

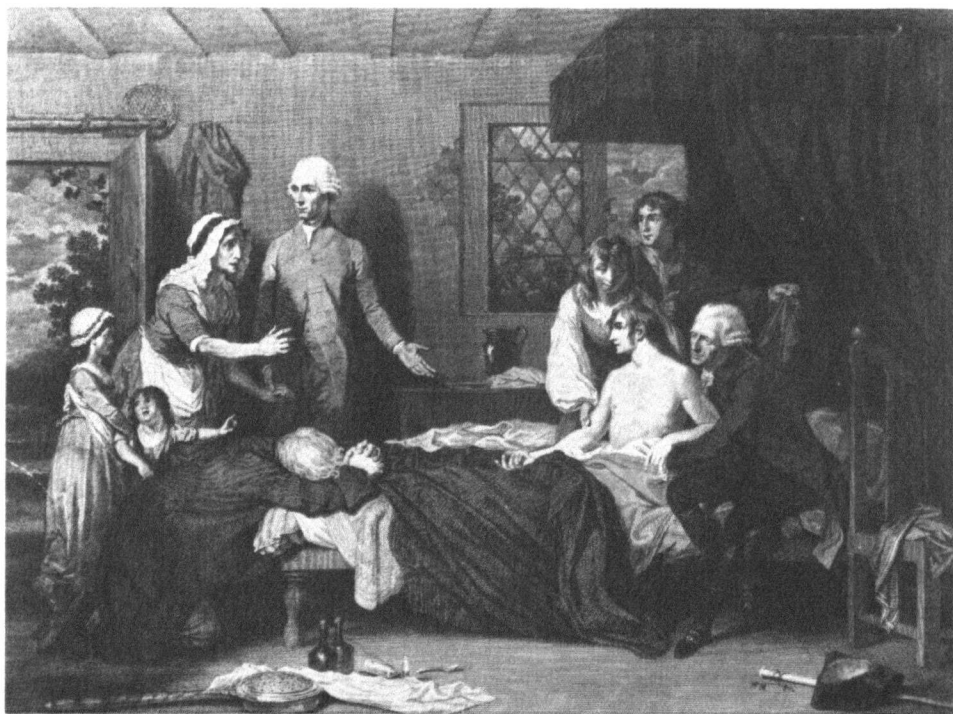
RESUSCITATION

An Historical Perspective



*A Catalogue of an Exhibit at
The Annual Meeting of the American Society of
Anesthesiologists in San Francisco
October 11-13, 1976*

WOOD LIBRARY-MUSEUM, PARK RIDGE, ILLINOIS, 1976



Engraved by Pollard after paintings by Smirke for the Royal Humane Society in No. 31. The upper picture shows a young man drowned. The lower, the young man recovered with Dr. Hawes seated, supporting him, and with Dr. Lettsom showing him to the parents.



Introductory Notes

QUESTIONS about the origin of resuscitation techniques have arisen in the last few years. Various authors have written about individual eighteenth century physicians, recognizing in their writings the germs of our modern ideas regarding ventilation, mouth-to-mouth breathing, and the use of electric shock in resuscitation. We tend to think of these as modern discoveries, not realizing that these techniques were widely discussed in the eighteenth century.

With so many correct concepts, the question arises, why were these techniques accepted, abandoned, and then forgotten for 150 years? There are several reasons, most of which can be gleaned from the books in this exhibit.

The knowledge of physiology had not progressed far enough to separate correct from incorrect ideas. For example, death from drowning was known to be caused by deprivation of air, but the actual mechanism was widely debated. Goodwyn thought that the circulation ceased because the blood was not exposed to the air, thus retaining its venous character, and by contact with the interior of the left heart, stopped its contractile powers. Kite supposed that the stoppage of the motion of the lungs was the immediate cause of the arrest of the circulation, causing a type of "apoplexy." Coleman believed that the collapse of the lungs caused a mechanical impediment to the passage of the blood. All recommended insufflation of air into the lungs (which was the proper thing to do), but for widely different reasons.

Kite recommended the use of electric shock as a test to see if a person could be resuscitated. Coleman, his student and critic, felt that artificial ventilation would be of little use if the heart was not first stimulated by electric shock. And this same divisiveness can be seen throughout most other resuscitation techniques. More confusing yet, many persons seemed to recover when none of the recommended techniques were used.

As one reads these eighteenth century accounts, one finds a mixture of correct and incorrect techniques, particles of gold amidst ounces of dross. No order of priority was given among various

methods—tobacco smoke fumigation per rectum, warming the body, transport to a warm location, search for a medical assistant to conduct the resuscitation attempt, artificial ventilation—all were thought to be of equal value. It is remarkable that as many successful attempts at resuscitation occurred as were reported.

Oxygen wasn't discovered until late in the eighteenth century. In the first editions of Curry and Coleman, the phlogiston theory was used, oxygen in the second. Paradoxically, this discovery contributed to the disuse of mouth-to-mouth respiration. In addition to the indelicacy of the method, it was felt that more oxygen could be given to the patient with a bellows than from respired air.

These are a few of the problems, only the tip of the iceberg. Some of the causes of the failure of these resuscitation ideas were:

1. True stories of resuscitation were inextricably intertwined with the fabulous stories of recoveries after hours and days under water of Winslow and Bruhier.

2. Correct ideas of mouth-to-mouth respiration were mixed with incorrect or less urgent ideas, with no order of priority, leading to failures and loss of confidence.

3. Tobacco smoke fumigation had been recommended from the earliest days of the Amsterdam and Royal Humane Societies. Though condemned by Coleman and finally totally discredited by Brodie, this failure led to decreased confidence in other good techniques.

4. Struve wrote against ventilation, because he said the air preferably would go into the stomach. And with no concept of an obstructed airway, this was frequently true.

5. The discovery of oxygen helped to decrease the use of mouth-to-mouth respiration, as mentioned before.

6. Leroy showed that the use of the bellows could lead to emphysema and tension pneumothorax. This led to the abandonment of the bellows and to the invention of the Dalrymple bandage, and eventually to the manual methods of artificial ventilation of Marshall Hall, Silvester, Shafer and others.

7. Sir Benjamin Brodie and the Royal Humane Society discontinued attempts at ventilation in the early nineteenth century. They said that no one survived after 4-5 minutes under the water no matter what was done, so they recommended the use of warm baths. This idea was resisted by Kay and Erichsen.

So from the period of 1810 to 1840, the correct ideas of resuscitation were discredited, discontinued and then largely forgotten.

It is pleasant to give credit to those who have helped in this exhibit. The Maatschappij tot Redding van Drenkelingen of Amsterdam, spiritual parent of all the humane societies, was founded in 1767 and is still active. The catalogue of their library has been helpful to the collector, and in the formation of this exhibit. The Royal Humane Society celebrated its bicentennial in 1974 and has helped greatly by allowing the loan of one of their original eighteenth century resuscitation kits, here on display. And many of the exhibits are directly related to the Royal Humane Society—books receiving the awards and medals of the Society; broadsides and pocket cards for the instruction of the people; and their *Reports*, extending back over 200 years. Baylor University, the National Library of Medicine and Dr. Lawrence Longo have also contributed books and photographs to aid in the success of the exhibit.

In the exhibit are books from former collectors, collecting long before general interest or knowledge in resuscitation had developed. Included are books from the libraries of Arno Luckhardt, discoverer of ethylene; Cyril Courville, who did the classic work on nitrous oxide anoxia; and Dr. Sanford Kronenberg, contemporary anesthesiologist.

Solomon said, "There is nothing new under the sun," and as the literature of 200 years ago is reviewed, the truth of this aphorism is once again apparent.

K. Garth Huston, M. D.

ILLUSTRATIONS

The illustrations are numbered according to their location in the catalogue. Those on the title-page, p. 4 and the tail-piece on p. 32 are portions of the Broadside, No. 22. The resuscitation apparatus depicted on the back cover is a contemporary illustration of the apparatus on loan from the Royal Humane Society. The two engravings by Pollard on the inside front cover are from the collection of K. Garth Huston, M. D.

Location of Copies

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Resuscitation: an historical perspective

1. THE HOLY BIBLE, London, 1611. The First Edition of the King James Bible, reading "He" at Ruth 3:15.

This classic edition, in everyone's list of the ten most important books ever printed, has much that can be applicable to each of our lives. Appropriate for this exhibit is the record of Elisha in II Kings 4:33-35, in which he restores life to the Shunammite's son by placing "his mouth upon his mouth."

Whether Elisha knew the techniques of resuscitation is only conjecture, but there is little dispute with the statement in Psalms 104:29, "Thou takest away their breath, they die, and return to their dust."

2. VESALIUS, A. *De Humani Corporis Fabrica Libri Septem*. Basel, 1555.

The initial letter Q on pages 255 and 708 shows the chubby cherubs performing a tracheostomy on a sow. The text at the end of the *Fabrica* gives the following explanation, after discussing dissecting the trachea and the effect of pinching the recurrent laryngeal nerves: "But that life may in a manner of speaking be restored to the animal, an opening must be attempted in the trunk of the trachea, into which a tube of reed or cane should be put; you will then blow into this, so that the lung may rise again and the animal take in air. Indeed, with a slight breath in the case of this living animal the lung will swell to the full extent of the thoracic cavity, and the heart become strong . . . for when the lung, long flaccid, has collapsed, the beat of the heart and arteries appears wavy, creepy, twisting, but when the lung is inflated, it becomes strong again . . . And as I do this, and take care that the lung is inflated at intervals, the motion of heart and arteries does not stop. . . ."

There is a legend that Vesalius had to make a pilgrimage to the Holy

Land to avoid execution by the Inquisition, because he had done an autopsy on a Spanish nobleman, and the heart was found to be still beating. He died in a shipwreck at the Island of Zante during the pilgrimage.

3. HOOKE, R. An Account of an Experiment made by M. Hook, of Preserving Animals alive by Blowing through their Lungs with Bellows. *Phil. Trans. Roy. Soc.*, 1667, 2.

By an ingenious use of two bellows connected in tandem and attached to the trachea, Hooke showed in a vivisected dog that the motion of the lungs was not necessary to the circulation of the blood. The description of his experiment was added as an "Extra" to the 28th issue, October, 1667. The whole account takes a page and a half, and is a fascinating contrast in language to the dull reading of modern-day scientific literature.

4. MAYOW, J. *Tractatus Quinque Medico-Physici*. . . . Oxford, 1674.

Mayow, in this great English medical classic, demonstrates in a series of convincing experiments that the dark venous blood is changed to bright red by taking up certain ingredients in the air. He was very close to the actual discovery of oxygen, as he fully grasped the idea that the object of breathing was to cause an interchange of gases between the air and the blood.

5. The Tryal of Spencer Cowper, Esq. . . . Upon an Indictment for the Murther of Mrs. Sarah Stout, a Quaker . . . of which they were Acquitted. With the Opinions of the Eminent Physicians and Chyrurgeons on both sides, concerning Drowned Bodies, delivered in the Tryal. . . . London, 1699.

An important trial where numerous expert witnesses were called to testify concerning death from drowning. Some of the famous London physicians who gave testimony for the defense include Sir Hans Sloane, Dr. Samuel Garth, the surgeon William Cowper (anatomist and plagiarist) and many more. Sir Thomas Browne's *Pseudodoxia Epidemica* was quoted as an authority. The trial started out with damning circumstantial evidence against Spencer Cowper, but at the end, he turned the tables, having letters from the deceased showing her love for him. It was presumed that she committed suicide.

6. [BRUHIER d'ABLAINCOURT, J. J.] The Uncertainty of the Signs of Death, and the Danger of Precipitate Interments and Dissections, Demonstrated . . . with Proper Directions, both for preventing such Accidents, and repairing the Misfortunes brought upon the Constitution by them. . . . Illustrated with Copper Plates, London, 1746.

Anonymous; attributed to Bruhier and *Bibliotheca Osleriana*. It is filled with fabulous stories of people thought to be dead, buried, and who were

HISTORIE
EN
GEDENKSCHRIFTEN
VAN DE
MAATSCHAPPY,
TOT REDDING VAN
DRENKELINGEN,
OPGERECHT BINNEN AMSTERDAM
MDCCLXVII.

EERSTE STUKJE.

TWEEDE DRUK.



TE AMSTERDAM,
By PIETER MEIJER, op den Dam.
MDCCLXVIII.

A
SHORT ACCOUNT
OF A
SOCIETY
AT AMSTERDAM

Instituted in the Year 1767

FOR THE RECOVERY
OF DROWNED PERSONS;

WITH OBSERVATIONS

Shewing the Utility and Advantage that would accrue
to GREAT BRITAIN from a similar Institution

EXTENDED TO

CASES OF SUFFOCATION BY DAMPS IN MINES,
CHOAKING, STRANGLING, STIFLING,
AND OTHER ACCIDENTS :

By ALEXANDER JOHNSON, M. D.

L O N D O N :

Sold by *John Nourse*, in the Strand ; *S. Leacroft*, at Charing-Cross ; *J. Robson*, in New Bond-Street ; *L. Davis*, in Holbourn ; *J. Wilkie*, in St. Paul's Church-Yard ; and *Richardson and Urquhart*, under the Royal-Exchange.

MDCCLXXIII.

really alive. It includes "Measures to be taken for the Relief of those who are thought to be drown'd," and the revision on the resuscitation of the drowned made by Dr. Mead in the fourth edition of his book *On Poisons*, 1745.

7. MEAD, R. A Mechanical Account of Poisons, in Several Essays. . . . London, 1745.

Mead, one of the great 18th century practitioners, and one of the distinguished owners of the gold-headed cane, completely revised the fourth (and last) edition of his book *On Poisons*. He mentioned the work of Bruhier and says: "There are many accounts on record of those, who after having been drowned many hours have been brought to life. This should certainly encourage the use of all means upon such accidents," and he recommends blowing smoke into the intestines, warming the body by shaking, rubbing and rolling it about; and possible venesection "when the blood is warm enough to drop out of the veins."

8. [JACKSON, R.] A Physical Dissertation on Drowning: in which Submersion, commonly call'd Drowning, is shewn to be a long Time consistent with the Continuance of Life. . . . To which is Subjoined, the proper Measure for Recovery and Relief; . . . by a Physician, London, 1746.

A pre-Humane Society publication quoting Winslow, Bruhier and others, of fabulous stories of recovery from death and drowning. A second edition was published in 1747.

9. LOUIS A. Lettres sur la Certitude des Signes de la Mort, où l'on rassure les Citoyens de la crainte d'être enterrés vivans. Avec des Observations & des Expériences sur les Noyés. Paris, 1752.

Further work to determine the certainty of death, similar to Winslow and Bruhier. Louis collaborated with Guillotin in the invention of the guillotine.

10. FOTHERGILL, J. Observations on a Case Published in the last Volume of the Medical Essays, &c. "of recovering a Man dead in Appearance, by distending the Lungs with Air. Printed at Edinburgh, 1744" in *The Works of John Fothergill, M.D.* . . . London, 1784. [Ed. J. C. Lettsom]

Fothergill reports in the *Phil. Trans.* for 1745 the case of a man revived by a surgeon, Mr. William Tossack, who "applied his mouth close to the patient's, and, by blowing strongly, holding the nostrils at the same time, raised his chest fully by his breath. The surgeon immediately felt six or seven very quick beats of the heart . . .," and the patient eventually recovered. Fothergill says, "It has been suggested to me, by some of my acquaintance, that a pair of bellows might possibly be applied with more advantage in these cases, than the blast of a man's mouth; but if any person

can be got to try the charitable experiment by blowing, it would seem preferable to the other, for the following reasons: 1st. As the bellows may not be at hand. 2dly. As the lungs of one man may bear, without injury, as great a force as those of another man can exert; which by the bellows cannot always be determined. 3dly. As the warmth and moisture of the breath would be more likely to promote the circulation, than the chilling air forced out of a pair of bellows."

Lettsom prefaces the article with rules of the Humane Society, and annotates Fothergill's account with cases from the Humane Society records.

11. GUMMER, J. *Dissertatio Medica Inauguralis, de Caussa Mortis Submersorum Eorumque Resuscitatione Experimentis et Observationibus Indagata*. . . Gronigen, 1761.

Inaugural dissertation by Gummer on resuscitation from drowning.

12. ————. *Verhandelinge over het Stikken der Drenkelingen en de Herstellinge der Verrdonkene uit Proeven en Waarnemingen Opgemaakt*. Groninge, 1768.

A further monograph on resuscitation from drowning.

13. *Historie en Gedenkschriften van de Maatschappy, tot Redding van Drenkelingen, Opgerecht Binnen Amsterdam MDCCLXVII*. Amsterdam, 1768.

The society to restore drowned persons was formed by a group of wealthy merchants of Amsterdam in an attempt to aid in the resuscitation of the many drowned in their waterways. Until this time, anyone taken from the water was deemed dead. The Society offered money to those who would follow their rules of resuscitation, and more money if they were successful. The success rate was high, leading to the formation of similar societies throughout Europe. The Amsterdam Society led to the beginning of organized resuscitation efforts and was the spiritual founder of all the other humane societies.

14. *Histoire et Mémoires de la Société, Formée à Amsterdam en faveur des Noyés*. A^o. MDCCLXVII. Amsterdam, 1768.

A French translation of the Dutch edition.

15. *Anleitung wie denen Ertrunkenen zu Rettung des Lebens dienliche Hülfe zu leisten. Auf Hoch-Oberkeitlichen Befehl zum Druckbefördert*, Anno. 1779

and

Luckhardt, A. B. Official "Edict" by the city of Zurich, Switzerland, 1776 A.D. On the Methods of Resuscitation to be Employed on Drowned or Asphyxiated Persons.

Galley proofs for an article in *Bull Instit Hist Med*, 1938, 6, 171. The original "Edict" in a folder with the galley proofs of Arno Luckhardt's translation, and his book-plate.

16. VILLIERS, M. DE. Méthode pour Rappeler les Noyés a la vie, Recueillie des meilleurs Auteurs. Soissons, 1771.

A review and summarization of current ideas of resuscitation from drowning.

17. GARDANNE, J. J. Avis au Peuple, sur les Asphyxies ou Morts Apparentes et subites, contenant les Moyens de les prévenir & d'y remédier. Avec la description d'une nouvelle Boëte fumigatoire portative. Publie par ordre du Gouvernement. Paris, 1774.

Gardanne, with Pia, was active in the development of resuscitation in France. Two elegant plates are included, one of apparatus for insufflation per rectum of tobacco smoke, and the other of a patient being resuscitated with this technique.

18. ———. Catéchisme sur les Morts Apparentes, dites Asphyxies; ou Instruction sur les manieres de combattre les différentes especes de Morts apparentes, par demandes & par réponses, fondée sur l'expérience, & mise à la portée du Peuple. Imprimé et Publié par Ordre du Gouvernement. Paris, 1781.

A very popular publication. Ten editions had been published by 1782, and the States of Burgundy reprinted the tenth ed. at Dijon in 1783 for free distribution throughout the province.

19. PORTAL, A. Observations sur les effets des Vapeurs Méphitiques dans l'Homme, sur les Noyés, sur les Enfants qui Paroissent Morts en Naissant, et sur la Rage. Avec un précis du Traitement le mieux éprouvé en pareils cas. Paris, 1787. 6th edition.

A very long book (492 pages) on several subjects besides drowning.

20. PORTAL, A. Instruction sur les Triatemens des Asphixiés par le Méphitisme; des Noyés; . . . avec des observations sur les causes de ces accidens, et sur les signes de la mort réelle pour la distinguer Noyés, et sur la meilleure méthode de les secourir. Paris, l'An VIII. (—1800.)

A shorter, later version of the book, above.

21. FINE, P. De la Submersion, ou Recherches sur l'Asphyxie des Noyés, et sur la meilleure méthode de les secourir. Paris, l'An VIII. —1800.

French monograph on resuscitation from drowning.

22. [Engraved Broadside] Secours a Donner aux Noyés. N. P., N. D. [French, ca. 1790]

In addition to the French text giving details of resuscitation technique, there are two engravings at the top of the sheet. One shows a young man

being resuscitated, with one rescuer passing a cannula into the larynx, the other holding the bellows. The second shows the young man recovered with his pulse being checked and the bed heated. At the bottom of the sheet is a picture of the laryngeal cannula.

23. BICHAT, X. *Physiological Researches upon Life and Death*. [Trans. Tobias Watkins]. Philadelphia, 1809. First American from second Paris edition.

Important physiological studies in causes of death involving the heart, lungs and brain.

24. LEGALLOIS, M. D. P. *Experiments on the Principle of Life, and Particularly on the Principle of the Motions of the Heart, and on the Seat of this Principle; . . .* Translated by N. C. and J. G. Nancrede, M. D. Philadelphia, 1813.

Legallois, active in the French revolution, was some time in hiding because of his political activities. He was a brutal experimenter but showed the effect of the vagi on the heart, and of an area in the medulla that inhibited breathing. He revived the neurogenic theory of the heart's action. As for resuscitation, he investigated the influence of submersion on newly born animals, and the temperature changes of artificial respiration on brainless animals.

This copy contains the book-plate of Arno Luckhardt. It was a gift from an admiring former pupil.

25. TROUSSEL, J. F. A. *Des Premiers Secours a Administrer dans les Maladies et Accidens qui Menacent Promptement la Vie. . .* Paris, 1823.

Gives treatment for poisoning, asphyxia, suspended animation, etc.

26. *The Gentleman's Magazine*, London, 1771. Vol. XLI, pp. 512-514. "List of Books—with Remarks."

A book report on the first three issues of the French translation of the Amsterdam Society (1768, 1769, 1771), giving the history of the society, methods used in resuscitation, and several representative case histories, and ends, "It is to be hoped, that wherever these extracts shall be read, the same means will be used on the like occasion, with equal perseverance and success." Further cases were reported in 1773, and a two-page preface added before the volume for 1774 which detailed the beginning of resuscitation efforts in England and claimed priority for the magazine in the introduction of these ideas to the public. Occasional cases were reported in succeeding volumes.

27. JOHNSON, A. *A Short Account of a Society at Amsterdam Instituted in the Year 1767 for the Recovery of Drowned Persons; with Observations shewing the Utility and Advantage that would*

M E M O I R S

OF THE

S O C I E T Y

INSTITUTED AT

A M S T E R D A M

IN FAVOUR OF

D R O W N E D P E R S O N S.

For the YEARS 1767, 1768, 1769, 1770, and 1771.

Translated from the Original

By T H O M A S C O G A N, M.D.

Paulatim redit in sensus animamque receptat. LUCRET.

L O N D O N,

Printed for G. ROBINSON, in Pater-noster Row.

MDCCLXXIII.

THE
Transactions
 of the
 ROYAL HUMANE SOCIETY,

Dedicated (by Permission)

TO HIS
Majesty

By W. HAWES, M.D.

Senior Physician to the Surry and London Dispensaries.

Honorary Member of the R.P.S. Ed.

Massachusetts H.S. - Manchester L.P.S. &c.

VOL. I.

Devises



*Printed by In. Nichols and Sold for the Society by Rivingtons,
 Dilly, Johnson & Hookham.*

N

Accrue to Great Britain from a similar Institution Extended to Cases of suffocation by Damps in Mines, Choaking, Strangling, Stifling, and Other Accidents. London, 1773.

The first detailed English report of the Amsterdam Society. Included are reports from many other areas, as well as from Holland. On pp. 9-10, he proposes the formation of a society in England similar to that in Amsterdam.

28. COGAN, T. *Memoirs of the Society Instituted at Amsterdam in Favour of Drowned Persons. For the Years 1767, 1768, 1769, 1770, and 1771.* London, 1773.

The second English translation of the Amsterdam reports, but the first literal translation (Johnson's was more of a paraphrase and summarization). Cogan has a prefatory "Advertisement," saying "This translation was ready for the press when Dr. Johnson's pamphlet, upon the same subject, appeared . . ." and goes on to say that they are different, and that his is a more literal translation. The reading of this book by Dr. Hawes led to the formation of the Royal Humane Society by him and Dr. Cogan in 1774.

29. JOHNSON, A. *Relief from Accidental Death; or, Summary Directions, in Verse, Extracted from the Instructions at Large, . . .* London, 1789.

A photograph of the title-page of one of four small pamphlets by Johnson owned by the National Library of Medicine, the only one in verse. The title-page is used as a modern-day advertisement, reading: "Published by Alexander Johnson, M.D. (Introducer of the Practice into the British Dominions) to divulge and generally establish a successful Treatment for recovering Persons, who meet with Accidents that produce suddenly an Appearance of Death; and to prevent them, or any others, from being buried alive: The Whole accompanied by Explanatory Notes, to shew that the original Practice here set forth, being easy, plain and unconnected with Medical Knowledge, can readily be followed by every Class of Men; that the unlimited benefits to be reaped from it, can only be obtained by extending it to their Exertions; and that they are but partially obtained from the Efforts of a small Number of Medical Assistants, and Country Practitioners, recommended by the several Humane Societies in this Kingdom. Published, like all former Instructions, at the Expence of the Doctor, and given Gratis to all persons desirous of information on the subject, or inclined to promote it."

Johnson was the introducer of the ideas of the Amsterdam Society into England, and first recommended the formation of a similar society in England. And he was correct in trying to pass the knowledge of resuscitation on to all classes, rather than a select few medical assistants who had to be called when an accident occurred. Being human, it must have rankled that Hawes and Cogan received all of the credit, and he was forgotten. There is only a small, one-paragraph obituary of his death in 1799, in *The Gentleman's Magazine*, scarcely mentioning his work in resuscitation.

30. HAWES, W. An Address to the King and Parliament of Great Britain on the Important Subject of Preserving the Lives of Its Inhabitants.

With an Appendix in Which Is Inserted a Letter from Dr. Lettsom to the Author.

To Which Are subjoined, Hints for Improving the Art of Restoring Animation: and also for Administering Dephlogisticated Air . . . by A. Fothergill, M. D. London, 1782.

To have comments by Hawes, Lettsom and Fothergill in one pamphlet makes it a collection of the founding fathers of the Royal Humane Society.

Hawes, as some are still attempting today, was trying to influence Parliament to appropriate money for projects of the Society.

31. Reports of the Humane Society Instituted in the Year 1774 for the Recovery of Persons Apparently Drowned. For the Years M.DCC.LXXXI and M.DCC.LXXII. London, [1782].

An example of one of the early annual *Reports*. This copy contains the bookplate of Arno Luckhardt.

32. Reports of the Royal Humane Society; with an Appendix of Miscellaneous Observations on the Subject of Suspended Animation. . . . For the Years M.DCC.LXXXVII, M.DCC.LXXXVIII, and M.DCC.LXXXIX. London, 1789.

In addition to the usual case reports, there are many extracts and notices of new branch Societies, sermons, books, etc., relating to resuscitation. Much larger than usual volumes.

33. [Broadside] The Royal Humane Society's directions for the recovery of the apparently dead. . . . Stockton, [ca. 1790].

Directions for resuscitation are given, including no. 6, the use of electricity as recommended by Mr. Kite.

34. [Royal Humane Society; M. Pia; and M. Gordanne] Avisos interessantes sobre as mortes apparentes: recopilados da colleção da Sociedade Humana de Inglaterra, das obras de M. Pia, e M. Gardanne. Lisbon, 1790.

Portuguese pamphlet on resuscitation derived from English and French sources.

35. [Broadside] Methodo de restituir a vida a's pessoas apparentemente mortas . . . recommendado pela Sociedade Humana de Londres; . . . Lisbon, 1790.

Portuguese translation of Humane Society's directions.

36. HAWES, W. *The Transactions of the Royal Humane Society*. London, [1796] Vol. I (all published).

The single most important and valuable publication of the Royal Humane Society. It is totally disorganized, but it does contain all of the cases published in the annual *Reports* until 1784, and gives detailed extracts and summaries of advice given by Cullen, John Hunter, Kite, Coleman, Curry—poems, extracts from anniversary sermons, history of the resuscitation movement, reports from other humane societies including from Massachusetts, and much more. It is a mine of information for late 18th century work in resuscitation. It was translated into German in 1798 by Struve.

37. LETTSOM, J. C. *Hints Designed to promote Beneficence Temperance & Medical Science*. London, 1801. 3 vols.

In Vol. II, Section XII is "Hints Respecting Humane Societies, for the Recovery of Drowned Persons." Silhouette portraits of Hawes, Cogan, and A. Fothergill are included as well as history of the Royal Humane Society, methods of treatment, etc. Lettsom was one of those present at the founding of the humane society, was liberal in his gifts to the Society (including a gift to purchase elevating religious literature to give to those rescued, so they could take appropriate advantage of their gift of life). He was treasurer of the society at one time, and editor of the annual *Reports* from the death of Hawes in 1808 until 1813.

38. [Pocket-Card, Royal Humane Society] *The Pocket Companion*. Dr. Hawes earnestly requests that this card may always be at hand, as by the resuscitative process, immediately employed, an immense number of lives will be restored. . . . London, 1806.

Folding pocket-card with directions inside for the resuscitative process.

39. Royal Humane Society. *Annual Report*, 1806. London, 1806.

A copy that belonged to Sir Charles Aldis, surgeon. He received the medal of the humane society for the rescue of a drowned child who had been under water twenty minutes, the details written by Aldis on the inside front cover. Two letters from Dr. Hawes are tipped in, asking him to accept the medal of the society. In a note above his book-plate, he has written, "Sir Charles Aldis dined at the annual dinner in 1840 and took his medal with him being a period of 34 years after having received it. Some few of the old members were present." Another note, written on the inner front cover in his hand, "1808 Dec 15—2 of clock Morning of Monday Dr Hawes died aged 72."

40. A Tribute to the Memory of Dr. William Hawes. *The Gentleman's Magazine*. Dec., 1808. [Extract]

A four-page obituary, detailing his work in the formation of the Royal Humane Society.

41. Annual Report of the Royal Humane Society for the Recovery of Persons Apparently Dead. . . London, 1814.

Contains an engraved frontispiece portrait of Dr. Thomas Cogan and engravings of resuscitation apparatus and other resuscitation materials.

42. VALPY, R. The Anniversary Sermon of the Royal Humane Society, . . . 1802. . . To which is added, an appendix of miscellaneous observations on resuscitation by the society. London, 1802.

The anniversary sermons were gala money-raising occasions. Those who had been resuscitated marched around after the sermon, giving thanks for the saving of their lives. Large sums were raised from the collection taken at the sermon, anticipatory of our modern fund-raising charities such as the March of Dimes.

43. [Announcement] Royal Humane Society . . . Next Sunday Morning, the 12th Instant, The Anniversary sermon will be preached by the Reverend Richard Yates, . . . London, 1807.

Four-page announcements of the Anniversary sermon for 1807.

44. YATES, R. A Sermon Preached at the Anniversary of the Royal Humane Society, . . . With an appendix of miscellaneous and appropriate observations on resuscitation by the Society. London, 1807.

A large paper presentation copy from the author to the Countess of Chichester. The usual sermon, with a summary of resuscitation directions and announcements from the Royal Humane Society.

45. Hunter, J. Observations on Certain Parts of the Animal Oeconomy. London, 1786.

Contains "Proposals for the Recovery of People Apparently Drowned," originally published in *Phil. Trans. Roy. Soc.* for 1776. Hunter advocated ventilation of the lungs with a double bellows he had contrived, constructed so that when used, one action simultaneously threw fresh air into the lungs and sucked out the air thrown in by the former, without mixing them together. And he recommended gently pushing the larynx against the esophagus to prevent air going into the stomach, what might be called a reverse Sellick maneuver.

46. Cullen, W. A Letter to Lord Cathcart, President of the Board of Police in Scotland, Concerning the Recovery of Persons Drowned and Seemingly Dead. London, 1776.

Cullen reviews the work of the Amsterdam Society, with the main emphasis on artificial ventilation. When blowing air into the mouth or nose is not satisfactory, he says: "Dr. Monro informs me, it is very practicable to introduce directly into the glottis and trachea a crooked tube, such as the catheter used for a male adult. For this he offers the following directions: The surgeon should place himself on the right side of the patient, and in-

THE
CONNEXION OF LIFE
WITH
RESPIRATION;
OR, AN
EXPERIMENTAL INQUIRY
INTO THE EFFECTS OF
SUBMERSION, STRANGULATION,
AND
SEVERAL KINDS OF NOXIOUS AIRS,
ON
LIVING ANIMALS:

WITH
An ACCOUNT of the NATURE of the DISEASE they
produce; its Distinction from Death itself;
and the most effectual MEANS of CURE.

By EDMUND GOODWYN, M.D.

Arteria animam accipit à pulmonibus. CICERO.

L O N D O N :

Printed by T. SPILSBURY, Snow-hill,
For J. JOHNSON, in St. Paul's Church-yard.
1788.

A N
E S S A Y
ON THE
R E C O V E R Y
OF THE
APPARENTLY DEAD.

By CHARLES KITE,

Member of the Corporation of Surgeons in London,
and Surgeon at Gravesend in Kent.

Being the Essay to which the Humane Society's Medal was adjudged.

To which is prefixed,

DR. LETTSOM'S ADDRESS
ON THE DELIVERY OF THE MEDAL.

Pallentes. hac animas ille evocat Orco VIRG.

L O N D O N :
PRINTED FOR C. DILLY IN THE POULTRY.
M,DCC,LXXXVIII.

roducing the forefinger of the left hand at the right corner of the patient's mouth, he should push the point of it behind the epiglottis; and using this as a directory, he may enter the catheter, which he holds in his right hand, at the left corner of the patient's mouth, till the end of it is passed beyond the point of his forefinger; and it is then to be let fall, rather than pushed into the glottis; and through this tube, by a proper syringe attached to it, air may be with certainty be blown into the lungs." He also mentions bronchotomy (tracheostomy).

Cullen's original letter is in the Edinburgh University Library. It was published in *Journals of the Board of Police*, 1774, and separate editions at London, 1776; Edinburgh, 1784; and London, 1791.

47. PRIESTLEY, J. *Experiments and Observations on Different Kinds of Air*. London, 1774-77. (3 Vol.)

Priestley, a dissenting minister, was an earnest inquirer into all the wonders of nature and philosophy. This encompassed an in-depth study of various kinds of air—including the isolation of "deflogisticated air" or oxygen. He observed in Volume 2, "Who can tell but that in time, this pure air may become a fashionable article in luxury. Hitherto only two mice and myself have had the privilege of breathing it."

48. LAVOISIER, A.-L. *Elements of Chemistry, in a New Systematic Order, Containing All the Modern Discoveries*. Translated from the French by Robert Kerr. Edinburgh, 1799.

Lavoisier is said by some to be the father of modern chemistry. This results from his evidences against prevalent phlogiston theory and the introduction of his theory of oxidation. He came very close to understanding the true nature of respiration, and he was the first to label Priestley's dephlogisticated air as "oxygen." His effort in other areas resulted in the guillotine in 1794.

49. GOODWYN, E. *Dissertatio Medica Inauguralis, de Morbo Morteque Submersorum Investigandis*. Edinburgh, 1786.

Inaugural dissertation of Edmund Goodwyn, containing the preliminary investigations for his *Connexion of Life With Respiration*.

50. ———. *The Connexion of Life with Respiration; or, an Experimental Inquiry into the Effects of Submersion, Strangulation, and several Kinds of Noxious Airs, on Living Animals: with an Account of the Nature of the Disease they produce; its Distinction from Death itself; and the most effective Means of Cure*. London, 1788.

An expansion of his dissertation of 1786 for which he received the gold medal of the Humane Society. A pioneering, very important work, emphasizing the importance of ventilation in resuscitation. This copy is bound with Kite's book, and has the label of the Lancashire Humane Society on the front cover.

51. GOODWYN, E. *La Connexion de la Vie avec la Respiration* ... [Trans. J. N. Hallé]. Paris, An VI — 1798.

A French translation.

52. [Mayow, J.] *Chemical Experiments and Opinions Extracted from a Work Published in the Last Century*. [Trans. T. Beddoes] Oxford, 1790.

This is the first detailed English commentary on Mayow, and the first to emphasize the resemblance of some of Mayow's views to those of Lavoisier. A partial translation of no. 4 in this catalogue.

Translated by Thomas Beddoes, English pneumatic physician, and dedicated to E. Goodwyn, author of *The Connexion of Life with Respiration*. He mentions receiving Goodwyn's mss, and being almost responsible for its loss, through a series of mishaps. He had originally planned a note on Mayow for Goodwyn's book, but because of its scarcity and his inability to find a copy save for the one in the Bodleian, he had not done it. His comment on the Bodleian is interesting: "I had only seen it (Mayow) in our Public Library, where the Demon of Frost, in league with such jealous regulations as the mature experience of Gottingen and Edinburgh has shewn to be unnecessary to the preservation of books, deprives us of a great part of the benefit it might afford, if our statutes a little less resembled, in the most abominable quality incident to human institutions, the laws of the Medes and Persian."

53. KITE, C. *An Essay on the Recovery of the Apparently Dead*. London, 1788.

This essay received the silver medal of the Humane Society. Kite also recommends the use of artificial ventilation and the use of electric shock. There are impressive folding tables for further research into treatment for drowning and two folding plates of resuscitation apparatus, including a third plate showing the apparatus for electric shock.

54. ————. ————. Leipzig, 1790.

A German translation by Dr. Christian Friedrich Michaelis.

55. KITE, C. *On the Submersion of Animals; its Effects on the Vital Organs; and the Most Probable Method of Removing Them*. *Mem. Med. Soc. London*, 1792, III, 215-308. (Read Jan. 10, 1790)

A further development of Kite's views contra Goodwyn, both having some right and some wrong concepts: Goodwyn thought that respiration was necessary because of a chemical substance transmitted to the blood that was necessary for life, while Kite felt that it was the respiratory motion that was essential to prevent "an apoplexy of the brain." However, Kite did emphasize the importance of immediate artificial respiration (p. 278) while Goodwyn made warming the body of first importance.

56. COLEMAN, E. A Dissertation on Suspended Respiration, from Drowning, Hanging, and Suffocation: In which is recommended a different Mode of Treatment to any hitherto pointed out. London, 1791.

Prize winner in Royal Humane Society essay competition. He recommends insufflation of lungs and electrical stimulation of the heart. He condemns insufflation of tobacco smoke per rectum, and is criticized by Hawes, Cogan, and others. He is highly critical of the views of Dr. Kite, his former teacher.

57. ———. A Dissertation on Natural and Suspended Respiration. London, 1802. 2nd Edition.

Terminology changes from "phlogiston" of the first edition to "oxygen" in the second edition. He is much kinder personally to Dr. Kite in his criticisms. There is some variation in order of the two editions, but the text is essentially the same.

58. CURRY, J. Popular Observations on Apparent Death from Drowning, Suffocation, &c. with an Account of the Means to be Employed for Recovery. Drawn up at the Desire of the Northamptonshire Preservative Society. Northampton, 1792.

Dr. Curry combines current ideas with a lucid style, and gives an excellent summary of current resuscitation concepts. This copy is a presentation copy from the author and passed through the libraries of Arno Luckhardt (discoverer of ethylene) and Cyril Courville, who wrote the classic paper on Nitrous Oxide anoxia. Printed in an edition of 500 copies.

59. ———. Observations on Apparent Death from Drowning, Hanging, Suffocation by Noxious Vapours, Fainting-Fits, Intoxication, Lightning, Exposure to Cold, &c. &c. and an Account of the Means to be Employed for Recovery. . . . London, 1815. 2nd Ed.

An expansion of the first edition of 1792. The Phlogiston theory has changed to oxygen, reflecting Lavoisier's discoveries. Plate V shows a sagittal section of the head and neck with a silver cannula inserted into the trachea, and a "flexible" tube inserted into the esophagus, with the "ivory slider" or "stopple pushed down to occlude the esophagus."

60. [Hamilton, R.] Rules for Recovering Persons Recently Drowned: in a Letter to the Rev. George Rogers, A. M. Rector of Spraghton, in Suffolk. London, 1794. 23, [1] pp.

After several drownings in the area, he gives rules to follow to resuscitate drowned persons. But he cautions: "The public ought not, however, to expect success on every occasion, even when the best means are used.—Cases will occur where life cannot be recalled, and where want of success does by no means prove want of skill. . . ."

61. FOTHERGILL, A. A New Inquiry into the Suspension of Vital Action, in cases of Drowning and Suffocation. Being an Attempt to Concentrate into a More Luminous Point of View, the Scattered Rays of Science, Respecting that Interesting though Mysterious Subject. To Elucidate the Proximate Cause, to Appreciate the Present Remedies, and to Point Out the Best Method of Restoring Animation. Bath, 1795.

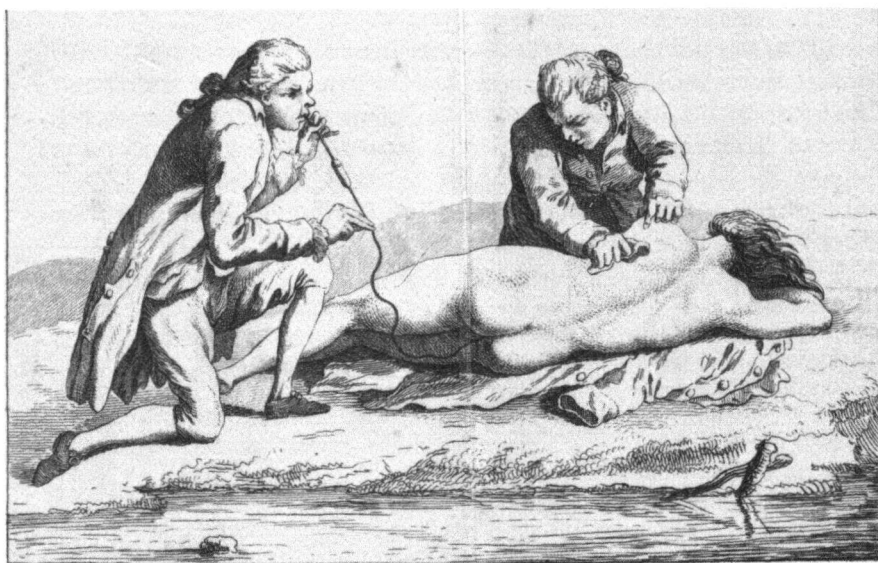
Gold medal prize winner of the Royal Humane Society. He draws conclusions from the experimental work of others, rather than "adding to the number of (brute) victims." In an explanation, he refers to the experimental work of a foreign scientist who performed 6000 experiments on live animals attempting to determine whether poisons act on nerves or on the blood, and then concluded that he couldn't tell because his experiments were still too few to afford demonstration. An excellent general summary of the resuscitative belief current at the time. He says (p. 112) "Therefore, in every case of vital suspension, the Primary Object is to institute Artificial Respiration till the Natural Breathing can be re-established"; and (p. 117) "The operation of inflating the lungs completely, demands considerable address; and as it constitutes the most important part of the process it were to be wished that not only medical pupils of all denominations, but also some other intelligent persons, in every parish, were fully instructed how to perform it with dexterity." A 2nd ed. published 1795 and a 3rd ed. ca. 1796.

62. HERHOLDT, J. D. and RAFN, C. G. An attempt at an Historical Survey of Life-saving Measures for Drowning Persons and Information of the Best Means by Which They Can Again Be Brought Back to Life. Copenhagen, 1796. [Aarhus, 1960]

A photographic reprint of the 1796 Danish edition arranged for by Henning Poulsen in honor of the tenth anniversary of the founding of The Scandinavian Society of Anaesthesiologists. For his English colleagues, he arranged for the English translation by Mr. Donald W. Hannah and Mr. A. Rousng. Herholdt and Rafn summarized the knowledge accumulated over more than twenty years research by the humane societies.

63. STRUVE, C. A. A Practical Essay on the Art of Recovering Suspended Animation: Together with a Review of the most Proper and Effectual Means to be adopted in Cases of Imminent Danger. London, 1801.

Struve had written to Lettsom earlier requesting materials about the Royal Humane Society. This resulted in an essay in German on resuscitation. This was translated into English. The English translator apologizes for his translation by saying "The Translator can offer no other apology for any imperfections, than that this was his first attempt; and that his friends have, perhaps, not used the pruning knife with sufficient severity. Besides, the German style of Dr. Struve is frequently obscure, or ambiguous, and



[17]



[4]

A
NEW INQUIRY

INTO THE

SUSPENSION OF VITAL ACTION,

IN CASES OF

DROWNING AND SUFFOCATION.

Being an Attempt to concentrate

Into a more luminous point of view, the scattered rays of Science,

Respecting that

INTERESTING THOUGH MYSTERIOUS SUBJECT.

TO ELUCIDATE THE PROXIMATE CAUSE,

TO APPREHEND THE PRESENT REMEDIES, AND

TO POINT OUT THE BEST METHOD OF RESTORING ANIMATION.

By *A. FOTHERGILL*, M.D. F. R. S.

Member of the Royal College of Physicians,

Honorary Member of the Medical Societies of LONDON,

EDINBURGH, and PARIS: Also of the

Philosophical Societies of MANCHESTER, PHILADELPHIA, &c.

*Vita brevis—Ars longa—Occasio præceps—Experientia fallax—
Judicium difficile! Hipp. Aph.*

BATH:

Printed by S. HAZARD, and sold by Rivingtons, Dilly, Johnson, and
Hookham, LONDON: and all other Booksellers. 1795.

abounds with repetitions, many of which have been carefully avoided."

Letters to Lettsom from Struve are in Vol. III of Pettigrew's biography of Lettsom.

64. ————. ————. Albany, 1803.

An American reprint, line-for-line and page-for-page.

65. PARR, B. The London Medical Dictionary; Including under Distinct Heads Every Branch of Medicine, viz. Anatomy, Physiology, and Pathology, the Practice of Physic and Surgery, Therapeutics, and Materia Medica; with whatever Relates to Medicine in Natural Philosophy, Chemistry, and Natural History. London, 1809. 2 vols.

A very extensive, monumental work which represents an enormous amount of research and industry. The plates were taken from the leading works of the day. Under *Submersio, Drowning*, he gives a good review of current ideas of resuscitation. And in the plates at the end of Vol. I of surgical instruments, plate 5 is a large folding plate of the resuscitation apparatus of the Royal Humane Society.

66. BOSWORTH, N. The Accidents of Human Life; with Hints for Their Prevention, or the Removal of their Consequences. London, 1813.

A book written for young people. Chapters 6-8 have to do with accidents from water, Chapter 7 discussing the Royal Humane Society. Several letters about the book between Bosworth and Lettsom are included in Pettigrew's 3-volume biography of Lettsom. An American edition was printed in New York in 1814 with an American interest, giving the resuscitation directions of the New York Humane Society.

67. MOORE, J. W. Directions for Restoring Suspended Animation and for Counteracting the Effects of Poisons. Dublin, 1815.

A small 35-page pamphlet giving first-aid directions on how to handle such medical emergencies as drownings and poisonings. He quotes from the 1815 2nd Ed. of Curry and from Orfila.

68. [Anon.] A Popular Treatise on Accidents, &c. for the use of Persons Residing at a Distance from Medical Assistance. Glasgow, 1823.

The section on "Asphyxy" (pp. 56-74) makes the following statement: "The most important part of the process, is inflation of the lungs. Having removed any water that may be found in the mouth or nostrils, this may be performed, by a bystander applying his mouth to that of the drowned, and having secured the nostrils, making a full expiration. This ought to be frequently repeated, alternately expanding and depressing the chest, so as to imitate the natural process of respiration.

"This method is by far the simplest and most ready. Some, however, have

objected to the indelicacy of the operation, as if such a consideration should have any weight on such an occasion. Others say, that we use air deteriorated already, by being in the lungs of another person. But this deterioration is rather a supposition than a reality, since by a very simple experiment, any one may convince himself, that the same body of air may be respired several times, without any sensible inconvenience."

69. ORFILA, M. P. *Secours a Donner aux Personnes Empoisonnées ou Asphyxiées; Suivis des moyens propres à reconnaître les poisons et les vins frelatés, et à distinguer la mort réelle de la mort apparente*; . . . Paris, 1818.

Pp. 158-194, on different kinds of asphyxia and their treatment. On p. 163-64 is mentioned intubation of the larynx with a Chaussier tube.

70. ———. *Directions for the Treatment of Persons who have taken Poison, and Those in a State of Apparent Death; . . . also, of Distinguishing Real from Apparent Death. . . .* Translated from the French by R. H. Black, Surgeon. With an Appendix, on Suspended Animation and the Means of Prevention. London, 1818.

Orfila's book was translated into Spanish in 1818 as well as twice in English, by H. R. Black and W. Price. A second edition of Black's translation was published in 1820. Chaussier's tube is pictured on p. 156, with information where it could be purchased in London.

71. REECE, R. *The Medical Guide, for the Use of the Clergy, Heads of Families, and Practitioners in Medicine and Surgery. Comprising a Domestic Dispensatory, and Practical Treatise on the Symptoms, Causes, Prevention, and Cure, of the Diseases Incident to the Human Frame; with the Latest Discoveries in Medicine.* London, 1820. The 13th Edition.

Pp. 100-108, "Of Suspended Animation, and the Means of Recovery." Dr. David C. Schechter points out that a Dr. De Sanctis devised one of the earliest portable batteries, known as the "Persile Galvanic Pile." The patient was placed in a resuscitation chair, a silver tube in the larynx (attached to a small bellows) and a non-flexible metallic tube into the stomach, used to pass stimulating liquids (ether). Also, one end of the galvanic pile was attached to the stomach tube, the other end placed over various external surfaces, particularly about the heart, for electric shock.

72. WHITER, W. *A Dissertation on the Disorder of Death; or that State of the Frame under the Signs of Death called Suspended Animation; to which Remedies have been sometimes successfully applied, as in other Disorders, in which it is recommended, that the same Remedies of the Resuscitative Process should be applied to cases of Natural Death, as they are to cases of Violent Death,*

Drowning, &c. under the same hope of sometimes succeeding in the attempt. Norwich, 1819.

Lloyd Stevenson recently called attention to this book in "Suspended Animation and the History of Anesthesia." He notes that Whiter suggested doing surgical operations while people were in a state of "suspended animation." Whiter briefly mentions Coleman, Kite, Goodwyn, A. Fothergill and Cullen and gives more speculation regarding the use of electricity, mentioning some of the current experiments on cadavers, animals, etc.

73. SIRACUSA, V. *Trattato Completo della Morte Apparente per Sommersione*. Naples, 1827.

An Italian treatise on resuscitation, mentioning Fothergill, Goodwyn and Kite. An interesting plate of resuscitation apparatus.

74. *The Institution of the Humane Society of the Commonwealth of Massachusetts: With the Rules for Regulating Said Society, and the Methods of Treatment to be Used with Persons Apparently Dead: With a Number of Recent Cases Proving the Happy Effects Thereof*. Boston, 1788.

This fledgling Society, closely patterned after the Royal Humane Society, was now ready to disseminate the "rules for the regulation of a Society instituted in the town of Boston for the recovery of persons who meet with such accidents as produce in them the appearance of death."

Their methods included chiefly warming, stimulation by rubbing the skin and by blowing tobacco smoke into the fundament. There is, however, in a short case report, mention of the value of breathing "forcibly into the mouth, and continue this act until he should recover, or become cold. . . ."

75. LATHROP, J. *A Discourse, before the Humane Society, in Boston: Delivered on the Second Tuesday of June, 1787*. Boston, 1787.

The first annual discourse before the Mass. Humane Society. In his discourse, he traces the history of the development of the humane societies, starting with Amsterdam, in 1767; and giving general principles of resuscitation. In an Appendix is given a history of the beginnings of the Mass. Humane Society, followed by Methods of Treatment to be used for drowned persons, and ends with a list of members. The annual discourses were given between 1787 and 1817. Most of them were printed.

76. *The Wonderful Monitor: or, Memorable Repository, containing a curious and most astonishing Account of the Revivication of young Jo. Taylor*. Boston, 1788.

The first of several editions printed. The story of a young man condemned to be hanged for highway robbery, and how a doctor revived him afterwards, using the principle of the Mass. Humane Society.

77. WATERHOUSE, B. *The Botanist. Being the Botanical Part of a Course of Lectures on Natural History. Delivered in the University at Cambridge, Together with a Discourse on the Principle of Vitality.* Boston, 1811.

The second edition of "The Principle of Vitality," the annual lecture for the Mass. Humane Society for 1790. In the preface to the second edition, Waterhouse tells of a boating accident in 1782 which caused the death from drowning of several young people. At that time, he attempted the formation of a humane society, without success. In 1785, Dr. Henry Moyes, the celebrated blind philosopher of Edinburgh, was visiting Boston. Waterhouse related the story of the young people to him while they were sailing through Newport harbor. Dr. Moyes immediately committed to paper a plan for a humane society, communicated this to a small group of people in Boston, and the Mass. Humane Society was formed. Due to internal frictions (which possibly was why he was not successful before), Waterhouse was never active in the society.

78. ROBBINS, CHANDLER. *A Discourse Delivered Before the Humane Society of the Commonwealth of Massachusetts, at Their Semiannual Meeting June 14, 1796.* Boston, Thomas Fleet, 1796.

Even though the meetings of the Humane Society were only held semi-annually, they were elaborate public gatherings to solicit funds, disseminate information, and to listen to a lecture—often given by the leading clergy of the area. Reverend Robbins chose as his text Proverbs 17:17, "A friend loveth at all times, and a brother is born for adversity."

A committee was appointed "to wait on the Reverend Robbins and return him thanks of this Society for his ingenious and pathetic discourse. . . ."

The annual discourses originally were to alternate between the clergy and medical men. Some of the better scientific discourses were given by the clergy.

79. CARY, S. *An Address to the Members of the Merrimack Humane Society at their Annual Meeting in Newburyport, Sept. 2, 1806.* Newburyport, 1806.

Typical anniversary sermon, with two poems about resuscitation, approved methods of resuscitation, and a list of members at the end. There was another edition issued this same year.

80. COLHOUN, S. *An Essay on Suspended Animation.* Philadelphia, 1823.

A survey of the causes and treatment of asphyxia, with details of 63 personal experiments pp. 111-176.

81. WELCHMAN, E. *Observations on Apparent Death, from Suffocation, by hanging or drowning; Choke Damp, Produced by In-*

haling Carbonic Acid, or some other Irrespirable Exhalation; by a Stroke of Lightning or Electricity; and by Exposure to Extreme Cold; with Directions for Using the Resuscitating Apparatus, invented by the author, and General Instructions for the Recovery of Persons from Suspended Animation. New York, 1842.

His invention consisted of a double bellows placed one above the other; the inferior one was for inflation of the lungs, the superior for removing the air previously introduced. The bellows operated simultaneously, requiring only one hand for operation. Welchman was a member of the Royal College of Surgeons, London.

82. LEROY d'ETOILLE, J. *Recherches sur l'Asphyxie. Jour. Phys.*, 1827.

Leroy invented a two-bladed instrument to aid in the insertion of a laryngeal tube by the ability to control the direction of its tip. He also invented a limiting mechanism for the bellows, to enable given amounts of air to be inflated, after he noticed at post-mortem where bellows had been used for inflation, that emphysema and tension pneumothorax were not uncommon. This research led to the abandonment of bellows in resuscitation kits. He advocated chest and abdominal compression, leading to the Dalrymple bandage (1831) and eventually to the development of manual methods of artificial ventilation.

83. KAY, J. P. *The Physiology, Pathology, and Treatment of Asphyxia: Including Suspended Animation in New-Born Children—and from Drowning—Hanging—Wounds of the Chest—Mechanical Obstruction of the Air-Passages—Respiration of Gases—Death from Cold, &c. &c.* London, 1834.

Contains a long, introductory letter to the Duke of Northumberland, president of the Royal Humane Society, giving a history of resuscitation up to Leroy and Dalrymple. He gives extensive researches of his own. He is very good, clear, but with still some wrong physiological concepts. Most of his recommendations were included in subsequent Royal Humane Society directions.

84. ERICHSEN, J. E. *An Experimental Inquiry into the Pathology and Treatment of Asphyxia.* London, 1845.

Erichsen received the Fothergillian Gold Medal from the Royal Humane Society for this essay in 1845. He covers the history of methods used for resuscitation, mentioning Goodwyn, Kite, Coleman, Haller, Kay and others. In treatment, he recommends artificial ventilation in opposition to warm baths, etc., of Sir Benjamin Brodie and the Royal Humane Society. He advocates the use of oxygen in artificial ventilation, mentioning extensively the work of George Wilson. Erichsen's work was based on scholarly experimental investigations, and may be considered one of the early cornerstones of experimental work dealing with asphyxia.

85. WILSON, G. On the Employment of Oxygen as a Means of Resuscitation in Asphyxia, and Otherwise as a Remedial Agent. Edinburgh, 1845.

This paper was referred to extensively by Erichsen in his Fothergillian Gold Medal Essay.

86. WATERTON, C. Wanderings in South America, the North-west of the United States and the Antillies in the years 1812, 1816, 1820 and 1824. London, 1825.

The purpose of Waterton's first journey was to "collect a quantity of the strongest Wourali poison" or curare as it would be called today, and to study some of its effects. The question of an antidote was asked of the Indians, and they had some—. One suggestion was, "It is supposed by some that wind, introduced into the lungs by means of a small pair of bellows would revive the patient, provided the operation be continued for a sufficient length of time. It may be so; but this is a difficult and tedious mode of cure, and he who is wounded in the forest, far away from friends, or in the hut of the savages, stands but a poor chance of being saved by it."

He then proceeded in his return to England to try this mode of treatment on a she-ass who had received the Wourali. The inflation of the lungs "saved" the ass from final dissolution, but her constitution was so severely affected, that it was long a doubt if ever she would be well again."

87. DICKENS, C. "Apparent Death" in *All the Year Round*, New Series, Vol. I, No. 31 (Saturday, July 3, 1869), pp. 109-114.

A contribution in Dickens's weekly journal, in which he is concerned about people being prematurely buried while still alive. He advocates the use of atropine drops in the eye with the use of a camera obscura containing a strip of photographic paper which will unroll slowly for 25-30 minutes—if there is no dilation of the pupil on the paper, the person is presumed to be dead.

88. SNOW, J. On Chloroform and Other Anesthetics: Their Action and Administration. Edited, with a Memoir of the Author, by Benjamin W. Richardson. London, 1858.

Truly modern anesthesia owes a great debt to John Snow, as is evidenced by this magnificent monograph, published shortly after his death.

Among the areas detailed here is a listing of the Fatal Cases of Inhalation. We all know of the first case—Hannah Greener—but it is the second case from Cincinnati on February 23, 1848, that is of interest. The patient, Mrs. Martha G. Simmons, was having an anesthetic for the extraction of teeth. As the procedure ended, she became pale, then livid, then ceased to breathe. The dentist's only treatment was to "send out for restoratives," while the patient was kept sitting in the chair for from five to ten minutes. It is truly the hope of those who prepared this exhibit that the viewers might learn more than to "send out for restoratives" in such a situation.

Elizabeth Blackwell, America's first female physician, was the owner of this copy.

89. HALL, M. Prone and Postural Respiration in Drowning and other Forms of Apnoea or Suspended Respiration. London, 1857. [Edited by his son, Marshall Hall, Jr.]

Gives details of Marshall Hall's method of artificial respiration, also called the "ready method." On pp. 153-162, Marshall Hall reviews some of Snow's work with chloroform, and a letter of Snow's is given where Hall's method of artificial respiration is used for a patient who had an overdose of an anesthetic.

90. HOWARD, B. Plain Rules for the Restoration of Persons Apparently Dead from Drowning, as Taught under the Auspices of the Metropolitan Board of Health of the City of New York. New York, 1869.

Benjamin Howard's method of artificial ventilation is taught for resuscitation from drowning.

91. [Schäfer] An Inquiry into the Phenomena Attending Death by Drowning and the Means of Promoting Resuscitation in the Apparently Drowned. London, 1904.

A study done for the Royal Medical and Chirurgical Society of the most efficient method of artificial respiration. In the discussion at end, Dr. Silvester (of the Silvester method) rebuts many points in Schäfer's experimental design. This was the common method of prone pressure artificial respiration taught to boy scouts and advocated by the Red Cross until Holger Neilson's method was discovered in 1932, and accepted in the U.S. in 1935.



ERRATA

BECAUSE of the procrastination of the Editor, the late arrival of the manuscript to the printer, and the subsequent lack of time for further proofreading, the following typographical errors slipped through:

Inside front cover, line 2. *For* No. 31 *read* 1787.

Page 4, bottom line. *For* had *read* was required.

Page 5, line 41. *For* and *read* in.

Page 8, line 19. *For* Measure *read* Measures.

Page 9, line 35. *For* Druckbefört *read* Druck befördert.

Page 10, line 8. *For* por *read* par.

Page 10, line 26. *For* Triatemens *read* Traitemens.

Page 10, lines 29, 30. Omit. Correct reading: de celle qui n'est qu'apparente. Paris, L'An de la Republique. [1796].

Page 11, line 24. *For* Promplement *read* Promptement.

Page 15, line 15. *For* M.DCC.LXXII. *read* M.DCC.LXXXII.

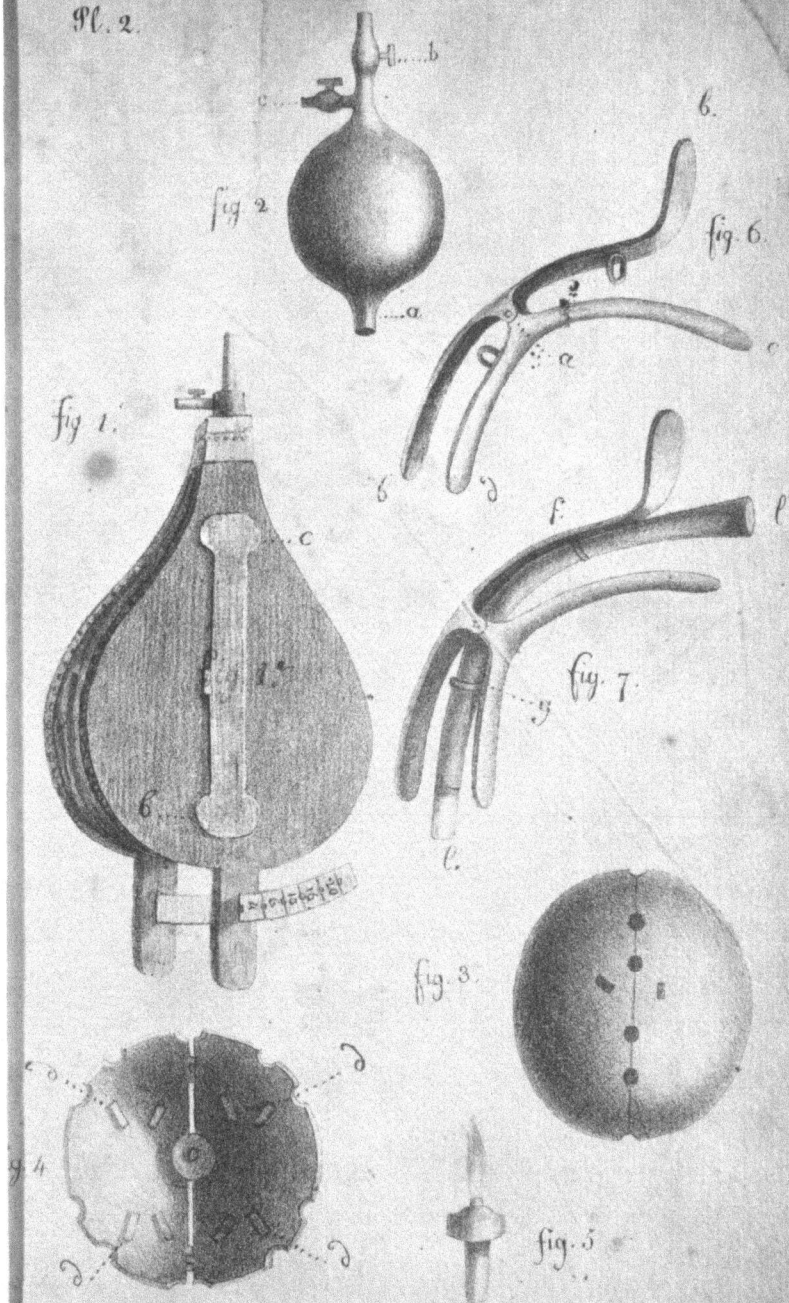
Page 15, line 29. *For* Gordanne *read* Gardanne.

Page 17, line 16. *For* announcements *read* announcement.

Page 22, line 33. *For* esophogus *read* esophagus.

Page 27, line 30. *For* Persile *read* Pensile.

Page 31, line 28. *For* these *read* there.



del

Lith. de Langhans

