

Samuel Sharp, the first surgeon to make the corneal incision in cataract extraction with a single knife : a biographical and historical sketch / by Alvin A. Hubbell, M.D., Ph.D., Clinical Professor of Ophthalmology, University of Buffalo.

Contributors

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SAMUEL SHARP, THE FIRST SUR-
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BIOGRAPHICAL AND HISTORICAL
SKETCH.

BY

ALVIN A. HUBBELL, M.D., Ph.D.,

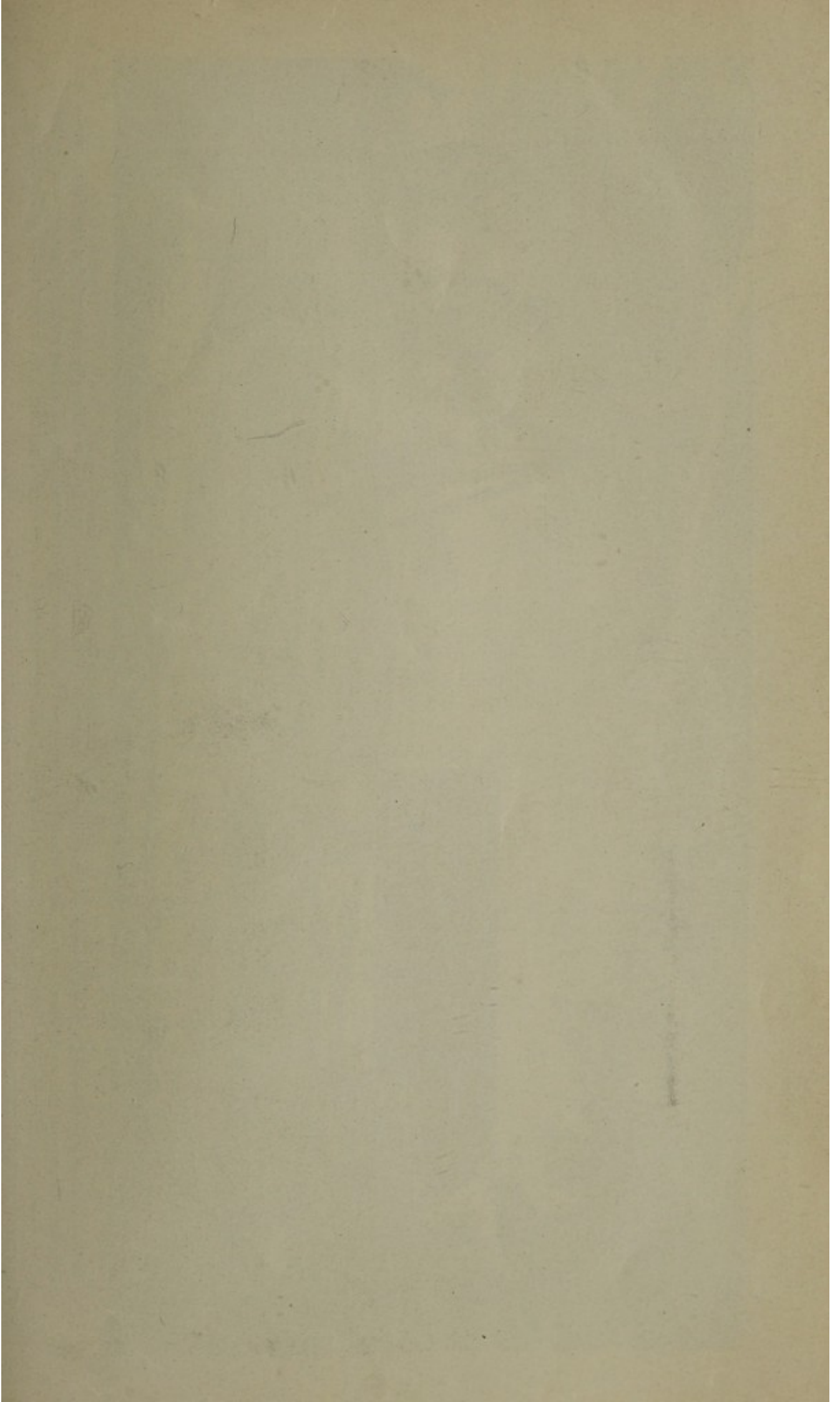
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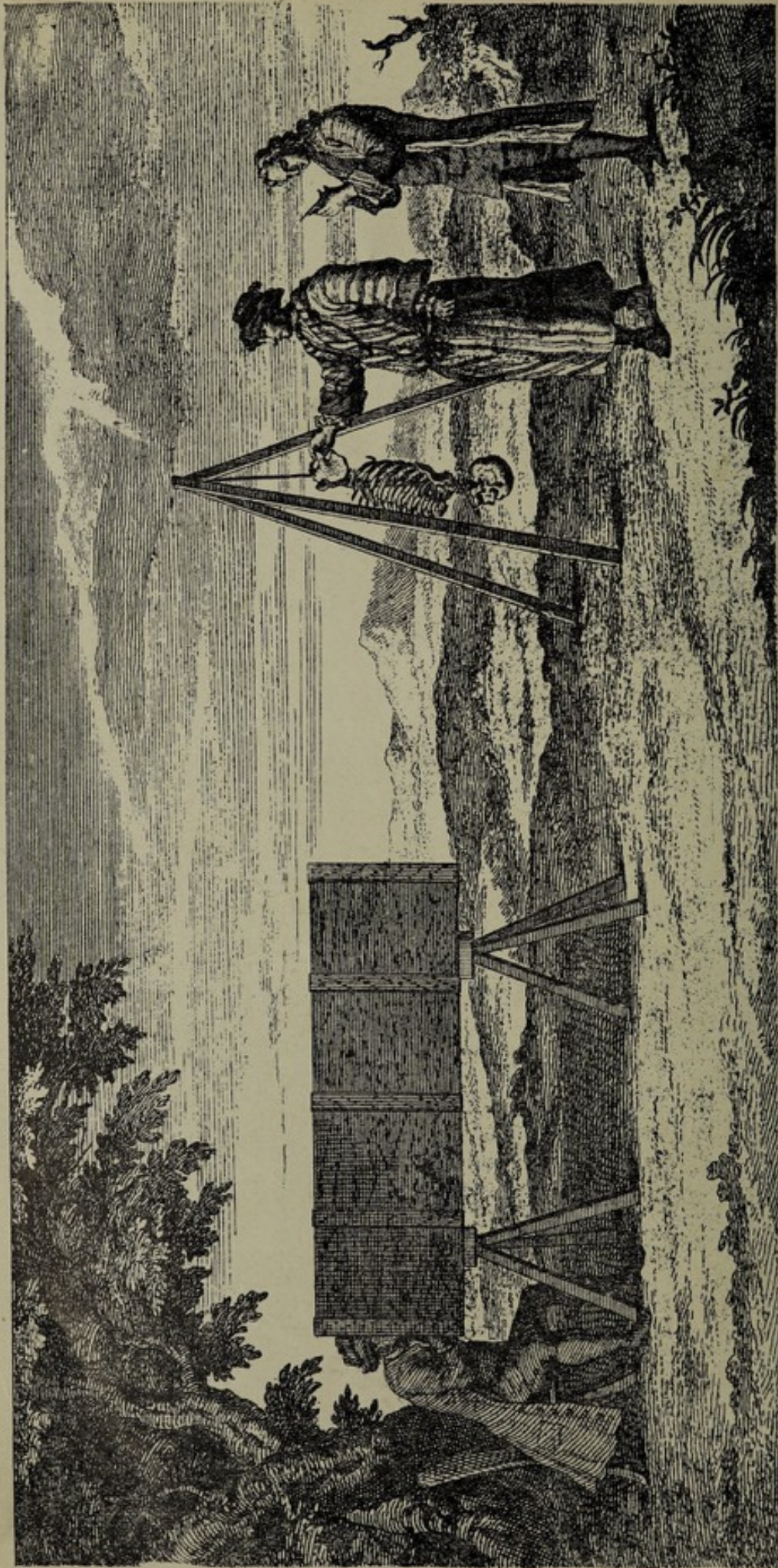
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Facsimile of a woodcut from the title-page of Cheselden's "Osteographia," published in 1733. It is traditionally reported that the figures represent Van der Gucht, the artist, drawing a skeleton which has been posed by Belchier, whilst Samuel Sharp is taking notes. Cheselden was in the picture originally, but he chose to have his two assistants represented rather than himself. An extended research on the part of the author, covering several years and many countries, has failed to reveal any other portrait of Samuel Sharp.

SAMUEL SHARP, THE FIRST SURGEON TO MAKE
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ICAL AND HISTORICAL SKETCH.*

By ALVIN A. HUBBELL, M.D., Ph.D.,
Clinical Professor of Ophthalmology, University of Buffalo,
Buffalo, N. Y.

In reviewing the history of the modern operation of extraction of cataract, beginning with the first memoir of its originator, Jacques Daviel,¹ first read before the Royal Academy of Surgery of Paris, on April 13, 1752, there stands before us a singularly prominent and imposing figure, that of Samuel Sharp, of London. He was a surgeon of renown, and not only did much to advance his art in general, but he also did important pioneer work in the treatment of diseases of the eye, and particularly that of cataract. The latter alone was of such signal benefit to the world that it crowns his memory with an imperishable lustre.

SHARP'S EARLY LIFE AND ENVIRONMENTS.

Sharp was born about the year 1700, on the island of Jamaica, one of the English possessions of the West Indies at that time as well as now. His father was Henry Sharp whose family identity has not been recorded, but he evidently belonged to those Sharps of England who have for two or more centuries been found among her most distinguished men of letters, art and science. I am unable to find any history of the early life of Samuel Sharp.

*Presented to the American Academy of Ophthalmology and Otolaryngology at a meeting held Aug. 24-26, 1904, at Denver, Col.

¹For a history of Daviel's operation, see a paper by the author entitled "Jacques Daviel and the Beginnings of the Modern Operation of Extraction of Cataract." *J. Am. M. Ass.*, Chicago, 1904, xxxix, pp. 177-185; also, *Tr. Sec. Ophth. Am. M. Ass.*, Chicago, 1902.

As his later life shows, he undoubtedly received a substantial education, for he wrote well, and talked well, and was more or less familiar with the ancient and modern languages, having good command, especially, of French and Italian.

We come in direct touch with Sharp first in 1724, when he was twenty-four years old. He was at this time about to prepare himself for his life-work as a surgeon. This was not done then as it is now. He was living in a different age, with different standards and amidst different surroundings. The medical profession in England had not yet outgrown medieval ideas and customs, and it was divided into three classes—the physicians, surgeons and apothecaries, each one with its special functions and limitations. The physicians dominated, more or less, the other two classes. They were educated at the universities in accordance with the standards of the time, and occupied a dignified position in society. Very few of them “stooped” to do surgical work, most of them engaging only in the practice of “internal medicine,” in obedience to the traditions of the past, when it was regarded as beneath the station of the physician to take to himself the menial labors of a handicraftsman like those of the apothecary and surgeon. On the other hand, the surgeons and apothecaries were not, in general, the learned men of the universities, but were craftsmen under the control of their guilds or “companies,” acquiring their mastership and “freedom” through a stipulated term and condition of service, like any tradesman. The surgeons, in 1724, had their “United Barbers’ and Surgeons’ Company,” which had been incorporated by Parliament in 1540, in the reign of Henry VIII, and which was the outcome of the union of the “Guild of Barbers,” whose members did surgery as well as barbering, and of the “Guild of Surgeons,” of London. Both of these “companies” had existed as separate bodies for a very long time. The “United Company” was organized for the purpose of assembling together, in order that “the good and due order, exercise and knowledge of the said science or faculty of surgery should be rendered more perfect as well in speculation as in practice, both to (the members) themselves, and all their servants and apprentices brought up under them . . . than it hath been or should be if the two companies of barbers and surgeons should continue severed asunder . . . as they before this time have been, and used themselves not meddling together.”² The members of the company,

²South (J. F.). “Memorials of the Craft of Surgery in England.” *London*, 1886, pp. 99-100.

however, were directed by the act that "No manner of person within the City of London or the suburbs thereof, or within one mile compass of the same, after the feast of the Nativity of our Lord God next coming, using barbery or shaving . . . neither he nor they nor none other for them to his or their use shall occupy any surgery, letting of blood, or any other thing belonging to surgery, drawing of teeth only except(ed). And, furthermore, in like manner, whosoever useth the mystery or craft of surgery, shall in nowise occupy nor exercise the feat or craft of barbery or shaving, neither by himself nor by none other for him to his or their use."³ Thus were the limitations of the barbers and surgeons for the first time fixed and defined, and although united in a body for certain defensive and municipal purposes, the barber was to do nothing pertaining to surgery, except to "draw teeth," and the surgeon was not to perform any work of "barbery" or "shaving." This union would seem to be anomalous and undesirable, but it appeared to prosper and meet the needs of the community until 1745, over two centuries, when a separation again took place, and the surgeons were organized into the Surgeons' Company (afterwards the College of Surgeons of London, now the Royal College of Surgeons of England), and the barbers continued as before.

In the United Company was vested the power of regulating more or less, the practice of surgery, and it was the main channel leading to security and respectability for the surgeon. London was full of unlicensed practitioners and quacks, but both the College of Physicians, which had been founded in 1518, and the United Company did all in their power to suppress them.

To become a recognized and respectable surgeon, the candidate must have served an apprenticeship of seven years, passed certain examinations, paid certain fees, and made solemn oaths of loyalty and obedience. Having been granted the diploma and "freedom" of the Company, he was required to continue his relations to the Company, perform prescribed duties in its behalf, and attend the lectures and demonstrations given at the Barber-Surgeons' Hall or, in default of this, pay a fine.

To become a surgeon the candidate, who should be at least fourteen years of age, was taken to a member of the Barber-Surgeons' Company who was in need of an apprentice (each master being allowed to take three or four, according to his position in the Company), and having agreed upon the terms of his ac-

³*Ibid.*, p. 100.

ceptance, he was sent to the Barber-Surgeons' Hall and duly presented to the court or council of the Company and there examined as to his soundness of "mind and limb," and as to a sufficiency of education. If he were approved, the clerk of the Company made out his indentures, which were taken to the guild hall and there registered. The lad was bound to his master for seven years (sometimes for eight or nine years). The master received a sum of money agreed upon, in return for which he undertook to supply his apprentice with "meat, drink, apparel, lodging, and all other necessities according to the custom of the City," and to instruct him in the "mysteries" and knowledge of the craft. During the time for which he was bound, the apprentice remained the slave of his master.⁴

SHARP'S APPRENTICESHIP TO CHESELDEN, AND HIS OPPORTUNITIES.

In compliance with these requirements, Samuel Sharp was "bound" to William Cheselden, of London, one of the greatest surgeons of modern times. He had taken up his residence in England, but whether with or without his parents is not recorded. His indentures were for an apprenticeship of seven years, and were signed on March 2, 1724. It appears that friends were assisting him in his new undertaking, as the fee of three hundred pounds sterling (\$1,500.00) was paid by Mrs. Elizabeth Sale, "a widow living in Hertford." Just how Sharp was employed or what studies he engaged in during his apprenticeship can only be conjectured. There is reason to believe, however, that his master had great regard for him and gave him the best advantages of the time. Cheselden (born Oct. 19, 1688, died April 10, 1752), himself, coming from a wealthy family, had had an excellent training. He had a classical education, and had been the house-pupil of William Cowper, the anatomist. Moreover, he was highly endowed intellectually, and was a man of great energy and high ambition. As soon as he had obtained the "grand diploma" of the Barber-Surgeons' Company, in 1711, he began lecturing on anatomy. These lectures were delivered at first, perhaps, at the Surgeons' Hall, where a lecturer was, by special permission, allowed to teach a small class, after he had performed his public duties, and from time to time, as opportunity occurred, "a private anatomy was wrought upon."⁵ These lectures were continued at

⁴Power (D'A.). "How Surgery became a Profession in London." *Med. Mag.*, Lond., 1899, viii, pp. 585-586.

⁵Power (D'A.). *Loc. cit.*, p. 589.

his house, and afterward, for twenty years, at St. Thomas' Hospital, to which he was appointed in 1719. The lectures were on anatomy, and were published in book form in 1713. This work afterward passed through many editions. Besides his appointment at St. Thomas', he was surgeon at the Chelsea Hospital, and on the foundation of St. George's, in 1733, he was appointed one of its surgeons. Besides his hospital appointments he was made surgeon to Queen Caroline, in 1728, and by his many talents became a welcome guest in the highest social and literary circles. He was a member of the Royal Society, and was an intimate friend of Alexander Pope, the poet, Jonathan Richardson, the painter, and Sir Hans Sloane, the naturalist and founder of the British Museum. Such being the activities and relations of the master, naught but intellectual and social advantage could accrue to the favorite pupil. Undoubtedly, Sharp had the opportunity of attending Cheselden's anatomical lectures, and also of seeing his extended hospital work and assisting in it. It was at about this period (1723-1727) that Cheselden was studying and perfecting his operation of lateral lithotomy, which he executed with such extraordinary skill, brilliancy, and success, even on one occasion extracting a stone from the bladder, it is said, in fifty-four seconds. He became so famous in his operation, that surgeons came from all over Europe to witness his performance of it, and to learn his method. The French Academy of Sciences became much aroused over the operation, and delegated M. Sauveur-François Morand, one of its distinguished members, to go to London, and study it. This visit led to a lasting friendship between the two great surgeons, the fruits of which were an advancement, by inter-reaction, of both English and French surgery to an extent that never can be measured. The interchange was such that all that was best in England went to France, and all that was best in France came to England.

Sharp was at this time presented to Morand while he was in London, and through this acquaintanceship he afterward went to Paris to study surgery even before he had completed his apprenticeship with Cheselden. More than this, Morand later became the warm friend of Sharp, and did much to promote his interests, as well as those of Cheselden, in the Royal Academy of Surgery of Paris, of which both became members, Cheselden in 1732, and Sharp in 1749.

Not only did Sharp have the benefit of the acquaintanceship of Morand and other French surgeons, but he counted it one of

the privileges of his life to know the celebrated Voltaire and to have social intercourse with him. This acquaintanceship began while Voltaire was living in London during his exile from France, in 1726-1729,⁶ and was continued in Paris, as Sharp was frequently the guest of Voltaire while he was studying surgery there, probably in 1730, as well as later in life.

SHARP IS MADE "FREEMAN" AND MASTER OF SURGERY.

With all the opportunities which Cheselden was able, and undoubtedly disposed, to give his pupil, and with all the advantages which were to be derived from the work and standing of the master, Sharp made creditable progress in his studies, and on March 7, 1731, was admitted "freeman" of the Barber-Surgeons' Company. Imbued with the spirit of his master, his ambition led him to go farther, and after practicing a year and demonstrating to the Company his high proficiency, he was granted the "grand diploma," which entitled him to be called a master in surgery and anatomy, and allowed him to practice his art anywhere and during his whole life.⁷ This diploma was obtained on April 4, 1732, and on June 6, the same year, he "was admitted into the livery and clothing of the Company."

Thus did Samuel Sharp prepare himself for his chosen calling and equip himself for its duties. Ambitious, intelligent, energetic, he made the most of the opportunities which his great master had offered him, and began the practice of surgery under auspices most favorable to success. Cheselden's friendship was so great for the man who had assisted him so materially in his lectures, in his operations, and in preparing and publishing those plates of such extraordinary beauty and excellence comprised in his famous work known as "Osteographia," that his kind offices in Sharp's behalf did not cease when he was no longer his master, but they were continued for many years afterward. In many ways was Cheselden's powerful influence cast for Sharp. This was especially notable in the year 1733, the year of the publication of Cheselden's "Osteographia," and did much to give Sharp a foot-

"I knew him in the days of my youth, and had the honor to be sometimes with him when he was in London. I also saw him in Paris in 1749. . . . I remember to have heard him say, about the year 1726, that before he learnt English, he read the *Spectators* in French and often wondered that such dull writings should please a polite nation. 'But now,' said he, 'that I have acquired the tongue. . . .'"—Sharp's "Letters from Italy." 2 Ed., pp. 2 & 4.

⁷Power (D'A.). *Loc. cit.*, p. 586.

hold on the surgical practice of London that was sure, and to secure a start in a career that became distinguished and productive of great professional good.

BECOMES SURGEON TO GUY'S HOSPITAL.

Guy's Hospital had been opened in 1725, and its administration had been patterned largely after that of its more ancient neighbor, St. Thomas'. The medical and surgical staffs of both institutions, also, were so closely related that for many years they were practically one. The first surgeons appointed to Guy's were Francis Croft and Andrew Cooper. Croft resigned in 1727, and Robert Baker succeeded him. Cooper resigned in 1732, and Hasell Cradock was appointed to his place. Baker served the hospital four years, retiring in 1733. Here was an opportunity for Sharp, and both he and Cheselden, then of St. Thomas', saw it. Sharp had been practicing two years and was now in a position to assume hospital responsibilities on his own account, and he desired the place made vacant by Baker's resignation. Cheselden's influence here became paramount, and Sharp was elected surgeon to Guy's on August 9, 1733, in association with Cradock. This association, however, was of rather short duration, as the latter died in 1736. John Belchier, a friend of Sharp, about four years his senior, and also an apprenticed pupil of Cheselden, was appointed to Cradock's place. Sharp and Belchier remained colleagues in the hospital until 1757, when Sharp resigned. Belchier, who was a man of some note, did not retire till 1768.

LECTURES ON SURGERY.

From the moment of Sharp's appointment to the hospital, in 1733, his practice began to grow, and it rapidly increased till soon it became large and lucrative. Following the example of Cheselden, he instituted a private course of lectures to a society of navy surgeons which he delivered in Covent Garden. Such lectures were somewhat of an innovation on the customs of the time, but they were accepted and tended to increase Sharp's popularity. They constituted a "course of anatomical lectures to which were added the operations of surgery with the application of bandages." In 1746 he was so much occupied by the increase of his work that "for want of leisure" he resigned his lectures to William Hunter, then a surgeon, who continued them and in whose hands they became the nucleus of that celebrated school of medicine of the eighteenth century, known as the "Great Windmill Street School,"

which is thought by some to have laid the foundation of modern medical teaching.

HIS APPRENTICE AND ASSOCIATE, JOSEPH WARNER.

Soon after Sharp's appointment to Guy's Hospital, he received an apprentice whose relations to him and to the hospital proved of great service both to himself, the hospital and the profession. This apprentice was Joseph Warner, who, like himself, was born in the British West Indies, in Antigua, and from there was sent to London to be educated. In 1734, at the age of seventeen, he was bound to Sharp. He was at once allowed to assist his master at Guy's, and to attend Sharp's lectures on anatomy and surgery. Having finished his apprenticeship and entered into the practice of surgery, and a vacancy having occurred in the hospital staff by the death of James Pierce, in 1745, who had just been made its third surgeon, he was appointed to his place. By this appointment Guy's had three surgeons, all of whom honored the institution and distinguished themselves. These were Sharp, his fellow apprentice under Cheselden, Belchier, and his own pupil, Warner. With such men as these in the surgical department, it is no wonder that Guy's Hospital rapidly rose to the first rank among the hospitals of London. Sharp's pupil, moreover, carried forward those innovations and improved methods which Sharp had introduced, and thus perpetuated the results of his labors.

ADMITTED TO LEARNED SOCIETIES.

In the course of time, Sharp had so far risen in the esteem of the learned of London that he was deemed a worthy candidate for fellowship to that very exclusive and select body of *savants*, the Royal Society, and in 1749, he was taken into its fold. During the same year, he made another visit to Paris, where he was received with open arms. Here he studied carefully the latest methods and improvements of the French surgeons, and at the same time was honored by being elected a foreign member of the Royal Academy of Surgery of Paris, another body of limited and select membership. Here, his acquaintance and friendship with Morand, the perpetual Secretary of the Academy, proved of signal service. On his return to England he wrote a book, "A Critical Enquiry into the Present State of Surgery" (London, 1750), in which he reviewed contemporary practice and embodied his observations on the practice of the surgeons whom he had met.

RESIGNATION FROM GUY'S AND VISIT TO ITALY.

Sharp's practice in London now assumed very large proportions. The demands which were thus made upon him, together with a life-long affliction of asthma, induced him, after twenty-four years' service, to relinquish his hospital work. He tendered his resignation to Guy's on September 23, 1757, but continued to practice until 1765, when, on account of ill health, he went to Italy, where he spent a year in travel. While in Italy he wrote a series of letters, fifty-four in all, to a friend in England, describing the manners and customs of the inhabitants of the various provinces which he visited, and giving his impressions of them. These letters, even to-day, are deeply interesting, and at the time of their publication in book form, in 1766, and a second time in 1767, they aroused a good deal of feeling among the Italians.⁸ Barretti, in answer to Sharp, published a work in two volumes entitled "An Account of the Manners and Customs of Italy," which passed through two editions. In this he criticised Sharp severely. In 1768, Sharp defended himself in another publication which he entitled "A View of the Customs, Manners, Drama, etc., of Italy, as They Were Described in the 'Frustra Litteraria.'" In this Sharp unearthed a number of contributions by Barretti, containing similar censures to his own. It is generally conceded that Sharp did not in the least exaggerate the condition of the people with whom he came in contact, and that the honors of the controversy were his.

PUBLISHES WORKS ON SURGERY.

Before the publication of his "Letters from Italy," and the book in answer to Barretti, Sharp had made important contributions to the professional literature of his day. His first book was issued in 1739, and was undoubtedly the outcome of his series of lectures to navy surgeons already referred to. It was entitled "A Treatise on the Operations of Surgery, with a Description and Representation of the Instruments Used in Performing them: To which is Prefix'd an Introduction on the Nature and Treatment of Wounds, Abscesses and Ulcers." He dedicated his work to William Cheselden, his teacher and friend, as follows: "As I am chiefly

⁸Dr. Samuel Johnson, the learned contemporary of Sharp, said: "I read Sharp's Letters on Italy over again when I was in Bath. There is a great deal of matter in them."—Boswell's "Life of Samuel Johnson." Edit. by J. W. Croker, p. 512.

indebted to the Advantage of an Education under You, for whatever Knowledge I can pretend to Surgery, I could not in the least hesitate to whom I should dedicate this Treatise, though was it my Misfortune to be a stranger to your Person, that Merit which has made the World so long esteem You the Ornament of your Profession, would alone have induced me to shew You this Mark of my Respect, which I hope will not be unacceptable." In his preface he says: "It has been very much my Endeavour to make this Treatise short, and therefore I have given no Histories of Cases, but where the uncommonness of the Doctrine made it proper to illustrate it with Fact, and these I have recited in the most concise manner I was able: on this account, too, I think I have not attempted to explode any Practice which is already in disrepute." In following out this plan of limiting himself to the statement, in as few words as possible, of the "distinguishing appearances" of surgical diseases, and the methods of treatment which he approved, he gave to the profession a most acceptable treatise. The first edition of 1739 was followed by a second in 1740, and in 1782 there had been ten English editions, one in French (1741), and one in Spanish (1773).

Sharp's next literary undertaking was his "A Critical Enquiry into the Present State of Surgery." He published this in 1750, soon after his visit to Paris in 1749. In this work he says in the preface, "I have only considered either such Doctrines, which, though generally received, are in my Opinion ill-grounded, or such Improvements as are yet but little known." In this "Enquiry" there are over three hundred pages of "criticisms" on the surgical practices of the time, particularly of the Parisian surgeons, together with statements of his own conclusions and methods. This book, like the previous one, was concisely and clearly written, and was well received, both by the English and the Continental profession. It passed through four English editions up to 1761, and translations of it were made into French, in 1751; into Spanish, in 1753; into German, in 1756, and into Italian, in 1774.

PAPERS READ BEFORE THE ROYAL SOCIETY OF LONDON.

Besides these works on general surgery there were published three papers which Sharp read before the Royal Society of London. The first one was very brief, and was "An Account of the Event of Experiments made by Agaric upon the Amputation of the legs of two Women in Guy's Hospital," read December 14,

1752, and published in the *Philosophical Transactions*.⁹ The second paper was also brief and was read before the Royal Society on April 12, 1753, and was entitled "A Description of a new Method of opening the Cornea, in order to extract the crystalline Humour." It also was published in the *Philosophical Transactions*.¹⁰ On November 22, 1753, he read another paper before the same body on the same subject entitled "A second Account of the new Method of opening the Cornea, for taking away the Cataract."¹¹

RETIREMENT AND DEATH.

Sharp, it appears, did not practice long after his return from Italy in 1767. He had acquired a large fortune by his profession and, being a chronic invalid, retired at about that time or perhaps soon afterward. He lived, however, to an advanced age, dying on March 24, 1778, nearly eighty years old.

Not only was Sharp recognized as a great and skilful general surgeon, but he took highest rank as an ophthalmic surgeon. His services were sought by all classes afflicted with diseases of the eyes. The celebrated Dr. Samuel Johnson, of his time, typifies the confidence that was thus reposed in him. Dr. Johnson's friend, Mrs. Anna Williams, had cataracts, and at his request Miss Hawkins took her to Sharp (in 1751), who had said he "would couch her gratis, if the cataract was ripe; but upon making the experiment it was found otherwise, and that the crystalline humor was not sufficiently inspissated for the needle to take effect."¹² Again, in a letter dated October 18, 1760,¹³ Johnson says: "I am very solicitous for the preservation or curing of Mr. Langton's sight, and am glad that the chirurgeon at Coventry gives him so much hope. Mr. Sharp is of the opinion that the tedious maturation of the cataract is a vulgar error."

CONTRIBUTIONS TO OPHTHALMOLOGY—ARTIFICIAL PUPIL.

In taking special note of Sharp's contributions to ophthalmology, we find that they were not numerous, but that they were important as bearing upon the opinions and practices of the time,

⁹*Phil. Tr.*, Lond., 1754, xlviii, pt. 2, pp. 588-589.

¹⁰*Phil. Tr.*, Lond., 1753, xlviii, pt. 1, pp. 161-163.

¹¹*Ibid.*, pp. 322-331.

¹²Boswell's "Life of Samuel Johnson." Edit. by J. W. Croker. Footnote to p. 74.

¹³*Ibid.*, p. 121.

especially those pertaining to the extraction of cataract. The true nature of cataract had become generally recognized long before Sharp began his rôle as an author. This knowledge, however, had not changed its treatment, and couching was still accepted as the standard operation when he wrote his "Operations of Surgery." This operation he himself practiced and described, and he offered some suggestions as to how it might be improved. The chapter embodying his description also gives the symptoms, diagnosis and varieties of cataract, clearly, and for the most part, accurately, excepting that he said that "the *Glaucoma* is no other Disease than the Cataract." He took cognizance of the complications and sequelæ that followed the operation, and among them the closure or obscuration of the pupil. He had become familiar with the operation for making an artificial pupil in such cases, as practiced by his master, Cheselden, and as described and published by the latter in the *Philosophical Transactions*.¹⁴ In his "Operations of Surgery," Sharp gives an entire short chapter to "Cutting the Iris" and details Cheselden's operation, adding such improvements as he had devised. He notes the conditions in which the operation "may be of some service," and says that one is "when the Cataract is from its Adhesion immoveable; and the other, when the Pupil of the Eye is totally clos'd up by a Disorder of the Muscular Fibres of the *Iris*, which gradually contracting the Orifice, at last leaves the Membrane quite imperforate." In doing the operation he seated the patient in the same way as for couching, and used a knife resembling a narrow lancet, with two edges (See *Plate 12, Fig. 1*). This knife being introduced "in the same part of the *Conjunctiva* you wound in couching, insinuate it with its Blade held horizontally, and the Back of it towards you, between the *Ligamentum Ciliare* and circumference of the *Iris*, into the anterior Chamber of the Eye, and after it is advanc'd to the farther side of it, make your Incision quite thro' the Membrane; and if the Operation succeeds, it will, upon wounding, fly open, and appear a large Orifice, though not so wide as it becomes afterwards. The place to be open'd in the *Iris* will be according to the nature of the Disease: if the Membrane itself be only affected with a Contraction, the middle part of it, which is the natural situation of the Pupil, must be cut; but if there be a Cataract, the Incision must be made above or below the Cataract, though I think it more eligible to do it

¹⁴*Phil. Tr., Lond., 1728, xxxv, p. 451.*

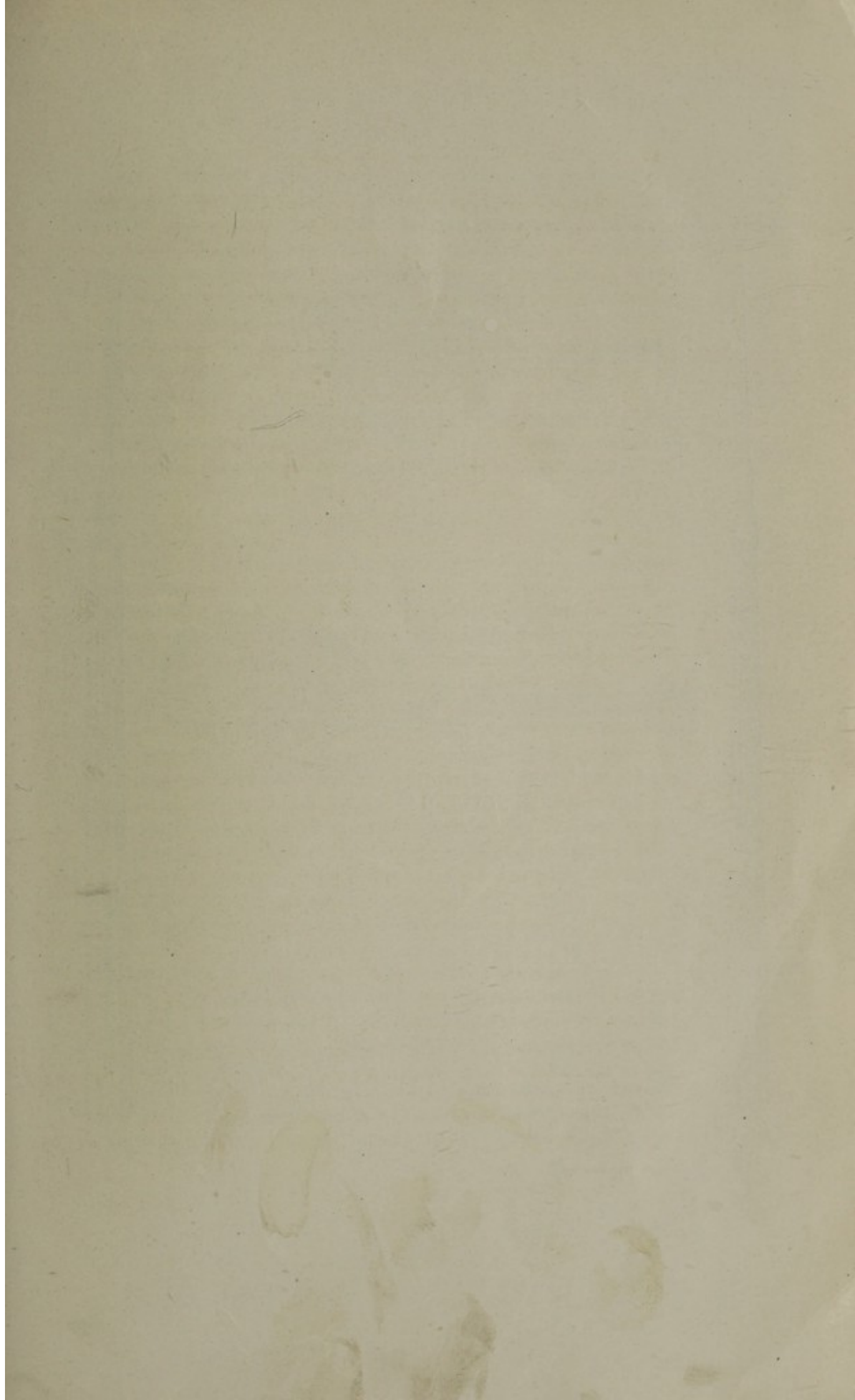




FIG. 1.

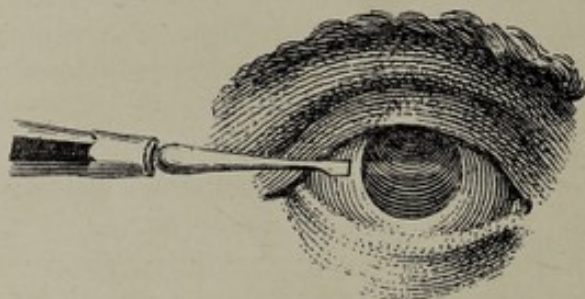


FIG. 2.

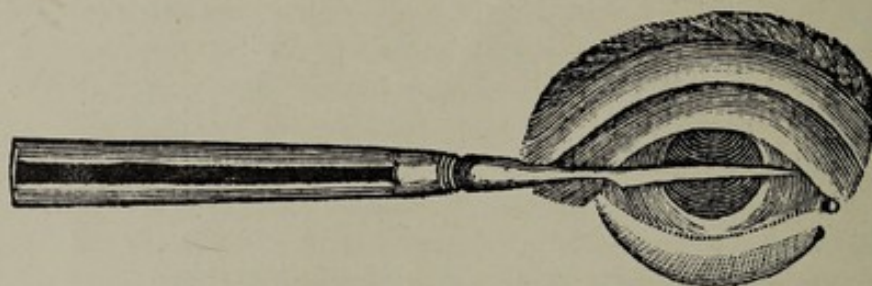


FIG. 3.



FIG. 4.

FIG. 1.—Sharp's knife for cutting the iris. (From his: "A Treatise on the Operations of Surgery." 4. Ed. London, 1743. Plate 10, Fig. C.)

FIG. 2.—The iris knife of Cheselden. (From his: "Anatomy of the Human Body." 6. Ed. London, 1741. Tab. XXXVI.)

FIG. 3.—Sharp's cataract knife. (From his first paper in: *Phil. Tr.*, Lond., 1753, xlviii, pt. 1, page 161.)

FIG. 4.—Another illustration of Sharp's cataract knife. (From: *Mem. de l'Acad. Roy. de Chir.*, Par., 1753, ii, Pl. XXII, Fig. II.)

above." He then pointed out the contra-indications for the operation, and the dangers that frequently attend it. In later editions of his "Operations" he said that "since it has been discovered by the extraction of the crystalline (lens), that a large wound may be made through the cornea without any bad consequence, I should imagine this operation would be much improved by introducing the knife perpendicularly through the cornea and iris, and cutting both at the same time, so that the incision of the iris should be exactly in the same part and of the same dimensions as by the other method."

Thus did Sharp endorse and popularize his master's operation for artificial pupil, and improve upon it, and thus was strengthened and made more secure the foundation for the modern operations of iridotomy and iridectomy.

FISTULA LACHRYMALIS.

Another condition which attracted the close attention and judicious consideration of Sharp was "fistula lachrymalis." It was a disease that had long baffled the efforts of surgeons, and he set himself the task of improving upon the prevailing methods of treating it. His "Operations" contains a long chapter on the subject, and after reviewing its symptoms, "nature," and the usual treatment, he suggests the discarding of "fire" (the actual cautery) "in all the stages of it." He treats it by incising the abscess or "fistula," keeping the sac open by dossils of lint, and probing the nasal duct, through the opening into the sac, at each dressing, and when the suppuration diminishes sufficiently, he allows the opening to close by granulation, and by using gentle pressure over the sac by means of a special instrument which he devised for the purpose. When the bone was bare, he used a "perforator" carrying it through the duct well "towards the nose," and then treated the case as before, by dossils of lint, probing, cleansing and, later, compression. This treatment was far in advance of that by the cautery, then so much in vogue.

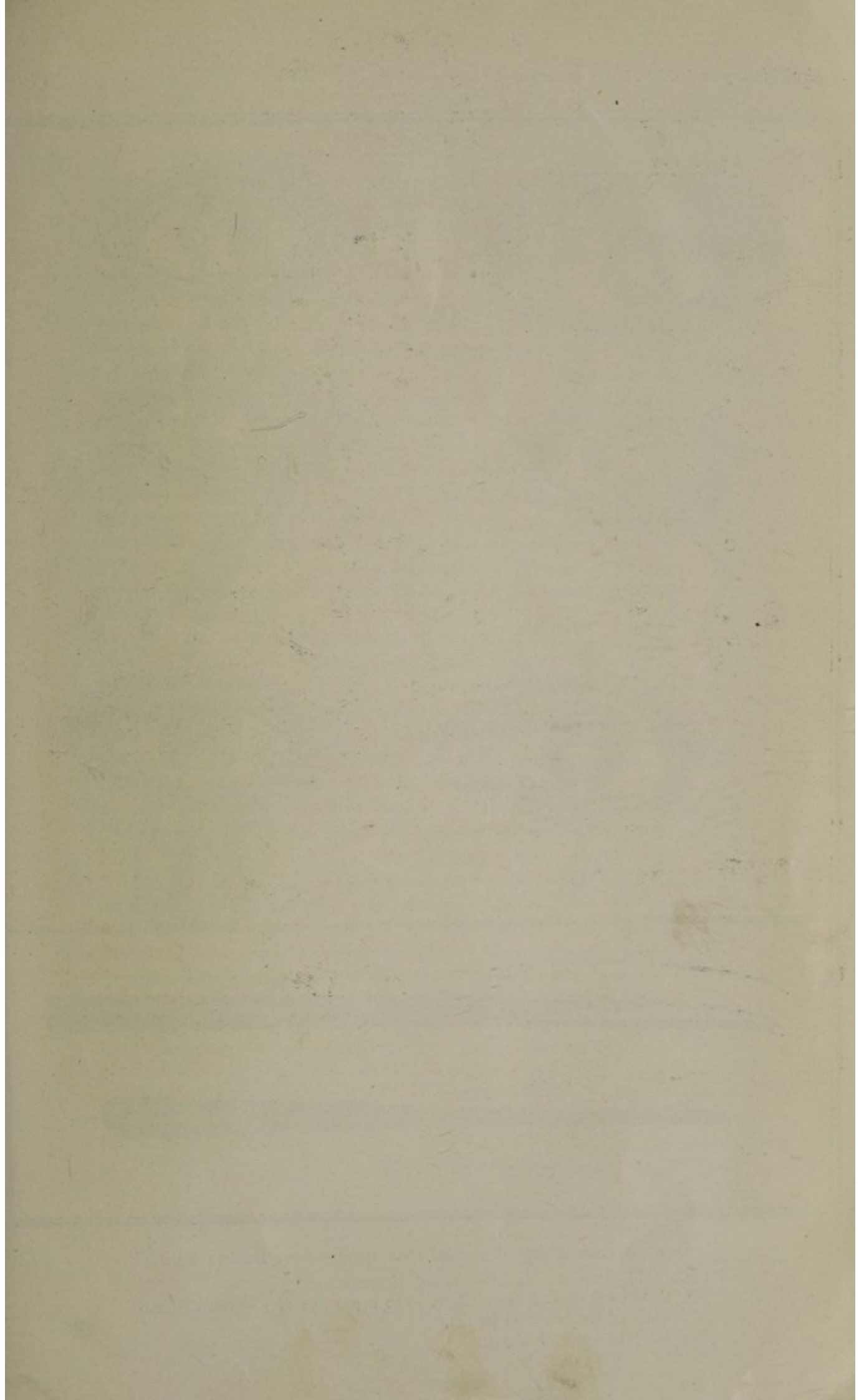
In 1750, when he brought out his "Critical Enquiry into the Present State of Surgery," he again referred to fistula lachrymalis, and said that "an ingenious surgeon," M. de la Forêt, had showed him when in Paris, in 1749, "a new Method, by which he declares he has cured several *Fistulæ Lachrymales*, without making an Incision into the *Saccus Lachrymalis*." This consisted in making injections upwards through a canula passed from the nos-

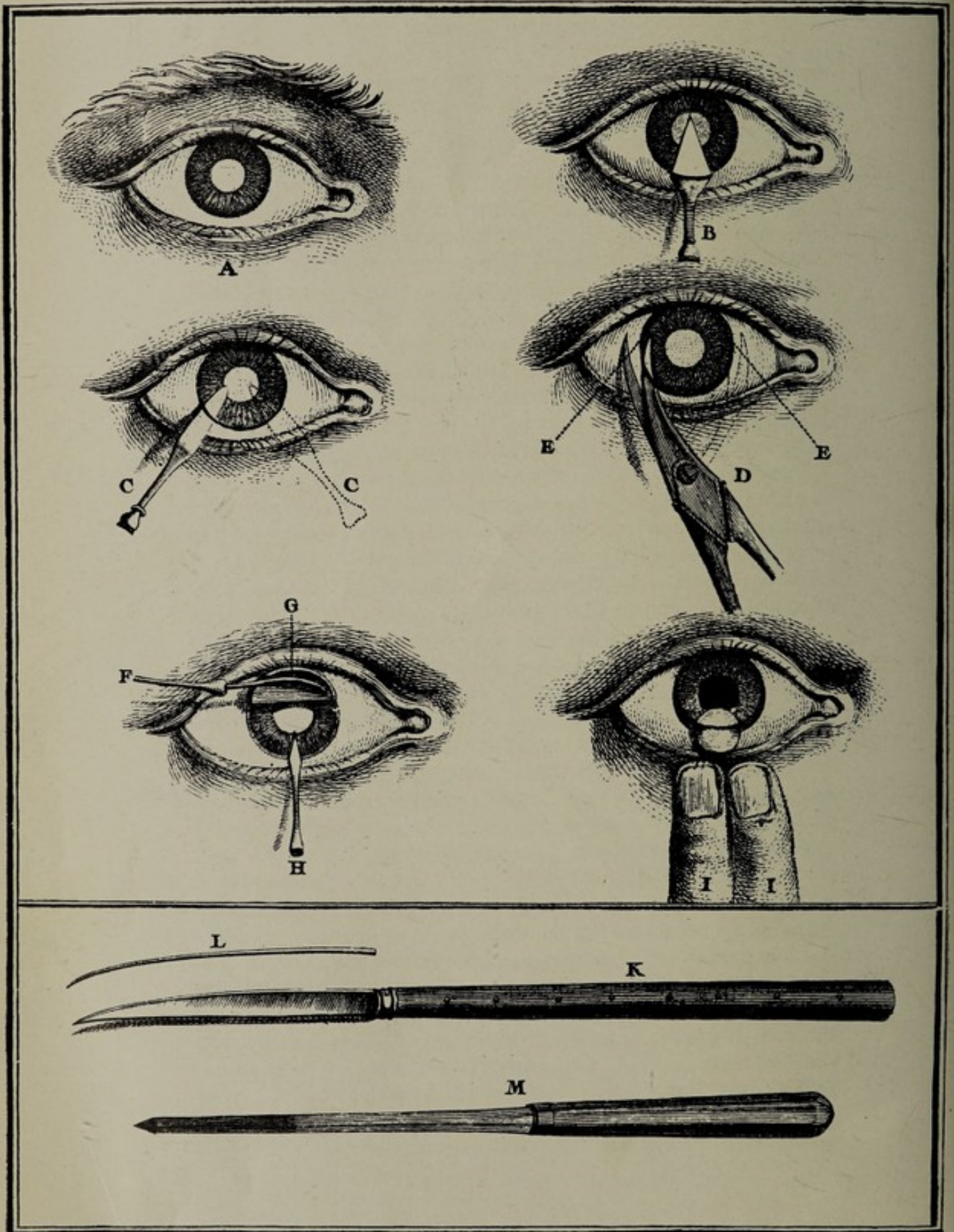
tril through the nasal duct into the sac, or by means of a syringe alone. Sharp found the method difficult to execute.

CATARACT EXTRACTION. KNIFE FOR OPENING THE CORNEA.

The next ophthalmic contributions by Sharp were the two papers already referred to which he read before the Royal Society on April 12 and November 22, 1753, respectively, and published in 1754 in the *Philosophical Transactions* as above stated. These papers were on "A New Method of Opening the Cornea" in the extraction of cataract, and in the history of the operation of extraction of cataract they have an importance second only to the immortal "invention" of Daviel, the originator of the modern operation. Although they were read in 1753, they were not published till the following year. Their subject was new among surgeons, and made a profound impression. Daviel's operation was being discussed with much warmth in France, but had received little attention in England. Sharp was always abreast of his time, and as a member of the Parisian Royal Academy of Surgery, and as a personal friend of Morand, its perpetual Secretary, he very likely knew, in the main, what was taking place in that progressive body. Daviel's "Memoir," according to the custom, had been read twice before the Academy, once on April 13, and again on November 16, 1752, and de la Faye, a distinguished French surgeon, and a member of the Academy, also, during the winter of 1752-3, and soon after Daviel read his paper the second time, had presented a knife which he proposed to substitute for Daviel's triangular knives and scissors in making the corneal incision in the operation of extraction of cataract. Daviel's memoir was published in abstract, at the time it was read, in the *Mercure de France*, but de la Faye's suggestion was not made public till late in 1753 or early in 1754, when Tome II of the *Mémoires de l'Académie Royale de Chirurgie* was published, and was included in his memoir on extraction of cataract, and must have been after both of Sharp's papers had been read before the Royal Society of London. While, therefore, de la Faye, in November, 1752, had publicly described a single knife for making the corneal incision, he had not then used the instrument on the living subject, and did not do so, as he himself says,¹⁵ until June 11, 1753, when he "performed this operation on six persons." It is barely possible that Sharp knew something about de la Faye's knife through Morand, with whom he held correspondence, but this is made doubtful by

¹⁵*Mém. de l'Acad. Roy. de Chir.*, Paris, 1753, ii, p. 568.





Facsimile reproduction of original plate accompanying Daviel's paper.

FIGS. A-I.—Illustrate Daviel's method of operation.

FIG. K.—The knife of de la Faye. The upper line (L) shows the convexity of the blade on its flat.

FIG. M.—The knife of Poyet.

the fact that in his second paper before the Royal Society (Nov. 22, 1753), he says that Daviel "*is the only writer who has treated the subject (extraction of cataract), at least that I am acquainted with.* I therefore flatter myself that this attempt to improve upon what he has laid down, will not be construed as a reflection on him, or his practice. For, however his invention may be perfected by others, in my opinion, it is still to him, principally, that the world will be indebted for the benefit of the discovery."

The knife which de la Faye had presented to the Academy was, as he says,¹⁶ "a species of small bistoury, fixed in its handle, its blade very thin, a little convex on its flat, and twenty to twenty-one lines long and two lines wide at its greatest width. It is edged only on one side, except at its point where the back is also edged, but only for about two lines. The point and the whole edge have the fineness of the point and edge of a lancet. . . . The handle is three inches and nine lines long by four lines in diameter." "The blade is slightly curved on its flat so as to keep the point away from the iris in traversing the anterior chamber" (See *Plate 13, Fig. κ*).

The knife of Sharp had no resemblance to that of de la Faye. It was "a small knife a little larger than an iris knife."¹⁷ (The iris knife referred to is shown in *Plate 12, Fig. 1*.) It was straight on its flat, somewhat convex on its back, slightly concave on its edge, a little less than an inch long, and at its heel about one-eighth to one-sixth of an inch wide, tapering gradually to a fine point. It is figured in Sharp's first paper (See *Plate 12, Fig. 3*), and also in Tome II of *Mémoires de l'Académie Royale de Chirurgie*, 1753, in connection with a figure of the knife of de la Faye (See *Plate 12, Fig. 4*). Sharp first used his knife on April 7, 1753, and before June 11, 1753, when de la Faye first used his on the living subject, he had made seven extractions with it. Previous to Sharp's first operations, no other surgeon had used a single knife for the same purpose, although it was not long afterward when, besides de la Faye, Poyet,¹⁸ a young Parisian surgeon, offered one (See *Plate 13, Fig. μ*), which had little to commend it, and which was never adopted by other surgeons. While, therefore, the priority of suggestion may be claimed to belong to de la

¹⁶*Ibid.*, p. 565.

¹⁷Sharp (S.). "A Critical Enquiry into the Present State of Surgery." 3 Ed., Lond., 1754, p. 252.

¹⁸*Mém. de l'Acad. Roy. de Chir.*, Paris, 1753, ii, p. 353.

Faye, the priority of *use* incontrovertibly rests with Sharp. He had, as he says,¹⁹ "used the scissors, as Mons. Daviel directs." He experienced the inconveniences of Daviel's multiplicity of instruments. His originality and mechanical turn of mind led him to devise a remedy, and his knife and his operation, both of great perfection, were the result.

The operation of Daviel, which Sharp sought to improve, consisted in incising the lower part of the cornea at its junction with the sclera. An opening was first made into the anterior chamber at the extreme lower margin of the cornea with a "myrtiform" or triangular-shaped knife, and then, after withdrawing this, the incision was enlarged on both sides with a narrow, blunt-pointed, double-edged knife, as far as could be done easily, and finally, when the cornea became too much relaxed to continue the incision, it was completed to the extent desired with delicate scissors which were so curved on the flat and edge as to correspond to the curve of the corneo-scleral line. These, of course, were made right and left, and the blade to be introduced into the anterior chamber was blunt-pointed. The incision was carried on each side to a "little above the pupil," and included considerably more than the lower half of the cornea. (Daviel afterward limited the length of the incision to the "semi-circumference" of the cornea.) Having completed the incision, the corneal flap was gently lifted up with a small spatula and the anterior capsule of the lens was incised with a sharp-edged needle. The lens was then delivered, and the corneal flap was allowed to fall into place. (*Plates 13 and 14* illustrate Daviel's operation and are facsimiles of those published with his original paper which appeared in the *Memoires de L'Académie Royale de Chirurgie*, tome 2, page 337, *et seq.*)

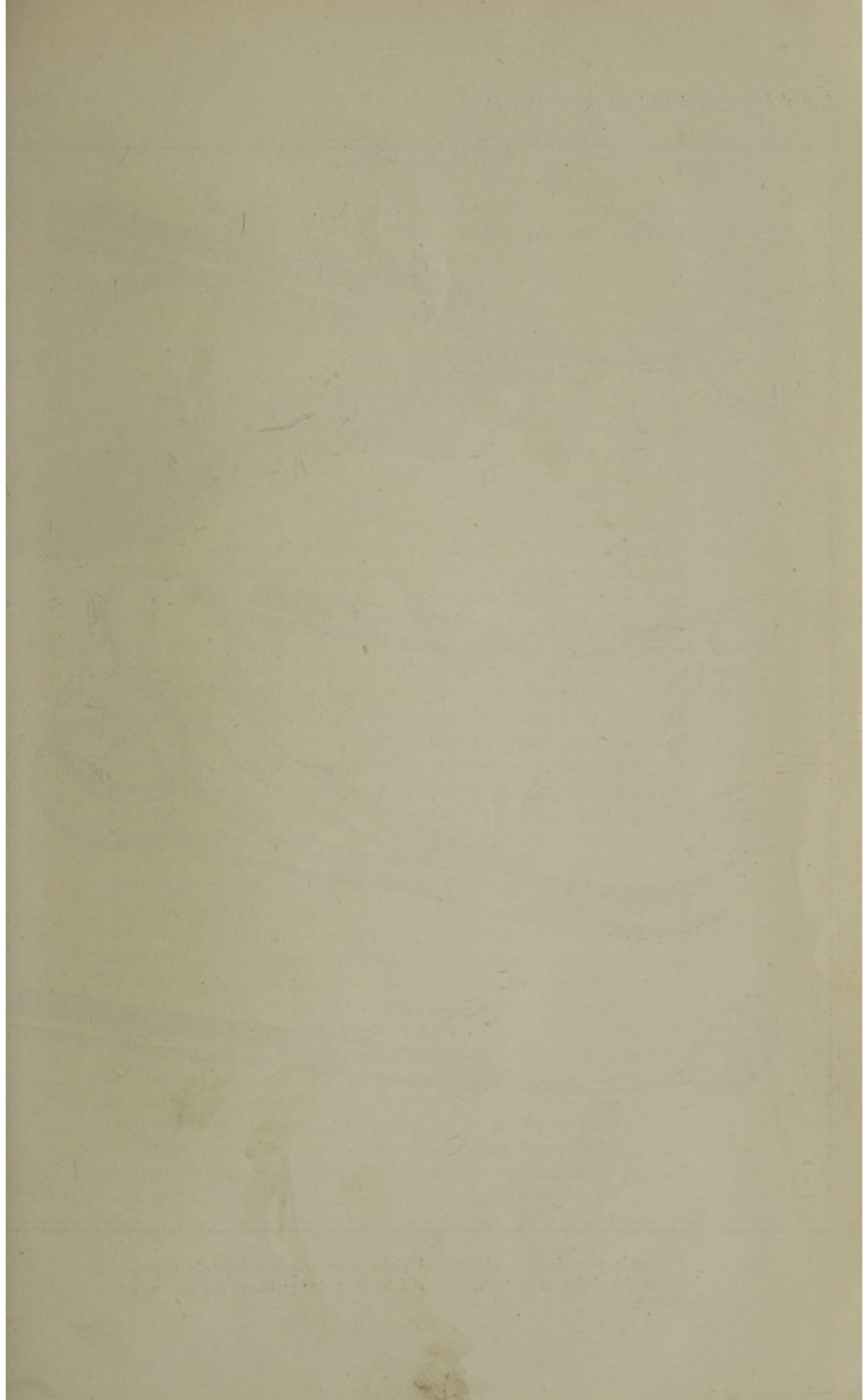
SHARP'S OPERATION FOR CATARACT.

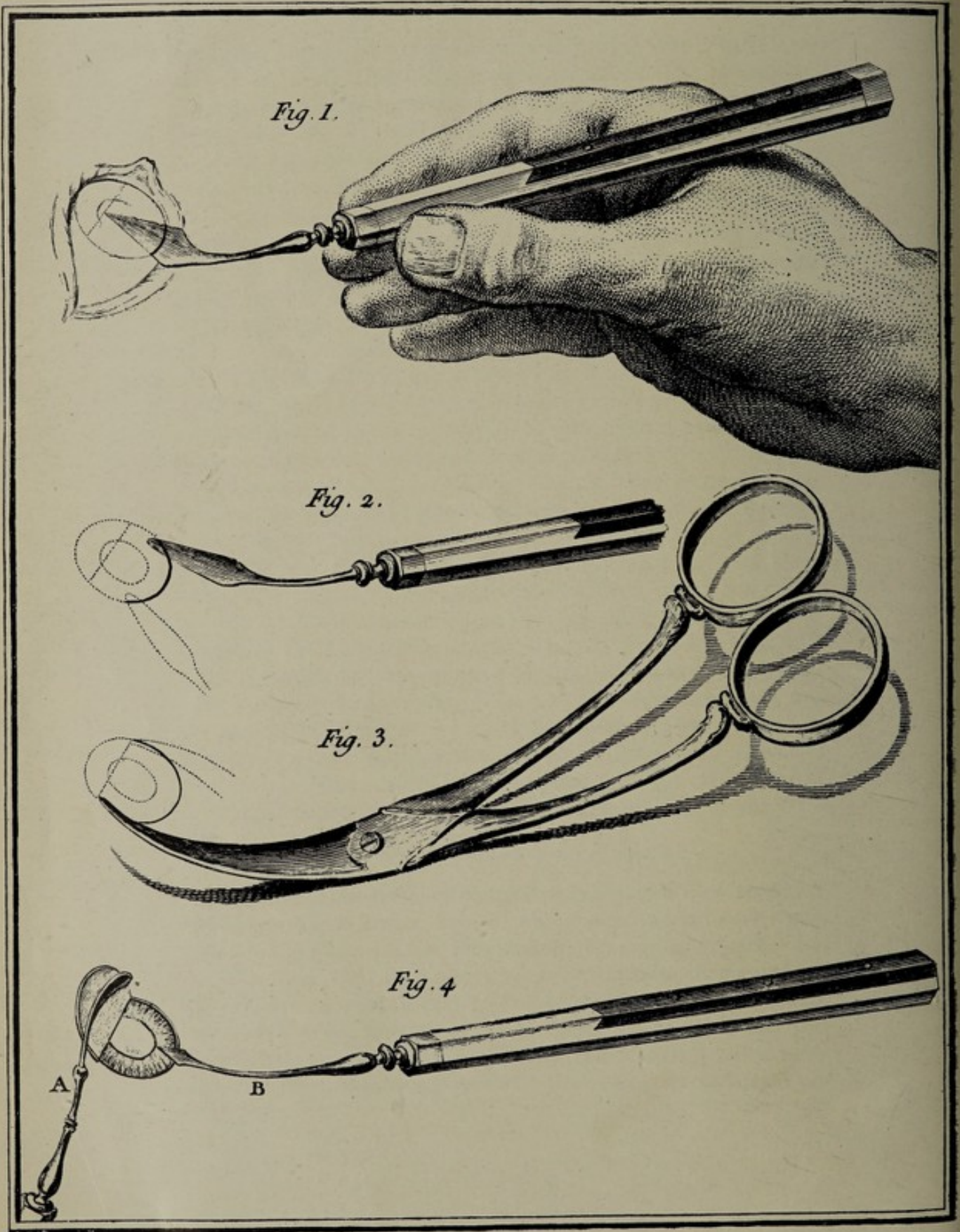
The first paper of Sharp on opening the cornea was very short, and is worthy of further record at this time. As originally published in the *Philosophical Transactions*,²⁰ it was as follows:

"The operation of discharging the crystalline humour from the eye, for the cure of that species of blindness call'd a cataract, was a few years since invented by Mons. Daviel, who has perform'd it on great numbers of patients, and continues still to practice it with remarkable success, as I have lately learned from un-

¹⁹*Phil. Tr.*, Lond., 1753, xlvihi, pt. I., 327.

²⁰*Ibid.*, pp. 161-163.





Facsimile reproduction of original plate accompanying Daviel's paper, showing the different instruments used by him in making the cataract operation.

questionable authority (Mr. Morand, perpetual Secretary of the Academy of Surgery at Paris). Supposing it therefore admitted, that the extraction of the crystalline humour has been found by experience to be a useful method of cure, I here take the liberty of laying before the Society a new manner of making the incision of the cornea, by which, I flatter myself, Mons. Daviel's operation will be very much shorten'd, the patient will suffer less pain, and every skilful operator will be equal to the undertaking.

"Place the patient in the same situation as for couching, either opening the eyelids with your forefinger and thumb, or letting an assistant raise the upper eyelid, whilst you yourself keep down the under eyelid. Then, with a small knife, the figure of which is here represented" (*See Plate 12, Fig. 3*), "holding its edge downwards, make a puncture through the cornea near its circumference into the anterior chamber of the eye, in such a direction, as to carry it horizontally, and opposite to the transverse diameter of the pupil: after which you are to pass it towards the nose, through the cornea from within outwards, as near to its circumference, as in the first puncture.

"When you have made the second puncture, push the extremity of the blade one-seventh of an inch beyond the surface of the cornea, and immediately cut the cornea downwards, drawing the knife towards you as you make the incision. After this, you press gently with your thumb against the inferior part of the globe of the eye, in order to expel the cataract, and the operation finishes, according to the different circumstances, as in the manner proposed by Mons. Daviel.

"One extraordinary benefit seems to arise from the use of this single instrument, and perhaps from the shape of its blade, which increases in breadth all the way towards the handle: for, by this means, the punctures are so exactly fill'd up by the blade, that very little of the aqueous humour is discharged before you begin to make the incision, and consequently during this time, the cornea preserves its convexity; whereas by using one instrument to puncture, and others to dilate, the cornea immediately becomes flaccid, upon the issue of the aqueous humour, and renders the operation tedious and embarrassing, as I myself have found by experience in one patient, on whom I performed the incision of the cornea with a pair of scissors, as recommended by Mons. Daviel."

This contribution needs no comment. It is one which not only exemplifies Sharp's incisive and comprehensive manner of expression, but in its subject-matter and surgical procedure is an epoch-

making document. It gives recognition to the value of the great "discovery" of Daviel, refers to its drawbacks, and describes his own method of remedying them. His new experience was slight, but his surgical sense and genius had elaborated almost a model operation. It was, in fact, even in its beginnings, the same incision as is made to-day, being directed downward, instead of upward, as Schweigger and others still prefer to do in many cases.

HIS SECOND PAPER. CASES AND RESULTS.

Sharp's second paper is a continuation and augmentation of the first, and embodies the records of all the cases upon which he had operated with the knife, and the conclusions which an increased experience had suggested to him. As already noted, this paper was read November 22, 1753, and up to that time he had undertaken to make nineteen extractions. These were done between April 7th and October 22d of that year. After listing them he says:²¹ "The state of the success stands thus: AC, AD, AF, AG, AL, all which had the operation performed on both eyes, have every one of them recovered the sight of both eyes, to as great a perfection as can be supposed, without the help of the crystalline humour; that is, they can read and write, with proper spectacles.

"The first of them, AC, has found so much benefit, as to be able to carry on the exercise of his profession, that of a surgeon.

"AH sees with both eyes, but not so well as the other five. I have just now an account from the surgeon, who has attended her (in a distant country), that her eyes look well, and her sight improves.*

"AI, another patient, at a distance from London, had the operation done on one eye only; which he recover'd, as my correspondent informs me, so as to see tolerably well.

"AM, on one eye only, with which he already sees very well.

"AE had it performed on both; one of which was lost, and the other recovered; but continues inflamed, and cannot bear much light.

"AB had it done on one eye only, which was lost . . . the ill success was partly owing to the imperfection of my instrument,

²¹*Ibid.*, p. 323, *et seq.*

*"Some weeks after this paper was read, Mr. Sharp received an account that the pupils of both eyes had lately contracted so much as hardly to leave room for the admission of light; and it was apprehended the patient would soon become blind."

a disadvantage that must frequently attend on the execution of new attempts. It was the first operation I performed, and I had provided a knife with so thin a blade, that, after I had passed through the cornea into the anterior chamber of the eye, the point was so blunted, that, upon endeavoring to carry it through the cornea out on the other side, the blade bent, and I was apprehensive it might break; however, withdrawing it a little, I made two or three efforts, and succeeded in the incision, and the removal of the cataract.

"During this operation, the aqueous humour being discharged, and the patient struggling, I wounded the iris; which bled profusely, and continued several days to discharge a great quantity of blood and bloody ichor; and it is to this accident that I am inclined to impute the miscarriage of the operation."

In the case of AK, there was "the appearance of a beginning cataract, being of a light blue, and but little opake." Sharp attempted to extract both lenses but failed in each, even after cutting through the capsule with the point of his knife, and subsequently passed the curette "through the pupil, and turn'd it several times round, in expectation of breaking the capsula," but without "the least resistance." "Both operations proved ineffectual; the circumstances being exactly the same in each eye." The lenses receded into the vitreous humor and much of the latter was discharged.

REMARKS ON OPERATION, AND SUGGESTIONS.

Thus, out of the nineteen eyes operated upon, thirteen results were good, two were questionable, the sight at first being good, but deteriorating later, and four were failures, one of these following an accident with the knife, one from inflammation, and two from inability to extract the lenses. Extracton was really made in seventeen eyes and two of these were lost. In a new field like this, such a result can but be looked upon as a great surgical triumph. Sharp operated without fixing the eye, without any form of speculum, and delivered the lens without opening the capsule. In one case, however, AC, the lens "from the mere pressure in the operation, burst out of its capsula, which I left in the eye; but in some weeks it entirely wasted." In his first operations he delivered the lens by compressing "the inferior part of the globe of the eye with his thumb gently." But noticing that some force was required to expel the lens and that "it sometimes suddenly drew after it a portion of the vitreous humour, I changed my method,

and no longer press'd the eye, when once the crystalline was in the anterior chamber, but immediately stuck the point of my knife into the body of it, and extracted it contained in its capsula, without spilling any of the vitreous humour. This new process, I suppose, will be found of considerable advantage, as it will, in a great measure, remove the danger of evacuating the whole, or too much, of the vitreous humour; though it may be observed, to the praise of this operation, that, contrary to expectation, a large quantity of this humour (perhaps a third part, or more) has been sometimes discharged, without any bad consequence." This new procedure would also, he thought, do away with the difficult and, to the patient "fatiguing" method of Daviel in which he "advises the flap of the cornea to be suspended with a small spatula; then, with a pointed cutting needle, to wound the surface of the crystalline; after which, to introduce the same spatula through the pupil, in order to detach the cataract from the iris, and then proceed to the expulsion." Sharp believed it better to remove the capsule with the lens, although not absolutely necessary. If in the future its removal should be found necessary, he thought it might be done with Daviel's curette. "This instrument may also be used for the extraction of a cataract, which has been broken to pieces by the couching needle in a former operation," as well as for detaching adhesions of the iris to the lens.

In regard to the speculum he said: "I should not be surprised, if the use of a *speculum oculi* should hereafter be esteemed an improvement. But then it must be contrived so, as that it shall not compress the globe of the eye; or, if it does, the operator must be careful to remove it in the instant the incision is making, lest, by continuing the pressure after the wound is made, all the humours should suddenly gush out."

In none of his cases, "either during the operation or after the operation," had the iris "been push'd forwards, or insinuated itself through the wound of the cornea, forming a *staphyloma*," such as Daviel had met with. In all of Sharp's cases he thought there was inflammation. He regarded this as being due to incision of the cornea, and contrasted it with the great number of cases of couching in which there was neither pain nor inflammation. The inflammation, however, in his extractions was not always severe, and while characterized by tenderness, pain was generally absent, even when there was swelling of the lids and conjunctiva. "None suffer'd very much in that particular, except AE; who was extremely bad, and lost the eye on that side, where the pain was."

Sharp was not oblivious to cases of cataract which were not suitable for operation, and called attention to the "possibility of an incomplete *gutta serena* being complicated with the cataract. . . . When a cataract is thus circumstanced, the operation will be fruitless."

After thus detailing his experience and adding suggestions, he says: "I presume a greater number of operations will prove this account very deficient. But I have here communicated all that I have done, and all that I know on the subject; not having suppress'd one experiment, nor, to the best of my remembrance, one circumstance, either to the honour or disgrace of the operation."

Sharp not only showed and demonstrated his instrument at home, but also during the summer of 1753 sent one to his friend, Morand, at Paris, who exhibited it to the Parisian surgeons interested in the subject, and inserted a cut (*See Plate 12, Fig. 4*) of it in the *Mémoires de l'Académie Royale de Chirurgie* with one of de la Fay (*See Plate 13, Fig. κ*). In Paris it was respectfully received, and his device and experience were a great stimulus to the appreciative minds of the Frenchmen.

FURTHER EXPERIENCE AND REFLECTIONS.

In 1754, when the third edition of Sharp's "Critical Enquiry" was called for, he again took up the operation of extraction of cataract, and set apart a separate chapter (pp. 251-264) to the subject, embodying the substance of his previous papers, with such additions as seemed to be justified by his continued experience. He opens the chapter by stating that a new method of treating cataract had lately been attempted by Daviel, of Paris, which had been attended with considerable success, but that he employed a great number of instruments. "As," he says, "his method seems capable of great Improvement by being rendered more simple, I have abridged it, and practised it myself upon several People." He then proceeds to describe his own operation, and the difficulties and complications attending it. In some respects he added very materially to what he published in his papers read before the Royal Society. His further experience had given him clearer notions both of the manner of performing the operation and of the conditions of healing. The whole chapter merits the attention of the ophthalmological historian, but the following extracts are of most interest. After repeating the description of the operation substantially as given in his first paper, the incision being placed in

the lower half of the cornea at its "circumference," he says: "This Wound will be almost semilunar, and nearly parallel to the inferior half of the Circumference of the Pupil, so that the Cicatrix will obstruct the Light but very little. M. *Daviel* recommends an Incision of nearly two thirds of the Circumference of the *Cornea*, but I believe what I mention will be found more commodious and so large a Wound as he directs is apt to give Issue to the Vitreous Humour." In regard to the escape of the vitreous humor and its management he suggests that "it might be owing to a Convulsive Contraction of the Muscles surrounding the Globe of the Eye during the Operation. When this is the Case, the Surgeon must instantly shut the Eye-lid to prevent the total Evacuation of the vitreous humour, and at the same time both he and the Assistant cease to press upon the Eye-lids: But if the Chrystalline [lens] does not immediately rush out of the Eye, the Operator must press gently with one or two Fingers against the inferior Part of the Globe, till the Chrystalline advance through the Pupil into the anterior Chamber, from whence it will generally fall through the Wound of the *Cornea* upon the Cheek. However, shou'd it not readily fall out of the Eye, but remain lodged in the anterior Chamber, I would advise the Operator not to press the Eye in order to expel it, but immediately to stick the Point of the Knife into the Body of it, and extract it contained in the Capsula." He laid much stress on this manœuvre and enlarged upon the benefits to be derived from it, as in his second paper before the Royal Society. Sharp continued to advise the removal of the cataract with its capsule, but if this were not always practicable, he believed that the capsule "probably will waste; for, in milky Cataracts, when the Fluid is discharged, the *Membrane* in length of time wastes." Further on, however, he modifies this statement by saying "that probably one cannot always certainly judge at the time of the Operation, whether it [the capsule] be taken away, or whether it remain; for I suppose that the *Membrane* at the time of the Operation may be transparent, and afterwards become thick and opake; and if this conjecture be well grounded, the Operator will not be able to discern it, though it should remain. . . . However, it is a matter of no Consequence, whether the remaining *Capsula* be discernable or not, if it be disposed to waste afterwards, as my experience hitherto has proved it." It is now known that Sharp was mistaken in this, as the capsule does not absorb. Sharp further argues for the use of the curette "in removing the capsula," both after the ordinary

extraction, and after the fluid of a "Bag-Cataract" has been discharged, and also in "detaching the *Chrystalline* from the back part of the *Iris*, when any Portion of it happens to adhere, which Circumstance wou'd render the Operation fruitless, without such a Precaution." Again, the curette is useful "to take away the Fragments of a Cataract when it is in pieces."

The proper length of the corneal incision had become a matter of great concern in Sharp's later experience. "If it be too large," he says, "all the Humours are subject to be voided; if too small, the aqueous and vitreous will rush out upon pressure, and the *Chrystalline* will remain behind. . . . It is therefore a Precaution of the highest Importance, not to exert much force in pressing the Eye, after you have discovered that the Incision of the *Cornea* is too small; but in that case, to enlarge the Wound sufficiently with a convenient pair of Scissars, and then proceed to the Expulsion of the *Cataract*. Could we safely make use of a *Speculum Oculi*, perhaps this Difficulty of making a proper Incision of the *Cornea*, might be diminished; and I am inclined to think, that with due attention, it might be employed; but then it must be contrived so, as that it shall not compress the Globe of the Eye," repeating his former statement in regard to it. Speaking further of the incision he says: "A man that practices this Operation on a dead Body will wonder at the difficulty I have supposed in making this Incision; but when an Eye is in a convulsive Motion, and the Eye-lids are almost shut, as it often happens in the Operation, the Case is very different. The most material Instruction I can give on this head, is to make the first Puncture through the *Cornea* with quickness; because when your Knife is once through the *Cornea*, it gives you some command of the Motion of the Eye; but if you attempt to penetrate the *Cornea* gently and gradually, the Eye, upon the first Sensation of the Puncture, will suddenly retire from the Knife, and the Operator will be apt either to carry it betwixt the *Laminae* of the *Cornea*, or through the *Cornea* upon the *Iris*, either of which Accidents wou'd incommode, if not defeat the Operator."

He again refers to accidents and sequelæ and repeats that he has not had protrusion of the iris through the wound as had happened with Daviel who said "it may easily be replaced by the same Spatula." "It seldom or never happens that the Patient escapes an Inflammation in this method of removing the *Cataract*." Here, probably, Sharp mistook the reaction which normally follows an operative traumatism for an undesirable pathological process.

In some of his cases, however, the inflammation undoubtedly exceeded the "normal" limits. In his opinion "there is one great Evil to be apprehended from a Violent and tedious *Ophthalmy* after this Operation, and that is, an Inflammation of the Iris, which I have seen in two Patients bring on such a Contraction of the Pupil, as in time to close it, and leave no Passage for the Admission of Light. Some alteration in the Shape of the Pupil after this Operation, is exceedingly common; but the mere loss of its circular Form is no impediment to the Sight. This change of Figure in the Pupil is supposed to be owing, either to its sudden dilatation from the rapid Motion of the *Cataract*, when expelled, or to some Violence done to it by the Knife during the Operation; but it is not improbable that the Inflammation of the Iris may also sometimes produce this effect."

Sharp concludes that the operation "is attended with some Difficulties, and some bad consequences; but still the success I have had in performing it, has greatly surpassed that which follows upon Couching, and I should therefore hope, that when the practice of it shall become more familiar, it will prove a useful and happy Invention."

Thus did Sharp, conscious of the advantage of the extraction of the cataractous lens from the eye, and appreciating the value of the essential principles of Daviel's method, give to the world with the utmost candor and humility the facts and results of his experience in a new field of surgery. He had established a great improvement on the beneficent "discovery" of Daviel. Through the *Philosophical Transactions* and his "Critical Enquiry" it was promulgated to the English-speaking world, and through Morand it was made known to France. The greatest interest pervaded profession circles both in England and on the continent, and immediately did the strife begin to invent a knife of best form and size with which to incise the cornea, and to take the place of Daviel's "needles" and scissors. After Sharp and de la Faye's knives, came those of Poyet (1753), la Haye (1755), Bérenger (1756), Tenon (1757), and Pamard (1759), in France, and of Warner (1754) in England, and Thomas Young (1756) in Scotland. Heated discussions arose regarding the comparative value of the different methods of extraction and of the instruments used, and also over the question as to whether couching or extraction yielded the best results. The controversy regarding instrumentation is not closed yet. But the operation of extraction long ago took the supremacy, and in its simplest form it had its

beginnings with Samuel Sharp, the London surgeon. In the capacity of originator he stands but little below the immortal Daviel himself. With an insight, genius, and skill seldom, if ever surpassed, he took Daviel's gift, and without other guide or compass brought the operation of extraction, even in the face of inherent obstacles and difficulties, to a perfection which challenges the most profound admiration. He used the single knife, the form of which was such as might be successfully used to-day, his corneal incision was in accordance with the best notions of the most skilful operators of the present time, except that it was downward instead of upward, he did not excise a portion of the iris, and he endeavored to remove the lens in its capsule, a desideratum still desired by many. He foresaw the needs of the operation, and hinted at improvements which have since been adopted. He was mistaken in a few things, but for the most part he was right. He proved himself a great leader, and, figuratively speaking, he took Daviel by the hand and championed a cause which secured one of the greatest triumphs of modern surgery.

SHARP'S WORK, CHARACTER AND INFLUENCE.

Such then is something of the life and work of one of England's greatest surgeons. In brief, he had great originality, clear insight, and his moral character was unimpeachable. His writings were characterized by clearness, brevity, and simplicity, a style which England lacked at that time. He was an enemy to the mania for authority, and was hostile to routine. His originality, independence, and mechanical talent left their impress on all he said or did. There were few surgical diseases on which he did not put forward new ideas, and in none did he effect such great advancement as in cataract and its treatment. Few, also, were the operations in which the instruments used or procedures followed were not improved. Sir James Paget said:²² he "must have been a thoroughly well-informed surgeon; well read, observant, judicious, a lover of simplicity, wisely doubtful. I think, too, that he must have been an eminently safe man, who might be relied on for knowing or doing whatever, in his time, could be known or done for the good of his patients. In this view I believe he was as good a surgeon as Hunter." D'Arcy Power²³ says that while his works contain nothing that can justly be called pathology,

²²Paget (Sir J.). "The Hunterian Oration." *Lond., 1877*, p. 53.

²³National Biography, xli, p. 415.

or the principles of surgery, nor any sign of a really scientific method of study, yet they are replete with practice and practical procedures. With Cheselden as his master, Warner as his immediate pupil, and Hunter as his "pupil by tradition," Sharp becomes interesting as the connecting link between the old and modern surgery.

Very justly is Sharp thus highly esteemed as a surgeon. But none the less justly may ophthalmologists claim him as one of their most learned and progressive pioneers, and as one of the most brilliant ornaments to ophthalmic surgery. It is fitting, therefore, that his life and work be recalled and a registry made of them in the present-day annals of ophthalmology.

212 FRANKLIN STREET.

