**A treatise on the physiology and diseases of the eye : containing a new mode of curing cataract without an operation, experiments and observations on vision, also on the inflection, reflection, and colours of light together with remarks on the preservation of sight. And on spectacles, reading-glasses, &c; / By John Harrison Curtis.**


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PLATE I.

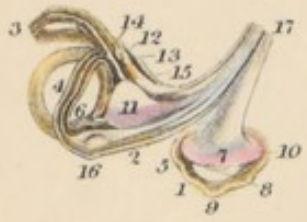



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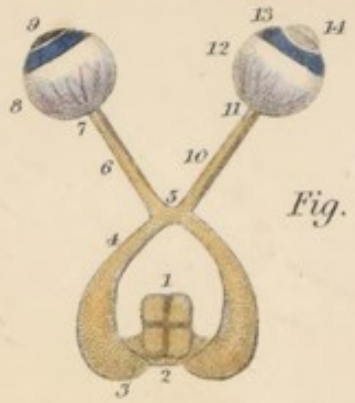



Fig. 2.




Fig. 1.

# The connexion of the Organs of SIGHT & HEARING illustrated.

Engraved for Mr Curtiss Treatise on the Eye.

47866(1)

A

# TREATISE

ON THE

# PHYSIOLOGY AND DISEASES

OF

# THE EYE:

CONTAINING A

NEW MODE OF CURING CATARACT WITHOUT AN OPERATION;

EXPERIMENTS AND OBSERVATIONS ON VISION, ALSO ON THE INFLECTION, REFLECTION, AND COLOURS OF LIGHT;

TOGETHER WITH

REMARKS ON THE PRESERVATION OF SIGHT, AND ON SPECTACLES, READING-GLASSES, &c.

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## Second Edition.

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By JOHN HARRISON CURTIS, Esq.

Oculist,

*Aurist in Ordinary to His Majesty, and their Royal Highnesses the Duchess of Kent, the Princess Victoria, and the Duchess of Gloucester; Surgeon to the Royal Dispensary for Diseases of the Ear; Lecturer on the Anatomy, Physiology, and Pathology of the Ear; Author of a Treatise on the Physiology and Diseases of the Ear, and of an Essay on the Medical Treatment of the Deaf and Dumb; Fellow of the Medical and Medico-Botanical Societies of London; Member of the Royal Institution of Great Britain, and of the Zoological Society of London; Corresponding Member of the Medico-Chirurgical Society of Berlin; and of the Philosophical Society of Leipsic, &c. &c.*

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# CRITICAL NOTICES

OF THE

# FIRST EDITION OF THIS WORK.

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"There is more originality, as well as research, in this volume on the eye than in Mr. Curtis's work on the ear, although the latter has gone through five editions."—*Medico-Chirurgical Review.*

"Mr. Curtis is a stanch advocate for constitutional treatment, and a determined opposer of operations. He shews that incipient cataract may be effectually removed, and the sight restored, without any operation. Many excellent prescriptions are added at the foot of the pages. Whoever will attend to the sensible advice given in the chapter on sight and spectacles, will have reason to thank Mr. Curtis for unimpaired eye-sight to old age."—*London Medical and Surgical Journal.*

"Mr. Curtis, the author of this valuable work on the eye, was for several years employed as a medical officer in the Royal Naval Hospital at Haslar, during the hottest period of the late war, where he had extensive opportunities of improvement in the various branches of his profession. It must not be supposed that this line of practice is entirely new to Mr. Curtis; since, when at Haslar, he saw, perhaps, more of ophthalmia than falls to the lot of many practitioners; and, if we may judge by this treatise, he has not been slow in profiting by his opportunities. The work, which we cordially recommend to our professional readers, closes with some interesting cases, one of which, that of 'an old officer' cured of amaurosis combined with deafness, is a striking proof that Mr. Curtis's practice, though *suavis in modo*, is at the same time *fortis in re*."—*Naval and Military Gazette.*

"We consider the public and the profession much indebted to Mr. Curtis for the present publication. To supersede the necessity of an operation on so delicate an organ as the human eye, is extremely desirable. This, we think, the author has to a great extent done. His remarks on the preservation of sight are very judicious."—*Literary Gazette.*

"Mr. Curtis's Treatise on the Eye may be looked upon in some measure as a manifesto put forward to the world, to justify the author in taking the eyes as well as the ears of his majesty's lieges under his especial protection. The book is most ably, most scientifically, and most elegantly written. What pleases us particularly is, that Mr. Curtis will hereafter, by this publication, restrain the rash hand of the too confident operator. We are convinced, from our own feelings and experience, which are to us better than a thousand books, that Mr. Curtis is right in tracing the origin of almost all the nervous disorders that affect both eye and ear to the great nerval ganglion, near the region of the stomach. We think that we have read almost every treatise upon the eye and the ear; and we unhesitatingly pronounce this under our notice to be by far the very best. We earnestly entreat every one who values his sight, whether that sight be good or bad, to become acquainted with the contents of this book. It will give him, in the first place, a clear idea of what his eye is, and, in the next, of what it is capable. We are also instructed when to apply to the optician, when to the oculist. Mr. Curtis has made the great European community hold his name in respect; and we are convinced that, in return, the world at large will record him as one of its benefactors."—*Metropolitan Magazine.*

" We cordially recommend the work to all classes troubled with affections of the eyes; but to our own craft it addresses itself with particular emphasis, as well as to barristers, clergymen, and indeed to all those whose employments are literary. The value of the hints and cautions in the chapter on preserving the sight, &c. is so very great, that they should be engraven on the palms of the hands of all such individuals."—*New Monthly Magazine.*

" Mr. Curtis has long been favourably known to the public by his works on the structure and diseases of the ear; and many, we hope, will have cause to rejoice that he has at length found time to turn his attention to that equally complicated, and even more important organ, the eye. In treating cases of deafness, where the vision happened likewise to be impaired, Mr. Curtis was struck with the fact, that while curing the deafness by constitutional remedies, the defect in the visual organ was also frequently removed. This led to the important conclusion, that many diseases of the eye—some of them hitherto deemed incurable, and others not even attempted to be cured but by the knife—will yield to a judicious constitutional treatment, assisted by mild topical applications."—*Monthly Magazine.*

" The high and deserved reputation which Mr. Curtis has attained as an oculist and aurist, secures for his opinions general attention and respect."—*Tait's Edinburgh Magazine.*

" Mr. Curtis has been for many years known to the public as the celebrated aurist. This gentleman has latterly turned his attention to the diseases of the eye. His work contains much useful information, valuable cautions, and good general advice in respect to the management in health, and treatment in disease, of that delicate organ, the eye."—*Courier.*

" We are indebted to Mr. Curtis, the well-known aurist, and indefatigable surgeon of the Royal Dispensary for Diseases of the Ear, for this very excellent work on a subject that concerns all. There is in this production much to interest and instruct the general reader. We conclude by saying, that seldom indeed has the *utile* been more happily joined with the *dulce* than in this Treatise on the Eye, which to a scientific description of the organ and its principal diseases, adds a vast fund of pleasing information on collateral topics."—*Court Journal.*

" On the whole, as a treatise upon the eye, we are inclined to think that Mr. Curtis will be found to have performed his task with acumen and credit to himself, and that his book may not be neglected as a professional manual."—*Lady's Magazine.*

" Mr. Curtis's labours as an aurist have been long familiar to the public. His works on the diseases of the ear, and his peculiar views with reference to the mode of treating those diseases, have attained no common popularity. We cordially recommend all who have eyes to preserve, or sight enough to read with, to devote an hour to this treatise of Mr. Curtis's."—*True Sun.*

" This work displays throughout much learning and research; and the subject is enriched with curious facts and apt quotations from the best ancient and modern writers. We hesitate not to affirm, that this treatise will give Mr. Curtis additional claims to public gratitude, and will prove particularly acceptable to those in whom the organ of vision is either defective or diseased."—*Bell's Weekly Messenger.*

" Mr. Curtis is well known as an aurist, and a successful one. He has of late years entered upon the study of vision, and has given us the result of his experience in a fair, honest, and candid manner. The work is one that must give satisfaction to the medical reader; for it is a clear and instructive exposition of the anatomy and pathology of this most delicate of all organs of the body."—*Sunday Times.*

# ADVERTISEMENT.

A Second Edition of this work having been called for in less than two years is satisfactory evidence that my labours are acceptable to the public, and has stimulated me to spare no pains to render this edition still more deserving of approbation. With this view I have carefully revised the whole, and made many important additions, embracing such facts and observations as the progress of science and my own experience have furnished. A few of these I may be permitted to particularise.

The increasing estimation in which the works of the Germans are held in this country, and the necessity consequently for the student of medicine being acquainted with their nomenclature, has induced me to add the German and French synonyms of the various diseases; which will, I trust, be useful to the student, and interesting to the philologer. I have also inserted some of the most approved recipes at present employed on the continent in diseases of the eye.

Several cases that have come under my care since the publication of the first edition will be found among the cases; particularly one of cancer of the most appalling kind.

An additional plate, containing accurate coloured delineations of hydrophthalmia, staphyloma, cancer, cataract, iritis, syphilis, and amaurosis, I have with much trouble constructed from preparations in my possession, and presented to the reader, without increasing the price of the book.

I have also given some account of my newly invented Spectacles for Strabismus, which I have found more effectual in curing this bad habit than any other method with which I am acquainted.

I have besides lately invented my Gauze-wire Spectacles for persons of weak or irritable eyes, to be worn when walking or riding, especially in dusty roads and windy weather, as well as in bright sunshine; and I can aver that they will greatly contribute to the comfort of the wearer. Both these Spectacles and those for Strabismus have been exhibited at the Royal Society, the Royal Institution, and the Medical Society of London, where they excited much interest.

The real nature of diseases of the eye has been hitherto very inadequately understood, and hence

their treatment has been uncertain and unsuccessful. This has arisen partly from the intricacy and delicacy of the organ, and partly from the neglect they have experienced, as well as from the general ignorance of the anatomical structure of the eye. To remove these obstacles, I have for some time been preparing a Map of its Anatomy, and a Chart of its various Diseases, (on the same plan as my Map and Chart of the Ear,) shewing their seat, symptoms, causes, and treatment: and as the attention of the Profession seems to be more alive to this important subject than formerly, I trust these works will be both serviceable and acceptable.

No great progress, however, can be made in the knowledge and treatment of diseases of the eye, till scientific men of various countries agree to communicate to each other the results of their individual experience; and I am happy to say, that, with the characteristic liberality of the Germans where science or literature is concerned, Dr. Robbi and Dr. Radius of Leipsic, as well as other professional friends on the continent, have kindly offered to furnish me with immediate information of whatever discoveries in the treatment of diseases of the eye may be made by their indefatigable countrymen.

After all, daily practice and attentive observation alone can endue a man, in some degree, with the manual dexterity of a Cooper, or the sound judgment of a Cline; and to possess their combined abilities is what, perhaps, never falls to the lot of any individual. But I hope the day is not far distant, when diseases of the eye will be as well understood, and their specific remedies be as certainly known and as confidently relied upon, as are those for lues, scabies, ague, &c. &c.

With these preliminary remarks I now leave my work to the candid reader.

JOHN HARRISON CURTIS.

2 Soho Square,
*Jan.* 27, 1835.

# DESCRIPTION OF THE FRONTISPIECE.

## Figure I.

1. The globe of the eye and the lachrymal gland.
2. External auditory canal.
3. Semicircular canals.
4, 4. Internal jugular vein, and its divers ramifications.
5. Third pair of nerves within the cranium.
6. Its superior branch.
7. Its inferior branch.
8. Branch of communication with the ophthalmic ganglion.
9. The pathetic nerve.
10. Sixth pair of nerves.
11, 11. Facial nerve.
12. Trunk of the trifacial nerve.
13. Its ganglionic part.
14. Ophthalmic branch.
15. Frontal branch.
16. Lachrymal branch.
17. Nasal nerve.
18. Ophthalmic ganglion, with the ciliary nerves.
19. Spheno-palatine ganglion.
20. Vidian nerve in its canal, which is laid open.
21. Palatine nerve.
22. Common carotid artery.
23. External carotid artery.
24. Trunk of the lingual, or hypoglossal nerve.
25. Occipital artery.
26. Its descending branch, with its distribution and anastomoses.

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*The Optic Nerves, from their origin to their termination.*

1. The upper (nates).
2. The lower (testes) tubercula quadrigemina.
3. The optic nerves, as they appear to arise from the lateral parts of these tubercula.
4. Flattened portion of these nerves.
5. Commissure of the optic nerve.
6. Left optic nerve, surrounded by the sheath derived from the dura mater.
7. The same nerve entering the eye.
8. An upper view of the left eye—the sclerotic coat.
9. The cornea.
10. The right optic nerve, invested only by its neurilema.
11. Its contraction as it enters the globe of the eye.
12. The expansion of the retina, with its arteries.
13. The iris.
14. The lens.

---

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*The Internal Ear.—The Labyrinth laid open, so as to shew the parts it contains.*

1. The cochlea, with its walls entirely removed, shewing the lines on its lamina spiralis.
2. The vestibule.
3. The posterior semicircular canal.
4. The superior or vertical canal.
5. The canal formed by the junction of the contiguous limbs of the canals.
6. The horizontal semicircular canal.
7, 8, 9. The three turns of the spiral lamella of the cochlea, seen from below.
10. Edge of the lamina spiralis becoming continuous with the periosteum of the rest of the cochlea.
11. The two foveæ of the vestibule, which on this side are united in one.
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13. Its elliptical dilatation.
14. Membranous tube of the superior semicircular canal.
15. Membranous tube common to the superior and posterior semicircular canals.
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# INTRODUCTION.

TWENTY years have nearly elapsed since I first published my Treatise on the Physiology and Diseases of the Ear, which I have had the satisfaction to see reach a fifth edition, and which has met with a reception almost unprecedented. My other works on the Ear, embracing its various affections, as well as the treatment of the Deaf and Dumb, have likewise been very generally esteemed.

As calculated to instruct the junior practitioner, my Map of the Anatomy of the Ear, exhibiting its external, intermediate, and internal structure, with the bones *in situ*, together with the principal nerves and blood-vessels in its immediate vicinity; and my Synoptical Chart of the various Diseases of the Ear, shewing, at one view, their order, classification, seat, symptoms, causes, and treatment, have also been favourably received.

Having completed my works on the Ear—

seeing the Institution which I founded for the cure of its diseases completely established,* and patronised by the KING, the QUEEN, and the ROYAL FAMILY, as well as by nearly all the principal Nobility, Men of Science, and Professional Characters,—and having given advice and assistance to nearly 20,000 persons, the greater number of whom have been cured or relieved, by a mode of treatment which has not only been successfully adopted in this country, but also in France, Germany, and America; while Otorrhœa, and Deafness and Dumbness, diseases of the most formidable description, have been more thoroughly investigated, and many cases of a nature hitherto deemed hopeless radically cured;—I have lately had leisure to

---

* The Royal Dispensary for Diseases of the Ear was instituted in 1816, under the patronage of his Majesty George the Fourth, the Dukes of York, Kent, and Cumberland, and, among the distinguished members of the medical profession, Sir Walter Farquhar, Dr. Baillie, Dr. Sims, Mr. Cline, Dr. Babington, Sir Astley Cooper, Mr. Leese, &c.

At a late meeting of the Governors, it was resolved, in order to extend its sphere of usefulness, to enlarge the present building, to enable it to receive within its walls not only deaf and dumb patients, but also persons from the country afflicted with deafness or other diseases of the ear, who may be destitute of a habitation in the metropolis.

turn my attention to what I had for some time contemplated, viz. Diseases of the Eye — an organ of exquisite sensibility, of wonderful construction, and of the highest utility.

That the sight is the most valuable of the senses, none will deny, since it is the most important inlet of knowledge, and the faculty most useful in our intercourse with society. Blindness is consequently, next to death itself, perhaps the greatest affliction with which man can be visited ; and there are many who would almost as soon be deprived of existence as of this delightful sense.

Many discoveries are made by chance, others by observation; and that which I have the satisfaction of communicating to the profession is of great importance to a large class of sufferers. While treating cases of deafness, in which the patient's sight happened also to be affected, I have often been agreeably surprised to find, that, while removing the deafness by constitutional treatment, the healthy action exerted on the nerves of the ear has extended its influence to the eye, which has in this way, in numerous instances, been restored to the exercise of its functions. This undesigned coincidence was

too striking, and likely to be too important in its results, to be overlooked by me: I accordingly directed my attention in a more particular manner to the subject; and being convinced, from subsequent practice, that I had not been mistaken in my estimate of the causes to which I had attributed the consentaneous cure of two maladies by one mode of treatment, I determined to publish my views on a topic so interesting to humanity.

From many years' attentive observation, I am persuaded that the diseases of both the eye and the ear may be cured by the same remedies; and if recourse be had to curative means in their incipient stages, beneficial results will in most instances follow: on the contrary, much misery is entailed by neglect of the premonitory symptoms of the maladies of both these organs.

It is the too common practice, in some affections of the eye, to consign the unhappy sufferer to the hands of an operator, before any attempt has been made to relieve him by milder means; a course which, in my opinion, should never be adopted, except under the most favourable circumstances as regards the

age, general health, seat of disease, and constitution and habits of the patient.*

And here I have a few words to say on the present ineffectual mode of treating diseases of the eye; a singular fact, when we consider the recent progress in the cure of other diseases, and recollect the distinguished men who have made the eye the chief object of their study.

The principal thing to which I have to object is the copious general bloodletting, both from the temporal artery and the neighbourhood of the organ; which I have often known to aggravate, instead of alleviate, the disease.

I also strongly object to large doses of calomel; to the injudicious use of belladonna; to the slovenly manner in which external applications are often made to the eye; and to the performance of operations in cases which, from the nature of the disease and the condition of the patient's health, present little prospect of success.

Some practitioners are, moreover, too fond of applying blisters and leeches to the temples.

---

* I am led to draw these conclusions from the fact of so small a number of persons recovering their sight by means of operations.

When we consider that the fifth pair of nerves gives off branches to the eye, we may well conceive how much preferable it would be to employ these remedies behind the ears.

On this interesting subject, I ought not to omit observing, that in no hospital in Europe have diseases of the eye been more skilfully treated than at his Majesty's Royal Hospital at Haslar, where I was employed as a medical officer for nearly six years during the late war; and no where were the remedies more mild and efficacious, or the practice more successful, and that in general without the use of the knife.* Happily the history and mode of treatment of every individual case during the period alluded to are on record, highly to the credit of the commissioners and the medical authorities.

---

* The Royal Hospital at Haslar is one of the most extensive and commodious in Europe, at one time containing 2000 patients, many of whom were afflicted with ophthalmia: all its regulations are excellent; and its medical officers able and skilful men — a fact none will be inclined to call in question, when such individuals as Drs. Lynd, Hope, Maginnis, Babington, Sir James Macgregor, Sir R. Hunter, Johnson, Weatherhead, Thomson, Clarke, Messrs. O'Reilly, Vance, Macintyre, Thompson, &c. &c. are mentioned as having served there.

Although, for the reasons already stated, I intend henceforth to devote more of my attention to the cure of diseases of the eye, yet I trust that my long and persevering study of the ear, and treatment of its maladies, will shield me from the charge of vacillation of purpose. It forms no part of my plan to abandon the cure of diseases of the ear (which, the more I see of them, the more I am convinced admit of relief); but merely, owing to the increased facilities I now possess in the valuable assistance of my pupils, to combine in one practice the treatment of both organs. And whoever considers the nature of the eye and ear, and the intimate relation which they have to each other, will see the necessity and propriety of their diseases being treated in conjunction.

My experience in the cure of diseases of the ear furnishes me with another strong argument, which of itself would have been amply sufficient to induce me to join the treatment of the eye and ear, namely, that while curing deafness, I have often learnt from patients that their sight was also improved.

This fact, as I have before stated, stimulated me to increased diligence; and I accordingly directed my researches to the structure

and functions of these organs, with especial reference to what was mutual between them.

Indeed, this is the chief reason which has induced me to add the profession of the Oculist to that of the Aurist; and to all who feel for their suffering fellow-creatures, and to whom the relief of the afflicted affords more satisfaction than quibbling about imaginary encroachments, and the preference of private interest to the public well-being, I feel convinced that I have said sufficient to account for the step I have taken, and for the book now presented to the world.

There is no lack of learned and scientific books on the eye; but hitherto I have met with no work that conveys, in a plain and intelligible manner, such information as it concerns every person to know. It is therefore my design, in the following pages, to lay before the public such a work as may be readily understood by the nonprofessional reader, while, at the same time, it shall contain whatever is necessary to the scientific treatment of the principal diseases of the eye.

I may here observe, that Professor Robbi, of Leipsic, who has done me the honour to translate my works on the Ear into the German

language, and to dedicate his valuable Encyclopædia of Anatomy to me, has communicated some important information on the eye, of which I have taken advantage in the treatment of its diseases.

In relation to affections of the eye, I shall here merely add, that I conceive them to be all nearly the same disease, varying only in situation and degree, and that they are derived from similar sources. Still, we are not to consider them all as absolutely alike, and requiring precisely the same treatment; but must endeavour to trace the cause of disease, arrest it in its progress, and restore the healthy functions. The late Mr. Abernethy also thought so, and in his treatment he was generally right.

These affections most commonly arise from derangement of the digestive organs, acting on the abdominal ganglia and great sympathetic nerve, which has such an extensive influence on the whole system. It is from medical men not bearing this in mind, that cases are often found so troublesome, and even deemed incurable.

No diseases are more acutely painful, or occasion greater privations, than those of the eye. It is therefore remarkable, that, though much has been written, and many elaborate

treatises published on the subject, we are still far behind in the practice of ophthalmic surgery.

It must be confessed, that the moderns are better acquainted with the treatment of diseases of the eye than the ancients were; yet the *zeal* of the latter has not hitherto been surpassed. If we examine the works published since Scarpa's Practical Observations on the principal Diseases of the Eyes, which appeared about the end of the eighteenth century, we shall find very little new on the subject beyond what he and his predecessors have communicated.* There is, consequently, ample scope for improvement.

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* Out of the many descriptions of the eye that have been published, I select the following, as deserving the attention of the practitioner: —

Fallopii Inst. Anat. Op. tom. i. pp. 454-6.
Fabricius de Oculo, Op. p. 187 et seq.
Kepler Paralipomena, cap. v. pp. 158-168.
Briggs Ophthalmographia.
Cheselden's Anatomy, ch. vi. p. 290 et seq.
Winslow's Anatomy, § x. art. ii. vol. ii. p. 284 et seq.
Porterfield on the Eye, vol. i. book 2.
Boerhaave Prælect. § 508 et seq. tom. iv. p. 44 et seq.
Cowper Anat. Corp. Hum. tab. 11.
Camper de quibusdam Oculi Part.

In order to obtain a correct knowledge of the diseases of the eye, it is essentially necessary to have a thorough and intimate acquaintance with the anatomy* and functions of this

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Haller Elem. Phys. lib. xvi. § 2. Opera Min. tom. iii. p. 218. et Arter. Oculi Hist. cum tab. in Ic. Anat. fas. 7.

Warner's Description of the Eye.

Sœmmering's elaborate Icon. Oculi Humani, and the transcript of the same by Caldani, pl. 93-5.

D. W. Sœmmering de Oculis Hominis Animaliumque Commentatio.

Blumenbach Instit. Phys. § xvii. pp. 255-268.

Monro's (sec.) Three Treatises.

Bichât, Anat. Descript. tom. ii. p. 416 et seq.

Cuvier, Leç. d'Anat. Comp. No. 12, tom. ii. p. 264 et seq.

Young's Lectures, No. 38, vol. ii. p. 447 et seq.

Bell's Anatomy, vol. iii. part ii. book i. p. 224 et seq.

Monro's (tert.) Elements, pt. vi. ch. iii. § 2. p. 392 et seq.

Linn. Descrip. Anat. Oculi Hum.; et in Comment. Gott. tom. iv. p. 192.

* The Greeks are the first people of whom we have any authentic account who studied anatomy as a science. It is probable that they derived their knowledge from the eastern nations, particularly the Ethiopians and Egyptians, from the circumstance of anatomy in its infancy being so closely connected with astronomy, which those nations had peculiar opportunities of cultivating. Thales, surnamed the Wise, was the first anatomist we hear of, and he lived 500 years before Christ. No progress, however, was made in this science till the time of Hippocrates, who was contemporary

intricate organ. Of the truth of this, every one must be sufficiently convinced who gives the subject even a moderate degree of attention.

Although this is obviously not the place to enter into a detailed account of the anatomy of the entire skeleton, and as I have embraced in

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with Socrates, Xenophon, and Plato, about 400 years before the Christian era.

The first dissection we have upon record was made by Democrates of Abdera, who had a hog for his subject. But from the time of Hippocrates the science was gradually improved till the time of Galen, who lived in the second century, that is, 600 years after Hippocrates. Galen cultivated the science more philosophically, as had also been done, about 250 years before Christ, by Herophilus and Arasistratus of Alexandria, whither the Greeks went to finish their education, and where the earliest human dissections were most probably made. Galen applied himself diligently to anatomy, studied in Asia Minor, and thence went to Alexandria. He composed many books, which, for the time he lived in, were no doubt valuable performances; but his dissections were chiefly confined to quadrupeds, opportunities of dissecting human subjects, owing to the superstition of the times, being very rare. For a long series of years after Galen the science declined; and as the empire of Rome decayed, so did arts in general. Galen had, indeed, acquired so great a character as an anatomist, that his successors, perhaps despairing of excelling him, contented themselves, for many years, with explaining his doctrines.

the chapter on the physiology of the eye what relates to the structure of that organ; yet it may not be uninteresting to the reader to give him here, in a condensed form, a general description of the component parts of the human body. It cannot fail to warm his heart with gratitude when he sees how fearfully and wonderfully man is made.

Man has an intellectual mind bestowed upon him; and the structure of the body is given him as a habitation for his soul. It must be provided with a peculiar residence: the brain is fit for this purpose. There the soul may hold its empire, as the mind holds an intercourse with the body, to be a faithful monitor to it, and to direct its motions.

The mind must have servants for these purposes: the nerves give the power of sensation, to enable it to pursue whatever objects are pleasing, and to avoid those that are unpleasant.

Moving powers, muscles and tendons, must therefore be provided. Different bones are wanting to support the fabric. Ligaments serve to bind and keep the bones together; and that the ends of these may move freely and easily upon each other, they are furnished with

smooth cartilages, and synovia to lubricate their intermediate spaces. The cellular membrane is required as a case to the whole, and to contribute to form the skin, which is also the organ of feeling.

This body is to live in society, and to hold an intercourse with the beings around it: it must therefore have the organs of speech and hearing. It is, as I have elsewhere remarked, the ear which connects man with the moral world—the *conditio sine quâ non* of his progressiveness—that which distinguishes a society from a herd. Hobbes accordingly observes, that the most noble and profitable invention, of all others, is that of speech, whereby men declare their thoughts one to another, for mutual utility and conservation, without which there had been, amongst men, neither commonwealth nor society, any more than amongst lions, bears, and wolves.* The organ of sight also is absolutely necessary on a thousand occasions.

Thus far, then, nothing appears to be superfluous. But the machine is not yet complete: if the body were not continually recruited, it would soon be worn out; and therefore the fluid

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* Hobbes's Leviathan.

blood must be provided, to repair the machine, to replace the old materials which are become useless, and to convey them to the various glands through whose agency the noxious or useless particles are strained off, and carried out of the body.

That the blood may perform these offices, it is necessary that it should circulate through every, even the most minute part. Thus is preserved the structure of the human frame in general; and thus are evident the advantages arising from the heart, and from the arterial and venous systems.

The blood itself, from performing these offices, would soon be expended, were it not continually recruited: this must be done by food. The earth accordingly abounds with animal and vegetable productions proper for this purpose; and men are provided with hands to enable them to procure subsistence.

Food in its crude state is very different from the blood into which it is to be changed; and this makes necessary the teeth, stomach, and, in short, all the organs subservient to digestion, as also the senses of smell and taste, that we may be able to choose proper aliment. The finer and more subtile parts of this pre-

pared mass afford what is suitable for the formation of blood, which is absorbed by the lacteals; while the grosser and useless part is conveyed away through the intestinal canal.

Now the body, like all that lives, has its duration: it is nourished, grows, arrives at the general stature, decays and falls to dust. That its species should be preserved, it is therefore necessary that it have the power of multiplying its kind.

Thus we see that there are different systems in the body; the vascular for nutrition, the nervous for sensation, the ligamentous for union, the osseous for strength, the muscular and tendinous for motion, the digestive for supplying nutriment, and the generative for the preservation of the species.

After taking this view of the constituent parts of the body, there still remain the organs of respiration, the mode of whose action it is greatly to be regretted we cannot so readily perceive as that of some other organs.

But, wonderful as is this intricate structure of the human body, and much as our astonishment is excited by the nice adaptation of means to their various ends, yet another principle remains to be noticed, more wonderful than these:

I mean the soul, the immortal φρην, about the seat of which much has been written, hitherto unsuccessfully, and which some have supposed to be in the pineal gland, others in the corpus callosum, others in the cerebrum, and some in the cerebellum. And, much as this purely speculative question has engaged attention, it is strange that few endeavours have been made to answer the practically important query, Where is the principal seat of disease? Instead of discussing what we *can* know nothing about, would it not be wiser and better to seek to solve this great problem? If it be in any one part more than another, I should be inclined to think that part is the semilunar ganglion and solar plexus,* situated near the stomach, in connexion with the great sympathetic nerve and its ganglia—parts which exercise such a leading influence on all the organs of the body, but more particularly on the eye and ear. Hence we shall find, that derangements of the above-mentioned ganglia† are the source of nervous affections of the sight and hearing.

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* Vide Manec's excellent plate and description of the great sympathetic nerve, shewing the various ganglia.

† The ganglia are small knots or masses of nervous matter, which are situated along the course of the nerves

Diseases of the eye, as I have long ago remarked of those of the ear, when attended to in their incipient stage, and the seat and cause of the malady ascertained by careful inquiry and minute inspection, warrant our giving every hope of relief; but when neglected until they have become confirmed, the organ dulled by inaction, and the brain at length participating in the affection, there is no benefit to be expected

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generally, where two or three of them form an angle, and especially in the different parts of the thorax and abdomen. They are composed of a mixture of two substances, which appear analogous to the cineritious and medullary matter of the brain. They are of a redder colour, and are more copiously supplied with arteries than the nerves; they are also of a firmer consistence, and are covered with a denser membrane. Anatomists are generally agreed that the nerves which proceed from a ganglion are larger than those which enter into it, as if, in their passage through it, they had received an additional quantity of matter. With respect to their texture, we are informed by Monro, (and the account which has been given by Scarpa is fundamentally the same,) that the filaments of the different nerves which compose the ganglion proceed individually without interruption, but that they are all twisted together into an irregular bundle, and that filaments from different nerves are united in the formation of a new nerve. In this way it would appear that a mechanical connexion is established between the parts that receive their nerves from the ganglia; and we may presume that this will contribute to a sympathy between their actions.

from that advice which, if sought in time, might have preserved or restored the use of two of the most valuable faculties of man.*

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* Several remarkable cases of blindness connected with deafness and dumbness have been related by authors; but I do not recollect one of a more lamentable description than the following, cited by Dr. Greaves, of Dublin, in his lectures this season, and first communicated to the Royal Society by its late President, Mr. Davies Gilbert. A young lady, aged 17, shortly after birth became perfectly deaf as well as blind, and never acquired any thing like the power of voluntary motion. She had never held up her head, raised her hand to her mouth, or set her foot on the ground. Although lean, still she was of good stature. She was never heard to utter any thing like an articulate sound, and a feeble cry or whine, the only sound heard from her, was believed to indicate the want of food. In fact, she exhibited proofs of possessing only two out of the five senses—taste and touch—and the latter very imperfectly. Thus, all the avenues to knowledge being closed, her mental development was completely prevented, and she afforded the miserable spectacle of a human being endowed with animal life, and perfect to the eye in bodily conformation, but totally destitute of intellectual development.

The case of a poor boy, lately presented at the Royal Dispensary for Diseases of the Ear, was perhaps equally distressing. His mother informed me, that besides being deaf, dumb, and blind, he was also an idiot, and exceedingly restless, noisy, passionate, and troublesome. She attributed all her child's misfortunes to the improper conduct of his father.

Before closing this Introduction, I shall briefly acquaint the reader with the method I have followed in this work. After describing the structure and uses of the different parts of the eye, with their principal diseases and treatment, (which I have endeavoured to do with as few technicalities as the nature of the subject would possibly permit,) I have given some observations on light and vision; together with practical remarks on the best means of preserving the sight unimpaired to old age; and on the use, abuse, and choice of spectacles. From the want of proper information on glasses, many persons are unconsciously doing much mischief to their eyes, by the use of spectacles unsuited to them.

In order to render the work more useful, as well to the practitioner as to the general reader, I have added, in the chapter on the diseases of the eye, prescriptions in Latin and English, for the treatment of many of its maladies.

# A TREATISE,

ETC.

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## CHAPTER I.

### ON THE STRUCTURE AND USES OF THE DIFFERENT PARTS OF THE EYE.

THE eye is the organ of vision, and in its construction may be compared to an optical instrument. It consists of a number of parts, external and internal; viz. the eyebrows, the orbit, the socket, the muscles, the lachrymal gland, the puncta lachrymalia, the lachrymal sac and duct, the eyelid, the eyelashes, the conjunctiva, the caruncula, the eyeball with its coats, chambers, and humours, and the optic nerves: these I shall now describe.

The *supercilium*, or eyebrow, is an arched projection of the frontal bone of the cranium, over which certain muscles run; and is externally furnished with short, rather stiff, and

thickly set hair, placed in an oblique direction, to prevent the condensed perspiration from running off the forehead into the eye.

The eye is lodged in the socket formed by the orbital processes, and is abundantly furnished with a quantity of adipose substance, serving to facilitate its varied movements. The inner surface of the bone is covered by the same strong membrane which lines the cranium and covers the cerebrum. We can accordingly, from this connexion, trace the cause of inflammation affecting this membrane when the eye is much injured, and can explain the origin of the pains thence arising in the face, as the covering of the facial bones unites with the lining of the socket of the eye.

In each eye there are six muscles, four straight and two oblique. The four straight muscles are intended to roll the eye on its axis, one being above, one below, and one on each side of the ball. The upper one raises the eye upwards and backwards, the lower draws it downwards and inwards, the outer moves it towards the temple, and the inner pulls it towards the nose. When all four act together, they sink the eye in the socket, and keep it fixed and motionless.

The lower oblique muscle takes its rise within the inner canthus of the eye, and running obliquely backwards below the eyeball, is inserted about the middle of it, or farther inwards than the lower straight muscles.

The upper oblique muscle merits particular attention on account of its singular mechanism. It can easily be conceived in what manner the eye may be pulled backwards and inwards, and even on one side, by the straight muscles placed in the posterior part of the socket. But we often see the eye move outwards; and as no motion in the body can take place without muscles as the immediate moving power, how, it may well be asked, can the eye move outwards, when there is nothing without to which a muscle can conveniently be attached?

In order to effect this motion, the tendon of the muscle is very long, and is made to pass through a cartilaginous substance, or a process of the bone of the eyebrow, near to the angle which it forms with the nasal bone, much in the same way as a cord is passed through a pulley; and when it has passed through this, the tendon runs back again, and is inserted into the upper and middle part of the eyeball. This curious and interesting muscle, together with the other

oblique muscle, then causes the eye to roll outwards, as in the effort to perceive a distant mountain, or an island far at sea.

In order further to facilitate the numerous motions of the eyeball, it is furnished with a constant supply of moisture from a gland called the lachrymal gland, situated within the upper and outer part of the bony socket. The lachrymal gland is composed of a great number of small globularbodies, from which seven or eight ducts, not much thicker than a hair, run into the inner surface of the eyelid. It has been computed, that in twenty-four hours the two lachrymal glands discharge about four ounces of the fluid well known by the name of tears. The tears are very limpid, of a saltish taste, and when chemically analysed are found to contain water, mucus, common salt, and a very little soda and lime.

From the tears constantly running into the eyes, it is requisite that there should be some contrivance to carry off any quantity which might be found superfluous; and for this purpose, when the eyelids come together in the incessant process of winking, they form a channel, which runs in front of the eye, having somewhat of a sloping direction towards the nose,

or the inner canthus. I may also remark, that the eyelids begin first to touch each other at the outer angle, and the pressure proceeds successively to the inner, and this consequently impels the tears along the channel towards the inner canthus.

As soon as the tears have reached the end of the channel, there is a passage for them through the *puncta lachrymalia* in two directions,—one above, and another below, the corner of each eye. Each of these puncta consists of a minute foramen, or hole, with a whitish cartilaginous circle around it, capable of admitting a bristle or small pin, and placed on the very point of the angle of the eyelid, opposite the last hair of the eyelash towards the inner canthus. These puncta absorb the tears, not, as has been supposed, by the mysterious power termed capillary attraction, but by the same vital power by which the lacteals of the intestines take up the chyle and carry it into the blood through the channel of the thoracic duct.

The puncta lachrymalia lead to two canals, just wide enough to admit a bristle, running above and below the sides which form the angle of the eye at the canthus, in the shape

of a bifurcation, till they reach the nose, where they unite into one, and form the lachrymal sac. The ducts thus united now take a downward course along the exterior parietes of the nose for about an inch; and the lachrymal duct here penetrates the bone, and discharges the tears into the side of the base of the nose, about an inch from the orifice of the nostril. Here the superfluous moisture is carried off by the stream of air constantly passing in the act of respiration.

The *palpebræ,* or eyelids, are lined on their internal surface with a very delicate skin, full of ramified blood-vessels. This is termed the *conjunctiva,* and is considerably larger than the parts it covers, and loose, so as to admit of motion.

Besides the tears, the eyes are furnished with a sebaceous substance readily soluble. This is secreted in certain beautiful little glands, interspersed within the conjunctiva of the inner eyelid, near the roots of the eyelashes, appearing under the microscope like small pearls. According to M. Majendie, it is prepared in these glands, and is of a glairy consistence, of the nature of albumen, and capable of being dissolved in the tears. It may be supposed to be

intended to neutralise the acrimony of the salts contained in the tears, which might, without this addition, prove too harsh for the eye. During sleep, when the tears are deficient in quantity, this substance is not dissolved, but is collected in the corners of the eyes; and sometimes, when it is abundant and thicker than usual, it glues the eyelids together.

This substance, together with the tears in which it is dissolved and diluted, is constantly spread over the eyeball by the sweep of the eyelids, which act like valves, and are composed of semi-transparent muscular membrane, attached to the cartilage that is articulated with the adjacent bone of the socket, giving them firmness, and preserving their shape. Under the skin here, there is a thin fluid, which, after excessive fatigue, as well as a consequence of various diseases, becomes thicker and more abundant, and gives the eyelids a dark leaden hue, which, whenever it appears, is a sure mark of exhaustion and weakness.

The eyelids are elegantly fringed with short hairs, termed *cilia*, or eyelashes, serving to defend the eye from any thing falling into it, and to modify the effect of the rays of light. When these hairs are removed, the sight is always

impaired. When they are wet with tears, the little drops act upon the light like dew-drops, and produce beams of iridescent colours.

When the eye is opened, the upper eyelid only is raised — an effect produced by the action of a small fan-shaped muscle attached to the inner part of the bone of the socket. The eye is shut by another muscle, which surrounds the eyelids, and is termed the *orbicularis palpebrarum.*

At the inner canthus of the eye there is a little red fleshy membrane, named the *caruncula*, in the form of a half-moon, which, when the eye is turned away, is spread over its inner part; and when any dust has fallen upon the ball, it sticks to this, and is carried into the corner of the eye by the membrane folding back. All dust and offensive matter is, by this means, thrown out at the corner of the eye, *beyond* the small holes of the entrance to the lachrymal ducts, otherwise these might be obstructed. The caruncula is formed of seven or eight folds, arranged in a semicircle, and studded with small hairs. The use of these hairs appears to be to throw out dust, or other foreign bodies, carried thither by the mechanism just described. It is also useful in directing the

tears through these canals into the nose; it gives out a sebaceous substance like that of the eyelids; and its colour is a good test of strength or weakness, being pale when the constitution is debilitated, but florid in high health. The ancients thought it was the source of the tears. In some of the inferior animals, particularly in birds, this spreads over the whole eye, by veiling which, it performs the office of a second eyelid.

The ball of the eye is considerably smaller than the socket, to give room for its motions, and is not quite globular, but a little elongated. It is made up of several tunics, somewhat like the coats of an onion, which enclose various humours. Next to the transparent skin, which I have described as lining the eyelid, and covering the eyeball, there is a hard, opaque, pearly, or bluish white, insensible coat, which surrounds the ball, (except the central circle, where the eye is transparent,) and is termed the *sclerotica*.

The descriptions which are given of this coat in books are often very inaccurate, and even contradictory. Some confound it with the reflected skin of the eyelids, already described, because this closely adheres to it; and

others take no notice of the obvious cause of its white colour, and, consequently, give a very partial account of its texture; others, again, confound it with the cornea, or outer transparent coat of the central circle.

The white or sclerotic coat of the eye is a very strong membrane, having the texture and firmness of tanned leather. It is somewhat extensible and elastic, as appears in dropsy of the eye. The sheath of the nerve of the eye is intimately interwoven with this coat, which caused the ingenious M. Bichât to consider it as actually the sheath blown out into a globe. It is this coat which binds the eyeball firmly round, and preserves its figure: it also affords a strong substance for the insertion of the tendons and muscles that move the eye. It is the termination of these muscles which, being spread over the fore part of this coat, gives it that pearly or enamelled appearance, and which is sometimes described as a separate coat. Almost all the terminations of the muscles, in every part of the body, are of this appearance, or somewhat silvery, and nearly insensible, being destitute of nerves. It follows, that both the coat itself, and the ends of the muscles inserted into it, are insensible. In consumption, the white of the

eye, as well as the teeth, become more distinctly of a pearly hue. In some cases of palsy it has turned quite black. When any of the parts within the eye swell, this coat, from its firmness, resists their expansion, and the pain produced thereby is often of the most intense description.

The middle or choroid coat lies within the white of the eye, adhering to it by an abundant tissue of cells. This middle coat is thin, rather soft, and so full of blood-vessels, that its inner surface is velvet-like from their terminations; and when the eye of a young subject is injected with red wax, it appears like scarlet cloth. It is, indeed, almost a tissue of blood-vessels, particularly on the surface next to the white or sclerotic coat. It is very sensitive. Next to this lies the membrane of the pigment which secretes the *pigmentum nigrum*, a dark-brown paint or varnish, which is, in fact, the colour of the whole coat. This is spread over its inner surface, and is an important provision in producing sight, as the following facts from Dr. Monro demonstrate: — In the ox this paint is green; in the cat and owl it is white and silvery; in the lion it is golden yellow; in the dog it is greyish; in man it is dark brown or

black during youth or manhood, and in old age it becomes deficient.*

We infer from these facts, that the pigmentum given out by the middle coat of the

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* The three principal colours of the human eye were well laid down by Aristotle, viz. blue, passing in its lighter tints to what we call grey; an obscure orange, which he calls the colour of the eye in the goat — a kind of middle tint between blue and orange, and sometimes remarkably green in men with very red hair and freckled skin; and, lastly, brown in various shades, forming, in proportion to its depth, what we call hazel, dark, or black eyes. The red eyes of the leucæthiopic constitution may constitute a fourth division.

These may all occur in different individuals of the same race, or even of the same family; and again, they are sometimes confined to the distinct tribes of the same country, within the limits of a few degrees. Thus Linnæus describes, in Sweden, the Gothlander, with light hair and greyish blue eyes; the Fin, with yellow hair and brown iris; and the Laplander, with black hair and eyes.

Blue eyes, as well as yellow hair, (*cærulei oculi, rutilæ comæ,*) have characterised the German race from the earliest times; and the same combination is met with, in scattered instances, in the most remote nations. The iris of the negro is the blackest with which we are acquainted; so much so, that close inspection is necessary, in living individuals, to distinguish it from the pupil. It is invariably dark in all the coloured tribes of men, as well as in dark-complexioned individuals of the white variety.

eye is intended to modify the intensity of light. White and pale colours reflect light, while black and deep colours absorb it; hence, animals which prey in the night have this pigment of a paler colour than man, who sees worse in the dark than any other perfect animal. It is from this circumstance that the eyes of cats are observed to gleam in the dark; for they concentrate all the light which falls upon them, and the white parts reflect it back on the objects near them.

The singular variety of the human race called Albinos, who have their hair and skin perfectly white, as well as ferrets, white rabbits, and pigeons, want the pigmentum nigrum altogether; and hence their eyes appear red. It therefore happens that no animal having this peculiarity can see perfectly in bright sunshine or strong light, from the want of its modifying power.

For the purpose of seeing, in a living animal, the blood-vessels of this middle coat, and the beautiful ones also of the next coat in succession, M. Mery plunged a cat into a tub of water. The eye, by this means, was rendered more transparent, and the circulation of the blood could be distinctly perceived.

The expansion of the nerve of the eye, which covers the whole of the back part of its globe within the middle coat, forms the innermost coat, reckoning from the front inwards. This is well known as the *retina*, which, as the name implies, has a sort of netted appearance; yet this does not belong to the nervous expansion itself, in which no fibres or threads can be detected, but to the blood-vessels interwoven with the nerve, and giving to the whole a faint pink tinge. These are minutely divided, and very numerous; and it is not improbable that it is their netted appearance which is seen upon pressing the eye in a particular manner. For example, when we shut our eyes, and press slightly on the eyelids for a short time, we begin to see a number of luminous points dispersed through the artificial darkness thus produced. These points are, by degrees, observed to unite into lines, becoming more luminous, and crossing each other in many directions. By continuing the pressure of the finger somewhat longer, the luminous lines appear to radiate from a central circle about a quarter of an inch in diameter, which is also variously netted, but darker than the rest of the field of vision, if we may use such an expression under these

circumstances. When the eye is strained, as if in the act of attentive vision, these luminous lines are seen tremulous and fluttering, in consequence of the irritation of the nerves.

These netted and luminous radiations, observed on thus pressing the eye when shut, are all colourless, or rather are between a yellowish white and a silvery hue; but sometimes there are small pale blue spots observable, not larger than a millet-seed. The phenomena, moreover, are not confined to a definite circle, but extend over an apparent space of several feet in diameter, though varying in extent according to the contrivance or magnitude of the pressure employed. It is not, however, indispensable to make pressure at all, though it renders the effects more distinct; for we may see the same appearances by day or night, whenever our eyes are closed.

M. Sauvage mentions having observed a similar net-work on looking attentively at a white wall exposed to sunshine. It was darker than the other parts of the wall, and vanished and reappeared at each beat of his pulse. These phenomena, I may remark, are very different from what are termed *ocular spectra*, which have given origin to many curious experiments, de-

tailed by Buffon, Darwin, Wells, D'Arcy, Young, and Bingham.

The retina is usually supposed to be the seat of vision. In the axis of the eye, between the two principal branches of the central blood-vessel, and a little nearer the temple than the nerve of the eye, is a small foramen, surrounded by a yellow edge, which was first discovered by the celebrated Sömmering. Its use is not well understood, though perhaps it may be intended to modify the intensity of light, by contracting or enlarging according to circumstances. It is only to be found in animals whose eyes are parallel, like those of man; and this might lead us to conjecture that it is instrumental in directing their parallelism. There is in front of the coloured central circle of the eye a hard transparent coat, in the form of a watch-glass, being more convex and prominent than the white of the eye. This is called the *cornea*, because it is supposed to be of the texture of horn. Some have compared it to the nails, without reflecting that the nails are not, like it, separated into plates or scales by a peculiar fluid; nor are they subject to inflammation. Like the white of the eye, it is insensible; and is also covered by the conjunctiva

or reflected skin of the eyelids, which gives it a polish and brilliancy, and sometimes much increases the appearance of inflammation when the cornea is so affected. It is proper to mention, however, that authors differ as to the sensibility of the cornea. Haller says it is insensible. It is composed of several concentric transparent plates or scales, slightly adhering together, and having transparent vessels running through them, which give out a limpid fluid like pure water. To this fluid the eye in health and in youth owes all its lustre. In ill health, and in old age, it becomes muddy, or deficient in quantity, and the eye in consequence loses its brilliancy. The cornea readily imbibes water, and gives it out again in disease, and particularly at death, when it produces the glassy film seen in the eyes of the dead.

One of the most beautiful parts of the eye, which is fancifully called the *iris*, or rainbow, from its varied colour, lies behind this transparent horn or eye-glass. It is this which in some eyes is blue, in others dark brown or nearly black, and in others hazel or grey. It is a delicate and very sensible coat or membrane, which partitions the eyeball into two

chambers, one before, and the other behind it. Mr. Milne Edwards says it is made up of four plates. Around the margin of the iris is an elegant arrangement of the middle coat of the eye, it being beautifully plaited. There are about seventy of these triangular folds. This may be called the *ciliary circle.* The fringes are spread over the glassy humour and around the crystalline lens. They cannot have any power to move the lens, as has by some been supposed, for they do not adhere to it, nor are they contractile; besides, the lens itself is immovably fixed in the vitreous humour.

The colour seen in the iris through the cornea is produced by a colouring matter, similar to the pigmentum described as spread between the middle and the inner coat or retina. This is usually brown, even in light-coloured eyes; and, as it is spread over the back part of the iris, the colour of the eyes is modified by the degree of transparency possessed by this membrane. The more transparent it is, the darker are the eyes. When it is milky or cloudy, the colour of the eyes is blue, grey, or hazel. In light blue eyes it is white.

The varied shades and elegant marbling,

however, arise from the fleecy texture of vessels and nerves, producing a velvet-like surface, from which the brown paint is given out. The black paint is indispensable to our perceiving colours; for when the membrane is detached from the pigment, it is transparent and colourless.

If we examine the coloured part of the eye, three circles, of different shades, are observable; that on the outer and inner margin being darker than the zone in the middle. The inner margin of the iris forms the circumference of the pupil, which varies in size with the movements of the iris, and is always deep black when the eye is healthy and sound, whatever the colour of the iris itself may be. This aperture is termed the pupil, and popularly the sight of the eye.

The pupil, in some rare cases, will appear active, though the eye be otherwise totally insensible to light. Parrots and some other animals are said to have, independent of light, a voluntary power over the pupil. Some instances, however, are recorded of this voluntary power in man, which, though not common, is curious.

The pupil varies in magnitude according to

the intensity of light which falls on the eye. It is by this test that we try the sensibility of diseased eyes; for when the sensibility is injured, this contraction either does not take place at all, or is very partial. It has long been disputed among the ablest writers, whether the motion of the iris, in enlarging and contracting the pupil, is caused by muscles or not. There are two sets of fibres; one circular, another radial. It is from the paralysis or relaxation of the circular set, that the pupil dilates. At death, this relaxation is most obvious in the great dilatation of the pupil, which is, indeed, one of the most certain marks that life is extinct. The inner ring of the iris seems to be elastic. When a beam of light is made to fall on it, there is no motion.

Having thus described the several coats of the eye, it will next be requisite to notice what are termed its chambers, and the different humours they contain. The space before the iris, and behind the cornea, is named the first or anterior chamber, and is filled with a limpid, colourless fluid, like water, hence called the aqueous humour. It weighs in a grown person about five grains, and half as much in an infant.

Various accounts are given by authors of the origin of the aqueous humour; some tracing it to the fleecy surface of the iris, and others to the ciliary circle round its margin.

The aqueous humour seems to be intended to distend the cornea, and keep it full and convex. This may be inferred from the fluid becoming less in quantity, as it does in old age; and in some diseases the cornea at the same time becomes flatter: in infancy also, when the cornea is much thicker and stronger than in after-life, the fluid, not being so requisite, is less abundant. Another use of the watery humour appears to be that of affording a medium for the iris to float in. This is, perhaps, its most important use; for the contraction and dilatation of the pupil require the greatest nicety to meet the quantity of light, which is so frequently varying. When the fluid escapes, the pupil contracts for want of support; the watery humour accordingly fills the opening of the pupil, and a small quantity of it also lies behind the iris. Formerly, the quantity of the fluid behind the iris was thought to be considerable; but this was proved to be a mistake, by the ingenious experiment of freezing the eye before dissecting it. In this case

only a very thin flake of ice was found behind the iris. On a deficiency of the vitreous, the aqueous humour becomes proportionally more copious.

When, by any accident, or by an operation, the cornea is torn or cut through, the aqueous humour escapes by the opening. It is, however, very speedily renewed; about eight or ten hours being sufficient for again filling the chamber of the eye.

The next chamber is much larger than the front one, forming the whole inner ball of the eye, while the other extends only to the iris. This chamber is chiefly filled with a fluid, which, from its appearance, is called the vitreous or glassy humour. There is, besides, a small round transparent body set into the front of this humour, like a diamond in a ring, immediately behind the pupil, which is called the crystalline lens. The vitreous humour will sink in water, is considerably heavier than the aqueous humour, and looks glairy, almost like melted glass. It does not float free like the aqueous, but is contained in a very lucid membrane, which divides within into innumerable little sacs, so transparent as not to break the course of a ray of light. Their density must

be nearly the same with that of the fluid. No art of man could imitate this; for the nicest of our artificial joinings of transparent bodies break the light, and throw it out of its track. Around the border of the cup in which the crystalline is set, the membrane is doubled in shape of a ring, forming a canal, that may after death be inflated. It is thus discovered to be not uniformly tubular, but puckered, or, rather, divided into conical pouches by membranous partitions.

In what manner the substance of the humour and its membrane is produced and nourished, we cannot tell, as no vessels can be traced into it after birth. Before that period, blood-vessels are, on dissection, seen running through the transparent membranes. It is certain that all fluids are derived from the blood; and as they are constantly requiring to be renewed, their renewal must come from the same source. That we cannot detect them, is no proof, therefore, of the non-existence of vessels in the vitreous humour. This humour also sometimes becomes cloudy, and of a sea-green colour; but this complaint is uncommon.

The crystalline humour, or lens, as it is usually called, is a substance of the appearance

of very transparent ice or crystal. In form it is like a small thick spectacle-eye, or the doubly-convex glass of a spy-glass, or of a microscope; and serves a similar purpose to these in modifying the rays of light. The structure of the crystalline lens has been variously described; and as it is frequently the seat of disease, it has been very minutely examined. We may consider it as made up of very transparent threads, beautifully figured and waved. Between the scales there is a transparent fluid, clear and colourless in youth, but becoming yellowish, or topaz-coloured, in advanced age. In the centre of the lens the scales lie closer together, and form a small fibula, nearly solid, which will protrude if the outer scales be cut into. The whole lens is surrounded by a strong, thick, transparent, and elastic skin or membrane, enclosing a clear fluid, and by several other little pellicles or membranes, so delicate, that anatomists are not agreed about their distribution. The lens, however, is well ascertained to adhere behind to the membrane of the vitreous humour, which keeps it fixed opposite to the pupil, and prevents it from rolling. It is thought by some to be further steadied and compressed by the points of the ciliary fringe which lie around it.

The optic nerves are to the eyes what the auditory nerves are to the ears. The former are the largest that arise from the brain, if we except the fifth pair, and give off no branches from their origin to their termination on the retina. They proceed from the thalami nervorum opticorum, two white oval-shaped bodies covered by the plexus choroides, and situated on the lateral ventricles. Besides the thalami, the nates and testes, or tubercula quadrigemina, appear to furnish part of their origin. In their passage from the brain to their entrance into the orbit, they are covered only by the tunica arachnoides and pia mater; but when arrived at the optic foramen, they receive an additional envelope, formed by the dura mater, which we find in the orbit, as the sheath of the nerve, and said to be finally expanded into the sclerotic coat of the eye.

We may infer (says Dr. Bostock) that the specific and sole purpose of the optic nerve is to convey the visible impressions received by the retina; for it may be presumed that all the other functions to which the nervous system is subservient, are performed by the other nerves, with which the eye is so plentifully furnished. But, as is the case generally with nerves which

possess specific powers, we do not observe any peculiarity in the structure or fabric of the optic nerve which could have led us previously to form any conclusion respecting the nature or mode of its action.

The two nerves, which at first are distinct, meet together before entering the eyes, and immediately separate again, making almost the form of an ⋈. At a short distance from the junction, the nerve passes through several small holes in the outer coats of the eye, but unites again and forms a small ganglion,* and then expands itself to form the retina, accompanied with the numerous branches of its artery. As,

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* "The ophthalmic ganglion, placed in the orbit, occupies the external side of the optic nerve; it communicates, by its posterior and inferior angle, with the common oculo-muscular nerve, by means of a twig. This twig is generally thick and short. By its posterior and superior angle, it communicates, by means of a long and slender thread, with the nasal branch of the ophthalmic of Willis. I have never seen the ophthalmic ganglion communicate directly with the cavernous plexus; nor have I seen the communication which Arnold states to exist between the ganglion of Meckel and that which I am describing. From the anterior part of the ophthalmic ganglion spring the ciliary nerves, from the number of ten to fifteen. These nerves are flexuous, disposed in two parcels, more or less

in passing through the convex eye-glass of a pair of spectacles, all the beams of light are brought nearer to one another than before entering it, the same will accordingly take place in the eye; for the cornea, and the aqueous humour behind it, as well as the crystalline lens and the vitreous humour, are all much denser than the air external to the eye, through which the light passes; and beams of light, on entering the eye, will, consequently, be bent or refracted from the course they held through the air.

Now, as light always proceeds in straight lines, and never in curves, the beams which are thus broken from their former course in the humours of the eye will take a new direction, but still continuing in a straight line. They will, as in the spectacle eye-glass, take the form of a cone, the point of which will go to the bottom of the eye, while its base is on the outside of the cornea. As no light can enter the

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distinct, round the optic nerve. They then gain the posterior part of the eye, and, traversing the sclerotica, distribute themselves over the ciliary ligament and the iris. In their passage along the optic nerve they anastomose, and sometimes form one or two small ganglions."—Manec.

eye except through the pupil, its interior is like a dark chamber.

In looking at objects which differ in their distances, the eye is supposed to undergo some change in its parts or relations. In short, it is conjectured to do for itself what spectacles or glasses accomplish for those who are very long-sighted, or who are very near-sighted. The change, whatever it is, has been the subject of minute investigation and of learned discussion; but still there is little known respecting it with certainty.

Several ingenious experiments were made by Dr. Thomas Young, to discover in the eye-ball the change alleged to take place. He forced upon the ball the ring of a key, so as to cause by its pressure a luminous spot; and, looking at objects of different distances, he expected the spot would become greatly larger. He was disappointed, for it remained the same. He placed, in another experiment, two candles, corresponding to the extent of the nerve of the eye, and then made the highest change of its focus, expecting that, in consequence, the outer candle would appear to move away from him; but in this also he was disappointed.

On the assumption of a change in the eye,

several suppositions have been made concerning the nature of that change; most, if not all, of which are liable to weighty objections. For example, if the globe of the eye is changed, it must be compressed or relaxed by the surrounding muscles of the eyeball, in order to render its axis longer or shorter. If this were so, however, the retina would be puckered up into folds; while we should, moreover, be more conscious of the change, from the muscles being under the power of the will.

Mr. Ramsden seems to have proved that the cornea is partly affected. He invented an apparatus, by which he found that the cornea moved one eight-hundredth part of an inch from the nearest point of distinct vision, to a distance of ninety feet.

It is also supposed that the muscular power of the ciliary processes, in drawing the crystalline lens forwards or backwards, is the principal change produced; but this is disproved by the want of any contractile power in these very processes.

That we may see well, it is obviously essential for the eye to be perfect, which it cannot be unless the body is in health. A remarkable proof of the truth of this observation may be

found in the acuteness of the external senses, especially the vision, of the savage tribes, which, when compared with the sight of those pent up in cities, may well excite our wonder, even to the extent of incredulity.*

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* Pallas, in his frequent intercourse with the nomadic tribes of Asia, had the best opportunities of observing their capabilities in various respects. "The Calmucks," he says, "have a fine nose, a good ear, and an extremely acute eye. On their journeys and military expeditions, they often smell out a fire or a camp, and thus procure quarters for the night, or obtain booty. Many of them can distinguish, by smelling at the hole of a fox or other animal, whether the creature be there or not. By lying flat, and putting their ears to the ground, they can catch, at a great distance, the noise of horses, of a flock, or of a single strayed animal. But nothing is so surprising as the perfection of their eyes, and the extraordinary distance at which they often perceive, from inconsiderable heights, small objects, such as the rising dust caused by cattle or horsemen; more particularly as the undulation of the boundless steppes or plains, and the vapours which rise from, and float upon them in warm weather, render things very obscure.

"In the expedition which the Torgot Vicechan Ubaschi led against the Cubanians, the Calmuck force would certainly have missed the enemy, if a common Calmuck had not perceived, at the estimated distance of thirty versts, the smoke and dust of the hostile army, and pointed it out to other equally experienced eyes, when the commander, Colonel Kischinskoi, could discern nothing with a good

Having now given a description of the anatomy of the eye, stated the uses of its various parts, and interspersed such remarks and illustrations as seemed to be suggested by the subject, I shall close this chapter with some comparisons of the organ in quadrupeds, birds, fishes, and insects. I adopted a like course in my "Treatise on the Ear;" and the reception it has met with, convinces me that similar illustrations in relation to the eye will not be unacceptable to the reader. For many of these remarks I am indebted to that excellent German physiologist, Blumenbach, and to my late respected friend Mr. Joshua Brookes, who has probably seldom been equalled for his zeal and skill in comparative anatomy.

A sensibility to the impressions of light is

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glass. They pursue lost or stolen cattle or game by the track over deserts: Kirgises, or even Russians, in the wild parts of the empire, are equally able to follow and discriminate tracks by the eye. This, indeed, is not difficult on soft ground, or over snow, but it requires great practice and skill to choose the right out of several intermingled traces, to follow it over loose sand or snow, not to lose it in marshes or deep grass, but rather to judge from the direction of the grass, or from the depth of the print in the snow or sand, how long it has been made." — *Vide Essay on the Deaf and Dumb,* pp. 51, 52.

common to all those animals which in a natural state are exposed to this element; it appears at least very evidently to exist in some of the most simple zoophytes, as the armed polypes; but the power of perceiving the images of external objects is confined to such as are provided with eyes for the reception of those images. Nature has bestowed on some species, even of red-blooded animals, a kind of rudiment of eyes, which have not the power of perceiving light, as if in compliance with some general model for the bodily structure of such animals. This is exemplified in the blind rat among mammalia, and in the *myxine glutinosa* among fishes. As the eye is a very complicated organ, particularly in the red-blooded animals, I shall first speak of those peculiarities which affect the globe itself, its membranes, and humours; and afterwards consider the surrounding parts, as the eyelids, lachrymal passages, &c.

*Mammalia.*

It has been known that the sclerotica in several quadrupeds of this class, as in the human subject, is not of equal strength throughout; but that its posterior is much thicker than its anterior part. It has also been conjectured

that this structure might influence what are called the internal changes of the eye, by which the form of the eyeball, and consequently the length of its axis and the respective situation of the lens, are adjusted according to the proximity or remoteness of the object, or in reference to any other relations. Warm-blooded animals have not only the power of seeing at various distances, but also in two media of such different density as air and water. In the eye of the Greenland seal, where M. Blumenbach first noticed the fact, the cornea was thin and yielding, the anterior segment of the sclerotica, or that which is immediately behind the latter membrane, was thick and firm, its middle circle thin and flexible, and lastly, the posterior part very thick and almost cartilaginous. The whole eyeball is surrounded with very strong muscles; hence we can easily understand how their action, varied according to circumstances, produces the requisite changes, and how the axis of the eye is shortened when the animal sees in air, by bringing the lens nearer to the back of the globe, in order to obviate the strong refraction which the rays of light experience in passing from the thin medium of air into the thicker one of the eyes, and *vice versâ*.

The sclerotic coat of the cetacea is distinguished by the great thickness of its posterior part: when the eyeball equals an orange in size, the back of this membrane is an inch thick, so that, although the globe be spherical, the space containing the vitreous humour is of a different form. As the sclerotic approaches to the cornea it becomes thinner. Its posterior part presents a singular structure, consisting of very firm tendinous threads and laminæ, most closely interwoven, and of more than cartilaginous hardness towards the sides. The extent of the cornea, when compared to that of the sclerotica, varies in the different species of mammalia. It seems to be the greatest in the porcupine, where the cornea extends over half the globe.

The choroid coat consists, more plainly in the cetacea than in any other mammalia, of two distinct laminæ, of which the internal (*membrana Ruyschiana*) is covered with a dull tapetum. The inner surface of the choroid coat possesses, towards the back of the eye, in several genera of this class, particularly in those carnivorous animals which prey by night, and even in the bisulca, the most brilliant yellow-green and sapphire-blue colours, forming what is called the *tapetum lucidum*. The co-

loured portion of the choroid is only partial, and the rest is covered with a black pigment, as usual. In consequence of this structure, less light will be absorbed, and it must, on the contrary, be reflected from the tapetum against the retina, which lies in front of the membrane of the pigment.

The retina exhibits in some quadrupeds, viz. the hare and rabbit, very distinct and elegant fibres or striæ of medullary substance, taking for the most part a transverse direction. The remarkable central foramen, which Sömmering discovered in the human retina, has been since demonstrated to exist in the eyes of several quadrumana, where these organs are directed forwards, and have their axes parallel. It is, for instance, very plain in the eye of the common Barbary ape: the entrance of the optic nerve forms a small yellow circle on the retina, near this a large grey fold appears, with the central foramen in its middle. Man, and such animals as have the two eyes placed with their axes parallel, thereby gain the advantage of seeing objects with both eyes at once, and therefore more acutely. But at the same time they are exposed to this inconvenience, that in a strong light both eyes become dazzled at

once; and this happens so much the sooner, because the light falls on the corresponding principal focuses of the eye both at once, the organ not possessing a nictitating membrane. This inconvenience seems to be obviated by the central foramen, since that part which constitutes the principal focus of the eye opens in a dazzling light, so as to form a kind of small pupil, through which the concentrated rays pass, and falling on the choroid, they are absorbed by the black pigment.

The iris, an organ of very peculiar structure, exhibits in the different genera and species of mammalia more numerous and interesting varieties than any other part of the eye. The colours of its anterior surface, which are peculiar to the different genera, vary in the races and varieties of domestic animals, although less strikingly than in the human structure. These variations are connected with the colour of the hair; so that in spotted dogs, rabbits, &c. a mixture of colours will be seen in the iris. The substance of the part varies in thickness in the different genera. In no instance have true muscular fibres been discovered; the examination of the part in the elephant and whale having afforded the same result in this respect as the tender

and almost transparent iris of the white rabbit. In the eye of the seal the ciliary vessels are not distributed in the substance of the iris, but lie on its anterior surface, and form a considerable plexus, which is visible without any injection. The pupil in the bisulca, solidungula, cetacea, &c. is transverse; in animals of the cat kind, particularly in a clear light, it is oblong; not to mention various other trivial peculiarities, as the small villous appendix, covered with a black pigment, which is sometimes seen in the middle of the superior margin of the pupil, particularly in the horse.

The corpus ciliare, or ciliary body, and particularly the folds of its internal surface, with their numerous and elegantly arranged blood-vessels, constitute one of the most wonderful parts of the eye, although its functions, which must undoubtedly be of the highest importance, are hitherto involved in mystery. Its more minute differences in the genera which have been hitherto examined, are too numerous to be recounted, and they could not be understood without delineations. Among other instances, those of the elephant and horse may be mentioned, on account of the remarkable beauty and delicacy of their structure.

The size of the crystalline lens varies in proportion to that of the vitreous humour, and sometimes very considerably. My friend Dr. Weatherhead found the largest lens, in this point of view, in the eye of the opossum, one of which he presented to the Zoological Society, which is now in their gardens. The whale has the smallest. No mammalia have it so slightly convex on the surface as man. In the cat, hare, the bisulca, the horse, opossum, and seal, it becomes more and more convex, according to the series in which these animals are named. Lastly, in the cetacea it is nearly spherical. It is curious to observe the regularity with which, in some species, the lens divides into certain segments, commencing from its centre, in consequence of being dried, or immersed in acids.

A lachrymal gland exists in all animals of this class. Several quadrupeds have, indeed, an additional one, besides that which is found in the human subject. Some have no puncta lachrymalia; and the elephant has neither lachrymal bag nor os unguis.

The nictitating membrane, of which only a rudiment exists in the quadrumana and the human subject, is very large and movable in some quadrupeds. This is the case in animals

of the cat kind, in the opossum, the seal, and particularly in the elephant.

The relative magnitude of the true eyelids varies considerably in animals of this class. The lower, which is very large in elephants, is very small in the horse. In the latter animal, as well as in most quadrupeds, it has no cilia; while in the quadrumana, the elephant, giraffe, and others, both eyelids possess eyelashes.

*Birds.*

The eyes are very large in this class of animals, and consequently the bony orbits are of great magnitude in proportion to the skull. In birds of prey they have a peculiar form, similar to that of the chalice or cup used in the communion service; the cornea, which is very convex, forms the bottom of the cup, and the posterior segment of the sclerotica resembles its cover.

This peculiar form arises from the curvature and length of the bony plates, which, as in all other birds, occupy the front of the sclerotic coat, lying close together, and overlapping each other. These bony plates form in general a flat, or slightly convex ring, which gives the whole eyeball the above-mentioned form. Dr. Albus

observes, that the orbit is very imperfect in birds, and thinks that this bony ring may supply the deficiency.

The distinction between certain parts of the eye, when the membranes have been supposed to be continuous, appears more plainly in some birds than in any other animals. Thus M. Blumenbach found the boundaries of the choroid coat and iris very clearly defined in the horned owl; and those of the margin of the retina, and the posterior border of the ciliary body, very distinct in the toucan.

A great peculiarity in the eye of birds consists in the marsupium, the use of which has not hitherto been very clearly ascertained. It arises in the back of the eye, proceeding apparently through a slit in the retina; it passes obliquely into the vitreous humour, and terminates in that part, reaching in some species to the capsule of the lens. The figure of its circumference is a truncated quadrangle. Numerous blood-vessels run in the folds of membrane which compose it, and the black pigment by which it is covered suggests an idea that it is chiefly destined for the absorption of the rays of light, when they are too strong or dazzling. Others believe that it serves in this class for

the internal changes of the eye; but Crampton has contested this opinion, and described a peculiar circular muscle in the eyeball of the ostrich and several large birds, by which these changes are effected.

Birds have large lachrymal passages, which terminate in the surface of the palate. In some species, as the common fowl, the turkey, goose, and duck, the lower eyelid, which contains a peculiar small lamina of cartilage, is the most movable; in others, on the contrary, as in the ostrich* and parrot, the upper has the most extensive motion. Very few birds have cilia in both eyelids; they are found in the ostrich, the razor-billed blackbird, and in some parrots.

*Amphibia.*

Little is hitherto known concerning the peculiarities in the structure of the eye of this class. In some reptiles and serpents, the common integuments form, instead of eyelids, a kind of firm window, behind which the eyeball has a free motion. In the green turtle the scle-

* I was present at the dissection of an ostrich by Mr. Brookes, in the Gardens of the Zoological Society; and was afterwards favoured with a more particular examination of the eye and ear of this gigantic bird.

rotica has a bony ring at its anterior part, composed, like that of birds, of thin osseous plates. These animals possess very large lachrymal glands, and a very movable membrana nictitans, in which circumstance the frog resembles them.

*Fishes.*

The peculiarities in the eye of fishes, which belong either to the whole class, or to most of the genera and species, consist in the very distinct manner in which the laminæ composing the choroid, the membrana pigmenti, the membrana Jacobi, and the retina appear, and in the existence of two small organs within the eye, which belong exclusively to this class.

The choroid is continued anteriorly into the iris, and possesses in many species the well-known brilliant gold and silver colours. The retina is easily separable into two laminæ, of which the external is medullary, and the internal consists of a fibrous texture.

The two other peculiarities belong exclusively to the eye of fishes, and are common at least to the whole osseous division of these animals. A body, generally resembling in shape a horse-shoe, lies between the membrane of the

pigment and the membrana Jacobi or tunica Ruyschiana: some have thought it muscular, and others glandular. The tunica Ruyschiana gives origin to a vascular membrane, resembling in its form a bell. This goes towards the lens, and has therefore some resemblance to the marsupium of birds. No true ciliary body is found, at least in the bony fishes.

The crystalline lens of most fishes is very large in comparison with the size of the eyeball, and nearly or entirely spherical. The vitreous humour, on the contrary, is small, and the aqueous in many instances is hardly discernible.

The following may be enumerated as instances of remarkable peculiarities in the eyes of particular genera and species of fishes. The firm transparent laminæ of common integuments, behind which the eyeballs move, as in some amphibia; the articulation of the globe on a stalk of cartilage in the skate and shark; the curtain in the eye of the skate, which can be let down so as to cover the pupil; and the unique structure of the lobitis anableps, where the cornea is divided into two portions, and there is a double pupil with a single lens.

*Insects.*

Two kinds of eyes, very dissimilar in their structure, are found in this class. One sort is small and simple; the others, which are large, seem to consist of an aggregation of smaller eyes; for their general convexity is divided into an immense number of small hexagonal convex surfaces, which may be considered as so many distinct corneæ. The first kind is formed in different numbers in most of the aptera, as also in the larvæ of many winged insects. When these undergo the last or complete metamorphosis, and receive their wings, they gain at the same time the large compound eyes. Several genera of winged insects and aptera have stemmata besides their compound eyes.

The internal structure has hitherto been investigated only in the large polyedrous eyes. The back of the cornea is covered with a dark pigment. Behind this are numerous white bodies of a hexagonal prismatic shape, and equal in number to that of the facets of the cornea. A second coloured membrane covers these, and appears to receive the expansion of the optic nerve. Further investigation is, however, required, in order to shew how these

eyes enable the insect to see, and to determine the distinctions between two such very different organs.

*Vermes.*

The cuttle-fish only, of this whole class, has been hitherto shewn to possess true eyes, the nature of which cannot be disputed. They resemble, on the whole, those of red-blooded animals, particularly fishes; they are at least incomparably more like them than the eyes of any known insects; yet they are distinguished by several extraordinary peculiarities. The front of the eyeball is covered with loose membranes instead of a cornea; the iris is composed of a firm substance, which seems like a continuation of the sclerotic; and a process projects from the upper margin of the pupil, which gives that membrane a semilunar form. The corpus ciliare is very completely formed. In all other vermes the eyes are entirely wanting, or their existence is very doubtful. Whether the black points at the extremities of what are called the horns of the common snail, are organs which really possess the power of vision, is still problematical.

## CHAPTER II.

### OF THE DISEASES OF THE EYE.

HAVING in the Introduction pointed out the circumstances which led me to direct my attention to diseases of the eye, and having, as in my work on the ear, described the parts of the eye essential to the perfection of its leading functions,—I shall now proceed to examine the principal diseases of the eye: these, as in the case of the ear, may be classed according to the different parts of the organ in which they are seated,—namely, external, comprehending inflammation of the eyelids, of the sclerotic coat and cornea, with the sequelæ of epiphora, ulceration, specks, and opacities; and internal, viz. cataract, cancer, and amaurosis or gutta serena.

In so doing, I shall follow the anatomical arrangement, and consider the various morbid affections of the different parts of this important organ and its appendages; commencing with the exterior, and carrying on my obser-

# PLATE II.

Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

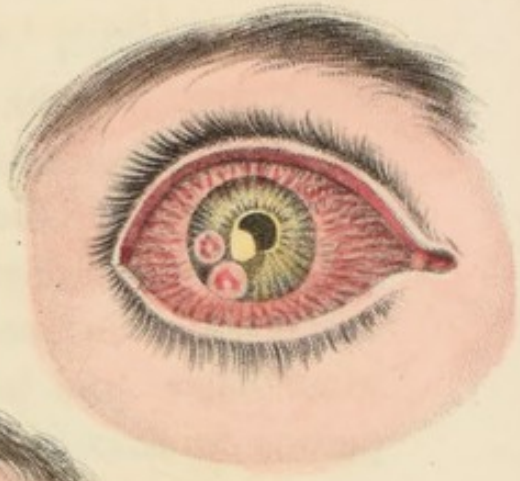


Fig. 5.



Fig. 6.



Fig. 7.



## DISEASES OF THE EYE.

1 Hydrophthalmia
2 Cataract
3 Iritis
4 Syphilis
5 Staphyloma
6 Cancer
7 Amaurosis

London Jan.y 27.th 1835. Engraved for M.r Curtis's Treatise on the Eye.

vations to the interior portions. I consider it better to follow the order of nature than to adopt any arbitrary arrangement, as the line of demarcation between the external and internal parts of this organ is not so clearly defined as in the ear.

### *Diseases of the external Eye.*

These, like the diseases of the external ear, depend on the nature of the structures affected. The reader may be reminded, that the eyelids are partly cartilaginous and partly muscular, the tarsus being besides furnished with mucous glands, and the lachrymal gland furnishing a serous fluid.

### *Ophthalmia.*

Called by the Germans *Augenentzündung*; by the French *Ophthalmie.*

Inflammation is a subject to which pathologists have often directed their attention, and much has consequently been written upon it. Its real nature is, however, but very imperfectly understood; so that we are unable to define exactly what inflammation is. The most general idea we can form of it is, that it consists in an increased activity in the capillary circula-

tion, made apparent either by fulness and enlargement of vessels, or by depositions of new matter, causing evident changes, such as thickening or opacity, increased or altered secretions, and unnatural adhesions.

The custom of embracing under the name of ophthalmia all the inflammatory diseases of the eye has much retarded an acquaintance with them; both the seat of disease, and the peculiar character of the inflammation, being thereby frequently overlooked. This has, in turn, given rise to a most absurd mode of treating the various ophthalmiæ; and wherever there is inflammation of the eye, one class of remedies has been almost solely employed.

It may be correctly said, that inflammation affects equally all the membranes of the eye. An attack of ophthalmia is usually ushered in by stiffness, smarting and uneasiness on exposure to light, watering, external redness, and an increased flow of tears. After the occurrence of pain, the sclerotic coat is seen to be slightly red, the eye is dry, hot, becomes somewhat inflamed, and moves with difficulty in its socket, owing to the distended state of its conjunctival covering. The pain through the eyeball and orbit is at first lancinating, but becomes throb-

bing as suppuration approaches — the redness is diffused, and there is a solid deposit of lymph in the conjunctiva, which becomes indurated, producing chemosis.

When there is an extravasation of blood from external violence, the colour of the eye is of a deeper red than in inflammation, from the coagula it contains. As the inflammation proceeds, the neighbouring glands, which were primarily stimulated to increased secretion, become dry; but towards the termination of the disease they pour forth a greater quantity of matter. As the second stage approaches, an effusion of blood, or pus, frequently takes place in the chamber of the aqueous humour, and if to any extent, is accompanied with high sympathetic fever, and total destruction of the organ.

The various causes of inflammation of the eye are, derangement of the digestive organs, atmospheric changes, the presence of foreign bodies, and the propagation of the inflammation from the brain itself through the medium of its tunics investing the optic nerves. To these may be added, habitual excessive indulgence in the use of fermented liquors, full feeding, indolent habits, neglect of air and exercise (which are as necessary to health as food is to exist-

ence), suppressed evacuations, sedentary employments, living in impure and confined air, costiveness, late hours, great anxiety, extreme mental exertion, &c. The conjunctival coat of the eye being a similar and continuous membrane with that lining the intestinal canal, satisfactorily explains their existing sympathies. No state of atmosphere predisposes more to ophthalmia than the union of heat with moisture, and exposure to the night air.

There are certain inflammations which have their seat in the conjunctiva, and which are easily distinguishable as well from each other as from the ophthalmia which attacks the deeply seated parts. There is, for instance, an erysipelatous inflammation of the conjunctiva, constituting one of the kinds of ophthalmia. In this disease the conjunctiva assumes a pale red colour, and elevates itself in yellowish red vesications round the cornea, while blood is extravasated here and there into the cellular substance which binds the conjunctiva to the sclerotica. As the disease subsides, the detached conjunctiva reapproaches the sclerotica, and the redness gradually disappears.

On the other hand, the conjunctiva is exposed to a very dangerous inflammation as being

a mucous membrane, in which one of the chief symptoms is a greatly increased and puriform secretion from the surface of the tunic.

The sclerotica, being of a very different structure from the conjunctiva, presents very different phenomena when it becomes the focus of ophthalmia; which it is extremely apt to do, both from the causes that excite rheumatism in other parts of the fibrous system, and also from slight mechanical injuries. It is difficult, indeed, at any period, to confound it with either of the above-mentioned species.

The blood-vessels of an inflamed conjunctiva are evident to the eye of the observer at a considerable distance: they are of a scarlet-red colour; many of them are exceedingly tortuous; they have a tendency to fill equally every part of the conjunctiva, and to ramify and anastomose through it in every direction, and with no particular or distinct arrangement: in the motions of the eyeball they seem but little to participate; whereas, if by means of the finger we move the eyelids in different directions, the blood-vessels of the conjunctiva are seen following the motions given to the eyelid.

The blood-vessels of the inflamed sclerotica, on the other hand, are of the smallest diameter:

from their deep situation and their fineness, they are not evident except on near inspection; they are of a carmine or rose-red colour; they constantly incline to appear in the form of a radiated zone around the cornea; and they follow all the motions of the eyeball, but take no part in the motions of the conjunctiva produced by drawing the eyelids to either side.

As the inflammation of the sclerotica advances, the effusion of serous fluid takes place upon its surface, which occasions chemosis; and the cornea, taking part in the disease, becomes cloudy. The pain and pulsation felt in the eye are extremely distressing. Points of suppuration form in the conjunctiva, and not unfrequently the cornea ulcerates and bursts.

Inflammation of the iris is characterised by symptoms as striking as those of any of the other species of ophthalmia. All these distinctions are of the utmost importance in regard to the treatment.

Inflammation of the eye in a purulent form frequently occurs in infants, beginning in the conjunctiva palpebralis, to which it is often confined. The cornea, when the disease is mild, is not endangered, unless it be neglected; and the lotion given below has often been found

of service.* A very slight haze of the cornea is the worst direct result of this malady, as has been well explained by Mr. Saunders and by Weller. If the inflammation has been severe, and the secretion of puriform mucus considerable, the cornea exfoliates, and is converted into a mass of matter, which at last bursts in the centre, either suddenly with severe pain, or slowly without pain; and the aqueous humour being now discharged, the iris lies in the aperture. Should the ravages proceed further, the iris may even fall out of the eye, along with a greater or smaller part of the vitreous humour, and complete colliquation of the latter ensue.

The disease does not always stop here; for, even in less destructive degrees of this affection, children often in consequence become consumptive. The cornea, however, will not pass into a sloughy state in every instance in which during the course of this disease it

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* ℞ Cupri Sulphat. gr. iv.
Camphoræ, gr. iij.
Bol. Armen. gr. viij.
Aq. Rosæ fervent. ℥viij.

M. et cola: ft. lotio, ter in die utenda.

Take Sulphate of Copper, four grs.
Camphor, three grains.
Armenian Bole, eight grains.
Boiling Rose-water, eight ounces.

Mix and strain: make a lotion, to be used three times a day.

is affected with opacity: on the contrary, a slight degree of opacity is sometimes the sign of a commencing healthy action.

Of scarification, in such cases, of the inner surface of the conjunctiva lining the eyelids, recommended by Reil and others, Dr. Monteath speaks in high terms, as a method which he almost invariably practised. This is a point, however, which can only be settled by experience: that of Mr. Saunders was decidedly at variance with what Dr. Monteath has observed. According to him, scarifications, as far as he has seen them employed in the active state of the inflammation, are certainly injurious: they have manifestly aggravated the symptoms; and he conceives that the infliction of mechanical injury on a part already actively inflamed can hardly be advantageous. His argument is plausible: a similar practice does not apply in surgery to the other parts of the body.

In this disorder, however, severe antiphlogistic measures are scarcely ever necessary; but the chief attention should be directed to restoring the secretions of the body. He recommends, for this purpose, the liquor ammoniæ acetatis, with antimonial wine and a small quantity of the syrup of poppies; the

compound powder of ipecacuanha in small doses; calomel and opium; and when the cornea is opaque, calomel or blue-pill. Should the disease not yield to this plan of treatment, he advises tonics, the best of which he thinks are the mineral acids, and, above all, sea-bathing or the shower-bath.

The remedies which have been found most beneficial in this disease are, in the early stages, leeches, nitre with tartar emetic, and afterwards rhubarb and prepared chalk in combination; the application of blisters behind the ears, or to the nape of the neck, kept discharging, and the eyelids anointed with red precipitate ointment.

The glands along the edges of the eyelids are always affected in ophthalmia, as is shewn by the straggling appearance of the eyelashes. The most striking benefit has been derived from the use of this ointment in these cases. The strictest attention to diet should be observed, and all bandaging of the eyes forbidden, as it is invariably injurious.

The treatment, however, must always be modified by the nature of the exciting cause, the removal of which ought to be the primary object. Should a febrile disturbance of the

constitution exist, general and local blood-letting is to be premised, followed by saline cathartics and antimonials.* There is great difference of opinion as to the mode of detracting blood by leeches. Ware prefers their application to the temple; Vetch to the lower lid; Dr. Frick adopts the practice of Beer and Scarpa, in applying them over the facial vein, as producing the most rapid abstraction of blood; but I am of opinion, that from behind the ears is the best situation in these affections. Blisters are to be applied behind the ears, or to the nape of the neck, in preference to the temple; as they increase the action of the subjacent arterial trunks in the latter situation.

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| * ℞ Hydrarg. Submuriat. gr. ij. | Take Submuriate of Mercury, two grains. |
| Pulv. Antimonialis, gr. v. | Antimonial Powder, five grs. |
| Confect. q. s. ut fiant pilulæ ij. horâ decubitûs sumendæ; et posterâ aurorâ propinet æger haustum sequentem: | Confection sufficient to make two pills, to be taken at bed-time. The next morning let the following draught be taken: |
| ℞ Infus. Sennæ, ℥iss. | Take Infusion of Senna, an ounce and a half. |
| Magnesiæ Sulphat. ʒiij. | Sulphate of Magnesia, three drachms. |
| Antimon. Tartar. gr. ¼. | Tartarised Antimony, fourth of a grain. |
| Tinct. Sennæ, ʒij. | Tincture of Senna, two drachms. |
| Fiat haustus catharticus. | Make a cathartic draught. |

Stimulant collyria ought not to be used during the acute stage; and tepid applications are preferable to cold,* on the ground that cold, being a tonic, causes a reaction, with an increase of pain. As soon, however, as the capillaries are in a state of congestion, warm applications should be suspended; and cold lotions, astringent collyria,† or stimulating ointments, are to be employed.‡ Schmidt recommends the under-mentioned lotion to be absorbed by the

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* ℞ Dec. Papav. Alb. lb. j.
Flor. Samb. ℥ss.
Coque et cola: sæpè utend.

*Vel,*

℞ Ext. Opii, gr. xxiv.
Solve in Aq. puræ tepidæ ℥vj.
Cola et adde Liq. Ammon. Acet. ℥ij.
M. ft. collyrium.

Take Decoction of Poppies, one pint.
Elder Flowers, half an ounce.
Boil and strain them. To be used frequently.

*Or,*

Take Extract of Opium, twenty-four grains.
Dissolve it in six ounces of pure tepid Water, and add acetated Liquor of Ammonia two ounces.
Mix them, and make a wash for the eyes.

† ℞ Zinci Sulphat. gr. viij.
Plumbi Acetat. gr. x.
Aq. distillat. ℥vj. M.

Take Sulphate of Zinc, eight grs.
Acetate of Lead, ten grains.
Distilled Water, six ounces.
Mix them.

‡ ℞ Ung. simpl. ℥ij.
Hydrarg. Nitrico-Oxydum, gr. xv.
Tutiæ Præp. gr. iv.
Misce exactissime: pauxillum nocte applicandum.

Take Simple Ointment, two drachms.
Nitrico-Oxyde of Quicksilver, fifteen grains.
Prepared Tutty, four grains.
Mix them well: a little to be applied at night.

puncta lachrymalia, or as an astringent, in this affection.*

The two most important indications are, in the first stage, to preserve the soundness of the cornea, the appearance of which should always regulate the extent of the antiphlogistic regimen; in the second, or subacute stage, to avoid the tendency in the organ to the suppurative process. In the former we have much to expect from the free use of antimonials; in the latter, from frequent exposure of the eye to the dry air.

Errhines have been recommended in instances of habitual ophthalmia, and probably may sometimes prove good auxiliary remedies. The compound powder of asarabacca may be used on the occasion. The powder of foxglove will likewise excite a copious excretion from the membrane lining the nostrils, although not generally known to possess such a power.

In ophthalmia the eyelids are apt to be glued together, particularly during sleep, by a thick glutinous matter. To prevent this incon-

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* ℞ Aquæ Rosæ, ʒiv.
Acidi Nitr. ♏xx.
Alcoholis, ʒj. M.

Take Rose-water, four ounces.
Nitric Acid, twenty drops.
Alcohol, one drachm.
Mix them.

venience, their edges should be anointed with a little soft ointment every night, or every night and morning.* In the ophthalmia tarsi, when arising from a scrofulous habit, the nitrated mercurial ointment, mixed with an equal quantity of hog's lard to render it milder, is one of the most efficient remedies we can employ. Beer recommends that given below.†

It may not be uninteresting to add here a few remarks on ophthalmia considered as contagious: the topic has often been discussed, and men of eminence have held very different opinions upon it.

Various attempts have been made to illustrate the point by means of experiments on animals. Graefe repeatedly produced ophthal-

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* ℞ Adipis Præparat. ʒss.
Zinci Sulphat. gr. xv.
M. ft. unguentum.

*Vel,*

℞ Tutiæ Præparat. ℈ij.
Ung. Simpl. ʒss. M.

† ℞ Ung. Simpl. ʒss.
Cupri Sulph. gr. x.
Camphoræ, gr. iv.
Tutiæ Præp. gr. vj.
Misce bene.

Take Prepared Lard, half an ounce.
Sulphate of Zinc, fifteen grs.
Mix them into the form of an ointment.

*Or,*

Take Prepared Tutty, two scruples.
Simple Ointment, half an ounce.
Mix them.

Take Simple Ointment, half an ounce.
Sulphate of Copper, ten grs.
Camphor, four grains.
Prepared Tutty, six grains.
Mix them well.

mia in dogs and cats by applying matter to their eyes; while Müller informs us he could not cause infection, though he made many experiments in the most careful manner.

Certain conditions of the atmosphere, and other external causes, appear necessary to the propagation or increase of purulent ophthalmia. A remarkable instance occurred a few years ago on board a French slave-ship, which had left Africa with its crew in good health, and free from any affections of the eyes, its cargo at the same time being untainted. Fifteen days after leaving the coast of Africa, and while on their way to the West Indies, a severe inflammation of the eyes broke out among them, accompanied by puriform discharge. It first appeared in the slaves, and afterwards spread to the crew; and there were hardly enough of men retaining their sight to work the ship into harbour when they reached the West Indies. The crew consisted of 22, of whom 12 lost their sight, 5 lost one eye, and 4 had opacities of the cornea: of 160 negroes, 39 had become entirely blind, 12 blind of one eye, and 14 had opacities of different degrees.*

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* Guillie, Bibliothèque Ophthalmologique, tom. i.

With regard to the recovery of ophthalmic patients, as it is evident from the case of the slave-ship, detailed at length by M. Guillie, that want of air, close confinement, bad provisions, and scarcity of water, were the causes that first gave rise to it among the slaves, and afterwards rendered it contagious among the crew; — so I think it may be asserted, that scarcely any thing tends more to stop the progress of the disease, and promote the recovery of those afflicted, than pure air and exercise. And probably one of the main reasons why the ophthalmic patients sent to the Hospital at Haslar so speedily recovered, is, that they had a good airing-ground, nearly a mile in circumference.

Mr. Macgregor informs us, that in the year 1804, from April to December, nearly 400 cases of purulent ophthalmia took place at the Royal Military Asylum at Chelsea; and from that period till the close of 1810, above 900 additional new cases occurred there. This dreadful complaint (the same writer tells us) broke out a few years ago in a boys' school in Yorkshire. Blindness of one or both eyes, or serious injury to the sight, from opacities of the cornea, &c. happened in nearly twenty instances.

We often find that in confined and ill-ventilated places, such as hospitals, barracks, prisons, large manufactories, &c., this disease is frequent, and becomes highly contagious; whereas in airy, dry, and lofty situations, it is of rare occurrence and of a milder nature. We also find that patients afflicted with ophthalmia often derive the greatest benefit from a walk in the open air; and hence the folly of guarding the eyes from the refreshing breeze. On the other hand, it is worthy of remark, that in a person predisposed to disease, exposure to an east wind for a very short time will often bring on an attack. The man of regular habits and robust health, however, may encounter wind and weather—hail, rain, snow, or blow—not only without harm, but with positive advantage, regardless of even the atmospherical vicissitudes of our ever-changing climate.

### *Epiphora.*

Called by the Germans *Thränenfluss;* by the French *Epiphore.*

If the inflammation extends along the tarsus to the puncta lachrymalia, or affects the lachrymal duct, the natural passage of the tears will be obstructed, and they will overflow upon

the cheek, producing the annoying complaint termed epiphora, or the weeping eye. In incipient cases, the removal of the inflammation ought to be effected on general principles, in the manner already indicated. When the obstruction in the passage cannot be removed, the complaint can only be remedied by making an artificial one directly into the nostril at the corner of the eye; for which purpose the bone must be bored through, and a silver wire constantly worn in it, to guide the tears. Even this, however, is not always successful: the fifth pair of nerves, which send one branch to the lachrymal gland, and another to the nostrils, are irritated. The same connexion of the nerves also explains why bright sunshine produces sneezing. Dr. Darwin supposes it is from this nervous connexion that the first flow of tears in a new-born infant is produced, by the air acting on the portion of the nerve which is spread over the nostril, and causing most infants to sneeze when they begin to breathe. A similar effect is produced in after-life by air dryer or colder than that to which we are accustomed, or by snuff, or by strong smells, as that of garlic, onions, &c.

According to Dr. M'Kenzie, epiphora is

occasionally a symptom of disordered digestion, especially in children, and of worms in the intestines. Indeed, even when connected with strumous ophthalmia, we may regard both the ophthalmia and the epiphora as originating, in many cases at least, in improper food, and in disorder of the digestive organs.

We scarcely require to prescribe for epiphora alone. I have seen it completely and permanently removed by an emetic. Purgatives followed by tonics, and occasionally by antacids, will be found highly useful in removing some of the more common causes of the disease. A mixture of rhubarb and supercarbonate of soda, repeated every day or every second day, and followed up by a course of the sulphate of quinine, is a plan of treatment which I have often found effectual. Of local remedies the most useful are, the vapour of laudanum, and the lunar caustic solution. Into a cup of boiling water a teaspoonful of laudanum is poured, the cup held under the eye, the eyelids opened, and the vapour allowed to come in contact with the conjunctiva. This may be done twice or thrice a-day. Nothing is more effectual in relieving the irritability of the conjunctiva, on which epiphora so frequently

depends, than a solution of two or three grains of lunar caustic in an ounce of distilled water, dropped into the eye with a camel-hair pencil.

### *Ulceration.*

Called by the Germans *Hornhautgeschwür;* by the French *Ulcération de la Cornée.*

Ulceration of the cornea is of two kinds, the superficial and the deeply seated. The superficial commonly extends over a considerable part of the cornea, seeming in many cases to destroy only its conjunctival covering. The deep ulcer is generally far less extensive, though it affects the substance of the cornea, and not unfrequently penetrates through it, opening into the anterior chamber, and letting out the aqueous humour.

In consequence of various injuries, not only inflammation but ulceration is produced, which requires, according to circumstances, the utmost attention to prevent its spreading, and ultimately destroying the eye altogether. The first object must always be, in such cases, the same as in purulent ophthalmia, namely, to arrest the progress of the inflammation, by relieving the engorged vessels; to accomplish which, venesection is the most effectual means.

I object to the practice of bleeding ad deliquium, and prefer a small bleeding, to be occasionally repeated. Membranes like the conjunctiva, admitting of great distension, although partially emptied, will readily resume their former condition; and therefore an active mode of treatment should be adopted at the onset of the disease. Free evacuations* from the bowels are to be promoted; but in patients of a weak constitution, in whom the discharge is profuse

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* ℞ Ext. Colocynth. Comp. ʒj.

Ext. Jalapæ,
Pulv. Rhei, āā ʒss.

Ol. Cinnamomi, ♏v.
M. ft. pilulæ xxiv.; ij. vel iij. pro re natâ sumendæ.

*Vel,*

℞ Hydrarg. Submuriat. gr. jss.

Ext. Colocynth. gr. v.

Ol. Caryoph. ♏j.
M. ft. pil. ij. nocte sumendæ.

*Vel,*

℞ Magnes. Sulphat. ʒij.

Inf. Rosæ, ℥jss.

Sp. Myristicæ, ʒj. M.

ft. haust. mane sumend.

Take Compound Extract of Colocynth, one drachm.
Extract of Jalap,
Powdered Rhubarb, of each half a drachm.
Oil of Cinnamon, five drops.
Mix them, and make twenty-four pills: two or three to be taken as occasion requires.

*Or,*

Take Submuriate of Mercury, a grain and a half.
Extract of Colocynth, five grains.
Oil of Cloves, one drop.
Mix them, and make two pills, to be taken nightly.

*Or,*

Take Sulphate of Magnesia, two drachms.
Infusion of Roses, one ounce and a half.
Spirit of Nutmegs, one drachm.
Make a draught, to be taken in the morning.

and ichorous, and the conjunctiva flabby, general tonics* and a nourishing diet are to be substituted, which will frequently arrest sloughing of the cornea, after it has commenced.

As local applications, any of the styptic solutions, as alum, or sulphate of zinc, will be sufficient.† Blisters, or tartar emetic ointment, applied behind the ears, and the free exposure to dry air, are never to be omitted.

Ulcers of the cornea primarily occupy either the external surface or its substance. They

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* ℞ Dec. Cinchon. ʒv.
Tinct. Cinchon. Comp.
Syr. Aurant. āā ʒss.
Tinct. Ferri Mur. ♏xx. M.
ft. mistura, sumat cochl. iij. bis die.

Take Decoction of Bark, five ounces.
Compound Tincture of Bark,
Syrup of Orange-peel, of each half an ounce.
Tincture of Muriate of Iron, twenty drops.
Mix them, and take three large table-spoonsful of the mixture twice a-day.

† ℞ Zinci Sulphat. gr. xij.
Aq. Rosæ,
Mist. Camph. āā ʒiij. M.
ft. collyr.

Take Sulphate of Zinc, twelve grains.
Rose-Water,
Mixture of Camphor, of each three ounces.
Mix them, and make a collyrium.

*Vel,*

℞ Alum. Purif. ʒss.
Aq. Flor. Samb.
Aq. Distillat. āā ʒiij. M.

*Or,*

Take Purified Alum, half a drachm.
Elder-flower Water,
Distilled Water, of each three ounces.
Mix them.

often gradually deepen and enlarge, and penetrate the inner coat of this membrane; the aqueous humour then escapes, and the iris protrudes, constituting procidentia iridis. As there is usually considerable inflammation of the conjunctiva, antiphlogistic treatment is called for. The ulcer should be touched with a solution of the lapis infernalis, otherwise called the potassa cum calce; and in urgent cases the system put under the influence of alteratives. When the ulcer is interstitial, and the constitution feeble, tonics are to be employed, together with opiates and local stimulants. Procidentia iridis is either to be touched with an escharotic, or snipped off with a pair of scissors.

### *Specks and Opacities of the Cornea.*

Called by the Germans *Fleck und Verdunkelung der Hornhaut;* by the French *Tache sur la Cornée, Leucome.*

The cornea frequently becomes opaque in consequence of inflammation in the vessels covering or surrounding it; the extent of its affection being various, from a slight haze to a perfect opacity, of which there are three species. 1st, A condensed or increased state of the interlamellar secretion, commonly termed

nebula. 2dly, The formation of a pseudo membrane, named leucoma. 3dly, That in which the lamellæ unite, called albugo.

Nebula usually impedes vision, but seldom destroys it; leucoma and cicatrices, occupying the centre of the cornea, cause total blindness. In leucoma there is a pearly opacity, which, when it occupies the centre of the cornea, so contracts the sphere of vision as to render the patient blind, except by twilight, when the expansion of the pupil admits the rays of light through the diaphanous portion. Cicatrix, or albugo, is either the consequence of a wound or ulcer of the cornea; and when it is situated over the pupil becomes an impediment to distinct vision. It is frequently produced by burns, or the application of corroding substances to the eye. Nebulous opacity is to be removed by stimulating collyria or ointments: of the former, the best are the solution of lapis infernalis and oxymuriate of mercury. Beer recommends the collyrium below* in cases of

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* ℞. Hydrarg. Muriat. gr. j.
Opii colat. gr. viij.
Solve in Aq. Rosæ, ʒij. M. ft. collyrium, nocte maneque applicandum.

Take Corrosive Sublimate, one grain.
Strained Opium, eight grains.
Dissolve in two ounces of Rose-water, make a collyrium, and apply it night and morning.

this description, and in leucoma, chronic conjunctivitis, and blepharitis. Graefe recommends the under-mentioned liniment in these affections, as well as in cases of cataract.* In obstinate cases, small doses of calcined quicksilver may also be given.

When the plexus of vessels shoot toward the opacity, circular incisions should be made around the cornea. Powders of glass, &c., which are sometimes recommended to be blown into the eyes through a quill, must always be injurious. Beer recommends the ointment below† to be applied night and morning.

### *Pterygium.*

Called by the Germans *Flügelfell;* by the French *Ptérygion.*

This is another of the sequelæ or results of inflammation, of which there are two kinds;

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* ℞ Aq. Ammon. puræ, mℏx.
Ol. Nuc. Jugland. ʒss. M. Pauxillum inter palpebras omni nocte applicand.

Take Pure Water of Ammonia, ten drops.
Oil of Walnuts, half an ounce. Apply a little between the eyelids every night.

† ℞ Ung. Simp. ʒij.
Mercur. Præcip. Rub. gr. xx.
Tutiæ præp. gr. vj. Misce exactissime.

Take Simple Ointment, two drachms.
Red Precipitate of Mercury, twenty grains.
Prepared Tutty, six grains. Mix them well.

the membranous and the fleshy. The first is a thin film, or nebula, formed on the conjunctiva; its figure is pyramidal, with the base towards the caruncula lachrymalis: it extends towards the cornea, having a few straight, long, and detached vessels on its surface. The latter is a sarcomatous growth beneath the sclerotica, with a tongue-shaped extremity, which is formed by the deposition of lymph in the interstices of the membrane: it is different from pannus, which is merely a thickening of the conjunctiva.

Pterygium is to be removed by dividing the vessels at the base with a scalpel, and afterwards dissecting off the membrane with a pair of curved scissors. When it does not, however, encroach on the cornea, we may recommend it to be let alone; and when it does, I advise the portion which covers the cornea to be removed by the application of escharotics;* but never to be dissected off.

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| * ℞ Potassæ cum Calce, ʒj. | Take Potass with Lime, one drachm. |
| Aq. Distillat. ℥ss. | Distilled Water, half an ounce. |
| M. nocte maneque applicand. | Mix them. To be applied night and morning. |

## *Staphyloma.*

Called by the Germans *Traubenartiges Staphylom;* by the French *Staphylome.*

This disease consists, as the name implies, of a tumour projecting from the eye in the form of a grape (σταφυλη). Total staphyloma of the cornea presents two varieties, very different in their external appearance and in their internal structure. In the *spherical* variety, the tumour of the cornea goes on constantly increasing in size, becoming, at the same time, more and more extenuated. In the *conical* variety, the tumour never increases to any considerable projection, but remains unchanged after it has once formed.

The pathological anatomy of these varieties shews the iris and cornea firmly united by adhesive inflammation in the spherical, so that the anterior chamber is abolished; but in the conical staphyloma both chambers are destroyed; the crystalline capsule, the iris, and the cornea, being all three matted together from the same cause.

The progress of the spherical staphyloma has led Professor Beer to a conclusion, which has been adopted, from other considerations, by some very ingenious physiologists, namely, that

the chief seat of the secretion of the aqueous humour is the posterior chamber, and that of its absorption the anterior. In the spherical staphyloma, the anterior chamber being destroyed, while the posterior remains entire, the secretion of the aqueous tumour evidently overbalances its absorption of that fluid, which before was carried on equally by every part of the parietes of the aqueous chambers.

The principal causes of staphyloma are, small-pox, onyx, hypopium, ulceration of the cornea, and severe ophthalmia.

When complete staphyloma takes place, and the whole cornea is affected, vision cannot be restored. Scarpa has well observed, that infants are often attacked by this disease soon after birth, and mostly in consequence of purulent ophthalmia. It is also produced by small-pox, yet never during its eruption, which is singular, nor during the stage of suppuration; but when the pustules become dry, and even after the detachment of the variolous scabs. In a great number of cases, when the staphyloma has attained a certain elevation above the cornea, it becomes stationary, or only increases in due proportion to the rest of the eye. In other instances, the small tumour of the cornea suc-

cessively enlarges in its dimensions, and in such a disproportion, that it at length protrudes considerably between the eyelids, to the great annoyance and deformity of the patient.

The same celebrated physiologist remarks, that this disease is justly considered as the most serious to which the eyeball is liable; for, to the total and irremediable loss of sight that it occasions, are added all the evils which necessarily result from the bulk and protuberance of the staphyloma, after the swelling of the cornea has acquired such a size that it can no longer be covered by the eyelids. In such circumstances, the continual exposure of the eyeball to the contact of the air and to the particles of matter suspended in it, the friction of the eyelashes against it, and the incessant flux of tears down the subjacent cheek, are enough to render the eye painful and inflamed: the sound eye is soon affected from sympathy, and the diseased one at length ulcerates, together with the lower eyelid and the cheek upon which it presses.

Scarpa informs us, that surgeons have long thought that, in this disease, the cornea yields to the distension produced by the turgescence of the humours of the eye, nearly in the same manner as the peritonæum yields to the pres-

sure of the abdominal viscera when an intestinal hernia takes place. Richter has opposed this theory, observing, that the staphyloma, for the most part, forms without the swelling of the cornea having been preceded by any of those morbific dispositions which are generally considered capable of weakening the texture and elasticity of the cornea; that this membrane, when affected with staphyloma, acquires a much greater thickness than it has in its natural state, and consequently that the staphyloma, far from being concave within, is every where compact and solid; though it would be quite the contrary if the tumour had been occasioned by an immoderate distension, operating on the cornea from within outward, with an attenuation of its natural texture.

Hence Scarpa observes, that in the highest stage of this disease, when the staphyloma projects beyond the eyelids, art has, at present, no more effectual means for restraining the progress of the complaint, and removing the deformity, than cutting away the staphyloma, and, when the part has healed, applying an artificial eye. He also recommends, that, on the first appearance of staphyloma, the antiphlogistic plan of treatment should be put in practice, by

taking away blood from the infant, either by means of the lancet, or by the application of leeches. Afterwards a blister applied to the neck will be found very useful, especially if the disease have been preceded by the retropulsion of any eruption upon the head. It will be proper to purge the infant with rhubarb and magnesia; at the same time directing the nurse not to overload its stomach with milk or other food, as is usual, nor to swathe it tightly and dress it in heavy clothes, as is the custom with our ladies even in the hottest weather. And if there be any reason to believe that the disease is in part occasioned by the nurse's milk being bad, she ought to be changed, or the state of her stomach or constitution corrected.

## *Iritis.*

Called by the Germans *Regenbogenhautentzündung*; by the French *Inflammation de l'Iris.*

This disease, though, like some of the preceding, it may be said to be internal, is often, if not always, the result of inflammation primarily affecting the external tunics. It has recently attracted so much attention, that it will require careful consideration here. It may be pro-

perly divided into idiopathic, syphilitic, and arthritic iritis.

In the idiopathic species, besides the common symptoms of ophthalmia, there are changes occurring at the very commencement which indicate the seat of inflammation. The pupil is seen to be contracted, and loses the bright black it naturally possesses; the motions of the iris are also less free. The colour of the iris is next observed to become changed: this happens first in the lesser circle, which turns of a darker hue; and afterwards in the greater, which grows green if it had been greyish or blue, or reddish if it had been brown or black. As soon as this alteration of colour has taken place to a considerable extent in the greater circle of the iris, it swells and projects towards the cornea; the pupillary margin loses its sharply defined edge, seems now somewhat thickened, and is turned back towards the posterior chamber. The redness accompanying these changes is by no means considerable, and is at first confined to the sclerotic coat, in which a number of very minute rose-red vessels are seen running in straight lines towards the cornea.

The pupil at the same time loses its circular

form, becomes somewhat irregular, and presents a greyish appearance. Examined through a magnifying glass, this appearance is seen to be produced by a substance very like a cobweb, occupying the pupil, and which is soon afterwards distinguished, even without the aid of a magnifying glass, as a delicate flake of coagulable lymph. Into this the processes or dentations of the irregular pupillary margin of the iris seem to shoot; and it is afterwards found that adhesions are apt to be established at these points. It is owing to these adhesions that the patient, whose vision has been all along indistinct, now complains of being able to see only one side or part of an object.

The effusion of lymph into the pupil continues to increase, is likewise poured into the posterior chamber, and adhesions between the iris and capsule of the lens are formed. The quantity of lymph effused is sometimes so great, as to fall in a curdled form from the pupil to the lower part of the anterior chamber. The size of the pupil is considerably lessened, and it now derives a greyish white colour from that of the lymph by which it is filled; the morbid sensibility to light, prevailing at the commencement of the inflammation, is diminished; the

powers of vision become gradually more and more limited, and at length merely the perception of light remains.

By this time the redness of the eye has increased, and partly arises from vessels which are now developed in the conjunctiva. The redness is deepest all around the cornea; and towards the periphery of the eyeball it fades. The cornea loses somewhat of its peculiar brilliancy, and striking changes are seen taking place on the surface of the iris. Lymph appears to have been effused into its substance, for while it projects more and more towards the cornea, its fibres get collected into bundles, giving the surface a peculiarly plaited, or rather puckered appearance. A yellowish red tubercle then forms on some part of its surface, but most commonly at that place where the greater and lesser circles of the membrane meet. This tubercle is at first small: it enlarges and projects forward, and is distinctly seen to be an abscess, which finally bursts, and discharges its contents into the anterior chamber. In some instances a small quantity of blood is, at this time, also extravasated into the same chamber.

This disease frequently succeeds unskilful surgical operations on the eye, particularly

those for cataract; it is also very often caused by extraction. This may happen from the wound in the cornea being made too small, which obliges the lens to be forced out with a deal of squeezing, and with considerable prolapsus of the iris; from some pieces of the lens remaining in the posterior chamber, which must be removed; or from the flaps of the cornea having been repeatedly and unnecessarily lifted. Depression is not free from this unpleasant consequence. Schmidt says, it follows extraction oftener than depression. Its frequency is in proportion to the greater or lesser dexterity of the operator.

It more rarely occurs among patients in good circumstances, and more frequently among the poorer class, who from ignorance do not attend to the directions given them. Of the latter, those operated upon in hospitals are more exposed to it than those operated upon at their own houses. The poorer class of cataract patients are more liable to an attack of iritis after the operation, in spring succeeding a severe winter than in the height of summer or beginning of autumn. There is a risk attending those on whom the operation is performed while they are in a state of debility, or are of a bad

habit of body. Diseases of the skin; a puffed-up, washy appearance; a yellowish, dirty-coloured countenance; flabby state of the muscles; the skin possessing so little elasticity, that a fold made in it is a long time before it disappears; the eye feeling soft, and reddening on the gentlest touch, — are all ominous signs, indicating an asthenic state of the system.

Iritis is to be treated on the same principles as inflammation in general; but the application of the particular means must be modified by the seat of inflammation, and by its different nature. General bleeding is necessary only where there is a great degree of symptomatic fever, and when this is inflammatory; hence it is principally in idiopathic iritis that moderate bleeding from the arm is requisite. Six or eight ounces of blood should be taken, and this is to be repeated if necessary; five or six leeches are to be applied to the brow; a smart purgative should then be given. The application of leeches, but fewer in number, ought to be continued every day, or every other day, until a decided abatement of the inflammatory action takes place. In the first stage of the process, blisters to the temples or behind the ears have little effect; but sometimes a large

blister on the nape of the neck is productive of benefit.

The fomentation of the eye with water, made as hot as the patient can bear it, will occasionally procure a mitigation of the violence of the pain. Care, however, must be taken to dry the eye well after this application. Local bleeding, by means of leeches to the forehead, produces the most decided benefit in all the varieties of iritis; and it is a remedy which ought to be employed in almost every case. Purgatives, given so as to act copiously, are of marked advantage only in the idiopathic iritis. In the other species they should be managed so as to keep the bowels merely more open than natural; and even this is not necessary in the syphilitic variety. Cold local applications are not merely useless, they are pernicious in iritis.

After the effusion of lymph has taken place, much may be done to promote its absorption. Beer says, when it is observed, at the end of the second stage, that the lymphatic effusion in the posterior chamber—which, though it does not totally prevent, still greatly limits, vision—does not diminish by the treatment pursued, so as to allow us to hope for the com-

plete restoration of sight; but when, on the contrary, there is reason to dread that the lymphatic effusion will remain in the same state after the second stage has terminated,—then not only external, but internal alterative medicines must be had recourse to, in conjunction with the other remedies proper in this stage of the disease; such as the preparations of mercury,* which in these circumstances seldom disappoint the practitioner if properly managed. Calomel, united with opium, is to be given internally, in conjunction with tonic medicines,† as the calamus aromaticus, bark, &c. Warm fomentations are often useful; but when they lose their effect, or the eye cannot bear any

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* ℞ Pil. Hydrarg. ʒj.
Opii Pulv. gr. iv.
M. ft. pil. no. xij. una omni nocte horâ somni sumenda.

Take Mercurial Pill, one drachm.
Powdered Opium, four grains.
Mix, and make twelve pills: one to be taken every night at bed-time.

† ℞ Decoct. Cascarillæ, ℥v.
Sodæ Subcarbon. ʒj.
Tinct. Colomb. ℥ss.
Ext. Cinchon. ℈ij.
Sy. Aurant. ℥ss.
M. ft. mist. sumat cochl. iij. bis die.

Take Decoction of Cascarilla, five ounces.
Subcarbonate of Soda, one drachm.
Tincture of Colombo, half an ounce.
Extract of Bark, two scruples.
Syrup of Orange Peel, half an ounce.
Mix them. Of this mixture take three table-spoonsful twice a-day.

fluid application, which is sometimes the case, the under-mentioned ointment* may be daily inserted between the eyelids. Frictions, once a-day, over the eyebrows, with mercurial ointment, opium being added to it, very much contribute to the absorption of the lymph effused into the posterior chamber.

Whoever has not witnessed the striking effect of such a method of treatment of this stage of iritis, cannot possibly form any idea of the extraordinary and rapid improvement which, when properly conducted, it often, in a few days, produces. Beer says, he has repeatedly seen a whitish net-work in the pupil, distinguishable even at a distance, disappear in eight or ten days, by the use of the fomentation given below.†

What the peculiar symptoms are under which the poison of syphilis, when introduced

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* ℞ Ung. Simpl. ʒij.
Hydr. Nit. Rub. gr. vj.
Ext. Opii, gr. x.
M. ft. ung.

Take Simple Ointment, two drachms.
Red Precipitate, six grains.
Extract of Opium, ten grains.
Make an ointment.

† ℞ Decoct. Cap. Papaveris, ℔j.
Ext. Belladonnæ, ʒj.
Solve, sit fotus.

Take Decoction of White Poppy-heads, one pint.
Extract of Deadly Night-shade, one drachm.
Dissolve it, and make a fomentation.

into the system, affects the iris, and why it does so, are subjects which are not yet well understood. That it is so, however, is certain, inasmuch as inflammation takes place in this membrane of the eye, which is as characteristic of the presence of the syphilitic poison in the constitution, as are any other of its secondary effects. But of the immediately exciting causes of this inflammation we know nothing. It appears in company with all the other constitutional symptoms of lues, and it also takes place singly, before any of these have appeared.

The earliest symptom perceived in syphilitic iritis is a pale redness all round the cornea. This is at first seated in the sclerotic alone; but the conjunctiva soon shares in it, and afterwards becomes much the redder of the two. However few the vessels may be elsewhere, there is always a broad zone of them all round the cornea—a zone formed at this place not only by the vascular net-work in the conjunctiva, but by the ciliary vessels on the external surface of the sclerotic. The redness has a peculiar tint; for, instead of being bright red, it is brownish, something like the colour of cinnamon. From this zone, the vessels have a tendency to be prolongated under the edge of

the cornea. The whole cornea now becomes uniformly hazy, losing its clearness without being in any place actually transparent. This appearance of the cornea seems dependent on some affection of its posterior surface, or, more accurately speaking, of the membrane of the aqueous humour, by which it is lined. The pupil becomes contracted, and the iris limited in its motions, as in common iritis; but the pupil does not preserve its natural situation. It is removed in a direction upwards and inwards, towards the root of the nose, and is irregular. Along with this, the iris loses its natural colour, and projects forwards.

Towards evening there is always an aggravation of the symptoms; the intolerance of light and painful sensibility of the whole eye increasing, and a gush of tears following every change of light and temperature. At length, a regular nocturnal pain sets in, which is extremely severe, and is strictly limited to that part of the cranium immediately above the eyebrow. It usually begins between six and seven in the evening, gradually increases, reaches its utmost height about midnight, and then diminishes till about four or five in the morning, when it ceases.

After every such attack of pain, the pupil is found more contracted, drawn farther upwards and inwards, the iris more altered both in colour and form, the quantity of lymph increased, and consequently vision more impeded. Then, either on the pupillary or ciliary margin of the iris, or on both, there arise one or more reddish-brown tubercles, which have a spongy look, and when examined with a magnifying glass seem to have a striking resemblance, in structure, to the condylomata called cristæ gallorum. Their growth is pretty rapid. Sandy-looking ulcers also sometimes appear on the cornea and white of the eye, or on the integuments of the eyelids.

Even when syphilitic iritis terminates in the most favourable manner, the eye, for a long time afterwards, is peculiarly sensitive of the influence of cold and moisture. On every exposure to these, it becomes morbidly sensitive to light, acquires a slight blush of red, and discharges tears. Indeed, frequently for more than a year afterwards, on any sudden change of temperature, a pale violet-coloured zone is seen around the cornea, but which disappears when the eye has remained for some time exposed to the same temperature.

Without removing the constitutional disease, syphilitic iritis cannot be cured; but it by no means follows, that the doing this cures the inflammation of the iris. Were this local affection neglected in the hope of its yielding to the constitutional treatment, it would frequently happen that it would have gone too far to be benefited by that treatment, and the vision of the eye would be destroyed by the effusion of coagulable lymph, which might otherwise have been prevented. Wherever, therefore, there is severe pain in the eye, with violent headache, &c. three or four leeches should be applied on the brow, and a purgative* given; the constitutional treatment being pursued at the same time.

But the chief object in view locally, is to prevent those regular nightly attacks of pain which are so invariably followed by an aggravation of all the symptoms. This is effectually

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* ℞ Magnes. Sulphat. ʒvj.
Mannæ Opt. ℥ss.
Inf. Sennæ Tart. ʒjv.
Tinct. Sennæ, ℥ss.
M. ft. mist. sumat cochl. iij. pro re natâ.

Take Sulphate of Magnesia, six drachms.
Best Manna, half an ounce.
Tartarised Infusion of Senna, four ounces.
Tincture of Senna, half an ounce.
Mix them, and take of the mixture three table-spoonsful as occasion requires.

done by rubbing well in, over the eyebrow, a small quantity of mercurial ointment, with opium added to it,* a short time before the pain is expected to come on, and then covering the eye with a folded piece of warm linen. Should the pain threaten to appear, this must be repeated towards midnight.

The species of iritis termed arthritic, or gouty, may originate in two ways. In the one, it is the primary and sole affection of the eye; in the other, a gouty individual having some common ophthalmia, this iritis engrafts itself upon it. The same happens with the syphilitic iritis, though rarely; while in the arthritic this manner of origin is the more common. Before there are any symptoms of this inflammation, a peculiar tingling is felt round the eye, and a sensation as if a single hair was hanging on the face, or as if something was creeping on the skin. The eye and orbit then become the seat of a racking pain, which extends to the temple, shoots through half of the cranium, and into the upper and under jaws. The sclerotic reddens; the flow of tears increases; and, by

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* ℞ Ung. Hydrarg. ℥ss.
Opii Purif. ʒj.
M. ft. unguentum.

Take Mercurial Ointment, half an ounce.
Purified Opium, one drachm.
Mix, and make an ointment.

the frequent opening and shutting of the eye-lids, a peculiar white frothy matter is forced out between them, which is quite distinct from the secretion of the Meibomian glands.

If the eye be now examined with a magnifying glass, it will be seen that the blood-vessels in the sclerotic coat do not, as in the syphilitic iritis, proceed quite to the edge of the cornea, but disappear just before they reach it. Thus a narrow ring of bluish white sclerotic is left all round the cornea, and this ring becomes manifest to the naked eye as soon as a net-work of red vessels appears in the conjunctiva. These latter vessels, from the first, shew a strong disposition to become varicose, which state is afterwards so remarkable as to be characteristic of arthritic iritis. The colour of them is peculiar, not being red, but purple. The sclerotic loses its pearly-white appearance, and becomes of a dirty greyish violet colour.

In individuals of a spare habit, irritable disposition, and tense fibre, the iris becomes expanded, and the pupil contracts, as in the idiopathic iritis; and in such cases, the only characteristic symptom, besides the white ring of sclerotic, is a varicose state of the blood-vessels of the iris, which, however, does not

take place till the disease has fully developed itself. The inflammation is always attended with general fever before it arrives at this state; and if the eye is left to itself, without any suppuration taking place, it begins to be absorbed, and at last its volume becomes extremely diminished.

In individuals who, on the contrary, are of a gross habit of body, possess little sensibility, and have a lax fibre, (in whom gout is most common,) a different set of changes takes place. The iris, instead of being expanded, contracts remarkably, and at the same time loses its motion and colour. The pupil is not uniformly dilated, for the iris contracts more towards the two angles of the eye, and in consequence the pupillary opening assumes an oval shape: indeed the iris sometimes becomes so narrow on the two sides mentioned, particularly on the temporal, as almost to disappear.

There is, with this, no effusion of lymph, and no abscess takes place in the iris; but behind the enlarged pupil there is perceived a greyish green colour, which is deep-seated, and is actually caused by an affection of the vitreous humour. The lens then becomes affected in a similar manner, loses its transparency, acquires

a sea-green colour, swells considerably, and projects forward into the pupil and anterior chamber. The iris, which now rests on the enlarged lens, seems quite altered from its natural texture: it looks soft, loose, and disorganised, as if it had been subjected to maceration.

The attacks of pain, during the progress of these changes, are regular and very severe. The patient is first warned of their approach by a stinging sensation all round the eye, then a copious flow of tears takes place, and after this the pain commences, becoming so violent as to make the sufferer writhe under it. The varicose state of the vessels of the conjunctiva is increased; and those of the choroid coat becoming similarly affected, form bluish knots, which shine through the sclerotic. At the same time, there is seen, beneath the anterior part of this membrane, a dark ring, exactly occupying the situation of the corpus ciliare. Vision is now totally gone. The symptoms of inflammation then begin to decrease, atrophy commences, and absorption takes place, as in the first instance.

This is the most intractable of all the varieties of the disease, and its treatment is still

involved in obscurity, owing to our ignorance of the nature and cure of gout itself. In some cases, particularly those arising after the operation of extracting the cataract, a general bleeding is necessary; but the quantity of blood drawn at once should not exceed ten or twelve ounces; since in gouty patients, large general bleedings are always succeeded by great increase of feverish irritation and restlessness. The small bleeding may be repeated in twelve or twenty-four hours, if necessary. In most cases, however, the application of a few leeches to the brow, besides its local effect, produces all the benefit on the general affection which is to be derived from the abstraction of blood. The bowels are to be kept gently open.

Particular attention must be paid in preventing the attacks of pain. This is best done by friction over the eyebrow and forehead with an anodyne liniment.* Along with this, expo-

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* ℞ Sp. Ammon. Comp.
Aq. Distillat. āā ℥j.
Tinct. Opii, ℥ss.
M. ft. linimentum, bis die applicandum.

Take Compound Spirit of Ammonia,
Distilled Water, of each one ounce.
Tincture of Opium, half an ounce.
Mix them, and make a liniment, to be applied twice a-day.

sure to all those causes which occasion an attack of pain must be most carefully avoided ; such as, a cold draught of air, the heat of a strong fire, violent passions, &c. For removing, in part, the immediate danger to this delicate organ, counter-irritants are of essential service. The best is the tartar emetic ointment, rubbed on the nape of the neck, so as to occasion a continued eruption of pustules. If the risk attending the eye is very urgent, the ointment should be rubbed behind the ears. All this is frequently only palliative treatment ; for if it is no longer possible to cure the constitutional gout itself, then vision, sooner or later, will be destroyed.

# CHAPTER III.

## DISEASES OF THE INTERNAL EYE.

Several of the preceding diseases are more or less internal; it being impossible to separate them in all cases, without nicer distinction than would be either useful or important. I propose, therefore, in this chapter, to describe the diseases which are more decidedly internal than any of those treated of in the foregoing pages, particularly cataract, cancer, and amaurosis or gutta serena.

### *Cataract.*

Called by the Germans *der graue Staar;* by the French *Cataracte.*

The crystalline lens, as well as the fluid surrounding it, and the membrane or capsule containing it, is very subject to opacities and cloudiness; all of these are designated by the name of cataract, which varies according to the part affected, and the nature of that affection; for the lens may be hard and cloudy, or the

capsule may become opaque and whitish, or the fluid between these may become white and caseous.

Even in infancy, these defects are not of uncommon occurrence, and are found sometimes in infants at birth; but they seem to be most common in workmen exposed to much heat, as forgemen, glass-blowers, and blacksmiths, and such as drink strong liquors, sour wines, &c. as at Vienna. It has been alleged, that the use of rice in diet tends to produce cataract, because this disease is found to prevail in Turkey, and in some other countries where rice is much used. Others deny this, and impute the effect to climate, or to the use of opium. There must, however, be some foundation for so universal an opinion.

The master of an American vessel has stated, that in a homeward voyage from India, in which rice was much used on board, most of the American seamen were affected with weakness of the eyes; but none of the Lascars, who had been accustomed to it from infancy.

Sometimes cataract has been observed to run in families, without any apparent cause. Professor Walther thinks that cataract is the primitive and natural state of the lens; and

that congenital cataract is not, therefore, an altered, but an unaltered condition, in consequence of a check given to the development of the embryo; and that, like other malformations, it is not owing to the influence of any active or formative cause, but having been originally present in every embryo at certain periods of its existence, does not disappear in its progress to a more perfect state, as it does when this progress is unchecked.

Two of the chief marks of the size of the cataract are derived from the state of the posterior chamber, and the mobility of the iris. If the lens, in an opaque state, still preserve the size which it had when transparent, there is a very evident shadow thrown back upon the surface of the cataract by the iris. If the cataract be less than the natural lens, this shadow is broader than usual; but if the opaque lens be swollen, no shadow is present, as the capsule is pushed forwards into contact with the iris, and the posterior chamber is abolished. The motions, also, of the iris are, in this case, rendered slow, or are altogether impeded. A hard cataract is always small; though every small cataract is not hard. The darker, and at the same time the more uniform, the greyish

opacity of the cataract, the harder it is; whereas a cataract which is large, and at the same time cloudy or white, is always soft.

The cystic cataract is always, or almost always, caused by a violent blow in the neighbourhood of the eye, and of its consequent concussion. The lens, enclosed in its capsule, at the time of the accident is loosened from the surrounding parts, from the vitreous humour, and from the hyaloid membrane; in a word, from all its vital connexions. The capsule becomes quickly opaque, from the action of the aqueous humour, and at the same time much thickened; the lens also becomes opaque, and then dissolves.

The opacity presented in this disease is white, uniform, and very convex. The iris is pushed forward by the cataract, which is partly forced through the pupil. From the effects of the concussion of the eye upon the retina, amaurosis frequently accompanies this kind of cataract. If extraction be performed in a case of cystic cataract, the lens enclosed in its capsule rolls out as soon as the section of the cornea is completed; but cases of this kind more frequently than any others get well *without an operation*.

The siliquous cataract is the consequence of a wound or rupture of the capsule, through which the aqueous humour is admitted to the lens. In adults, this kind of cataract is usually the result of a penetrating wound; occasionally of a blow upon the eye. In children, the rupture of the capsule most frequently takes place during the convulsions so frequent in the first days after birth, and in which the muscles of the eyeball are affected with violent spasms. The opacity in children is light grey, and has its seat evidently in the anterior capsule, which is shrivelled and wrinkled. In adults the opacity is chalky, especially where the capsule had been wounded; elsewhere it is dusky or yellowish. The opacity is flat, and the shadow of the iris broad.

Among the most common causes of cataract may be mentioned old age, external injuries, hereditary predisposition, exposure to intense heat, too copious use of wines and spirituous liquors, sudden application of cold to the extremities, and imprudences of various descriptions.

According to Mr. Watson, the worst affection with which cases of cataract can be complicated is amaurosis. When this exists, the

pupil is generally dilated, and is of an irregular form. The patient either does not distinguish light from darkness, or does so very imperfectly; in many cases the degree of opacity does not account for the defect in vision; and he often sees sparks and flashes of fire, black spots, and the like, before him. Very often, amaurotic patients complain of frequent and severe headach. The history of the case, too, deserves attention. Eyes that have previously suffered much from inflammation, very often have their delicate internal parts disorganised, which is accompanied in most cases with amaurosis. Cataract seldom takes place suddenly—amaurosis frequently. In amaurosis, too, the blindness in some cases intermits; while in cataract it does not.

Along with amaurosis, inflammation of the eye very often produces disorganisation, or an opaque state of the vitreous humour. This state of the eye frequently accompanies cataract. It is known by the insensibility of the eye to light, the immobility of the iris, the irregularity of the pupil, and the softness of the eyeball.

Some other diseases of the eye are apt to be mistaken for cataract. These are, central

opacity of the cornea, chronic inflammation of the retina, and amaurosis.

A spontaneous cure of cataract takes place in those cases where an injury, which has caused the cataract, has also so ruptured the lens and its capsule, that its solution and absorption take place by the agency of the aqueous humour. In other more rare cases, where the lens has become detached from its connexions, in consequence of disorganisation of the vitreous humour, and fallen from the axis of vision, a spontaneous cure has also happened. M. Boyer mentions an interesting case of a gentleman, who, after twenty-five years' blindness, his eye having been considered unfit for an operation, suddenly had his sight restored while walking along the street; the detachment of the lens above described having taken place at its upper half, by which it waved to and fro in the eye.

In 1789 and 1790, the late Mr. Ware communicated an account of the dissipation of cataract to the Medical Society of London; and in his "Chirurgical Observations" he states, that since the preceding communications were read to the Society, he had had occasion to attend a considerable number of cases in which an

opacity of the crystalline humour was produced by violence done to the eye; and in most of these the opacity was dissipated, and the sight restored, during the external application of æther. Of the cases that proved successful under this mode of treatment, he had a written account of eight; and a general recollection of several others, the particulars of which he had now forgotten, having unfortunately omitted to take notes of them at the time they were under his care.

He also expressed a hope, in Wenzel's paper, that means might hereafter be discovered for rendering transparent an opaque crystalline lens, without the performance of any operation whatever; and the cases he has detailed afford satisfactory evidence of his own success in the treatment of cataract.

It is necessary thoroughly to examine the eye, and to be satisfied that the disease is actually cataract, as it is often a matter of considerable difficulty to determine whether the cataract be *spurious* or not. In all cases of incipient cataract I would recommend occasionally a moderate abstraction of blood from behind the ears, and the application of a small blister to the nape of the neck, or behind the

ears, which should be kept open some weeks with the ointment prescribed below:* care to be taken that the blisters are not too large. Alteratives and aperients† may be given; and sedative lotions, together with now and

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* ℞ Ung. Sabinæ, ℥ss.
Ung. Simpl. ʒij.

M. ft. unguentum.

*Vel,*

℞ Cerat. Resinæ, ℥ss.
Cerat. Cantharid. ʒij. M.

† ℞ Hydrag. Submuriat. gr. vj.

Pulv. Jalapæ, gr. xij.

Ext. Taraxici, ʒss.

Syr. q. s. M. fiant pilul. xij.; capiat ij. horâ decubitûs.

℞ Potassæ Tartrat. ʒvj.

Inf. Sennæ Comp. ℥v.

Tinct. Sennæ, ℥ss.

Tinct. Jalapæ, ʒij.

M. ft. mist. cathartica; sumat cochl. iij. pro dos.; et repetatur post horas tres, si sit necessitas.

Take Savine Cerate, half an ounce.
Simple Ointment, two drachms.
Mix into the form of an ointment.

*Or,*

Take Resin Cerate, half an ounce.
Cerate of Spanish Fly, two drachms. Mix them.

Take Submuriate of Mercury, six grains.
Powdered Jalap, twelve grains.
Extract of Taraxicum, half a drachm.
Syrup sufficient to make twelve pills: two to be taken at bedtime.

Take Tartrate of Potass, six drachms.
Compound Infusion of Senna, five ounces.
Tincture of Senna, half an ounce.
Tincture of Jalap, two drachms.
Mix, and make a cathartic mixture: three table-spoonsful to be taken for a dose; and repeated three hours afterwards, if the bowels are not relieved.

then warm fomentations of poppies,* be applied to the eyes.

After the chronic inflammation is subdued by these remedies, the cornea is to be touched every morning with a solution of the potassa cum calce, beginning with a weak solution, and increasing it gradually. It should be applied with a camel-hair pencil: and I beg to observe, that much nicety is necessary in the use of the solution. Great care should also be taken to employ a different brush for each patient; much

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* ℞ Ext. Opii, gr. xx.

Solve in aq. puræ tepidæ ʒvj. Cole et adde Liq. Ammon. Acet. ʒjss. M. ft. collyrium, sæpe utendum.

*Vel,*

℞ Liq. Ammon. Acet. ʒj.

Vin. Opii, ʒij.
Aq. Rosæ,
Aq. Distillat. āā ʒiij.

M. ft. collyrium, sæpe utendum.

*Vel,*

℞ Acet. Distillat. ʒss.

Vin. Opii, ʒij.
Mist. Camph. ʒiv. M.

Take Extract of Opium, twenty grains.
Dissolve it in six ounces of pure tepid water, and add Acetated Liquor of Ammonia, one ounce and a half. Mix them, and make a wash for the eyes, to be used often.

*Or,*

Take Acetated Liquor of Ammonia, one ounce.
Wine of Opium, two drachms.
Rose-Water,
Distilled Water, of each three ounces.
Mix them, and make a wash for the eyes, to be used often.

*Or,*

Take Distilled Vinegar, half an ounce.
Wine of Opium, two drachms.
Camphor Mixture, four ounces.
Mix them.

mischief having arisen from practitioners not being particular in this respect, but using the same brush for all patients indiscriminately. In cases of this description Graefe makes use of the aqua ammoniæ pura, with oil of walnuts.

In the incipient stage of cataract, I am convinced much good may be done, and a cure effected; but when the disease has become confirmed, and the patient is old and feeble, there is little to be expected, and the risk of an operation had better always be avoided: for should inflammation take place after an operation, which in many instances it does, it is often followed by the most alarming symptoms, such as repeated hæmorrhages, collections of thick blood at the bottom of the eyeball, violent inflammation of the eye, the eyelids, and the head, incessant vomiting, convulsions, and delirium, frequently terminating in death.

Dr. M'Kenzie judiciously observes that, with regard to the ultimate prognosis, practitioners are too much in the habit of raising sanguine hopes in the minds of patients affected with cataract, that by surgical operations on the eyes their sight may be almost perfectly restored; not weighing with sufficient consideration the frequency with which other morbid

changes in the organ of vision come to be associated with this disease, especially in advanced life, such as dissolution of the vitreous humour, absorption of the pigmentum nigrum, and imperfect sensibility of the retina. Many a patient, who, before the operation, can perceive the hand passing before the eye, sees very little more after the opaque lens is removed, on account of the dulness of the retina, or the deficiency of the choroid secretion. The dangers attending operations for cataract are also much too lightly estimated, in pronouncing an ultimate prognosis in this disease.

Some practitioners recommend, that when a cataract is newly formed, we should wait until it is fit to be operated upon. On the contrary, I think we should use every means in our power to dissipate it as speedily as possible after it has made its appearance.

There are three modes of treating cataract without operation, namely, the antiphlogistic, the stimulant, and the counter-irritant; each of which ought to be fairly tried; and it is only when unsuccessful that an operation should be attempted. There are also three modes of performing the operation. One is, to pass an instrument through the white of the eye, which

is insensible till it reaches the clouded lens, and then to push the lens aside into the glassy humour. This operation is known by the name of *couching*, and is very easily performed. Another way is to cut into the cornea, and, by an instrument fitted for the purpose, to bring the lens through the opening, taking it entirely out of the eye. A third way is to let the lens remain in its place, and either to break it into pieces with an instrument, or merely to prick it in several places. In this last case the lens disappears in a short time after the operation, being dissolved, as is supposed, by the aqueous humour. When the cloudy speck in the lens is small, producing dimness of sight, as it usually does at the commencement of the complaint, the extract of belladonna, by keeping the pupil wide, has been beneficially employed; but it requires great caution in its application.

Mr. Walker, of Manchester, in a recent work, remarks: "Schmidt first of all performed incision of the cornea; but subsequently he adopted a similar proceeding to that of Scarpa, as being the best. Experience, however, proves that this operation is of but little real service, and very seldom succeeds.

"In the failure or inapplicability of all ope-

rations through the cornea and iris," the same writer continues, " some persons have been found with faith enough to believe that an aperture might be effected and maintained through the sclerotica. It is unnecessary to add, that such a proceeding has hitherto totally failed. It is worthy of remark, however, that justice was scarcely done to this operation, inasmuch as the operators omitted one material point, — they ought to have had a square of glass and some putty in readiness."*

### *Cancer of the Eye.*

Called by the Germans *Krebs des Augen;* by the French *Cancer de l'Œil.*

There can be no question that cancer is a very alarming and formidable disorder when happening in any part of the body; but still more so in the eye, in which it is greatly aggravated by the extreme sensibility of the organ. Unlike other cases of cancer, which seldom occur till middle age, cancer of the eye, or at least a disease very like it, is most frequent under the age of twelve. The causes of it can seldom be assigned. The pain is intolerable;

* On the Principles of Ophthalmic Surgery, p. 126.

and the bursting of the eye sooner or later takes place.

As in all cases of cancer, the only cure is to cut away the whole of the diseased portion; and death has been repeatedly arrested by extirpating the eyeball, together with the lachrymal gland, where, indeed, the malady often originates.

There is a disease similar to this, and, till lately, not distinguished from it, in which a mass of soft livid substance forms and shoots out from the eye. It prevails chiefly in infancy, as true cancer does in old age. No cure has yet been found for this dreadful malady.

According to Dr. M'Kenzie, the disease vulgarly called "eating cancer of the face" is not an unfrequent one. It often begins on the lower eyelid; slowly consumes the skin and muscles, till it destroys not merely the lid, but a great part of the cheek, enters the orbit, attacks the eye, and at length proves fatal. Dr. Jacob, in some excellent observations published by him on this disease, remarks that its characteristic features are, the extraordinary slowness of its progress; the peculiar condition of the edges and surface of the ulcer; the comparatively inconsiderable suffering produced by it; its being

incurable unless by extirpation; and its not affecting the neighbouring lymphatic glands.

We sometimes meet with this disease while yet confined to the lower lid, which is thickened, and more or less of its edge ulcerated. In some instances the outer angle of the lids is the seat of the disease. It appears not unfrequently to commence in the form of a wart, which, being picked off with the finger, leaves a raw surface, exposed to the irritation of the tears, and apt to spread by ulceration. In other cases, the origin of this disease seems to be an encysted tumour, which, allowed to burst on the inside, or, it may be, on the outside of the eyelid, becomes irritated, and is thus induced to assume the ulcerous or cancerous action. An encysted tumour immediately under the skin, picked with the finger, sometimes a mere scratch of the edge of the eyelid, a blow, or the irritation of an old cicatrice, such as that which results from small-pox, may give rise to cancer of the eyelids. This disease produces the most shocking deformity, sometimes leaving the face half destroyed.

## *Amaurosis.*

Called by the Germans *Schwarzer Staar;* by the French *Amaurose.*

When, in consequence of an unusual quantity of blood in the brain, the optic nerves are compressed, the sight is either impaired or destroyed. In slight cases dark specks are seen flitting before the eyes during the day, and luminous spots, or flashes of light, are perceived in the dark. This sometimes arises from a disordered stomach; but often from causes which we cannot immediately trace.

Among the most frequent known causes of amaurosis, are—the pressure of exostosis or other tumours; over-exertion of the sight, and exposure of it to a bright light, as is often the case with sea-officers and astronomers in looking through their glasses; violent contusions of the head; apoplectic fits; long-continued occupations by candle-light; insolation; strong passions, as terror, rage, &c.; forced exertions of the body; errors in diet, especially the abuse of wine and spirituous liquors; suppressed discharges; the action of poisonous substances; gastric and intestinal irritation; the too free use of tobacco; excessive venery; grief; long-

continued suckling, producing debility and emaciation; intestinal worms; chronic disorders of the digestive organs; suppressed eruptions; and all other causes which predispose to nervous and paralytic affections, the same as in nervous deafness.

In this disease it is by no means an unfrequent occurrence for the nerves to become quite insensible, and total blindness to ensue. The eye in this case does not appear to be diseased, except by its vacant stare, or constant rolling and large pupil, which, in confirmed cases, undergoes no variation in size from being exposed to, or screened from, the light. The severe pain in the head also, so distressing at first, at length goes off. This is the disease that afflicted Milton, and which he calls the "drop serene," literally translating the Latin words *gutta serena*. It is best known to medical men by the name of *amaurosis;* is a much more common complaint than is generally imagined; and is by many considered incurable.

Two of the most frequent species of amaurosis are the rheumatic and the plethoric. The former manifests itself by the following symptoms: — the pupil is perfectly clear; the iris almost immovable, and not greatly dilated, but

evidently displaced inwards and upwards, being nearer the nose and eyebrow than naturally; there is a flow of tears on the slightest occasion; always more or less intolerance of light; together with a frequent aching pain in the ball and about the region of the eye. The motions of the eyeball are impeded, especially in one direction: it is generally turned outwards; and when the disease is fully developed, cannot, by any exertion of the patient, be made to revolve inwards. A considerable weakness of the levator palpebræ superioris, or even a complete palsy of that muscle, is also experienced.

This species of amaurosis rarely goes the length of total blindness; and Professor Beer has succeeded in curing the greater number of such cases. The treatment consists chiefly of diaphoretics. Guaiacum and camphor, the former in the dose of two grains, the latter in that of half a grain, are given twice or thrice a-day in powder, and Dover's powder at bed-time. Amongst external remedies vesicatories hold the chief place. They are to be applied alternately behind the ears or to the temples and over the eyebrows; so that a succession of counter-irritations may be kept up.

Plethoric amaurosis is an exceedingly well-

marked disease, and one which, in its early stages, is within the power of depletory treatment. That species of amaurosis which results from chronic disorders of the digestive organs is also well marked, but is much less under the influence of medicine. Both these diseases are frequently hurried on to their complete development, and to a total insensibility of the retina, by stimulants.

But, either in the organic or functional amaurosis, the vision is not always wholly obstructed, the patient being enabled to distinguish large objects. He first notices his sight to be interrupted by small bodies floating before the eye, called muscæ volitantes; or when reading, by the letters of the book appearing transposed. There is also an oscillation of objects, or double vision. Light affects amaurotic persons differently; some being unable to bear the stimulus, others seeking it. It may be sudden or progressive in its attack, according to the nature of the exciting cause. The morbid characteristics, in either case, are, the pupil no longer obeying the stimulus of light, its circular form being somewhat changed, and a coloured spot appearing in the fundus of the eye, as in the horse or sheep. Severe pain

in the orbit and temples is usually an attendant symptom. When any of the other senses are affected, there is little prospect of recovery. It most frequently occurs in middle-aged persons having dark eyes.

This disease, in some rarer instances, is not constant, but the patient sees well at one period, and is nearly blind at another. The intermission in some cases comes on as regularly as a paroxysm of ague, the patient being able to see well, or tolerably, during the day, and none at all after sunset: in other instances these symptoms are exactly reversed.

Many patients have observed dark motes floating before their eyes; and when this is frequent, it is an unpromising circumstance for the sight. The phenomenon is described as resembling flakes of soot or flue, insects' wings, flies, &c. which are sometimes bright, like a chain formed of globules of quicksilver. A cloud of these is often the precursor of a severe attack of headach. In another species of the disorder, a dark screen appears to shade the field of vision; sometimes wholly, at other times only in part. These symptoms, however, may occur with more or less aggravation, when

there is no plausible reason for being apprehensive of amaurosis, of which several very marked instances might, were there room in this place, be recorded. The most unfavourable cases are those in which the attack has been sudden; and if one eye be first affected, the other generally soon follows.

In the treatment of amaurosis we must take into account the causes from which the disease has originated, because our applications must necessarily vary according to these causes. The prognosis is generally unfavourable. If the disease attack the aged and infirm, a cure cannot be expected. If it originate from irritating matter in the stomach, from plethora, or from suppressed evacuations, the disease is generally curable, and always admits of alleviation. If plethora exist, venesection, especially from the jugular vein, will be proper; repeated according to the age, former mode of living of the patient, and the degree of plethora which exists. Cupping-glasses should be applied between the shoulders. Leeches may also be employed on the forehead, or under the eye itself. Blisters behind the ears, to the nape of the neck, and to the head, are serviceable. Laxatives or cathar-

tics should be recommended, as below.* If the disease proceed from obstructed perspiration, the nitrate of potass should be combined with diaphoretics, as under.† Diuretics may be pre-

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* ℞ Mist. Amygdalæ, ℥ij.
Sodæ Tartar. ʒjss.

Mannæ, ʒij.
M. fiat haustus, 4tis horis repetend.

*Vel,*

℞ Hydrarg. Submuriat. gr. iij.

Pulv. Antimonialis,
Scammon. āā gr. v.
Confect. q. s. ut fiant pilulæ ij. horâ decubitûs sumendæ; et posterâ aurorâ propinet æger haustum sequentem:

℞ Infus. Sennæ, ℥jss.

Potassæ Tartrat. ʒij.

Antimon. Tartar. gr. ¼.

Tinct. Jalapæ, ʒj.
Pulv. Radicis Jalap. gr. x.
M. fiat haustus catharticus, cras mane sumend.

† ℞ Aquæ Cinnamomi, ʒiij.

Aquæ Puræ, ʒv.
Pulv. Ipecac. gr. j.

Liq. Ammon. Acet. ʒij.

Nitratis Potassæ, gr. x.
M. fiat haustus, 6tis horis repetend.

Take Almond Emulsion, 2 ounces.
Tartarised Soda, one drachm and a half.
Manna, two drachms.
A draught, to be taken every four hours.

*Or,*

Take Submuriate of Mercury, three grains.
Antimonial Powder,
Scammony, of each five grains.
Confection sufficient to make two pills, to be taken at bedtime. The next morning let the following draught be taken:

Take Infusion of Senna, one ounce and a half.
Tartrate of Potass, two drachms.
Tartarised Antimony, one-fourth of a grain.
Tincture of Jalap, 1 drachm.
Powder of Jalap, ten grains.
A cathartic, to be taken the next morning.

Take Cinnamon Water, three drachms.
Pure Water, five drachms.
Powder of Ipecacuanha, one grain.
Liquor of Acetated Ammonia, two drachms.
Nitrate of Potass, ten grains.
A draught, to be taken every six hours.

scribed alone, or combined with cathartics.* If the disorder proceed, as it often does, from foulness of the stomach, indicated by nausea, and an effort to vomit, an emetic should be given.† If periodical evacuations be suppressed, their return must be promoted; and if these fail, some artificial discharge must be substituted, as issues and setons. Sometimes sternutatories have been beneficial, from the discharges of mucus which they occasion: a few grains of asarum, or of the resin of guaiacum, may be snuffed up the nose. The fumes of ammonia, properly diluted, may also be passed through a funnel to the eye.

If a scrofulous diathesis produce the disease, bark or steel may be prescribed, with carbonate of soda: if it arise from a venereal taint,

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* ℞ Pulv. Jalap. ℈j.
Potassæ Supertart. ʒss.

Capsici contrit. gr. j.
M. fiat pulvis, singulis vel alternis auroris repetendus.

Take Powdered Jalap, one scruple.
Supertartrate of Potass, half a drachm.
Capsicum, one grain.
A powder, to be taken every morning, or every other morning.

† ℞ Zinci Sulphatis,
Pulv. Ipecac. āā gr. x.

Aquæ Puræ, ʒij.
M. fiat haustus emeticus, quamprimum sumendus, et repetatur si urgeat nausea.

Take Sulphate of Zinc,
Powder of Ipecacuanha, of each ten grains.
Pure Water, two ounces.
Make an emetic draught, to be taken immediately, and repeated if necessary.

mezereum, sassafras, sarsaparilla, and the preparations of mercury. A salivation is said to have often succeeded in curing amaurosis when all other remedies have failed. When rheumatism is the cause, or when a paralysis of the retina is suspected, valerian, or guaiacum, combined with bark, has been useful.*

Dr. Richter, professor of medicine in the University of Göttingen, states that he has lately restored to sight several patients who laboured under gutta serena. In all those cases, he thinks the cause of the disease was seated in the abdominal viscera; for he cured them by means of medicines which remove obstruction in these viscera, and evacuate the

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| * ℞ Decoc. Cinchon. ℥v. | Take Decoction of Bark, five ounces. |
| Pulv. Valerian. ʒij. | Powder of Valerian, two drachms. |
| Tinct. Valerian. ʒvj. | Tincture of Valerian, six drachms. |
| M. capiat cochlear. tria ampla sextâ quâque horâ. | Three table-spoonsful to be taken every six hours. |
| *Vel,* | *Or,* |
| ℞ Valerian. Radicis contus. ℥ss. | Take Bruised Valerian Root, half an ounce. |
| Aquæ Ferventis, ℥viij. | Hot Water, eight ounces. |
| Macera in vase operto per horas duas, et liquori colato adde | Macerate in a covered vessel for two hours, and add to the strained liquor |
| Tinct. Cinchonæ, ℥j. | Tincture of Bark, one ounce. |
| M. capiat cochlearia tria ampla sextâ quâque horâ. | Take three large spoonsful every six hours. |

bowels. He affirms, that in this way he has not unfrequently performed a complete cure, in cases where he hardly expected it, and in some where the disease had actually continued for several years. After vomiting, he recommends the pills mentioned below;* adding, that it is often necessary to persevere in the use of these remedies six or eight weeks before any amendment is perceived. A gradual increase of the dose is also requisite. A disappearance of the fiery sparks from before the eyes, and of the sensation of tension in their balls, are the first symptoms, he observes, of amendment, which give reason to hope for success in the cure of gutta serena.

Bleeding in cases of amaurosis is often serviceable; but I cannot omit cautioning practitioners against copious abstractions of blood,

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* ℞ Gum Ammon.
Gum Assafœtid.
Pulv. Rad. Valerian.
Pulv. Summitat. Arnic.
Sapon. Venet. āā ʒij.

Antimon. Tart. gr. xviij.

Syrup q. s. M. ft. pilul. pond. gran. v.; quarum iij. sumat ter in die.

Take Gum Ammoniac,
Gum Assafœtida,
Powder of Valerian Root,
Tops of Leopard's Bane,
Venetian Soap, of each two drachms.
Tartarised Antimony, eighteen grains.
Syrup a sufficiency to form the mass, out of which let pills of five grains each be made, and of these three are to be taken thrice a-day.

many persons having from this cause become permanently blind. Two cases are related by Dr. Gooch: the first, that of a child, who was brought into a state of dangerous and ultimately fatal exhaustion by the application of leeches: it was deadly pale, had scarcely any pulse, the skin was cold, the pupils dilated and motionless on exposure to the light, and it did not seem to perceive a watch that was held before its eyes. It died at the end of a week. The second was that of a lady who became blind from great loss of blood, and soon after expired. These instances are sufficient to shew, that, however beneficial moderate bloodletting may be, large depletions are highly dangerous.

My friend Dr. Tattersall, Fellow of the Royal College of Physicians, has communicated to me the case of a young lady who became blind from amaurosis, in consequence of having caught cold at a ball, which yielded completely to brisk cathartics and diaphoretics.

According to Dr. Copland, various volatile substances, spirituous, saline, and oleaginous, have been recommended to be applied to the eyes, either in a state of vapour or of solution, and dropped into them, by Warner, Sagar,

Manardus, Dunckler, Chomel, St. Yves, and Schumacher; but these require to be cautiously resorted to. The application of cold and slightly stimulating washes and baths to the eye, and bathing the whole head, or eyes, in cold water, have been approved by Richter and Beer. Moxas, applied in the course of the facial nerves, have been used by Larrey; and the actual cautery behind the ears recommended by Khlodovitch.

The treatment of amaurosis which I have here detailed, very closely resembles that recommended for nervous deafness in my Treatise on the Ear; in both diseases much depending on the patient himself. In addition to the various medicines prescribed, he should attend to his general health, breathe a pure air, take much out-door exercise, live on plain but nutritious food, give rest to the affected organ, and enjoy a little cheerful society. Above all things, he should be careful of the state of his bowels, as constipation ought always to be avoided.

# CHAPTER IV.

## LIGHT.*

"LIGHT," said the wisest of men, "is sweet; and a pleasant thing it is for the eyes to behold the sun." The truth of this few will dispute, though perhaps only those who have at some period of their life been deprived of the blessing, can feel the full force of the sentiment. Sight is, indeed, of all our senses, the most delightful, the most perfect, the most diversified in its powers, and the most accurate in the information it conveys. Whence, then, it is natural to inquire, and by what mechanism, do we derive so much of the purest enjoyment? The philosophic Bacon asserts that "knowledge is power," an assertion verified by every day's experience; and applying this axiom to the

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* In various parts of my Treatise on the Physiology and Pathology of the Ear, the reader will find much information on the subject of this chapter, which the intimate connexion between the organs of hearing and sight rendered necessary to the more perfect elucidation of the topic.

subject before us, we shall find that an attentive consideration of the phenomena of vision has led to the invention of artificial aids, by which the sight may be wonderfully strengthened and preserved, and man endowed at once with the perspicacity of the eagle, and the minute scrutiny of the insect. Nay, more: by such discoveries the failure of this faculty in old age has been retarded, or, if lost, restored; and thus, in the latter case, those who had been perhaps for years doomed to perpetual gloom, have again been gladdened with the beams of day.

From the peculiar properties manifested by light in different degrees of polarisation, the scientific mind derives a fund of information relative to the intimate constitution of bodies, and to the nature of the material universe, which varies wholly from the general impressions of form, colour, and distance, made on mankind at large by daily observation.

The opinions of the ancients respecting vision were in many points erroneous: they thought that the faculty of sight consisted in a sort of emanation from the eye towards the object beheld. But that such is not the case is manifest from the fact that we cannot see

in the dark, which proves that the vicinity of an object is not of itself sufficient to constitute sight; as it would be, did light emanate from the eye. The object must therefore be in what we call a *luminous* state. Some natural bodies are themselves capable of exciting in the eye the sensation of brightness or light; as, for instance, the sun, stars, a candle, red-hot iron, &c.; and these are said to be self-luminous; though it is hardly necessary to add, that very few possess this quality, and that those which have it not are invisible in the dark, even when the eye is directed towards them: they are in consequence called *non-luminous*. Even such, however, become luminous when near self-luminous bodies. If a lighted candle be brought into an apartment previously in darkness, we immediately see not only the self-luminous body, the candle, but whatever else comes within the range of its rays. The non-luminous bodies are thus made luminous for the time, and are in a condition to illumine others. In this manner a sunbeam entering a darkened chamber, and falling on any white body, say a sheet of paper, renders it luminous, and consequently visible; the paper in turn illuminates the entire chamber, making visible

all the objects it contains, until the sunbeam ceases to irradiate the sheet, when darkness again prevails.

The moon and planets are opaque or non-luminous bodies, yet when the sun shines on any part of them, such part becomes luminous, and acts as a self-luminous body. Many substances possess the property of intercepting this peculiar intercourse between luminous bodies and the eye, or other bodies. A plate of metal put between our eyes and the sun, hinders us from perceiving that luminary; and if the metallic plate be interposed between the sun and a sheet of white paper, or other object, it casts a shadow on such object; in other words, renders it non-luminous. This power of bodies to intercept light proves that the communication constituting light is made in straight lines.

Light emanates from luminous bodies in every direction, since in all positions of the eye we perceive them, so long as there is nothing to obstruct the light. And herein consists the essential difference between luminous bodies and optical images, from which light emanates only in some directions. It is obvious, also, that light radiates from every

point of a luminous body, as those points of it from which light is not emitted are non-luminous.

In a darkened room, if a card having a small hole in it be placed between a candle and a piece of white paper, a perfect resemblance of the flame, in an inverted position, will be seen on the paper, increasing in size as the paper recedes from the perforation. In this manner the hole becomes the vertex of a conoidal solid, lengthened both ways, which has for its base the object at one end, and the screen at the other. The section of this solid by the screen is the picture seen projected upon it, which must resemble the object, being inverted geometrically.

White light, if passed through a prism, and thereby subjected to oblique refraction, is seen to be composed of many degrees of excitement. These different excitements are divided into an oblong figure, the base of which is red shading to orange, and, in succession, to yellow, green, blue, indigo, and lastly to violet or negation.

In the prismatic spectrum, violet rays denote heat to be as 1, green as 4, yellow as 8, and red as 16, beyond which there is no pecu-

liar action. Colours have been, by certain philosophers, referred to these various degrees of intensity; and, in like manner, painters speak of blue as cold, green as soft, yellow as rich, and red as warm. Musicians have adopted similar modes of thought and expression.

It is well known that the colours of bodies are regulated by the dimensions of their atoms, as well as by the chemical character of the local atmospheres of their atoms and interstices. The atoms of black being small, it absorbs light; white, having large atoms, reflects light. According to Ellis, green is of a nitrogen, violet of a hydrogen, and red of an oxygen character. The minute particles of these decompose incident light—absorbing some, and reflecting others: thus, an oxygen body unites with hydrogen, and reflects red, and the reverse with others. A hydrogen absorbs red, &c. and reflects blue, indigo, &c.; a nitrogen absorbs red and violet, and reflects green or white, orange or blue.

Various other excitements, besides combustion, produce light, among which are friction and phosphori. Snow, diamonds, and the Bologna stone, apparently absorb and radiate it; some combinations evolve it, and several plants

scintillate. Every one is aware, that if the eyes be rubbed in the dark, flashes of light will be produced. Slaking lime gives out light and intense heat.

The breadth of waves of light, according to Fraünhofer, is, in parts of an inch, as follows:

| | |
|---|---|
| Red . . . . . | ·00002582 |
| Orange . . . . | ·00002319 |
| Green . . . . | ·00002073 |
| Blue . . . . . | ·00001912 |
| Indigo . . . . | ·00001692 |
| Violet . . . . | ·00001572 |

The interstices are black, except when the waves mingle, in which case they are white.

The opinion of the late learned and scientific Dr. Young concerning light was, that it is an affection of a continuous medium, so rare and elastic that it suffers bodies to permeate it without resistance.

Having made these general remarks on the nature and properties of light, I shall now briefly notice some of the peculiar sensations experienced, on the recovery of sight, by those who had once been deprived of it.

It is related of a blind youth, couched by Chesselden, that he thought scarlet the most beautiful of colours, and that the sight of black

was unpleasant. He imagined every object touched him; and being unable to discriminate things by the eye with which he was well acquainted through the medium of touch, he had to be told the names of whatever he saw. Pictures appeared to him to be merely parti-coloured surfaces, from his having no idea of light and shade. A miniature painting greatly astonished him: he said it seemed as if a bushel measure had been put into one of the dimensions of a pint. He was quite unable to conceive why a house should look larger than a room. After his other eye had also been couched by the same eminent surgeon, he thought objects appeared smaller to it than they had done to the first eye that was operated upon; and when he viewed an object with both eyes, it seemed twice as large as when he looked at it with one eye only.

Sir William Adams couched several young persons, with results, in the main, closely resembling those in the above case.

I may here remark, however, that the want of vision is partially compensated in blind persons by their possessing an accuracy and sensibility of touch, and habits of association connected with that faculty, with memory, and

with judgment, unknown to those who see. Many interesting examples of this fact might readily be adduced; but I shall content myself with stating a few particulars relative to some of the more striking cases.

Blind musicians have always been celebrated. Stanley, the organist, was one of the first players of his day on that magnificent instrument; and, indeed, not a few of the best musicians the world has ever heard, have been either born blind, or at some period of life have become so. This circumstance will not much surprise us, when we remember that the blind distinguish sounds, both near and distant, with far greater precision than those can who are not constrained to trust solely to their ear.

A remarkable proof that the blind hear more acutely than others occurred in the case of a Miss Chambers, a blind schoolmistress, who could tell that two boys were playing in a far corner of the room instead of minding their books, though their movements were so noiseless, that a spectator could not have known they were even present, but for the use of his eyes. Professor Sanderson, also, possessed the power of discovering, in a few minutes, the number of persons contained in any room into

which he entered, and could even find out what were the proportions of the sexes by the sound of their clothes.

I have observed, that, in cases of blindness attended with deafness and dumbness, there is frequently connexion or sympathy of the nerves; but in cases of blindness uncombined with deafness and dumbness, as in that of Professor Sanderson, &c., the hearing becomes acute from being constantly exercised; whereas persons who are dull of hearing from inattention and carelessness often become quite deaf.

I might further add to these, many curious instances of the perfection of other senses in the absence of sight, — such as a blind man playing at cards by slightly pricking them, ladies dancing figure-dances, sewing tambours, threading a needle, &c.; but having already occupied as much space as this part of the subject seems to demand in a work of this nature, I proceed to select some portions from "Experiments and Observations on the Inflection, Reflection, and Colours of Light,"* by

* When this paper was written, Mr. Brougham, — (now Lord Brougham and Vaux, and, when the first edition of this work was published (1833), Lord High Chancellor of England,) — was only sixteen years of age; and although the

Henry Brougham, jun. Esq., communicated to the Royal Society through its Secretary, Sir Charles Blagden, Knt.; and inserted in the Philosophical Transactions for 1796.

I have always thought it wonderful, (says the writer,) since Nature seems to delight in those close analogies which enable her to preserve simplicity and even uniformity in variety, that there should be no dispositions in the parts of light, with respect to inflection and reflection, analogous or similar to their different refrangibility. In order to ascertain the existence of such properties, I began a course of experiments and observations, — a short account of which forms the substance of this paper. For the sake of perspicuity, I shall begin with the analytical branch of the subject, comprehending my observations under two parts: *flection*, or the bending of the rays in their passage by bodies, and *reflection*. And I shall conclude by applying the principles there

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extreme youth of the writer was unknown, the merit of these experiments caused them to excite considerable interest in the learned world. He is also said at this period to have carried on a scientific correspondence in Latin with some of the most distinguished continental philosophers.

established to the explanation of phenomena, in the way of synthesis.

As in every experimental inquiry much depends on the attention paid to the minutest circumstances, in justice to myself I ought to mention, that each experiment was set down as particularly as possible immediately after it was made; that they were all repeated every favourable day for nearly a year, and before various persons; and as any thing like a preconceived opinion, with respect to matter of theory that is in dispute, will, it is more than probable, influence us in the manner of drawing our conclusions, and even in the manner of recording the experiments that lead to these, I have endeavoured as much as possible to keep in view the saying of the Brahmin, "That he who obstinately adheres to any set of opinions, may bring himself at last to believe that the fresh sandal-wood is a flame of fire."*

*Of Flection.*

In order to fix our ideas on a subject which has never been treated of with mathematical precision, we shall suppose, for the present,

* Asiatic Researches, vol. i. p. 224.

that all the parts of light are equally acted upon in their passage by bodies; and deduce several of the most important propositions that occur, without mentioning the demonstrations.

*Definition* 1. If a ray passes within a certain distance of any body, it is bent inwards: this we shall call inflection. 2. If it passes at a still greater distance, it is turned away: this may be termed deflection. 3. The angle of inflection is that which the inflected ray makes with the line drawn parallel to the edge of the inflecting body, and the angle of incidence is that made by the ray before inflection, at the point where it meets the parallel, and so of the angle of deflection.

*Proposition* I. The force by which bodies inflect and deflect the rays acts in lines perpendicular to the surfaces.

*Prop.* II. The sines of inflection and deflection are each of them to the sine of incidence in a given ratio; (and what this ratio is, we shall afterwards shew).

*Prop.* III. The bending force is to the propelling force of light as the sine of the difference between the angles of inflection (or deflection) and incidence, to the cosine of the angle of inflection (or deflection).

*Prop.* IV. The rays of light may be made to revolve round a centre in a spiral orbit.

*Prop.* V. If the inflecting surface be of considerable extent, and a plane, then the curve described may be found by the help of prop. 41, book i. of the *Principia;* provided only, the proportion of the force to the distance be given. Thus, if the bending force be inversely as the distance, the curve cannot be found; for in order to obtain its equation, a curvilinear area must be squared, which in this case is a conic hyperbola; the relation, however, between its ordinates and abscissæ may be obtained in fluxions, thus: $y\dot{y} + by = a^2\dot{x}^2$.

If the force (which is most probable) be inversely as the square of the distance, the curve to be squared is the cubic hyperbola, species 65, genus 3, of Newton's enumeration; and this being quadrable, the curve described by the light will be the *parabola camponiformis pura*, species 69 of Newton.

If the force be inversely as the cube of the distance, the curve is a circular arch, and that of deflection is a conic hyperbola.* If the inflecting body be a globe or cylinder, and the

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* Principia, lib. i. prop. 8.

force be inversely as the square of the distance from the surface, then by prop. 71, book i. of the *Principia*, the attraction to the centre is inversely as the square of the distance from that centre; and, therefore, by propp. 11 and 13 of the same book, the ray moves in an ellipse by the inflecting, and an hyperbola by the deflecting force, each having one focus in the centre of the body. The truth of these things mathematicians will easily determine.

*Prop.* VI. If a ray fall on a specular surface, it will be bent before incidence into a curve, having two points of contrary flexure, and then will be bent back the contrary way into an equal and similar curve.

*Corollary* to these propositions. If a pencil of rays fall *converging* on an interposed body, the shadow will be less than the body by twice the sine of inflection.

And if a pencil fall diverging on the body, the shadow will be greater than the body by twice the sine of inflection; but less than it should be if the rays had passed without bending, by twice the sine of the difference between the angles of inflection and incidence. The sine or angle of incidence is greater than the sine or angle of inflection, when the incident

rays make an acute angle with the body; but when they make an obtuse or right angle, then the sine or angle of inflection is less than that of incidence. The sine of incidence is greater than that of deflection, if the angle made by the incident ray with the body is obtuse, but less if that angle be acute or right. If a globe or circle be held in a beam of light, the rays may be made to converge to a focus.

Hitherto it has been supposed that the parts of which light consists have all the same disposition to be acted upon by bodies which inflect and deflect them; but we shall now see that this is by no means the case.

*Observation* I. Into my darkened chamber I let a beam of the sun's light, through a hole in a metal plate (fixed in the window-shut) of one-fortieth of an inch diameter; and all other light being absorbed by black cloth hung before the window and in the room, at the hole I placed a prism of glass, whose refracting angle was 45 degrees, and which was covered all over with black paper, except a small part on each side, which was free from impurities, and through which the light was refracted, so as to form a distinct and tolerably homogeneous spectrum on a chart at six feet from the win-

dow. In the rays, at two feet from the prism, I placed a black unpolished pin, (whose diameter was every where one-tenth of an inch,) parallel to the chart, and in a vertical position. Its shadow was formed in the spectrum on the chart, and had a considerable penumbra, especially in the brightest red, for it was by no means of the same thickness in all its parts; that in violet was broadest and most distinct; that in the red narrowest and most confused; and that in the intermediate colours was of an intermediate thickness and degree of distinctness. It was not bounded by straight, but by curvilinear sides, convex towards the axis, to which they approached as to an asymptote, and that nearest in the least refrangible rays. Nor could this be owing to any irregularity in the pin, for the same thing happened in all sorts of bodies that were used; and also, if the prism was moved on its axis, so that the colours might ascend and descend on these bodies, still, wherever the red fell, it made the least, and the violet the greatest shadow.

*Of Reflection.*

That bodies reflect light by a repulsive power, extending to some distance from their

surfaces, has never been denied since the time of Sir Isaac Newton.* Now this power extends to a distance much greater than that of apparent contact, at which an attraction again begins, still at a distance, though less than that at which before there was a repulsion; as will appear by the following demonstration, which occurs to me, and which is general with respect to the theory of Boscovith.† Let the body A have for P an attraction, which, at the distance of AP, is proportional to PM; then let P move towards A, so as to come to the situation P′, and let the attraction here be P′M′; as it is continual during the motion of P to P′, MM′ is a curve line. Now, in the case of the attrac tion of bodies for light, and for one another, PM is less than P′M′, and consequently MM′ never returns into itself, and therefore it must go on *ad infinitum*, having its arc between AB and AC, to which it approaches as a symptotes; the abscissa always representing the distance, and the ordinate the attraction at that distance: let P′ now continue its motion to P″, and M′ will move to M″, and if P″ meets A, or the bodies

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* Optics, book ii. part 3, prop. 8.

† Nova Theoria Philosophiæ Naturalis.

come into perfect contact, P″M″ will be infinite; so that the attraction, being changed into cohesion, will be infinite, and the bodies inseparable, contrary to universal experience; so that P can never come nearer to A than a given distance. In the case of gravity, PM is inversely as the square of AP, so that the curve NMM‴ is the cubic hyperbola; but the demonstration holds, whatever be the proportion of the force to the distance. It appears, then, that flection, refraction, and reflection, are performed by a force acting at a definite distance; and it is reasonable to think, even *à priori*, that as this same force, in other circumstances, is exerted to a different degree on the different parts of light, in refracting, inflecting, and deflecting them, it should also be exercised with the like variations in reflecting them. Let us attend to the proof, which enables us to change conjecture into conviction.

*Observation* I. The sun shining into my darkened chamber through a small hole one-fortieth of an inch in diameter, I placed a pin of one-thirtieth of an inch in diameter in the cone of light (one half inch from the hole), inclined to the rays at an angle of about 45 degrees, and its shadow was received on a chart

parallel to it, at the distance of two feet. The shadow was surrounded by the three fringes on each side, discovered by Grimaldo; beyond these there were two streaks of white light diverging from the shadow, and mottled with bright colours, very irregularly scattered up and down; but on using another pin, whose surface was well polished, and placing it nearer the hole than before, the colours in the streaks became much brighter (and the streaks themselves narrower), being extended from one side to the other; so that, except in a very few points here and there, no white was now to be seen; and on moving the pin, the colours also moved. But they disappeared if the pin was deprived of its polish by being held in the flame of a candle, or if a roll of paper was used instead of the pin; also, they were much brighter in direct than in reflected light, and in the light of the sun at the focus of a lens, than in his direct unfracted light. Placing a piece of paper round the hole in the window-shut, I observed the colours continued there; and, inclining the chart to the point where they left off, I saw them continued on it, and then proceed as before to the shadow. If the pin was held horizontally, or nearly so, they were seen

of a great size on the floor, the walls, and roof of the room, forming a large circle; and if the chart was laid horizontally, and the pin held between the hole and it, in a vertical position, the circle was seen on the chart, and became an oval, by inclining the pin a little to the horizon.

*Observation* II. Having produced a clear set of colours, as in the last observation, I viewed them as attentively as possible, and found that they were divided into sets, sometimes separated by a gleam of white light, sometimes by a line of shadow, and sometimes contiguous, or even running a little into one another. They were spectra or images of the sun, for they varied with the luminous body by whose rays they were formed, and with the size of the beam in which the pin was held; and when, by placing it between my eye and the candle, a little to one side, I let the colours fall on my retina, I plainly saw that they resembled the candle in shape and size (though a little distended), and also in motion, since, if the flame was blown upon, they had the like agitation. The colours, therefore, which fell on the chart were images of the sun; they had parallel sides pretty distinctly defined, but the

ends were confused and semicircular, like those of the prismatic spectrum. Like it, too, they were oblong, and in some the length exceeded the breadth six, even eight times: the breadth was, as I found by measurement, exactly equal to that of the sun's image received on a chart, as far from the sun as the image was, and the length was always to the breadth, at all distances, in the same ratio, but not in all positions of the pin: for if it was moved on its axis, the images moved towards the shadow on one side, and from it on the other, becoming longer and longer (the breadth remaining the same), the nearer they came to the shadow on the one side, and shorter in the same proportion, the farther they went from it on the other.

Having devoted so much space to these interesting, and, when we remember the age of the writer, wonderful experiments of the late Lord Chancellor, I must be more brief in my citations from Sir John Herschel than I had intended; but for the information of those who desire to prosecute the subject further, I can with confidence recommend that gentleman's excellent dissertation on Light in the "Encyclopædia Metropolitana."

After asserting that reflection of light is more copious at great obliquities, Sir John goes on to say:—"Hence we see that the proportion of the molecules of a ray falling on the surface of a medium in every possible state or phase of their fits, which undergo reflection, will depend, first, on the nature of the medium on whose surface they fall, or if it be the common surface of two, then on both; secondly, on the angle of incidence. At great obliquities the reflection will be more copious; but even at the greatest, when the incident ray just grazes the surface, it by no means follows that every molecule, or even the greater part, must be reflected. Those which arrive in the most favourable phases of their fits of transmission, will obey the influence of small attractive forces, in preference to strong repulsive ones; but it will depend entirely on the nature of the media whether the former or the latter shall prevail; the fits in the Newtonian doctrine being conceived only to dispose the luminous molecules, other circumstances being favourable, to reflection or transmission, to exalt the forces which tend to produce the one, and to depress those which act in favour of the other, but not to de-

termine, absolutely, its reflection or transmission under all circumstances.

"These conclusions are verified by experience. It is observed, that the reflection from the surfaces of transparent (or indeed any) media, becomes sensibly more copious as the angle of incidence increases; but at the external surface of a single medium is never total, or nearly total. In glass, for instance, even at extreme obliquities, a very large portion of the light still enters the glass, and undergoes refraction. In opaque media, such as polished metals, the same holds good; the reflection increases in vividness as the incidence increases, but never becomes total, or nearly so. The only difference is, that here the portion which penetrates the surface is instantly absorbed and stifled.

"The phenomena which take place when light is reflected at the common surface of two media, are such as, from the above theory, we might be led to expect; with the addition, however, of some circumstances which lead us to limit the generality of our assumptions, and tend to establish a relation between the attractive and repulsive forces, to which the refrac-

tion and reflection of light are supposed to be owing. For it is found that when two media are placed in perfect contact, (such as that of a fluid with a solid, or of two fluids with one another,) the intensity of reflection at their common surface is always less, the nearer the refractive indices of the media approach to equality; and when they are exactly equal, reflection ceases altogether, and the ray pursues its course in the second medium, unchanged in direction, velocity, or intensity. It is evident, from this fact, which is general, that the reflective or refractive forces, in all media of equal refractive densities, follow exactly the same laws, and are similarly related to one another; and that in media unequally refractive, the relation between the reflecting and refracting forces is not arbitrary, but that the one is dependent on the other, and increases and diminishes with it. This remarkable circumstance renders the supposition of the identity of form of the function Y, or $\phi$ (y) expressing the law of action of the molecules of all bodies on light indifferently, less improbable.

"To shew experimentally the phenomena in question, take a glass prism, or thin wedge,

of very small refracting angle, (half a degree, for instance: almost any fragment of plate glass, indeed, will do, as it is seldom the two sides are parallel,) and placing it conveniently with the eye close to it, view the image of a candle reflected from the exterior of the face next the eye. This will be seen accompanied, at a little distance, by another image, reflected internally from the other face, and the two images will be nearly of equal brightness, if the incidence be not very great. Now, apply a little water, or a wet finger, or, still better, any black substance wetted, to the posterior face, at the spot where the internal reflection takes place, and the second image will immediately lose great part of its brightness. If olive-oil be applied instead of water, the defalcation of light will be much greater; and if the substance applied be pitch, softened by heat, so as to make it adhere, the second image will be totally obliterated. On the other hand, if we apply substances of a higher refractive power than glass, the second image again appears. Thus, with oil of cassia it is considerably bright; with sulphur, it cannot be distinguished from that reflected at the first surface; and if we apply mercury or amalgam (as in a silvered

looking-glass), the reflection at the common surface of the glass and metal is much more vivid than that reflected from the glass alone."

I close these remarks and experiments on light by another interesting passage on the velocity of light, by the same celebrated philosopher and astronomer.

"Light requires time for its propagation. Two spectators at different distances from a luminous object suddenly disclosed, will not begin to see it at the same mathematical instant of time. The nearer will see it sooner than the more remote; in the same way as two persons at unequal distances from a gun hear the report at different moments. In like manner, if a luminous object be suddenly extinguished, a spectator will continue to see it for a certain time afterwards, as if it still continued luminous, and this time will be greater the further he is from it. The interval in question is, however, so excessively small in such distances as occur on the earth's surface, as to be absolutely insensible; but in the immense expanse of the celestial regions the case is different. The eclipses and emersions of Jupiter's satellites become visible much sooner (nearly a quarter of an hour) when the earth is at its least dis-

tance from Jupiter than when at its greatest. Light, then, takes time to travel over space. It has a finite though immense velocity, viz. 192,500 miles per second; and this important conclusion, deduced, by calculation, from the phenomenon just mentioned, and which, if it stood unsupported, might startle us with its vastness, and incline us to look out for some other mode of explanation, receives full confirmation from another astronomical phenomenon, viz. the aberration of light."

## CHAPTER V.

### ON THE PRESERVATION OF SIGHT; AND THE CHOICE, USE, AND ABUSE OF SPECTACLES, &c.

In this chapter I purpose to give, in plain and easily intelligible language, some advice on the care necessary to be taken of the eyes — on the means of restoring their healthy action when impaired by over-exertion; and to offer some remarks on the choice, use, and abuse of spectacles.

In proportion to the expansion of the pupil of the eye is the sensibility of the organ: the mean diameter of the pupil, though varying from one to two tenths of an inch, in proportion to the brightness of objects, is reckoned to be commonly about one tenth of an inch.

When the light is too strong, or the object too bright, the pupil contracts, that it may intercept the excess of light, by which the eye would otherwise be distressed: on the contrary, when the light is faint, the pupil expands, in

order that a larger portion of it may be admitted by the eye, and thus a more powerful impression be made upon it.

Sudden changes from comparative darkness to strong light, and *vice versâ*, are highly improper: hence the eyes should be carefully guarded from the full effect of the morning sun on first awaking in summer; and the custom of breakfasting in the lightest room of the house, as is generally done, is certainly weakening to the eyes, which ought to be accustomed by gentle transitions from one degree of light to another, till they can bear the effulgence of the sun's meridian splendour.

Rubbing the eyes on waking is a destructive habit which many people have contracted; and though healthy persons, whose sight is moderately used through the day, may not be sensible of receiving any injury from this custom, yet those whose occupations demand close application of their visual organs for a long-continued space of time, will soon be convinced, by painful experience, of the truth of this remark. Besides the daily injury thus done to the eyes, it sometimes also happens that hairs and other foreign matters are forced into them by their being violently rubbed, which may

occasion inflammation, and are frequently very troublesome to dislodge. The inflamed and weak eyes of many persons are likewise in a great measure to be attributed primarily to this most imprudent habit. Should, however, the eyelids be so fixed that a difficulty is felt in opening them, let them be moistened with a little warm milk and water for a few minutes, which, in all cases where the organ is healthy, will be found to answer the purpose in a manner such as they can have no idea of who have never tried this simple remedy.

The use of shades and bandages, on every trifling affection of the eye, is an evil that cannot be too strongly reprobated; for the action of light and air being thus excluded, and the organ rigidly compressed, ophthalmia, and even total blindness, is not infrequently the consequence of that which, being perhaps merely a slight flow of humour, or a little extravasated blood, would have subsided in a few days, if judiciously treated, or even if left to itself.

Bathing the eyes occasionally during the day, as well as on rising, is of much importance to their preservation; and where the organ is healthy, cool spring water should be preferred; but where there is reason to suspect any dis-

ease, people cannot be too careful, considering what a very delicate organ the eye is, in having professional advice before they adopt any remedial means. When the roads are dusty, and the weather windy, bathing the eyes is so pleasant, and felt to be so necessary to comfort, that I need say nothing as to its salubrity, to induce its employment by those who have experienced the annoyance arising from dust in walking our streets in summer; but I have to remark, that care must be taken to be perfectly cool before bathing the eyes; for if the face be covered with perspiration, the continued application of cold water may be very dangerous; and even amaurosis has been caused in weak and irritable eyes by this injudicious act.

The frequent location of counting-houses and other places where business is carried on, in close and dark situations, is equally injurious to the sight and to the general health; for the latter is not more affected by confined and ill-ventilated rooms, than the former by dim and obscure ones, into which the light of day can hardly ever be said fairly to penetrate. It is therefore essential to the preservation of the sight in any degree of vigour, that the apartments in which the greatest portion of our time

is spent, and in which are carried on those occupations requiring a continued exertion of our eyes, be in a light and cheerful situation;* for whoever neglects this advice will assuredly sooner or later feel its baneful effects. Care should also be taken to avoid rooms whose windows face whitewashed walls, which reflect the rays of the sun so powerfully as in a short time to weaken the strongest sight, causing inflammations, and a train of other evils.

An excess of gilding, or indeed of any shining or white articles, in rooms, ought to be carefully avoided. Dress also, it cannot be doubted, exercises much influence on the visual organs; and many naturally good eyes have been permanently weakened by the apparently innocent custom of wearing a veil, the constant shifting of which affects the sight so prejudicially, in its ceaseless endeavours to adjust itself to the veil's vibrations, that I have known not a few young ladies who have brought on great visual debility by this means alone. Again, tight clothing is manifestly hurtful to

* In Vienna these precautions are wholly disregarded, and employments very straining and trying to the sight are mostly carried on in dark situations, and continued for many hours without intermission.

the sight; too copious a flow of humours being thereby induced to the head; for it needs not to be demonstrated, that the effective state of the eyes, like every other part of the body, depends on a free circulation of blood, which cannot take place when the body is too straitly laced or buttoned.

Rigid cleanliness is a point of much importance, especially as regards the sight of children; for it is well known that though one powerful cause of inflammatory ophthalmia among the children of the poor consists in improper and innutritious diet, yet it cannot be denied that the putrid exhalations of the places in which many of them are doomed to live have a greater effect in producing diseases of the eyes, than even the deleterious and insufficient food which is the lot of but too many of our miserable fellow-creatures in this great and densely populated metropolis.

Costiveness, and whatever causes much straining at stool, is very injurious to the sight; as, in such cases, the pressure on the intestines impels the blood with an unnatural rapidity to the head.

A due portion of sleep is as essential to enable the eyes to perform their office comfort-

ably and effectively, as a due portion of rest is to enable the limbs wearied with toil, or the mind with reasoning or other kind of exertion, to resume with alacrity their wonted offices. But sleep too long protracted, on the other hand, is perhaps hardly less destructive of accurate and healthy vision than when taken too sparingly; for as in the one case the organ is enfeebled by unremitting activity, without a proper degree of repose, so in the other case, the eye, from unfrequent or insufficient exercise, becomes torpid and dull, and if inaction be persisted in, is at length unfitted for its functions.

Consequently, however strong and good our sight may be, it ought always to be moderately and carefully used; and to make it plain what I consider the symptoms of its having been immoderately and carelessly used, I shall throw together a few remarks by which each may judge for himself of the nature of his own case.

If, in order to perceive objects distinctly, we are compelled to place them nearer to the eye than we have been accustomed, *i. e.* if the focus of sight or point of view begins closer to the eye than usual;—if one desires, while employed or otherwise, to fix the eyes steadfastly

on some distant object, and they begin involuntarily to emit aqueous humours;—if, during labour or occupation, a painful contraction through the entire orbit of the eye be experienced, but which invariably disappears after a few minutes' rest, or shutting the eyelids now and then;—if the employment be protracted, or require close mental application added to considerable visual tension, and the contraction just noticed is followed by heat in the eyelids, heaviness, difficulty of opening them, &c.;—if in young persons who are fair and sanguine the borders of the eyelids become red, or thicker than when in health, and the blood-vessels turgid;—if, in fine, we perceive motes floating before the eyes (called *muscæ volitantes*), and objects become so indistinct and ill defined as to oblige us to shut our eyes for a while:—then, in any of these cases, we may be certain that the sight has been over-worked, and that relaxation is absolutely necessary to its recovery of a healthy tone. It is of the utmost consequence that these premonitory symptoms be carefully attended to, otherwise the eyes are in danger of being materially weakened ever after.

If, however, these symptoms are neglected,

others of a more formidable character will not be long in making their appearance; the first of which will be, that objects will seem as if encircled by a faint cloud or mist, the extremities of it being tinged with every variety of colour: after which, objects will begin to dance before the eyes, which are suddenly enveloped in great obscurity, and the objects themselves, at times seemingly raised, at others lowered, not unfrequently topsy-turvy, look as if they were floating at random. Now, though even this stage can hardly be called an actual disorder, being rather perhaps a kind of oscillation, as it were, between disease and health, yet, if still unattended to, it may altogether ruin the sight for the rest of life.

A few simple remedies are, indeed, all that are required to restore the healthy functions of the organ in such cases; and these I shall briefly explain.

The first thing to be attended to is a careful regulation of the use of the eyes in regard to length of time, as far as this is practicable: entire disuse of them suddenly would be almost as injurious as a continued straining of them beyond their capabilities. They should, therefore, be variously employed, as much as this

can be done, not applying them too long or too intently to the same object, but relieving them by change of scene and diversity of occupation.

Another means that will be found to be beneficial, and to help the eyes where much relaxation cannot be obtained, consists in shutting them now and then while at work, going into the air, looking out at an open window, especially if there be any trees or verdure within sight: this interval of rest, though only of a few minutes' continuance, will greatly relieve the eyes, and enable them to resume their employment with comparative pleasure.

A third caution is, that those who are conscious from experience that their sight has been weakened by severe and protracted exercise, or arising from any other cause, should carefully avoid immediately on rising all attention to minute objects, or such business or study as requires close application of the visual faculty; and the less it is taxed for a while after eating, or by candle-light, the better.

The fourth means I have already recommended, — viz. bathing the eyes frequently through the day with cold water. Though the effect of this simple remedy may for a time be

hardly perceptible, yet, if duly persevered in, I can vouch for its producing the happiest results. So long as there is no actual disease of the eyes, only cold water should be used; and this, applied in the gentlest manner, will soon become sufficiently tepid for all the ends of utility and comfort.

These several methods are of course referable only to cases of weakness, &c. brought on by fatigue and over-exertion. But where no such causes can be assigned for imperfection of sight and pain in the organ, advice ought to be immediately sought; and on no account should any remedies be applied but under the direction of an experienced oculist.

The kind and degree of light in which an occupation is carried on, deserves some notice.

Whatever be the nature of the occupation, an equal degree of light should, if possible, be attained, and a happy medium observed — there should neither be too much nor too little, both being destructive to the eyes. Some, however, seem to think that nothing can affect their sight: hence we find such persons, as a matter of choice, working opposite a wall white enough to reflect powerfully the sun's

rays; never considering that this foolish conduct cannot fail to weaken their vision. I have, indeed, frequently known this to be the cause of obstinate and dangerous inflammations, which, even after being cured, left the eyes still so weak as to be unfit for their accustomed duties.

A good and equal light being procured, the next remark I have to make is, that it is highly conducive to the comfort and durability of the eye, to vary frequently the position in which any employment is carried on; this being a very effectual way of preventing too great an influx of humours to the head. For example, the student and man of letters should be furnished with a high desk, at which he should stand to read or write, alternately with sitting. This, simple as it seems, if once fairly tried, would, I am confident, so strongly commend itself by its beneficial influence, not only on the sight, but on the general health, that they would not easily be induced to abandon the custom. To their constant habit of sitting, and seldom changing their position, there can be no reasonable doubt that very many of the complaints peculiar to literary men are owing.

That the colour of the eyes should affect

their strength may seem strange; yet that such is the case need not at this time of day be proved; and those whose eyes are brown or dark-coloured, should be informed that they are weaker, and more susceptible of injury from various causes, than grey or blue eyes. Light-blue eyes are, *cæteris paribus*, generally the most powerful; and next to these are grey. The lighter the iris, the greater and longer continued is the degree of exertion the eye can sustain.

Within these few years past, screens and shades against the light have come very much into vogue for weak eyes; but I may observe that such artificial defences are only serviceable and proper for those whose eyes are very prominent, and who have scanty eyelashes and eyebrows. To such as, from this cause, need some protection for their eyes, a green silk shade is the simplest as well as the best contrivance that can be used.*

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* It is well known that, during the late war, our army in Egypt suffered severely from ophthalmia; and one thing that tended much to aggravate the disease, which was primarily caused by the action of the sun upon the arid sands, was, in my opinion, the form of the soldiers' caps: these had a very small peak in front, which was made of polished

Reading by moonlight, or gazing steadfastly on the moon for a considerable length of time, is a common practice with many young people, but one which cannot be too strongly censured. Even total loss of sight has sometimes been the consequence of astronomers pursuing their ob-

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black leather, instead of that material simply tanned; and thus, by its smallness and shining, insufficiently shaded their eyes, at the same time causing a powerful reflection of the light on their visual organs. In fact, polished black leather is at all times injurious for caps or other coverings for the head; and what can be worse than the black-leather-topped caps worn by military officers, which, besides attracting the sun, and being made to fit so close to the head, are also highly objectionable on account of their weight? When serving at the Royal Naval Hospital at Haslar, I saw much of ophthalmia; and the circumstance has again recurred to me, from the fact that the Belgic troops were lately suffering very generally from that disease; yet, what is surely very remarkable, it has not appeared among civilians. May not this be partly explained as above? viz. from the want of a sufficient protection to the soldiers' eyes, arising from the smallness of the visor or peak of their caps. While on this subject, I may add, that the ladies' bonnets now in fashion, from having such small fronts, and being thrown so far back off the face, cannot but be injurious to the sight; and I have myself frequently remarked the effect produced on my own eyes by wearing a hat with a narrower brim than usual. These things deserve consideration.

servations of the moon for too long continued a period, without sufficient intervals of repose; and in all cases the sight is more or less dimmed and weakened by exposure to such influence.*

Some remarks on the care and use of the sight from infancy to age, may with propriety be made here.

In order to see well, it is necessary to begin in infancy to take care of the eyes. Many children have their sight weakened permanently by the carelessness of nurses, in exposing them soon after birth to a strong light, or to the bright glare of a fire, &c. These cautions cannot, therefore, be too strongly impressed on nurses and servants by those who regard the welfare of their offspring.

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* It may not be amiss here to caution naval officers, in their desire for the promotion of science and the effective performance of their arduous duties, against too frequent and long-continued straining of their sight by looking through powerful glasses at the moon and other celestial objects: many have in this way so seriously injured their vision as greatly to have prejudiced their usefulness to their country; and thus, from mere incautiousness in this respect, have frustrated the object upon which they were most intent, and for which they would cheerfully have sacrificed their lives.

The eyes of infants should be gradually accustomed to exercise themselves in scrutinising distant objects; but this should be done in the most careful manner, without inducing them to strain their tender sight on such things as are too remote or dazzling for them to see without causing too forcible a contraction of their immature organs, which may lay the foundation of permanent and irremediable debility throughout life.

If these precautions are duly taken in infancy, and a proper regard be had in the use of the vision during youth, by not over-straining it by excessive reading at night, or by needlework too long continued by candle-light, or any other practice likely to be detrimental, then even to old age the eyes will sustain a great deal of labour without injury; and thus one of the most annoying of decaying nature's infirmities be kept at bay, perhaps even till the hour of dissolution.

There are, of course, certain periods in which eyes of all ages, and of whatever degree of strength or weakness, are more capable of undergoing exertion than at others; and of such periods doubtless the chief is the morning, when the body being refreshed and invigorated

by repose, is prepared for exertion; but excess of sleep is as injurious to the visual as to the mental faculties, and *est modus in rebus* is just as true of sleep as of food, drink, or any other of the bodily appetites. Yet, as I have before intimated, I by no means recommend close application of the sight in a glare of light immediately on rising; for it may be laid down as an axiom, that all violent and sudden contrasts are baneful to the eyes. Hence, when carried to the extreme, complete deprivation of sight has not unfrequently ensued; of which classical history furnishes numerous instances. To notice only two: Dionysius of Sicily, deservedly called the Tyrant, taxed his own ingenuity and that of those about him, to devise continually some new method of tormenting his victims; and among those which gave the greatest satisfaction to this monster in human shape, was that of confining his wretched captives in dungeons of the deepest darkness, till their sight was almost lost from being unused, and then suddenly having them brought forth into the broad light of the meridian sun; the consequence of which, as may readily be supposed, was excruciating agony, followed by total blindness.

Equally barbarous, though perhaps admitting of some palliation, when it is considered how formidable an enemy to Africa their prisoner had been, was the treatment of Regulus by the Carthaginians: having cut off his eyelids, they exposed him, in this deplorable condition, to the direct rays of a tropical sun, by which he was very soon blinded.

But to return to my directions as to the best time for demanding unusual activity from the eyes: I remark, in the next place, that it will be well, whenever it can be accomplished, to give them rest for a while after eating, especially if our occupation oblige us to sit. The bad effects of an opposite line of conduct may be daily seen in the red faces, livid lips, and bloodshot eyes of those who either think intensely, or strain the sight soon after meals.*

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* A singular proof of this occurred in Lord C., a patient of mine, who being extremely fond of the Opera, was in the habit of going thither immediately after dinner: on such occasions his lordship was always very deaf, and affected with dimness of sight, for some time after entering the house. He and his friends were greatly at a loss to account for so singular a phenomenon, especially as the nobleman in question was very temperate. The solution of the problem, however, is not difficult. The determination of blood to the head, occasioned by the increased action of the

Again, after all employments that tend to inflame the passions, as pleading, preaching, lecturing, debating, &c., rest to the sight is absolutely essential to its preservation to old age; for the blood being more heated than usual, and flowing to the head in excess, unfits the eyes for a time for exertion; and will, if persevered in, produce the most painful consequences, of which I might enumerate many cases, in every profession exposed to such influences.

The practice of turning the back towards the light* for the purpose of seeing better to read or work, though frequently adopted by many persons, is extremely pernicious, the rays of light being too directly reflected; and in

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heart and arteries, produced a pressure upon the auditory and optic nerves, by which their functions were impeded: after remaining quiet for a short time, however, the blood descended to the extremities, and consequently his hearing and sight returned. Some information on the impropriety of either bodily or mental exertion directly after dinner, will be found in the chapter on the causes of disease, in my Essay on the Deaf and Dumb.

* In one instance, however, this practice may be adopted: when one eye is affected and is unsightly, if the person will take the precaution to sit with his back to the light while in company, the defect will not be noticed.

proportion as the paper or other object is whiter, the greater will be the injury.

I would here advise a plan which I have myself found to be of signal benefit both to the mind and the body, namely, that where it is necessary to employ the faculties in the evening in reading or writing, the latter should always be preferred, as being less exertion to the eyes, and more likely to be done effectually than reading.

Although what follows may perhaps be considered as belonging more strictly to the chapter on the treatment of diseases of the eye, yet, as these remarks refer only to cases in which, for the most part, professional assistance is not essential, they may, without impropriety, be introduced at this place.

Foreign bodies are often forced into the eye by various causes, such as a gust of wind, mending a pen, &c. &c.; and here the method taken to remove such is generally wholly unsuited to that end. The eyelids are first rubbed with the hand, which always produces unpleasant sensations, and not unfrequently inflammation, there being danger of forcing the offending substance into the coats of the eye, whence it cannot, without considerable difficulty, be

removed. On the contrary, let the head be leant forward, and the upper eyelid raised by the person suffering, who will be more gentle than another can be; and by this means he will commonly succeed in expelling it. The natural consequence of raising the eyelid, and retaining it in that position, is a flow of tears, which bring with them the intruding body, or carry it towards the canthus of the eye next the nose, whence it may easily be removed. Should this, however, prove ineffectual, the finger may be gently passed over the eyelid, towards the nose, a few times, which seldom fails to cause the substance to descend to the lachrymal glands, and thus be dislodged.

But should he still be unsuccessful, then it will be advisable to let another person introduce, between the eyelid and the ball, a small hair-pencil dipped in cream, beginning at the outer corner, and proceeding towards the nose, which usually effects the desired intention. Further than this I would warn any unprofessional individual from going; as a serious lasting injury may be done to so delicate an organ before they are aware of it, and cause much painful reflection on themselves afterwards.

As connected with the care of the eyes,

what I am about to mention may perhaps properly be introduced here. It has lately become much the practice in this country to *hire* both single and double opera-glasses at the theatres; and in doing so, it behoves persons to be particularly careful. Few organs are more sensitive than the eye, or more readily become infected; and should the smallest particle of purulent matter from the eye of an individual afflicted with ophthalmia adhere to a borrowed glass, and come in contact with a healthy eye, the disease will almost invariably be communicated: in the same manner as a foul comb, used after a person having tinea capitis, induces the disease, and as many other diseases are communicated by touching the vestments, &c. of those affected with them. I therefore earnestly advise my readers either to have a glass of their own, or to be extremely particular in using one after another person.

A few remarks on Artificial Eyes* may perhaps not be uninteresting to the reader; especially when he is informed, that there is no other mode yet known of treating confirmed

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* Signor Vorley, of Florence, was the original inventor of the artificial eye as now worn.

hydropthalmia, or dropsy of the eye and its appendages, when occurring in adults, as well as cancer of the eye, than by extirpating the diseased eye, and inserting an artificial one. Formerly, when the eye and eyelids had been destroyed, or removed on account of disease, a painted imitation of them was sometimes applied over the orbit, and retained in its position by a steel spring that went round the temple to the opposite side of the head. But by an artificial eye is now understood a hollow piece of enamel, painted so as to resemble the natural eye, and to be inserted behind the eyelids. They are of course variously made by different persons; some employing only enamel, and others gold and enamel, &c. It is unnecessary to enter into a detail of the manner in which they ought to be constructed, so as to occasion as little inconvenience as possible to the wearer: but there is one observation of so much importance that I cannot omit it, and that is, the absolute necessity of the most rigid cleanliness. For this purpose the eye ought to be removed two or three times a-day, and freed from the mucus adhering to it, the eyelids and orbit being at the same time bathed with lukewarm milk and water; and as it not

unfrequently happens that there is considerable relaxation of the parts, the use of an astringent lotion may often be necessary.

I now come to the second part of this chapter, in which I propose briefly to give some general advice on the choice and use of Spectacles.

Most persons begin to feel the necessity for some assistance to their eyes in reading and working after the age of thirty or thirty-five; though, even the commencement and progress of the deterioration of the eyes vary according to the degree of health the individual has enjoyed, their original formation, the use that has been made, and the care that has been taken of them, &c.; so that some persons have as much occasion for spectacles at twenty-five as others have at fifty; and others, on the contrary, have as good sight at fifty as they had at twenty-five. Still, the average time at which glasses are needed for reading, may be said to be from thirty-five to forty-five.* After this latter pe-

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* I extract, from Dr. Smith's valuable work on Optics, the following reasons why old persons cannot see to read or work without glasses; what is the cause of the indis-

riod of life, the power of adjustment possessed by the eye in youth fails; and those who continue to perceive distant objects clearly, are unable to see plainly those which are near; and

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tinctness of their sight; and how convex glasses remedy the defect:—

"If the humours of the eye decay by old age, so as, by shrinking, to make the cornea and coat of the crystalline humour grow flatter than before, the light will not be refracted enough, and for want of a sufficient refraction will not converge to the bottom of the eye, but to some place beyond it, and, by consequence, will paint in the bottom of the eye a confused picture; and according to the indistinctness of the picture, the object will appear confused. This is the reason of the decay of sight in old men, and shews why it is mended by spectacles; for the convex glasses supply the defect of plumpness in the eye, and, by increasing the refractions, make the rays converge sooner, so as to convene distinctly at the bottom of the eye, if the glass has a due degree of convexity.

"The contrary happens in short-sighted men, whose eyes are too plump; for the refraction being now too great, the rays converge and convene in these eyes before they come to the bottom, and therefore the picture made in the bottom, and the vision caused thereby, will not be distinct, unless the object be brought so near the eye as that the place where the converging rays convene may be removed to the bottom, or that the plumpness of the eye be taken off, and the refraction diminished by a concave glass till it come to a due figure."

the man who can, unfatigued, read the smallest print without glasses, cannot distinguish any thing accurately at the distance of ten yards.

His late Majesty George the Fourth was always particularly careful of his eyes; and it is by no means improbable, that the afflictive blindness of his revered father, during several of the closing years of his life, was often present to his mind, and was a main cause of his care in this respect. The spectacles he used for viewing distant objects were No. 6; for nearer objects No. 2; but it is very singular that for reading he wore only preservers of 36 inches focus.

Among the many vulgar errors that are daily injuring those who cherish them, few have done more mischief to eyes than the notion that all persons of the same age require glasses of the same focus. Nothing can be more absurd: as well might the same remedies be applied indiscriminately to all diseases, provided the ages of the sufferers but tally!*

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* "The proper selection of glasses for imperfect vision is a point of much deeper importance than is generally believed. An oculist who is acquainted only with the diseases of the human eye, without possessing any knowledge of it as an optical instrument, is often led professionally to re-

The most general, and probably the best direction which can be given to those who feel that glasses are necessary to enable them to use their eyes with comfort to themselves and advantage to their occupation, whatever that may be, is to make choice of such as represent objects nearest to their natural state; for, to be exactly suitable to the eye, spectacles ought neither to magnify nor minify, but should enable us to read or work without creating any straining or unnatural exercise of the pupil.

The great design of spectacles is to give the eyes of the wearer ease; and although this is also attended by increased power of application, yet no glasses can be said to be properly accommodated to the sight of the individual which do not, with additional capability, also procure rest and comfort to the eyes. If they weary them, we may conclude, either that we have no occasion for any, or that those we have are improper for us, or defectively made.

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commend glasses when they ought not to be used, and to fix on focal lengths entirely unfit for the purpose to which they are applied; and the mere vender of lenses and spectacles is still more frequently in the habit of proffering his deleterious counsel."—Brewster *on Spectacles.*

Glasses are of two kinds — *convex* and *concave:* convex glasses are for the use of those who have what is commonly called an old, or long sight, and are unable to read or see small objects near them; concave glasses are for the use of those who are short-sighted, to enable them to see distinctly objects at the same distance at which they were able to perceive them before they became short-sighted.*

"If the humours of the eye, through age or weakness, have shrunk or decayed, the cornea will then be too flat, and the rays not being

* "When the eye (says Dr. Young) is possessed of too great refractive power for the distinct perception of distant objects, the pupil is generally large, so that the confusion of the image is somewhat lessened by partially closing the eyelids; and from this habit an eye so formed is called myopic. In such cases, by the help of a concave lens, the divergence of the rays of light may be increased, and a virtual image may be formed, at a distance, so much smaller than that of the object as to afford perfect vision. For a long-sighted or presbyopic eye, on the contrary, a convex lens is required, in order to obtain a virtual image at a greater distance than the object; and it often happens that the rays must be made not only to diverge less than before, but even to converge towards a focus behind such an eye, in order to make its vision distinct. Presbyopic persons have in general a small pupil, and therefore seldom acquire the habit of covering any part of it with their eyelids."

sufficiently bent or refracted, arrive at the retina before they are united in a focus, and would meet, if not intercepted, in some place behind it. They, therefore, (unless influenced by artificial means,) do not make an impression sufficiently correct and forcible, but form an indistinct picture on the bottom of the eye, and exhibit the object in a confused and imperfect manner. This defect of the eye is therefore remedied by a double-convex lens, such as the common spectacle-glasses, which, by causing the rays to converge sooner than they otherwise would, afford that aid to this defect of nature which the circumstances of the case may require, the convexity of the glass being always proportioned to the deficiency in vision.

"If, on the contrary, the cornea is too convex, the rays will unite in a focus before their arrival at the retina, and the image will also be indistinct. This defect is remedied by concave glasses, which cause the rays to diverge; and consequently, by being properly adapted to the case, will enable the eye to form the image in its proper place."*

By the aid of convex glasses of 36 or 30

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* Chitty's Practical Treatise on Medical Jurisprudence.

inches focus, persons whose sight is beginning to be unequal to read small print, or to work, without fatiguing and paining their eyes, will be enabled to do either; and, if properly chosen, will tend materially, by the ease and comfort they afford, to preserve the sight: hence their name of *preservers*, which, however, is a term as applicable to all the various gradations of glasses. The length of time that will elapse before it may be necessary to change these first spectacles, must depend upon the same circumstances which I have mentioned as creating the necessity for using them at all. However, it may be said that they will commonly serve for reading in the day-time about six or seven years.

As soon as the eye begins to do little better with the glasses used than without them, it is time to change them for more powerful magnifiers, and the second sight, or 30 inches focus, are necessary; though these should not be too hastily adopted by those who wish to preserve their sight unimpaired to old age; but they should be content to use them as sparingly as possible — only when unavoidable. Many have worn out their sight prematurely by using spectacles of too great a magnifying power, or

of improper materials and faulty workmanship, to which their eyes have soon become accustomed; but they speedily exhausted the resources of art, and before death have become totally blind.

Those who are about to commence wearing glasses, as they cannot know what will suit their eyes, will do well to borrow a set of glasses, consisting of spectacles of regular gradations of power, and try at home for a few days which suit them best: they should make the experiment by day-light and candle-light, in that posture of the body in which they will be most used.

Almost all persons, on first wearing spectacles, if they keep them on for a few hours, complain of fatigue and uneasy sensations in their eyes; and this, even though they have been judiciously chosen, and when they were needful. Such weariness will be most felt by candle-light, and is caused, no doubt, by the eyes, for some time before resorting to glasses, having been tasked beyond their ability; and not, as is commonly supposed, by the artificial light, though that probably contributes to it.

Those whose avocations or amusements render the assistance of magnifiers necessary,

ought to bear in mind, that the lower the degree of magnifying power possessed by their glasses, the less the eye will be fatigued by them, the less constrained the position of the body in using them, and the larger as well as more uniformly distinct the field of view embraced by them. Where only a moderate magnifying power is required, I would recommend, instead of a single magnifier, the use of spectacles of nine inches focus, which will enable the eye to be directed to minute objects without weariness for a longer time than if an eye-glass only be used, as well as being of material benefit in preserving one of the eyes from becoming injured by being constantly unemployed.

The glasses called *compound magnifiers*, consisting of two plano-convexes with their plane sides outwards, as they have a large and distinct field of vision, are very agreeable and useful to some persons. I believe it is known only to very few how long ago this peculiar construction of an eye-glass has been invented; but I find it stated in the Philosophical Transactions for 1688 (vol. iii. p. 842) that one Eustachio Divini made a microscope with two plano-convex glasses so placed that they touch in the middle of their convex surface; and the

writer says that the instrument has the peculiarity of shewing objects flat, not crooked; although, he adds, "it takes in much, yet magnifieth extraordinarily."

Short-sighted people, as I have mentioned above, require *concave* glasses. The late Mr. Jesse Ramsden used to make the first number of his concaves equivalent to a convex of 24 inches focus, (that is, he joined a convex of this focal length to a No. 1 concave); the combination of which forms a plane, through which objects appear neither magnified nor diminished, but just the natural size. This is now the common practice of opticians.*

The use of spectacles is every way preferable for short-sighted persons to single eye-glasses; a strong confirmation of the truth of

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* "A new kind of spectacles, called *periscopic,* were introduced some years ago by Dr. Wollaston, who secured the privilege of the invention by a patent. Their principal object, as the name denotes" (*περὶ around, σκοπέω to view,*) "is to give a wider field of vision than those of the common kind; and they derive their property from always having the surface next the eye *concave,* whether the glasses are intended for short or long-sighted persons, the convexity of the outer surface being less deep than the concavity of the inner one for short-sighted persons, and more deep for long-sighted persons."—Brewster.

which may be found in the fact that Mr. George Adams, a late highly celebrated optician, asserted that he did not recollect an instance of a short-sighted person who had occasion to increase the depth of his glasses, if he began with spectacles: but, on the other hand, he knew many cases where only one eye had been used, in which the individuals had been obliged repeatedly to change their glasses for concaves of higher power. Indeed, the advantage of a pair of spectacles over an eye-glass is very evident, from the circumstance that all objects are much brighter when seen with both eyes than when looked at with one only.

Little can be said in the way of advice as to the choice of spectacles for those who are short-sighted; the defect being totally unconnected with age, and making no regular progress by which an optician might be guided in his recommendation of one focus rather than another. It rests entirely with the persons who feel their need of assistance; but I would strenuously advise all such to be satisfied with glasses as slightly concave as possible: by which I mean, that they should employ no higher power than is necessary to enable them to see objects distinctly at from forty to fifty

feet distance. This will be found amply sufficient for all ordinary purposes; and when it is desirable on any extraordinary occasion to increase for a time this power, it may be done with pleasure and without injury.

One remark I deem it important to make here, viz. that most persons wear spectacles that are much too small. This arises in some instances from mere inconsideration; but in others from a willing sacrifice of comfort and utility to a supposed neatness and elegance of appearance. Much injury is done to the eyes by the use of glasses not sufficiently large to cover the circle of the orbit; the wearer being obliged to look against the frame as well as both above and below it. In this respect the large old-fashioned round spectacles worn by our forefathers were certainly preferable to the small oval ones now so much in vogue. A good deal depends, too, on the way in which glasses are put on: care should be taken never to allow them to press against the eyelashes, as serious mischief may thereby be done to the eyes.

Near-sightedness remains almost the same through life; and few who have chosen their first concaves judiciously have occasion to

change them even in old age, the same glass continuing to give the very same degree of help which it did in early manhood.

To see very distant objects, many persons are in the habit of looking through a concave eye-glass placed obliquely; but a small opera-glass, from its having an adjustable focus, though it magnify only twice, will be far better than a single concave, in consequence of the facility with which it can be adapted to various distances.

It is perhaps hardly worth while to notice a mistaken notion in respect to short-sighted persons, viz. that their sight is stronger and better to advanced age than the common sight: nothing can be more erroneous than such an idea.

The science of optics seems to have gained ground in this country, in proportion as acoustics has been neglected; for, perhaps, in no part of Europe have spectacles, reading-glasses, &c. been more correctly and better made:* in proof of which, it may be stated, that most

* The best spectacles are undoubtedly the Brazilian pebbles: they are cooler to the eyes, besides not being so liable to be scratched or broken; and where expense is not an object, they are preferable to all others. Persons

foreigners who require glasses are said to procure them when in England. On the other hand, truth compels me to add, that while we make the best glasses, we also make many of the very worst; so that spectacles formed of common window-glass, polished only on one side, are hawked about at low prices, by which the eyes of the poorer classes are frequently more injured than in any other way.

For those who have been operated upon for cataract, and afterwards require cataract-glasses, the best are the double-convex, varying in power from 2 to 5 inches focus.

It will probably be expected that I should say what I think of the amber spectacles. They have been recommended by several oculists, and my patronage has been solicited for them. But surely those gentlemen who have sanctioned them cannot have remembered that amber is comparatively a soft substance, consequently very liable to become scratched, and that the polish is easily worn off. They are also much more expensive than even pebbles,

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cannot be too cautious of whom they purchase spectacles; for it is a fact that they are to be bought wholesale at little more than *one shilling* per dozen; and the use of such inferior articles cannot be too much reprobated.

and, as it appears to me, possess no advantage corresponding with their cost. For these reasons I entirely differ from those who have thought them preferable to pebbles or glass.*

I have not deemed it necessary to notice *strabismus*, or squinting, among diseases of the eye, the cure for it being of a purely mechanical nature. I have myself lately completed an invention for this purpose, which I have found to answer better than any other contrivance I have hitherto seen: viz. a pair of spectacle-frames, with imperforated sides, and fitted with convex horn having a small aperture in front only large enough to admit light to the centre of the pupil; so that the squinter, if he wishes to see at all, is obliged to accustom himself to look straight forward.

To literary men, and others who have tried their eyes by much reading and writing, and to those who have been in the habit of using goggles for riding, driving, or walking, I would recommend the gauze spectacles, on account

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* Mr. Dollond, Optician to his Majesty, and Fellow of the Royal Society, informs me that he considers amber a very improper material for spectacles, on account of its colour, its not being homogeneous, its liability to scratch, and its being also impossible to form it into a perfect lens.

of their being much lighter; and as a protection against the wind, dust, and sun, they will be found very serviceable and agreeable. They have also the advantage of not affecting the head, as is frequently the case with glass, it being well known that many persons after using glasses for a few hours are troubled with headache, and that even looking through the windows of a carriage when travelling produces the same effect in some cases.

When at Brighton last autumn, I was much annoyed with the glare of light from the white buildings and from the sea, and was in consequence desirous of obtaining a pair of gauze spectacles; but, after many inquiries, was unable to meet with any of a satisfactory description. Recollecting that the Tartars protect their sight, while travelling in winter, by means of a contrivance made of horse-hair, similar to our crape spectacles; and that the Esquimaux use what are called by travellers *snow-eyes;* I thought something of the same kind would be useful to, and desired by, those who might experience a similar inconvenience to what I had myself felt; — and I accordingly invented my Gauze-wire Spectacles, which differ from any yet known, in being made of very fine wire, covered over with a dull varnish, to preserve

them from the action of the weather, which soon destroys those formed of linen gauze,—in being without sides,—and in being sufficiently convex in front to admit of the free motion of the eyelids. In the opinion of all who have tried them, they answer the purpose extremely well.*

To enlarge more on the subject of optics would be unsuited to the main object of this work; and, therefore, for the information of those who are desirous of further pursuing it, I have much pleasure in giving below a short list of some of the works† I have found most useful in the course of my own study of the theory of vision as connected with spectacles, opera-glasses, telescopes, &c. &c.

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* These eye-preservers, as well as the spectacles for strabismus, may be obtained of Messrs. J. and S. Maw, Aldersgate Street, surgical instrument-makers, and manufacturers of my new and improved acoustic instruments.

† Fabricius ab Aquapendente de Visione; De Dominis de Radiis Visus et Lucis; Traver Nervus Opticus; Berkeley's Theory of Vision; Dr. Smith's Complete System of Optics; Dr. Herschel, Sir John Herschel, and Lord Brougham, on Light, &c.; Porterfield on the Eye and on Vision; Dr. Young's Lectures on Vision; Sir Isaac Newton on Optics; Sir David Brewster on Spectacles; Adams on Vision; the Philosophical Transactions of the Royal Society, &c. &c.

# CHAPTER VI.

## CONCLUSION.

HAVING accomplished the objects I had in view in undertaking this work, viz. given a systematic description of the physiology of the eye, detailed the symptoms and mode of cure of its principal diseases, devoted a chapter to light and experiments relating to it, and also one to the care of the eyes and on spectacles,—all that remains is to add here some remarks which either could not have been appropriately introduced elsewhere, or such as have been inadvertently omitted.

And first of the ganglia. The great sympathetic nerve, and its various ganglia, exert an influence over all the organs of the body, but more particularly over those of sight and hearing; and as these ganglia are affected in disorders of the digestive functions, I have endeavoured to trace diseases of the eye and ear to this source. I have lately had an opportunity

of minutely examining the structure of the semi-lunar ganglia and solar plexus, and have divided them with a scalpel in the dissecting-room of King's College, in the presence of Mr. Partridge, the excellent Demonstrator of Anatomy; and as a right understanding of the structure and functions of these ganglia is essential to a knowledge of their influence upon the eye and ear, and on nervous disorders generally, I shall here give a more particular account of them.

The semi-lunar ganglion and solar plexus are placed on the base of the pillars of the diaphragm, one on each side; the right being generally larger than the left. Nothing, however, is more variable than the form of these ganglia; but, notwithstanding their irregularities of form, at least a part of the enlargement, if not the whole, is always seen to receive a bend, the convexity of which is inferior and external. It is generally by this side that it receives the great splanchnic nerve. Sometimes this last nerve is united to the ganglion by its posterior face. The two semi-lunar ganglia communicate together in front of the aorta, either immediately by their internal extremity, or by means of some large branches, upon

which are often seen intermediate principal enlargements. Anteriorly, these ganglia are in relation on the right with the vena cava inferior, the lobe of Spigelius, the superior part of the supra-renal capsule, and the great gastro-hepatic epiploon; on the left, with the same capsule, the great end of the stomach, and the extremity of the pancreas. From the periphery of the two semi-lunar ganglia spring a multitude of branches, which frequently anastomose with each other, to constitute the solar plexus; the latter is placed before the aorta, the origin of the cœliac and superior mesenteric arteries, and the correspondent part of the pillars of the diaphragm; in front it is covered by the stomach and the gastro-hepatic epiploon. The branches composing this plexus often present enlargements, which are so many small ganglia, some of which occasionally attain a considerable size. From the great solar plexus spring as many secondary plexuses as the abdominal aorta gives off branches from its anterior and lateral sides. There is consequently a cœliac, a superior mesenteric, a diaphragmatic, a capsular, a renal, a spermatic, and an inferior mesenteric plexus, which accompany the mesenteric and cœliac arteries, &c.

And next of more miscellaneous matters. Although I have before mentioned the necessity of attending to diseases in their incipient stages, yet I would here again press on my readers the importance of this fact; since the majority of diseases, if treated in time, that is, before change of structure has supervened, can be either cured or materially relieved; while if neglected, even trifling maladies often become formidable, and not unfrequently prove fatal.

In treating of diseases of the eye, I have remarked that staphyloma, arthritic iritis, and cancer, when confirmed, do not, at least with the means we at present possess, admit of cure; but that ophthalmia, cataract, amaurosis, and many other diseases of the eye, are within our reach. Some practitioners, however, contend that there is no cure for a *true* cataract except by an operation; at the same time admitting that the *spurious* may be cured. Now I humbly conceive it can be a matter of very little importance to the sufferer (provided he is cured without the pain and danger of an operation) to be told, when he is quite well, that his disease was only spurious. With regard to amaurosis, it has also by some been

considered as incurable, though much light has lately been thrown on it by our own and by continental practitioners; and when we remember the numerous causes which give rise to this disease, and the pain and inconvenience it produces, it obviously deserves particular attention.

To the subject of acoustics I have also paid much attention, and have contrived many artificial means for the assistance of the deaf. Among these, the chief is my Acoustic Chair, constructed on the principle of the Invisible Girl; and a person, while sitting in it perfectly at ease, can, by means of pipes branching from the chair into the apartment or apartments whence it is desired to collect the conversation, &c. hear distinctly whatever transpires. In fact, the principle is susceptible of being so much extended, that sound might in this way be conveyed for the distance of several miles, if the necessary length of pipe were connected with the barrel of sound, which possesses amazing capabilities.* A model of this chair

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* For an account of this chair, see my Treatise on the Ear; and for evidences of its value and merits, see the Literary Gazette, Mechanics' Magazine, &c.

may be seen at the National Gallery of Practical Science in Adelaide Street.

I shall now give a few of the cases which have come under my own observation, as illustrative of the mode of treatment I have recommended; and that they may be the more easily understood, I have made them as plain and at the same time as concise as possible.

# CASES.

## CASE I.

Miss N., a young lady of delicate frame, in consequence of the sudden death of her mother, was seized with an apoplectic fit: after her recovery, it was perceived that her vision was nearly extinct. As she complained of much pain in the head, I took some blood from behind the ears, and applied a blister to the nape of the neck, which was kept open for three weeks; the bowels were evacuated, and she made use of the pediluvium. It is a singular fact, that before this attack she was frequently so deaf as to be obliged to use a trumpet. She has now quite recovered her health, with the assistance of the cascarilla bark joined with calumba: her sight and hearing are also perfectly restored.

## CASE II.

Mr. D. applied to me, being troubled with extreme deafness, which he had had for upwards of four years; his sight was also much affected. He complained of violent pains in his head, especially at night, attended with tinnitus aurium: his digestive functions at the same time being deranged. I commenced my treatment by ordering eight ounces of blood to be taken from between the shoulders, and small blisters to be applied behind the ears, which were kept open for a fortnight; some aperient medicines were also taken, and afterwards the compound galbanum pill joined with the aloetic pill and myrrh. He completely recovered both his sight and hearing.

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## CASE III.

Lord H. accompanied by his physician, called on me, and stated that he had been suffering for some time from violent pains in his head; was very deaf, and exceedingly nervous; his eyesight being also much affected. By pursuing the same treatment as in the

former case, his lordship perfectly recovered his health, as well as his sight and hearing.

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## CASE IV.

Mr. A. had likewise suffered much for nearly ten years, at different times: he was very deaf, and laboured under a puriform discharge from both ears; he was also troubled with epiphora. Blisters were applied behind the ears, and kept open a short time. I ordered him a solution of the sulphate of zinc, in the proportion of a scruple to six ounces of water, which suppressed the discharge. Unknown to me, however, he applied the lotion to his eyes; the result of which was, that the diseases of both organs were cured.

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## CASE V.

The Rev. T. G. was attacked with a violent ophthalmia of both eyes, attended with defective vision. A purulent discharge came on rapidly, conjoined with a redness in the corners of the eyelids. The evening before the discharge took place, the palpebræ were closed and

tumid. The humour was very fœtid. After giving him some aperients, joined with small doses of the hydrarg. submuriat., I ordered a fomentation of poppy-heads, the parts being greatly swollen. As he did not experience much relief, I scarified the conjunctiva of the eyelids with a broad-pointed lancet, which reduced the tumefaction. But my patient not getting well, I was induced to apply blisters behind the ears, which were kept open for three weeks, when the discharge was suppressed, and the inflammation considerably diminished. By attending to his diet, being rather a free liver, as well as to the state of his bowels, and by the use of a collyrium, with the wine of opium (one of the best applications in this complaint), he completely recovered his health and eyesight.

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## CASE VI.

Mr. N., a gentleman connected with the public press, in consequence of attending very late at the House of Commons one night last year, caught cold, which produced what is called rheumatic ophthalmia. On examination,

I found that the condition of the conjunctiva was natural, but that the whole of the sclerotic coat had a livid red and mottled appearance. The pain, he informed me, was at times considerable, and his sight very imperfect; but the pain was greatly diminished, and the sight improved, by rest, which, however, from the nature of his employment, he could not easily obtain. In the treatment of this case I adopted the plan recommended by Dr. Robbi and other German physicians, viz. a strict antiphlogistic course, combined with cathartics, and taking away a small quantity of blood from behind the ears. I also advised the patient to give the affected organ as much repose as was in his power. He has now, by attending to my directions, perfectly recovered.

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## CASE VII.

George Williams, servant to a gentleman, in travelling from Edinburgh outside a coach caught a severe cold, attended with a violent ophthalmia, which lasted three months. When I first saw him he was quite blind. He had taken aperients and large doses of calomel, be-

sides being leeched and cupped on the temples; but without obtaining any relief. I ordered him a blister behind each ear, which was kept open for a fortnight; the eyes to be washed with a sedative lotion; and gave him small doses of antimonials. The blisters behind the ears had not been applied three days before he was able to see the articles in the room; and in less than a month he completely recovered his sight, and was quite well.

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## CASE VIII.

In the course of last summer Lord S., who had just arrived in town, requested my attendance. His lordship was labouring under purulent ophthalmia, which he fancied he had caught in Paris. The disease was in its second stage, but attended with redness and pain of the palpebral conjunctiva, great stiffness of the lids, and so considerable a degree of purulent discharge that it covered the lids and cilia, ran down his face, and dropped upon his clothes. When I first saw him, his lordship told me he had been in that condition for nearly five weeks, though the symptoms had of course become daily more

aggravated. I immediately ordered several leeches to be applied behind the ears, (which part I think preferable to the temples, for reasons that have been already stated in this Treatise); a brisk aperient to be taken, and a mild one continued occasionally; a blister to be applied to the nape of the neck; gentle diaphoretics; rest, and low diet, combined with cooling lotions. By adopting these means, in less than a month his lordship was completely cured.

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## CASE IX.

Mr. L. laboured under acute inflammation of the left eye. The pupil was contracted, and rendered opaque by a deposition of lymph. Blisters were applied behind the ears, and the antiphlogistic plan adopted, joined with gentle aperients. In the course of a fortnight the pupil was considerably enlarged and oval, and the lymph occupying the aperture was nearly absorbed. The iris, however, remained fixed by adhesions, and the pupil did not vary. By the means prescribed in Case VII., and using a sedative lotion, with aq. ammon. acet. and wine of opium, he recovered his sight perfectly.

## CASE X.

Miss D., a young lady from Dublin, whose sister I had formerly attended for an affection of the ear, consulted me on account of an acute inflammation of the iris. The pupil being much contracted from the deposition of lymph, the eye was incapable of sight. Being of a plethoric habit, some blood was taken from behind the ears by leeches, which was repeated three or four times in the course of ten days; as I find repeated small bleedings answer much better, especially with women, than a larger quantity taken away at one time. After the inflammation had subsided, I applied the solution of the lapis infernalis to the part for a few days, when she completely recovered her sight.

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## CASE XI.

One evening last summer, after leaving a party, Lady H. caught cold, and in consequence was seized with a violent ophthalmia: the disease lasted two months, at the expiration of which time, opacity of the cornea in the left eye ensued, producing not only total

blindness in that organ, but, what was to her ladyship still more annoying, the eye was very unsightly. When she sent for me she was very much depressed; and on examination I found she had a true cataract, although the disease had much the appearance of amaurosis. She had taken the advice of one or two oculists before applying to me; but they were not agreed about the removal of the cataract; her ladyship's health being already much impaired from the pain and anxiety she had experienced, as well as from the dread of an operation. She was also afraid that the disease would extend to the other eye: but on this subject I set her mind at rest. By means of the application of the potassa cum calce, and adopting the antiphlogistic plan of treatment, combined with rest and tranquillity, the cataract was dissipated, and her ladyship is now quite well.

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## CASE XII.

Mr. W. gradually, and without any pain or apparent disease, lost the sight of his left eye. About a year after, he was attacked with ex-

cruciating pains in that eye and on the same side of the head. From this time he became subject to occasional ophthalmia, for which he had consulted several of the profession. He had been blistered on the temples, had the temporal artery opened, and had, at various times, been copiously bled from the arm. He had also taken large doses of calomel, and had the belladonna repeatedly applied to his eye; but without obtaining any relief. As the other eye became affected, he was desirous of my advice. I began by applying a seton to the nape of the neck, administering mild cathartics, and occasionally touching the cornea (as there appeared a small unsightly speck on it,) with a weak solution of potass with lime. In the course of a few weeks the speck disappeared; and in little more than a month his sight was perfectly restored.

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## CASE XIII.

Mr. E., a barrister in the Temple, consulted me, in consequence of becoming blind of one eye. In this instance a purulent ophthalmia, which had been very severe, terminated some time before I saw him. The pupil was con-

tracted, irregular, and opaque. A blister was applied behind the ear, and kept open for a few weeks with the savine cerate; a brisk cathartic was also given occasionally. The solution was applied as in the former case; and in the course of ten days the pupil became less irregular, having assumed an oval form and become tolerably clear. By continuing the use of the solution, and at the same time increasing its strength, for three weeks, he can now see to read with this eye, and is not troubled with any pain or inconvenience, to which before he was not unfrequently subjected.

Irremediable injury is often done to the eyes by the use of strong collyriums. In many instances I have found that a little milk and water, or a few drops of vinegar or brandy in a glass of spring water, has been all the external application necessary in cases of ophthalmia: great care, however, should be taken to have them fresh mixed every time they are used.

## CASE XIV.

Mr. G. having received a blow from a cricket-ball last summer, when in the neighbourhood of Bristol, which caused a cataract in his left eye, came to town for the purpose of having advice; but as he was very averse to an operation (his uncle having died in consequence of an unsuccessful one, performed on him some years since), he felt anxious to try remedial means. When I first saw him, I did not give him much hope of cure; at the same time, as it was only in one eye, and as he saw remarkably well with the other, I declined performing the operation, although he was willing that I should attempt it, if I thought it advisable. I began by ordering blisters to be applied behind the ear, and kept gently open for a few weeks, occasionally giving him a mild alterative and aperient: as he had no pain in any part of the eye, no lotions were applied. I touched the centre of the cornea every morning for a short time with a camel-hair brush dipped in a solution of potassa cum calce; and in the space of a few weeks he was quite well.

## CASE XV.

Mr. R. some time since consulted me on account of a cataract in his right eye, caused by a fall from his horse while hunting. There was much pain in the orbit, and the palpebræ were greatly tumefied and gummed. I ordered a blister to be applied behind the right ear, and kept open for a fortnight; prescribed the occasional use of a collyrium of the sulphate of zinc; and administered a little aperient medicine. In a little while the eyelids recovered their natural state, and the pain in the eye entirely left him. When this gentleman came to me he was very anxious to have his eye operated upon; but as he is now, by the above treatment, comparatively well, I persuaded him to rest satisfied, and not expose himself to the danger so frequently attendant on operations on this sensitive organ.

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## CASE XVI.

Mr. T. applied to me with a cataract of many years' standing. Only one eye was affected; with the other he saw remarkably well. I

therefore, in consequence of the disease being confirmed, and as his sight in the other eye was good, dissuaded him from undergoing an operation, the result of which would have been doubtful, and might probably have injured the sound eye. But as the speck was very unsightly, I touched it with a solution of the lapis infernalis, to remove the protruding portion; and advised him, while in company, to endeavour to sit with his back to the light, when his defect could not be noticed.

I insert this case in confirmation of the plan I always pursue in such instances: namely, never to attempt an operation on one eye where the other is perfectly sound, as there is danger that both may be lost by so doing.

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## CASE XVII.

Master N., a youth about fourteen, was brought to me by his father to consult me upon the following symptoms. The boy was of a scrofulous habit, and had been so from his infancy; could not see at all with his right eye, and very little with his left; the former having a cataract, and the latter appearing to

be predisposed to the same disease. I began my treatment of this case by giving freely the alkaline solution, as recommended in scrofula; and as he was a very weakly boy, I prescribed for him some powders, to be taken twice a-day, composed of bark, valerian, and soda. I then occasionally touched the cornea of both eyes with a solution of the potassa cum calce; at the same time making use of Graef's liniment. By pursuing this course for a few weeks, the cataract in his right eye disappeared, and he can now see well with both eyes. I have since learned, that by means of sea-air and out-door exercise he has completely recovered his health and gained strength.

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## CASE XVIII.

Sir G. L. applied to me, affected with amaurosis. His sight was not only very much impaired, but his general health was greatly out of order. He complained of severe pain and noise in his head, was very restless at night, had great depression of spirits, together with flatulency of stomach and bowels, acid eructations, costiveness, great nervous debility, and

emaciation. After his bowels had been well operated upon by cathartics, and he had taken a gentle emetic of ipecacuanha joined with a grain of tartar emetic, I was induced, as he had had much professional advice, to try the pills recommended by Richter. (See page 140 of this Treatise.) I am happy to say that I was not disappointed in their effect; for Sir George, after continuing the pills regularly for a month, perfectly recovered his sight, and at the same time his health and spirits.

A short time since, an old general officer similarly affected, only that he was deaf instead of blind, applied to me, having previously consulted several practitioners without avail. I was induced to try the same remedies, which I did with the happiest results, his health and hearing being quite restored. In both cases no external application was made use of, either to the eye or ear.

I introduce these two cases to confirm what I have already stated respecting the connexion of the nerves of the organs of sight and hearing; and to shew in how remarkable a manner the same medicines removed the maladies of both organs.

## CASE XIX.

Captain N., who from insolation in the East Indies became amaurotic, and could see very little, was obliged to return home on leave of absence. He applied to me, as I had attended him some years before for a nervous deafness, of which I completely relieved him. I treated his blindness precisely as I had formerly done his deafness, namely, by applying blisters behind the ears, and keeping them gently open for a short time: he also took twice a-day some pills composed of the compound galbanum pill joined with a small portion of aloes and myrrh. The only application to the eyes was lukewarm water. He completely recovered his sight in six weeks.

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## CASE XX.

Lieutenant ——, a young officer of dragoons, applied to me in consequence of a decidedly amaurotic affection. His sight was so imperfect, that he could not perceive small objects even when near him. He informed me he had been in this state nearly three months, and that

he was daily getting worse. The disease was attended with great debility and emaciation. He was, he said, unable to account for its origin; but on further inquiry I discovered that he was in the habit of smoking cigars and tobacco to such an excess, that he had brought on a spitting almost amounting to ptyalism: he was what is called an amateur, and to support his pretensions to this enviable distinction used frequently to begin smoking soon after breakfast, and continue this pernicious custom during half the day without intermission. With much persuasion I prevailed on him to leave off this silly modern *accomplishment;* though I had great difficulty in convincing him that this was the true cause of his disease. He, however, did abandon it; and by so doing, and taking a little tonic medicine, his sight is now perfectly restored, and his health regained.

I mention this case more especially for the purpose of cautioning young and healthy persons against indulging in this ridiculous and destructive habit; and I could relate several such cases, where the health has been permanently injured by the immoderate use of this species of excitement.

## CASE XXI.

Lady R. having caught cold, in consequence of going out too soon after her confinement with her first child, was seized with amaurosis, attended with muscæ volitantes: both eyes were affected. Leeches and blisters were applied with some success; the pediluvium, and compound galbanum pills joined with aloes and myrrh, were likewise had recourse to; but her ladyship did not recover until after some weeks, when she took the decoction of cinchona combined with quinine. Country air and gentle exercise were also recommended with very beneficial effects; and her ladyship's health and sight are now perfectly restored.

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## CASE XXII.

Mrs. D., the wife of a major in the army, a healthy young woman, of a good constitution, was brought to bed with a fine child, which she undertook to suckle herself: this she did for six weeks without experiencing any inconvenience, at the end of which time she was seized with amaurosis, attended with debility.

When I first saw her, I recommended her to have a wet-nurse for the child. This she was very reluctant to do, saying that her own mother having suckled all her children, she wished to do the same: but as she appeared to get worse instead of better, she was induced, by the advice of her physician as well as myself, to obtain a nurse for the child; when, by a course of treatment similar to that detailed in the preceding case, she completely recovered.

I ought to observe, that when I first saw this lady, I could hardly distinguish her case from cataract, of which it had every appearance: her brother had also had a cataract. In general, the blindness produced by amaurosis is preceded by imaginary appearances of numerous insects, or substances like pieces of cobweb, interposing themselves betwixt objects and the eye: the origin of a cataract, on the other hand, is usually attended merely with a cloudiness of vision.

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## CASE XXIII.

Mr. R. applied to me with ophthalmia, attended with the secondary symptoms of sy-

philis, which he had had for some time. His eyes were exceedingly red and painful, and very troublesome at night, disturbing his rest. He had taken advice, but had not followed it. When I last saw him, he was very uneasy; but I told him, that unless he would conform to my instructions, I must decline attending him, as he had before consulted me, and neglected to comply with my advice. He promised to do as I wished; and I therefore ordered him the compound decoction of sarsaparilla joined with nitrous acid, and at night a small dose of calcined mercury with opium; occasionally using a collyrium with the aqua ammon. acet. combined with the wine of opium and rose-water. By pursuing these means for a short time, he completely recovered.

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## CASE XXIV.

Mr. N., a principal clerk in a banking-house in the city, in consequence of great application to the balancing of the accounts at Christmas, which engaged his whole attention, was suddenly seized with vertigo and headache, together with great dimness of sight, and a sense of

fulness in the abdomen. By the advice of one of the firm, he was cupped between the shoulders, losing about twelve ounces of blood. On his return home, his medical attendant advised some aperient medicine, repeated the bleeding by cupping, and opened the temporal artery. He did not, however, experience any change of symptoms that evening; but on the following morning the pupils were considerably dilated, and almost immovable to the strongest light, his sight being nearly gone. His wife, whom I had formerly attended, came to me in great distress, wishing me to go and see him, which I did as soon as I conveniently could. I found him exceedingly low, in consequence of the great loss of blood; and as his bowels had been well acted on, I gave him a little warm wine and water; ordering him a saline mixture, with small doses of tartarised antimony in it. The next day he was better. The pupil of the right eye appeared a little movable to a bright light, but the left remained as before. The headache was considerably relieved, as well as the sense of weight in the region of the stomach. In a few days he was much better, the pupils of both eyes having contracted a little; and, to his great delight, he was able to discern large

objects. As he was still very weak, I ordered him a nourishing diet. In the course of ten days, I discontinued the saline mixture, and prescribed a decoction of bark with valerian, which he took for a fortnight, when he appeared so much better that he was desirous of returning to the banking-house. However, I considered it more prudent, (although I had much difficulty in persuading him so,) that he should go to the sea-side for a short time, which he did, and returned quite well.

I insert this case to shew, that under no circumstances should very large quantities of blood be taken away at one time. Indeed, I have never seen any good result from it, but often irremediable mischief. In amaurosis, as in nervous deafness, the best plan is to abstain from every thing that has a tendency to weaken the nervous system, and consequently the hearing and eyesight.

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## CASE XXV.

Sarah Abalet, a poor widow woman, aged seventy-four, has been afflicted with a cancer

in her right eye for upwards of twenty years, attended at times with a profuse discharge. Nearly the whole of the eye and its appendages, as well as the surrounding parts, are destroyed. When I first saw this poor creature, January 22d, 1835, she complained (as soon as the bandages were removed, and the parts exposed to view,) of the least breath of air, which she said occasioned the most excruciating pain, and she piteously cried out, "Is there no relief for me? can nothing be done to ease me? What agony I am in! Oh! that I might die, and be released from my sufferings!" To prevent further pain from the action of the air, I immediately bandaged up her head again, and was therefore unable to inspect the state of the parts more minutely. As in such a case of long-standing cancer, any attempt at cure would be useless, all I could do was to order her some pills composed of extr. conii conjoined with opium, which I am happy to find has considerably lulled the pain, and produced sleep, of the want of which she so much complained.

During the last thirty years I have, in my practice, seen many distressing cases, but have never, as far as I remember, wit-

nessed one so dreadful as the present; and as it may excite much interest in the profession, such cases being fortunately extremely rare, I give the poor woman's address below.* As far as I can learn, the disease seems to have been neglected: and when we remember the trifling causes from which cancer often arises in persons predisposed to it, such as a scratch of a pin, the picking off a wart, &c., it shews how careful every body ought to be, not to allow any such accident to be neglected.

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Before parting with the reader, I would observe, that my object in pursuing this line of practice, and publishing this work, is to prove, that in diseases of the eye the best results may be expected from mild means, if employed in time; and to shew that a very large portion of the operations now performed on this organ are not only unnecessary, but are in fact injurious, and destructive of the end for which they are undertaken. Indeed, Professor Thomson of Edinburgh, and the late Mr. Abernethy, have

* 21 Wharf, Grand Junction Canal, Harrow Road, Paddington.

both affirmed, that the triumph of surgery is to cure *without* an operation. Let us therefore hope that a milder system will ere long obtain; and that the constitutional mode of treatment —a trial of which I so earnestly recommend— will be more successful than the severe and dangerous one of operations has hitherto been, or, in the nature of things, seems ever likely to be.

THE END.

LONDON:
PRINTED BY ROBSON, LEVEY, AND FRANKLYN,
46 St. Martin's Lane.



Mr. T. Cooke.

Published for Mr. Cooke.
At the Lithographic Institution 198 Strand.
London May 1st 1819.

A

PRACTICAL AND FAMILIAR VIEW

OF THE

# SCIENCE OF PHYSIOGNOMY,

COMPILED

*CHIEFLY FROM THE PAPERS*

OF THE LATE

Mr. T. COOKE, of MANCHESTER,

WITH A

**Memoir,**

AND

OBSERVATIONS ON THE TEMPERAMENTS,

BY THE EDITOR.

ILLUSTRATED BY LITHOGRAPHIC PLATES.

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The proper study of mankind is man.—Pope.

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LONDON:

*Printed by S. Curtis, Camberwell Press:*

FOR MRS. COOKE, AND SOLD AT THE LITHOGRAPHIC INSTITUTION, 198, STRAND.

1819.

# PREFACE.

A Considerable mass of papers, consisting, principally, of extracts from Lavater and other writers, together with numerous drawings, by the late Mr. T. Cooke, were placed in the hands of the editor of this work, by the widow of his friend, for the purpose of selection and condensation, that the friends of that gentleman might be put in possession of the result of his labours in the science of Physiognomy.

Those papers contain the opinions, and many of the reasonings, of Mr. Cooke; and

bear evident marks of his intention, at some future period, to have moulded them into a shape for publication. In the state, however, in which they were found by the editor, it was impossible to complete the design of the original compiler, without very considerable liberties being taken with them; and not a small portion of labour and application bestowed upon them.

Mr. Cooke, like most other practical physionomists, wrote and spoke with all that boldness and confidence which a firm conviction of the truth of the science naturally inspires. But it must not, therefore, be inferred, that the editor has so completely identified himself with Mr. Cooke, as to have made all his friend's opinions his own; nor that he is prepared to support every part of his hypothesis, or even all his physiognomical doctrines.

With respect to the "Memoir," and the "Observations on the Temperaments," the editor has nothing here to remark: they are avowedly his own, and must be left to the reader's own taste and judgment, either to reject or adopt the opinions and facts there stated. Something on the latter subject seemed absolutely necessary to fill up his friend's outline; but the editor found nothing of any consequence on that point in the papers laid before him.

The drawings, from which the Lithographic Plates have been executed, are, for the most part, imitated from Lavater and Camper, but have been somewhat altered and simplified; as the editor professes not to present a complete treatise on the science of Physiognomy; but, as far as it is connected with anatomy, at least, to divest it, as much as possible, of mere technicalities.

The present Work is intended as a popular and familiar view of Physiognomy, rather than as a learned and systematic work on the subject.

It may be proper, here, to observe, that the plates in this work are the *first production* of the LONDON LITHOGRAPHIC INSTITUTION. They are not offered as specimens of what the Lithographic press is capable of producing; for, in fact, the circumstances of the present work would not admit of that delay, which every infant establishment of importance necessarily demands, before it can be said to have approached all the perfection of which it is capable. Accident introduced the editor to an acquaintance with the proprietors of the London Lithographic Institution, at a time when their arrangements for working were hardly formed; but at such a time as ad-

mitted of no delay in the execution of the plates.

The order and arrangement of the subjects are entirely new; as also is much of the language. It was not found always practicable to discover from whence Mr. Cooke had selected his authorities; the editor must, therefore, on his own account, as well as on the behalf of his friend, now for ever removed from the possibility of explanation, rely upon the candour and liberality of the reader, in all those cases where he may observe any apparent deficiency of reference to those authors whom Mr. Cooke had consulted in his physiognomical selections.

The editor, on a glance at the manuscripts before him, at first thought it might not be improper to entitle the work "Phy-

siognomical Fragments;" but afterwards he was induced to adopt what appeared to him a more appropriate title, reserving, as the heading of the first section, his original designation of the work.

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# MEMOIR, &c.

THE individual whose physiognomical researches have given birth to the present volume, was born the 20th of March, 1763, at Sheffield, and died at Manchester the 26th of July, 1818, aged 55 years. In publishing the present summary of his opinions, the editor hopes to disarm criticism of its severity, as far as regards his friend, by informing the public, that it was not his intention that his papers should ever appear to the world in their present state; that he had unfortunately no leisure for revising and extending them, and that his views on the science of Physiognomy, partly collected from them, and partly from the singular opportunities which a long intimacy with him afforded to the editor, are now presented principally for the instruction and amusement of a circle to

whom he was known, and for the benefit of his *widow and children.* For himself the editor offers no apology. In the execution of a *duty,* which the call of friendship, uttered from the grave of his friend, imposes upon him for the advantage of his surviving family, he is indifferent to censure or applause. Higher motives, he hopes, than the fear of the one or the desire of the other, have impelled him to the performance of his task, and will insure the execution of it in the best manner he is able, under the continual pressure of very different and interfering avocations. Moreover, he thinks the opinions of his friend worthy of being recorded; and if he should succeed in preserving from oblivion, even but for a short period, his character and sentiments, he will have endeavoured, in some measure, to discharge a debt which he owes to him for some of the early and best influences he ever felt as a moral and intellectual being. In making this declaration, he may appear to some not the fittest person to undertake the task of biographer in the present instance; but he must

be allowed to observe, that if the feelings of private friendship should be supposed somewhat to interfere with a strictly impartial estimate of a character, the intimate contact with the opinions, habits, and attainments of an individual, which friendship can alone secure, is essential to a true and living representation. The advantages, therefore, are, perhaps, somewhat on the side of the editor; for it is not the object of the present memoir to detail those uninteresting and common-place circumstances which must necessarily make up a large portion of every *life*, but to exhibit what was peculiar in the attainments, the modes of thinking, and the habits of the individual under consideration; to present a view of him in those respects in which he differed from other men. It is to be regretted that Mr. Cooke's early studies should have had little reference to his future prosecution of physiognomical science: he was engaged in commercial pursuits until the age of about 22 years, and his education had been such only as is usual for persons intended for trade. About this period of his life, some accidental circumstances awakened

his attention to the science to which he eventually became a devoted enthusiast; and in its prosecution, he attended lectures on Anatomy and Physiology, soon perceiving that these studies were the first and most essential to a scientific physionomist, and aware also that the great defect of a preceding inquirer, whose works have become so celebrated, were to be traced to his ignorance of the structure of the human frame. He had, unfortunately, however, neither time nor opportunity for pursuing anatomy and physiology to the extent which he would otherwise have done from his deep sense of their importance in the investigation of the science of expression; but he was far from being ignorant of them, and very dexterously applied the knowledge he had acquired in his attempts to trace the physiognomical signs of which original structure is the basis. On this account, his opinions are worthy of being recorded; and still more for the amazing aptitude he possessed for observing and decyphering these signs as indicative, in the countenance of man, of intellectual powers, and moral dispositions and

habits. The editor has often been a witness of his exertions in this respect; and the *accuracy*, *truth*, and *spirit* of his delineations of character, have again and again excited the astonishment of those to whom he was introduced, and who had opportunities of verifying his decisions. A practical physionomist of this description, would necessarily excite too much attention to remain in obscurity; and Mr. Cooke was, as might be expected, incessantly sought after by wide and ever-growing circles of curious inquirers. During the latter part of his life, he was almost constantly, at his leisure, the centre of one of those circles, where, of course, the subject of his science would constitute the principal charm and interest. The delight he communicated on many of these occasions it is not easy to describe; and among those who were attracted around him, the personally important nature of his communications, in addition to the general interest it excited, secured him many warm and lasting friendships. His science was in itself interesting, but he gave it an importance in its application to individual

character, peculiar to himself, peculiar to a mind at once penetrating, benevolent, and capable of strong individual attachments. All this was combined with manners which had a charm of their own, and which was, perhaps, principally created from the obvious tendency which his strictures and remarks had to communicate the spirit of improvement to those whom he was anxious to benefit. This was especially the case where a personal preference had been excited in his mind, and where his natural benevolence acquired this additional stimulus to do good. He was not, however, forward on any occasion to obtrude himself, or his favourite subject, on the notice of his company; but frequently amused himself for hours, in silent and attentive observation, on the faces of persons to whom he might have been accidentally introduced. In most instances, if he were known, he was called upon to put his knowledge of Physiognomy to the test; and then his wonderful power of discriminating character and talent became apparent. A general sketch was soon supplied, and such a sketch as

the individual and his friends at once recognized as belonging to the person under consideration. His intrinsic good nature, and his zeal for his science, induced him, on such occasions, to present, on the whole, a favourable estimate of any character which passed under his review. He was not bound to reveal the whole truth, so long as he revealed nothing but the truth; the weaknesses and failings of an individual were only so far touched as they were obvious, or as was necessary to produce an identical character. Further than this candour did not require, and politeness forbade him to proceed.

On the subject of the excellencies of an individual, he was at liberty to indulge his characteristic benevolence, and he always did ample justice to those whom he thought deserved his praise. The ingenuous, the tender, the feeling heart, he loved to recognize, and was in immediate sympathy and friendship with its possessor. True sensibility, moral benignity, however unobtrusive, never escaped his penetrating and friendly glance; and to great original capacity,

to intellectual magnificence, to the energies of genius, to a countenance, in which, alas! how rarely he recognized power, passion, and eloquence, he did instant homage. The editor has often heard him maintain his opinion of an individual, who had conciliated his esteem, with great animation and fervor. It was founded, he would say, on the unchangeable characters of nature, in combination with those adventitious signs which moral habits had impressed on the countenance. The balance was easily struck, and his opinions settled; no temporary depression; no cloud which might seem for a moment to cast an ominous shade over a great and good character; no tale of falsehood previously whispered in his ear; no envious reproving, disappointed looks of rivals, enemies, or indifferently malignant auditors, could prevent him from expressing his sentiments of such a person in a frank, intrepid, and decisive manner; and if his opinions were disputed from envy, or any other base motive, it was well for the objecting party if he were not presented, by way of contrast, with the character he had described.

When considering the attainments of the author of these Fragments, which, owing to a narrow education, were by no means extraordinary, the editor has often been struck with the power he possessed of forming an estimate of other men. Without being himself apparently distinguished by great intellectual endowments or acquisitions, his discrimination and judgment of others seemed to place him in direct and intimate contact with their minds. Though neither poet, metaphysician, philosopher, nor artist, he estimated at once the degrees and kinds of power, mental and moral, of each; and if all he thought and said could be collected and exhibited, it would furnish materials for a most interesting dissertation on the varieties of intellectual and moral character. He always maintained that the form of the head and face were the true criteria of intellect, power, and passion; *that the degrees and kinds of each* were expressed in the countenance and general outline, and that these would, if carefully studied, be found to indicate radical differences between one man and another, over which education

would exert only a very limited influence. From his rapid and accurate estimates, the editor has been frequently disposed to believe, that he owed much to a native discernment, in some measure independent of Physiognomy; this, however, was not his own opinion. "Show me the heads of two men," he would say, "and I will venture to point out in the one the marks of solidity, judgment, discretion, and powers of just and original thinking—in the other, the indications of a fine imagination, fruitful resources, exhaustless wit and eloquence, but a want of that just and accurate reasoning which arises from a clear perception of what is strictly true or prudent. Let these two men be presented with an opportunity of delivering their sentiments on an important subject of practical debate; those of the one shall be distinguished for their originality, reason, and wisdom; those of the other, for their plausibility, ingenuity, and a character of imposing eloquence." Such a distinction is perfectly intelligible to those conversant with the intellectual habitudes which life is continually presenting. The successful

advocate, for instance, whose powers enable him to make "the worse appear the better reason," who can take a side with an almost inconceivable dexterity, may himself remain ignorant of the real merits of a disputed question; and though possessing gifts equally calculated to excite astonishment and admiration, may yet never rank among "the minds who will transmit their *decisions* to posterity." All this, the author of these Fragments contended, was capable of demonstration on the principles of physiognomical science. It was natural, thus accustomed as he was to study human nature as it was presented by form and feature, that he should entertain a predilection for what was native and original of whatever kind, over what was merely acquired; and that he should be disposed to ascribe less to the influence of education than has commonly been assigned to it. He consequently maintained that there were natural and *essential* differences in the intellectual and moral characters of men;—that a character which is marked by strength and spirit, rather *acts* than is *acted upon*. Without denying a certain degree of influence to edu-

cation and example, he maintained that it was nature which could alone create; that in the moral world, as in the natural, she is very predominant; shaping to her own ends the subsidiary aids of instruction and experience, and converting, in some sense, into her own elements all that surrounds her; "as the magnet rolled in the dust, attracts, among a thousand other substances, the particles of its kindred metal."

These observations apply to *powers* and *dispositions*, the results of radical character, without, however, excluding the doctrine of free agency and moral accountability, with which, by ingenuous minds, it will be readily admitted they do not in reality interfere. Who, that knows any thing of the world, but must admit that after taking into account all foreign and adventitious influence, differences ascribable to nature principally appear even in the same family—that some men seem *naturally* high-minded, frank, honest, generous and sincere; others mean, reserved, knavish, selfish and hypocritical. These differences appear, sometimes, under circumstances which render it so

difficult to account for them on any known principles, or any lights that can be borrowed from the history of individuals, that some malign influence has been assigned as the cause of them:—

" Lo these were they whose breasts the furies steel'd,
" And cursed with hearts unknowing how to yield."

While these speculations, however, announce a moral fact, which history and observation would seem to verify, they should rather have a tendency to give energy to our efforts for the improvement of mankind, than to make us feeble and desponding. The original perversity and obliquity of human character should induce us to study it more deeply, that we may multiply to the utmost extent, our resources for counteracting its downward and awful tendencies. These aids must be sought and found, in the opinion of the author, in the assiduous cultivation of the science of Physiognomy, and of the inductive philosophy of the human mind.

Mr. Cooke was of opinion, that the great advantages of Physiognomy resulted from its practical application in ascertaining original powers and dispositions; and that it was on the knowledge thus acquired, that individuals and society were to be ultimately benefited by its discoveries. It was in this way that he rendered it useful to himself and others. "How often, for instance," he would observe, "must men be trusted on the ground of the qualifications assigned to them, and what an important difference, frequently in the final results, between wisdom and the show of it!" Whether the warrior or the statesman, however, will be eventually selected to guide and govern mankind by the application of physiognomical principles, is a question which, in the present state of the science, the editor ventures not to answer—that the want of some certain and conclusive criterion, even of intellectual character, to say nothing of moral dispositions, often leads to serious mistakes in the choice of the leaders of mankind, cannot be doubted. In the present state of things, to estimate wisdom,

we must ourselves be wise. In the highest situations and most important junctures, profound councils are often rejected because they are not clearly comprehended—as bold, intrepid, and decisive measures are often prevented, from the natural timidity and want of energy which belong to the men by whom they would otherwise be adopted and executed. It is true, that this is an evil which will be felt in a less degree, in proportion as society advances in knowledge and freedom, and as consequently the minds of a large portion of the community are constantly employed in directing its councils, and promoting its interests. It is an evil, however, which, in human life, hath a powerful and sometimes disastrous influence on the conduct of affairs, and the happiness of mankind. These considerations cannot fail to place the science of Physiognomy in an important point of view; and to render its cultivators eager to found it on inductive principles. The brief memoir of the individual under consideration, will be conclusive, however, with those who were best acquainted with him, as to the practical results of the science in his hands.

Before such a scrutator as he had rendered himself, it will be easily supposed that mere pretension had not much chance of succeeding in its object. The editor himself has often witnessed the triumph of Physiognomy, applied by the author in detecting, and sometimes exposing, the weakness and malignity of persons who had won their way to an estimation in the minds of others, to which neither their heads nor hearts entitled them. It was rather entertaining, occasionally, to witness the mortification of such imposing personages, and the indications they exhibited of the conscious conviction that they were unmasked, and presented in their true colours.

This discriminating Physionomist did not always hesitate to avow his opinion of such characters, especially if they were so unfortunate as to excite his disgust, or provoke his resentment, by dogmatically denying the truth of his favourite science. On such occasions, he sometimes chastised them, with little attention even to the rules of politeness, and with a power and

severity of sarcasm marked at once by the truth and poignancy of its representations. These were weapons, however, which he employed only against the mischievous and the dogmatical: the timid, the warm-hearted, the modest, the ingenuous, were sure to find in him a friend; and the editor has seen him shed the tear of genuine tenderness at the recollection of departed excellence. But he had a spirit and a vigor to confront, and often to abash, the insolent and the pretending; and when he detected sly insinuating and malignant individuals, ready to blame, unwilling to praise, seeking the destruction of hope and character, he would frequently express his opinion of them with great warmth and boldness. In the defence of his science, or of a friend, he was not afraid of making an enemy of a cold-hearted bad man; and was very careless as to what might be said or thought of his decision with regard to such:—

"To virtue only and her friends, a friend,
"The world besides might censure or commend."

But, though his spirit was high, his heart was truly benevolent. The editor has often known him, when interested by the countenance of an ingenuous young man, or of a modest female, take them aside, and, in the kindest and most affectionate manner, point out any defects which his discriminating eye had detected, and warn them against the influence of any weaknesses to which their peculiarities of character might expose them. On such occasions the party in question was speedily convinced of the accuracy with which he estimated their excellencies and defects, and seldom failed to perceive and acknowledge the truth of his remarks, as well as the kind and generous motive which evidently prompted them. His influence over the character, under such circumstances, was often instantaneous, and not unfrequently lasting. For the truth of this the editor knows he can appeal to the recollections of some, by whom this memoir will be perused, and who cannot fail to number the subject of it among their best and most disinterested friends.—Sometimes, he would take great pains in giving

additional confidence to depressed and modest merit, by pointing out the powers, moral and intellectual, which indulgent nature had supplied; advising such persons against the influence of a despondence and timidity which impeded their efforts, and checked their progress in the struggle of life. In other instances, he would gently repress the extravagancies of a too ardent and impetuous spirit, and warn the individual against the dangers to which it exposed him. On such occasions he has often appeared to the editor singularly great. He seemed to enter into the closest sympathy with the character of the person whom he was anxious to advise. It was then that his knowledge of the human heart appeared extraordinary. A hint, sometimes communicated almost immediately after his introduction, announced his insight into character: it was impossible not to perceive that he seemed to know you better than all the world besides, and you were startled at the new lights in which he caused you to view yourself; for he seemed to penetrate the inner sanctuaries of the bosom, and to touch those latent springs of character

sometimes indeed hidden from the individual, on which the future life and conduct not unfrequently depend. He had a singular talent, when so employed, in rousing the virtuous energies of the mind, in communicating intellectual hope and ardour, in encouraging the disposition to prevail over weaknesses and defects, and in creating a generous ambition in the soul. His remarks were always communicated in a serious and earnest manner, and were sometimes marked by a singular union of impressive wisdom and kindness.

Alas! some of these recollections carry back the editor to the inspiring and buoyant days of his own early youth; when all that was future wore an aspect of promise, and was gilded by the rays of hope. His subsequent life has often been shaded by disappointment, and overcast by sorrow; and even now, in the remembrance of the genial influences of the friendly suggestions of the author of these Fragments on his mind, in exciting, maintaining, and directing some portion of virtuous resolution and intellectual vigor, he

feels the tear of tender regret starting in his eye.

With a firm conviction of the truth of his science, and of its great practical importance, it was natural that Mr. Cooke should feel great pleasure in conversing upon, and explaining it to others; but to the editor he always appeared most happy and successful in the practical application of it, in his individual decisions.

Common-place characters are easily ascertained, and soon dismissed—one is a sample of the multitude. Except as it regards the simple exercise of memory—these live only in the present; the imagination and the passions, borrowing little from the future or the past; but it requires a long line of thought to sound the depth of some hearts, and to comprehend some capacities; and this is the description of persons only in whom the physionomist can feel an interest. Individuals, on whom the scenes which are gone by have impressed on the imagination and the passions a permanent character and unfading colour, and with whom

the future is a busy and restless scene, to which every purpose and action of life is tending with undeviating decision; the great, the good, the melancholy, the peculiar, who borrow not their moral and intellectual attributes from the crowd, but from the radical sources of strong and original character—such personages of course were rarely presented, and therefore seldom called for the exercise of the skill and judgment of the subject of this memoir; but when brought into contact with them, he was singularly correct, and identical in his delineations. He often made you know more of an individual, after a conversation of a few minutes, than a long acquaintance had enabled you previously to acquire, and developed with great apparent facility what the parties themselves might be too reserved, or too proud, or too delicate to reveal. When interested in an individual, he was anxious he should form a just estimate of the *extent* and *limit* of his own powers, and acquire a steady confidence in them, and was well aware of the influence of honest praise, judiciously bestowed, in exciting an emulous and aspiring spirit. There are not a few cold-

hearted and malignant persons in the world who hate merit for its own sake, and who are in instant hostility with a warm, susceptible, and sanguine disposition, especially if with it should be united the buoyant and somewhat intractable energies of genius. These people are perpetually at work in misrepresenting and depreciating characters whom nothing but the dignity and generosity of their own nature could save from utter misanthropy :—

> "And only not to desperation driven,
> Because not altogether of such clay
> As rots into the souls of those whom they survey."

Mr. Cooke was not one of those : he would gently repress the extravagancies of such individuals ; but he had a moral pleasure in contemplating their energies, in directing their exertions, and encouraging their hopes, having a strong confidence in the influence of a good understanding, which, for the most part, will be found united with generous sentiments, and is the best ground for hoping that its possessor will

eventually be found in the onward path of virtue and honour.

He constantly maintained that the science of Physiognomy was, on the whole, calculated to exhibit human nature in a favourable point of view, and had no relationship with those persons of narrow understanding and perverted hearts, who, if once they imbibe a prejudice, ever afterwards turn aside from the lustre of merit, however conspicuous, and however unequivocal in a character, because it is their pleasure to dislike; and who, if there were no vice and error in the world (save their own), would have no objects for the gratification of their malignity. Such a disposition would naturally dispose him to a favourable view of his fellow beings, and incline him rather to praise than to blame. Just praise is the natural reward of merit, as it is a strong incentive to deserving it; and, without relinquishing the consideration of yet higher motives, is one of the subsidiary aids designed by Providence to maintain and strengthen the virtue of our imperfect world.

The editor would venture to observe, that for one instance, in which it is withheld from a scrupulous principle, entitled to respect, in a thousand, it is denied from malignity. "I trample on the pride of Plato," said the surly cynic of antiquity, to which the amiable and penetrating philosopher replied, "But with greater pride, Diogenes."

Mr. Cooke was singularly happy in extinguishing prejudice in the minds of others, and of making them love and admire such as were his own favourites; on the other hand, in the exhibition of what was mean, selfish, and distorted, he had a power of conveying his sentiments in such a manner, and with such an instantaneity of effect, as to excite uncontrolable merriment and diversion, reminding you sometimes, on such occasions, of the bold and original sarcasm of Voltaire.

As a companion, such a man could not fail to be interesting; but he had virtues of a higher order than those which merely minister to con-

vivial and social intercourse. His friendships were warm and inextinguishable; and for the excellency of his character in the domestic relations of life, the editor knows he could appeal to the tears which will be shed over this humble memoir, by those with whom he stood in still more tender relations than with himself, by *one* with whom he lived a long life of constant tenderness and unchanging affection, and by the sons and daughters who mingle their sorrows with her's, for their common and irreparable loss.

Many of the friends too, whom his society has so often and so long delighted, will participate in the grateful sadness; and if he had enemies and calumniators, the thought of this would serve to increase the pleasure the editor feels in endeavouring to discharge this debt of justice, and of gratitude to the memory of his interesting, excellent, and lamented friend.

# PHYSIOGNOMICAL FRAGMENTS,

*&c.*

## SECTION I.

### ON THE DISTINCTION BETWEEN PHYSIOGNOMY AND PATHOGNOMY; WITH AN ATTEMPT TO PROVE THAT THE FORMER IS INDEED A SCIENCE.

PHYSIOGNOMY, scientifically considered, and in its widest signification, comprehends the entire fund of human faculties, with all those external signs, which in man directly force themselves on the observer. It embraces, according to the excellent Lavater, every feature, every outline, every modification, active or passive, every attitude and passion of the human body. In short, every thing that immedi-

ately contributes to the knowledge of man; every thing that shows him as he really appears.

Such is this valuable science in its most enlarged sense. In a more contracted one, it may be defined to be the art of decyphering the human face, and of reading in those living characters the inward faculties and emotions of the soul. It contemplates man in a state of rest, or such as he is observed when totally unmoved by any extraordinary passion, feeling, or sensation.

Pathognomy is that branch of the physiognomical science which regards man in a state of action. It treats of the signs of the passions. It is the motion of the physionomy; the proof or demonstration of the accuracy of physiognomical judgment. The features, air, and countenance of a person consist of certain solid, fixed, and absolute parts. The discerning physionomist contemplates these with the eye of a philosopher, and the understanding of

a moralist. He judges, from those parts which are visible, of certain others, not perceptible till called into action; and from the whole forms his estimate of the natural, or constitutional, character of the individual.

If his physiognomical discernment be not obscured by prejudice, nor opposed by accident, a careful examination of the motion of the features will soon prove, that, with comparatively few exceptions, the judicious physiognomist has not formed an erroneous judgment.

Having already, in the language of Lavater, stated Physiognomy to point out the fund of the human faculties, we may continue the figure, from the same admirable observer, and remark, that Pathognomy scientifically points out the effect, the interest, or revenue which it produces. The one considers man as he is in general; the other, what he is at the present moment. By Physiognomy I can judge that such an one is of a benevolent or malevolent

disposition;—he is sanguine, or melancholic, or phlegmatic, or choleric. I mark the general form and contour of his features; the air and character of his physionomy, as designated in the various lineaments and parts of the countenance. The restless character of nature very shortly furnishes me with an opportunity of judging concerning the accuracy, or otherwise, of my physiognomical discrimination. The person is shortly assailed by some object of commiseration or pity; if the sanguine and benevolent characteristics of his physionomy prevail, the gentle flame of benevolence, rising from his heart, plays on his cheek, and beams in his eye. He is then considered pathognomically. His features are in motion, and their attitudes and positions correspond with those anticipations of character, which I had contemplated while in a state of rest.

Again: I am called upon to observe the face of a person whose ruling or predominant disposition is malevolence and ill-will. I see the striking indications of such a character in his

general physionomy; but they are quiescent, and in a manner latent; yet sufficiently marked and defined to place me on my guard. It is the duty and the wish of every true physionomist to approach with caution, and to decide with modesty; for frail and short-sighted is man at the best. Till, therefore, I have palpable demonstration of the fact, I suspend the expression of my judgment; though I cannot fail to exercise my physiognomical curiosity. At length, some turn in the conversation—some sudden event—some apparent accident occurs, to show me the real character of the man. His enemy is mentioned.—The name is sufficient.—His heart palpitates with indignation; his muscles protuberate; his lips tremble; and the eye completes the developement of his malevolent character; demonstrating the fact, that what I had physiognomically conjectured is pathognomically correct.

Physiognomy, however, is less liable to mistake and deception than Pathognomy. Various fortuitous causes may concur to superinduce,

or call into action, passions and emotions not uniformly existent in the character; and he who has the least command over his features, may, for a moment, assume the visible marks of a character to which he is, naturally, or constitutionally, a stranger. If, therefore, the dispositions of men were to be judged of by the soft, moveable, and flexible parts of the physionomy only, very often the most erroneous judgments would be formed. An expert physionomist unites the two branches of the science. He looks, with a minute and scientific eye, upon the solid and permanent parts of the face—he surveys, with care and caution, the defined and determined lines of the forehead; the permanent formation of the eye, the eye-bone, and the eye-brows; the relative position of the nose, the chin, and the mouth; not as these members, or portions, of the physionomy are distorted by passion, disease, accident, habit, or depravity, but as they are manifest in their native and quiescent state, which will scarcely ever be so far changed, as not to leave sufficient indications of their real and original

character: for, in spite of the most studied hypocrisy, in defiance of the most inveterate habits, nature will still assert her supremacy over the human countenance, and preserve ample proofs, to the penetrating eye of an experienced physionomist, that a fool and a wise man, who are so from nature and constitution, can never so far erase the records of native disposition, as entirely to exchange physionomies with each other. Socrates, the wise, the chaste, and the virtuous, was, by nature, a dunce and a libertine. Zopyrus, the physionomist, so pronounced him; and the honest and good philosopher admitted the justice of the sentence; but added, that he had corrected the vices of his nature, by the exercise of reason, study, and philosophy. The anecdote is well related by Lavater. A similar judgment was pronounced against the great Hippocrates, who also had the candour to acknowledge the accuracy of the physionomist's judgment. The physionomist decides not what a man has made himself to be, or what he may be capable of becoming;

but what he always really was, and now is. He reads the pristine character of the soul, as it is stamped and delineated in the permanent formation and lines of the forehead and other parts. He will sometimes mistake; nay, he may often err; but generally he will judge aright. The physiological and other causes of the exceptions to a correct physiognomical judgment, are treated of in a subsequent section of this work.

The errors, or mistakes, to which a merely pathognomical judgment is liable, are infinitely more numerous. Lavater has justly observed, that Pathognomy has to contend with dissimulation. This may require some explanation. Pathognomy considers the moveable and moving parts of the human frame. It contemplates the every changing features of man, as they are the subjects of internal volition, or external action. It has little to do with definite lines and solid forms, which cannot be materially altered by time or accident; but judges more by insulated deeds, and what is easily visible, than by what is silent, and requires the exercise of

a sound understanding, and habitual powers of discrimination. No wonder, therefore, that there should sometimes be a considerable discrepancy between a judgment formed from the physionomy, simply considered, and that pathognomical determination, which grounds its decisions on that only which is heard, seen, or felt.

Depravity and oppression have strangely distorted the original character of mankind; hence few are the actions of our species which are performed from motives that are obvious to all. A physionomist never forms a decided opinion of any man's real character from report only. It enters into the very nature of his science, that he should *see* the person accused, or otherwise, before he can decide on the permanent nature of his character. Not so, exactly, with Pathognomy. A man may be told that such an one was in a most violent fit of passion, or anger; his eyes were in a state of inflammation; their balls, ready to burst from their socket, sparkled with indignation. Now were his eye-

brows elevated, and now depressed; between them were many deep furrows, while a thousand angles played upon his forehead; his nostrils were horribly distended; and his lips adhered together, till the nether one rose over the other, yet both combining to leave the mouth, particularly at the corners, sufficiently open to discover that the teeth were grinding with fury, and anxious to execute the most direful cruelty. "Certainly," says the pathognomist, "your friend is a very irritable, passionate man; be cautious how you approach him—he is a dangerous fellow." Let us suppose, that, during this conversation, a physionomist should happen to be present, who saw the whole transaction, and had an opportunity of examining the physionomy of the accused, both before and after the terrible fit of anger just described. "But I saw your friend," he would say, "in his calmer moments, and even during the tremendous storm of passion and rage; and in both situations, I could clearly perceive, that you have, in fact, nothing to fear from his real character. The solid parts of his physionomy

are clearly indicative of a mild, amiable, and benevolent disposition; and the fit of anger in which you saw him, was either, in a great measure, assumed, or the honourable feelings of his nature were roused into violent action, by some real, or supposed insult. Malignity, after all, has no seat in his bosom. He feels an insult, or an injury, at the moment, with considerable keenness, and he resents it with warmth and energy; for his physionomy is marked, in some degree, with indications of the choleric temperament; but he remembers not the indignity he has once resented, nor seeks for two atonements for the same offence. The laws of honour reign with absolute sway in his heart; they are the guide and the direction of all his actions. He lives and moves in the centre of their circumference, and never deliberately transgresses their boundaries. His errors are the results of mistake respecting the strict and legitimate requirements of those laws. Without meanness or malignity in his own composition, his whole soul rises in opposition to every thing savouring of those feelings in others; and

he is apt, from the warm and sanguine character of his nature, sometimes to defend the rights of injured honour at the expence of some degree of propriety and decorum; but beyond that he will not step. He will not himself act a dishonourable part, though it were to produce the greatest possible good, or to gratify the strongest temptation to revenge. The rage, the indignation, the storm of fury, that you have just witnessed, which appeared to threaten destruction to every thing within its reach, was, therefore, the ebullition of a moment—the overflowings of a too ardent or mistaken zeal, in defence of some, perhaps, imaginary infringement of that great rule of right, by which he wishes to govern his own conduct. It has burst

Like spark from smitten steel and straight, 'tis cool again.

Decide not then too hastily; judge not of any man from the mere temporary action of the moveable parts of his countenance; but from the general tenour of his conduct and

disposition, as you see his character portrayed in the fixed and permanent lines and contour of his whole physionomy. Let excessive anger be censured; but let not the whole man be condemned." Such would be the different conclusions to which two persons would come; the one judging merely pathognomically; the other, in the enlarged spirit of physiognomical discrimination.

Lavater, in his admirable lecture on this branch of the science, after stating, as already intimated, that Pathognomy has to do with dissimulation, adds, that Physiognomy is under no such necessity; it is not to be deceived or misled. It warns us not to take him for a rich man who offers usurious interest, nor to reckon him poor who refuses to give five per cent. In other words, to the eye of pathognomy, the poor may appear rich; while the physionomist only admits him to be so, who is so in fact, although he may appear poor at the moment of decision.

"These two sciences," continues this ami-

able enthusiast, "are founded on the basis of truth, and must be considered as inseparable. The artist must study them together; and, by attention, he will easily discover the relation they bear to each other. By study he will come to know the physionomy of the parts which are solid and quiescent, by those which are soft, pliable, and in motion. In this discovery, as he perceives the pliancy and power of motion in these latter, in the solid parts he assigns to every line of the forehead the space to which the sportings of passion are limited; he will determine for every passion the seat of its residence, the original source from which it flows, its root, the fountain which supplies it; and the result, if properly derived, will certainly develop the moral and intellectual character of man."

It has been said that Physiognomy contemplates the character of man from parts of his physionomy while in a state of rest. By this is meant, that the fixed, or native appearance of the human face furnishes, in most cases, an

accurate index of the reigning, fixed, absolute character of the soul or mind; and that Pathognomy is that portion of this science which determines the truth of the former by a contemplation of those parts of the human face which are moveable and moving.

Let us carry these investigations still more into detail, and prove, before we enter upon the subject, that Physiognomy is indeed a science, that there is throughout universal nature such a determined physionomy as cannot be controverted.

The moralist Dodsley has remarked, that "a lie's a lie, though all the world believe it;" but I think it would be difficult to point out any one palpable error in which all the world has uniformly acquiesced. Individuals may fall into the greatest mistakes, and believe the most manifest falsehoods. Communities of individuals, all moving under the same kind of influence, may also fall into great and obvious misunderstandings;—nay, whole nations may be de-

ceived: for whole nations have believed that the earth is flat, and that the sun moves round it as its centre; but when did it happen that every man, of every age, and of every nation, believed the same lie? Now, as every man, of every age, and every nation, has believed, more or less, in the truth of Physiognomy, I argue that the science is founded on the immutable and eternal basis of nature and right reason, and that its principles are acted upon in almost every transaction of human intercourse. The conviction is more extensive than the idea of a Supreme Being. It enters into those sublime figures by which Deity itself is presented to the minds of mortals. "The knowledge of the glory of God" is said to have "shone forth in the *face* of Jesus Christ." It is common also to brutes and to men. It is to the face that the first look, which has the most distant feature of inquiry, curiosity, wish, desire, or instinct, is always directed. We commence our examination of all animals, by a look at the eye, the mouth, or, generally, by their physionomies. Here our inquiries commence, and very often here they terminate.

Just so it is with the instinctive looks of the brute; and we usually measure the extent of their respective sagacities by the degree of intenseness with which they fix their eyes on the object of their pursuits or desires. If a dog solicit a crust from his master, he inquires of that master's eye. If he dread his anger, he bespeaks his mercy by an appeal to the same organ. It is to the face, I say, that every inquiry is directed. Nor does absence itself prevent the association of wants expressed, truths laid down, or inquiries made, with the manner in those wants, truths, or inquiries, will be received by him to whom, by letter, or otherwise, they are made known. As I write to please and instruct, I anticipate a smile of approbation from my reader; but, as I know all my readers will not agree with the truth of my doctrines, I see in many, I fear too many, the look of disdain, the leer of contempt, the glance of pity, for my weakness, or the scowl of disbelief at my statements. No man will read my book with the vacant stare of an idiot, the unmeaning gaze of an Esquimaux Indian, or

the wandering vivacity of a monkey: for no man who reads at all, reads after that manner. Whether I am understood or not, it will be impossible to read my reasonings and statements without some emotion being raised in the mind; and every emotion so raised, will have its correspondent expression in the physionomy. No book, or even ordinary epistle, can be read without it. For if the thing written should be one of impenetrable mystery and darkness, an enigma as dark as the Egyptian plague which might be said to be felt, then will an indication of wonder manifest itself; and the eye will silently say, "How can these things be?" If the matter written be some plain matter of fact already known to the reader, he may perhaps lay down the book, and with a smile of self-complacency exclaim, "Aye! aye! I knew all this before!" In every case the physionomy shall be engaged; and were it possible that a man's looks could be as immediately transferred to paper as his thoughts can, they would speak a truer language than any thing which he could or would write.

Here then, once more, does the important truth press upon us, that Physiognomy is the act of so deciphering the human countenance, as to develop and explore the human intellect; and from that which is seen to judge of that which is unseen.

It is to this truth that the artist is indebted for all his success, whether as a painter or a sculptor. He portrays the physionomy only. It is all he can do, or has to do; and it is just in proportion to the faithfulness of his drawings, as "outward and visible signs" of some supposed internal qualities, that his works are held in estimation. Had the venerable President West, whose historic paintings will endear his name to the remotest posterity, depicted the face of the High Priest, in his immortal picture of *Christ rejected,* with the same features which characterize the mild and innocent JESUS, the censures against him would not have been confined to his skill as an artist; but to his heart and mind as a Christian; and the stoutest unbeliever, or pretended unbeliever, in the science

of Physiognomy, would have condemned him as a blasphemer and an infidel. Those who cried "away with him! away with him!" could not have possessed physionomies similar to those who asked, "why, what evil hath he done?"

The pictures of Le Brun derive their merits from their *pathognomical* correctness, rather than from their strictly physiognomical delineations: for, in fact, they are not portraits of men, but delineations of human passions. But even Le Brun could not have painted had he not placed confidence in the fact, that every one who should admire his works, would do so by virtue of his belief in the science of Physiognomy.

But this is not the place to pursue this argument; and, if it were, the fact is too self-evident to require any illustration: for we all know, that the up-lifted and languishing eye of rapture, and the horizontal and frightful stare of terror are as different as light from darkness.

It is enough for my present purpose, that the eye, the mouth, the nostrils, &c. are all laid in requisition before the painter can describe either one or other of these passions; and he is the best artist who can best depict these, or the other passions, in the physionomy: colouring, *chiaro oscuro*, and keeping are all adjuncts, of no sort of merit or interest, but as they give effect and energy to the expression first indicated by a correct outline.

The portrait painter who employs himself in "taking likenesses," as it is called, may contrive to produce a tolerable fac-simile of his living original; but he would more uniformly succeed, if to his art as a draughtsman, he superadded a practical skill in the science of Physiognomy. He would, then, indeed, catch the whole man, and show him in his face; and would do more business in one sitting than he would otherwise perform in four. Indeed, an expert physionomist, possessing strong imitative capacities, and a free and practised use of the pencil, would, in many cases produce a

tolerably correct outline of a face from a merely verbal description of the general features and real character of the original. This, I grant, is carrying the science, in its combination with the art of painting, to perhaps the utmost verge of possibility. But if Le Brun could delineate the passions in his admirable portraits, simply from the knowledge he possessed of what may very well be called "the anatomy of expression,"—if Hogarth could, though in caricature, so describe the several vices of mankind, in the figures to which he respectively assigned them, surely it is not too much to assert, that what those artists executed pathognomically, might be achieved physiognomically. The solid and fixed characteristics of internal qualities are not less definite in the human face, than those moveable parts which denote and express those qualities in language intelligible to the commonest observer. The truth of the matter is this: mankind, in general, being more strongly impressed by those facts which require little or no exercise of the intellect, than by those occult arcana of nature, which are obvious only

to the eye and mind of the intelligent philosopher and moralist, are apt to dispute the existence of those truths which do not immediately strike the senses. That the earth moves round the sun, and also on its own axis, are facts not less indubitable than that we have, in consequence, a regular return of the seasons, and a constant succession of day and night; but the vulgar, who believe only what they see, cannot comprehend the causes of those phenomena; and hence have often doubted the most clear and demonstrative deductions of astronomical science. Just so it is with respect to Physiognomy and Pathognomy. All men know that laughter, for instance, can be as accurately described by a painter, as the act of shutting the eyes, or opening the mouth; but all men do not know that a choleric, or a phlegmatic disposition, may as truly and as definitely be traced by the same pencil, and be as palpably described on paper or canvas, as the spasmodic irritations and contortions of countenance produced by the act of laughter, or any other convulsive effort of nature or art. Cool,

temperate, quiet, and impartial examination, strengthened and perfected by experience, and by comprehensive powers of discrimination, is all that is wanted; and when the science of Physiognomy comes to be universally studied, should "a consummation so devoutly to be wished," ever take place, the honest man and the hypocrite will be almost as easily distinguished, as the man of a robust form from the "lean and slippered pantaloon." Of this, however, more in a future section.

The distinction between Physiognomy and Pathognomy being now, I trust, sufficiently pointed out, and the fact that there is indeed a physionomy in nature proved beyond dispute, I will endeavour to demonstrate that Physiognomy deserves to be ranked as one of the regular sciences.

If that branch of human knowledge which is governed by definite rules, and has, however, few in number, certain indubitable marks and characteristics, by which clear and invariable

deductions may be drawn, and known truths elicited, be a science, then Physiognomy merits that distinction, as much as theology, morals, or almost any other of the pure or mixed sciences.

In the consideration of this subject, it is not necessary that any portion of human knowledge should have no difficulties—no exceptions to those general principles which establish its claim to rank as a science. For were that the case, I question whether it were possible to give that name to any one of the known sciences. The arts are more certain and defined in their characteristics. Their rules are more the objects of the senses—have greater tangibility, if such a term may be used on such a subject; but so long as certain known and acknowledged results, are found invariably to flow from certain known premises or causes, however few those results may be, the knowledge of them immediately forms a branch of scientific acquirement, as certain and infallible as that the knowledge of the rules of perspective,

the laws of geometry, or the combinations of numbers, connects itself with the arts of design, or of those of the several branches of the mathematics.

Lavater, with an ingenuity peculiarly his own, and a warmth of feeling which the honest enthusiast only is capable of experiencing, asserts that the science of Physiognomy, partakes of a mixture of several other branches of knowledge. "It is," says he, "a branch of natural philosophy, as well as medicine, for it constitutes a part of that science. It is related to theology; for it belongs to and forms a part of divine ethics. In mathematics, it is connected with the science of calculation. It is comprehended under the department of the Belle Lettres, because it unfolds and determines the idea of the beautiful and the sublime." I cannot say that I am prepared to go the entire lengths of this truly ingenious philosopher. His heart and soul were too deeply absorbed in the subject, to allow at all times that cool and dispassionate reasoning which so

abstruse and occult a study demands. But it cannot be denied, that Physiognomy forms a very material part of medical science. For what, asks Lavater, would physic be, without the knowledge of symptoms ? And what symptomatical intimations without Physiognomy ?

The connection of Physiognomy with the science of Theology, is as certain as that we are conducted to the Deity by our knowledge of men; and the science of man can only be ascertained but by his face and form.

As Physiognomy measures and considers causes, ascertains body and magnitude, it seems clearly to incorporate itself with mathematical reasoning. Indeed, there are few branches of science with which Physiognomy does not directly, or indirectly, either unite itself, or lend its aid to ; and it may be observed, that those points in the study of this science which establish its claim to that rank in human knowledge for which I am now contending, are, perhaps, more certain, clear, and invariable

than the distinct signs by which any other species of learning and truth is denominated scientific.

Physiognomy, like any other science, may, and does to a certain point, digest itself, and is reduced to fixed rules, which are possible to be taught and learnt, to be communicated and received, and transmitted to posterity, by the same medium through which all other knowledge passes from one generation to another. But in this, perhaps, more than in any other science, much must be left to genius and sentiment; and in some parts it is observable to be still deficient in signs and principles determinate, or capable of being determined.

Such are the clear definitions and the candid concessions of Lavater. If it shall appear that Physiognomy lays down such rules as cannot be mistaken in the study of the human character, however few those rules are, the fact will be established, that it is indeed a science of a high and important order. The only question,

therefore, continues our amiable theorist, is, to ascertain if the striking and incontestible difference of human physionomies and forms may be perceived, not only in an obscure and confused manner; but whether it is not possible and practicable to fix the characters, the signs, the expressions of that difference; whether there are not some means of settling and indicating certain distinctive signs of strength and weakness, of health and sickness, of stupidity and intelligence, of an elevated and a grovelling spirit, of virtue and vice, &c.; and whether there are not some means of distinguishing precisely the different degrees and shades of their principal characters; or, in other words, whether it is possible to class them scientifically?

This is, indeed, the true state of the question, the only point to be investigated; and if the physionomist succeed in establishing only a single point of this nature, he will have proved that the study of man, from the conformation of his features, and the peculiar construction

of the human countenance, is as clearly entitled to be ranked as a science, as any other branch of knowledge whatever. This point I now, therefore, undertake to prove; and propose to adduce such instances of the truth of the proposition, as shall tend to confirm the physiognomical student in the principles of so valuable a study.

"Nature," says Lavater, "has modelled all men after one and the same fundamental form." This is true as a general fact; but the various aspects which that form assumes, are as diversified as all the other works of nature. It were, however, a profane libel upon the wisdom of the Great Author of Nature, to assert, that any one of those varieties is the effect of a blind caprice, or an unmeaning and arbitrary exertion of power. That there is no effect without an adequate cause, is an axiom universally admitted. It is equally true that similar causes invariably produce similar effects, when operating on objects of a like construction. These observations and facts are remarkably

true when applied to the science of Physiognomy; and though they are not applicable to every thing that may with reason be predicated of that science, they are, nevertheless, so strikingly obvious in many instances, as to put the matter beyond all doubt, that Physiognomy is a science, having nearly as many indubitable and external signs of internal qualities as any other branch of human knowledge.

This is the most important point of the whole subject; for on its reality depends the entire foundation of the science itself. If nature has not invariably imprinted on the human countenance certain determinate, uniform, infallible marks, or indications of certain known, determinable, and fixed principles, dispositions, and qualities of the mind; and if those uniform characteristics cannot be discovered, pointed out, and applied to their respective qualities, then is Physiognomy no science; but a mere creature of the imagination; an idle chimera, fit only for fanatics and necromancers.

To establish the affirmative of the preceding proposition, it is not necessary that I prove the truth of every thing which I, who have long and seriously studied the science, may be led to believe or assert concerning it. Every thing is not true that is said or believed of any one science whatever: nay, there is not an honest and candid inquirer after truth in the world, who, were he asked whether he himself is assured, that every thing which he believes is founded on the immutable basis of truth, and is indeed true, but must answer in the negative. His own consciousness of weakness, and sense of fallibility, would teach him, that it would amount to a miracle, if he, of all other men in existence, had happened to escape error, and to have admitted nothing, as matter of belief, but was strictly true. No two men think alike upon all points; few think exactly alike upon any one point. There are shades in the human mind as varied as the lines and features of the human face. It is not given to frail man to know all things—to no man to know any thing perfectly, concerning which

there exists the remotest doubt or disagreement; and were it possible, in every other point, there would still remain one on which no possible certainty could be obtained. No man can know to a certainty, whether all his conclusions on all points are absolutely free from error. He may not know in what particular point his error lies, or else he would immediately reject that point, and so make another advance towards perfection; a goal, however, unattainable on this side the grave. But as he cannot always discover all his errors, so neither can he always be infallibly apprized of the truth of all those points, which may be nevertheless true in themselves.

Seeing, therefore, that unless we could secure infallibility, no truth is to be admitted, there is not any science in the world. And further, that, if till any one subject of scientific investigation can be said to have been carried to the utmost degree of improvement of which it is capable, it shall be denied the honour of ranking as a science, the very word itself had better be expunged from our language. All

that I contend for is this, that Physiognomy, though still in its infancy, has advanced to that state of improvement in the world, as to take its proper place in the circle of human sciences.

Having premised thus much, the task of demonstrating that Physiognomy is truly a science is reduced to a narrow compass. "Physiognomy, if it be true in a single point, must be true throughout; for every animal is possessed but of one centre and one circumference. If it be allowed that the face of a negro possesses less intelligence than the face of a Lord President Blair,"* a Sir Isaac Newton, a Milton, or a Shakespeare, the truth of Physiognomy is granted. If more rage, and consequently less complacency, be allowed to the face of a tiger, or a hyæna, than to that of a lamb, the truth of Pathognomy is at once granted; and pathognomy is nothing more, in fact, than the Physionomy of the passions. Indeed, the truth of the thing is self-evi-

* Cross's Attempt to establish Physiognomy upon Scientific Principles, p. 13.

dent. It remains, therefore, only to show that this truth is founded on certain fixed principles, and capable of being ascertained, according to certain known rules; the exception to these rules, it has already been shown, are no rational grounds of objection to the science itself. The most scientific physionomist is he who possesses the greatest powers of observation, discernment, and discrimination; provided, at the same time, he be blest with a benevolent heart, and observe a correct line of moral rectitude in his own conduct; for a depraved heart, and a narrow and contracted mind, but ill accord with that patient, impartial, and accurate investigation essential to the character of an expert physionomist.

"It is more from the limited nature of our comprehension, than from the weakness of our intellectual powers, that we cannot study Physiology and Physiognomy in the lump; that we cannot see all the parts of the body, entering into the formation of a single organ, performing

a single function, and that we cannot see, at once, from the appearance of that one organ, how well it is calculated to perform its functions.

"In order to accommodate the subject to our limited and contemplative faculties, we must take down the whole vital and animal machinery into its constituent parts; and having examined every part, not only by itself, but also in relation to all the others, and found out the separate use and meaning of each, we must again put them altogether into one machine."*

To divide and arrange the body into organs, and to ascribe to each its functions, is Physiology. To view all these organs in connection, and to compute the influence of each, and the concentrated influence of the whole, in determining the great movements of an individual among other individuals, all acting their respective parts in the great struggle and bustle of life, is Physiognomy. It is a system of corollaries, arising out of Physiology. Wherever

* Cross.

there is life, the science of Physiology may set to work; but it is not until vitality begins to be covered with voluntary organs, that Physiognomy can commence. It then speedily assumes a purely scientific character; the knowledge it conveys is explained by fixed principles, and is imparted as clearly as words, lines, rules, and definitions, can develop it.

According to those rules and definitions, it is possible to say, "This is an exalted character;"—"This is a man of spirit;"—"This feature is peculiar to gentleness, that to moroseness;"—"These lineaments dispose to anger;"—"Here is the look of contempt, and there is that of candour;"—"In this I discover judgment;"—"That is the expression of talents;"—"This trait is inseparable from genius," &c. &c.

Physiognomy, however, does not teach to prognosticate particular events; although it will be found of considerable service in helping us to discover the predominant passions, the vices, the views, and the natural dispositions

of those with whom we may have connections and concerns. Seneca justly remarks, that violent emotions of every kind, cannot escape manifesting themselves in the countenance.

Nothing passes in the soul without producing a perceptible change in the body, especially in cases of desire: there no determination is formed without the instant appearance of a corresponding bodily motion. The actual moment of passion roused into exertion, is depicted in the agitation of the features, always connected with an increased action of the heart; and when no boisterous passion stirs the powers to passionate exertion, the serenity of the countenance, conjoined with the calmness of the heart, is always visible in the uniformity of the features.

We find, by observation, that anger swells the muscles, and hence we judge that prominent muscles, and a choleric habit, are to be considered as cause and effect. Rapid movements of the body, and sharp looks are ge-

nerally connected with mental impetuosity. An active and vivid eye, and an active and acute wit, are generally found in the same person. An open eye, which welcomes you with a generous, engaging, and gracious look, and an aspect frank, honest, and expansive, and which seems gratefully to meet you, always denotes an habitual, open, generous, temper of mind.

The rash and irascible man does not resemble the cold and phlegmatic.

Even with the dawn of reason, does not a child pretend to judge of faces? And do not we daily hear it said that such an one is dull, thoughtful, peevish, melancholy, merely from a glance of his exterior appearance? Art is at variance with itself: not so nature; her creation is progressive. From the head to the back, from the shoulder to the arm, from the arm to the hand, and from the hand to the finger, each depends on the other—each is similar in nature

and form—each member of the body is in proportion to that whole of which it is a part. As from the length of the smallest member, the smallest joint of the finger, the proportion of the whole, the length and breadth of the body, may be found, so also may the form of the whole from the form of each single part. As, for instance, the thumb will be found as long as the nose, measured from the tip to the orbicular bone of the forehead, so the hand is the length of the face, &c.

When the head is long, all is long; when the head is round or square, all is round or square. One form—one mind—throughout. Therefore is each organized body so much a whole, that without discord, destruction, or deformity, nothing can be added or diminished.

Every thing in man is progressive—every thing congenial:—Form, stature, complexion, hair, skin, veins, nerves, pores, voice, walk, manners, style, passions, love, hatred, one and the same spirit is manifest in all.

The human body is a plant, each part of which has the character of the stem. And as there is conformity in the beautiful, so also is there in the deformed. Every cripple has the distortion peculiar to himself; the effects of which are extended to his whole body. In like manner, the evil actions of the evil, and the good actions of the good, have a conformity of character.

Lavater observes, that he never yet met with one Roman nose among a hundred, with a circular forehead in profile. In a hundred other square foreheads, he scarcely found one in which there were not cavities and prominences. He never saw a perpendicular forehead, with strongly-arched features in the lower part of the countenance, the double chin excepted.

I never met with strong bowed eye-brows combined with a long perpendicular countenance.

Wherever the forehead is projecting, so in general are the under lips, children excepted.

I have never seen a greatly-arched forehead with much rotundity, combined with a short snubbed nose, which, in profile, is sharp and sunk.

A visible nearness of the nose to the eye, is always attended by a visible wideness between the nose and the mouth.

A long covering of the teeth, or, in other words, a long space between the nose and mouth, always indicate thin upper lips.

Length of form and face is generally attended by well-drawn fleshy lips.

Take two, three, or four shades of men remarkable for understanding; join the features so artificially, that no defect shall appear, as far as relates to the act of joining; that is, take the forehead of one, and the nose of a second, the mouth of a third, the chin of a fourth, and the result of this combination of the signs of wisdom shall be folly.

Folly is, perhaps, nothing more than the emanation of some heterogeneous addition. But let these four wise countenances be supposed congruous, suitable, or fit—let them be so supposed, or as nearly so as possible, still their combination will produce the sign of folly.

Those, therefore, who maintain that conclusions cannot be drawn from a part, from a single section of the profile, to the whole, would be perfectly right, if unarbitrary *Nature* patched up countenances like arbitrary *Art*. When a man, having been born with understanding, becomes a fool, the expression of heterogeneousness is the consequence. Either the lower part of the countenance extends itself, or the eyes acquire a direction not conformable to the forehead;—the mouth cannot remain closed, or the features of the countenance, in some other manner, lose their consistency: all becomes discord; and folly in such a countenance is very manifest.

A similar strain of argumentation may be

observed, with respect to the signs of bodily strength and weakness. Muscular strength, like the powers of the understanding, is discovered by its being more or less compact. Tranquil, firm, strength is shown in the proportions of the form, which ought rather to be short than long. In the thick neck, the broad shoulders, and the countenance, which in a state of health is rather bony than fleshy; in the short, compact, and knotty forehead; and especially when the *sinus frontales* are visible, but not too far projecting; flat in the middle, or suddenly indented, but not in smooth cavities. In horizontal eye-brows, situated near the eye; deep eyes, and stedfast look. In the broad, firm nose, bony near the forehead, especially in its straight, angular, outlines. In short, thick, curly hair of the head and beard; in short, broad teeth, standing close to each other; in compact lips, of which the under rather projects than retracts. In the strong, prominent, broad chin; in the strong, projecting *os occipitis;* in the bass voice, the firm step, and in sitting still.

Elastic strength, the living power of irritability, must be discovered in the moment of action; and the firm signs must afterwards be abstracted, when the irritated power is more at rest. "The body, therefore, which at rest, was capable of so little, which acted, and resisted so weakly, can, when irritated, and with this degree of tension, become very powerful."

We shall find, on inquiry, that this strength, awakened by irritation, generally resides in the tall, but not very tall, and bony, rather than muscular bodies; in bodies of dark, or pale complexions, of rapid motions, joined with a certain kind of stiffness; of hasty and firm walk; of fixed and penetrating look, with open lips; but easily and accurately to be closed.

Signs of weakness are disproportionate length of body, much flesh, little bone; extension of a tottering frame; a loose skin; round, obtuse, and particularly hollow outlines of the forehead and nose; smallness of nose and

chin; little nostrils, retreating chin, long cylindrical neck; the walk very hasty or languid, without firmness of step; the timid aspect, closing eye-lids, open mouth, long teeth; the jaw-bone long, but bent towards the ear; whiteness of complexion; teeth inclined to be yellow, or green; fair, long, tender hair, and shrill voice.

I will now endeavour to make a few characteristic observations on body and mind.

The peculiar character of certain persons cannot easily be mistaken; but will impress the mind of every observer. How frequently does it happen that we dislike a person merely from his appearance, without any other reason! How often do we meet with individuals, in whom we imagine we perceive not only a deficiency of good manners, but of sound sense, or even of correct morals. In the vacancy of the countenance we suppose we can trace the signs of a correspondent vacancy of thought and intellect.

On the other hand, many persons may at first sight have prepossessed us in their favour; and their countenances have been equivalent to a letter of recommendation to us.

In all these instances we have judged by character; and, without perceiving it, have determined by the principles of physiognomical science. We may, therefore, take it as proved, that these principles are not only founded in nature, but compose, when carried into effect, what may fairly be called THE SCIENCE OF PHYSIOGNOMY.

Should it, however, be objected, that prejudice has its share in all the conclusions of this kind which we draw—that persons arrived to years of reflection, combine ideas of good nature, or of peevishness, with features similar to those which they have previously noticed as accompanying such qualities; admitting the fact, which, indeed, strengthens my argument, I would ask, by what principle do children fondle, caress, and become intimate with some

persons, while they reject the favours of others? They do not reason from past experience, but from present aspect. Neither, perhaps, do animals follow such experience, when they select as friends, from a numerous company, those persons whose looks indicate natural benevolence. It is commonly said that dogs possess this sagacity in a high degree; and though common sayings are not always to be relied upon, it will hardly be denied that there is much truth in this particular observation.

By character we determine the sex, the time of life, the country or family, the mental disposition, the natural or acquired habit; and even, frequently, the profession and the pursuits of those with whom we are conversant.

Let us trace the character of the countenance from infancy to old age. That kind of character which marks their years, is so dissimilar in children, that it admits of no dispute. The form of their features is as peculiar to them-

selves as the simplicity of their minds. Children possess the same natural propensities as persons of riper years; but their tender age prevents the appearances of those signs, or marks, which usually denote those propensities; yet, we frequently observe, even in very young children, certain indications of genius, or of stupidity which time afterwards develops.

In following the progress of human life, we remark, that most of its powers are at first very confined in their services; by degrees they quit their inactivity, and exercise the several functions assigned them. The senses, and the organs of sense, may be said to be perfectly formed, before practice and repetition have enabled us to use them with facility.

Nature pays the greatest attention to those parts whose uses are the most early and important. The head of a child, therefore, is much nearer perfect proportion than any other member of the body, because of its closer re-

lation to the mental powers, and to the early employment of the faculties exercised in that part.

During early infancy, indeed, the faces of boys and girls have no considerable difference, and therefore parents have found it necessary to distinguish them by dress; but as they grow up, the features of the boy get the start, and grow faster in proportion to the iris, or ring of the eye, than those of the girl, which shows the distinction of sex in the face. Boys who have larger features than ordinary, in proportion to the iris, are what we call manly-featured children, as those who have the contrary, look younger, and more childish than they really are.

Boys are generally more robust than girls; their heads are broader, their ears larger. They have usually a greater quantity of hair, more frequently curled.

Girls discover a certain sprightliness and

vivacity of character not equalled in boys, though ever so wanton and playful.

It is curious to remark the assimilation of the sexes in advanced years. During infancy they are greatly alike; very distinct at maturity; and in old age return to likeness. The most beautiful woman retains not the softness of her countenance; but, as wrinkles increase, she approaches, in appearance, to a man of the same time of life. So also, a man, formerly robust and athletic, loses the distinguishing characteristics of his sex; and, under the pressure of a load of years, deserted by strength and vigour, dwindles into a close resemblance of an old woman.

The animal part of man is apparently governed by the same laws as those which govern the brute creation; and when the human countenance is similar, in its parts, to those of certain animals, the man is supposed, with considerable probability, to have similar dispositions.

Features of the swine, the ox, the sheep, and the lion, have been found in some faces. Socrates is an indubitable instance of the first, and Cromwell of the last, at the sight of whose portrait, a certain northern potentate, is said to have exclaimed: "I protest, he makes me tremble!"

We have, daily, many instances which confirm the commonly-received opinion, that the face is an index of the mind; and this maxim is so rooted in us, that we cannot help (if our attention be a little raised) forming some particular conception of the person's mind whose face we are observing, even before we receive information by any other means.

How often, it is said, on the slightest view, that such a one looks a good-natured man; that he hath an honest look, open countenance, a man of sense, or otherwise!

It is reasonable to believe, that to be a true and legible representation of the mind, which

gives every spectator the same idea at first sight. For instance, all concur in the same opinion, at first sight, of a downright idiot, whose characteristic traits are a small and misproportioned skull; dark, rayless eyes, starting almost from the top of the forehead; the long prominent nose; the huge slavering mouth, and the lines and proportions of the lower part of the head and face, excessively too large for the upper.

I am free to admit, that there is very frequently a difficulty attending a decisive and determinate judgment, that such and such features compose the countenance of any given individual: that, therefore, he is morose, a glutton, a sensualist, &c. This difficulty arises from this circumstance, that the inclination of the human mind is not confined to one passion exclusively, though some one may predominate; but compounded of many desires, and containing a variety of dispositions, frequently opposite and contradictory; accordingly, the signs of those dispositions oppose and contradict each other.

Scarcely any set of features exhibit anger, or hatred, affliction, or tranquillity *alone;* because no person is continually angry, or always tranquil and easy, whatever may be the general character of his disposition, or the prevailing habits and passions of his mind. His sensations being various at different times, his aspect presents the marks of that variety.

From this source frequently arises that mixture of character which we remark in the human countenance. Hence, the likeness, or unlikeness of persons in the same family, whose turn of mind being similar, or dissimilar, the family-resemblance has a corresponding variation of features.

But natural inclination, though a principle of great activity, is not unfrequently so controled by acquired habit, as to lie dormant, or nearly so, and seldom to manifest itself in demeanour, or action. A principle of good breeding will naturally check the ebullitions of the choleric person; and this habitual restraint will pro-

duce, in some degree, a slight variation in the countenance. In like manner, the glutton and the sensualist, from mere shame, or from a natural sense of decency, will restrain the impetuosity of their native propensities; and this mixture of refined sense, and grossness of disposition, will produce that variety in the features which occasions no small difficulty to the student in this pleasing and most useful science.

The experienced eye, and discriminating mind will, however, seldom fail to discover those traits of natural disposition which no habit can eradicate, nor any art effectually conceal. The anecdote, already related, of Socrates and Hippocrates, affords ample proof of the truth of this reasoning. The vices, perhaps, more certainly than the virtues, exhibit their characteristics in the human face. There are few men of a radically bad disposition, whose physionomies do not, more or less, betray the secrets of their souls; but virtue retires from human observation. It is one of its main

characteristics to shun the notice of the world. "Thou, when thou fasteth," said the great founder of the Christian religion, "wash thy face, and appear not to men to fast." Native goodness of character, however, any more than native vice, cannot be entirely hidden. The soft and tender glance of affection—the silent tear of pity—the roseate glow of benevolence—and the warm flushes of love, will, in spite of the most habitual modesty, frequently disclose the fact, that such indeed is the genuine character and disposition of those in whom such indications of goodness are observable.

On the other hand, the most studied hypocrisy cannot long conceal from the eye of the physionomist the true character of him, who assumes, for some selfish purpose, the signs of virtue.

What would become of the high character which the cartoons of Raffaello have obtained, had the artist given that set of features to the beloved disciple John which belong

to those of Judas, the traitor? Yet both were disciples—both made the same professions of love and obedience. Jesus, who was the greatest physionomist, knew from the beginning, that when he had chosen twelve, "one of them was a devil." A similar observation may be made with respect to another expression in the New Testament, in which it is said of certain disciples, that "they were taken knowledge of that they had been with Jesus." I will not assert, that this knowledge was not solely grounded upon an observation of their manners and conduct; as the speech of Peter "bewrayed him," and led to the accusation that he also was one of Christ's disciples; but who will venture to affirm, that even the physionomies of the followers of the meek and lowly Jesus had not certain peculiarities, indicative of that unshaken fidelity, and honesty of soul, which marked the character of those intrepid and virtuous reformers? This we may assert, without fear of contradiction, having the testimony of every ancient and modern artist whose works have come down to

us, that no one can conceive of the character of a virtuous man without painting, in his mind, a countenance corresponding with such conception; nor of a vicious mind, without imagining, at least, a distorted and forbidding set of features.

It is, however, worthy of observation, that the science of Physiognomy stands in no need of fallacious and surreptitious auxiliaries to demonstrate its reality; and that, on this account, the Passions of Le Brun might have been as well expressed, had he preserved to each passion the simple physionomy of the character, without adding those parts which are not essential to its expression. His *Despair* is an admirable composition; but its excellencies are not heightened by the up-standing hair, which is characteristic of *Terror*, and not of *Despair;* so also in his *Terror*, there is no need of a rough and unshaven chin, or a dirty face: for the very same might have been given to his *Acute Pain.*

I do not object to the painter, who would

paint, for instance, an habitual drunkard, or a naturally slothful and indolent man, with those insigniæ, or rather, appendages, of drunkenness and laziness which such vices naturally produce. Physiognomy is necessarily attended with difficulties; and may surely be allowed every proper aid and assistance to demonstrate or illustrate its truths; and in the delineations of character by the pencil or the graver, every thing truly characteristic, whether in the dress, or general demeanour, may, and ought to be introduced; but beyond this the artist's licence does not extend.

In the study of Physiognomy, therefore, mere outlines, and silhouettes, are preferable to finished portraits, or decorated figures. The physionomist has to do with simple, unadorned, unsophisticated nature. Artificial aids tend only to embarrass and perplex.—Inveterate habit, though it cannot erase the native lines of the countenance, frequently adds others to them. Severe and long-continued study is apt to occasion a solemnity of aspect

(chiefly seen in the face), which should be carefully distinguished from ill-nature. Indeed, all professions, and some trades, produce a certain indescribable something in the appearance of those who follow them, which is readily discernible. The soldier, the sailor, and the butcher, are instances in point; and who finds it very difficult to distinguish the operative tailor or the shoemaker at first sight?

Habits of devotion, of thought, of affectation, of power, or rule, all contribute, very materially, to character, and has each its respective method of showing itself. Hence the hypocrite cannot always, at first sight, be detected; and it belongs to the truly experienced physionomist to discover the latent motions of his soul.

The thick lips of sensuality will very often burst those fetters which an affected niceness and an assumed chastity of disposition have imposed upon them; and frequently and involuntarily will the eye wander from the

heavens to some object of mere carnality. The lines of nature are indelible, her records are written in characters of adamant—they cannot be effaced; they are to be deciphered, however, by the virtuous physionomist alone. They are often illegible to the eyes of the vulgar, the scoffer, and the prejudiced. But habit, accident, or continued restraint, may, for a time, tend to darken those shades and traits of character, which corruption alone can dissolve.

The different nations of the earth have each some peculiarity of national character, arising from climate, custom, religious rites, or civil manners. These national characteristics are independent of the cast of features proper to each individual; and of whatever rank he may sustain in life.

It is true, that among those European nations, who have considerable intercourse with each other, this variety is not so striking as in people who never mingle with their neighbours.

The reason of this is, that the former, in time, become not a little *conformed* to those with whom they have most frequent and intimate communication; and natives of either country, who unite and mix with the other, diffuse their distinguishing peculiarities wherever they form connections.

It is worthy of particular remark, that persons of superior education, rank, or fortune, do not exhibit their peculiar national character so strongly marked, as do those of the lower orders of the people. This is true, not only of nations generally, but of individuals of the same nation. Mind is of no country, properly speaking. Intellect speaks an universal language, and diffuses its influence nearly alike over the character of the Russian, the Spaniard, the German, and the Englishman. Wherever the advantages of a superior education are blended with the strong powers of native talent, and are cherished by the same ardent love of truth and virtue, national distinctions become, in a great degree, lost. Hence then, physio-

nomy, ever faithful to the genuine disposition of the soul, assimilates, in a great degree, with its kindred forms: thus lessening, if not destroying, the visible signs, or essential indications, of national character.

So also men of superior rank and fortune, by acquaintance with foreigners at home, or a residence among them abroad, acquire much of their manner and deportment; and manner and deportment cannot assume the least degree of peculiarity, without a corresponding indication of its most distinguishing traits in the physionomy.

There are Frenchmen in this country, who emigrated here at the commencement of the French Revolution, and, when they first came amongst us, possessed the marked and distinct characteristics of their nation; but who, by a residence in England for upwards of twenty years, have, in a manner, acquired what may be called nearly a complete English physionomy.

On the other hand, there are many Englishmen now resident in France, who have involuntarily abjured their native physionomy; and with the manners and deportment of Frenchmen, have also acquired the countenances and features of Frenchmen.

The lower orders of mankind, as they are called, not having the same opportunities of education and intercourse; but continually conversing and associating with those who resemble themselves, preserve, in its full power, the original and popular character of their country.

This fact respecting national distinction of features and manners, is, I think, so obvious, that but little more need be said on the subject. Compare a negro and an Englishman; a native of Lapland and an Italian; a Frenchman and an inhabitant of Terra del Fuego:—examine their forms, countenances, characters, and minds, and the difference will be easily seen: but it would require a very copious and ela-

borate dissertation to examine into all the varieties that might be named; neither is it easy to procure authentic portraits from remote nations sufficiently correct from which to form a judgment.

This subject, however, of what may, perhaps, be called geographical physionomy, is too curious and interesting to be passed over very hastily. I will, therefore, avail myself of this point as an argument in favour of my position, that Physiognomy is indeed a science; and endeavour to point out a few instances of its accuracy.

Geographers and others distinguish several varieties in the human species. *

Laplanders, and other persons, who inhabit the northern parts of the globe, whether Europeans or Americans, have generally broad faces; broken and sunken noses; the iris yellow-brown, inclined to black; the eye-brows

* Blumenbach, and his copyists, have noticed five distinct varieties of human features.—Editor.

drawn back towards the temples; high cheeks, large mouths, thick lips, and black hair. Their heads are so large as to contain full one-fifth of their whole figure. The major part are about four feet high; tall persons among them about four and a half. The sexes are scarcely to be distinguished by their general appearance.

The TARTARS are a variety whose faces are large, and wrinkled, even in youth. Their noses are thick and short; their cheeks high; the lower parts of their faces narrow; their chins long and prominent; their eye-brows very thick; their skin olive; and their figures of answerable dimensions.

The CHINESE have small eyes, and large eye-lids; small noses, and, as it were, broken; seven or eight bristles of a beard on each lip, and scarcely any on the chin. The women use every art to make their eyes appear little; and when, in addition to small eyes, they possess a broken nose, long, broad, and hanging ears, they suppose themselves perfect beauties.

The NEW HOLLANDERS are the most miserable and dirty of the human species; and the least removed from brutes.

The inhabitants of the temperate climes, the MOGULS, the PERSIANS, TURKS, GEORGIANS, GREEKS, and the nations of EUROPE, are considered as the handsomest, wisest, and best formed of all the inhabitants of the globe.

Few lame or crooked persons, however, are seen among the American Savages or the Turks.

The features and proportions of the HOTTENTOTS are different from, though in many respects conformable to, those of the NEGRO.

The NEGRO scarcely requires description: his flat nose, thick lips, and projecting mouth, are well known; as, also, are his woolly kind of hair, and his jet black complexion.

The NEGROES are as various as the Whites.

In Guinea, the blacks are extremely ugly, and emit a strong, disgusting scent. American negroes are sullen, artful, and cunning, and remarkably fond of music. Many of them can play the most difficult tune after once hearing it. In numerous instances they discover peculiar strength of intellect; and there is reason to suppose, were they to enjoy the blessings of liberty and education, in common with the whites, they would display talents as bright as those of fairer aspect and more beautiful exterior.

The AMERICAN SAVAGE, or NATIVE INDIAN, is distinguished by his copper hue, small eyebrows, and want of beard. These people are tall; have long black hair; are of a straight, slender, and active form; have a wild expression, and savage countenance. Their leading desire is a passion for the chase and for war. They appear to excel the civilized nations in courage and modesty. The savage meets torture, and even death itself, with an envied calmness; and he is never known to bathe without a

partial covering: an act of decency which white men too often neglect.

We may always discover what is national in the countenance, better from the sight of an individual, at first, than of a whole people. Individual countenances discover more the characteristics of a whole nation, than a whole nation does that which is national in individuals. Those who know the character of various nations from habitude, can immediately distinguish the people of one country from those of another, by their observations on an individual of any.

This knowledge arises from viewing their various forms of face, variation in voice, gesture, and the particular expression of countenance of each. The French, Dutch, Germans, Spaniards, Italians, English, Scots, and Irish, have each a peculiar nationality of face.

The serene, placid, peaceful countenances of the people called QUAKERS, display, in very

striking characters, the absence of all the turbulent passions. As a sect, they excel all others in the almost perfect command they have over their passions. They may be denominated a great and strong people, if it were only from the innocent, perhaps laudable, ingenuity, which they manifest in concealing their weaknesses. Long habits of self-examination, and its accompanying virtue, self-control, have stamped upon their features a most obvious expression of internal composure and tranquillity of soul. Moving in the centre of their own circumference, and abstracting their thoughts from the vices and frivolities of the age and country they live in, all their looks, gestures, and actions, bespeak them persons of one business—bent upon one object—aiming at one end—and aspiring at perfection in every thing they attempt. In those who are what *ancient Friends* (to use one of their own phrases) would have called true and steady followers of the light of grace in the heart, the most sober zeal and piety are painted in the features—mildness and benevolence beam on

the cheek—love and complacency shine through the eye; whilst fortitude and courage characterize the forehead. And even in those *Friends*, who are merely so from birth and education, the same characteristics of perseverance, steadiness, and attention, though directed more to worldly pursuits, are strikingly visible.

A Quaker, who is one from conviction and principle, cannot be a morose, vindictive, malicious, or impious character: he who is one from birth only, may possibly be all these; but even he will never be accused of indolence, imbecility, or inattention, so long as he preserves the outward forms of the sect to which he belongs. In both cases, the Quakers furnish a demonstrative evidence of the truth of the physiognomical maxim, that habits of the mind beget corresponding habits of countenance. The Jews, also, furnish a similar proof; and, in a lesser degree, the Moravians; and, still less, the Wesleyan Methodists. But to proceed with our remarks on national character:

The RUSSIANS may be known by their snub nose, and light coloured or black hair.

The JEWS, as above intimated, have the strongest national marks of any people on earth: neither time nor change of place can alter them. Their countenance, like a portrait, is the same, move it where you will. Their sallow face, pointed chin, pouting lip, black eyes, high long nose, quick speech, and abruptness in action, all discover the Israelite.

The ITALIAN may be distinguished by his long nose, black eyes, projecting chin, and brown, yet delicate, expression. His countenance is great; his form noble; his eye arduous; his imagination active and harmonious.

The DUTCHMAN has a round head, and weak hair; and exhibits a conscious, contented, and frugal countenance. His forehead high; his nose full; his eyes half open; his cheeks hanging; his mouth wide; his lips fleshy; his chin broad; and his ears large.

Correspondent with these physiognomical signs, the Dutchman is tranquil, patient, and confined. His desires seem to point to wealth and snugness. His eye and walk are silent and slow. He thinks long and speaks little—plods much—undisturbed by passion—competence and peace are his leading desires. He adores the law that defends his property.

The GERMAN traits are minute wrinkles, an unimpassioned look, and heavy expression. The German is conscious of his knowledge; yet holds a modest opinion of his genius and tactics. Fidelity, industry, and secrecy, are his prime virtues. He is moderate, frugal, and chaste; and though formal, yet not unsocial.

The SPANIARDS are meagre, and of middle size; are well formed; have fine heads; regular features; fine eyes and teeth; and dark yellow complexions.

The SCOTSMAN has high cheek bones; an unflushed, hardy, manly countenance. These

people possess great stability of character, pursuits, and studies. They are, generally, greatly alive to their own interests; plausible in their manners; and are always as deeply intent on penetrating others' secrets, as they are tenacious of their own. They are men of strong natural minds, and application; and discover much more judgment than genius. In commerce and study, they often arrive at an exalted degree of excellence, and are remarkable for steadily pursuing those advantages that lead to independence and eminence. The Scotch women are, in general, extremely handsome, healthful, and captivating.

The IRISH have expressive and manly countenances, which appear more active when silent than the English. They are volatile, cheerful, eccentric, and passionate;—full of courage and ardour. Their imaginations being under less control than others, render them erroneous, wavering, and subject to difficulties. With bosoms alive to compassion, they are generous and hospitable in their friendships; but un-

tamed and uncontrolable in their serious and just resentments. The Irish men are a compound of passion, compassion, and instability, unguarded by rectitude. Their females have strongly expressive features of beauty, candour, and affection; and are generally fair, healthful, chaste, and attractive.

The traits of the ENGLISH character are a bold arched forehead and eye-brows; their outline has great expression, and is lively; yet compactness and propriety are seen around their eyes, cheeks, and countenance. They very seldom have pointed, but often round, medullary noses. The Quakers and Moravians excepted, who are generally thin lipped, Englishmen have large, well defined, beautifully curved lips. They have, also, a round, full chin; but they are peculiarly distinguished by the eye-brows and eyes, which are strong, open, liberal, and stedfast. The outline of their countenances is, in general, great, and they never have those numerous infinitely minute traits, angles, and wrinkles, by which the Germans are so especially distin-

guished. Their complexion, also, is fairer than that of the Germans.

Lavater observes, that all the English women he has known personally, or by portrait, appear to be composed of marrow and nerve. They are inclined to be tall, slender, soft, and as distant from all that is harsh, vigourous, or stubborn, as heaven is from earth.

The FRENCH have no traits so bold as the English, nor so minute as the Germans. They may be known by their teeth, and their laugh.

Late years seem to have produced a most extraordinary change in the peculiar traits of the FRENCH character, yet they still retain much of their original temperament. Ostentation, levity, and frivolity, compose, in a great degree, their leading features. Astonished at every thing, their fancy rules and supersedes their judgment. The Gascons are considered the gayest of the French people. The whole nation, however, appears to be gradually at-

taining a greater degree of solidity, steadiness, and regularity. The late Revolution has had a tendency to bring them into an almost constant and daily contact with nearly every other European nation; and they have naturally imbibed a portion of the spirit of each. They have, too, it is to be hoped, "learned experience by the things they have suffered;" and are becoming convinced, that it is only by a steady, peaceful, faithful, and industrious conduct, that they can maintain the high and just rank which they have long held in the scale of nations. A few years more will, in all probability, effectually eradicate from the nation that "little, foolish, fluttering thing," that *petite maître*, known by the name of a French fop.

It cannot have escaped the observation of the inquiring physiologist and physionomist, that the French are manifestly losing their wonted meagre, puerile, and effeminate countenances, just in proportion as their habits and deportment acquire the character of solidity and true greatness.

The Swiss character centers in fidelity, and partakes of the rural and harmless nature of their beautiful and romantic country.

The Turks, in some points, resemble the Russians, who have, as before observed, snub noses, and brown or black hair, with fierce and untamed looks. The present enlightened and liberal emperor, Alexander, is rapidly improving the national character of his subjects.

The Greeks and Persians, like the French, are as remarkable for their gaiety as the Spaniards, Turks, and Chinese are for their gravity.

The modern Greeks are said to be mean, cowardly, and deceitful.

The Armenians in the east are distinguished among the nations with whom they reside, for probity and uprightness of character, as the Jews are in Europe for extortion and covetousness.

In these very meagre and imperfect sketches of national character, I have pointed to those traits which, in my mind, at least, are strongly corroborative of the truth and scientific character of Physiognomy. A careful examination of, and comparison with, what has already been said, and will hereafter be stated, respecting the contour of the human face, whether considered in a national point of view, or as applying to individuals, and of its correspondence with the manners, habits, and dispositions of those to whom they are respectively ascribed, will set the question whether Physiognomy be or be not a science completely at rest.

If certain signs correspond with certain characters, and if those signs can be traced, in most cases, with an unerring hand, to their several and respective objects, what more is required to prove this great and valuable truth?

## SECTION II.

### PRACTICAL PHYSIOGNOMICAL DETAILS AND OBSERVATIONS, ORIGINAL AND SELECTED, DEMONSTRATIVE OF THE TRUTH OF THE FOREGOING DOCTRINE.

I AM aware that many persons will object to the general strain of reasoning in the foregoing section, as too loose and indefinite, unless some details, illustrative or demonstrative of its truth and accuracy, are given. These I, therefore, undertake to give in the present one.

I have not, however, undertaken to write an elaborate treatise on the science of Physiognomy, but only to direct to first principles, and to delineate the leading features of this great subject; yet sufficient may be accomplished even on a narrow scale, to convince the candid student, that in the pursuit of his physiognomical

investigations, he is not running after a phantom, or courting a mere shadow.

Before we proceed to what may be termed the particulars of this science, it will not be amiss to suggest the following hints and directions to the student, as being so many general

## PHYSIOGNOMICAL RULES.

### I.

If the first moment in which a person appears in a proper light, be entirely advantageous to him; if the first impression he makes upon the observer have nothing in it repulsive or oppressive, and produce no kind of constraint; but if, on the contrary, you feel yourself, in his presence, continually more cheerful and free, more animated, and contented with yourself; though the stranger do not flatter you, nor even speak to you, rest assured, that such an one will, so long as no other person intervenes between you, insensibly increase in your estimation. Nature has formed you for each other. You will be able to say much to each other in

a very little. Study, however, carefully to delineate the most speaking traits of character.

II.

Some countenances gain greatly upon us the more they are known, though they please not at the first moment. There must, therefore, in such cases, be a principle of dis-harmony between them and the observer, which prevents them from producing their full effects at first sight; and also a principle of harmony, by which they grow in estimation more and more every time they are seen.

Seek, then, very diligently, that particular trait which does not harmonize with your feelings. Should you find it not in the *mouth*, be not too much disheartened; but should you perceive it there, observe carefully in what moments, and on what occasions, it most clearly displays itself.

III.

Whoever is most unlike, yet like to himself: that is, as various, yet as simple as possible;

as changeable, yet unchangeable and harmonizing as possible, with all animation and activity; whose moveable traits never lose the character of the firm and determinate whole, but are ever conformable to it; let him be held sacred to your heart.——But wherever you perceive the contrary, that is, a conspicuous opposition between the firm, fundamental character, and the moveable traits, then be doubly on your guard: for there, rely upon it, is folly, or some obliquity of understanding.

IV.

Observe those fleeting moments, rapid as lightning, of complete surprise; and mark, with as much percision as possible, whether the person, so agitated, can, in those moments, preserve the lineaments of his countenance in a favourable and noble equilibrium. Should he then betray no trait, no sign, of malignant joy, envy, or cold and proud contumely, he possesses a physionomy and a character capable of abiding every proof to which a weak and sinful man can be, or ought to be, subjected.

This is an extremely difficult rule to be observed; but long and diligent habits of patient examination will render it familiar to the physionomist, and it will tend wonderfully to promote a spirit of physiognomical discernment.

V.

The foregoing rule is not meant to interfere with this, which will be found to be accurate and useful. Very discreet, very cold, or very dull; but never truly wise; never warmly animated; never capable of fine sensibility, or tenderness, are those, the traits of whose countenances *never* conspicuously change:—Very *discreet* when the lineaments of the countenance are well proportioned, accurately defined, and strongly pronounced—very *dull* and *cold*, when the lineaments of the countenance are flat, without gradation; without character; without flexion or graceful undulation.

VI.

Obliquity of character and disposition is almost inseparable from obliquity of figure, mouth, walk, and deportment. Wherever this general

tendency to a devious form or habit is found, you may generally reckon upon finding inconsistency, partiality, sophistication, falseness, slyness, craftiness, and contradiction; with a cold, sneering, and insensible heart.

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In the selection of the following details I have, for the most part, availed myself of the observations of Lavater; but have not omitted to intersperse them with my own remarks whenever it has appeared to me that the subject demanded it.*

Though the science of Physiognomy is, by no means necessarily confined to a study of the human face; but may, and does apply to the whole exterior of men and things, the instances I shall adduce, in which the truth of the science is, in my mind, demonstrated as incontestibly as any problem in

* The Editor greatly regrets, that the extent to which this work is necessarily limited, will not permit him to avail himself of the numerous drawings with which Mr. Cooke had amply and ably illustrated his MS. on this subject.—EDITOR.

Euclid, or any other mathematical fact whatever, shall be principally drawn from the contour of the head and face.

The head is that part of the human body which of all others is most honourable to men, and most characteristic of his superiority over the brute creation generally, and of his fellow men by comparison. It is the grand repository of intellect; the seat and the throne of wisdom; the fountain and the centre of every god-like quality. It is to the face that we first direct our inquiries concerning character. To the symmetry of the features, and the form of the head, that we are indebted for our first impressions of beauty, or of ugliness, of the virtues or the vices of an individual.

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## OF THE FOREHEAD.

I was almost tempted, says Lavater, to write a whole volume on the *forehead* only. This is that part of the body which has been justly denominated The Gate of the soul—the Temple

of modesty. Let us, then, commence our examples with instances of mental strength and weakness, of intelligence and stupidity, as they are indicated by the form of the forehead.

A lengthened forehead generally indicates a weak imbecile mind; and, of course, on the contrary, the shorter, closer, and more compact it is, the firmer and more concentrated is the character.

To this, as in other instances, there are, it must be confessed, several exceptions; but it is sufficient to my purpose, that it is true in most cases. And I might appeal to the experience of the most inveterate enemies of our science for the truth of this fact. Scarcely an instance, I believe, will be found, of great energy and elasticity of mind, combined with a long, extenuated, and narrow forehead.

Arched contours, without angles, are indicative of gentleness and flexibility of cha-

racter; and, on the contrary, firmness and inflexibility of character accompanies straight contours of the forehead.

Indeed, generally speaking, greatness of soul, and goodness of disposition, are at variance with acute and repeated angles of the physionomy.

There, perhaps, never occurred an instance of great understanding, accompanied by complete perpendicularity from the hair to the eyebrows.

Let the reader examine the foreheads of all the great and wise men he has personally known, or of whom he has been able to collect accurate portraits or profiles, and he will find superiority of intellect invariably attend a retreating forehead; at all events, never to be united with an entirely perpendicular one.

If, however, the form of the forehead, though approaching to perpendicularity, be

invariably arched, or bent at the top, we may generally pronounce the possessor to be a person capable of much reflection—a steady, and even a profound, thinker.

Prominent foreheads, starting, as it were, in sudden and abrupt projections from the head, and overhanging the lower parts of the face, are almost certain signs of a feeble and contracted mind; still, and likely to remain so, in a state of immaturity.

It is generally the case with newly-born infants, that they have somewhat prominent foreheads; which begin to recede as they advance in years.

Sloping, or retreating foreheads, are, for the most part, indicative of great imagination, accompanied by a high and noble spirit, and a corresponding delicacy of mind and character.

When you find a forehead, rounded and prominent above, after having risen with some

degree of perpendicularity from the eye, you may, in general, attribute to the possessor a considerable fund of judgment, vivacity, and irritability; but it is that sort of ardent character which is almost universally accompanied by a hard, cold, and cheerless heart towards the feelings and interests of others.

Liveliness and vivacity of character also accompany foreheads that are straight lined, and are placed obliquely.

Females who have rather straight foreheads, though they can scarcely ever be properly denominated deep thinkers, nature not having designed them for those pursuits in life in which much profundity of thought is requisite, are generally persons of tolerably clear and correct understandings.

The perfection of wisdom is uniformly indicated by a happy position of the forehead, neither too straight nor too sloping, and in which there is an association of straight and curved

lines, gently, as it were, undulating and falling into each other in an imperceptible manner.

Perfect straightness and uniformity, as well as sharply-pointed and abrupt angles, are not only incompatible with greatness of intellect, but are contrary to the general taste and course of nature. The order and beauty of the visible creation are everywhere manifested by those almost-imperceptible undulations, in the form and character of the works of nature, that strike the eye, as well in the heavens above us, amidst the variegated clouds of the atmosphere, as in hills and vallies below. In neither of these portions of the universe do we observe unvarying straightness, continuity of line, or acute and sharp angularity. Just so, also, is it with the "human face divine," where nature has bestowed her richest bounties, and sits enthroned in her most majestic robes of honour and goodness.

I do not, however, contend, that unevenness and irregularity, as such, necessarily combine

with superior wisdom and sagacity: for, indeed, that is not the case. I deprecate only confused wrinkles, and acute angles, which wisdom abhors.

In consonance with this fact, Lavater asserts, that he durst almost venture to adopt it as a physiognomical axiom, that there is the same relation between straight lines and curves, considered as such, as there is between strength and weakness, between stiffness and inflexibility, between sense and mind.

With the same assurance and confidence, it may be remarked, that a prominent bone of the eye is an almost sure sign of a peculiar aptitude for mental labour; and of an extraordinary sagacity for great enterprizes.

I will not take upon me to assert, that there never yet existed a person devoted to great mental exercise, whose eye-bone did not possess any very obvious marks of prominence; but this, I believe, may be remarked without

danger to our science, that, a prominent eye-bone, unless counteracted by some very glaring defect elsewhere, thwarted by some inveterate habits of immorality, or some grievous malady of the body or mind, never was found to indicate any other quality than that of intellectual industry and great foresight.

It must be confessed, however, that, even without this prominent angle, there are to be found some good heads, which, on that account, have only the more solidity, when the under part of the forehead sinks, like a perpendicular wall, under the eye-brows, placed horizontally, and when it rounds and arches imperceptibly, on both sides, towards the temples.

Neither wit, imagination, nor sensibility of character, comports with perpendicular foreheads, which advance without resting immediately on the root of the nose, and are either narrow and wrinkled, or smooth and very short.

Foreheads loaded with many angular and knotty protuberances, are the certain marks of a fiery and impetuous spirit; impatient of restraint, and inaccessible to the "still small voice" of reason and conscience.

Foreheads which present in profile two well-proportioned arches, of which the lower one is observed to advance, are always indications of a clear and sound understanding, and of a good complexion.

Let the physiognomical student carefully examine all the ideal heads of antiquity in which are intended to be depicted great elevation of mind and goodness of heart, and he will find that the eye-bone is very apparent, distinctly marked, and arched in such a manner as to be easily hit in drawing. What the ancient painters and sculptors imagined of intellectual greatness, was founded in fact and in experience.

Great judiciousness, and decision of cha-

racter, are clearly indicated in those foreheads that are square, whose lateral margins are still sufficiently spacious, and whose eye-bone is, at the same time, very solid and compact.

I have already objected to a wrinkled forehead; but that has been to irregular, horizontal, broken lines, which are the usual signs of mental weakness, or indolence; whereas, perpendicular wrinkles, when they are otherwise analogous to the forehead, suppose considerable application and energy.

Unless counterbalanced by some positively contradictory signs, profound perpendicular incisions in the bone of the forehead between the eye-brows, denote uncommon capacity, and a noble and intelligent habit of thinking.

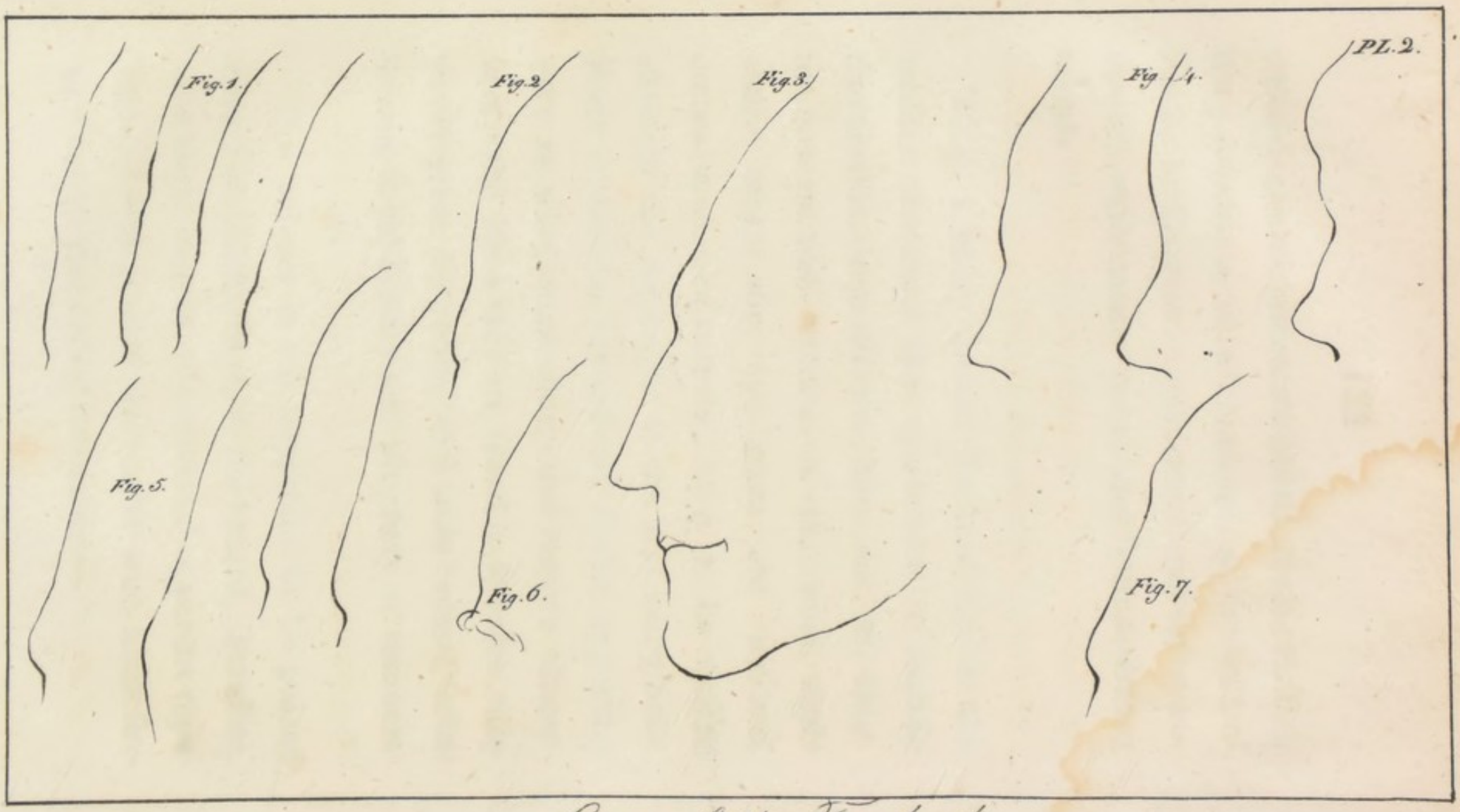
When the frontal vein, or, as it is sometimes called, the bluish Y, appears very distinctly in the middle of an open forehead, free from horizontal wrinkles, yet regularly arched,

we may almost invariably reckon upon finding the possessor to be a character almost enthusiastic in his love of goodness; and to be endowed with some great and extraordinary talents.

When a finely arched forehead has in the middle, between the eye-brows, a slightly discernible perpendicular line, not too long or two parallel wrinkles of that kind, especially when the eye-brows are marked, compressed, and regular, it is to be ranked amongst the foreheads of the first magnitude. Such foreheads, beyond all doubt, appertain only to wise, masculine, and mature characters; and when they are found in females, they imply great discretion, and sound sense, betokening royal dignity and propriety of manners.

This subject is too important to be passed over with indifference, at the hazard, therefore, of a slight degree of occasional apparent repetition, I will present the reader with some further details respecting foreheads :—

PL. 2.




Lines of the Forehead.

That forehead betokens weakness of intellect which has, in the middle and lower part, a scarcely observable long cavity, being itself consequently long. I say scarcely observable: for when it is conspicuous, every thing is changed. (See PLATE II. *Fig.* 1.)

Foreheads inclining to be long, with a close-drawn wrinkless skin, which exhibits no lively, cheerful wrinkles even in the few moments of joy, are cold, malign, suspicious, severe, selfish, censorious, conceited, mean, and seldom forgive. (See PLATE II. *Fig.* 2.)

Strongly projecting, in the upper part, very retreating foreheads, with arched noses, and a long under part of the countenance, continually hover over the depths of folly. (See PLATE II. *Fig.* 3.)

Every forehead which above projects, and below sinks in towards the eye, in a person of mature age, is a certain sign of incurable imbecility. (See PLATE II. *Fig.* 4.)

The fewer hollows, arches, and indentations, and the more of smooth surface, and apparently rectilineal contour, are observable in a forehead, the more is that forehead common, mediocre, destitute of ideas, and incapable of invention. (See PLATE II. *Fig.* 5.)

There are fine arched foreheads that appear almost great, and indicative of genius, which are yet little more than foolish, or only half wise. This mimicry of wisdom is discernible in the scantiness, or in the wildness and perplexity of the eye-brows. (See PLATE II. *Fig.* 6.)

Long foreheads, with somewhat spherical knobs in the upper part, and not commonly very retreating, have always an inseparable three-fold character:—The glance of genius, with little of a cool, analyzing understanding—pertinacity with indecision—and coldness with impetuosity. With these they have also something refined and noble. (PLATE II. *Fig.* 7.)

Oblique wrinkles in the forehead, especially

PL. 3.

Fig. 1.



Fig. 2.

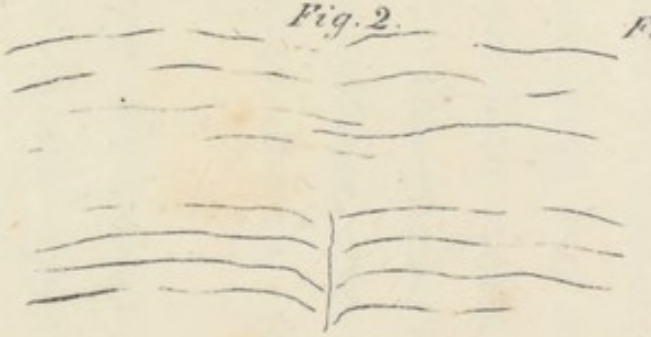


Fig. 3.





Fig. 4.

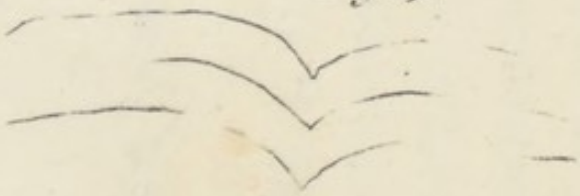
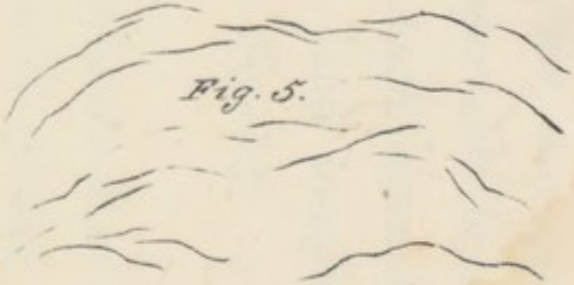


Fig. 5.



W. Bell. sculpt. Philada.

when they are nearly parallel, or appear so, are certainly a sign of a poor, oblique, suspicious mind. (See PLATE III. *Fig.* 1.)

Parallel, regular, not too deep wrinkles of the forehead; or parallel, interrupted lines are seldom found, except in very intelligent, wise, rational, and justly-thinking persons. (PLATE III. *Fig.* 2.)

Foreheads, the upper half of which is intersected with conspicuous, especially if they are circularly arched, wrinkles, while the under half is smooth and wrinkless, are certainly dull and stupid, and almost incapable of any abstraction. (See PLATE III. *Fig.* 3.)

Wrinkles of the forehead, which, on the slightest motion of the skin, sink deeply downwards, are much to be suspected of weakness.

If the traits are stationary, deeply indented, and sink very much downwards, you may entertain no doubt of weakness of mind or stupidity, combined with but little sensibility, and with great avarice.

But let it be remembered, at the same time, that genius, most luxuriant in abilities, usually has a line which sinks remarkably downwards in the middle, under three almost horizontal parallel lines. (See PLATE III. *Fig.* 4.)

Perplexed, deeply-indented, wrinkles of the forehead, in opposition to each other, are always a certain sign of a heart perplexed, and a character very difficult to manage. (See PLATE III. *Fig.* 5.)

A square superfices between the eye-brows, or a gate-like wrinkless breadth, which remains wrinkless when all around it is deeply furrowed, is a sign of the utmost weakness and confusion of intellect.

Rude, harsh, indelicately suspicious, vain-glorious, and ambitious, are all those in whose foreheads are formed strong, confused, oblique wrinkles, especially when with side-long glance they listen on the watch with open mouth.

So much had experience and matter of fact confirmed the excellent Lavater in his opinion respecting well formed and open foreheads, that he advises his readers never to despair of those persons, whether friends, enemies, or even malefactors, in which such striking indications of goodness are found. However far such an one may, from peculiar circumstances, depart from the right line of truth and rectitude, he is invariably susceptible of amendment, and ought not to be rashly or hastily given up.

That the reader may have as clear and comprehensive a view of this subject as possible, the following may be considered as a summary of the distinctive signs of a perfectly beautiful forehead, whose expression and form at once announce richness of judgment and dignity of character.

Such a forehead, it is remarked, must be in the most exact proportion with the rest of the face; that is, equal in length to the nose and lower part.

Its breadth ought to approach towards the summit, either to the oval or to the square.

It must be exempt from every species of inequality and permanent wrinkle; but must, at the same time, be susceptible of these, yet exhibiting such contractions only in the moments of serious meditation, and in emotions of grief or indignation.

It must retreat above and advance below.

The bone of the eye must be smooth, and almost horizontal; when viewed downwards, describing a regular curve.

The colour of the skin ought to be clearer on the forehead than on that of the other parts of the face.

In such perfect foreheads as these we are describing, the contours will be disposed in such a manner, that if you perceive a section which comprehends nearly the third of the

whole, you will scarcely be able to distinguish whether it describes a straight line or a curve.

It is not to be expected that all these signs of beauty, goodness, and greatness, should be very frequently met with in the same person; but I will venture to put the entire credit of this admirable science to the test of an investigation on this very point; and will defy the most determined enemy of Physiognomy to produce a single instance of weakness, imbecility, or culpable effeminacy of character where they are found.

It is greatly to the honour of this science that it delights in collecting and enumerating the good qualities of physionomies, rather than those which are dubious, or decidedly vicious. Hence, those who are most expert in discernment—most enamoured of the subject—and best able to appreciate its value to themselves, or to recommend it to the notice of others, but seldom feel disposed to sum up the signs of a

bad, or even a defective countenance. It sufficeth them that they lay down the rules and emblems of goodness; modestly and charitably leaving every painful inference to those who have pleasure in the contemplation of the vices and the weaknesses of our common nature.

Influenced, therefore, I trust, by this genuine physiognomical feeling, and following the example of those wise and good men from whom I originally imbibed such a spirit, I have not thought it necessary to my purpose to draw the reverse of this picture, nor to present any general outline of those foreheads which comport only with folly and wickedness.

The true physionomist will use his skill in this science as a wise and a humane man would wear his sword, which he never draws but in the defence of insulted innocence, or for absolute self-preservation. In these cases he fears no daring. He is ready to maintain the dignity

of his character, and support, with becoming fortitude, the justness of his pretensions. Let me but have the wish and the opportunity to associate with the good, and I shall soon have but little occasion to be put upon my defence against the contaminating influence of the base and the ignorant. By a patient study of the characteristics of genuine greatness and excellence, we shall not fail to attain a sufficient degree of physiognomical discernment, to enable us, in nine cases out of ten, to separate the precious from the vile, and to select for our companions and friends those by whom we shall be improved and exalted, rather than those whose dispositions and habits might corrupt and debase us.

This consideration is alone a sufficient reason for endeavouring to prove, beyond the power of contradiction, that Physiognomy is indeed a science. In pursuing, therefore, this important part of the subject, I shall endeavour, assisted by the same venerable authorities as heretofore, to lay down some further rules respecting fore-

heads. It is a point that cannot be too minutely investigated, too intensely studied, or too clearly understood.

Try, says Lavater, and you will presently find that the forehead of an idiot, born such, differs in all its contours from the head of a man of genius, acknowledged as such.

A forehead, whose fundamental line is two-thirds shorter than its perpendicular height, is decidedly that of an idiot. The shorter and more disproportioned this line is to the perpendicular height of the forehead, the more it marks stupidity: on the contrary, the longer the horizontal line is, and the more proportioned to its diagonal, the more the forehead, which it characterizes, announces capacity and intelligence.

Apply the right angle of a quadrant to the right angle of the forehead, the more that the radii (those, for example, between which there is a distance of ten degrees) contract in an une-

qual proportion, the more stupid that person is. On the other hand, the nearer relation these radii have to each other, the more wisdom they indicate.

When the arch of the forehead, and especially the horizontal radius, exceeds the arch of the quadrant, you may be assured that the intellectual faculties are essentially different from what they would be if that arch of the forehead were parallel; or, finally, if it were not parallel with the arch of the quadrant.

The scientific reader will very readily understand this, though, without an appropriate engraving, it will not be so obvious to one who is unacquainted with the technicalities of geometrical proportion, and mathematical investigation.

Let such an one, however, carefully examine the forehead and skull of an infant, and he will find it to possess a greater degree of obtusity and protuberance, during its earliest stages of

infancy, than afterwards will be found to be the case, as its faculties become matured.

These are so many eternal truths, which all the wit and sarcasm in the world cannot eradicate or gainsay. They are truths within the scope of every man's observation; such, as if we do but pay a moment's attention to, as opportunities arise, must strike us with the force of demonstration.

So satisfied am I of their truth and reality, that, I must confess, I should have very little hesitation in pronouncing on the general form and position of that man's head and skull, who, after having seriously endeavoured to prove their truth or fallacy, should write me word, that he had never been able to come to a conclusion on the subject. Such an unsuccessful inquirer might, perchance, be a very honest-hearted, well-disposed man; but I should never set him down for a man of much depth of judgment, or profundity of thought. The forehead of a man, said Pliny, is the index of sorrow, cheerfulness, clemency, severity.

Let me ask the objectors to these facts, and to our reasonings upon them, how it happens that what in ancient, and even in modern sculpture, we denominate a fine, open, Grecian forehead, is uniformly found to be one which possesses not complete perpendicularity, which is not long nor contracted, which projects not from the face in an idiot-like rotundity; which rises not in bumps and inequalities, nor falls back with an undeviating obliquity; but gently retreats, gradually rising near the top, in graceful elegance, and possesses a perfect homogeneousness with the other parts of the face? How comes all this, if the form and position of the forehead has no relation to the internal qualities of the mind?*

* Let the most severe anti-physionomist take this little book in his hand, and, turning to this section of my friend's on Foreheads, or to those parts of Lavater, from whom he appears principally to have collected his ideas on this subject; let him walk through any gallery of portraits, or exhibition of ancient sculpture, and he will find demonstrations of this doctrine everywhere stare him in the face. A single half hour spent in the British Museum, either in the older collections, or in the more recent one of the Elgin marbles, will soon convince him that the Roman and the Grecian

Surely it will not be said that those ancient artists who undertook to portray the characters of strength and weakness, of virtue and vice, of beauty and deformity, proceeded on ideas which had no reality in nature and observation. Did they paint, or carve, from notions that were totally false and arbitrary? Certainly not. In giving to each character that peculiar cast of features which they imagined indicative of the peculiar mind it was meant to represent, they acted upon the genuine principles of physiognomical discernment. They drew their models from living characters: they depicted their heroes and their gods after the models of the wise and the great amongst their fellow men. If they sometimes exaggerated, they acted only on the common principle of what is now called theatrical effect; but it was

artists uniformly depicted their ideas of beauty and dignity of character upon this very doctrine concerning the form and position of the forehead. Phideas, whose works in the collection here alluded to, so lately filled with the most devout and enthusiastic admiration the soul of the justly celebrated Canova, during his recent visit to this country, was evidently no unskilful adept in the science of Physiognomy.—EDITOR.

an effect bottomed on the immutable basis of truth and matter of fact.

Neither the Apollo Belvidere, nor the Venus de Medicis, were, in fact, representatives of extravagant, unnatural, or even arbitrary characters. They were, it is true, the representations of the perfection of beauty; but they had nothing in their forms which did not belong to, or was not, indeed, really attached to such qualities amongst mankind in general. The artists very well knew that there did exist a close and intimate connection between the form of the body and the frame of the mind; and they uniformly acted upon those solid and invariable principles of physiognomical truth which I have here endeavoured, however feebly, to assert and illustrate.

A sculptured hero, or a demi-god, with a chubby projecting forehead, would have excited the merriment of the vulgar, and the contempt of the discerning. This the most ignorant of the ancient artists knew perfectly

well, and guarded against so frightful an anomaly.

It has already been intimated that the foreheads of females are, generally, perpendicular; but let any one examine the foreheads of those females who have been remarkable for a greater degree of profundity, sagacity, and strength of intellect, or courage, than usually falls to the share of their sex, and he will find, with few, if any exceptions, that they are more curved and retreating; that is, approaching nearer to the form and position of masculine greatness than ordinary. Take, for example, a good portrait (if, indeed, such an one can be found) of the late Catherine, Empress of Russia. Examine with attention the noble and exalted contour of her forehead; rising in majestic grandeur from the eye-bone, and presenting an openness and dignity, almost approaching to the character of the most renowned heroes of our own sex. All this is more or less visible in every profile which I have seen of that great princess. I say nothing here of the other parts

of her face; and indeed in most of the portraits I have seen, not only of this exalted personage, but of others of like character, if such another character ever had existence, there has been an evident want of homogeneousness in the several portions of their physionomies.

In the forehead of the Empress Catherine, there does not exist a particle of feminine gentleness or benignity—it is the portraiture of greatness; and no one will dispute her majesty's title to that distinction, who has read her history; not that of modesty, chastity, or mildness; virtues for which, with all her great qualities, Catherine was not, alas! very conspicuous.

Let any person take a good portrait of Queen Elizabeth, one of the greatest sovereigns that ever swayed the British sceptre, and let him compare her forehead with that of females in general, and he will find the truth of every thing I have said on this point most amply verified.

As it is impossible for me here to furnish a sufficient number of portraits necessary to illustrate this very important doctrine respecting foreheads, I must content myself with directing the reader to such works as contain them ; or, at least, something that may serve for a substitute for better and more accurate ones: Granger's Biographical Dictionary of England has been often illustrated, and copies are occasionally to be met with in private and public libraries; but that is a work which can only be consulted as a sort of index to what has been done by others.

It may seem natural that I should, in the first instance, have directed the attention of the young physionomist to Dr. Hunter's Lavater, in which it might be supposed, every thing, by way of illustration, that is necessary, would be found. That, however, is not the case. Dr. Hunter's edition, though infinitely superior to the French edition, from which it is translated, is still mainly defective, as, indeed, is the original Lavater itself, in the variety and selec-

tion of portraits, especially for the use of the English student. In the year 1802 was published, as a supplement to Dr. Hunter's work, "Lavater's Physiognomical Sketches," consisting of fifty plates, illustrated by fac-simile remarks at the bottom of each. My object, in this place, is to direct the reader's attention to the portraits and characters of universally known persons of eminence or notoriety* in the world; but particularly of those of our own country.

The expensive *Memoires du Compte de Grammont, par* Hamilton, might be consulted with advantage for examples of female physionomies, were the portraits in that work sufficiently authenticated.

A much more useful work is Lord *Walpole's Anecdotes of Painting*, by Park; nor should the

* A complete collection of what may be called Physiognomical Biography is hitherto a *desideratum* of great importance. *A Physiognomical History of England*, for instance, would be as useful and as interesting as it would be inviting and curious.—EDITOR.

work, entitled *British Portraits,* be overlooked; but that work, I believe, has never been completed.

Houbraken and Vertue's "*Heads of Illustrious Persons of Great Britain,*" published, I think, in 1756; *Portraits of Illustrious Persons of Scotland,* with Biographical notices, by Pinkerton, together with *Pirenesi's Statues,* consisting of thirty-four engravings of the most celebrated antiques, are all works that may assist the physiognomical student.

I cannot wholly dismiss this subject without an observation or two on a work published a few years ago in London, entitled *The History and Antiquities of Dissenting Churches,* &c. This work contains, I believe, some hundreds of tolerably good portraits of divines, most of them of the age of the Act of Uniformity; and many of them copied from original paintings in the Dissenters' Library, in Redcross Street, London. Whoever has seen that work, and has examined the portraits, can scarcely have failed to notice

the great similarity of air and countenance that obtains throughout the whole collection. Generally under the influence of the same feelings; entertaining the same views; and adopting the same habits of life, these puritan divines afford a striking illustration of the uniform connection that exists between form and character.

The same remarks will, generally, though not with equal force, apply to the portraits which are intended to adorn the Evangelical and the Methodist Magazines.

These observations, simple as they may appear, are not unworthy the attention of the student in Physiognomy.

The portraits, though so miserably executed, and, doubtless, so inaccurately drawn, in *Johnson's Lives of Highwaymen,* at least show that it is impossible for the most ignorant painter or engraver to employ himself in this branch of his art, without paying some degree of attention to the rules of physiognomical discrimination.

Indeed, as I shall hereafter show, this science insinuates itself, more or less, into all our pursuits; and, however stoutly denied by some, is acted upon by all.

Outlines, or silhouettes, are certainly preferable in the study of the form of the forehead to portraits; but, unfortunately, there does not exist any work professedly on this subject.

I am aware, that in recommending to the opposers, as well as to the friends, of this divine science, the practice of comparing my written delineations of character with real life, or the best possible, painted or graphic representations of it, I am putting the science to a very severe test. But, let it be so; by the result of an impartial examination I am willing that the truth of every thing I advance on the subject should stand or fall:

> Imposture shrinks from light,
> And dreads the curious eye—

Truth invites investigation, and courts in-

quiry with a zeal and a sincerity proportioned to its importance; and if, as Pope has admirably expressed it,

"The proper study of mankind is man,"

The science of Physiognomy embraces one of the most important branches of human knowledge of which the mind is capable. Whatever, therefore, tends to confirm and strengthen its decisions, ought to be encouraged with zeal and promptitude.

Much more might be said on the subject of foreheads; but let these few facts suffice. They are, as far as they go, I apprehend, conclusive in favour of my position, that Physiognomy is a science. They are simple, and easy of comprehension; clear and definable in their nature.

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## OF THE EYE.

"The light of the body is the Eye."

I dismiss, with some degree of reluctance, the delineation of the Forehead, and enter upon

that of THE EYE. The former is certainly a greater favourite, if I may use such an expression, with the scientific physionomist:—the latter, as being more obvious and inviting, is more admired by the multitude.

On this part also, as on that of the forehead, I shall not scruple to avail myself of the facts and observations of the German physionomist, whose experience but seldom deceived him, and which accords so admirably with that of every other person who has made this science his study. I shall, however, here also reserve to myself the fullest liberty to intersperse my own observations, and the results of my own investigations.

I believe, it will be very generally found, that blue eyes are associated with some degree of weakness and indecision of character. To this rule, however, there are numerous exceptions; and the prudent physionomist had need pronounce on blue eyes with great caution and reserve. A slip on this point will greatly en-

danger the reputation of his science: for blue eyes are great favourites with the anti-physiognomists. When attacked, however, on the point, he may ask how it happens, that so few of our great men have blue eyes; and why they are mostly given to the softer portions of the softer sex? But again, let me caution the young student in Physiognomy to beware how he offend on this point. I will venture, however, to assert, that Shakespeare could never have entertained any idea of an azure cast, when he spoke of the poet's eye "in a fine phrenzy rolling." No: rely upon it, had our immortal dramatist been asked the question, as to what colour he would have the painter resort in describing the eyes of the true poet of nature, he would have said, "*yellow*, approaching to *hazel*, by all means." He, whose mind is pregnant with the celestial fire of genius; whose imagination is elevated with the vigour of noble sentiment; who soars in intellect above the sublunary images and objects of this nether world; and lives amongst the heroes of antiquity; or wanders through the vast regions of

an ideal universe of spirits and of gods, looks not into the souls of his associates with the alluring eye of blue effeminacy.

There are, nevertheless, men of energetic minds who have blue eyes, though I have but seldom met with them. It is worthy of remark, that they are but rarely found with persons of a choleric temperament, whose eyes are mostly of a green or hazel cast. After all, however, much intelligence is frequently found in blue eyes, however ill they usually comport with habits of profound thinking, or of superior depth of judgment. I am not here speaking of the *beauty* of the eye; for, perhaps, blue eyes will bear a comparison in this respect with most others. This is said without meaning any disparagement to black eyes, as they are called. I say as they are called, because, in reality, no eyes are absolutely black; as M. de Buffon has clearly proved.

Blue eyes are not unfrequently found combined with the sanguine temperament, though,

certainly, they are no essential characteristics of it; when, nevertheless, they happen to associate with characters of a sanguine-choleric temperament, which is sometimes the case, you may very safely rely upon finding the possessor to enjoy no small share of intellectual powers, particularly those of genius and imagination. In such persons the charms of rhetoric and of oratory; the enchanting illusions of poetry, and the warm emanations of love, are seen to superior advantage, as they pass in quick succession before the notice of the observer; dancing, as it were, in the rapid movements of the iris, darting its restless glances in every possible direction.

These points are, however, too much matters of taste to allow the thoughtful physionomist to rely upon them with any very great degree of confidence.

It is with the form; the position; the contour of the eye, and with those portions of the human countenance by which it is guarded, and

surrounded, rather than with its colour, that the physionomist has to do. In these he discovers, even when that beautiful organ is at rest; if, indeed, that may be said ever to be at rest, which, in some persons, almost continually "wanders to the ends of the earth," strong indications and distinct signs of intellectual powers and propensities.

Although the eye is almost universally resorted to in the very first instance by most practical physionomists, I can scarcely tell how to account for it; but I enter upon its delineation with a degree of fear and trembling, to which I do not feel myself exposed when contemplating the more tangible and permanent characters of the forehead.

The eye is too much under the control and influence of Pathognomy to admit of such constant certainty of decision as the more solid parts of the face present. But then, it speaks with greater apparent perspicuity, and addresses itself more directly to our observation

than most of the other features; and yet, after all, it is more apt to deceive the inattentive, or the hasty observer.

Let us, therefore, be upon our guard against pathognomical delusions in our inquiries concerning the eye, and we shall derive a wonderful fund of physiognomical information from this little interesting organ, which has been not inaptly denominated the window of the soul. It is, indeed, a window that may be seen through, as well from without as from within; only that those who attempt to take a view of what is passing internally through this casement, must take care that they direct their looks at a time when it is not dimmed by art, obscured by disease, or disfigured by accident.

On this very account it will be proper to devote our most serious and earnest thoughts to the external parts of the eye, rather than to the colour of the iris.

When the border, or last circular line of

the upper eye-lid describes a complete arch, it is the mark of a good disposition, and of much delicacy; sometimes also of a character timid, feminine, or childish.

Eyes which, being open, or not being compressed, form a lengthened angle, acute, and pointed towards the nose, generally indicate very judicious, or very cunning persons. If the corner of the eye be obtuse, the face has always something childish.

When the eye-lid draws itself almost horizontally over the eye, and cuts the pupil diametrically, we may generally reckon upon the possessor being a person of considerable acuteness, extremely dexterous, and of superior cunning. It should not, however, be rashly declared, that this form of the eye is an infallible mark of a want of integrity. Lavater confesses, that he has had frequent conviction of the contrary.

Eyes widely expanded, in which is seen a great

deal of white under the pupil, are common to both the phlegmatic and the choleric temperaments. But, on making a comparison, they are easily distinguished. Those of the former are feeble, heavy, and vaguely designed. The others are full of fire, strongly marked, and less sloped. They have eye-lids more equal, and shorter, but at the same time, not so fleshy.

Eye-lids retreating, and very much sloped, for the most part, announce a choleric humour. They discover, also, aptitude for the fine arts, and bespeak considerable taste and judgment.

It is remarkable that eye-lids of this description are but seldom seen in women; and when they do so appear, they almost invariably belong to females of a more than ordinary capacity and power of intellect.

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## OF THE EYE-BROWS.

From a consideration of the eye-lids, we naturally direct our attention to the *eye-brows.*

These are of singular importance in the study of this science :—

Gently-arched eye-brows express the modesty and effeminacy of virginity; on the contrary, when they proceed in a straight forward horizontal line, they are indicative of manliness and courage.

When their form is of a mixed character, partly horizontal and partly curved, they denote great strength of mind, combined with ingenuousness and goodness.

When the eye-brows are harsh and disordered, they are always the sign of an uncontrolable vivacity; but this very confusion announces moderated fire, in cases where the hair is of a fine texture.

When the eye-brows are thick and compact, and the hairs lie in parallel lines, they decidedly indicate a solid and mature judgment, profound wisdom, and sound and steady sense.

Lavater remarks, that he had never seen a profound thinker, nor even a man firm and judicious, with the eye-brows placed very high, dividing the head into two equal parts.

Thin eye-brows are an infallible mark of phlegm and weakness; not but that a choleric and very energetic man may have eye-brows somewhat thin; but their smallness always diminishes the force and vivacity of the character.

Angular and intersected eye-brows denote the activity of a productive mind.

The more the eye-brows approach to the eyes, the more serious, profound, and solid is the character, which loses its force, its firmness, and its intrepidity, in proportion as the eye-brows mount.

A great distance between the eye-brows announces quickness of conception, and a soul composed and tranquil.

White eye-brows are almost infallible signs of a feeble constitution. Dark brown ones are the emblems of force.

The justly-celebrated Buffon has remarked, that the eye-brows strike more than any other feature: They are, says he, a shade in the picture, which relieve the colours and the forms of it.

The motion of the eye-brows is of infinite expression :—It principally serves to mark the more ignoble passions, pride, anger, and disdain.

The motion of the eye-brows, however, belongs more immediately to the study of Pathognomy. The reader will find ample information on this head in Le Brun's Treatise on the Character of the Passions.

It has been somewhere remarked, that if an attempt were made to form a judgment of whole nations, on such or such a separate part of the

face, the English would obtain the preference in respect of eye-brows. With them this trait always characterizes the deep thinker.

I have repeatedly examined the physionomies of profound thinkers; and have noticed the portraits of numerous persons renowned for their judgment, penetration, and profundity of thought and conception, and have almost invariably found, that they have been distinguished for dark brown, strongly, but compactly, marked eye-brows.

So strong is the general impression, that deeply tinged, and regularly formed eye-brows denote some degree of personal superiority, that people of fashion, as they are named, anxious to call in those adventitious auxiliaries to beauty, which nature has denied them in reality, very frequently make use of a leaden comb, or some dark composition, to give a deeper shade to light and undefined eye-brows; and, when our comedians and other mimics, would represent silly, weak, effeminate, and

idiotic characters, they uniformly paint their eye-brows with some faint and indistinct colour.

If, however, the eye-brows are found to be thick, bushy, rough, undefined, lying, as it were, on a heap on the eye-bone, the character is ferocious, ungovernable, and savage. Unless this trait is counteracted, or its impetuosity restrained by education, or a strong sense of moral or religious obligation, I would advise great caution against its predatory tendencies; especially, if these bushy, overhanging tufts are of a very black colour.

The EYE-LASHES are intended as a guard against external injury to the pupil of the eye. They fan away the floating particles of dust and of moisture that would otherwise fall into the eye; and also prevent the too sudden admission of the rays of light from darting upon it. When long, especially in females, they are generally reckoned a mark of beauty. In men, they indicate courage and fortitude; but that is only when they are closely set and compact;

when the hairs are long, thin, and straggling, you may reckon upon some degree of selfishness, and ill-nature, mixed up with no small portion of cunning and caution.

Very little appears to have been written respecting the *eye-bone*.

A firm, compact, and moderately prominent eye-bone, denotes great strength of mind, much sagacity, and resolution.

But when the eye-bone so completely overhangs the eye as nearly to shade the pupil, and cause what are called hollow eyes, though such a trait is perfectly compatible with great muscular strength, and even courage, it does not, by any means, generally comport with much power of intellect, or true greatness of soul.

It has been remarked generally, that the *motion* of the eyes has more to do with Pathognomy than with Physiognomy, properly so called,

while the *position* of the eye, and the relative distance of the eyes and eye-bones, are direct objects of physiognomical observation.

The reader should consult Le Brun, and other practical writers on the passions, who would acquire a competent knowledge of the comparative *expression* of the eye, when under the influence of different conflicting passions. It is a subject more directly within the province of the painter, the poet, and the dramatist, than that of the physionomist. No one, however, can be a very expert physionomist, whose eye has never been delighted, nay, enraptured, with the speaking effects of the pencil; whose soul never glowed with the poet's fire; and who can treat with scorn and disdain those mighty powers of imitation, and that profound knowledge of human nature, which necessarily accompany perfection in the histrionic art.

Well might our own Shakespeare, in whose soul appeared to be concentrated the souls of all other men, from the beggar to the monarch, from

the man of probity and honour, to the veriest knave and scoundrel, say, that

> " All the world's a stage, and all the men and women merely players."

And as

> One man in his time plays many parts,

it is incumbent upon the physionomist to study man in all his shades of character—in all his forms and attitudes—in all his feelings and passions—in all his views and objects.

This can only be done by a close application to the science I am recommending, and a constant observation of the movements of the features, in the several passions to which man is daily subject.

It enters not, however, into the immediate and direct object of our present inquiries to detail the various motions of the eye, and other parts of the human countenance, when under the influence of passion.

There is, nevertheless, a decided character in the eye, which no art can efface—no passion effectually eradicate. For instance:

Judiciousness and resolution are indicated by an eye whose pupil is generally a little inclined to the right, and is apt to be partially covered by the upper eye-lid.

On the contrary, precipitation, rather than persevering firmness; passion, rather than sound judgment, usually accompanies an eye, whose ruling position is an inclination towards the nose.

An inveterate squint, though, certainly, not absolutely incompatible with true greatness of mind, or goodness of heart, is but seldom found in persons who are remarkable for superiority of intellect, or great courage. It is a heterogeneous defect, which, in most cases, might be cured, or prevented by early attention, in those who have the care and education of children.

Dr. Cross, in his Treatise on Physiognomy, has treated oblique-eyed persons, especially soldiers, who may happen to have that defect, with a most wanton severity; accusing all such of downright cowardice. These sort of sweeping, indiscriminate, judgments, tend to bring the science of Physiognomy into disrepute, and ought not to be encouraged.

The late Alderman Wilkes, of London, squinted, I was about to say, most villainously—certainly most inveterately—yet, whatever might be said of his principles, or of his morals, Wilkes was never, I believe, accused of cowardice. And who will venture to charge the late Rev. George Whitfield, a man who shrunk not even from "the world's dread laugh;" and who appeared to fear no being but his God, with either cowardice or immorality? Yet Mr. Whitfield was oblique-eyed. I am still, however, of opinion, that squinting is an unfavourable trait, and is but seldom found in great characters; and I must confess, that a squinting soldier would sooner excite in me smiles than fears. There is, however, what, in

Lancashire, is called a *glide*, a cast—a kind of demi-squint, which, especially in ladies, is not absolutely forbidding or unbecoming.

Naked eye-balls, says Dr. Cross, standing in open sockets, convey to the imagination a picture of unbridled temper; and the less the eye-balls are covered with eye-lids, the more scope is allowed to the predacious tendency.

On the contrary, says he, the more the eye-ball is covered with lids, the more are the dispositions under prudential control; and the more powerful the lids, and the better furnished with lashes, the more vigorous is the prudential system.

" The eye-lids, whenever they retreat so far back from the pupil as to lose command over the entering rays, are guilty of a dereliction of duty, detrimental to distinct vision; here there is a want of the prudential system. So also, whenever the eye-lids approach each other so much as to interrupt the free ad-

mission of rays from the object to the retina; here there is that over-caution which defeats its own purposes."

" Where the retraction of the upper eye-lid is carried to the utmost extent, there the prudential system is thrown completely off, and desperation or rage is the result, according as the eye-brows ascend out of the way, or descend, to supply the place of the eye-lids."

" When the upper eye-lid droops, and encroaches upon the pupil without any ascent of the lower, there is melancholy."

Eyes that seem to look through the eye-lashes, peering from a full and compact upper eye-lid, are indications of consummate prudence; but are, at the same time, forbidding and overawing, without commanding what may be called either esteem or respect.

Eyes that are very large, and at the same time of an extremely *clear blue,* and almost transpa-

rent, when seen in profile; for I do not entertain so strong an objection to *very* blue eyes that Lavater seems to feel, provided they are associated with a good temperament, denote a ready and great capacity; also a character of extreme sensibility, difficult to manage, suspicious, jealous, and easily excited against others; much inclined likewise by nature to enjoyment and to curious inquiry.

Small, black, sparkling eyes, under strong black eye-brows, deep sunken in jirting-laughter, are seldom destitute of cunning, penetration, and artful simulation. If they are unaccompanied by a jirting mouth, they denote cool reflection, tasteless elegance, accuracy, and an inclination rather to avarice than to generosity.

Eyes which, when seen in profile, run almost parallel with the profile of the nose, without, however, standing forwards from the level of the head, and projecting from under the eyelids, always denote a weak organization; and,

if there be not some decisive contradictory lineaments, feeble powers of mind.

Eyes which discover no wrinkles, or a great number of very small, long, wrinkles, when they appear cheerful or amorous, always appertain only to little, feeble, pusillanimous characters, or even betoken imbecility.

Eyes which are large, open, and clearly transparent, and which sparkle with rapid motion, under sharply delineated eye-lids, always, certainly, denote five qualities, viz. quick discernment, elegance of taste, irritability, pride, and, lastly, a most violent love of women.

Eyes with weak and small eye-brows, with little hair, and very concave eye-lashes, denote partly a feeble constitution, and partly a phlegmatic-melancholic weakness of mind.

Tranquilly-powerful, quick-glancing, mildly-penetrating, calmly serene, melting, slowly-

moving eyes; eyes which hear while they see, enjoy, drink in, tinge and colour their object like themselves, are a medium of voluptuous and spiritual enjoyment. These are never round, nor entirely open; never deep sunken, nor far projecting; never have obtuse corners, nor sharp ones turning downwards.

Deep sunken, small, sharp-delineated eyes, under a bony, almost perpendicular, forehead, which, in the lower part, sinks somewhat inwards, and above is conspicuously rounded, are never to be observed in penetrating and wise, but generally in proud, suspicious, harsh, and cold-hearted characters.

I am almost at a loss what to say, particularly, respecting the *brilliancy* or *dimness* of eyes: so much, in these cases, depends upon habit and accident.

It has somewhere been remarked, that those who are in the habit of looking intensely at objects, such, perhaps, as connoisseurs in the

arts, watchmakers, opticians, botanists, and the students in entymology, are apt to have brilliant eyes; but that those, whose habits are more of a purely intellectual nature, who are devoted to literary pursuits, and metaphysical speculations, have generally dimmer eyes.

I will not take upon myself to answer for the truth of this hypothesis: for, in fact, I am inclined to think it merely hypothetical. Yet we may observe, that females, who exercise their eyes more than their judgments, have certainly brighter, more lucid, and penetrating eyes than males.

Almost every thing respecting the lustre, or otherwise, of the eye, is so much under the control of circumstances, of health and sickness, of joy and sorrow, that the physionomist must not rely, with very great confidence, upon such contingencies in forming his estimate of character. There is enough for his encouragement in reality and matter of fact, without resorting to those arguments which are doubtful and obscure.

Besides, this part of his study, has an affinity with the contemplations of beauty, simply so considered, rather than with mind.

Let us now, therefore, pass on to some physiognomical notices and observations respecting the nose.

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## THE NOSE.

The *form* of the *nose,* says Leonardo da Vinci, may be varied eight different ways, exhibiting as many different *kinds* of noses; viz. 1. Uniformly straight, concave, or convex. 2. Straight, concave, or convex, unequally. 3. Upper parts straight—lower concave. 4. Those above straight—those below concave. 5. Concave above, and straight below. 6. Concave above, and convex below. 7. Convex above, and straight below. 8. Convex above, and concave below.

The insertion of the nose to the eye-brows admits but of two different forms: concave or straight.

The nose in height is one-fourth part of the head; and one third of the face. Seen in front, its width at the nostrils is equal to the width of the eye. Its projection, seen in profile, is equal to its width. The height of the nostrils is about one-third the width of the nose.

Lavater says, that the length of the nose must be equal to that of the forehead; and ought to have a slight cavity near the root.

When viewed in front, the ridge ought to be broad, with the two sides almost parallel; but this breadth may be somewhat more sensible towards the middle.

The end, or tip of the nose, must neither be hard nor fleshy. The lower contour ought to be designed with precision and correctness; neither too pointed nor too broad.

In front, the wings of the nose must present themselves distinctly; and the nostrils must agreeably contract below.

In profile, the under part of the nose must be only a third of its length.

The nostrils ought to terminate, more or less, in a point, and round themselves at the internal extremity. They will be, in general, gently arched, and divided into two equal parts by the profile of the upper lip.

The flanks of the nose, or of the arch of the nose, will form the resemblance of bridges.

Toward the tip it will join close to the arch of the bone of the eye, and its breadth between the eyes must be, at least, half an inch.

I cannot do better than to proceed with Lavater's very accurate and judicious remarks concerning the nose.

A nose, he says, which unites all these perfections, expresses every thing that can be expressed. Nevertheless, many persons of the greatest merit have the nose deformed; but it

is likewise necessary to discriminate the kind of merit which distinguishes them. It is thus, for example, that I have seen men of great integrity, of great generosity, and uncommonly judicious, with small noses, sloping in profile, though otherwise happily organized. They possessed estimable qualities; but these were limited to a disposition gentle and patient, attentive and docile, formed for receiving and relishing delicate sensations.

Noses which bend at the upper part of the root, are adapted to imperious characters, called to command, to operate great achievements; firm in their projects, and ardent in pursuit.

Perpendicular noses, that is, such as approach this form, may be considered as *key-stones* between the two others; they suppose a mind capable of acting and suffering with calmness and energy.

A nose, whose ridge is broad, no matter whe-

ther straight or curved, always announces superior qualities. I have never been deceived in it; but this form is very rare.

The experience of Lavater on this particular trait is, I am convinced, in perfect accordance with that of every other discerning physionomist. For my own part, I must say, that I have uniformly found, that those persons, the ridge of whose nose was remarkably broad and strong, possessed qualities of some kind or other of a very superior character. They were generally ardent and impetuous, yet resolute and persevering; courageous and noble; bold and enterprizing. They have always maintained a very high sense and consciousness of their own powers; and have seemed not to know what the word *impossible* meant.

Those persons, it may very naturally be supposed, possessed no small share of egotism; bordering, indeed, upon a forbidding self-conceit. They could not brook repeated contradiction; restless under restraint; furious in their

anger, but without revenge; daring in every thing; sanguine and aspiring; choleric and impatient. Such has been my own experience on persons whose noses have the trait above-mentioned.

But, without this large ridge, and a very narrow root, the nose often indicates an extraordinary energy. This, however, is almost always so momentary and evanescent, that its appearance and departure are equally imperceptible.

A small nostril is an infallible sign of a timid mind; incapable of undertaking the most inconsiderable enterprize.

Perhaps there are fewer traits of countenance more clearly indicative of character than this with respect to small nostrils. Let any one examine the nostrils, among the best works of both ancient and modern masters, of heroes, and eminent statesmen, and he will find the truth of this in every instance. The

ancients uniformly associated the idea of great strength and courage, with wide nostrils, whether in men or in brutes. The horse's head of Phideas, among the Elgin marbles, owes very much of its exquisite beauty and dignity to its open and well defined nostrils.

"Hast thou," says the author of the book of Job, "given the horse strength? Hast thou clothed his neck with thunder? Canst thou make him afraid as a grasshopper? THE GLORY OF HIS NOSTRILS IS TERRIBLE! He paweth in the valley, and rejoiceth in his STRENGTH: he goeth on to meet the armed men —he mocketh at fear, and is not affrighted, neither turneth he back from the sword. The quiver rattleth against him—the glittering spear and the shield. He swalloweth the ground with fierceness and rage; neither believeth he that it is the sound of the trumpet. He saith among the trumpets, 'ha! ha!' and HE SMELLETH THE BATTLE AFAR OFF, the thunder of the captains and the shouting!"

I defy any living soul to read this description of the horse in battle, without an idea that his strength is in his nostrils; or to associate so much majesty with two narrow nasal passages.

Dr. Cross, whose style, for the most part, is rendered extremely difficult of comprehension, by being over loaded with technicalities, is very clear upon this point. "The larger the nostrils," says he, "the greater must be the current of breath, and consequently the more energetic the individual." In another place, he remarks, that, "as the nose is the proper entrance into the respiratory organ, and as the energy is proportional to the respiration, so the size of the nostrils must stand indicative of the whole energy of the animal."

Indeed, we require not the assistance of much physiological acumen to understand this: we all know, that difficulty of respiration invariably accompanies great bodily, or mental, weakness; and nothing can be more obvious,

than that this difficulty must be increased, or lessened in proportion to the freedom with which the atmospheric air is admitted, by the nostrils and other passages, in its ingress and egress through the lungs.

When the sides of the nose are very flexible, and very quickly excited to motion, they show a great delicacy of sentiment, which may easily degenerate into sensuality and voluptuousness.

The Tartars, according to the German physionomist, have generally broad and hollowed noses; the African negroes flat; the Jews, for the most part, aquiline; the English cartilaginous, and seldom pointed.

If we may judge from paintings and portraits, fine noses are not common among the Dutch. In the natives of Italy, on the contrary, this trait is distinctive and of the greatest expression. Upon the whole, the nose is absolutely characteristic of the celebrated men of France.

In a former part of these sheets the reader will find an assertion respecting the change of features which sometimes take place in consequence of a change of country.

I am aware that this fact will be denied. But the statement should not be taken in too strict nor rigid a sense; nor the truth of it be controverted, because some may carp at it; neither because there will be found many exceptions to it. Blumenbach, in his very excellent *Manual of Natural History*, observes, that "there are instances of people, who, after leaving their old abodes, have, in progress of time, assumed new features, corresponding to their new situations." That able and excellent writer confirms his opinion by several instances. The fact, however, has been doubted; though, in my mind, without any good reason. But I must not here resume the subject of national physiognomy, however curious and interesting.

Very seldom, indeed, do we see courageous persevering persons possessed of small snubbed

noses. Accordingly, we find, that the greater the length of the nose, from the junction with the brow to the apex, the more vigorous and persevering the character.

The more directly the nose falls from the brow, the more prompt and decisive the mind. On the contrary, it may be observed, that the deeper and more sudden the fall, or break, between the nose and the brow, providing it does not degenerate into an absolutely straight continuous line from the top of the forehead to the end of the nose, the more slow of apprehension.

Who ever saw a mean-spirited, cowardly, dastard, with a fine Roman nose, abounding in bone, and rising in majestic grandeur from the brow?

If a line, drawn from the highest extremity of the forehead or brow, and passed along the face longitudinally, to the tip of the chin, should yet leave the nose untouched, unless disease or

accident shall have injured it, you may very safely reckon upon finding no very strong share of either mental or bodily energy.

I say nothing here of those clumsy, cachectical, excrescencies—those spongy collections of flesh and blood, carbuncled and bloated by intemperance, which disfigure the faces of gluttons and drunkards. These traits speak for themselves. Persons degraded by noses of that kind, may, indeed, be said to "carry the mark of the beast in their foreheads." Nature often brands with infamy, by either extravagantly enlarging, or sometimes entirely destroying, one of the noblest ornaments of the human countenance, those who violate the laws of prudence, moderation, and decency, which she has prescribed to all her offspring, as the best security against deformity and misery.

It were no difficult task to write a distinct work on this noble organ of the human countenance; but I must forbear, and proceed to some notice of the Cheeks.

## THE CHEEKS.

These portions of the features, like that of which we have just been treating, are extremely liable to change by time and accident. Indeed, infinitely more so than the nose.

Sensuality and moisture of temperament are strongly depicted in the round, thick, fleshy cheeks of persons arrived at years of maturity.

Thin and contracted cheeks indicate a dryness of humours and discontent.

Cheeks that are marked by gently undulating lines, very lightly intersecting them, are the usual characteristics of wisdom, experience, and ingenuity of mind.

Certain hollows, more or less triangular, which are sometimes observed in the cheeks, are an infallible sign of envy and jealousy.

A cheek naturally gracious, with a gentle

elasticity, pleasingly rising towards the eyes, are the vouchers of a heart beneficent, generous, and incapable of the smallest meanness.

It must be confessed, however, that there cannot be any great degree of reliance placed on decisions formed from an examination of the cheeks. How have oppression, sorrow, disease, and time committed ravages upon the finest face! Where once shone the glow of health and cheerfulness, now are seen the deep furrows of care and affliction:—

"And many a furrow in my grief-worn cheek,
"Hath been the channel to a flood of tears."

That which but yesterday wore the bloom of health and comeliness is to-day blighted by the pelting of some pitiless storm; and is blanched with the pale aspect of disappointment and sorrow.

Let not the physionomist, therefore, hold the reputation of his science by so slender a tenure—let him not rely for a judgment upon that which is so fragile and evanescent—which

" perisheth in the using," and vanisheth like the dews of the morning.

I hasten, therefore, to an infinitely more important and permanent object of physiognomical investigation.

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## THE MOUTH, LIPS, JAWS, AND CHIN.

Oh! with what sublime humility!—what piety!—what manifest goodness of heart, does the amiable and excellent Lavater approach this great organ of beauty; this mysterious, this multifarious and expressive portraiture of whatever exalts or debases, beautifies, or deforms humanity! And if *he* had not the courage to attempt a full elucidation of its various powers and characteristics, with what cautious diffidence ought I to approach so awful a sanctuary!

Whether quiescent or in motion; distorted by passion, or reposing in its native forms, the mouth is an instrument of expression, whose language cannot be easily mistaken.

Next to the inner extremity of the eye-brow, this organ is, of all others, the most moveable and the most characteristic. The physionomist should, therefore, be exceedingly careful in forming his judgment upon it, lest he confound traits that ought to be considered only pathognomically with those which are strictly physiognomical: for we should never lose sight of the fact, that it is not so much with what a man can possibly make himself appear to be as what he really is that we have to do. We should not go to the theatre to study Physiognomy; nor should we take that man to be a natural fool, whose business it is, for the time being, to put on the character and face of folly; nor he to be possessed of great powers of intellect, who, before a looking-glass, has studied the art of imitating the traits of intelligence.

No man has a more profound respect for genius, and the imitative powers of the poet and the artist, than the true physionomist; nor more intensely studies the physiognomical language of the passions; but he who would

apply the science to the practical purposes of social intercourse, must direct the greatest portion of his attention to those permanent traits which denote the constant and natural disposition of the soul—the genuine frame and temperament of the mind.

This is a consideration that cannot be too strongly imprinted on the heart of the young student in this valuable science. The moment he begins to confound pathognomy with physiognomy, in its pure and simple sense, he throws a veil over his powers of physiognomical discernment, that obscures the judgment, and leads to a thousand errors.

I have deemed it proper to repeat these intimations in this place, because, in the study of the mouth too much care and caution cannot be observed; and, because, with sufficient caution, the physionomist will find this organ one of the most useful and intelligent in the whole economy of the human countenance.

Leaving, therefore, the various animal and moral uses to which the mouth is capable of being applied, and was originally intended to perform, to the physiologist and the moralist, I will proceed to notice some of its most obvious indications of character, when unemployed in its ordinary functions of mastication and of speech; or its extraordinary movements in the moments of passion.

The following facts and details are the results of my own observations, and the fruits of my physiognomical reading:

Lips incompatible with meanness, repugnant to falsehood and wickedness; yet not always free from some propensity to voluptuousness, are those which are full and well-proportioned, presenting the two sides of the middle line equally well serpentined, and easily to be retraced in designs.

A contracted mouth, with the cleft running in a straight line, and the edge of the lips not

appearing, is a certain sign of presence of mind, application, and the love of order, punctuality, and cleanliness.

If, however, to these traits, it is observed, that the extremity rises on each side, we may calculate upon a fund of affectation, pretension, and vanity; frequently, not unmixed with some portion of malice.

Plump, fleshy lips, are almost invariably the characteristics of sensuality and voluptuousness.

Dry and projecting lips incline to timidity and avarice.

Firm, reflecting, and judicious characters are very often found to have lips that close agreeably and without effort; especially, if the general design of them be correct.

When the lower lip considerably advances from the upper one, though it should not be absolutely denied some degree of sincerity and

good-nature, it but seldom indicates a strong degree of impassioned tenderness.

An upper lip, a little inclining towards the lower one, is frequently a distinctive mark of goodness.

Persons of vivid and sprightly imaginations have very often an under lip gently sinking in the middle; and, when the lips are close, the upper one elegantly reposes, as it were, upon it; the lower edge so formed as to fall into the little undulating line, with a pleasing and graceful fitness.

Observe a man of gaiety, at a moment when he is about to utter some salley of the mind, and you will find the centre of the lower lip invariably to fall into a gentle hollow. Lips formed in the manner I have just described, are not only traits of a well-formed and handsome mouth; but are almost always indicative of great powers of imagination and genius.

Courage is clearly indicated by a very close and compact mouth; and you will generally find, that, even those who are in the habit of keeping their mouth open, are apt to close it, with considerable force, the moment their courage is about to be put to the proof.

Men listen with their mouths open; but they think intensely with them shut; hence, those who are disposed to be curious in their inquiries concerning the affairs of others, and negligent of their own, have very often open mouths, with a loose, hanging jaw; whilst those who, possessing within themselves a sufficient fund of information, or an ardent thirst for that which is useful and pleasing, rather than that which is frivolous and impertinent, are disposed to keep their mouth closed, sometimes, so close, especially in their most serious moments, as to give them, if they have somewhat thick lips, an appearance of *pouting*, as it is called.

When the mouth and jaws project, being, for

the most part, accompanied by a receding skull, we may mostly reckon upon considerable stupidity.

A moderately wide, or extended mouth, with broad and compact jaws, are signs, not only of considerable mental, as well as corporeal, vigor, but of a great facility of expression, superior powers of language; and, of course, considerable talents for eloquence and oratorical declamation.

On the other hand, no one having weak jaws, and a confined mouth, can either read or speak well. Wherever, therefore, these traits are observable, though they may, and very often do, comport with great mental energy, and a considerable aptitude for concentration, association, and combining, we must not look for the orator, or choose such an one to plead our cause before an assembly.

Where, however, we find jaws much broader than the head, we may reckon upon great

volubility, and much egotistical garrulity; but, for the most part, their discourses will consist of words

——— full of sound and fury, signifying nothing.

The channel is capacious, but the fountain is empty. The passions are strong, and the inclination prompt; but, alas! the intellect is weak, and the brain niggardly in its supplies of wisdom.

An equality of breadth between the head and the jaws, argues a character who has a capacity of using all his intellectual powers on a subject; and is, therefore, calculated for scientific investigations.

Where the jaws are much more compressed, and narrow than the head, whatever powers of mind are observable in persons so formed, they usually evaporate, or start off in a sudden sally, or else are fixed and concentrated upon some one subject, such an one has strong indications of cunning.

It is impossible, without appropriate graphic illustrations, adapted to every particular case, fully to describe all the varieties of character of which the mouth is susceptible. I must content myself, therefore, with what Lavater has said respecting what he calls the three principal classes for the different forms of the mouth.

The first of these classes are those mouths whose upper-lips project beyond the under: a conformation which is the distinctive sign of goodness.

Secondly, those mouths whose lips equally project, so as that a rule applied to both extremities, would be in a perpendicular direction. This is the class of the honest and sincere.

Thirdly, mouths whose under lips project beyond the upper. This conformation may be applied to temperate characters, who present a mixture of phlegm and vivacity.

The prominency of the under lip varies so

prodigiously, and its contours are all so diversified, that a general qualification might lead to error or abuse.

Although much has already been said of the jaws, it will be expected that some further notice should be taken of the CHIN. In doing this, I shall be in danger of some degree of repetition.

An advancing chin always announces something positive; whereas the signification of a retreating chin is always negative. It very frequently happens that the character of energy in the individual, or the want of it, is manifested by the chin alone.

A deep incision in the middle of the chin seems to indicate, beyond contradiction, a man judicious, staid, and resolute, unless, indeed, the trait is belied by some other contradictory traits.

A pointed chin usually passes for the sign of

cunning. This form, however, is not unfrequently to be met with in persons the most honourable. Cunning in such is only a refined goodness.

A double chin, soft and fleshy, is, for the most part, the cause and the effect of sensuality.

Angular chins are scarcely ever seen but in persons sensible, firm, and benevolent.

Flat chins suppose coldness and dryness of temperament.

Small chins are usually characteristic of timidity.

Round chins, having a considerable dimple, are generally pledges of goodness.

As in the case of lips, so also we may notice three classes of chins :—

First, those that retreat. These are cha-

racteristic of effeminacy; but very often, perhaps, on that very account, are indicative of great good nature and benevolence of soul; but usually betray some weakness, moral or intellectual.

Secondly, those which, in profile, are in a perpendicular line with the under lip. These chins have a tendency to create confidence and esteem.

Fourthly, chins which project beyond the under lip. These are often found in persons of an active and energetic mind. But when this projection is very greatly lengthened, presenting the form and idea of a handle, you may reckon them as the signs of pusillanimity and avarice.

As nothing properly connected with the human face should escape the eye and observation of the physionomist, I will next proceed to notice the teeth.

## THE TEETH.

Indeed, this is no mean or unimportant branch of physiognomical investigation. The Teeth have often been the subject of physiological inquiry; but they deserve much more general attention than they have hitherto received.

Aristotle declared that strong, thick-set teeth are a sign of long life; and Valesius confirmed his observation.

The ancient physionomists—for this is no novel science—looked upon small, short teeth, as signs of a constitutional weakness; but Lavater very justly observes, that they are not, unfrequently, in adult persons, the characteristics of extraordinary strength. This I have myself very often found to be the case. They are also found, in numerous instances, in persons possessed of a great share of penetration, and considerable intellectual capacity; but when this happens, they are seldom well-formed, or very white.

Lavater says, that long teeth are a certain indication of weakness and timidity. In this respect, I am persuaded, that excellent physionomist was not very correct. At least, he speaks with too much positiveness on a point that admits of so many exceptions. I have very frequently met with persons having long, broad teeth, possessed of great energy of mind. Lavater was much nearer the truth, I apprehend, in the following observations:

Teeth that are white, even, and regularly ranged, which, on the moment when the mouth opens, seem to advance suddenly, jutting forward, and which do not always render themselves entirely visible, decidedly announce, in a man who has attained the years of maturity, an affable and a polished mind, with an honest and a good heart.

Much coldness and phlegm usually enter into the temperament of those who, when they first open the mouth, expose the gums of the upper range in a very conspicuous manner.

With respect to the whiteness, evenness, and compactness of the teeth, very much depends upon habit, disease, age, &c. Little, therefore, can be said with safety on that head. Those who spend their time and money in cosmetics for the skin, may well be supposed to devote great attention to the *colour* of their teeth; but we must not look for any thing very great, sublime, or even useful, from such. On the other hand, those who entirely neglect their teeth, which contribute so greatly to physiognomical beauty, may be reckoned among the careless, the indolent, and the weak. He who never washes his teeth, would, if he lived apart from the respectable portion of the community, scarcely ever wash his hands or his face; and those who are thus careless of their own persons, ought to be trusted with great caution in the concerns of others. Females, who neglect their teeth, are absolutely inexcusable.

There are certain internal complaints to which we are all liable, and which require the application of medicines of such a strongly

aciduous quality, and so frequently to be repeated, that the teeth are greatly injured thereby. On this account, therefore, the young physionomist should be careful in forming a judgment on this point.

I could have wished to have made some observations on the *Ear*, the *Neck*, the *Hair*, &c.; but I must forbear, for the present, at least; and will close these details, by a solemn appeal to the candour, the good sense, and sober judgment of the reader, whether I have not proved my proposition, as clearly as any fact can be proved, that *Physiognomy is really and truly a science.*

I ask not whether *all* my premises are sound, or *all* my conclusions from them just. Allow me but a moiety of them—nay, grant me but any portion of them, and my point is proved.

I have said that Physiognomy lays down certain rules, signs, and traits, by which certain facts are infallibly deducible. And does it

not? Sneering is no answer—notes of interrogation, and those of incredulous admiration, are no parts of logical acumen; neither is positive, downright denial any proof that such or such a proposition is not founded in truth. Let us then advance to the argument boldly, but candidly.—Let us see whether all that experience has taught us on this subject, is mere delusion and caprice. If the affirmative of this shall be established, then will I confess my error; and, still acknowledging and adoring the wisdom and power of the Creator, will

Wait the great teacher, Death;

When, haply, in some other more advanced scene and stage of existence, I may be enabled to fathom the mighty mystery, how such great, such distinct, such palpable, such obvious effects, that in this life have pressed upon my heart and mind, with the overwhelming power of demonstration, have all resulted from no apparent cause, and have been dancing before the bewildered imaginations of mankind, from

the first dawnings of animal life, to the period of their return to that state of inert matter, from which the fiat of the Almighty called them into being.

But let me not, from any dread of singularity, or to avoid the scoffings of the scornful, resign a truth so important, lest I be found to libel THAT BEING, WHOSE "INVISIBLE THINGS, FROM THE CREATION OF THE WORLD, ARE CLEARLY SEEN, BEING UNDERSTOOD BY THE THINGS THAT ARE MADE."

## SECTION III.

### OBSERVATIONS

ON THE

# TEMPERAMENTS,

BY THE EDITOR.

THE following hasty and imperfect remarks on the temperaments, are grounded on the conclusion that the general character and habitudes of the mind, as well as the constitutional tendencies of the body, are depicted on the countenance. There appears to exist in all persons, a natural and, perhaps, instinctive propensity to interpret mental and moral qualities by the signs which Physiognomy presents, and this propensity is evident in those who deny that there is any thing like a science of Expression. One thing is certain, that if any reliance, whatever,

is to be placed on expression, that expression must depend, first, on the permanent form of the countenance; and, secondly, on the changes which it occasionally undergoes. If unchangeable characters of feature and complexion can be seized, and identified with certain intellectual and moral attributes, such concomitancy being ascertained in a sufficient number of instances, the science of Expression, as far as it goes, becomes inductive. It may not extend to many cases in which we may feel an anxiety to apply it, but it holds no less certainly in those in which the connection between animal forms and intellectual and moral powers and habitudes has been constantly detected. Having paid considerable attention to the arguments employed by numerous objectors to Physiognomy as a science, I am persuaded they are grounded principally on the wrong notion entertained of its object, on an indefinite and obsure perception of the difficulty of understanding the real connection between form and expression.

The truth and certainty, however, of the ef-

fect produced upon the mind and feelings by expression, and the cause of the connection between particular forms and such effect, are entirely distinct questions. Of this effect, perhaps, no further account can be given, than that in its radical and essential character it depends on the ultimate principles of our mental and moral constitution—principles which intuitively lead us to assign intellectual and moral attributes as the causes of those sentiments and emotions which the countenance of one man produces upon another. What other account can be given of the general fact that certain material forms produce in us the feeling which we term sublime, others the beautiful; that some countenances excite in us great or tender emotions, attract or repel us, inspire us with respect or aversion. What other account can be given of the general fact, than that it depends on the ultimate constitution of our nature, and the will of the Being who made us? The basis of all this must be intuitive, but in proportion to the number and accuracy of our observations, on the coincidence between mind

and the signs of it; in other words, in proportion to the judicious application of a natural faculty will be our success in the interpretation of nature in this difficult and hitherto very imperfect department of science. We require for this branch of knowledge, what every metaphysician is aware is granted to all others, the admission, that of efficient causation we know nothing, and therefore that though we may never be able to understand the mysterious connection between certain animal forms and certain mental and moral qualities, the former may be admitted and recorded as signs of the latter, if experience shall have shown between them a constant concomitancy, though no necessary catenation. It is in the interpretation of these signs, and in their accurate arrangement, that we must employ ourselves, if Physiognomy is ever to become inductive, if we are ever to arrive at those solid and imperishable data which distinguish the legitimate deductions of science from the illusions of fancy. Gall and Spurzeim have fully understood the principles here enunciated —they appeal to fact and observation for the

truth of their conclusions: whether at such tribunal the system will be condemned or established I undertake not to determine.

The suggestions here attempted, appear so obvious, that with our present views of the real objects of science, I should not have deemed them necessary, if the objections to which I have alluded had not convinced me that intelligent persons entertain erroneous notions of the object of Physiognomy. On such I would urge the recollection, that many of our most important conclusions in other branches of knowledge, are matter only of inference—that it is with signs only that we are conversant, but that our inferences from these are as certain and satisfactory as if those inferences themselves were actually the objects of sense. The great Creator has shrouded himself behind the scenes of his visible creation—our knowledge of his existence, power, and attributes, is strictly inferential—and derived from the sensible phenomena, the hieroglyphic signs which nature presents to us. It is from these alone that we

infer, recognize, and acknowledge the mind which shines from her face, and gives life and import to her every feature. The same reasoning applies to our knowledge of the intelligence and dispositions of those around us; here also it is with appearances only that we come in contact, for mind is not an object of sense, nor can the existence of any sentient being except ourselves be matter of experience; but such is the constitution of our nature, that we repose with undubitable certainty on the conclusions to which we are led by the sensible phenomena which the actions of living and intelligent agents present to us. Sensible phenomena, then, are the evidence of mind—even as to its essential existence, and the elementary principles of physiognomical science rest upon the same unshaken foundations on which depend our belief of a supreme intelligence, and of the existence of the beings who surround us.

If the Author of the Universe has conjoined any two events, it is not for us to tear asunder

the connection, because it may appear to be arbitrary, or in other words, will not square with our notions and theories. If, for instance, a thick lip should be found to announce a disposition to sensual indulgence; if a retreating chin should be found to denote imbecility, and an advancing one intrepidity of character; if in a hundred instances, a spacious arched or square forehead should be recognized as the symbol of intellectual magnificence, are we to assert that there is no dependence to be placed on such appearances because they can have no connection with the intellectual and moral qualities which accompany them. What is this but to despise the means which providence has placed in our power of acquiring a knowledge of the mind and its peculiarities from the signs which nature has established, and to counteract in this instance one of the primary laws of our mental constitution. These remarks are premised, because any observations on the TEMPERAMENTS must take for granted the conclusions to which they conduct us.

The Temperaments unavoidably connect the

sciences of Physiology and Physiognomy. One part of their discussion involves the consideration of complexion, feature, &c. as mental and moral indications; but the subject becomes increasingly interesting, when also considered in a physiological and even pathological point of view. Before we can ascertain the temperament, we must be well acquainted with the signs by which it is indicated, these constitute the moral expression, and are the physiognomy of the subject; our next inquiry will respect the influence of mental emotion on the physiological functions of the body.

The influence of some of these emotions will be exerted on the nervous, of others on the muscular, and of others again on the circulatory system; sometimes particular features only undergo a change, and the nerves and muscles appropriate to the part become expressive of a particular feeling or passion. In the natural course of investigation, we shall eventually proceed to ascertain and determine the tendency of the mental and moral constitution and habi-

tudes, not only to influence the functions of vitality, but to produce organic changes and lesions, and their physiognomical signs will become the indication of a predisposition to particular diseases, and may conduct us to the most judicious modes of counteracting and averting such predispositions.

Dessault has observed, that during the agitating period of the French Revolution, organic lesions of the heart, and aneurisms of the aorta, became exceedingly frequent, ascribable, no doubt, to the combined influences of grief and terror. Some curious observations will be found in another part of these Fragments, on the physiognomical changes which the French countenance has undergone, to which I forbear alluding, as not being immediately connected with my present subject. I shall, however, venture to remark, that seriousness, gaiety, and moroseness are characterized by their particular effects on the physionomy, and principally by means of the muscular system, that consequently mental and moral habits must

communicate in time a permanent and unchangeable expression. Continued and deep thought causes the muscular structure to become unusually contracted. Expectation and surprise, consequently a life principally past in the employment of the external senses, have a tendency to produce a relaxation of the muscles. Anger moves the blood in wider columns and more rapid pulses, and distributes it over the surface of the body, especially directing it upwards, and suffusing the forehead and face. Fear, on the contrary, has a tendency to accumulate this fluid about the heart and in the larger vessels, to render the countenance pale and shrunk, and to induce dryness of the tongue and fauces. Enthusiasm animates the countenance, has a tendency to produce a vigorous and equable flow of blood through the great organs of the heart and lungs, and by a free distribution of it to the surface to communicate a healthy hue to the exterior. Lord Bacon, therefore, with his usual justness and accuracy of observation, has remarked, that among the means of promoting health, are to be

reckoned HEROIC HOPES. As another proof of the influence of the mental constitution on the great physiological functions of the body may be mentioned, the well known fact that Charles XII. could endure, and sleep in the cold of a winter's night, which would have destroyed most men in his army, and was frequently in the habit of doing so during his campaigns. Despondency, on the contrary, by making the heart beat more feebly, favours the accumulation of blood about the head, and diminishes the actions of the liver. Persons of melancholic temperaments, therefore, are liable to insanity, and to affections of the digestive organs.

I introduce these remarks for the purpose of showing the intimate connection between Physiognomy and Physiology and Pathology, and that a view of the temperaments must include much which belongs to each of these sciences respectively.

The Division of the Temperaments, first established by Galen, was originally founded, as is

well known, on a chemical hypothesis. The hypothesis has disappeared before the advancing light of science; but the division itself being a good one, for practical purposes may be allowed to stand, though the theory in which it originated be demolished. I pretend not to vindicate this division, however, as complete, but I apprehend persons will be found possessing the qualities, physical and mental, in various combinations which I have arranged under the heads of each of the Temperaments, and therefore the common division of them may be allowed to stand without any reference to the fanciful theory of their causes, to record the connection between organization and function, between that organization also and certain intellectual and moral attributes. The physiologist, whose eye has become unscaled at the purer fountains of modern science, pretends not to penetrate to the essential causes of the phenomena which that science has unfolded and recorded. The laws of our frame, however, may be accurately developed and explained without our being able to un-

derstand the ultimate composition of its elements, or to define the nature of those inscrutable powers which pervade, animate, and impel it. Again, though an inseparable connection be observed between the brain and its functions; though on the size and developement of this organ appears to depend the range of intellectual and moral powers, from man down to the meanest reptile; though the proud distinctions of high intellectual energy seem to hold a coincidence with the bulk and shape of the anterior lobes of this organ, still we are by no means prepared to assert, that we understand this connection; on the contrary, it may, for ought we know, be entirely arbitrary; and the real and intrinsic qualities of branular matter may be neither more numerous nor important than those of "the clods of the valley" out of which we are informed, on the highest authority, it was originally compounded. One thing is certain, that all the theories which have hitherto attempted to account for the intellectual functions, from the simple fact of organization, are futile and absurd; and

that all explanations, consequently, of mental phenomena, derived from the known properties of matter of whatever description, are the mere presumptions of hypothesis. The fact of the coincidence between a certain state of matter which we term organization, and the existence of mind is all we know on this mysterious subject. The attributes of that mind, even its simple perceptions, much less its moral and intellectual powers; its capacity of "looking before and after;" its "thoughts which wander through eternity;" its notions of moral accountability; its wonderful powers of generalization and abstraction receive no satisfactory explication whatever from any of the known properties of matter which our discoveries or observations have hitherto reached. The term ORGANIZATION only expresses an arbitrary and intentional disposition; and such a disposition can add nothing to the primary and intrinsic qualities of mere matter. The most rational conclusion, therefore, is, that mind and body are toto cælo different, different in themselves, and different as objects of human study. The most

satisfactory deductions of philosophy, with regard to intellectual phenomena, seem thus to substantiate a doctrine announced from a higher tribunal;* a doctrine, the direct opposite of materialism, at which, after all, our nature cannot fail to revolt, and in which those who are anxious to degrade it can alone find a triumph. We profess not then in sound philosophy to understand the connection between animal forms and intellectual and moral phenomena; our only business is to record these connections as facts whenever they are presented to our observations.

The Division of the Temperaments presupposes that the predominance of any particular system of organs modifies the whole economy; impresses striking differences on the results of the organization, and has an influence on the moral and intellectual, as well as on the physical faculties. This predominance establishes the temperament, and may be considered as its cause

* There is a spirit in man, and the inspiration of the Almighty giveth him UNDERSTANDING.——JOB.

and essence. With these preliminary remarks I shall proceed to the division, into The SANGUINE, excited most readily, but slightly—The CHOLERIC, excited readily and violently—The MELANCHOLIC, excited slowly, but more permanently, and the PHLEGMATIC, excited with difficulty.

The SANGUINE temperament offers itself to our notice by the striking characters of a blooming and ruddy complexion, by what is usually termed a fair complexion, and by an animated air of the countenance. The more florid the complexion, the more sanguine, as far as this single circumstance is concerned, the character which it indicates. Such a complexion, physiologically considered, must arise from a free distribution of blood to the surface of the body, sustained by the heart's vigorous and widely-diffused action; from a delicate, easily permeable, and exquisitively rejected capillary system, and from a fine and delicate skin, drawn over the subjacent vessels, in a lax and yielding manner.

PLATE 4.



# SANGUINE.

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At the Lithographic Institution, 98 Strand.

This temperament is indicated by distinct and well-formed features, and by their unconstrained and flowing outline, the countenance and general contour exhibiting easy, undulating lines, blending into each other, rather than acute angles and sudden tortuosities, and presenting the appearance of elegant and voluptuous forms. In the most exquisitely sanguine there is nothing abrupt, even where the features join each other, and the waving and continuous line gives an air of harmony and facility to the countenance, especially when viewed in profile. The muscular parts of the countenance, and form, and, consequently, the general expression are soft, though distinct, from the abounding and elastic cellular membrane; as the compressed and compact character of muscles arising from the condensation of the cellular membrane of the body is indicative, on the contrary, of the choleric temperament.

The sanguine temperament is further indicated by the light colour of the hair and eyes; by the animation, but scarcely ardour, of the

latter; by the easy and voluble motions of the body, combining grace and variety; and by the general *en bon point*, which is the effect of the vascular and cellular structure I have indicated. With this temperament, of which the physical circumstances I have stated are the indications, is combined a mind quickly susceptible of emotion; but the feelings of the sanguine, of whatever kind, are singularly evanescent, and liable to be easily displaced and succeeded by new impressions; as the sunny bosom of a fair lake reflects from every passing cloud, in succession, its forms of phantasmagoric beauty, and bright but vanishing splendours.

Persons of this temperament, from their great nervous susceptibility, are addicted to voluptuous pleasures. Light and inconstant, severe application is intolerable to them, and, though often versatile and accomplished, they are seldom accurate and profound. Voltaire has admirably discriminated these traits of the sanguine character in some verses addressed to Richelieu, beginning—

Rival du conquérant de l'Inde
Tu bois, tu *plais*, tu combats, &c.*

and our own Shakespeare has described them with his usual felicity in his Timon of Athens.

Inconstancy and levity are certainly invariable concomitants of this temperament, and variety seems as much a necessity as an enjoyment to its possessor; the sanguine man, however, is naturally good, generous, feeling, impassioned, and delicate, but his affections want intensity. His goodness renders him ready to serve, but he has not always the courage to defend. With much of real sincerity, he will generally be found to profess more than he performs, and is rather fitted for the companionship of the hour

* The cardinal, however, was more of the *sanguine-choleric* character. Such he appears, as portrayed with equal truth and eloquence by Thomas, in his *Essai sur les Eloges*. He united the love of pleasure with the fire of ambition. Though amiable, light, and inconstant, he was feared by a king whose authority he extended and established; hated by the great, whose power he destroyed; was haughty and implacable towards his enemies, and ambitious of every kind of glory. See also the *Memoires de Gourville*.

than for the vicissitudes and trials of mortal destiny. In the gay days of hilarity and prosperity, the sanguine man or woman basks beneath the sunny beam, lively, joyful, and extravagant; but you must not be surprised if you look in vain for this character in the hour of darkness and adversity, or if it should grow pale at the prospect, when summoned by duty or affection, to walk by your side through the valley of the shadow of death. The sanguine is not the temperament of the martyr or the hero, which require other combinations. Sanguine persons, however, as far as my observation has extended, are uniformly courteous, humane, fitted for the gentle offices of polished life, but seldom capable of steady and lasting friendship. They are rather amiable than respectable, agreeable than consistent. One remarkable characteristic of this temperament is the employment of superlatives—the sanguine judge of persons and things rather from their own emotions than from their intrinsic worth and character. Inconstant in every thing, even

female charms, to which they are highly susceptible, and exert over them only an evanescent influence.*

The diseases of the sanguine are, for the most part, referable to the heart's predominant activity, inflammatory fevers, inflammations, and active hæmorrhage, &c. will, therefore, naturally be expected from the great prevalence of this temperament. It is necessary, however, to observe, that these must be greatly modified by air, climate, habits of living, and a thousand other circumstances which arise out of the condition of civilized life, which modify constitutional tendencies, and, consequently, the characters of disease. It must also be remarked, that exact archetypes, corresponding to these descriptions of the separate temperaments, will

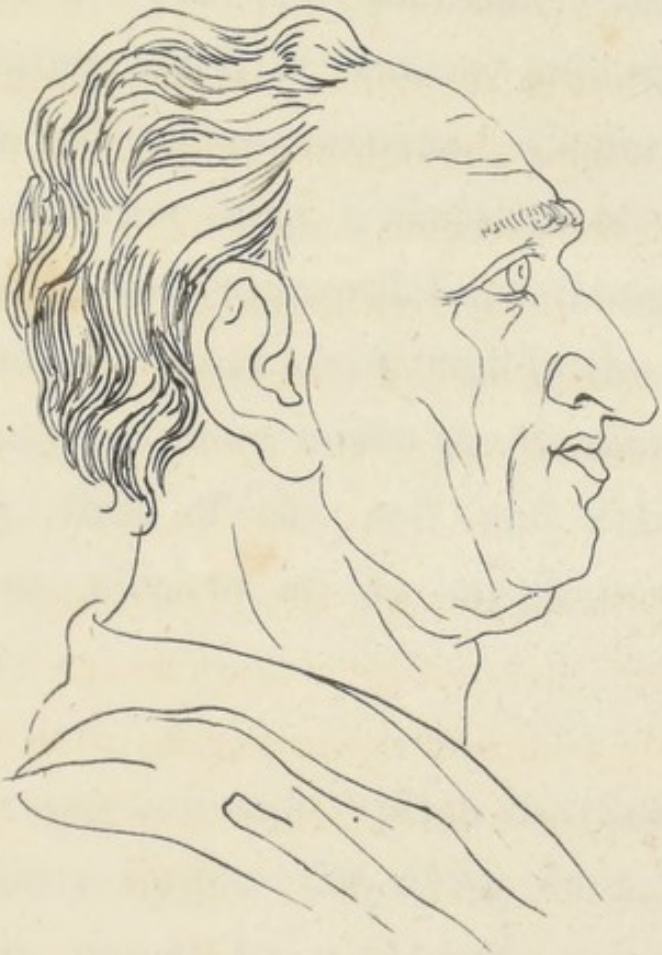
* The physical traits of the sanguine temperament are exhibited in the Statues of Antinous, and of the Apollo of Belvidere.

Much of its moral physiognomy will be found in the lives of Mark Antony and Alcibiades.

In Bacchus both the FORMS and CHARACTER are somewhat exaggerated.

rarely, if ever, be met with in the world, because they are generally found in combination, mitigating and harmonizing each other. It will be sufficient if, in these delineations of each, prominent characters are seized and exhibited, so that among the combinations which life is perpetually presenting, we are enabled to recognize the predominating tendencies. The physiologist here adopts the principle of the Grecian artist, who combined in the goddess of love and beauty the scattered perfections which he had observed in the finest women of Greece.

The CHOLERIC, though the less amiable, is, on the whole, the nobler temperament. It is indicated by a darker complexion, often by a swarthy one; by a less exquisite colour, and a harsher skin; by eyes of a vigorous, ardent, and piercing aspect; by a bolder outline; by more abrupt and angular features. In every choleric face the acute angle will be found greatly predominant over the straight or gently waving line.



CHOLERIC.

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at the Lithographic Institution, 198 Strand.

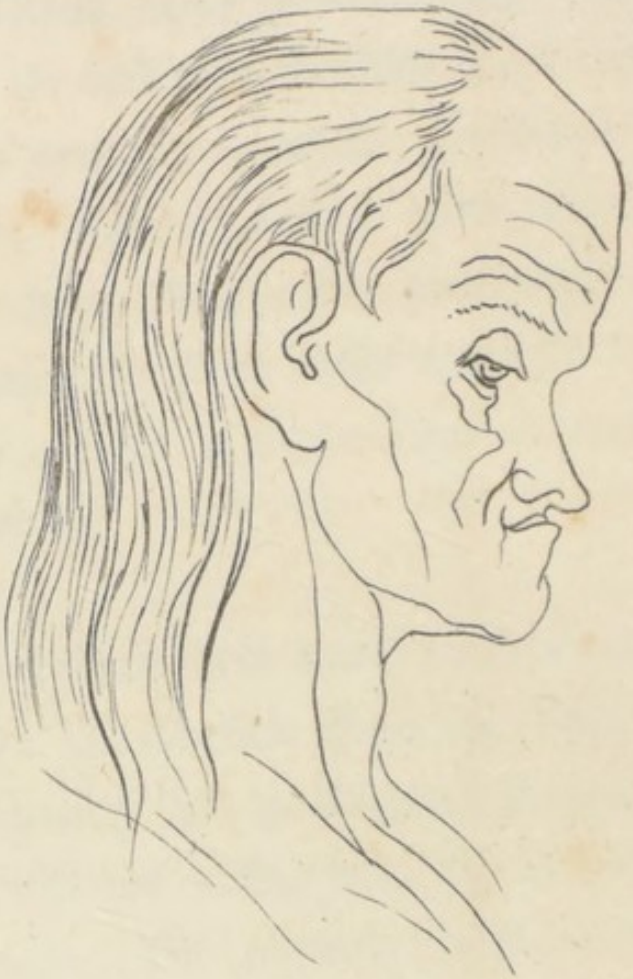
The muscular system, from a cause already explained, is more compressed, rigid, and compact; the muscular activity is consequently greater, and choleric persons are known by their quick but firm step, and by their generally rapid and impetuous motions. You look in vain in the choleric countenance for the soft, undulating swell of feature, indicative of the gentle and tender emotions. Choleric persons have, in every thing, a character of vigour and intensity—their susceptibilities, though as easily excited, are more vivid than in the sanguine; and they are more under the dominion of real feeling, than of the soft and delicate, but transient illusions of the imagination and the fancy.

The sanguine man "pities the plumage, but sometimes forgets the dying bird;" but the choleric, though he might look with contempt upon the mock hero expiring in tragedy, would rouse and kindle into indignation at the fate of the real martyr of oppression gliding into death through the gloom of his dungeon. The cho-

leric temperament indicates a less tender, but more impressive character—a character capable of firm and lasting attachments, and of steady pursuits—ardent, imperious—fitted for command rather than obedience—proud, irritable, bold, and impetuous—a character which, when united with commanding intellect, is noble in its ambition, fearless in its enterprizes, fitted to grasp and retain the sceptre of the universe. As the choleric have more courage, so also have they more integrity, than the sanguine, who from their timidity not unfrequently exhibit a disposition to equivocation and cunning.

The choleric man dares to think for himself, is more considerate than the sanguine, and consequently less profligate; his PRIDE, however, will not suffer him to degenerate into meanness. The choleric is the temperament of mental, rather than of animal excitement, and therefore less addicted to voluptuous pleasures, which not unfrequently seduce, and eventually brutify, the fine sanguine character.

PLATE C



# Melancholic.

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At the Lithographic Institution, 192 Strand.

From the great irritability of this temperament, and the vehement and intense character of its emotions, it is liable to affections of that organ peculiarly under the influence of the mind, i. e. the liver.—Choleric persons are, therefore, generally bilious.

The MELANCHOLIC temperament evinces itself by a sallow complexion, by a languid, sunken eye—by the hollows of the countenance—by the cold and languid outline—by its large, bony features—by its aspect of steadiness, mixed with dejection—by its less active, irritable, and compact muscular system—by the drooping form—and by its unvarying character of permanent emotion. When combined with the choleric temperament, it refines its sensibilities, and sometimes communicates a softer character of poetic enthusiasm. This temperament would appear to be essential to genius. Where it prevails, we not unfrequently find, sometimes, powers of profound research; in other cases, the sublime and tender illusions of the imagination and the fancy. The busts of Locke, of

Boyle, of Leibnitz, and of Newton, indicate much melancholy ; all engaged in the profound study of nature. It was the prevailing temperament also of Tasso, of Petrarch, and of Rousseau,* who, if they interpreted not the LAWS of nature, "adored her sublimities, and followed her footsteps with passionate enthusiasm,

* This extraordinary individual appears originally to have indicated the characters of the *sanguine-melancholic* temperament; in the early part of his life, we see a predominance of the former; but the latter greatly predominated in its advancement, and towards its close. Eager, gentle, addicted to love, feeling, and inconstant, his youthful career was marked by many sanguine traits—persecution, and the experience of the injustice of the world, which his imagination exaggerated, rendered him increasingly melancholy and despouding. His moral nature appeared to undergo a striking change, and his body became lean and emaciated. In him was seen a strong proof of the reciprocal influence of the moral on the physical, and of the physical on the moral part of man. The history of the unfortunate Gilbert is a striking illustration of the intimate connection which this temperament holds with the sensibilities and sufferings of *poetic* genius. A few days before his death, he breathed out his feelings in some stanzas, most mournfully touching, of which the following is an affecting specimen :

Au banquet de la vie infortuné convive
Je parus un jour et je meurs
Je meurs et sur ma tombe ou lentement l'arrive
Nul ne viendra verser des pleurs.

amidst that solemn and stupendous scenery, those melancholy and sacred solitudes where she speaks a voice so well understood by the mysterious sympathy of the feeling heart."

To the *choleric-melancholic* temperament, almost all the great men may be traced, the leaders of mankind; who guide and govern in the arduous struggle of contending interests and passions. Such men were Alexander, Cæsar, Brutus, Mahomet, Charles the XIIth, Cromwell, Buonaparte, and the famous Pope—who slowly travelling on towards the pontificate, stooping, and talking for twenty years of his approaching death, in a moment proudly reared himself, and cried out, "I am Pope,"* petrifying with astonishment those whom his artifice had deceived.—But, as if Nature had studied equality

Of these lines I venture on the following very imperfect and inadequate translation:

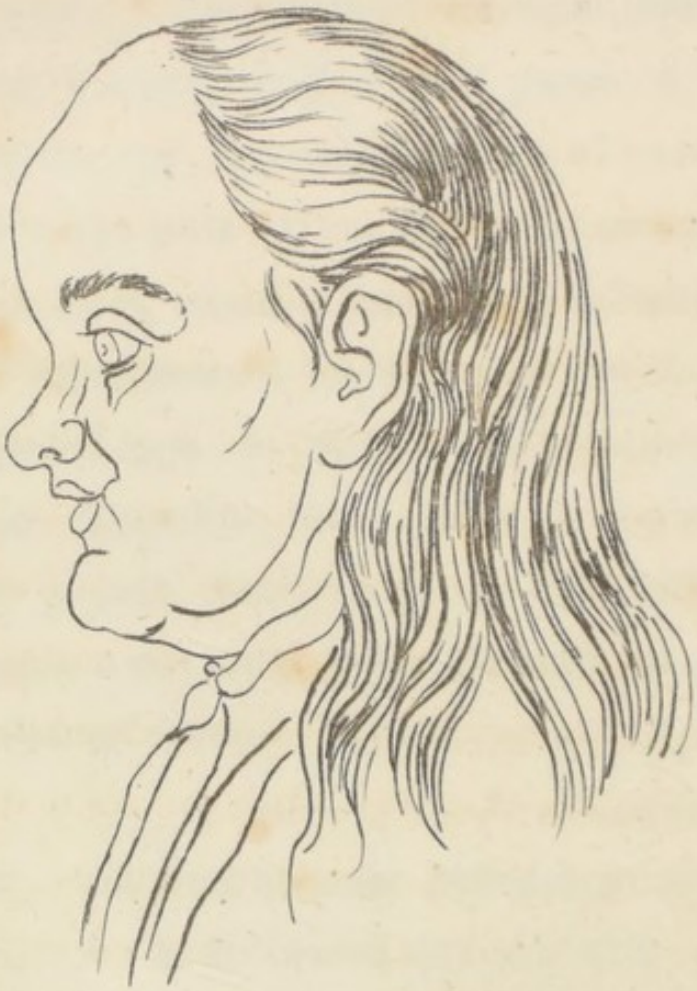
At the banquet of life, an unfortunate guest,
I appear'd for a day, but to die,
To the grave I descend, with slow footstep, opprest,
But no tear will be shed where I lie.

* Vie de Sixte Quint. 2 vol. in 12.

in the bestowment of her richest gifts, there is in this combination a strong disposition to insanity. It leads to accumulations of excitability, which must either induce morbid impression, or find their vent in great enterprizes. Melancholic-choleric men possess great energy, and strong passions, overstepping the low, grovelling laws of necessity, by which the bulk of mankind are urged to crawl their little rounds: they are led on with wild and adventurous strides, to great and bold undertakings, in the pursuit of power and of fame—linked to their purposes by iron bands, they pursue them, even on the giddy verge of mortal existence, and through the gathering shades of death.

As the intellectual character of this temperament is profound and accurate, so it is not liable to fluctuations of opinion—melancholic persons, therefore, are steady and consistent, and in every walk of life from their stability of character, are what is usually meant by respectable—they shock us by no extravagancies,

PLATE 7.



# Phlegmatic.

Published for Mrs Coke,
At the Lithographic Institution, 198 Strand.

and disgust us by no levities—they are grave and thoughtful, rather prudent and doubtful than buoyant and hopeful. This temperament is almost always found mixed with the choleric, which accounts for its high, irritable, and morbid enthusiasm; alone it would be cold and lifeless.

The PHLEGMATIC is the least excitable of all the temperaments; it seems to be a morbid condition of the sanguine—it is characterized by a soft doughtiness of the whole surface, evidently depending on a want of contractility in the skin—by the colourless and dingy appearance of the latter—by the tendency to obesity and roundness—by its undefined outline and shapeless features—by the animality of its fleshy and ponderous countenance. It has frequently, what medical men term, a leucophlegmatic appearance. I have often seen this temperament in great perfection, but never to an equal degree as in the person of the late Daniel Lambert, in whom all the characteristics that I have mentioned prevailed. Its diseases

partake of its character; they are dropsies, effusions, excessive obesity, &c. The phlegmatic are indolent and sensual, without ambition, enterprize, or courage; inviting, by their nerveless character, the triumphs of the insolent, and the rod of the oppressor.

It is the prevailing temperament of the Asiatic nations, tame, quiet, submissive; but destitute of dignity, energy, and power. It enters as a *component* frequently into the English character—a very common combination among the English is of the choleric-phlegmatic. It is well calculated to blend with the choleric and sanguine as mitigating their airy and fiery tendencies, and producing a disposition to repose and to the quiet pursuits of intellect.

The sanguine-phlegmatic is a good combination, producing mild and estimable, if not highly energetic and commanding, characters. It is in the blending of all the temperaments, however, that we must look for the produce of real greatness, that we recognize those rare

and gifted organizations, in which are finely commingled the elements of our social, moral, and active energies—" the tempered love of pleasure, the thirst of knowledge, and the fire of ambition."

## A COMPENDIUM OF THE FOUR DISPOSITIONS WHICH INFLUENCE THE HUMAN FRAME.

| | A MAN OF A DISPOSITION | | | |
|---|---|---|---|---|
| | SANGUINE. | CHOLERIC. | MELANCHOLIC. | PHLEGMATIC. |
| Is inclined, particularly in youth, to | Voluptuousness..... | Ambitious in manhood. | Avaricious in age..... | Laziness in old age. |
| In the ecclesiastical state, is.... | Caressing, insinuating... | Haughty. ..... | Interested..... | Indolent. |
| In the secular state ..... | Affable, courteous. .... | Restless..... | Usurious. ..... | Unsociable. |
| In domestic affairs, is ..... | Complying. ..... | Prying and exact. ..... | Severe. ..... | Slow and easy. |
| In walking, goes as one ..... | Dancing. ..... | With firm steps.. ..... | Thoughtful. ..... | Heavily. |
| In dress, loves ..... | Variety..... .... | Magnificence..... | Simplicity ..... | Negligence. |
| In eating, is ..... | Nice in taste..... | Sumptuous..... | Moderate. ..... | A glutton. |
| In deportment, is ..... | Sprightly..... | Serious. ..... | Heavy. ..... | Clumsy. |
| In the epistolary style, is..... | Prolix. ..... .. | Concise..... | Profound ..... | Unintelligible. |
| In conversation ..... | Copious. ..... | Pathetic. ..... | Pensive..... | Simple, shallow. |
| In prayer ..... | Sincere..... | Hypocritical..... | Devout..... | Careless. |

| | | | | |
|---|---|---|---|---|
| In religion, is ..... | Apt to change. ..... | Inquisitive ..... | Zealous. ..... | Superstitious. |
| In the capacity of a superior, is | Compassionate. ..... | Imperious ..... | Suspicious. ..... | Abashed. |
| In his expences ..... | Prodigal. ..... | Careful ..... | Covetous. ..... | Indifferent. |
| In his occupations ..... | Inconsistent. ..... | Cautious. ..... | Assiduous. ..... | Slow. |
| In company..... | Sociable..... | Proud ..... | Peevish. ..... | Insupportable. |
| In trade ..... | Credulous..... | Equitable..... | Selfish. ..... | Tedious. |
| In rendering services ..... | Willing. ..... | Of a contradictory temper | Reserved. ..... | Awkward. |
| In prosperity ..... | Immoderate. ..... | Puffed up with pride. ... | Mistrustful. ..... | Supine. |
| In adversity..... | Discouraged. ..... | Bold. ..... | Downcast. ..... | Unconcerned. |
| In danger..... | Imprudent..... | Prudent ..... | Dispairing..... | Timorous. |
| In arts ..... | Ingenious. ..... | Envious ..... | Industrious. ..... | Stupid. |
| In sciences ..... | Docile. ..... | Penetrating ..... | Persevering. ..... | Forgetful. |
| In warfare ..... | Terrified. ..... | Daring..... | Furious. ..... | A coward. |
| Is to be governed by ..... | Lenity. ..... | Shame ..... | Hunger. ..... | Blows. |
| In his conduct..... | Sincere..... | Dissembling ..... | Reserved, sly. ..... | A liar. |
| In his humours ..... | Playful..... | Violent..... | Sullen. ..... | Accommodating to all. |

## SECTION IV.

CONTAINING TESTIMONIES OF SEVERAL WRITERS TO THE TRUTH AND UTILITY OF THIS SCIENCE, ACCOMPANIED BY ORIGINAL REMARKS AND OBSERVATIONS, TOGETHER WITH A VIEW OF THE PHYSIOGNOMICAL LANGUAGE OF COMMON CONVERSATION; AND A GENERAL STATEMENT OF ITS PHILOSOPHICAL, MORAL, AND RELIGIOUS BENEFITS TO MANKIND.

MERE system-makers invariably rely upon the authority of great names for the truth and value of their theories. Nor is this practice confined to those writers, whose chief aim appears to be the establishment of a favourite science; the confirmation of a darling opinion—or the selfish support of some abstract position, of no general use to mankind. Philosophers and moralists, theologians and politicians, have resorted to arguments deduced from the authority and concurrent testimony of others. In-

deed, the human mind, as Lavater has justly remarked, is governed by authority. It is the great inducement, with the multitude, to the reception of truth, as well as the main sanction to error.

The abuse of this argument, and the application of it being generally to the passions rather than to the judgment, ought not to prevent its use and efficacy, where it is called in to aid the great and important ends of philosophical research.

But how shall I compress into a sufficiently narrow compass what has been written confirmatory of the truth of Physiognomy? The reader will excuse the paucity of the extracts, in consideration of the limits to which I wish to confine myself; and because I would not willingly overpower him with "a cloud of witnesses," to prove a truth which, I am convinced his own heart and experience must have taught him. A truth which, like many others in its operations, is tacitly admitted by even

those who openly deny it, or, in the pride of an affected philosophical superciliousness, pretend to treat it with disdain and contempt.

## 1. SOLOMON.

A naughty person, a wicked man; he winketh with his eyes, he speaketh with his feet; he teacheth with his fingers.

The eyes of a fool are in the ends of the earth.

An high look and a proud heart.

There is a generation; O how lofty are their eyes! and their eye-lids are lifted up. *Proverbs.*

## 2. JESUS, THE SON OF SIRACH.

The heart of a man changeth his countenance, whether it be good or evil. A cheerful countenance is a token of a heart that is in prosperity.

A man is known by his look, and a wise man by the air of his countenance.

There is a wicked man that hangeth down his head sadly, casting down his countenance, and making as if he heard not. A man's attire, and excessive laughter, and gait shew what he is.

The wickedness of a woman changeth her face.

*Ecclesiasticus.*

To these few authorities from the Old Testament, and from some of the best portions of the Apochryphal writings, might be added many others from the New Testament. The reader will find in various parts of these sheets, repeated citations from the sacred Scriptures of this confirmatory character. I have not room for enlargement. Let the diligent physionomist complete the list from that divine and inexhaustless source of almost every species of valuable information.

### 3. GALEN.

Nature has constituted the bodily organs with a suitableness to the qualities of the mind.

### 4. CICERO.

Nature hath bestowed on man a bodily figure completely adapted to his mind.—She has so exquisitely modelled the human features, that they are capable of expressing the most secret emotions of the soul. The penetrating glances of the eye indicate the corresponding internal affections; and that which is emphatically called the *countenance*, with an energy communicated to no animal but man, announces his moral character.

The Greeks well understood this relation, but have no word in their language to express it.

## 5. MONTAGNE.

Nothing has a greater appearance of probability than the conformity and relation of body to mind. It is not credible that they can be discordant, unless some accident should have interrupted the natural course of things.

## 6. LORD BACON.

This great man admits that an inquiry into the knowledge which may be obtained respecting mind has been productive of an art that is explanatory of human nature; an art which has been illustrated by the researches of Aristotle. This art is PHYSIOGNOMY, which, discovers the propensities of the mind in the lineaments of the body.

See *The Advancement of Learning.*

## 7. ERNEST.

The natural conformation and habit of body are usually formed conformable to the dispositions and propensities of the mind, to such a degree, that from the speech, the gait, the complexion, a person of discernment will form a tolerably accurate judgment of the

mental powers—not to mention the skill which some possess of tracing the nature and disposition of the mind in the lineaments of the face, and the conformation of the whole head, in which they are confirmed by an uniform experience. For, though the mind of certain persons may sufficiently correspond to the form of the countenance, it cannot, therefore, be denied that the disposition naturally is what the looks indicate; since by study and practice the natural propensities may be so checked and restrained, and the faults of the temper so corrected, as to leave scarcely any trace of their existence. The case of Socrates is a striking instance of this.

## 8. SULZER.

Though to the generality, Physiognomy, or the science of discovering the character of man by his face and figure, may appear a frivolous pursuit, it is, nevertheless, certain, that every person who possesses sensibility, and employs attention, is a physionomist, at least to a certain degree. We see the soul in the body. In other words, it may be said, the body is the image of the soul; or, the soul itself rendered visible.

*General History of the Fine Arts.*

## 9. WOLFF.

The body has something in itself, in its form taken

together, or in that of its parts, from which the natural disposition of the soul may be inferred. I say the natural dispositions, for we are not now inquiring into those which are acquired by education, by living in society, by imitation, &c. The art of discovering the interior of man by his exterior, which goes by the name of Physiognomy, has, therefore, a real foundation. The constitution of the body indicates only the primitive propensities of man. We discover in it what he is inclined to naturally; but not what he will do, after reason or habit shall have triumphed over his natural inclinations. The lineaments of the face serve to form its expression whenever a man is exempted from constraint: these lineaments then indicate the natural inclinations, when they are considered in their true position.—*Philosophical Thoughts on the Conduct of Man.*

I do not know exactly to whom Baron Wolff alludes when he says, as he does, in one place, that, although he freely admits the truth of Physiognomy, he apprehends that it requires more penetration and intelligence than was possessed by those who have had the temerity of attempting to reduce it to a system. I am not aware of any attempt of the kind that had

then, or even since his time, been made. But what would he have said had he lived to have seen Lavater's great work? Wolff died in 1754, after having composed, in Latin and German, more than sixty distinct pieces. He was a baron of the Roman empire, privy councellor to the king of Prussia, and chancellor of the university of Hall, in Saxony.

## 10. ALBERT HALLER.

It is the will of God, the great Author of society, that the affections of the mind should express themselves by the voice, the gestures, but especially by the countenance; and that man should thus communicate to man his love, his resentment, and the other emotions of his soul, by a language perfectly infallible, and universally understood. It is no recent discovery, that almost all the predominant affections may be discerned by inspecting the countenance; as, whether a man be cheerful and jocular, or melancholy and severe; proud, mild, and good-natured; envious, innocent, chaste, humble; in a word, you may distinguish almost all the settled affections, with the vices or virtues which spring from them, by manifest signs in the face and the whole body.—*Elementa Physiologiæ.*

This learned physician, in the volume from which the preceding short extracts are made, wrote much more on this subject; but as his remarks rather relate to Pathognomy than Physiognomy, I have omitted them, though Lavater has been very copious in his selections.

## 11. GELLERT.

What is most pleasing or disgusting in the appearance of any person, is the character of the mind, expressed and delineated by nature on the face and in the eyes. A soul, gentle, complacent, and respectable, without pride and remorse, overflowing with benevolence and humanity, a mind superior to sense and passion is easily discernible in the physionomy, and the whole action of the body. A modest, graceful, and enchanting air is the usual expression of it. It is the soul which imprints on the forehead a character of nobility and majesty; and infuses into the eyes that candour and cordiality; from it are derived the mildness and affability which are spread over the whole physionomy: the gravity which sits upon the forehead tempered with serenity; that affecting, sympathetic look which accompanies ingenuous modesty. In short, the most beautiful expression, and the finest colouring

of the face, result only from a sound understanding, and a good heart.

This most worthy man, and excellent poet, who died in the year 1769, next goes on to combat some objections to the science of Physiognomy, and then proceeds to observe, that experience evinces that certain irregular and vicious propensities impress very sensible traces on the countenance; and concludes this part of his valuable *Lessons of Morality*, from which these meagre extracts are made, with some admirable exhortations to those who wish to diffuse over the physionomy a character of dignity, and to render it expressive and interesting. I regret exceedingly my inability to extend these extracts in this place.

## 12. LA CHAMBRE.

Nature has not only bestowed on man voice and a tongue, to be the interpreters of thought; but, in the apprehension that these might be abused, she has written a language in the forehead, and in the eyes, to testify against them should they dare to be unfaithful. In a word, she diffused the whole of man over the

whole of his outside, and there is no occasion for a window to transmit his emotions, his inclinations, and habits; for they appear on the face engraven in characters, perfectly manifest and legible.—*The Art of knowing Man.*

## 13. HERDER.

The work of this excellent writer, entitled *De la Plastique:* Observations upon the Form and Figure; taken from Pygmalion's Dream, published in the year 1778, is of itself almost a complete system of Physiognomy. The various parts of the human physionomy are depicted by a masterly hand. The head, the hair, the forehead, the eyes, the eye-brows, the nose, the ear, the lips, the mouth, the teeth, the jaw-bone, the chin, have each their appropriate qualifications assigned them. But it is impossible I should select from so great a mass of beauty and excellence, where every thing is so grand, so just, and so accurate.

## 14. DOCTOR SAUNDERS.

It is a wonder, if possible, beyond a wonder, to

consider so many faces that are in the world, and yet we never meet with two exactly alike, but some difference is discernible; from whence arises such great difficulty in judging the qualities and dispositions of the persons. The complication in the compositions of the tumours, are so various, that he who will be curious therein, cannot safely pronounce judgment without an exceeding hard study upon various objects and situations.—*Secrets of Physiognomy Disclosed*, 12mo. published in 1669.

## 15. DRYDEN.

The king arose, with awful grace;
Deep thought was in his breast, and counsel in his face. *Pallas & Arc.*

Big was he made, and tall; his port was fierce;
Erect his countenance: manly majesty
Sate in his front, and darted from his eyes,
Commanding all he viewed. *Œdipus.*

His awful presence did the crowd surprise,
Nor durst the rash spectators meet his eyes;
Eyes that confessed him born to kingly sway,
So fierce they lashed intolerable day.
*Pallas & Arc.*

He looks, as man were made, with face erect,
That scorns his brittle corpse, and seems asham'd
He's not all spirit: his eyes with dumb pride,
Accusing fortune, that he felt not warm:
Yet now disdains to live. *Don Sebast.*

——— By his warlike port,
His fierce demeanour, and erected love,
He's of no vulgar note. *All for Love.*

——— Methinks you breathe
Another soul: your looks are more divine;
You speak a hero, and you move a god. *Ib.*

## 16. MILTON.

—— Deep on his front engraven,
Deliberation sate, and public care;
And princely counsel in his face yet shone.
*Par. Lost.*

Care sat on his faded cheeks; but under brows
Of dauntless courage and considerate pride,
Waiting revenge. Cruel his eye, but cast
Signs of remorse and passion.——— *Ib.*

——— His grave rebuke,
Severe in youthful beauty, added grace
Invincible ———————. *Par. Lost.*

## 17. DRYDEN'S VIRGIL.

The Trojan chief appeared in open sight,
August in visage, and serenely bright:
His mother-goddess, with her hand divine,
Had formed his curling locks, and made his temples shine;
Had given his rolling eyes a sparkling grace,
And breathed a youthful vigour in his face,
Like polish'd iv'ry, beauteous to behold,
Or Parian marble when enchas'd in gold.

———

Amid the press appears the beauteous bay;
His lovely face unarm'd; his head was bare,
In ringlets o'er his shoulders hung his hair;
His forehead circl'd with a diadem———
Distinguish'd from the crowd, he shines a gem,
Enchas'd in gold; or polish'd iv'ry set,
Amidst the meaner foil of sable jet.

## 18. COWLEY.

——— Through his youthful face
Wrath checks the beauty, and sheds manly grace;
Both in his looks so join'd that they might move,
Fear ev'n in friends, and from an enemy love.

## 19. CONGREVE.

What's he who with contracted brow,
And sullen port, glooms downward with his eyes;
At once regardless of his chains or liberty?
He shuns my kindness;
And with haughty mien, and stern civility,
Dumbly declines all offices: if he speak,
'Tis scarce above a word: as he were born
Alone to do, and did disdain to talk,
At least to talk where he must not command.

*Mourning Bride.*

## 20. SHAKESPEARE.

In peace there's nothing so becomes a man
As modest stillness and humility:
But when the blast of war blows in our ears,
Then imitate the action of the tiger;

Stiffen the sinews, summon up the blood,
Disguise fair nature with hard-favour'd rage;
Then lend the eye a terrible aspect;
Let it pry through the portage of the head
Like the brass cannon; let the brow o'erwhelm it,
As fearfully as doth a galled rock
O'erhang and jutty his confounded base,
Swill'd with the wild and wasteful ocean.
Now set the teeth, and stretch the nostril wide,
Hold hard the breath, and bend up every spirit
To his full height. *Henry V.*

## 21. DR. WALCOTT.

——— people who are innocent *indeed*,
Never look down, so black, and scratch the head;
But, tipp'd with confidence, their noses tilt,
Replying with an unembarrass'd front;
Bold to the charge, and fix'd to stand the brunt.—

Truth is a tow'ring dame—divine her air;
In native bloom she walks the world with *state:*
But Falsehood is a meretricious fair,
Painted and mean, and shuffling in her gait;

Dares not look up with Resolution's mien,
But sneaking hides, and hopes not to be seen;

For ever haunted by a doubt
That all the world will find her out.

Again—there's honesty in *eyes*,
That shrinking show when tongues tell lies—

*Works.*

But I am compelled, however reluctantly, to stay my hand, else I might extend their testimonies to almost any length; for there is scarcely a writer extant, of ancient or of modern times, that has not, directly or indirectly contributed his mite of evidence to attest the truth of this inestimable science. I will, therefore, wind up this mighty mass of testimony, by a brief view of what may be termed *The Physiognomical Language of Common Conversation.*

My labour, if that which is so pleasing may be so named, with respect to this part of the subject, has already been partially anticipated, in various parts of the foregoing pages; and, indeed, very little need be added here.

Scarcely a day passes over, in which we

have the least intercourse with mankind, that does not afford some colloquial proof that there is not a single man who actually disbelieves the truth of Physiognomy. It enters into all our concerns—it is the first guide and direction in every transaction between man and man; and between man and his Maker.

In the language of Physiognomy, the religionist adores the majesty of heaven—deprecates the divine justice—supplicates mercy—expresses his hopes, his fears—his joys, and his sorrows. When oppressed by the corroding cares and perplexities of a sinful world; or, when his heart sinks within him in the contemplation of his own manifold infirmities, he seeks relief in the *light of God's countenance*, and "intreats the *face* of the Lord his God."

When the conscience is clear of guilt, then is the good man said to "lift up his *face* without spot;" but "the *eyes* of the wicked fail." "Who is the wise man?" said Solomon, "and who knoweth the interpretation of a thing? a

man's wisdom maketh his *face* to shine, and the boldness of his *face* shall be changed." The afflicted man of Uz winds up the climax of the indignities which he experienced at the hands of those ungrateful wretches, whom, in his posterity, he had fed and nourished, by declaring, as the greatest affront they could offer him, that they spared not even to " spit in his *face*." Is it not owing to a sort of intuitive feeling of respect for this science, that we uniformly regard an action of that kind, as the greatest possible insult that can be heaped upon us? It is because we feel, that in affronting the *face*, we scandalize the whole man.

So also, when Isaiah described the predicted sufferings of the Messiah, he said " his *visage* was so marred more than any man's, and his *form* more than the woes of man," doubtless, prophetically alluding to the abominable mockery of him, when his enemies sneeringly " bowed their knees, and worshipped him," after having " smote him on the *head* with a reed, and spit upon him."

In fine, it is worthy of remark, that the consummation of our future happiness and glory is described, as consisting in seeing a merciful Creator, "*face* to *face*," when, with *open face*, we shall behold, as in a glass, the glory of the Lord, and are changed into the same *image*."

I make no apology for these scriptural allusions; the man of piety will not require any;—and to the impious man the true physionomist owes no courtesy.

But it is not to the affairs of religion only, that this physiognomical language is applicable. Let us enter the senate, &c. and there, watching the physionomies of the speakers, and of the hearers, listen to the remarks that are wispered throughout the assembly. "Mark," says one, "the animation of his countenance—His very eyes speak—his whole soul appears in his face—He evidently feels what he says—His heart is engaged; I see it in his looks," &c. &c. And so of the reverse: "Behold with what coldness and indifference he listens to the

pleadings of his opponent! He appears to feel no interest in the subject—Indifference and inattention are depicted in his features:—He is manifestly thinking of something else."

Can we more poignantly wound the feelings, or insult the talents of the poet, and the man of genius, who, while he is labouring to afford us delight and pleasure, by the reading or the recital of his works, we refuse to acknowledge the obligation, by a careless, vacant, or inattentive look? Perhaps, by a look intensely directed to some other object and pursuit. Often have I seen the refined sensibilities of true genius most shamefully insulted by a conduct like this; and have observed the modest blush of shame, or of indignation, suffuse its tints over the countenance, evidently speaking some such language as this: "I fear I have overrated my powers—No attention is paid to what I am reading—I do not interest the heart; for my auditor looks another way—He is gazing on some distant object—His mind is vacant and abstracted; or there is a design to insult

me—I will lay down the paper, and apologize for my officiousness and weakness; or demand a reason why I am not listened to."

I am very well convinced that no truly well-bred man will thus wound the feelings of those who wish to please; or who are modestly solicitous for that just meed of approbation which their good intentions, at least, entitle them to receive. The experienced, the practical, physionomist will never be guilty of so great a dereliction of duty—so manifest a breach of good-manners. I wish people, in general, would be more careful what they do with their eyes—how they employ them—and would reflect that they were not made for themselves alone; or only for the purpose of being seen in a looking-glass.

" Look me full in the face, if you would have me believe you sincere." " Let me see, as well as hear, what you have to say, or how can I clearly understand your meaning?" " He has some mental reservations, I fear; for his

eyes and his lips do not speak the same language." "I *see* what you mean, my friend; you need not say a syllable: you may rely upon my friendship." "Mark that man, at the farthest corner of the room—see his look—his half-open mouth—his long prominent chin—his thoughts clearly wandering from object to object, intent upon prey; he listens, but speaks not; and meets your eye with an air of inquiry; yet communicates not his own thoughts. He is gathering information; but communicates none. He assents to all you say; though he manifestly believes it not. He has some object in view that does not immediately appear; rely upon it, he is a spy—a crafty, designing knave; or, at least, some poor, selfish observer, anxious for his own aggrandizement; but unwilling, or unable, to contribute his mite to the common stock of human comfort and happiness."

Again: "—— Behold the modesty, the amiable simplicity, the mildness, the benignity, of that countenance!" "How beautiful! how

charmingly fascinating, is the penetrating eye of that female; robed in innocence and virtue, formed to please, and born to interest, she commands your love and esteem the moment you see her:

" Grace is in all her steps, heaven in her eye;
" In every gesture dignity and love."

And who shall break the willing fetters that bind the heart to such an *aspect?* Who shall dissolve the charm of this physiognomical enchantment? So was it with Adam, when first

" His fair large front and eye sublime—

met his beauteous help-mate Eve,

——— fairest of creation, last and best
Of all God's works; creature in whom excell'd
Whatever can to sight or thought be form'd,
Holy, divine, good, amiable, or sweet!

It cannot be necessary to remind the reader, that some such language as that which is above alluded to, enters into all our concerns, whe-

ther those of a high and important nature, or of the inferior every-day matters of our fire-sides and our closets. We like or dislike, very frequently, according to first impressions, without knowing precisely the exact cause:—

I do not like thee, Doctor Fell,
The reason why I cannot tell,
But this I know full well—
I do not like thee, Doctor Fell.

And we most commonly express those impressions by some allusions to the face; as such a one is ill-looking; or good-looking; wise or foolish; feeble or energetic; good or bad.

Let us now take a rapid *view of the religious, moral, and philosophical advantages of this science.*

Having, as I conceive, at least, proved, beyond all rational controversy, that Physiognomy is a science founded upon the eternal basis of truth and right reason, I may be spared the task of proving that such a science must necessarily

be of advantage to mankind, whenever it shall come to be universally understood, and acted upon. I need not "hold a candle to the sun," or attempt to make that clear which is self-evident.

But, although I will not insult the reader's understanding, by supposing him capable of so great an aberration of mind, or ignorant of so important a fact, I may be allowed to remind him of a few of those advantages which might, and, I trust, one day will, accrue to mankind from this interesting science.

Error never was, nor ever can be, attended with advantage to mankind. It were ridiculous, therefore, in me to go into any formal proof, that Physiognomy must necessarily be beneficial to the religious, the moral, or the philosophical world; for, I apprehend, the *truth* of the science is no longer problematical. Some persons may, and doubtless will, still object to it; but they will not express that doubt without bearing testimony to the truth of that which they deny. I have again and again stated, that

there cannot be a single emotion of the mind, but it shall have a corresponding expression in the countenance. The denial of Physiognomy, therefore, can only excite my smiles or my pity: —my smiles, that men should themselves confirm that which they reject as false; my pity, that they should despise that which has a tendency to contribute so greatly to their happiness.

Man know thyself: true wisdom centres here,

said one of our best poets. It is an admonition founded on the doctrines of the ancient philosophers and moralists; and is perfectly consonant with the precepts of true religion.

By the knowledge of ourselves we derive an acquaintance with all mankind: for we are all children of the same general stock. The difference in human hearts is really only slight and accidental. That "God has made of one blood all the families that dwell upon the face of the earth," is a truth that required not the aid of any extraordinary illumination to

confirm or establish it; and, if it did, we have a testimony in its favour, which few persons in this country, at least, will dare to controvert. Seeing, therefore, that by a serious study of mankind in general, I may learn to become better acquainted with myself, it is surely not too much to assert, that Physiognomy has many religious and moral advantages: for Physiognomy is nothing more than the study of human nature.

In a former part of this work, it has been stated, that it enters into the very nature of this science that those who profess it should *see* the person accused of vicious propensities before they can absolutely decide concerning the precise degree of moral turpitude which attaches itself to the real character of that person. And is this a point of inferior importance in a religious or a moral view? Is it nothing to prevent hasty and premature judgments? We are told not to judge according to the appearance; that is, as reported to us by others, or as even our own partial and imperfect observations of actions

only may have extended, but to judge righteous judgment. A knowledge of the science of Physiognomy will tend to impress upon our minds the vast importance of this admonition, with a force that cannot easily be resisted. Alas! alas! what mischief has been occasioned in the world by false impressions, merely by hearsay and partial observation! What jealousies! What evil surmisings! What suspicions! What false judgments have resulted from the want of a proper knowledge of the science of Physiognomy, which uniformly tends to check those idle and wicked whisperings, backbitings, and slanders, so common with weak, silly, and evil-disposed persons.

Jealousy and suspicion, in the obnoxious application of those terms, are as absolutely incompatible with the knowledge and practice of Physiognomy, as they are opposed to the principles and duties of religion, morality, and the law of honour; nor can any one be said to possess a truly enlarged and liberal soul—a soul in whom you might repose with perfect

confidence—who indulges in those hateful propensities. Such persons will never make good physionomists; they will shun the light; they will avoid occular demonstration; they will despise conviction and proof, because all this would rob them of the food on which their dark and mistrustful minds fatten and thrive. These uniformly avoid the *face* of those whom they accuse. They go about to listen to every idle story that may tend to keep alive thei baneful envy and malignity; and prefer the narratives of others to their own observations; and their own surmises to the labour of proof and demonstration. "Report," say they, "and we will report it again." Not so with the physionomist. His language is, "introduce me to the accused—let me see what kind of a person he is—possibly he may have erred from some misconception—or, some sudden and overwhelming temptation may have driven him to the commission of that which his better judgment disallows, and his soul abhors; or may be you have mistaken the man and his case altogether—you may possibly have accused him

unjustly: at least, let me see and converse with him, and have an opportunity of noticing what marks of guilt appear in his countenance, what permanent indications of vice mark the lineaments of his features, his look, his air, his manner." Such would be the language of the Christian physionomist on hearing ill reports against the absent; and I will venture to say, that, in nine cases out of ten, the accuser would stand abashed before the penetrating eye of such a faithful professor of this most useful and valuable science.

It belongs to Deity alone

> To judge from principles within,
> When frailty errs, and when we sin;

And the true physionomist will not fail to imitate Deity as much as possible; relying on the utility of his science, he will never pronounce a rash, or an indiscriminate, judgment on any man's character or conduct, but will carefully mark the leading traits in the

physionomy of the accused; and should those traits prove to be favourable, he will suspend his judgment concerning the real character of the man—he will assay to reform him—he will direct his persuasions, his advice, and his admonitions, to those particular traits of character which tend to virtue. Thus will he strike the right chord—touch that string in the soul, that harmonizes with truth and goodness; and getting possession, by that means, of the man's genuine principles and propensities, he will gently guide him from the devious walks of error to those paths of true wisdom, which tend to peace, honour, and happiness.

If, on the other hand, the true physionomist has, at any time, occasion to observe some unfavourable traits in the countenance, gait, or involuntary habits of those to whom he may be introduced, he will not, to use an ancient phrase, "suffer sin upon him; but in anywise reprove him." He will, in the true spirit of his science, put such an one upon his guard against those propensities which might lead him into

danger. He will warn him not to run into temptation, but to keep a steady eye upon himself; and, by a strict self-discipline, so to counteract the evil tendencies of his physionomy, that in time, he shall be able not only to govern his feelings, but, possibly, even to render more feint and indistinct those deforming lineaments, which, while they lead to error, detract from beauty. The example of Socrates will here come in aid of physiognomical precept; and, who knows, how often such friendly admonitions would succeed in snatching from misery those, who, for want of such counsels, fall by little and little, till their honour, their reputation, their comfort, and happiness in the world are all forfeited.

There is a set of beings in society, who "make a man a sinner for a word."—A race of unhappy mortals, who, with loud boastings about morals and religion, go about to condemn every look, word, action, and opinion, that squares not with their narrow and selfish views of things—you must walk with them, or walk out of the world—

you must say their *shibboleth*—you must subscribe to their articles—you must observe their observances—you must kneel at their altars—bow to their gods, and listen to their counsels, or you cannot be happy. They have chalked out a line of duty, as they call it, so narrow, that neither themselves nor others can walk in it with safety. They, therefore, pass through life as if the ground on which they tread were composed of nothing but bogs and quagmires; and as if the azure aspect of the heavens were absolutely injurious to the sight. With these unhappy beings, every look, every word, every act inpinges upon vice; and they would, if they durst, even condemn the marriage at Cana, in Gallilee, and all the guests who drank wine there. O! but could we follow them into the hidden haunts of their own hearts, we should there see what sinuosities, what serpentinings, what obliquities of feelings, views, and principles, what secret longings, what mixtures and contradictions make up their character. Here should we detect the demon of pride lording it over the soul, there the little

imps of envy and malignity creeping round the heart-strings; there, again, the yellow-eyed fiend of jealousy infusing its poison into the liver, and blood, and heart's core of the wretched victim, while ill-nature and malignity riot in wantonness through the whole system.

Now, all this can never long escape the penetrating eye of the physionomist. He will draw aside the veil that hides from common observation the true dispositions of those with whom he associates. But he will never condemn rashly, nor be hasty in his judgments; for he knows of what materials mankind are composed; and he will form his estimate not from any one particular trait, but from the concentrated whole; and even then, will often wait till his judgment is confirmed by some overt act, that shall place his powers of discrimination beyond doubt or difficulty.

This, at best, is but a slippery world, and mankind are strewn very thickly upon its sur-

face, we should do well, therefore, to proceed with some degree of caution, that we jostle not against our neighbour, nor render him uncomfortable by our eccentricities, or unhappy by our vices. Let us, therefore, avail ourselves of every possible help which divine Providence has placed in our power, to understand one another's character, thereby the better to appreciate what is good; and to detect and amend what is evil. One of the main helps of this kind is, I apprehend, this science of Physiognomy; but, then it must be learned perfectly, must be studied seriously, and be practised with prudence and caution.

On the *philosophical* and *scientific* advantages of Physiognomy it is not necessary that I should dwell. Its connection with Physiology, with Anatomy, with Zoology, with the Belle Lettres generally, with mathematical calculations and admeasurements, and with many other branches of art and science, will insure to it, whenever it comes to be generally and thoroughly understood, a high and important

rank in the scale of human knowledge. I am not ashamed to express my firm conviction, that a time will come, when our colleges and academies shall deem it as essential to institute a professorship of Physiognomy, as it is now thought proper that we should have professors of Humanity, of Moral Philosophy, of Ancient and Modern History, of Anatomy, of Painting, of Physics, &c. &c. I will not quarrel with those who may be disposed to smile at these sanguine anticipations. Physiognomy, though no modern invention, but as old as the creation itself, is, in what may be called its moral and philosophical uses, yet in its infancy; and whatever has the air of novelty, however useful, has to encounter the assaults of prejudice and mistake, till experience and matter of fact shall silence gainsayers, and stop the mouth of ignorance. In our own days we have all seen with what difficulty the discoveries of a Jenner, for instance, make their way through the world.—How reluctantly was received the application of steam, of gas from coal, and of various other chemical operations, to the daily purposes of life.

Referring to times more remote, we may observe, that at a period when the arts and sciences were in the highest repute, and Rome, in this respect, was in the zenith of her glory, under the luxuriant auspices of Leo X., the art of Printing was attributed to the agency of the devil:—

> But see each muse in Leo's golden days
> Starts from her trance, and trains her wither'd bays;
> Rome's ancient genius o'er its ruins spread,
> Shakes off the dust, and rears his reverend head.
> There sculpture, and her sister arts revive;
> Stones leap to form, and rocks begin to live:
> With sweeter notes each rising temple rung;
> A Raphael painted, and a Vida sung.

A century had elapsed after all this, when the astronomer Galileo Galilei was condemned to imprisonment, and a saving penance for three years, to repeat once a week the seven penitential psalms, for declaring that the sun is the centre of the world, and immoveable by a local motion; and that the earth is not the centre of the world, nor immoveable, but actually

moves by a diurnal motion. In other words, Galileo was condemned for asserting that which any man, in our own days, would be esteemed a fool for denying. I do not recollect the name of the unfortunate philosopher who was burnt at the stake for maintaining that the earth was globular.

The world, however, is gradually advancing in knowledge; and I look forward to no very distant day, when the science of Physiognomy shall have acquired that stability of character as to entitle it to universal reception; and when its reasoning shall be looked to as one of the main auxiliaries of true religion, sound morals, and rational philosophy.

In the meantime, its present advocates and admirers will be content to brave the sneers, the contempt, the ill-nature, and the ignorance of its adversaries; and, guarding against precipitation on one hand, and inattention and indifference on the other, will not fail to make those observations on men and manners; on

forms and actions; on cause and effect; on traits and characters; on signs and correspondencies, as shall confirm them in the principles, and endear them to the practice of physiognomical investigation.

## SECTION V.

### A CONCISE VIEW OF THE PROGRESSION OF INTELLECT; AND OF THE GRADATIONS, AND EFFECTS OF INSTINCT AND REASON, DRAWN FROM AN ANALYZATION OF THE FACIAL LINE, IN THE RESPECTIVE PHYSIONOMIES OF MEN AND BRUTES.

HOW shall I trace the mighty chain of universal being? Who can tell by what nice and subtle gradations the various parts of animated nature are distinguished, united, or separated?

From the lowest, and most inert, portion of the animal creation, to the highest order of created intelligence, there, doubtless, exists in each, some relation, some occult connecting link, that creates a sort of universal affinity be-

tween the respective branches of the whole: and yet it cannot be doubted, but that every individual animal has, within itself, all those perfections, and capabilities, that are essential to its own separate existence. So that, although there is a mutual dependance of each, as a part of the great whole; yet, in the all-perfect mind, every form, every existence, every substance, and every creation was contemplated, in fact, long before those forms assumed

A local habitation and a name.

The work of a perfect Being must be itself perfect; and whatever are the subordinate uses of each in connection with its fellows, it cannot possibly want any thing essential to its own complete individuality. "And God saw every thing that he had made, and behold it was very GOOD." From the lowest to the highest; from the least to the greatest, all was GOOD: all complete; and still, in the eye of philosophy, they so remain,

As full, as perfect, in vile man that mourns,
As the rapt seraph, that adores and burns.

Yet there are distinctions and gradations most manifest and obvious, both in the corporeal and the intellectual capacities of animals, which distinctions, I contend, are strictly characteristic. In man we have already noticed some of the corporeal traits of intellectual endowments; it is the object of this section to delineate the physical signs by which intellect is indicated in its progression from brutes to man.

In the performance of this task, I shall adopt the usual course of illustration, by what is called the FACIAL LINE, though I am free to confess, that this method of ascertaining the power of intellect is not always to be relied upon.

Before, however, we proceed to details, I cannot but notice the hypothesis recently pro-

mulgated by the ingenious Mr. Charles Bell, in his very excellent and beautiful work on the ANATOMY OF EXPRESSION IN PAINTING. I do this the more gladly, because Mr. Bell, without meaning it, perhaps, has borne most ample and unequivocal testimony to the truth of Physiognomy.

"Alluding," says Mr. Bell, "merely to the evidence furnished by anatomical investigation, all that I shall venture to affirm is this, that a considerable difference is to be found between the anatomy and range of expression in man and in animals; that in the former, there seems to be a systematic provision for that mode of communication and that natural language, which is to be read in the changes of the countenance; that there is no emotion in the mind of man which has not its appropriate signs; and that there are even muscles in the human face, to which no other use can be assigned, than to serve as the organs of this language: that on the other hand *there is in the lower animals no range of expression* which is not fairly referable

as a mere accessory to the voluntary or needful actions of the animal; and that this accessory expression does not appear to be in any degree commensurate to the variety and extent of the animal's passions."

I will not take upon myself absolutely to call in question the opinions of so ingenious a writer, and so accurate an observer; but, I must confess, my eye has very greatly deceived me if there does not exist an evident gradation of physiognomical expression in the various animals, from the worm, whose element is the clod of the valley, to the lion that roams through the forest, roaring after his prey, and seeking his meat from God.

Mr. Bell says, that there appears to him to be no expression in the *face* of any animal lower in the scale of beings than quadrupeds. Yet it is admitted, that graminivorous animals, that is, those that live upon grass, &c. and not by preying upon others, have in their features no strong expressions of rage, the strongest and

most marked expressions, in Mr. Bell's opinion, even of quadrupeds; but adds, much to the satisfaction of the physionomist, that in these animals " the eye is almost uniformly mild, and the lips unmoved by passion." Whereas, in carnivorous animals, with whose habits and manners of life ferocity is instinctively connected, as the great means of their subsistence, rage is distinguished by the most remarkable strength of expression. The eye-ball is terrible, and the retraction of the flesh of the lips indicates the most savage fury.

Again: the horse is universally considered a noble animal, as he possesses the expression of courage without the ferociousness of the beast of prey; and as there is expression in his eye and nostril, accompanied by that consent betwixt the motions of the ear and the eye, which so much resembles the exertion of mind, and the movements of the human countenance.

With these concessions to the truth of our

science, we will be content, nor stay to controvert opinions as to the causes and the uses of this anatomical expression in animals. Nor will we object to it merely because the consideration of it would lead us more to that branch of our science which we have denominated Pathognomy. A physionomy in brutes, as well as in man, is, to a certain extent, at least, granted, and that is all we ask. The position that all this is merely an accessory of the motions natural to the accomplishment of the object which the animal has in view, detracts not from the value of the truth, that such an expression does in reality exist. Physiognomical expression in brutes is certainly not so common, or so clearly defined, as in man: for brutes are not susceptible of that endless variety of emotion incident to the powers of perception, reflection, reason, and abstraction. Fear and rage are almost the only passions that agitate the breasts of brutes; hence, fear and rage are most strongly indicated in their physionomies. This is quite sufficient. We have to do with forms as indicative of qualities; and

whether those forms are to be found in the face, or in the head and skull generally, amounts to nearly the same thing, as far as regards the subject on which I have undertaken to treat in this section.

When the forehead is extremely small, the eye very much elevated, the jaws of great length, the nose exceedingly short, and the mouth greatly depressed, the physionomy may be said to approach to brutality; and I believe it will very generally be found that deficiency of intellect in animals is in an exact ratio with those symptomatic characteristics of brutality.

It is well known, that the ancient artists, in their ideal heads of super-human beings, by uniformly endeavouring to render them as much unlike those of the brute creation as possible, were led somewhat to exaggerate those dimensions of the human countenance which mark the distinguishing attributes of man.

By the facial line, nothing more, in fact, is meant, than the line of the face; and it has been remarked by Camper and others, that in proportion to the perpendicularity of the facial line, drawn in profile, from the most projecting part of the forehead to the upper jaw bone, or, as the anatomists term it, the superior *os maxillare*, is the degree or measure of beauty and intellect generally, to be ascertained; meaning, of course, with respect to the relative capacities of man and the lower animals.

It is somewhat difficult to make this quite clear to those who have not had an opportunity of ascertaining the fact by anatomical investigation, or without some plain graphic illustrations. The annexed plate will, however, aid my attempts at description. The relative proportions of the cranium and the face are here to be taken into consideration. Of all animals, man has the largest cranium combined with the smallest face; and it has been

remarked, that animals deviate from these relations, in proportion as they increase in stupidity and ferocity.

We are to understand, by the facial line, not only the perpendicular line, from the forehead to the jaw, but also what is called the *facial angle:* that is, a line drawn horizontally backwards from the first of these lines, beginning at the floor of the nose, and extending beyond the orifice of the ear to the occiput, forming an angle more or less acute, or obtuse, as the facial line is oblique, or perpendicular. In other words, where the facial line, properly so called, is perfectly perpendicular, the facial angle will be a right angle; and when the facial line is more or less oblique, the facial angle will necessarily be more or less acute, or removed from a right angle.

Although it will not hold in every instance, as a general principle, it may be inferred, that those animals whose skulls are less in proportion to the face than is found to be the case

with respect to the human species, and whose facial line is also more inclined, and, of course, their facial angle more acute, descend in the scale of intellect, at least, are further removed from the human kind. There are, however, some exceptions; and it should not be forgotten, that we are treating, not so much of man, compared with others of his own species, nor yet of brutes, of the same species, order, and genus, as of man compared, in this respect, with brutes.

This is one of the most delicate and interesting branches of our science, if, indeed, it can properly be said to belong to that study; appertaining rather to physiology and comparative anatomy, generally, than to physiognomy, or the science of faces, particularly.

Aristotle has some extremely inconsistent and absurd remarks and physiognomical observations respecting the supposed traits of character in the faces of several brutes; and later

physionomists have frequently received and adopted them, merely, I should suppose, on account of the high authority of that eminent philosopher: for, certainly, but very few of them have the sanction of sound experience. Lavater copied, but rejected them.

From the *physionomies* of the lower animals, but little can be inferred with safety; would we, therefore, notice the generic difference between man and brutes, we must direct our attention principally to the bony system; the formation of the skull, and its relative position to the lower parts of the face.

"The spirit of a man goeth upward; but the spirit of a beast goeth downward," says the wise man; by which we may very well understand, the *breath** of a man goeth upward; that is, man is by nature an erect animal; but

* The biblical critic will perceive, that this reading is by no means at variance with the original text. The inference, however, which the immaterialists draw from it is not, in the opinion of the editor, at all warranted.—EDITOR.

the *breath* of a beast goeth downward; that is, brutes are, by nature, prone animals. This is entirely on the principle of a greatly inclined facial line, and an elongated facial angle.

Now let us proceed to adduce a few instances in which the degree of intellect (if I may be permitted, for the moment, to apply this term to the instinct of brutes as well as to the reason of man) is measured by this conformation of the head.

In the worm, in most fishes, in many birds, and in some quadrupeds, the facial line is entirely, or nearly, horizontal. That is, the skull and the jaw bone are in the same horizontal line; and, I am greatly mistaken, if, in most cases, it will not be found, that those animals rank the lowest in the scale of sagacity. Without an adequate number of drawings, it is impossible to make this perfectly intelligible; let me, therefore, rely upon the candour of the reader, practically to apply this doctrine, by personal observation, and I think he will find

it verified by almost every experiment he may be induced to make.

The fox, however, may be considered an exception: his cunning is proverbial; yet the facial line, in this instance, is almost in a continuous line from the skull to the nose; but I have not said that this line is to be the only criterion of intellect.

As a set-off to this exception, take the head of the "half-reasoning elephant," as Pope has denominated that animal. Let any one carefully examine the facial line there; and more particularly the relative size of the skull and the face, properly so called; for I reckon not the proboscis any essential part of the face of that animal; and he will, if I mistake not, find very strong presumptive evidence of the truth of Camper's doctrine respecting the facial line. Need I mention the great sagacity of this interesting animal? A whole volume of authentic anecdotes, of the foresight, the memory, one might almost say, the intelligence, of the elephant, might be collected.

It is singular that a late writer, of no mean talents and professional skill, should seem to have adduced this very instance of the elephant as an exception to Camper's doctrine. If I do not greatly misunderstand Camper's hypothesis respecting the facial line, he does not pretend to draw it from the forehead to the frontal sinuses, or nose, but from that part of the face to the upper jaw-bone; and that I should reckon, in the elephant, not at the extremity of the proboscis, but from the base of the tusks. Having no means of measuring the degrees of angularity in this and some other cases, I must content myself with presenting to the reader the following scales of angles from Cuvier's Elements of Natural History, and from Camper's Treatise on the Science of Anatomy, &c. and then leave the subject to his own practical researches and observations:

| | |
|---|---|
| European infant . . . . . | 90° |
| European adult . . . . . | 85 |
| Adult negro . . . . . | 70 |
| Orang-outang . . . . . | 67 |

| | |
|---|---|
| Long-tailed monkey . . . . | 65° |
| Baboon . . . . . | 40 to 30 |
| Pole-cat . . . . . | 31 |
| Pug-dog . . . . . | 35 |
| Mastiff; the line passing along the outer surface of the skull | 41 |
| Ditto; inner ditto . . . . | 30 |
| Leopard; inner surface . . . | 28 |
| Hare . . . . . | 30 |
| Ram . . . . . | 30 |
| Porpoise . . . . . | 25 |

Camper has given drawings of a *simia caudata*, or tailed ape, an orang-outang, a young negro, the head of a Calmuc, heads of Europeans, and copies from the antique, &c. in his own possession; and the results of his admeasurements of the facial line and facial angle were as under:

| | |
|---|---|
| In the tailed ape the angle was . | 42° |
| In the orang-outang . . . . | 58 |
| In the young negro . . . . | 70 |
| In the Calmuc . . . . . | 70 |
| In the European . . . . . | 80 |

From these results, Camper infers, that the angle of the facial line has in nature a *maximum* and a *minimum*, from 70 to 80 degrees; which describe its greatest or smallest degree of elevation. When the maximum of 80 degrees is exceeded by the facial line, it is formed by the rules of art alone; and when it does not rise to 70 degrees, the face begins to resemble some species of monkies.*

I have already remarked that the ancients were apt to exceed nature in their statues of their heroes and gods. To the former they generally, I believe, gave a perfect right angle of 90 degrees; in the latter, they did not hesitate sometimes to make the facial line to project even to 100 degrees.

The entire force of Camper's doctrine, and the value of its results in a physiognomical point of view, can only be duly appreciated by repeated experiment and observation of the

* Vide Camper's Works, by Cogan, p. 40.

skulls and faces of different animals. This the reader must do for himself I can only assert, as far as my own experience has extended, I have found that the degree of sagacity may be very often ascertained by this mode of admeasuration of the facial angle, which, in most cases, determines the relative position of the cranium with the upper jaw-bone, and the distance between the orifice of the ear and the line of the occiput, or back part of the skull. It also marks the relative distance between the orifice of the ear and the vertex, or crown, of the head, with the distance from the same aperture to the extreme line of the lower jaw, or inferior maxilla.

Let the ingenious reader, therefore, make his experiments upon these principles; and he will, with few exceptions, discover, that where the facial angle exceeds 80 degrees, the face begins to exceed the beauty of nature; that is, to approach the *beau ideal* of the ancients. The word *beauty*, in this sense, I merely use by comparison. The ancient statuaries, who made

the facial angle above 90 degrees, did so merely from a notion that their heroes and gods must necessarily be more beautiful and perfect, as their physionomies departed from those of the brute creation. In doing this, they "o'er-stept the modesty of nature," though they moulded their characters on human forms, and according to the general principles of human beauty, and the traits of human excellence. Beauty, in the proper acceptation of the word, as applied to the human face, I cannot easily bring my mind to separate from intellectual excellence, of one kind or other. As applied to the lower animals, the case may be somewhat different.

Comparisons, they tell us, are odious; but where nothing invidious is meant, no harm can follow. I would ask the candid reader, therefore, whether he has never observed a human head and physionomy somewhat resembling that of an owl, having a short snubbed nose, a retreating chin, large ears, and ogling eyes? Has he never seen the attentive daintiness of

the cat, with a flat nose, and not unfrequently an appearance of something like smellers on the upper lip, especially in females, having a little, undefined mouth, and thin lips? The long, tapering visage, broad flat nose, wide mouth, and little chin of the cow, are certainly discernible in some countenances; in others, the round face, wide open mouth, and large eyes of the leopard, are observable; some have the large ears, and projecting jaws of the monkey; and some the long nose, and falling profile of the mastiff; some also, in front, have the wide forehead, oblique eyes, and long ears of the hound. In short, the horse, the mule, the goat, the lion, the ram, the ox, the sow, the cock, as far as the nose is concerned, the eagle in its eye and beak, and some other animals, have all their respective resemblances in that endless variety of form and features which distinguishes the human countenance; and I have very little doubt of the fact, that could we have an opportunity of exactly measuring the facial angle, together with the relative forms and position of the skulls, in these several cases, we should

find that there is not only a natural similarity of physionomy, but of disposition. I am certain I have seen persons whose faces resembled that of the hyæna; and whose dispositions partook also of the untamable and resolute character of that animal: if they have not been as inexorably cruel as the hyæna, their breasts have certainly not overflowed "with the milk of human kindness."

But I must not press these comparisons, lest I wound the sensibilities of those good men, who, like Socrates of old, have corrected the evil tendencies of their natures by religion, philosophy, and moral discipline. I have, however, the authority of Aristotle for this doctrine of resemblances; nor need I be ashamed to adduce the authority of John Baptista Porta, who, notwithstanding his superstition, in compliance with the notions of the times, respecting magic and other exploded occult sciences, has adduced some very singular and curious comparisons of this kind into his treatise, entitled "De Physiognomia," a 4to. volume,

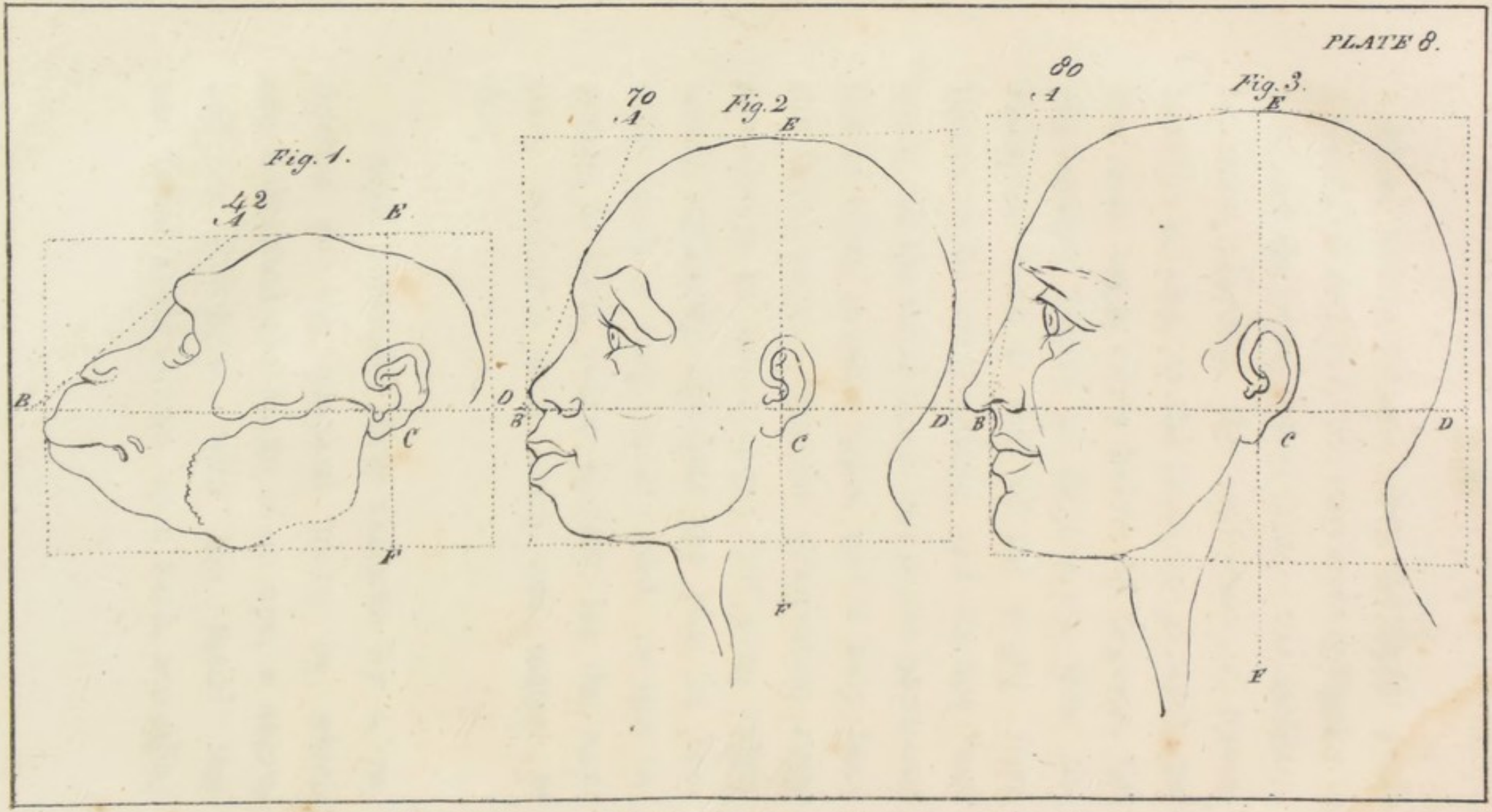
printed at Leyden in the year 1645. Porta allowed too much scope to his imagination; but many of his remarks are founded in truth and experience. We are indebted to this Neapolitan gentleman for the invention of that curious optical instrument, the Camera Obscura, which was afterwards perfected by W. J. Gravesande.

O! how careful ought we to be in the cultivation of the moral faculties and habits, lest we degenerate into the forms, as we acquire the habits, of the brutal parts of the creation! Would the sensualist, and the drunkard, the morose, the savage, the cruel, and the oppressive, but reflect, that by an indulgence of their propensities to these vices and passions, they imperceptibly bend their features to the forms of "the beasts that perish," they would, surely, obey those moral precepts and restraints which the All-wise Creator of the world has enjoined for our comfort and improvement in mental excellence, and corporeal comeliness!

If, as before stated, when the facial angle exceeds 80 degrees, the physionomy begins to approach the exaggerated form of the ancients; or, more properly, the perfection of human beauty; so also, as the facial line recedes, and the facial angle sinks below 80 degrees, the physionomy begins to degenerate from the European head to that of the negro; from thence to the orang-outang, and the ape; and so on, till the facial line is lost in the horizontal line of what, in other cases, would have been the facial angle. Common observation must not always be relied upon; but even vulgar minds uniformly associate the idea of brutality with a long snout; and, in this instance, at least, vulgar opinion, for the most part, coincides with truth and matter of fact.

I shall conclude these remarks by a reference to the annexed plate, in which are delineated the heads of an ape, a negro, and an European, with the facial line and facial angle drawn upon each, according

PLATE 8.




Delineation of the Facial Line & Angle.

to the doctrines I have ventured to adopt and adduce.*

Figure 1, on Plate VIII. represents the outline of a *simia caudata*, or tailed ape, in profile, a native of Africa. A, B, describe the facial line, drawn from the line of the vertex, or crown, and touching the most prominent part of the forehead, extends to the upper jaw-bone. B, C, D, a horizontal line drawn from the extremity of the jaw-bone, and passing just before the orifice of the ear, extends to the line of the occiput, or hind part of the skull. E, C, F, a line drawn from the line of the vertex to

* The exceptions to Camper's reasonings, by Blumenbach, and his copyists, Lawrence and others, are no solid arguments against the general truth of the doctrine. Mr. Lawrence's objection, in the case of the elephant, and some others, appear to me to be very futile, and to originate in mistake respecting Camper's real statement. The projection of the frontal sinuses has nothing to do with Camper's facial line. See the article *Comparative Anatomy, in Nicholson's British Encyclopædia*, written, as the preface states, by Mr. Lawrence. [And since copied, by the author, into his recent work on Physiology and Zoology. A work of great industry and research.—EDITOR.]

the line of the lower jaw-bone. The angle formed by the lines A, B, and B, C, D, is called the facial angle, which, in this instance, amounts to 42 degrees. This figure is the same as that found in Camper's Works, Tab. I. Fig. 1. somewhat simplified, and the facial line and angle explained, with fewer technicalities; but, I trust, on that account, not less clearly to the mind of the reader.

The distance from the mouth to the orifice of the ear, compared with the distance of this orifice from the bottom of the lower jaw, is as 8 is to $2\frac{1}{2}$, or 16 to 5; and the distance from the vertex to the orifice of the ear is precisely equal to the distance of this from the basis of the lower jaw.

These are important facts to be observed in ascertaining not only the quantum of skull compared with the face, but also the exact *position* of the skull with respect to the face.

Camper has given, as the next gradation in

this scale, the figure of a small orang-outang, reduced to one-fourth of its natural size. It is the same that he had previously described in his Natural History of that animal. I have not thought it needful to copy this drawing; but it may be of service to mention Camper's results. The facial line, in this case, made the horizontal line an angle of 58 degrees; and the distance from the mouth to the orifice of the ear, compared with the distance from this orifice to the line of the occiput, was as 7 to 4; and the distance from the line of the vertex to the orifice of the ear, compared with the distance from that orifice to the basis of the lower jaw, was nearly as 6 to 4.

By this it appears, that the orang-outang has not only a greater amount of facial angle than the simia caudata, but, also, that he possesses a greater quantity of skull, and less of face, than that of the ape: in other words, it approaches nearer to the resemblance of the human species.

Edwards, in his Gleanings of Natural History, published in 1758,* gives to the facial line, in this species of ape, an angle of only 55 degrees. This small difference from Camper's, of 58 degrees, may be overlooked, as much greater are perceived in the human species.

Figure 2. Plate VIII. describes the head of a young negro, also partially copied from Camper. The facial line, A, B, in this case, according to that accurate writer's admeasurement, made, with the horizontal line, B, C, D, an angle of 70 degrees; and it is observable, that a still greater proportion of skull, and a less face, are to be found in this case than in either of the others already mentioned.

Figure 3 is the head of a European, in which the relative proportions are as follow: the amount of the facial angle being 80 degrees:

* *Apud* Camper, p. 37.

B, C, is to C, D, as 30 to 31; E, C, is to C, F, as 18 to 11. From whence it appears, as before stated, that the angle of the facial line has, in nature, a *maximum* and a *minimum* from 70 to 80 degrees; which describe its greatest or smallest degree of elevation.

I am not aware, that any thing more is required to make the reader perfectly understand the nature of this doctrine concerning the facial line. In the art of drawing, as well as in the science of Physiognomy, it is of singular advantage. It is a doctrine, however, which must not be implicitly relied upon in every instance, as the measure of intellect, either with respect to men or brutes. Upon a broad and general principle, it is founded in matter of fact, and accords with experience and sound observation; but there are various physical and other causes, in the human species, particularly, which prevent an uniform judgment of character from this circumstance alone. The young physionomist will, therefore, *use* the facial line, in his comparisons of the human

skull with that of brutes, without *abusing* it, in his discriminations of either. The sum of the matter is this: as the brain is considered the seat of intellect, or that portion of the animal frame on which impressions, from external objects, are made, where all mental processes are carried on, and from whence issues every act of the will, so in proportion to the extent of this organ, compared with those other portions of the head more immediately appropriated to the merely animal functions, of seeing, smelling, tasting, &c. we are led to conclude, a greater or a lesser degree of intellect. In the lower animals, the organ of thought is comparatively small, and the organs of sense comparatively large or more developed; in man, the organ of thought is large, and the organs of sense small: in other words, the cranium is great, and the face contracted, in comparison with those several organs of the brute creation; and this is partially ascertained by an admeasurement of the facial line and facial angle. This is all that I mean to infer by the term *progression of intellect.*

Having, however, frequently hinted in this section at the chain of being, and the title of the section itself seeming to intimate the same idea, it is necessary I should, in conclusion, more clearly explain myself, lest I be ranked amongst those fanciful theorists, who imagine that there is little or no distinction between men and brutes; and who thereby degrade the image of God by too close an approximation with the nature of the beasts that perish.

This vast and stupendous creation, divided, by naturalists, into three kingdoms, is also distinctly marked, and subdivided into obvious and characteristic species, of animals, vegetables, and minerals; each link in the mighty chain possibly bearing some affinity, in its uses at least, to the others, yet possessing within itself clearly a defined and definable character, nature, and disposition. Of these, I would assign to MAN the first and most exalted station; lord of the whole, having independent traits of character, not only mental but corporeal, evidently pointing him out as a distinct

and peculiar species; though Linnæus, and some others, have chosen to class him with the mammalia, along with all those animals which have "lungs that respire alternately; jaws incumbent, covered; teeth usually within; teats lactiferous; organs of sense, tongue, nostrils, eyes, ears, and papillæ of the skin; covering, hair, which is scanty in warm climates, scarcely any on aquatics; and in most a tail; walk on the earth, and speak!" The reader will here perceive into what precious company he has been introduced; as if he possessed few or no traits of character beyond the monkey, the hyæna, and the most savage and stupid animals of the creation. It is well known to anatomists, and especially to those who have made comparative anatomy their particular study, that man has numerous peculiar traits, in his corporeal, as well as in his mental functions, which place him at an immense distance in the scale of being from every other animal. It is not my province to enter into the details of these peculiarities: it is sufficient for me to mention them; and to request those who doubt

this—for some have doubted it—to examine and compare man with those animals which approach the nearest to him in resemblance, with respect to their natural capabilities for an erect attitude in the structure of the lower limbs, the thorax, the spine, and the pelvis. Let them next turn their attention to the upper extremities:—to the hands, the head, the teeth, and to the several proportions of the human frame; and numerous specific differences between man and the most anthropo-morphous simiæ will present themselves.

Besides these external peculiarities, man possesses several internal differences from the brute creation, in the structure of some of his organs: in the brain, the heart, the vagina, and other organs immediately connected therewith.

Other peculiarities are observable in the human animal economy. Man, unlike all other animals, is capable of existing and propagating in every part of the globe. It is true, that man

in his extension over the face of the earth, assumes different varieties; but every one of these possesses some traits common to the whole species, and essentially different from every other animal in the Linnæan class of mammalia; clearly pointing him out to be a peculiar and distinct species, having many things in common with all other animals; and many not to be found in any besides himself.

In the cold and cheerless regions of eternal snow approaching the north pole, in the arid deserts of Terra del Fuego; on the lofty summits of mountains, and in the deep-sequestered vallies; amidst the crowded metropolis, and in the most retired and secret abodes of solitude; midst the extremes of heat and of moisture; in almost every place and every situation man is capable of living, and of obeying the first great mandate of his Creator, "Increase and multiply, and replenish the earth, and subdue it."

And as man is capable of living in all places,

so is he framed for subsisting upon all kinds of food, whether animal, vegetable, or mixed; whether in its raw state, or after it has undergone a culinary process. The animal, the vegetable, and the mineral worlds, combine to yield him nutrition in health, or restoratives in sickness.

I will not enlarge on that noble attribute of humanity, SPEECH; for, probably, every other animal has some mode of expression answering to this faculty in man; nor will I dwell on that grand peculiarity of our species, REASON; but I cannot suffer this opportunity to escape me without noticing that greatest and best exercise of man's rational powers, RELIGION. It is given to man alone not only to know his Creator, but to feel, to apprehend, to appreciate, to "taste, and to see" His goodness. The Divine influence warms, inspires, and animates his heart; elevating his thoughts and his imagination above the sublunary objects of sense; and directing his mental vision through the long vista of this nether sphere to worlds yet

shrouded from the eye of mere animality in the thick and dark veil of futurity. To what immeasurable limits would this thought carry us! What a capacious field for investigation here presents itself! What a noble exercise for the mental powers! But I must forbear; and hasten to conclude this brief outline of a science, which embraces every subject connected with man, whilst it awakens and begets associations of the most sublime and interesting nature.

## SECTION VI.

### A GENERAL VIEW OF THE MOST COMMON OBJECTIONS TO THE TRUTH AND ACCURACY OF PHYSIOGNOMICAL SCIENCE.

IT were both uncandid and unjust, nor could it answer any valuable purpose, to deny that objections, many of them of great plausibility, and apparent force, have been made to this science. Neither has it escaped the most pointed shafts of ridicule, nor the more determined attacks of public odium.

Amongst the many obsolete, and often ridiculous, enactments of our own Statute-Books, we find one, to the great disgrace of the present age, of no earlier a date than the last reign; when, in the year 1741, an act was passed, declaring all those " to be rogues and

vagabonds" who "pretend to have skill in *Physiognomy*, palmistry, or like crafty science!" Who, according to the letter of this prohibitory law, is *not* a rogue and a vagabond? for all men pretend to have some "skill in Physiognomy." Such nonsensical enactments can only excite the smile of contempt: they ought not, however, to be suffered to disgrace the Statute-Book any longer; but to be swept away, along with all the other rubbish, which has accumulated through ages of ignorance, superstition, and folly; that the fair fabric of our civil code may be exhibited in its real state of purity and excellence. With the age of ignorance should perish the laws which ignorance has enacted; and the science of legislation, founded on the permanent basis of truth and reason, should keep pace with those improvements and discoveries that are daily made in arts, science, and useful literature.

To the juggling nonsense and knavery of some of its professors, this science owes much of the odium under which it labours. Its prin-

ciples and objects have been misunderstood, and abused by quacks and empirics. More has been attributed to it than the science itself lays claim to. It has been used, by designing persons, as a kind of fortune-telling system; and some, who have pretended to understand it, have affected great wisdom and sagacity; great foresight and knowledge of human nature, its frailties, and its secret springs of action. Hence they have been regarded as a species of necromancers, objects of fear and wonder to the ignorant, of disdain and contempt to the wise and the discerning.

Physiognomy is not one of the occult sciences: it has nothing in common with magic, with palmistry, "or like crafty science." It deals not in mystery: for mystery and truth are, for the most part, at enmity with each other.

The true physionomist scorns all idea of secresy in his science: those who entertain a contrary feeling know nothing at all about the

matter, whilst he proceeds by certain rules, which all men may learn, if they will take the pains; though he makes no professions of infallibility, or perfection in his physiognomical judgments; and does not hold himself accountable for the ill use which evil disposed persons may make of those rules. His skill in this science, like real skill in every other branch of useful knowledge, has a direct tendency to promote a spirit of moderation and reserve; of caution and prudence, incompatible with the arrogance and presumption of a mere pretender.

Amongst the causes of the objections to this science we may reckon the great labour, patience, and perseverance requisite in its attainment; and the previous knowledge which it requires of many other branches of science. It is next to impossible to attain any very great proficiency in this science, without a competent knowledge of anatomy in both its departments, human and comparative. A very extensive acquaintance with the various phenomena of physiological inquiry; a tolerable de-

gree of taste and skill in the arts of painting and statuary; a familiarity with the details of mathematical investigation, a comprehensive view of Natural History; and a clear capacity for embracing the great doctrines of Moral Philosophy, are all so many requisites to the attainment of perfection in this noble science. I do not say, but that considerable progress may be made in physiognomical acquirements, without any very profound skill in the above branches of knowledge. Certainly, very much depends upon original, and, as it were, intuitive powers of discernment and discrimination; upon long experience, in comparing different physionomies; on a quick and accurate eye; great natural powers of imitation; and aptitude of apprehension; but whoever would excel in this science, must not fail to cultivate every art that can at all aid him in his researches concerning the nature of man, and his relative situation in the great chain of universal being.

Without some previous acquaintance with

osteology, or that part of anatomy which treats of the bones, as well as with the nature and secretions of the fluids, the student in Physiognomy will make but very little progress.

Whether the recent discoveries in craniology will tend to the advancement of this science, remains to be proved. Strictly speaking, perhaps, the systems of Gall and of Spurzheim, ought to be ranked as branches and auxiliaries of this science: for inquiries concerning the construction of the skull have as close a connection with physiognomical reasoning, as the face, or any other external part of the human frame. This is a point, however, on which I do not insist, not being sufficiently acquainted with those discoveries which, it is said, have been made of the moral and physical faculties and propensities from a view of the peculiar conformation of the cranium.

Mr. Charles Bell, in his admirable Essays on the Anatomy of Expression in Painting, has noticed various muscles in the human face

peculiar to man; evidently intended to indicate and express those feelings, emotions, and sensations which belong to rational and reflecting beings only. That ingenious writer asserts, that of man alone we can with propriety say, the countenance is an index of the mind, having expression corresponding with each emotion of the soul. Other animals, says Mr. Bell, have no expression but that which arises by mere accident, the concomitant of the motions necessary to the accomplishment of the object of the passions. Although I am not inclined to acquiesce with this doctrine in its fullest extent, it is certainly no mean argument in its favour, that those parts of the human face, which are most expressive of the passions of the soul are, in a great measure, wanting in brutes. I have no room for details on this head; and must, therefore, refer the reader to Mr. Bell's work, where he will find the subject amply and ably treated.

How clearly, then, must it appear, that a

knowledge of anatomy, at least, is requisite to a perfect acquaintance with the science of Physiognomy.

Many persons seem to imagine, that to be good physionomists, they have only to compare human foreheads, eyes, noses, mouths, &c. with each other, as they appear in the different physionomies of mankind; and because they often fail in their judgments, they at length come to harbour a prejudice against the science itself.

No end can be attained without the means that lead to it; and if persons will not be at the pains to learn, they must be content to remain in ignorance; but they should not turn that into ridicule which they do not understand; nor blame any art or science because they have neither mental nor physical powers adequate to its acquirement. Those who are poor from indolence and extravagance, are apt to be very loud in their clamours against the rich; similar are the feelings of those who labour under a

deficiency of intellectual acquirement, merely because they are indisposed to those laborious night-watchings—those hours of retirement—those habits of reading and research, which are essential to great mental attainments, and to the acquisition of superior literary and scientific knowledge. Though Physiognomy is really attainable by every man of fair capacity, its manifold advantages cannot be obtained without some exertion, both of body and mind. Those are flimsy attainments in science which are acquirable independent of mental exercise. Genius may be intuitive, knowledge is not. A man may be a great wit by nature ; but he must acquire wisdom by experience.

No wonder, therefore, that the supine and the phlegmatic should despise a science so much out of the reach of those who are averse to labour ; nor that they should attempt to descry that species of knowledge which has so powerful a tendency to expose and develope real character.

It is on this account, that we so very seldom find an advocate for our science among the hardened, base, and profligate. It is of the nature of vice to beget cowardice; hence it is that vicious men are afraid of this science. They have a secret misgiving that there is some truth in the science; and they dread and hate its light. Cato wondered how their priests could look one another in the face without laughter: so may the true physionomist wonder how a drunkard or a sensualist can look himself in the glass without blushing. No one of this description, I am confident, will read this book without railing against the science that condemns him; unless, indeed, he have some sincere wish for reformation and amendment.

Far be it from me to suppose that there are no truly virtuous and enlightened objectors to our science. I know there are many: some who think that, were it true, it may be dangerous; and others who imagine that they disbelieve it altogether. Those who reject Physiognomy

on account of its supposed dangerous tendency, do not sufficiently reflect, that no science, having its basis in truth, can really be dangerous. But what if bad men should apply it to bad purposes, is it more than is done with almost every other useful art or science? Have not the arts of engraving, and of good penmanship been productive of forgery? Have not the fine arts been used for the purposes of idolatry, and of obscenity? Has not religion its hypocrites, who use it as a cloak for their licentiousness? Have not some men prayed themselves into bigots, and others philosophized themselves into atheists?

Those good men who reject Physiognomy as an idle dream, and an illusion, have never seriously applied their minds to the study of it. They have entertained wrong impressions respecting its pretensions; and have imagined that the science professes to teach more than it really does. The amiable, the pious, the good Lavater, though possessing the spirit of a genuine physionomist, was too much of an

enthusiast.—He had, if I may be allowed the phrase without offence, too much German fire, and German sentiment about him. He too frequently bursts out into those pious rhapsodies, and devout breathings of sensibility, so natural to the German writers. Hence some of his English readers, though, perhaps, admiring his strains of piety and devotion, apart from the science, are led to reject the science itself, as too nearly allied to fanaticism, and too remote from the sober reasoning of philosophy. Lavater's interjections and notes of admiration have shocked the cool reasoning of English philosophers.

For my own part, I must confess, that the science of Physiognomy, rightly considered, appears to be pregnant with so many advantages to the world; to abound so much with moral and religious sentiment, and to be at the same time, so purely philosophical and rational, that I know not how to write upon it without its exciting within me some of the warmest and best feelings of my nature, elevating my thoughts

to heaven, and filling my mind with the sublimest emotions of admiration and gratitude.

The following observations of Lavater's are very remarkable for their truth: "Nothing," says he, "can be more true than this, because I am satisfied, by evidence which I cannot doubt, that the same persons who affect to make a jest of it in public, are ever the most eager to read or to hear physiognomical decisions; and I boldly appeal to every reader who is prejudiced against this science, or who only pretends to be so, and ask him whether he has not a secret desire, that a physiognomical observer, to whom he was not personally known, and who had never seen him before, but his portrait, should make a comment upon his physionomy? I should be tempted to ask those likewise, who treat my researches as fanciful, if they will be less disposed to read my Physiognomical Essays on that account? I know it, yes, I predict it, without the gift of prophecy.—Ye zealous and interested antagonists of Physiognomy, you will read my book, you

will study it, and you will be frequently of my opinion. You will often discover with satisfaction, in these pieces, observations which you have made before, without expressing them in words;—and, nevertheless, you will pretend to refute me in public. In the retirement of your closet, I shall sometimes obtain from you a smile of approbation; yet the next moment you will affect to laugh at the truth of which you have felt the force."

If objections were arguments, not even Christianity itself would stand the test of inquiry: for what system of philosophy or of morals, was ever subjected to a more severe scrutiny, by the witlings of the present and of former ages? In another part of this work it has been proved that Physiognomy is a science; and mere questions of doubt or suspicion cannot possibly disprove the facts therein stated. No one, not even M. de Buffon himself, ever attempted seriously to refute the general strain of argumentation employed by any sensible physionomist. But nothing is so

easy as to laugh –nothing so convenient as sarcasm and ridicule, when sober reason and patient investigation fail to refute any truth, doctrine, or opinion.

Some persons seem to be constitutionally possessed of a certain portion of querulousness, not unfrequently mixed up with no small share of ignorance, arrogance, and envy, eternally prompting them to find fault with whatever they do not understand. These persons, unwilling to be thought ignorant of any thing, pretend to be familiarly conversant with every thing; and they imagine they show their shrewdness and dexterity by a sort of wholesale dealing in notes of interrogation. They grant nothing to their opponent; they concede no point; they admit no position, not even for the sake of argument; they are mighty dexterous at a syllogism in their own favour; but uniformly reject the minor, the major, and the *ergo* from every other quarter. They are, generally, smatterers in some art, or dabblers in some science; and having acquired a

string of technicalities, like a certain character in the Vicar of Wakefield, never fail to pour out a most abundant portion of them into the ears of those who may not happen to have made any particular science their study. The late numerous and most valuable discoveries in chemistry, for instance, having caused that excellent branch of science to become a sort of fashionable study, how frequently do we find the new nomenclature made use of by persons who clearly know very little of the matter; yet they continue to excite the wonder and admiration of the multitude, by the volubility with which they run over a jargon about hydrogen and oxygen, carbon and caloric, acid and alkali, without measure or end. But ask these persons a question, even in their own favourite study, and for the most part, the answer will be an expression of astonishment at your ignorance; but you must not look for a definite, scarcely for a civil answer: most assuredly you will be disappointed if you calculate upon deriving any information of real utility from them.

I never yet met with one of these pedantic gentlemen who was not a most decided enemy to the science of Physiognomy. With a projecting mouth, a long visage, a staring, or, perhaps, a blinking eye, they attack every truth proposed to them; and sink every consideration in that of their own self-importance.

With sophisters of the kind I have here attempted to describe, and we meet with many such in our intercourse with the world, I would advise the young physionomist to deal very abruptly; and, reversing the construction of Hamlet's words to his father's ghost, would say to such an one, "thou com'st in such a *questionable* shape, I'll *not* speak to thee."

Men of real science and information will reject nothing apparently useful that is presented to them in a respectable form, without duly weighing the evidence on which it professes to claim their attention. To characters of this description, the physionomist may safely venture to submit his pretensions. In such

hands his science is perfectly safe. Should they reject his argument, they will not despise his zeal. They will listen to his statements, and compare his facts, though they may not embrace his doctrines. The human mind is variously compounded. That which strikes one person with the force of demonstration, is often rejected by another as abounding with absurdity and error; yet both may be equally sincere in their inquiries after truth, and both equally capable of appreciating its value. On few points do men differ so widely as on that with which one would suppose they must be best acquainted—the knowledge of themselves—

"The matchless compound, MAN, too much allied
To sense, to rest in philosophic pride;
Too much to spirit, e'er that rest to find
In sense, rude-broken from the grasp of mind!—
But who, the heir of animated dust,
Shall lift that balance high, or scales so nice adjust?"

ANON.

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