίᾳ, ἀφροδίσια. ἀτὰρ
οἷς ἄναμα, ἐπωδυνώτερα τῶν καταγωγμένων καὶ
φιλυπόστροφώτερα χρόνοισιν οἴσι δέ καταλείπε-
ται μυξώδες, ὑπομυμνήσκει ἐν πόνοισιν. ὑσις:
καῦσις, τοῖς μὲν ἀπ' ὀστέου, μέχρις 2 ὀστέου,
μὴ αὐτὸ δε' ἢν δὲ μεταξῷ, μὴ πέριν, μηδὲ ἐπι-
πολῆς· σφακελισμός. καὶ τὰ ἐμμοτα πειράσθαι
εἰρηστεῖ ἀπαντά τὰ ἐπεσιώντα. ὀρατά, λόγους
δ' οὗ μή βρώματα, πόματα, θάλπος, ψυχός,
σχῆμα· ὅτι καὶ φαύρμακα, τὰ μὲν ξηρά, τὰ δὲ
ὕγρα, τὰ δὲ πυρρότα, τὰ δὲ μέλανα, τὰ δὲ λευκά,
28 τὰ δὲ στρυφνά, ἐπὶ ἔλκη, οὕτω καὶ διὰ
tαι.

XXXVIII. Νόμος ἐμβολῆς καὶ διορθώσιος·
ὀνος, μοχλός, σφημίσκος, ὅπος· ὅνος μὲν ἄναγειν,
μοχλὸς δὲ παράγειν. τὰ δὲ ἐμβλητέα ἡ διορ-

1 ἐπισημαίνεται τι (as in J. XLII).
2 μέχρι τοῦ.
INSTRUMENTS OF REDUCTION, xxxvii.—xxxviii.

ceptible to rectification; and those above the diaphragm are the more difficult to straighten. In the case of children, there is cessation of growth, except in the legs, arms, and head. Curvature in adults delivers from the disease at the moment; but in time the same symptoms appear as in younger patients, but in less malignant form. There are some who bear the affection well, those in whom there is a tendency to fulness of flesh and fat; but few of these reach sixty years. Lateral distortions also are produced, and the positions in which patients lie are accessory causes; they also serve for prognosis.

Many patients spit blood, and get an abscess.¹ Care and treatment; bandaging as usual. Diet: at first strict, then feed him up; repose and silence, position, the bowels, sexual matters. But where there is no show of blood, the parts are more painful than in fractured cases, and there is more tendency to relapse later. Where the tissue is left in a mucous state, there is a return of pains. Treatment: cautery, where bone is involved, down to the bone, but not of the bone itself; if between the ribs, not right through, yet not superficial. Necrosis: try also the treatment with tents; all that concerns this will be described. Things are to be seen—don't trust to words; food, drink, warmth, cold, attitude. As to drugs also, some are dry, some moist, some ruddy, some black, some white, some astringent, used for wounds; so too (various) diets.

XXXVIII. Usage for reduction and adjustment: windlass, lever, wedge, press; windlass for stretching, lever for bringing into place. Parts to be

¹ This passage seems out of place here, and Littré boldly joins it on to XXXVI; but we now have to do with odd notes.
θωτέα διαναγκάσαι δεί έκτείνοντα, εὖν ὃ ἀν ἐκαστα σχήματι μέλλη ὑπεραυρηθήσεσθαι το δ' ἐκβάν, 1 ὑπὲρ τούτον οθέν ἐξέβη. τοῦτο δέ, ἡ χερσίν ἡ κρεμασμῷ ἢ ὄνοισιν ἡ περὶ τι. χερσὶ μὲν οὖν ὀρθῶς κατὰ μέρεα· καρπὸν δε καὶ ἄγκωνα ἀπόχρη διαναγκάζειν, καρπὸν μὲν εἰς ίθν ἄγκωνος, ἄγκωνα δε ἐγχώνιον πρὸς βραχίων ἑχοντα, οἶνον παρά τὸ βραχίονι τὸ ύπὸ τὴν χείρα ὑποτεινόμενον. εὖ νοσί δε δακτύλου, ποδός, χειρὸς, καρποῦ, ὑβώματος τὸ ἐξω, 2 διαναγκάζαι δει καὶ καταναγκάζαι, τα μὲν ἄλλα ύπὸ χειρῶν αἱ διαναγκάσεις ἰκαναὶ, καταναγκάζαι δε τὰ ὑπερέχοντα ἐς ἐδρὴν πτέρυν ἡ θέναρι ἐπὶ τινος· ὡστε κατὰ μὲν τὸ ἐξέχων ὑποκείσθαι ἄγκου σύμμετρον μαλθακὸν· κατὰ δε τὸ ἐτερον [μήστωρα] δ' ἄν 3 χρὴ ὀθεῖν ὅπίσω καὶ κάτω, ἢν δε ἐσω ἢν δε ἐξω ἐκπεπτώκη· τα δε ἐκ πλαγίων, τα μὲν ἄπωθειν, τα δε ἀντωθειν ὅπισω ἀμφότερα κατὰ τὸ ἐτερον. τα δε ὑβώματα, τα μὲν ἐσω, οὕτε πταρμῷ οὕτε βηχί, οὕτε φύσης ἐνέσει, οὕτε σικύη· δεί δε τι, ἡ κατάστασις· ἢ δε ἀπάτη, ὅτι οἰόν τε 4 ποτε κατεαγέντων τῶν σπουδύλων καὶ τὰ λορδώματα διὰ τὴν ὀδύνην δοκεῖ ἐσω ὀλισθηκέναι· ταῦτα δὲ ταχυφῦν καὶ ράδια. τα δε ἐξω, κατάτασις, τα μὲν ἄνω ἐπὶ πόδας, τα δε κάτω τάναντια· κατανάγκασις δε σὺν κατατάσει, ἡ ἐδρη ἢ ποδὶ ἢ σανίδι. τα δ'

1 ἐμβάν Ἀρ.
2 ἐς τὸ ἐξω Ἀρ.
3 μήστωρ (= "skilled assistant") δ' ἄν vulg.; μὴ στορέ­
    σαντα Lit.; μήστωρ ἄμα Kw.
4 οἴονται Kw., Littre.

1 I.e. hand-power is strong enough.
INSTRUMENTS OF REDUCTION, xxxviii.

reduced or adjusted must be separated by extension, till each comes into an attitude of sufficient elevation, the dislocated part above that from which it was dislocated; this is done with the hands, or suspension, or a windlass, or round something. Proper use of the hands varies with the part; in the case of the wrist and ankle, it suffices to separate the parts, the wrist being in line with the elbow, but the elbow at right angles to the upper arm, as when the forearm is in a sling. In the case of finger or toe, foot, hand, wrist, humpback, double extension and forcing down the projection are required; in the other cases, separation by hand-power is enough, but one must force projecting parts into position with the heel or palm over something, taking care that a suitable soft pad is placed under the projection. On the other side, a skilled assistant should simultaneously press backwards and downwards, if the dislocation is either inwards or outwards; in lateral cases, press one side away and the other side back to meet it, bringing both together. As to curvatures, internal ones are not (reducible) by sneezing, coughing, injection of air, or a cupping instrument; a mode of restoration is wanting. The deception people fall into when vertebrae are fractured, and incurvings due to pain simulate dislocation inwards; these heal quickly, and are not serious. Outward curvatures: extension, towards the feet if the lesion is high up, if low down, the reverse; forcing into place, simultaneously with extension, by sitting on it, or by using the foot or a plank.

2 Or "If anything, extension," reading κατατασίας, as Littré (Adams).

3 κατάσεις, "succession," Littré.
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ἐνθα ἢ ἐνθα, εἰ τις κατάτασις, καὶ ἐτι τὰ σχῆ-ματα ἐν τῇ διαίτῃ.

Τὰ ἅρμενα πάντα εἶναι πλατέα, προσηνέα, ἴσχυρά, εἰ δὲς μὴ ἗ δεῖ ράκεσι προκατειλίχθαι. ἐσκεφάσθαι πρὶν ἢ ἐν τῆιν ἀνάγκησιν πάντα συμμετρημένως τὰ μῆκα καὶ ὑψεα καὶ εὐρεα. διάτασις, οἷον μηροῦ, τὸ παρὰ σφυρὸν δεδέσθαι καὶ ἀνώ τοῦ γούνατος, ταῦτα μὲν ἐς τὸ αὐτὸ τείνοντα· παρὰ δὲ ἵξυὶ 2 καὶ περὶ μασχάλας, καὶ κατὰ περίναιον καὶ μηρόν, τὰ 3 μεταξὺ τῆς ἁρχῆς, τὸ μὲν ἐπὶ στήθος, τὸ δὲ ἐπὶ νότον τείνοντα, ταῦτα δὲ ἐς τὸ αὐτὸ ἦπαντα 4 τείνοντα, προσδεθέντα ἢ πρὸς ὑπεροειδέα ἢ πρὸς ὁνον. ἐπὶ μὲν οὖν κλίνης ποιέοντι, τούτο μὲν τῶν ποδῶν πρὸς οὐδόν χρῆ ἐρείσαι, πρὸς δὲ τὸ ἔτερον, ἵξυλον ἴσχυρὸν πλάγιον παραβεβλήθαι, τὰ δὲ ὑπερθεν ὑπεροειδέα πρὸς ταῦτα ἀντιστηρίζοντα διατείνειν, ἢ πλήμνας κατορύξαντα, ἢ κλίμακα διαθέντα, ἀμφοτέρωθεν ὁθείν. τὸ δὲ κοινὸν, 50 σανὶς ἢξάπησχυς, εὗρος δίπηχυς, πάχος σπιθαμῆς, ἕχουσα ὅνους δύο ταπεινοὺς ἐνθεῖ καὶ ἐνθεὶν, ἕχουσα δὲ κατὰ μέσον στυλίσκους συμμέτρους, ἐξ 5 ὑν ὡς κλιμακτήρ ἐπέσται εἰς τὴν ὑπόστασιν τῶ ἕξυλω, ὡσπερ τῷ κατ' ὁμον' καταγλυφόν καὶ ῥαφῶν αὐτῆ τῆ μοχλεύσει εἰς διώρθωσιν ἐν μέσῳ δὲ τετράγωνον καταγλυφήν ὡςτε στυλίσκον ἐνείναι, ὅσ παρὰ περίναιον ἐὼν περιρρέεις τις κωλύσει ἐὼν

1 εἰ δὲ μὴ, Litrér’s conjecture, Kw. Cf. J. LXXVIII.
2 ἵξυὶ.
3 μηρὸν τὸ.
4 ἐς τὰ ἄπεναντία.
5 ἐφ'.
INSTRUMENTS OF REDUCTION, xxxviii.

Curvatures to this side or that; one may use some extension, also postures with regimen.

The tackle should all be broad, soft, and strong, otherwise they must be previously wrapped in rags; all should be suitably prepared as to length, height, and breadth before use in the reductions. In double extension of the thigh, for example, make attachments at the ankle and above the knee, drawing these in the same direction; at the loin and round the armpits; also at the perineum and between the thighs, drawing one end over the chest, the other over the back, but bringing these in the opposite direction; they should be fixed either to a pestle-pole or to a windlass. If one operates on a patient in bed, its legs at one end should press against the threshold, and a strong plank should be laid across the other end; then, using these as fulcra, draw back the pestle-like poles from above; or fix wheel-naves in the ground; or lay a ladder along, and apply force at both ends. For all cases: a nine-foot plank, three feet broad, a span thick, having two windlasses set low down at each end, and also having at the middle suitable props, on which is placed a sort of crossbar to act as fulcrum for the board, like that used for the shoulder. It should have fossae like smooth troughs, four fingers broad and deep, with sufficient intervals between for adjustment by actual leverage. In the middle (there should be) a quadrangular excavation for a prop to fit into, which, when it is at the perineum, will prevent the patient from slipping, and when it is

1 Reading εἶ δὲ μὴ. "Sufficiently strong; it should not be necessary to wrap" (Pq.'s rendering of the text).
2 Kw.'s reading.
3 Kw.'s reading.
4 I.e. the amē; cf. J. LXXIII.
This is condensed from J. XLVII and LXXV, on pressing down a hump by bringing a plank across it, one end being in a groove in a post or wall. The translation makes the epitomiser say this; but in the Greek he seems to confuse the plank with the *ambē*, which had a sort of excavation at its end. Littré omits ἥ and the first τὸ ἄκρον.
rather loose will serve as a lever. Use of the plank: one should push it in at one end; the end should occupy an excavation in a post or in a wall; press down at the other end, putting some suitable soft substance underneath.

XXXIX. In cases where a bone comes away from the roof of the mouth, the nose falls in in the middle. Patients with contused heads without a wound, due to a fall, fracture, or compression; some of them have a flow of acrid humour from the head down to the fauces, and from the lesion in the head to both liver and thigh.

XL. Symptoms of subluxations and dislocations: their difference from one another in position, nature, and extent, where the socket is fractured, where a small ligament is torn away, where the epiphysis is broken off. In what cases and how either one or two bones (are broken), when there are two; dangers and expectations in these cases; in which cases they are bad, and when injuries are mortal, or when there is more hope of recovery. Also what cases are to be reduced or treated surgically, and when, and which not, and when not; the expectations and dangers in these cases. In what cases and at what time one should treat congenital dislocations or those occurring during and after adolescence. Which case is quicker and which slower to recover where a patient is (permanently) lame, and how, and when not; and why, and in what cases, there is atrophy; on which side, and how, and the cases in which it is less; and that fractured bones are quicker or slower to consolidate, where distortions and accumulation of callus occur, and the cure for these. Cases

2 Epid. IV. 1. 9, VI. 1. 3. 3 Epid. II. 5. 4.
MOXAIKON

ἡ ὑστερον γίνονται· οἴσι καὶ ὁστέα καταγεισι μεῖω, οἴσιν οὐ· οἴσι καταγέντα ἐξέσχεν, καὶ ἡ ἐξέσχει μᾶλλον οἴσιν ἐκβάντα ἡ ἀρθρα ἐξίσχια·

20 ἀπατῶνται ¹ καὶ δ' α, ἐν οἴσιν ὅρδεσιν, ἐν οἴσιν διανοεύνται, ἀμφὶ τὰ παθήματα, ἀμφὶ τὰ θερα-
22 πεύματα.

ΧΛΙ. Νόμοι ποιοί νομίμοι περὶ ἑπιδέσιος· παρασκευή, πάρεξις, κατάτασις, διόρθωσις, ἀνά-
τρψις, ἑπίδεσις, ἀνάληψις, θέσις, σχῆμα, χρό-
νοι, διάιται. τὰ χαυνότατα τάχιστα φύεται, τὰ
δὲ ἑναντία, ἑναντίως· διαστροφαί, ἡ κυρτοὶ· ἀσαρκοί, ἀνευροί. τὸ ἐμπεσόν ὡς προσωτάτω ² ἢ
tὸ ἐκπεσόν ἐσται τοῦ χωρίου οὐ ἐξέπεσεν. ³

10 νεύρων, τὰ μὲν ἐν κινήσει καὶ ἐν πλάδω, ἐπι-
δοτικά· τὰ δὲ μή, ἡσσον· ἀριστον ἢ ἀν ἐκπέσῃ,
ἐι ἐμπέσοι τάχιστα. ⁴ πυρεταίνοντι μὴ ἐμβάλ-
λειν, μηδὲ τεταρταία, πεμπταία, ἡκιστα ἀγκώνα.
καὶ τὰ ναρκόδεα πάντα, ὡς τάχιστα ἀριστα, ἢ
tὴν φλεγμονὴν παρέντα. τὰ ἀποσπώμενα, ἢ
νεῦρα ἢ χόνδρα ἢ ἐπιφύσεις, ἢ διεστάμενα κατὰ
συμφύσιας, ἀδύνατα ὀμοιωθήματι· διαπρωμότα
tαχέως τοῖς πλείστοισιν ἢ δὲ χρήσις σώζεται.
ἐκβάντων, τὰ ἐσχάτα, ῥᾶν· τὰ ράστα ἐκπεσόντα
ἡκιστα φλεγμαίνει· τὰ δὲ ἡκιστα θερμαίνοντα,
καὶ μή ἐπιθεραπευθέντα, μάλιστα αὐθίς ἐκπί-

20 πτε. κατατείνειν ἐν σχῆματι τοιούτῳ, ἐν ὡ

¹ & ἀπατῶνται Kw. ² ἐκαστάτω.
³ Obscure; seems to be taken from J. IX.
⁴ Cf. J. LXXIX.

¹ Apparently "intervals" between changes of dressing and the like.
where wounds occur at once or later; where the fractured bones are shortened, and where they are not. In what cases fractured bones project, and at what part they chiefly do this. The confusion between dislocations and prominent joints, causes of deception in what men see, and conjecture concerning maladies and treatments.

XLI. Recognised usages as regards bandaging: preparation, presentation, extension, adjustment, friction, bandaging, suspension, putting up, attitude, periods,¹ diets. The most spongy bones consolidate quickest, and vice versa; distortions on the side towards which they curve; atrophy of flesh and sinews. The reduced bone shall be (kept) as far as possible from the place where it was dislocated.² Of ligaments, those in mobile and moist parts are yielding; those which are not are less so. Wherever a dislocation may be, prompt reduction is best. Do not reduce when a patient has fever, or on the fourth or fifth days, least of all in an elbow case. All cases with loss of sensation, the quicker the better; or wait till inflammation has subsided. Parts torn away: ligaments, cartilages, epiphyses or separations at symphyses cannot be made the same as before; in most cases there is rapid ankylosis, but the use of the limb is preserved. Of dislocated joints, the most distal are the more easily (put out?);³ those most easily put out suffer least inflammation; but where there is least heat and no after-treatment, there is greatest liability to another dislocation. Make extension in such a posture that

² "Force used in reduction to be applied at as great a distance as possible" (Adams).
³ Or "treated"; but it seems best to follow the context.
ΜΟΧΛΙΚΟΝ

μάλιστα ὑπεραιωρηθήσεται, σκεπτόμενοι ἐς τὴν φύσιν καὶ τὸν τόπον ἢ ἐξεβη. διόρθωσις· ὀπίσω ἐς ὄρθῶν καὶ ἐς πλάγιον παρωθεὶν· τὰ δὲ ταχέως ἀντισπάσαντα ἀντισπάσαι ταχέως ἢ δὴ ἐκ περιαγωγῆς· τὰ δὲ πλειστάκις ἐκτίπτοντα ῥάν ἐμπίπτει· αὐτίνων νεῦσι γι' νεῦρῳ καὶ ὀστέων· νεύρων μὲν μῆκος ἢ ἐπίδοσις· ὀστέων δὲ, κοτύλης ὀμαλότης, κεφαλῆς φαλακρότης· τὸ ἔθος τρίβων ποιεῖ· αὐτή καὶ σχέσις καὶ ἔξεις καὶ ἥλικη. τὸ ὑπόμυξον ἀφλέγμαντον.

XLII. Οἶσιν ἐλκεα ἐγένετο, ἡ αὐτίκα ἡ ὀστέων ἐξισχόντων, ἡ ἐπείτα, ἡ κυησμῶν ἡ τρηχυσμῶν, ταύτα μὲν ἢν αἰσθῆ, εὐθέως λύσας, πισσηρήν ἐπὶ τὸ ἐλκος ἐπιθείς, ἐπιδείη ώς ἐπὶ τὸ ἐλκος πρῶτον τὴν ἀρχὴν βαλλόμενος, καὶ τάλλα ὡς οὐ ταύτῃ τοῦ σίνεος ἑόντος· οὕτω γὰρ αὐτὸ τε ἱσχυότατον καὶ ἐκπυῆσει τάχιστα καὶ περιβρήξεται, καὶ καθαρθέντα τάχιστα φύσεται. νάρθηκας δὲ μήτε κατ' αὐτὸ τοῦτο προσάγειν μήτε πιέζειν· καὶ ὅν ὀστέα μὴ μεγάλα ἀπεισιν, ὅν δὲ μεγάλα, οὕτω ποιεῖν ἡ πολλὴ γὰρ ἐμπύνησι καὶ ταύτ' οὐκ ἔτι οὕτως, ἀλλ' ἀνέφυκται τῶν ὑποστασίων εἶνεκα. τὰ δὲ τοιαύτα ὀπόσα ἐξεσχε, καὶ εἴ τε ἐμβληθῇ εἰ τε μῆ, ἐπίδεισι μὲν οὐκ ἐπιτήδειον, διάτασις δὲ, σφαῖραι ποιηθεῖσαι οἷοι πέδαις, ἢ μὲν παρὰ σφυρόν, ἢ δὲ

1 Littre joins οὕτω ποιεῖν το ἀπεισιν and adds οὐ after μεγάλα, de suo: ἀπεισιν ὡσαύτως· ὅν δὲ μεγάλα δῆλον, Kw. M.

1 Second ἢ perhaps added for sake of symmetry; there are only two classes of wounds, "immediate" and "later."
2 Adopting Kw.'s reading, which has some support from the MSS.
the (dislocated bone) will be best lifted above (the socket), having regard to its conformation and the place where it is dislocated. Adjustment: push backwards, either straight or obliquely; where there has been a rapid twist, make a rapid twist (backwards), or at any rate by circumduction. Often repeated dislocations are more easily reduced; they are due to the disposition of the ligaments or bones—in the former, to length or yielding character; in the latter, to flatness of the socket and rounded shape of the head. Use makes a friction-joint; it depends on the state of the patient, his constitution and age. Rather mucous tissue does not get inflamed.

XLII. In cases where wounds occur either at once, with projection of the bones, or afterwards, from irritation or roughnesses, when you recognise these latter, at once remove the dressing, and apply pitch cerate to the wound. Bandage, putting the beginning of the roll first on the wound, and the rest as though there were no lesion there, for so there will be least swelling at the part; suppuration and separation will be most prompt, and the cleansed parts heal up most rapidly. As to splints, do not apply them to this part, and do not make pressure. This treatment applies to cases where small pieces of bone come away; when large it is clear (what to do), for there is much pus formation, and this treatment is no longer suitable, but the wound is left open because of the accumulations. But in all such cases as have bones projecting, whether they are reduced or not, bandaging is not suitable; what is required is stretching. Rounds are made like fetters, one at the ankle, the other
ΜΟΧΛΙΚΟΝ

παρὰ γόνυ, ἐς κυήμην πλατεῖαι, προσηνέεις, ἱσχυρὰ, κρίκους ἔχουσαι· ράβδοι τε σύμμετροι κρανίης καὶ μῆκος καὶ πάχος, ὡστε διατείνειν·

20 ἵμαντια δὲ ἐξ ἄκρων ἀμφοτέρωθεν ἔχοντα ἐς τοὺς κρίκους ἐνδεδέσθαι, ὡς τὰ ἄκρα ἐς τὰς σφαῖρας ἐνστηριζόμενα διαναγκάζῃ. ὑμῖς δὲ, πισσηρῇ θερμῇ ὁ σχῆματα καὶ ποδὸς θέσις καὶ ἱσχύον δίαιτα ἀτρεκῆς. ἐμβάλλειν τὰ ὀστέα τὰ ὑπερίσχοντα αὐθήμερα ἢ δευτεραῖα· τεταρταῖα δὲ ἢ πεμπταῖα, μή, ἄλλῃ ἐπὶν ἱσχυᾷ ἢ. ἢ δὲ ἐμβολῇ τοῖσι μοχλικοῖσιν ἢ τὸ ἐμβαλλόμενον τοῖς ὀστέοις, ἢν μὴ ἐχὶ ἀποστήριξιν, ἀποπρίσαι τῶν κωλυόντων ἀτὰρ καὶ ὡς τὰ φιλωθέντα ἀπο-

30 πεσεῖται, καὶ βραχύτερα τὰ μέλεα.

XLIII. Τὰ δὲ ἄρθρα, τὰ μὲν πλέον, τὰ δὲ μεῖον ὀλισθάνει· καὶ τὰ μὲν μεῖον ἐμβάλλειν ῥάβδου τὰ δὲ μέγιστος ποιεῖ τὰς κακώσιας καὶ ὀστέων καὶ νεύρων καὶ ἄρθρων καὶ σαρκῶν καὶ σχημάτων. μηρὸς δὲ καὶ βραχίων ὀμοιότατα 6 ἐκπίπτουσιν.

1 πισσηρῇ θερμῇ.
at the knee, flattened on the leg side, soft and strong, provided with rings; rods of cornel-wood, suitable in length and thickness, to keep the limb stretched; leather thongs adapted at each end to the extremities (of the rods) are fastened to the rings, so that the ends of the rods, being fixed to the rounds, make extension both ways. Treatment: warm pitch cerate, attitude, position of foot and hip, strict diet. Reduce projecting bones on the first or second day, not on the fourth or fifth, but when swelling has gone down. The reduction with small levers: if the fragment to be reduced does not afford a fulcrum, saw off what is in the way. For the rest, shortening of the limbs is proportional to the denuded bone which comes away.

XLIII. Joints are dislocated, some to a greater, some to a less extent; and the less are easy to reduce, but the greater produce more serious lesions of bones, ligaments, joints, flesh, and attitudes. The thigh and upper arm are very similar in their manner of dislocation.¹

¹ *I.e.* completely, or not at all. See J. LXI.
We have seen that, according to Galen, Chapter LXXVIII is the τοῦτος λόγος, or "final discourse," of *Joints*. His commentary ends rather abruptly in the middle of it, but he has already intimated that he is not going to say much, and he can hardly have gone beyond, though some manuscripts contain the rest of the Hippocratic treatise. Of this appendix the most interesting part is Chapter LXXX. It looks like, and has always been considered, the original Hippocratic account of finger-joint dislocation, which somehow got displaced and replaced by the very poor substitute, Chapter XXIX, identical with *Mochliicon* XIX.

But there are difficulties in this view. No ancient writer, till we get back to Diocles, early in the fourth century B.C., seems aware of its existence. Galen excludes it from *Joints*, but had he known that Hippocrates anywhere mentioned "lizards" as surgical instruments he would surely not have left them to puzzle succeeding generations till Diels happened to visit a toy shop. He would have explained it in his Hippocratic Glossary. Even Erotian, who tells us twice over that σείρα in Hippocrates means ἵματι (strap), would hardly have left σαφέω unexplained. The analogous but less peculiar use of τίφων (see *Joints* XLIII) is explained twice over both by Erotian and Galen.

Apollonius obviously knew nothing about it. He apologizes for the poverty of XXIX, and supplements it by an extract from Diocles, but seems quite unaware that this extract is an abbreviation of the genuine Hippocratic account. Apollonius was the chief Alexandrian surgeon of his day (first century B.C.), so we may safely conclude that the chapter was not in the Alexandrian edition of Hippocrates.
APPENDIX

One would hardly add a poor account of a matter to a treatise which already contained a good one; it is therefore improbable that Joints contained Chapter LXXX when it got separated from Fractures, and had its more glaring omissions made up by insertions from Mochlicon. We thus get back to the author of Mochlicon. Did he abbreviate his Chapter XIX (XXIX J.) from LXXX? Able editors such as Littre, Adams, Petrequin say he did. I venture to think that the reader will find no evidence of this, but will discover without much trouble that XXIX is practically made up of stock phrases taken from the three previous chapters, one of them ("the flesh wastes chiefly on the side opposite to the dislocation") being dragged in rather absurdly. Unusual words, εὐσημον ἀντωθεὶν ἐκπτωμα ἐπιπαροῦτα, are all absent from LXXX, but have been just used or seen by the epitomist (ἐπιπαροῦτα F. XXXVIII which he has just abridged), while the peculiar words and expressions of LXXX are all absent.

Coming to the Diocles quotation we find a great contrast. The correspondence of words and phrases is so close, that, though the hand is looked at from a different position, it seems almost certain that the two passages are connected. The natural view is that Diocles is copying Hippocrates, and this seems confirmed by Galen's assertion that he paraphrased other parts of Joints. On the other side there is the ignorance of Apollonius; the difficulty in believing that Chapter LXXX could have been so entirely lost and so entirely recovered after many centuries, and another fact which perhaps turns the balance against the accepted theory. Besides σαύρα the writer uses another word in a peculiar sense, χαρπα = "joint socket." This occurs no less than six times in the two chapters LXXIX-LXXX, which is strong evidence that they are by the same author, and against the view that he is identical with the author of Fractures-Joints: for though the old writer uses χαρπα occasionally, it always has its natural sense of "place," whereas in LXXIX-LXXX the "natural" and sometimes necessary sense is "socket." The remaining Chapter (LXXXI) is made up largely of passages taken from the two previous

1 Usually with εὐντο, cf. F. IX, XIV. In J. LXXIX-LXXX this word is omitted in all six cases.
ones, with the highly un-Hippocratic addition that all dislocation patients should be starved for seven days (!). Even if we soften this down by inserting kal ("even for seven days") as do some manuscripts, it is still inconsistent with the rules given by the author of Fractures-Joints. We conclude therefore that these three chapters are probably a late addition. Perhaps a surgeon who had read the apology and supplement of Apollonius, and believed, as we do, that the latter is really taken from Hippocrates, thought it no forgery to try to rewrite the latter in an expanded form and in Hippocratic style. While he was about it, he might also wish to remedy another defect in Joints, which, as he justly observes, should first tell us what joints are. He therefore composed Chapters LXXIX-LXXX and probably LXXXI which became firmly attached to the end of the treatise.

THE DIOCLES SUPPLEMENT TO XXIX

Δακτύλου μὲν ἄρθρον ἄν τε ποδὸς ἄν τε χειρὸς ἐκπέση, τε- τραχῶς ἐκπίπτει, ἣ ἐκτὸς ἢ ἐκτὸς ἢ εἰς τὰ πλάγια. ὃς δ' ἄν ἐκπέση, βάδιον γνώναι πρὸς τὸ ὄμωνυμον καὶ τὸ ϊγίες θεωροῦντα. ἐμβάλλειν δὲ κατατείνουτα εὐθὺ ἀπὸ χειρῶν, περιελίζαι δὲ ὅπως μὴ ξυλισθάνῃ. ἀστείον δὲ καὶ τὰς σωφρας, ἃς οἱ παιδεῖς πλέκουσι, περιθέντα περὶ ἄκρον τὸν δάκτυλον κατατείνειν, ἐκ δὲ τοῦ ἐπὶ θάτερα ταῖς χειρῖν.

A joint either of a toe or finger may be put out. It is put out in four ways, inwards, outwards, or to the sides. The way it is put out is easy to distinguish by comparing it with the sound and corresponding joint. Put it in by making extension in a straight line with the hands, but wrap a band round it that it may not slip away. It is also ingenious to put the lizards, which children plait, round the end of the finger and make extension, pulling in the opposite direction with the hands.

THE HIPPOCRATIC BENCH

Though we have three complete accounts of the Hippocratic Bench, by "Hippocrates," ¹ Rufus (or Heliodorus). ²

Joints LXXII-LXXIII. ² Oribasius XLIX. 26 ff.
APPENDIX

and Paulus Aegineta \(^1\) respectively, attempts at restoration have been unfortunate. Till the time of Littré they were based on that of Vidus Vidius (1544), who read μακρᾶς for μακρᾶς in Joints LXXII and produced a bench with a row of square holes down the middle. He represented the perineal peg as angular and pointed, and made the corner supports so high that the patient would be lifted as well as stretched.

Littré pointed out that the καρκτοι were long grooves parallel to one another. He also reduced the height of the corner posts, and was on the point of making them project horizontally lengthways, so sunk into the bench that the axles would come below its surface.\(^2\) This view, which seems admitted as an alternative in Joints XLVII, is still supported by Schöne.

On the whole, however, Littré's figure, including the uncomfortable form of perineal peg which he retained, is still generally accepted: but there are serious doubts as to the intermediate supports. Littré like his predecessors represented them as fixtures at the sides of the bench, though Scultetus had suggested that they were movable, a view adopted by Petrequin, who, however, still keeps them well to the sides. The chief object of this note is to suggest that they were not only movable, but were inserted when required into the grooves not more than a foot apart.

Paulus in his renovated text is clear as to the first point.\(^3\)

"As a last resort in internal dislocation of the thigh, let the perineal peg be removed and let two other pieces of wood be inserted on either side of its position"—ἐκ πλαγίου τῆς τοῦτον θέσεως ἐκατέρωθεν ἐπέρα δύο ξύλα πεπήχθω. This seems intended for a paraphrase of the Hippocratic κατὰ μέσον καὶ ἐκ πλαγίων.\(^4\) for κατὰ μέσον has just been used to describe the position of the peg. A cross-piece is then inserted "so that the shape of the three resembles the letter π (Π), or eta (Η) if the cross piece is a little below the top. Then, with the patient lying on his sound side, we may bring (ἀγάγωμεν) the sound leg between these supports."

In Rufus the apparatus is apparently in one piece, a πι-shaped prop.\(^5\) It is noticed first merely as "another

\(^1\) VI. 118.
\(^2\) IV. 46.
\(^3\) VI. 118. 5.
\(^4\) LXXIII.
\(^5\) πιοείδης φλιά.
The Hippocratic Bench or Scamnum

i. According to Vidius. 1544

ii. According to Littre. 1844

E. Perineal Peg. F. F. Intermediate Supports. G. Crossbar

To face p. 431.
central contrivance besides the perineal peg.” 1 In describing the use of the bench for thigh dislocation he adds that it was especially contrived for the internal form; “the perineal peg is taken out, the patient laid on his sound side, and the sound leg is arranged (τάσσεται) under the prop.” It is also called a πήγωμα or framework, and perhaps could stand on the bench without being inserted. Anyhow, it can hardly have been a fixture occupying the breadth of the bench, for it would then not have been very pi-shaped, would have been in the way on all other occasions, and the patient could not lie on the bench without having his legs beneath it.

This fact seems alone sufficient to prove our points—that the props were not only movable, but, when inserted, were so close as just to admit one leg.

The terms used by Hippocrates are the strongest of the three, whether we read διέρσας μεσημβρα (“insert between”), a term just employed for inserting an arm between the thighs, 2 or ἐμέίεσθε μεσημβρά (“press between”), as read by Apollonius. Even the mildest of the expressions used for bringing the sound leg between the props would surely be absurd if they were so far apart that the patient could not lie on the bench without having it there already!

This view enables us to give πορισμός 3 its natural meaning: the supports were “a foot long” in order to stand firmly in the grooves. So, too, the wooden cross-bar, instead of being three feet long and expected to resist immense pressure at its middle, was only about a foot in length and the pressure distributed throughout.

The illustrations of Apollonius are disappointing; the one thing we learn from them is that the grooves sometimes went the whole length of the bench. The wheel and axle arrangements at the ends are apparently separate from it, and there is no trace of any intermediate supports, though the perineal peg is represented. The Wellman Museum of Medical History contains an interesting example of the Vidian restoration, though the supports had been cut down when it was discovered.

1 πριαπισμός. 2 LXXI. 3 LXXIII.
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