ANDRY AND THE *ORTHOPAEDIA* *

BY R. BEVERLY RANEY, M.D., DURHAM, NORTH CAROLINA

I want you to picture an old man writing a book. He is eighty-three. The place is Paris, where he is Professor of Medicine in the Royal College and former Dean of the Faculty of Physick. The time is 1741,—fifty years before the French Revolution and a century before the discovery of ether anaesthesia. Our author's face, we can imagine, shows the scars of time and many a bitter professional battle. His eyes, however, are still bright with originality as he writes an opening paragraph and creates a new tool of thought (Fig. 1): "As to the Title, I have formed it of two Greek Words, viz. *Orthos*, which signifies streight, free from Deformity, and *Paidion*, a Child. Out of these two Words I have compounded that of *Orthopaedia*, to express in one Term the Design I propose, which is to teach the different Methods of preventing and correcting the Deformities of Children" [3].

I.

Explication du titre d'Orthopédie. Quant au titre en queſtion, je l'ai formé de deux mots grecs, ſçavoir, d'*Orthos* qui veut dire *droit, exempt de difformité, qui eſt ſelon la rectitude*, & de *Paidion*, qui ſignifie *Enfant*. J'ai compoſé de ces deux mots, celui d'*Orthopédie*, pour exprimer en un ſeul terme, le deſſein que je me propoſe, qui eſt d'enſeigner divers moyens de prévenir & de corriger dans les enfans, les difformités du corps. L'expreſſion m'a paru d'autant plus permiſe, que les deux célébres Auteurs que je viens de citer, en ont employé de ſemblables; le premier en donnant le titre de *Pédotrophie* à un Traité ſur la *maniere de nourrir les Enfans à la mammelle*; & le ſecond, celui de *Callipedie* à un Traité ſur les *moyens d'avoir de beaux Enfans*. Deux titres qui ſont tirés tout de même, du grec; le premier de *Pais* Enfant, & de *Trophe* nourriture; & le ſecond de *Kalos* Beau, & de *Paidion* Enfant.

I.

As to the Title, I have formed it of two Greek Words, *viz.* Ὀρθὸς, which ſignifies ſtreight, free from Deformity, and Παιδίον, a Child. Out of theſe two Words I have compounded that of *Orthopædia*, to expreſs in one Term the Deſign I propoſe, which is to teach the different Methods of preventing and correcting the Deformities of Children. The Expreſſion ſeemed to me the more allowable, that the two celebrated Authors above cited, have made uſe of Terms of the ſame Kind; the firſt in giving the Title of *Pædotrophia* to a Treatiſe upon the Manner of ſuckling Infants; and the ſecond that of *Callipædia*, to a Poem upon the Method of getting beautiful Children: both which Titles are likewiſe taken from the Greek; the firſt from Παῖς an Infant, and Τροφὴ Nouriſhment; and the ſecond from Καλὸς beautiful, and Παιδίον a Child.

Explication of the Title of Orthopædia.

FIG. 1

Andry's creation of the term *Orthopédie*.

The word "orthopaedics," like its creator, has had adversaries and has outlived them. "Orthosomatics", "orthontropia", the "orthomorphia" of Delpech and the "orthopraxy" of Heather Bigg are now strange even to medical ears. To the term "orthopaedics" has come gradually increasing acceptance, tempered always with a realization that the subject has far outgrown the literal meaning of its title. A century after Andry, Valentine Mott

* Read at the Annual Meeting of The American Academy of Orthopaedic Surgeons, Chicago, Illinois, January 26, 1949.

L'ORTHOPEDIE
OU
L' A R T
DE PREVENIR ET DE CORRIGER
DANS LES ENFANS,
LES DIFFORMITÉS DU CORPS.
LE TOUT PAR DES MOYENS A LA PORTE'E des Peres & des Meres, & de toutes les Perſonnes qui ont des Enfans à élever.
PAR M. ANDRY, CONSEILLER DU ROY, Lecteur & Profeſſeur en Médecine au College Royal, Docteur-Regent, & ancien Doyen de la Faculté de Médecine de Paris, &c.
Avec Figures.
TOME PREMIER.

A PARIS, RUE SAINT JACQUES.
Chez La Veuve ALIX, au-deſſus de la ruë des Noyers, au Griffon.
Chez LAMBERT & DURAND, à la Sageſſe, & à Saint Landry.
M. DCC. XLI.
AVEC APPROBATIONS ET PRIVILEGE DU ROY.

ORTHOPÆDIA:
Or, the ART of
CORRECTING and PREVENTING
DEFORMITIES
IN
CHILDREN:
By ſuch MEANS, as may eaſily be put in Practice by PARENTS themſelves, and all ſuch as are employed in Educating CHILDREN.
To which is added,
A DEFENCE of the ORTHOPÆDIA, by way of SUPPLEMENT, by the AUTHOR.
Tranſlated from
The *French* of M. *ANDRY*,
Profeſſor of Medicine in the ROYAL COLLEGE, and Senior Dean of the Faculty of PHYSICK at *Paris*.
IN TWO VOLUMES.
Illuſtrated with CUTS.
VOL. I.
LONDON:
Printed for A. MILLAR, at *Buchanan's Head*, oppoſite to *Catharine-ſtreet*, in the *Strand*.
M. DCC. XLIII.

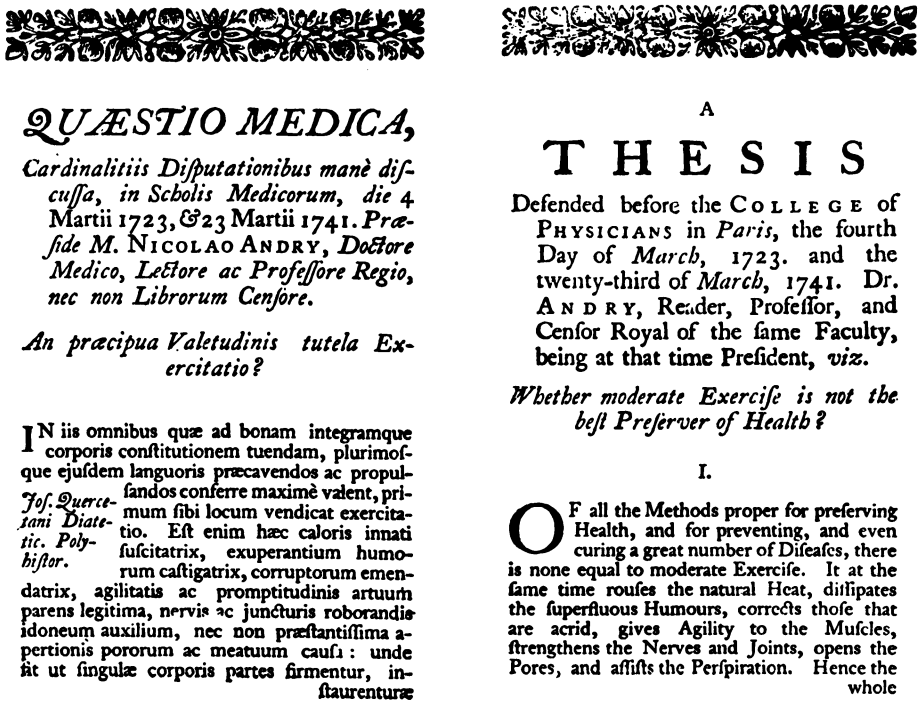
FIG. 2
Title pages of French and English editions of the *Orthopaedia*.

referred to "that beautiful and exact science *limitedly* denominated Orthopoedic Surgery". Two centuries after Andry, Royal Whitman wrote: "The ancient, ambiguous but irreplaceable term 'orthopaedic', which for those who accepted its restrictions was an insuperable obstacle to progress, is now generally understood as indicating only a sphere of action". The meaning and the influence of orthopaedic surgery must continue to grow. It is up to us to see that its standards remain high and that its further development, like that of Andry's children, is straight and healthy.

The original, Paris edition of the *Orthopaedia* [2] was published in two duodecimo volumes in 1741. Its title page (Fig. 2) includes a reference to the sanction of the king. The English edition [3] is an anonymous translation which was published in London in 1743. A Belgian edition appeared in 1742, and German editions in 1744 and 1762. The English volumes include, as mentioned on the title page, a translation of Andry's *Suite d'Orthopédie*, a spirited rebuttal of criticisms leveled at the *Orthopaedia*. Both Paris and London editions include Andry's thesis on the virtues of exercise (Fig. 3), which is entitled: "Whether moderate Exercise is not the best Preserver of Health?"

Both French and English editions are illustrated by fifteen pages of copper-plate engravings. An example (Fig. 4) contrasts proper and faulty sitting posture in reading. The frontispiece (Fig. 5) is an allegorical drawing of children, mother, and orthopaedic doctrine. Most celebrated of the illustrations, however, is that of the splinted tree (Fig. 6), which has gained wide recognition as a symbol of orthopaedic endeavor.

The text of the *Orthopaedia*, divided into four books (Fig. 7), describes the parts of the body, classifies the deformities of children, analyzes causes, and presents methods of prevention and treatment. Andry writes in a natural, wholesome, vivid style. Sample subtitles are: "The Body like the Back of a Spoon" and "The Method of preventing



QUÆSTIO MEDICA,

Cardinalitiis Diſputationibus manè diſcuſſa, in Scholis Medicorum, die 4 Martii 1723, & 23 Martii 1741. *Præſide M.* NICOLAO ANDRY, *Doctore Medico, Lectore ac Profeſſore Regio, nec non Librorum Cenſore.*

An præcipua Valetudinis tutela Exercitatio?

IN iis omnibus quæ ad bonam integramque corporis conſtitutionem tuendam, plurimoſque ejuſdem languoris præcavendos ac propulſandos conferre maximè valent, primum ſibi locum vendicat exercitatio. Eſt enim hæc caloris innati ſuſcitatrix, exuperantium humorum caſtigatrix, corruptorum emendatrix, agilitatis ac promptitudinis artuum parens legitima, nervis ac juncturis roborandis idoneum auxilium, nec non præſtantiſſima apertionis pororum ac meatuum cauſa: unde fit ut ſingulæ corporis partes firmentur, inſtaurenturæ

Joſ. Quercetani Diatetic. Polyhiſtor.

A

THESIS

Defended before the COLLEGE of PHYSICIANS in *Paris*, the fourth Day of *March*, 1723. and the twenty-third of *March*, 1741. Dr. ANDRY, Reader, Profeſſor, and Cenſor Royal of the ſame Faculty, being at that time Preſident, *viz.*

Whether moderate Exerciſe is not the beſt Preſerver of Health?

I.

OF all the Methods proper for preſerving Health, and for preventing, and even curing a great number of Diſeaſes, there is none equal to moderate Exerciſe. It at the ſame time rouſes the natural Heat, diſſipates the ſuperfluous Humours, corrects thoſe that are acrid, gives Agility to the Muſcles, ſtrengthens the Nerves and Joints, opens the Pores, and aſſiſts the Perſpiration. Hence the whole

FIG. 3

Title page of Andry's thesis on the value of exercise (English edition).

Children from pushing out the Backside too much". The fourth book (Fig. 8), which deals with deformities of the head and even disorders of the complexion and defects of the voice, has been criticized widely as having nothing to do with orthopaedics. Andry, however, doubtless interpreted deformity as including disfigurement. It must be remembered that Andry was not writing primarily a scientific treatise, but a guide for the raising of healthy children. As Kirmsse has pointed out, the pioneer of a new subject is likely to give either too little or too much.

A more valid indictment of the *Orthopaedia* is that many of the treatments which it advocates are extremely weak or quite valueless[4]. We should expect little correction of deformity from the active exercise occasioned by awakening the patient each morning with cold water thrown in his face, nor can we second Andry's treatment of applying to sprains "a well roasted salt Herring".

Despite such defects, the *Orthopaedia* contains an astonishing store of pertinent information and deserves fully the approval which it has received. It collects and correlates the various deformities of the external parts of the body. It directs attention to the supervision demanded by the physical needs of children, demonstrates the harmful effects of improper body mechanics at rest and in motion, and specifies a preventive as well as a corrective therapy. The basic importance of clinical observation of the patient is brought out; the superiority of early treatment to late is repeatedly stressed. Andry calls attention to the value of gentle massage and to the need for repetition and patience in the use of corrective manipulations. The importance of simple gymnastics, of exercising deficient muscles, and of prescribing active exercise rather than passive movement is clearly set forth. Andry describes and recommends what we now refer to as muscle-setting exercises. He considers psychological aspects of treatment and prescribes recreational therapy. In one paragraph he deprecates the use of soft beds and pillows; in another he recommends raising one border of the shoes if "the Feet incline too much to one Side". In some instances overcorrection of deformity is advised. For acute minor injuries the value of immediate immersion in cold water is mentioned. There is even a reference to

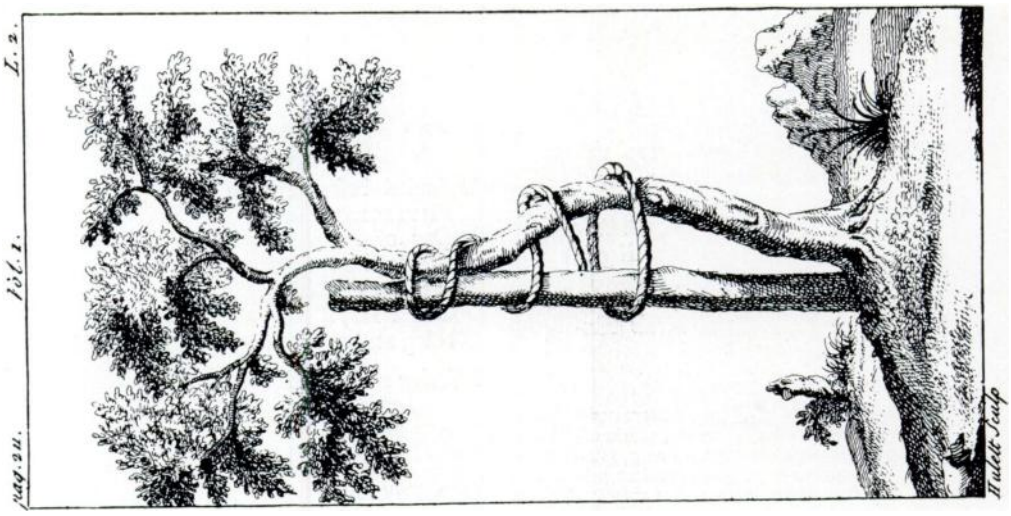


Fig. 4

Andry's illustrations of a proper and an improper sitting posture (English edition).

Fig. 5

Frontispiece of the *Orthopaedia* (English edition).

Fig. 6

Andry's splinted tree, used in the *Orthopaedia* to illustrate the treatment of bowing of the leg (English edition).

ORTHOPÆDIA.

BOOK FIRST.

A general Deſcription of the external Parts of the Body.

THE human Body is divided into the Trunk and Extremities. The Trunk is ſupported by the Spine or Back-Bone, and comprehends three Cavities; *viz.* 1. The Head, which Anatomiſts call the upper Cavity, and is ſupported by the Neck; 2. The Thorax or Cheſt, called by Anatomiſts the middle Cavity; 3. The Belly, properly ſo called, to which they give the Name of the lower Cavity.

THE Extremities are the Arms and Legs. I ſhall only deſcribe theſe Parts as to their external Appearance. Each of them is divided into a great many others, ſome of which have Names known by every body, while the Names of others are not ſo common. I ſhall name and deſcribe

BOOK SECOND.

The Means of preventing and correcting the Deformities of the Body in Children; and firſt, a Deſcription of the Body.

BY the Body is underſtood the Trunk of the Body; which comprehends, 1. The Head; (but the Head, properly ſo called, and conſidered only with reſpect to its Figure, independant of the Face;) 2. The Spine; 3. The Cheſt; 4. The Loins; 5. The lower Belly and the Back-ſide..

Of the SPINE.

THE Spine is that long Chain of moveable Bones, placed one upon another, all along the Back, from the top of the Neck down to the Rump, and compoſes that flexible Column upon which the Head is placed, as on an Axis, with reſpect to the firſt Vertebræ.

WHEN the Spine is ſtrait, well ſet, and finely turned, it makes a handſome Body; and when it is crooked and ill turned, the Body is deformed.

THE upper part of the Cheſt is attached to the Spine above, and the Haunches below;

E 3 ſo

FIG. 7

Title pages of first and second books of the *Orthopaedia*.

the ready healing of "porous and spongy" bone. The modern ring of many of these concepts is immediately apparent.

Andry's death one year after the publication of the *Orthopaedia* brought to a close an active life, filled with personal and professional strife. Nicolas Andry was born, the son of a poor merchant of Lyons, in 1658. He studied for the clergy, tutored to help meet expenses, and later became a professor of theology [8, 13]. His restless nature was unsuited, however, for the quiet life of the church; at the age of thirty-two he abandoned theology and undertook the study of medicine. He graduated at Reims in 1693, and was admitted to the Faculty of Medicine at Paris in 1697. He became a prolific writer of medical papers, discussing varied subjects including diseases of bone, diet, bleeding, purgation, and abstinence from liquor. Andry is said to have written the first description of infra-orbital neuralgia.[12] His book on worms[1], advancing the theory that each part of the body has its respective pathogenic worms, brought wide recognition; it also brought him considerable opposition and the nicknames *homo vermiculosus* and *homo verminosus*. Andry was sharply criticized for conniving with the apothecaries to sell his proprietary vermifuge. In addition to medical contributions, Andry wrote innumerable polemics and invectives. His criticisms of another author might well be applied to his own papers: "An ungoverned Heat prevails . . . it is not possible for more Passion to be discovered in writing"[3].

In 1712 Andry became Professor of Medicine at the College of France in Paris; twelve years later he was made Dean of the Faculty of Medicine. This office he filled for two memorable years in which his prodigious activity and turbulent spirit were fully displayed. Already he had had many contests with the surgeons, of whom Jean-Louis Petit, author of a famous treatise on injuries and diseases of bone, is perhaps the best known. On becoming Dean, Andry did everything in his power to see that the surgeons were shorn of their privileges and that the rights of the Faculty of Medicine were aug-

BOOK THIRD.

Deformities of the Arms, Hands, Legs and Feet.

1. *The* ARMS *too ſhort or too long.*
2. *The* LEGS *too ſhort or too long.*

WE ſee ſome Perſons who have both the Arms too ſhort, or too long; and ſome that have one ſhorter or longer than the other. We ſee them alſo with other Deformities of thoſe Parts, as Knots, Crookedneſs, Diſtortions, *&c.* The ſame is obſerved of the Hands, Legs and Feet. When they are born with thoſe Defects, there is no Cure to be attempted, unleſs they are occaſioned by ſome Violence which the Infant ſuffers from the Midwife.

A FAMOUS King of *Perſia* * had his right Hand longer than the left, and it was ſo long that he was ſurnamed *Longamanus*. *Darius* and *Alexander*, as ſome Hiſtorians report, had their Arms ſo long, that they reached down to their Knees. We oft enough ſee People who have their Arms ſo ſhort, that they are obliged when they eat or drink, to bow down their Head to their Hands.

As

* *Artaxerxes* the firſt, called *Artaxerxes Longamanus*.

ORTHOPÆDIA.

BOOK FOURTH.

The Deformities of the HEAD.

The Means of preventing and correcting thoſe Deformities.

THE Head, to repeat here what we ſaid in the Beginning of the firſt Book, includes the Skull, the Hair, and the Face. The Skull is the Caſe of the Brain, the Hair is the Covering of this Caſe, and the Face is a Compoſition of thoſe Parts which compoſe the whole Fore-part of the Head. Thus we have three Sorts of Deformities to ſpeak of here: Firſt, thoſe which affect the Head, with reſpect to the *Cranium*; ſecondly, thoſe with reſpect to the Hair; thirdly, thoſe with reſpect to the Face.

VOL. II. B The

FIG. 8

Title pages of third and fourth books of the *Orthopaedia*.

mented. Chéreau [8] states that no other physician fought with such blind fury to prevent the surgeons from obtaining the honorable rank to which the nature of their profession entitled them. Andry succeeded in obstructing the teaching of surgery by surgeons. He managed to have passed a rule forbidding lithotomy unless a physician were present, and another prohibiting the publication of any medical work without the approval of the Faculty of Medicine. Having disposed temporarily of the surgeons, Andry next engaged other members of the Faculty of Medicine in a struggle for power. As his intrigues became known, his popularity dwindled; and in 1726 he lost the Deanship, despite his efforts to swing the election by summoning only those who he thought would vote for him.

Of Andry's personal life we have little knowledge. He was married three times, and had one daughter by his third wife. He remained active professionally until his death in 1742, at the age of eighty-four years.

It is strange that, despite a considerable volume of information on the life and personality of Andry, we know almost nothing of his physical characteristics and personal appearance. No picture of Andry has been found at the College of Grassins, where he was Professor of Theology, or at the Church of Saint-Roch, where he was buried. No picture has been found in his numerous works at the Library of the Faculty of Medicine in Paris, although it was the custom of the period for the author's portrait to be used as a frontispiece. It was also customary for each dean of the faculty of medicine to have his portrait engraved on a medallion, and, according to Mauclaire, reference to such a medallion has been found in a publication of 1858; nevertheless, the actual medallion has never been located. In 1869, Chéreau [9] stated that a magnificent portrait of Andry was at that time displayed in one of the rooms of the Faculty of Medicine in Paris. In 1937 Bonola [6] wrote that six fine portraits, which, judging from the large wigs, ermine capes, and black caps, depicted men of Andry's time, had been located; but that their names and the dates had been lost during the Revolution and they had become known as "the Six Anonymous". Mauclaire believed that "Anonymous Number Three" (Fig. 9) represented Andry.

FIG. 9

FIG. 10

Fig. 9: Portrait at the Faculty of Medicine in Paris, possibly representing Andry.
Fig. 10: Caricature of Andry attacking the shop of a barber-surgeon.

Bonola[7] tells us that, in this portrait, François de Troy, one of the most famous portrait painters of the period, shows us a somewhat youthful and keen face with a full serene forehead, untouched by wrinkles, penetrating eyes, and a subtle ironic smile. On the whole it is difficult to reconcile this picture with the age of Andry, which was eighty at the time at which the picture is dated, especially when Andry's life had been "a constant battle". There are other discrepancies, such as the absence of a Cavourian beard, the date of the painting—twelve years after Andry lost the deanship—and the fact that no mention of this portrait is made in catalogues of François de Troy's works. These discrepancies have led Bonola to conclude that the portrait cannot be accepted without reservations.

The only known pictorial representation of Andry is a caricature (Fig. 10), which has been found at the Bibliothèque Nationale. According to Delaunay, there were two variants of this etching. Andry is represented in the act of trying to destroy the shop of a barber-surgeon by kicking at it and tearing down its sign. He appears to be a slender man of moderate height, full of energy and anger.

How are we to evaluate this colorful person? Of Andry's ability there is no question. He is said to have been a man of great talents, sound knowledge, and brilliant imagination. He has been described also as meddlesome, quarrelsome, abusive, jealous, full of low intrigues and mean passions, a grudger, and no amiable character. It may be that, as suggested by Bonola[6], our information has been prejudiced by criticism emanating from Andry's wounded adversaries. Apparent in every biography of Andry, however, is the striking combination of professional merit and personal disrepute.

Andry's influence upon orthopaedic surgery is perhaps less difficult to assess. He has been called the father of orthopaedics and the author of its first textbook; however, these designations apply only in so far as the term itself and the non-surgical orthopaedics of childhood are concerned. As pointed out by Mercer, Andry "taught orthopaedics as a branch of preventive medicine, rather than as an off-shoot of surgery". Most apt is Putti's designation of Andry as the *vecchio padrino* (old godfather) of orthopaedics.

It is important that, by his very attacks upon the surgeons of his day, Andry may have exerted a most constructive influence on the development of surgery and its specialties. To appreciate this, we must realize that in Andry's time the standards of surgical education and practice were far inferior to those of medicine. In France the battle between

qualified surgeons and their medical confreres, on the one hand, and the uneducated barber-surgeons, on the other, had raged for more than a century. In England an act to separate qualified surgeons from barber-surgeons was passed by Parliament three years after Andry's death[12]; in France a decree reconciling physicians and surgeons was issued by the Convention in 1794[15].

Finally, to return from this glimpse of the past to our problems of today, what can modern orthopaedic surgeons learn from Andry? He would be the first to agree that, the better the surgeon, the less often he finds surgery necessary. We have all become surgeons and debate techniques of treatment; how much more effective would be an increased knowledge of prevention. We know how to reduce a fracture, but not what makes it heal; how badly we need a pioneering imagination in research! The greatest lesson from Andry is to preserve for our beliefs and practices his spirit of sharp questioning and criticism. Only thus can we hope to separate truth from fallacy, keep our house in order, and contribute to the further growth of orthopaedic surgery.

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