

# ANATOMICAL DICTIONARY

*with Nomenclatures and Explanatory Notes*

by

TIBOR DONÁTH, M. D.

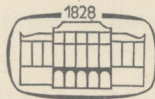
Professor of Anatomy

Budapest University School of Medicine

*English Edition Edited by*

G. N. C. CRAWFORD

Department of Human Anatomy, Oxford University



AKADÉMIAI KIADÓ, BUDAPEST 1969

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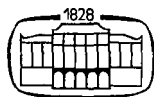
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## FOREWORD

THE Anatomical Dictionary of Tibor Donáth has during the eight years of its existence proved a most valuable aid both in the learning and teaching of anatomy in this country. The German translation printed only one year after the original edition met favourable acknowledgement in anatomical circles of Central Europe. A thoroughly revised edition in Russian appeared in 1964.

The particular need for such a book is easily explained by two circumstances: modern requirements of streamlined secondary school teaching as well as of medical studies, have in the last decades considerably reduced the knowledge of the classical languages on one hand and the time available for the anatomist to dwell on details of anatomical terms and their synonyms on the other. The quick change of continental anatomy from the Basle *Nomina Anatomica* (1895) to the Jena (1935) and finally to the Paris *Nomina Anatomica* (1955) as well as its further revisions in New York (1960) and Wiesbaden (1965) at times when other branches of medical literature have not even caught up with the first, is a constant source of difficulties and ambiguities if not of severe misunderstandings.

Students of, as well as those teaching, anatomy will find Doctor Donáth's book an excellent aid whenever the necessity arises for linguistic or historical explanation of any anatomical term, whether this be one of the internationally accepted nomenclature, or some older expression connected with an author's name.

J. SZENTÁGOTHAJ

Member of the Hungarian Academy of Sciences  
Professor of Anatomy, Budapest

## PREFACE TO THE ENGLISH EDITION

SINCE its original publication in Hungarian in 1958, the Anatomical Dictionary has appeared both in German and Russian. The wide demand for books setting out the medical and anatomical nomenclatures with explanations of their terms has now stimulated an English edition.

In about A.D. 100 a Greek physician, Rufus of Ephesus, wrote thus on anatomical terms: „What do you learn first in playing the guitar? To touch and name every string. What do you master first in learning a language? To know and name every letter.” And in the 16th century, Isaac Joubert in his *Interpretatio dictionum anatomicarum* stated: „Each science has its own language which should be taught and explained to the beginner; otherwise he will not be able to pursue its study.”

With these thoughts in mind we present our book to the English reader.

The present revised English edition has been completed by an index embracing all three nomenclatures so that the situation of anatomical terms in the section where they are grouped according to the various systems can be quickly determined. It also incorporates those changes of the Paris Nomina Anatomica, which on the suggestion of the International Anatomical Nomenclature Committee were ratified by the Seventh International Anatomical Congress at New York in 1960 and by the Eight at Wiesbaden in 1965.

I wish to express my deep gratitude to Dr. G. N. C. Crawford, University Lecturer at the Department of Human Anatomy, Oxford, for his careful work in preparing the English edition of this book and in expanding the explanatory part. Limitations of space, as in previous editions, prevented the inclusion of the name of every structure in the latter section; representative ones and those which might cause difficulties to the student were therefore chosen. It is to be hoped that the choice will not seem too arbitrary.

I am much indebted to Mrs. Martha Karwinski for the translation, and to my colleague Mrs. Éva Szaszovsky for her valuable help in the preparation of the manuscript. Sincere thanks are also due to the Pergamon Press and the Publishing House of the Hungarian Academy of Sciences for the excellent format of the book.

Budapest

T. DONÁTH



## PREFACE TO THE HUNGARIAN EDITION

MANY medical terms derive from the nomenclature of anatomy and their incorrect use is frequently encountered both in medical practice and in the literature. This is partly due to the fact that although the Paris Nomina Anatomica was accepted internationally in 1955, anatomical terms from the three different nomenclatures are, in fact, still used at the present time. Thus those in recent works may be hardly intelligible to the physician of the older school, while medical students may be equally confused by the earlier books.

The author has dealt before with the explanation of anatomical terms (Donáth-Palkovics: *Explanation of Anatomical Terms*, 1952, 1955, Hung.). Subsequent events have led to a book of a different type, and this anatomical dictionary is intended to help surmount the difficulties due to three concurrent nomenclatures, thus assisting in the study of the countless textbooks and atlases based on the Basle, Jena or Paris nomenclatures pending international use of the latter. It aims primarily at facilitating university teaching but it should also be useful in both general practice and in the medico-scientific field.

In the university course the learning of several thousand Latin terms presents great difficulty to the medical student who often does not understand their meaning, and is unable to perceive the logical construction of the term, its grammatical formation, or the possibilities of derivations from the basic word (e.g. abducere, nervus abducens, musculus abductor, to abduct, etc.). Explanation and definition simplifies their memorization since experience shows that words may be kept firmly in mind only if one understands their sense. The analysis of the words also encourages correct usage.

The first section of the book therefore presents the anatomical nomenclature grouped according to the various systems. Thus the student can easily survey the terms relevant to the region or organ which he is studying. Moreover, mastery of the anatomy of an organ implies knowledge of its terms and their meaning and such a survey also helps the revising student to recall the anatomy of the different parts. The Basle, Jena and Paris nomenclatures are listed side-by-side to facilitate and encourage replacement of the old by the current terminology.

The second section, based originally on the Basle nomenclature, contains the basic words occurring in anatomy in alphabetical order. Their genitive case, gender and etymology are indicated, as well as adjectives derived from them, and their meaning.

Subsequently a short explanation is given of the anatomical terms related to the basic words.

The third section contains in alphabetical order very brief biographical data concerning those famous anatomists whose names have been linked to a term in the nomenclature.

Many thanks are due to Dr. I. Lengyel for his valuable work in assembling data and to Mrs. Maria Deák for help in its presentation.

T. DONÁTH

Budapest

## THE ANATOMICAL NOMENCLATURE

A specialized terminology has evolved for the interchange of scientific knowledge and ideas and their transmission to future generations. Medicine, perhaps the oldest of sciences, has had its own since antiquity and it was in the epoch of Hellenism, when there was systematic study of the human body, especially by Herophilos and Erasistratos of the Alexandrian school in the third century B.C., that the nomenclature of anatomy first attained a high level. Ever since it has evolved and developed.

At the time of Galen, Greek words were used exclusively. The anatomists of the Middle Ages employed Latin expressions as well and moreover adopted some Arabic and old Greek names, often in an unrecognizably distorted form, and innumerable synonyms caused much confusion. Vesalius was the first who tried to impose order. He rejected the Arabic and mediaeval Latin terms and translated the Greek so as to have all in classical Latin. Some of the translations, however, appeared forced (e.g. sclera = dura oculi tunica; musculus deltoideus = musculus brachium moventium secundum) and then a return was made to the original Greek.

Since Vesalius, numerous attempts were made to create a unified nomenclature, but the prestige of their authors was insufficient to enable them to enforce their views, and it was not until 1880 that Hyrtl's claim for reform eventually resulted in the compilation of the Basle Nomina Anatomica (BNA, 1895), which put an end to anarchy. A structure, hitherto known perhaps under several names, was assigned one, and in the case of a term linked to the names of several authorities (e.g. valvula ileocaecalis Bauhini, seu Tulpii, seu Fallopii) the eponyms were either discarded or that one retained whose author had the best claims to priority. Simplicity and brevity were decisive in the choice of terms. A large proportion of the tens of thousands of names surviving from previous centuries were rejected as synonyms, the remainder comprising about 4,500 of the original total.

Forty years later fundamental changes had been accomplished by the Association of German Anatomists when in 1936 Stieve presented the so-called Jena Nomenclature (JNA, 1935). For example, the JNA introduced a number of entirely new terms for the nervous systems and to denote directions (e.g. ventralis instead of anterior, and cranialis instead of superior). Throughout stress was laid upon philological exactness. Today it is realized that the JNA was not in fact generally practicable. Neither the theoreticians nor the clinicians being satisfied with it, they reverted to the BNA and it was not generally used in the Anglo-Saxon and Soviet literature. The expressions of the JNA are too

long and ponderous and often unreasonable (e.g. mesostenium instead of mesenterium). However, as the JNA was accepted for some new textbooks, especially those deriving from the German school, the intermingling of the two nomenclatures caused much trouble. Those accustomed to older books could not find their way in the new ones and medical students especially faced serious difficulties. In order to eliminate this dualism the International Anatomical Nomenclature Committee (I.A.N.C.), which was set up in Oxford during the 5th International Congress of Anatomy in 1950 and consisted of 22 members, compiled a new nomenclature. This was accepted in Paris in 1955 by the 6th International Congress of Anatomists and was known as the Paris Nomina Anatomica (PNA).

The PNA is based on the BNA. It includes about 5,640 terms, of which 4,286 (76%) remained unchanged from the BNA, while 886 (15.6%) of the latter were modified. About 268 (4.9%) were adopted from the JNA, and more than 200 (3.5%) entirely new ones added. Thus there was a total of about 1,354 (24%) changes. Whereas in the JNA etymological exactness was the main aim, in the PNA simple, short and memorable terms were sought. All the eponyms of macroscopic anatomy were omitted.

On the suggestion of the I.A.N.C. further modifications of the Nomina Anatomica were introduced at the 7th International Congress of Anatomy at New York in 1960. 104 terms were changed and 119 added, and there were relatively minor alterations such as changes of position (58) and spelling (89), removal of diphthongs (80) and

Comparative table of the most important terms of direction

BNA	JNA			PNA
	Head	Trunk	Extremities	
superior	superior maxillaris	cranialis	proximalis	superior
inferior	inferior mandibularis	caudalis	distalis	inferior
anterior	anterior frontalis rostralis	ventralis	volaris: upper extremity ventralis: lower extremity	anterior
posterior	posterior occipitalis	dorsalis	dorsalis	posterior
medialis	medialis nasalis	medialis	ulnaris: upper extremity tibialis: lower extremity	medialis
lateralis	lateralis temporalis	lateralis	radialis: upper extremity fibularis: lower extremity	lateralis

inconsistencies (23), and grammatical corrections (20). Nearly 500 changes appears a considerable number, but these actually affected less than 10% of the total nomenclature and less than half were of much significance. Certain general changes included, in addition to the removal of diphthongs, the removal of hyphens between vowels in the middle of words. Words such as *margo* and *paries* were to be masculine (they had been either masc. or fem. before), and words such as *calyces* were to be spelt *calices*. Grammatical errors such as *genu* for *genus* were corrected. There were also additions in the form of general terms and, especially noteworthy, new terms for pulmonary vessels based on Boyden's classification. Other minor changes included, for example, the omission of "comitantes" from some venous terms and *A. appendicis vermiformis* became *A. appendicularis*, and *humor aqueus*, *humor aquosus*. In short there was a general tidying up of the *Nomina Anatomica*, which resulted in a second edition in 1961.

Finally the International Congress of Anatomy at Wiesbaden in 1965 accepted improvements introduced by the I.A.N.C. which incorporated suggestions put to them in the previous five years. The I.A.N.C. stressed that no changes were made for merely pedantic reasons or unless they were desired by the majority. They continued to adhere to the policy that terms should always be in Latin, and be as short, simple and informative as possible; that alternatives should be avoided and eponyms discarded; that related structures (e.g. arteries, veins, nerves) have similar names and differentiating adjectives be opposites (e.g. major, minor). Alterations to well-established terms were avoided. Over half of the 1,000 modifications were additions to the general terms and a few accidental omissions (e.g. *Junctura lumbosacralis*) were repaired. A very small number of incorrect terms (e.g. *M. sphincter vesicae*) and some further inconsistencies, and spelling and grammatical errors were deleted or remedied. More important was the decision to include names for the segments of the liver and kidney (and consequently to adjust the names of their vessels) and to add a number of dental terms. The nomenclature of the thalamic nuclei was also modified. All these changes were incorporated in the 3rd edition of the *Nomina Anatomica*, which was published in 1966 and is now the definitive nomenclature.

The I.A.N.C. is continuing its functions, but the very thorough work outlined above has resulted in a nomenclature which should prove generally acceptable and only require occasional and minor modification.

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## ABBREVIATIONS

anat.:	in the anatomical sense	n.:	neutrum (neuter gender)
BNA:	Basle Nomina Anatomica	plur.:	plural
f.:	femininum (feminine gender)	PNA:	Paris Nomina Anatomica
Gr.:	Greek	prep.:	preposition
JNA:	Jena Nomina Anatomica	seu, sive:	or
clin.:	in the clinical sense	sing.:	singular
s.:	see	syn.:	synonym
L.:	Latin	var.:	variation
m.:	masculinum (masculine gender)		

# ANATOMICAL ABBREVIATIONS

a.:	arteria	m.:	musculus
aa.:	arteriae	mm.:	musculi
art.:	articulatio	n.:	nervus
can.:	canalis	nn.:	nervi
dext.:	dexter	plex.:	plexus
ggl.:	ganglion	proc.:	processus
ggl.:	ganglia	r.:	ramus
gl.:	glandula	rr.:	rami
gll.:	glandulae	rostr.:	rostralis
lgl.:	lymphoglandula	sin.:	sinister
lgll.:	lymphoglandulae	v.:	vena
lig.:	ligamentum	vv.:	venae
ligg.:	ligamenta		

NOMINA ANATOMICA OF BASLE (BNA) 1895  
NOMINA ANATOMICA OF JENA (JNA) 1935  
AND  
NOMINA ANATOMICA OF PARIS (PNA) 1955

A COMPARATIVE SYNOPSIS WITH TERMS GROUPED ACCORDING  
TO SYSTEMS AND ORGANS

Between brackets: anatomical variations, official alternatives and explanatory terms.  
The index at the end of the book gives the pages on which the terms appear in the following section.

- ° The headings marked with a circle are not in the official nomenclature but help explain the grouping of the succeeding terms.
- + The terms of the cerebral pathways, marked with a cross in the BNA list, were not included in the official BNA of 1895.
- \* Modifications accepted at the International Anatomical Congress at New York in 1960.
- \*\* Modifications accepted at the International Anatomical Congress at Wiesbaden in 1965.
- \*\*\* For further terms relating to those marked with three asterisks in the PNA list see pages 310-315.



