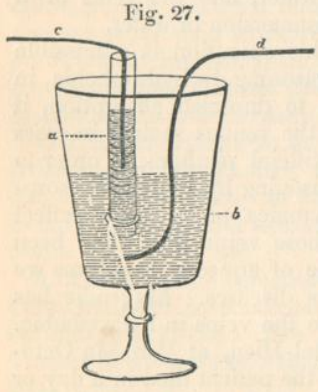
Générales de Médecine, t. ii. p. 432,) and in 1833 by M. Fabré-Palaprat, (*Arch. Gén.* 11me série, t. ii.; also, *Becquerel, Traité de Electricité*, t. iv. p. 321.) The principle on which galvanic electricity has been employed is, that the poles (electrodes) of a voltaic battery have attractive and repulsive powers for certain substances: thus the positive pole (anelectrode) attracts oxygen, chlorine, and iodine,—while the negative pole (cathelectrode) attracts hydrogen and the metals. M. Fabré-Palaprat asserts, that by the aid of galvanism he can cause certain chemical agents to traverse the body and appear at some distant part. He bound on one arm a compress, moistened with a solution of ioduret of potassium, and covered by a platinum disk, connected with the negative pole (cathelectrode) of a voltaic battery of thirty pairs of plates. On the other arm was placed a compress, moistened with a solution of starch, and covered by a platinum disk, connected with the positive pole (anelectrode) of the battery. In a few minutes the starch acquired a blue tinge, shewing that the iodine had been transported from one arm to the other.

But the idea entertained by Davy, that the poles (electrodes) possess attractive or repulsive powers, has been shown by Faraday to be incorrect. It is, indeed, true, that if we place a solution of ioduret of potassium in a glass tube (fig. 27, *a*.) closed at the lower extremity by a piece of bladder, and immerse the tube in a glass vessel containing a solution of common salt and starch, we may, by connecting the liquid in the tube with the negative pole (cathelectrode) (*c*,) and the outer or starch liquid with the positive pole (anelectrode) (*d*) obtain the blue iodide of starch in the outer liquid, shewing that the iodine must have transuded the bladder. But the transudation is effected by exosmosis or imbibition, and not by the action of the battery, since the iodine may be recognised in the external liquid by appropriate tests, when no voltaic apparatus has been employed. The positive pole (anelectrode) does not, therefore, attract the iodine through the bladder, but merely sets it free when the ioduret has transuded.

Fig. 27.



I have twice repeated M. Fabré-Palaprat's experiment,—once on my pupil, Mr. John Smith, and a second time on my assistant, Mr. Scoffern, but though I employed fifty pairs of plates during fifteen minutes, I was unable to obtain the least trace of the passage of iodine through the body.

It is not improbable, however, that electricity may promote absorption, either by increasing endosmosis, or by acting as a stimulus to the blood-vessels and lymphatics.

10. *Classification of Medicines.*

In some works on Medical Botany, which contain figures of the plants employed in medicine, the authors have not followed any arrangement; in consequence, I presume, of the impossibility of procuring specimens in regular order. This is the case in the following works:—

W. Woodville, M.D. Medical Botany, 3 vols. 4to. London, 1790. A Supplement to the Medical Botany, 4to. London, 1794.

J. Bigelow, M.D. American Medical Botany, 3 vols. 8vo. Boston, 1817-18-20.

W. P. C. Barton, M.D. Vegetable Materia Medica of the United States, 2 vols. 4to. Philadelphia, 1818.

J. Stephenson, M.D. and *J. M. Churchill*, Medical Botany, 4 vols. 8vo. London, 1827-31.

Flora Medica, 2 vols. 8vo. 1827.

The large number of substances employed in the treatment of diseases renders some arrangement of them almost absolutely necessary;—and I conceive any order of treating of them to be better than none.

Arrangements or classifications of medicines, like those of plants, (*Théorie Elémentaire de la Botanique*, par P. Decandolle, 1819,) may be divided into *empirical* and *rational* ones.

1. Empirical Arrangements.—These are independent of the nature of, and have no real relation or connexion with, the substances to be arranged. An *alphabetical* order, since it is founded on names which are arbitrary, and have no relation to the bodies they are intended to designate, is of this kind. Two advantages have been supposed to be gained by its employment;—firstly, a ready reference to any particular substance; and, secondly, the avoidance of errors committed by writers who adopt other methods. But the first is more imaginary than real; for an index gives to any mode of classification every advantage derived from an alphabetical arrangement; and, as each substance is known by a variety of names, an index becomes as necessary to an alphabetical, as to any other method. Like other classifications this has its disadvantages, the most important of which are, that it brings together substances of the most incongruous natures, and separates those which agree in most of their properties; and from its want of order, it distracts the attention of the student, and is, therefore, totally unfitted for an elementary work.

The following are some of the more important works in which medicines are described in an alphabetical order:—

M. de la Beyrie, and *M. Goulin*, Dictionnaire raisonné-universel de Matière Médicale, t. 8. Paris, 1773.

J. Rutty, Mat. Medica antiqua et nova, repurgata et illustrata. 4to. Roterodam, 1775.

W. Lewis, an Experimental History of the Materia Medica, 4to. 1761.—4th edit. by Dr. Aikin, 2 vols. 8vo. 1791.

Andrew Duncan, jun. M. D. The Edinburgh New Dispensatory, 11th ed. Edinburgh, 1826. Supplement to the above, 1829.

J. R. Coxe, M.D. The American Dispensatory. Philadelphia, 1806.

J. Thacher, M.D. The American New Dispensatory. Boston, 1810. 2d ed. 1813.

A. T. Thomson, M.D. The London Dispensatory. London, 1811. 9th ed. 1837.

J. A. Paris, M.D. Pharmacologia, 3rd ed. 1820. 8th edit. 1833.

W. Ainslie, M.D. Materia Indica. London, 1826.

W. T. Brande, A Manual of Pharmacy. London, 1825. 3rd ed. 1833.

A. Chevallier, *A. Richard*, and *J. A. Guillemin*, Dictionnaire des Drogues simples et composées; tom. 5, Paris, 1827-9.

F. P. Dulk, Die Preussische Pharmakopöe, übersetzt und erläutert; 2te Aufl. 2 Th. 8vo. Leipsig, 1830.

L. Martinet, Manuel de Thérapeutique et de Matière Médicale. Paris, 1828.

F. S. Ratier, Traité élémentaire de Matière Médicale; tom. 2, Paris, 1829.

F. V. Mérat et *A. J. De Lens*, Dictionnaire universel de Matière Médicale et de Thérapeutique Générale, t. 6, 1829-34.

L. W. Sachs and *F. P. Dulk*, Handwörterbuch der praktischen Arzneimittellehre, Königsberg, 1830-37. 19 Lief. A.—St.

G. B. Wood, M.D. and *F. Bache*, M. D. The Dispensatory of the United States of America, 1833. 3rd edit. 1836.

Bachmann, *W. L.* Handwörterbuch der praktischen Apothekerkunst, 2 Bde. Nürnberg, 1837.

A. Ure, M.D. A Practical Compendium of the Materia Medica, with numerous Formulæ for the Treatment of Diseases of Infancy and Childhood. London, 1838.

J. Steggall, M.D. A Text Book of Materia Medica and Therapeutics, 12mo. London, 1837.

2. Rational Arrangements.—These have an actual relation with the bodies for which they are used, and are the classifications properly so called. They are founded on the properties of the substances treated of; consequently, are as numerous as there are classes of properties. Thus medicines may be arranged according to their

a. Sensible properties (colour, taste, and smell.)
b. Natural-historical properties (external form and structure.)
c. Chemical properties.
d. Physiological effects.

a. Classifications founded on the sensible qualities (colour, taste, and odour.)—Classifications of this kind are necessarily very imperfect, owing to the impossibility of defining sensations. Moreover, their use is very limited, in consequence of the colour, taste, and odour of bodies having no necessary relation to their medicinal properties. In the best executed arrangements of this kind, the denominations of many of the classes or orders are objectionable;—dissimilar bodies are brought together;—and similar ones separated.

Mr. Greeve's classification.

Classes.	Families.	Orders.
I. Inodorous and insipid	1. *Liquid*	1.
	2. *Soft*	1. Pulverescent. 2. Unctuous.
	3. *Hard*	1. Tough. 2. Brittle.
II. Inodorous and sapid	1. *Sweets*	1. Saccharine. 2. Amylaceous. 3. Mucous or Unctuous. 4. Faint. 5. Frugous.
	2. *Bitters*	1. Mawkish. 2. Astringent. 3. Pure bitter. 4. Austere. 5. Styptic 6. Acrid. 7. Salino-amare.
	3. *Alkalines*	1.
	4. *Acids*	1. Pure acid. 2. Saccharo-acid.
	5. *Salines*	1. Pure salt.
III. Odorous and insipid	1. *Fragrant*	1. Sweet. 2. Aromatic.
IV. Odorous and sapid	1. *Sweets*	1. Saccharine. 2. Faint. 3. Sweet-spicy.
	2. *Bitters*	1. Mawkish. 2. Subastringent. 3. Bitter-spicy. 4. Sharp-bitter. 5. Austere. 6. Subacrid. 7. Acrid.
	3. *Acidous*	1.
	4. *Camphreous*	1. Camphreous aromatics. 2. Savoury. 3. Terebinthinate. 4. Camphreous.
	5. *Spirituous*	1. Vinous. 2.

The following writers have offered the best examples of this mode of classification:—

Jon. Osborne, M.D. On the Indications afforded by the Sensible Qualities of Plants with respect to their medical Properties. Contained in the Transactions of the Association of Fellows and Licentiates of the King and Queen's College of Physicians, vol. v. 1828.

A. F. A. Greeves, An Essay on the Varieties and Distinction of Tastes and Smells, and on the Arrangement of the Materia Medica. [Published by *Dr. Duncan* in his Supplement to the Edinburgh New Dispensatory, 1829.]

b. Classifications founded on natural-historical properties.—By natural-historical properties, I mean those made use of in natural history. They are principally external form and structure. In living beings we find that peculiar structure denominated *organized*. The structure called *crystalline* is peculiar to mineral and other inorganized bodies.

A. *Classifications of organized beings.*—In the following works the *vegetable* substances employed in medicine are arranged according to their natural-historical properties:—

J. A. Murray, Apparatus Medicaminum tam simplicium quam præparatorum et compositorum, vol. v. Göttingæ, 1776-89;—post mortem auctor. edid. *L. C. Althof*, vol. vi. Göttingæ, 1792.

A. P. De Candolle, Essai sur les Propriétés Médicales des Plantes, comparées avec leurs Formes Extérieurs et leur Classification Naturelle, 1804, 2d. éd. Paris, 1816.

A Richard, Botanique Médicale. Paris, 1823.

P. J. Smyttère, Phytologie-pharmaceutique et Medicale. Paris, 1829.

J. H. Dierbach, Abhandlung über die Arzneikräfte der Pflanzen verglichen mit ihrer structur und ihren chemischen Bestandtheilen. Lemgo, 1831.

T. F. L. Nees von Esenbeck und *C. N. Ebermaier*, Handbuch der medicinisch-pharmaceutischen Botanik. Düsseldorf, 3 Th. 1830-32.

The *animal* substances used in medicine are arranged in natural-historical order in the following works:—

J. F. Brandt und *J. T. C. Ratzeburg*, Medizinische Zoologie oder, getreue Darstellung und Beschreibung der Thiere die in der Arzneimittellehre in Betracht kommen in systematischer Folge herausgegeben. Berlin, 2 Bde. 1827-33.

P. L. Geiger, Handbuch der Pharmacie, 2ten Bd. 2te Hälfte. Heidelberg, 1829.

Both the *vegetable* and *animal* materia medica are arranged according to the natural system in the following works:—

J. J. Virey, Histoire Naturelle des Médicamens. Paris, 1820.

A. L. A. Fée, Cours d'Histoire Naturelle pharmaceutique. t. ii. Paris, 1828.

A. Richard, Elémens d'Histoire Naturelle Médicale, t. iii. Paris, 1831-35.

J. Johnstone, M.D. A Therapeutic Arrangement and Syllabus of Materia Medica. 12mo. London, 1835.

E. Soubeiran, Nouveau Traité de Pharmacie théorique et pratique, t. ii. Paris, 1836

As in the subsequent part of this work the vegetable and animal substances used in medicines will be arranged in natural-historical order, it will be unnecessary here to offer any examples illustrative of it. I have preferred this mode of arrangement principally on account of the great difficulties attending any other method, especially that founded on the effects of medicines.

Artificial method of Linneus.—This appears to me the best place for noticing those pharmacological works in which the Linnean artificial method of arranging plants is followed.

Car. A. Linné, Materia Medica, ed. 4a. curante *J. C. D. Schrebero*. Lipsiæ et Erlangæ, 1782

P. J. Bergius, Materia Medica e Regno vegetabili, 2 tom. ed. 2nda. Stockholmiæ, 1782.

P. L. Geiger, Handbuch der Pharmacie, 3tte. Aufl. 2 Bde. Heidelberg, 1830.

Methods founded on the parts of organized beings employed.—In some works the vegetable and animal substances employed in medicine are classified according to the parts used; as barks, roots, seeds, secretions, &c.

R. A. Vogel, Historia Materiæ Medicæ. Ludg. Batav. & Lipsiæ, 1758.
C. Alston, M.D. Lectures on the Materia Medica, 2 vol. London, 1770.
J. C. Ebermaier, M.D. Taschenbuch der Pharmacie. Leipzig, 1809.
N. J. B. G. Guibourt, Histoire abrégée des Drogues simples, 2de. éd. Paris, 1826. 3me. éd. 1836.

B. *Classification of inorganized substances.*—I am unacquainted with any natural-historical arrangement of the inorganized substances of the materia medica; that is, of an arrangement founded on the external forms and structure of these bodies. Most writers who have followed the natural system in their descriptions of vegetable and animal medicines, have adopted a chemical classification for the inorganized medicinal substances; a mode of proceeding which I shall follow in this work. As an example of a natural-historical classification of minerals, I may refer to the following work:—

F. Mohs, Treatise on Mineralogy, translated by W. Haidinger, 3 vols. Edinburgh, 1825.

It may perhaps be useful to present the student with a classification of all the crystallized substances employed as medicines; as far, at least, as their primary forms have been determined. And here I must explain, that the forms of crystals are *primary* or *secondary*. "A *primary* form is that parent or derivative form from which all the secondary forms of the mineral species to which it belongs may be conceived to be derived according to certain laws." (*Brooke's Familiar Introduction to Crystallography*, 1823.) The *secondary* forms consist of all those varieties belonging to each species of mineral which differ from the primary form.

All the known primary forms may be arranged in six groups, or systems, as follows:—

Group 1st. Regular or Cubic System: (*Octahedral System*: *Tessular System*, Mohs).—The primary forms belonging to this group, are the *Cube* (or *Hexahedron*), the *Tetrahedron*, the *Regular Octahedron*, the *Rhombic Dodocahedron*, and the *Trapezohedron*. Of these the Cube is usually regarded as the fundamental form or type. The following pharmacological agents belong to this group:—

Bismuth	Mercury	Ioduret Potassium
Carbon	Phosphorus	Muriate Ammonia
Copper	Silver	Arsenious Acid
Gold	Chloruret Sodium	Alum
Iron	Bromuret Potassium	Galena (sulphuret lead).

Group 2nd. Right Square Prismatic System: (*Square Prismatic System*: *Pyramidal System*, Mohs).—The primary forms included in this group are, the *Right Prism* with a *square base*) also called *Right Square Prism*, or simply *Square Prism*), and the *Octahedron* with a *square base*. The first is considered to be the fundamental form. The following medicinal substances belong to this group:—

Chloruret Mercury (Calomel)	Ferrocyanuret Potassium	Copper Pyrites
Bicyanuret Mercury	Red Antimony (oxisulphuret).—(*W. Phillips.*)	Peroxide Tin.

Group 3rd. Right Rectangular or Right Rhombic Prismatic System: (*Right Prismatic System*).—This group includes the following primary forms; the *Right Rectangular Prism*, the *Octahedron* with a *rectangular base* (*Right Rectangular Octahedron*), the *Right Rhombic Prism*, and the *Octahedron* with a *rhombic base* (*Right Rhombic Octa-*

hedron). The fundamental form is either the right rectangular or the right rhombic prism. The following are the pharmacological agents belonging to this group :—

Bichloruret Mercury	Sulphate Magnesia	Morphia
Sesquisulphide Antimony	Sulphate Zinc	Sulphur (native)
Sesquisulphide Arsenicum (Orpiment)	Nitrate Silver	Emetic Tartar
	Nitrate Potash	White Antimony (protoxide)
Carbonate Lead	Citric Acid	
Carbonate Baryta	Bitartrate Potash	
Sulphate Potash	Soda-Tartrate Potash	

Group 4th. Oblique Rectangular or Oblique Rhombic Prismatic System.—(*Oblique Prismatic System*).—The primary forms included in this system are, the *Oblique Rectangular Prism*, the *Oblique Octahedron* with a *rectangular base* (*Oblique Rectangular Octahedron*), the *Oblique Rhombic Prism*, and the *Oblique Octahedron* with a *rhombic base* (*Oblique Rhombic Octahedron*). Mr. Brooke (*Encyclopædia Metropolitana*, art. *Crystallography*) refers the *Right Oblique-angled Prism* to this group. The fundamental form of this system is the Oblique Prism (either rectangular or rhombic). The following pharmacological agents belong to this group :—

Sulphur (by slow cooling)	Sulphate Iron	Acetate Copper
Sulphide Arsenicum (Realgar)	Chlorate Potash	Acetate Zinc
	Phosphate Soda	Tartaric Acid
Carbonate Soda	Borax	Oxalic Acid
Sulphate Soda	Acetate Soda	Sugar.

Group 5th. Doubly Oblique Prismatic System.—This system includes the *Doubly Oblique Prism* (also called the *Oblique Prism* with an *oblique-angled parallelogram* for its base.) The following pharmacological agents belong to this system :—

Sulphate Copper	Sulphate Cinchonia	Nitrate Bismuth

Group 6th. Rhombohedric System (Mohs).—The primary forms of this group are, the *Rhombohedron* (also termed *Rhomboid*), the *Bipyramidal Dodecahedron*, and the *Regular Hexagonal Prism*. The fundamental form is the Rhombohedron. The following pharmacological agents belong to this group :—

Antimony	Carbonate Zinc	Nitrate Soda
Plumbago	Bisulphuret Mercury	Hydrate Magnesia
Carbonate Lime	Ice	Chloruret Calcium
Carbonate Iron		

c. Classifications founded on the Chemical Constituents.—The difficulties attending the analysis of organized substances form a great obstacle to the formation of a chemical classification. Most of the writers who have attempted an arrangement of this kind are German.

Donald Munro, A Treatise on Medical and Pharmaceutical Chymistry, and the Materia Medica. London, 1788.

C. H. Pfaff, System der Materia Medica nach chemischen Principien mit Rücksicht auf. d. sinnl. Merkmale und d. Heilverhältnisse der Arzneimittel. Leipzig, 7 Bde, 1808-24.

F. A. C. Gren: Handbuch der Pharmacologie, 3te Aufl. herausgegeben von *Bernhardi* und *Buchholz*, 2 Bde. Halle u. Berlin, 1813.

F. G. Voigtels, vollständ. System der Arzneymittellehre, herausgeg. von *Kühn*. 4 Bde. Leipzig, 1816-17.

C. W. Hufeland, Conspectus Materiæ Medicæ, Berolini, 1816, ed. 2, 1820; ed. 3, 1828.

G. W. Schwartze, Pharmacologische Tabellen, oder system. Arzneimittellehre in tabell. Form. Leipzig, 1819-25. 2 Aufl. fol. 1833.

G. A. Richter, ausführliche Arzneimittellehre, Handbuch für prakt. Aerzte. 5 Bde. u. 1. Suppl. 1826-32.

As an example of a chemical classification I shall select Schwartze's, and must refer the reader to the late Dr. Duncan's (jun.) *Edinburgh Dispensatory*, 11th ed. p. 172, for Pfaff's chemical classification of the vegetable materia medica.

Schwartze's Classification.

Div.	Div.	Div.
1. Aqua Communis	8. Extractiva amara	15. Alcalina
2. Gummosa, mucilaginosa	9. Adstringentia seu Tannica	16. Salina
3. Farinosa, amylacea	10. Ætherea--Oleosa	17. Metallica
4. Gelatinosa	11. Resinosa	18. Corpora simplicia, solida, non metallica
5. Albuminosa	12. Narcotica	19. Kalia sulphurata
6. Saccharina	13. Spirituosa	20. Sapones
7. Pinguia—Oleosa	14. Acida	

It will be observed that the author has not always founded his divisions on the chemical properties of medicines; some of them refer partly or wholly to the effects produced by these agents on the body. The nomenclature is not always perfect: thus, his seventeenth class is called "Metallica," as if it alone contained metallic substances; whereas divisions fifteen and sixteen also contain them. Again, some of the divisions, for example "Resinosa," contain substances whose effects are most dissimilar; while substances of analogous operation are placed in separate divisions.

d. Classifications founded on the Physiological Effects of Medicines.—As the ultimate object of all our inquiries into the materia medica is to obtain a knowledge of the mode of operation of medicinal substances, it follows, that the most desirable and useful, because the most practical, classification of these agents, would be that founded on the similarity of their effects. But so many difficulties exist in the way of producing such an arrangement—so much remains yet to be determined with respect to the nature of the modifications impressed on the organised tissues by the influence of medicines—that it must be evident to every one who attentively studies the subject, that in the present state of our knowledge no such classification can be satisfactorily effected.

Of the numerous arrangements of this kind which have been attempted, some are founded on the *nature*, *quality*, or *general character* of the effects; as in the following works:—

W. Cullen, M.D. Treatise of the Materia Medica. Edinburgh, 1789.

R. Pearson, M.D. A Practical Synopsis of the Materia Alimentaria and Materia Medica. London, 1808.

C. I. A. Schwilqué, Traité de Matière Médicale, 2 tom. Paris, 1818.

J. Arnemann, Chirurgische Arzneimittellehre, 6 Aufl. vind. A. Kraus. 1818.

J. Arnemann, praktische Arzneimittellehre, 6 Aufl. von L. A. Kraus. 1819.

T. Young, M.D. An Introduction to Medical Literature, art. Pharmacology, 2nd edit. 1823.

J. B. G. Barbier, Traité Elémentaire de Matière Médicale, 2nde éd. 3 tom. Paris, 1824.

N. Chapman, M.D. Elements of Therapeutics and Materia Medica, 4th ed. Philadelphia, 1825.

Dr. Nuttall, Lancet, 1825-6, vol. ix. p. 578.

H. M. Edwards, and *P. Vavasseur*, M.D. Manuel de Matière Médicale. Paris, 1826.

C. Sundelin, Handbuch der speciellen Heilmittellehre, 2 Bde. 3te Aufl. 1833.

John Murray, M.D. A System of Materia Medica and Pharmacy, 5th edit. Edinburgh, 1828.

A. Duncan, M.D. Physiological Classification of the Materia Medica. In the Supplement to the Edinburgh New Dispensatory, 11th ed. 1829.

J. Wendt, praktische Materia Medica. Breslau, 1830, 2 Aufl. 1833.

F. Foy, Cours de Pharmacologie, 2 tom. Paris, 1831.

A. T. Thomson, M.D. Elements of Materia and Therapeutics, 2 vols. 1832; 2nd ed. 1 vol. 1835.

E. S. and *K. D. Schroff*, Arzneimittellehre und Receptirkunde. Wien. 1833.

A. Trousseau et *H. Pidoux*, Traité de Thérapeutique. Paris, 1er tom. 1836. 2nd tom. re part. 1837.

C. G. Mitscherlich, Lehrbuch der Arzneimittellehre. 1re Bd. 1te Abl. Berlin, 1837.

The best arrangements of the authors just quoted are, in my opinion, those of Drs. Murray, Duncan, and A. T. Thomson. I subjoin that of Dr. Duncan:—

DR. DUNCAN'S PHYSIOLOGICAL CLASSIFICATION OF THE MATERIA MEDICA.

External Agents act,				
I. By nourishing the body -	ALIMENTA.			
(*a*) Drink - Potus.				
When they act medicinally - - - -				Diluentia.
(*b*) Food - - Cibi.				
When they act medicinally - - -				Demulcentia.
II. By evacuation - -	EVACUANTIA.			
(*a*) By the skin insensibly - -	- - -			Diaphoretica.
——— sensibly -	- - -			
(*b*) By the mucous membrane				
Of the nostrils - -	- - -			Errhina.
Of the lungs - -	- - -			Expectorantia.
Of the stomach - -	- - -			Emetica.
Of the intestines - -	- - -			Cathartica.
Of the uterus - - -	- - -			Emmenagoga.
(*a*) By glandular secretion				
The kidneys - -	- - -			Diuretica.
The salivary glands - -	- - -			Sialogoga.
III. By exciting the vital powers -	STIMULANTIA.			
(*a*) Chiefly of the parts to which they are applied - -	TOPICA.			
Applied externally				
Causing redness - -	- - -			Rubefacientia.
——— serous secretion -	- - -			Vesicantia.
——— purulent secretion -	- - -			Suppurantia.
Administered internally.				
Condimenta when alimentary.				
When acting medicinally	- - -			Carminativa.
(*b*) Of the system generally -	GENERALIA.			
(*a*) Obscurely, but more durably	PERMANENTIA.			
Producing no immediate obvious effect -				Tonica.
Constricting fibres and coagulating fluids -				Astringentia.
(*b*) More evidently, but less durably,	TRANSITORIA.			
Acting on the organic functions	- - -			Calefacientia.
Acting on the mental functions	- - -			Inebriantia.
IV. By depressing the vital powers	DEPRIMENTIA.			
Acting on the organic functions -	- - -			Refrigerantia.
Acting on the mental functions	- - -			Narcotica.
V. By chemical influence on the fluids,	CHEMICA			
Acidifying - - -	-			Acida.
Alkalizing - - -	- - -			Alkalina.

A very cursory examination of the substances placed by the author under each of the above classes will satisfy the most superficial observer that this classification does not, in a large number of instances, effect that which it proposes to do; namely, to arrange together "substances according to the effects which they produce in a state of health." For example, under the head of diaphoretics and sudorifics we have mustard, copaiva, opium, ipecacuanha, alcohol, antimony, ammonia, and mercury; among narcotics are opium, nux vomica, foxglove, saffron, and colchicum; in the class sialogogues we have, horseradish, tobacco, and mercury. Now no one will pretend to affirm that the substances thus grouped together operate in an analogous manner on the system, or that their effects are similar.

Some physicians have classified the articles of the materia medica in accordance with *Brunonian principles*. I have already mentioned that Brown regarded all medicines as stimulants; that is, as agents causing excitement. But he supposed some of them to produce less excitement than health requires, and, therefore, to be the remedies for sthenic diathesis: hence they were termed *Debilitating* or *Antisthenic*. On the other hand, some agents give more excitement than suits the healthy state, and are, therefore, the remedies for the asthenic diathesis. These he called *Stimulant* or *Sthenic*. (*The Works of Dr. John Brown*, vol. ii. p. 205, 1804.) The following pharmacological works are based on Brunonian principles: (*Encyclopädisches Wörterbuch der medicinischen Wissenshaften*, 3 Bd. art. *Arzneimittellehre*.)

Versuch einer einfachen practischen Arzneimittellehre. Wien. 1797.

Pharmacopœa Browniana, oder Handbuch der einfachsten und Wirksamsten Heilmittel, mit klinischen Bemerkungen im Geiste der geläuterten neuen Arzneilehre. Stuttgart, 1798.

J. S. Frank, Versuch einer theoretisch-praktischen Artzneimittellehre nach den Principien der Erregungstheorie. Erlangen, 1802.

C. F. Oberreich, Umriss einer Arzneimittellehre nach den Grundsätzen der Erregungstheorie. Leipzig, 1803.

J. J. Chortet, Traité de Pharmacologie, basée sur la theorie de Brown. Paris, 1806.

F. Wurzer, Grundriss der Arzneimittellehre. Leipzig, 1808.

J. H. Müller, Handbuch der Lebens-und Arzneimittellehre. Leipzig, 1809.

J. A. Neurohr, Versuch einer einfachen praktischen Arzneimittellehre, Zweite Aufl. Heidelberg, 1811.

K. Schöne, praktische Arzneimittellehre für Aerzte und Wundärze nach den Grundsätzen der Erregungstheorie. 2 Bde. Berlin, 1815.

The partizans of the *theory of contrastimulus* divide medicines into two great classes: one comprehending those agents which augment or depress the excitability—(stimulants and contra-stimulants)—and which on that account are termed *dynamics;* the other contains all mechanical and chemical agents, under the denomination of *irritants*. (*Dict. de Médecine et de Chirurg. pratiq.* art. *Contre-stimulant*, par Andral.) I have already given a list of stimulants and contra-stimulants, and have pointed out some objections to the arrangement.

The followers of Broussais, the founder of what the French denominate the *New Medical Doctrine*, or *Physiological Medicine*, consider all medicines to be either stimulants or debilitants. When a stimulant is applied to the organ affected, it is termed a direct stimulant, but when applied to a part more or less distant from that affected, it is termed a revulsive, or sometimes an indirect debilitant. Hence medicines are divided into *debilitants*, *direct stimulants*, and *revulsives*. This is the plan adopted in the following work:

L. J. Begin, Traité de Thérapeutique, rédigé d'après les principes de la nouvelle Doctrine Médicale, t. ii. Paris, 1825.

Another mode of classifying medicines is on *chemico-physiological principles;* or, to use the phrase of Dr. Osann (*Encyclop. Wörterb. d. med. Wissenschaften*) "on the chemico-therapeutical basis of natural philosophy." This method has been adopted in the following works:

K. F. Burdach, System der Arzneimettellehre. 1807-9. 3 Bde. 2te Aufl. 1817-19. Leipzig.

**C. H. C. Bischoff*, die Lehre von den chemischen Heilmitteln, oder Handbuch der Arzneimittellehre. 3 Bde. 1825-31. Bonn.

W. Grabau, M.D., chemisch-physiologisches Syst. der Pharmakodynamik. 1er Theil Kiel, 1837.

Another mode of classifying medicines is to arrange them according to the *particular structure or organ which they affect;* as into medicines acting specifically on the nervous system; medicines acting specifically on the vascular system; and so on. Some authors have formed their principal divisions, or classes of medicines, from the parts acted on, and their orders from the nature or quality of the effect. The following writers have founded their classifications on the particular organs affected by medicines:—

* *J. L. Alibert*, Nouveaux Elémens de Thérapeutique et de Matière Médicale. 5me. ed. 3 t. Paris, 1826.

Dr. Granville, Medical and Physical Journal for April, 1822, vol. xlvii.

J. Eberle, M.D., A Treatise on Materia Medica and Therapeutics. 2nd ed. Philadelphia, 1824. 3d ed. 1835.

* *Ph. F. W. Vogt*, Lehrbuch der Pharmakodynamik. 2 Bde. 2te Aufl. 1828.

Dr. Michaelis, Encyclopädisches Wörterbuch der Medicinischen Wissenschaften. Art. Arzneimittel. Berlin, 1829.

Eberle's Classification.

A.—Medicines that act specifically on the intestinal canal, or upon morbific matter lodged in it	I. Medicines that excite discharges from the alimentary canal	Emetics. Cathartics.
	II. Medicines calculated to destroy or counteract the influence of morbific substances lodged in the alimentary canal	Anthelmintics. Antacids.
B.—Medicines whose action is principally directed to the muscular system	I. Medicines calculated to correct certain morbid conditions of the system, by acting on the tonicity of the muscular fibre	Tonics.
	II. Medicines calculated to correct certain morbid states of the system, by acting on the contractility of the muscular fibre	Astringents.
C.—Medicines that act specifically on the uterine system	I. Medicines calculated to promote the menstrual discharge	Emmenagogues.
	II. Medicines calculated to increase the parturient efforts of the womb	Abortiva.
D.—Medicines that act specifically on the nervous system	I. Medicines that lessen the sensibility and irritability of the nervous system	Narcotics.
	II. Medicines that increase and equalize the nervous energy	Antispasmodics.
E.—Medicines whose action is principally manifested in the circulatory system	I. Medicines that increase the action of the heart and arteries	Stimulants.
F.—Medicines acting specifically upon the organs of secretion	I. Medicines that act on the cutaneous exhalents — General	Diaphoretics.
	I. Medicines that act on the cutaneous exhalents — Topical	Epispastics. Errhines. Emollients.
	II. Medicines that increase the action of the urinary organs	Diuretics.
	III. Medicines that alter the state of the urinary secretion	Antilithics.
	IV. Medicines that promote the secretory action of the salivary glands	Sialagogues.
G.—Medicines that act specifically upon the respiratory organs	I. Medicines calculated to increase the mucous secretion in the bronchia, and to promote its discharge	Expectorants. Inhalations.
	II. Medicines whose action is truly topical	Emollients. Escharotics.

* I have given a sketch of this classification in the *Medical Gazette*, vol. xvii. p. 164.