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ANNALS OF MEDICAL HISTORY

VOLUME II

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ANNALS OF MEDICAL HISTORY



VOLUME II

SPRING 1919

NUMBER I

ANATOMISTS IN SEARCH OF THE SOUL

By GEORGE W. CORNER, M.D.

University of California

BERKELEY, CAL.

HAVEN lay about us in the infancy of our race. When the mind's eye of the tribesman first opened upon a world of mystery, to him the haunts of good and evil spirits lay no farther away than the jungle just beyond his hut. The jungle explored, the river followed to its head, mountain summits still remained untrodden, and here for a while dwelt the gods. Olympus at last ascended and found to be a vacant peak, the mountain-climber came down, his disappointment forgotten, to tell of gazing across a vast ocean and of the Blessed Isles which seemed to lie therein, beyond the setting sun; and when mariners returned without news of such far shores, there were still the stars and the sun-god's chariot of fire, beyond the reach of any mortal traveler.

So with the inward mystery of man's life; at first a mere wraith of fancy or of fear, a vague image of the body it inhabited, the spirit could wander inde-

pendently of the flesh, and oftentimes must be confined by bonds of linen to prevent its imminent escape through the gash of a desperate wound, or be held down with weights of iron upon the head. But even here, as into the jungle, the explorer came, and began an unending search for an ever-receding goal, a search which like that other led at first through regions nearest home; for two thousand years the pious hands of anatomists sought the springs of life in the tissues of animals, and even attempted to find in the bodies of the dead the organic seat of man's immortality.

The first civilized dissectors were those Sumerian priests and haruspices who drew auguries from the viscera of sacrificial animals. In this widespread rite it was the liver especially in which the omens were sought; while in the earlier thought of the races which practiced it, Assyrians, Hebrews, and Greeks, the liver was also considered the seat of life, of heat, and of whatever higher faculties distinguished man from the animals, and animals from lower

nature. The Psalmist literally said "The liver of the righteous man shall be made fat." . . . "My liver shall sing praise to Thee and not be silent." The learned studies of Professor Jastrow suggest, indeed, that it was because of the importance attached to this organ as of sacred function, that the rite of liver-searching became so general and finally led, its original significance forgotten, to the immolation of animals with the more elevated conception of vicarious sacrifice. How in the first place the liver earned such important rank among the tissues, takes us perhaps into too dark a region of primitive symbolism, but where the philologist did not tread, a casual wanderer in this field may rashly enter.

Primitive man, opening the abdomen of a beast, saw much that explained itself. The stomach, the intestines, the kidneys, bespoke their own functions by their very contents or their connections, and being understood, were no cause for wonder. But the liver—largest and heaviest mass of all, blood-hued, and as it seemed, the source of all the veins; with spreading lobes and the strangely colored vessel of gall—offered an inviting mystery, and could not fail to be the seat of faculties less ignobly comprehensible than mere emunction or digestion. Was it not, then, the source of the blood, of bodily warmth, of life itself?

Centuries later, with the practice of dissection as a scientific method, other regions of the animal body were laid bare, and heart and brain began to present new mystery and new opportunity for the seeker of souls. In the Hippocratic writing "*De corde*," the right cavities of the heart are represented as receiving the blood from the liver and driving it out again through the veins; but the left ventricle (found empty after death) contains the vital principle or *pneuma*, which is to be sent throughout the body by the arteries. The heart is thus the central organ of life and the

seat of understanding. Other early Greek investigators, as Alkmaion of Croton, began to have glimmerings of the importance of the brain; but even these new organs could not entirely dispossess the liver from its old place of honor. New philosophies, like new religions, build upon the old.

There were metaphysicians as well as anatomists at work upon the problem of flesh and spirit; and there soon grew up that half-shrewd, half-false doctrine which is so clearly expressed by Aristotle, a doctrine which was still taught as fact in the Middle Ages, and survives in the etymology, though lost to the thought, of the present day. Life is of triple nature (says Aristotle); the plants of the field are nourished and grow; beasts feel and move; man reasons and remembers, and knows that he exists. Possessors of threefold faculties, we live and move and have our being, and for each faculty an organ is set apart. As the ancients knew, the liver is the place of the vegetative soul, drawing nourishment from the stomach, and sending it through the hepatic vein to the heart, where its more subtle portions are refined to form the sensitive soul, whose outward motions are felt in all the pulses. Over these lesser organs presides the brain, seat of the intellectual faculties, the "animal soul." A blow upon the head, injury of the brain, may abolish for a time all consciousness, but the vital spark remains alight until the last beat of the heart.

The anatomical theories upon which all this was based were hardly modified until the Renaissance, except that discovery of the bile-forming function of the liver made that organ more or less comprehensible and so deprived it of its remaining share of the soul. The heart, needless to say, retains its old place of honor, if not in the scientific sense, at least in the speech of romance and of worship. Buried in our language are curious traces of this and even older philosophies; thus we say "frenzy" of an

ailment of the mind, but the phrenic nerves and vessels are those of the diaphragm—a relic of a pre-Aristotelian view that the diaphragm, placed between liver and heart, was itself the seat of the intellect.

The higher functions once established in the brain, the search was narrowed, and every recess of the cranium was invaded. At Alexandria, in the third century before Christ, Erasistratus and Herophilus added to other great achievements an exact study of the human brain. The first was the discoverer of the meningeal coverings, and placed in them the intellectual faculty, but later transferred it to the cerebellum, partly, we may suppose, because of its marvelous structure still called *arbor vitæ*, but also because he had seen the grave results of damage done to the cerebellum in animals. Herophilus went deeper, discovered the ventricles of the cerebral hemispheres, and gave to them the same interpretation, whence perhaps arose the quaint mediæval division of the brain-cavities into cells of imagination, reason, and memory. But most striking guess of all was Strato's of Lampsacus, who found, so Plutarch tells, the *pars princeps animæ* in the middle of the forehead, between the eyebrows. We need no flight of fancy to imagine his joy and awe, who must have been the first to drive chisel into the frontal sinuses. In the very substance of the skull, between brain and eye, where thought and vision meet, those dark caverns might well have seemed to him the abiding place of man's inner self.

But the inner self of these Greeks was in general no more than what we vaguely mean by the word *life*, without clear implication of anything immaterial. When the coming of Christianity, on the other hand, brought back in a nobler form that conception of the soul as an immortal entity, as a temporary dweller in the house of flesh, which is found alike in the thought of the savage and in the speculations of

Plato, it freed the soul from the trammels of body for eternity, yet it bound the spirit subject to the flesh during the span of earthly existence; and herein it raised a strange new problem for the anatomists of the soul.

The Christian Fathers did not seek new organs for the new soul; anatomy was stagnant, and they went to pagan Galen for physicians' lore as trustingly as to their sacred codices for texts. To many, indeed, the intellectual or animal soul, already firmly seated in the brain, was itself the immortal essence, though others imagined this a fourth entity for which Galen could have given them no new organ had they sought one; wherefore, with Augustine, they let it be diffused throughout the body. Thus it was not toward the science of completed form the Latin Fathers turned, but to embryology, for they were greatly troubled to know in what manner the soul comes at first to join the body. Whether created anew by God, or having waited from the beginning among a great throng of the other unborn; whether inherited from the parents, or given to the child at the moment of its first breath, or infused into the unborn embryo, were questions of vast argument.

In the debate Tertullian and Augustine were foremost; but it is curious that with all their insistence upon spiritualities, the only evidence they had to prove the presence of the soul in the embryo before birth was based upon such purely corporeal grounds as the early development of brain and heart and the existence of muscular movements *in utero*. There is a quaint account of the formation of the embryo which appears in a long series of books, lay and ecclesiastical. Aquinas took it from Augustine, who knew it perhaps from some forgotten physician of the third century; Dante from Aquinas, and versified it in his Purgatory. Henri de Mondeville put it in a book of surgery, and from him Thomas

Vicary gave it English words: "Thus is the childe bred foorth in four degrees . . . the thirde degree is, when the principals be shapen, as the Hart, lyver, and Brayne: the fourth and laste, as when al the other members be perfectly shapen, then it receyveth the soule wyth life and breath; and then it beginneth to moue it-selfe alone: so is ther xlvj. dayes from the daye of conception vnto the daye of ful perfection and receyving of the soule, as God best knoweth."

It is obvious that the embryology of Augustine finds a practical application in the question of infant damnation; the spirit is almost eight months a prisoner liable to the penalties of unchristened death, but without opportunity of rescue by baptism. Here is no place for the tender-hearted—or for the anatomist. Yet to this day, when birth is impending in any household of the Church, the physician must be prepared to utter the hallowed formula, and in times of emergency, when two lives are committed to the hands of the surgeon, there takes place a dramatic repetition of the immemorial battle for souls. The unorthodox physician who has witnessed or taken part in one of these sudden tragedies will be driven to marvel at the power of an ancient dogma in the modern hospital; the basin of sterile salt solution becomes, by miracles of faith, a baptismal font, and solemn adjuration of Father, Son, and Holy Spirit issues from the swathed figure of a nursing Sister. But those who believe must almost have heard din of warfare and have seen the glitter of archangels' panoplies.

We have had more than a hint that in all times past the search for the soul has followed the same path, every new seeker passing over the familiar ground traversed by his predecessors, thinking the object of his hope lay in some place beyond, still mysterious and unexplored. Yet at first thought no time would seem less likely to witness a

renewal of the old search than the middle of the seventeenth century, nor would any man seem less likely to pursue it than one whose very methods of reasoning were founded upon an attempt to abandon older ground. In 1543 Vesalius' "Fabrica" had broken anatomy's age-old chains of tradition, and eighty-five years later Harvey's discovery of the circulation threw her shackles to the ground. After this the pulse-beat was not mysterious, and no more is heard of a soul in the heart or the arteries. It was otherwise with the nervous system, however, for not even the genius of Vesal could fathom the problem of muscles moving at the command of the will, nor tell how a pin-prick gets into consciousness. Moreover, there was nothing, as yet, in the new anatomy to replace or even to discredit the Galenic doctrine of the animal spirits, which taught that in the brain the more volatile parts of the blood are filtered out and sent ebbing and flowing through the nerves (believed to be hollow) to carry sensation and volition back and forth. It was in the minds of many that somewhere in the brain, at the starting-place of this living tide, must be the central point of existence; for all his originality, René Descartes too was moving in the well-trodden path when he made his famous assumption that the pineal gland is the seat of the soul. His reasons are hardly more than Erasistratus or Strato might have given: there must be some point at which body and soul are joined; it must be a single structure, and in the middle plane of the body, in order that impressions coming from double organs, like the eyes or ears, may be combined into a single thought; the pineal gland is the only organ in the brain which his dissections had shown to be so placed; it lies in the third ventricle, in the very spot where the spirits of the anterior cavities meet those of the posterior, and it is well protected from outward harm.

That Descartes' emphasis upon the middle of the head was in accord with the notions of the times we might bring many things to show. The most amusing illustration which comes to mind is in a book on hermetics and astrology by Robert Fludd, Doctor of Medicine at Oxford, "De supernaturali, naturali, præternaturali, et contranaturali microcosmi historia," 1619. In a full-page engraving is shown a man's head and hand in profile, with dotted lines connecting the organs of the five senses with mystic circles representing the material world. Upon the temples are two circles inscribed *sensativa*, *imaginativa*, and in the oval where they overlap, the sentence *hic anima est*. Upon the occiput are two other circles, *memorativa* and *motiva*, and again *hic anima est*. In the middle of the head (not far above the region of the pineal gland) are concentric circles, *mens*, *intellectus*, *ratio*; overlapping circles, *cogitativa* and *aestimativa*, and for the third time *hic anima est*; but from this middle soul there are dotted lines leading heavenward to radiant niches marked with names of angels and archangels, powers and principalities, thrones and dominations and the Persons of the Trinity.

Bartholin and Wharton, two of the best anatomists of the time, offered prompt objection to the pineal gland theory, on grounds no more subtle than Descartes' own. First, they urged, this little body, no more than twenty grains in weight, is too small to contain all the images of the soul. More to the point is their second objection, that the external nerves do not arise from the glandula pinealis, but from the spinal marrow, and thus anatomical study does not show how the animal spirits can pass into them from a structure so deeply placed. The third objection is based on the entirely untrue, but more striking notion that the cerebrospinal fluid of the third ventricle is refuse matter from the process of refinement of animal spirits, and hence Descartes

was locating the soul in a place of excrements. Other anatomists discovered the frequent presence of small gritty concretions in the pineal body, which somehow made that structure more sordid, less fit to be the seat of a great function.

These criticisms did not invalidate the methods, but only the results of the great philosopher's anatomy; and there seems to have been something fascinating about the Cartesian rules for discovering the soul that set all his friends dissecting as well. Two English relics of their search survive under the dust of libraries, which seems to lie thickest upon books of outworn philosophy. Sir Kenelm Digby found time, amid a life of experimenting in alchemy, of privateering in the Mediterranean, of promoting the most preposterous of all secret nostrums, writing cook-books, and of duelling, to visit Descartes and to write two thick treatises, "Of Bodies," and "Of Man's Soul," which are very treasuries of verbosity and of question-begging. Such a man, from pride of intellect alone, could not fail to take part in the search, and his solution was the septum pellucidum, the membrane or partition of cerebral substance which divides the right from the left lateral ventricle of the hemispheres. Digby's reasons, from first to fifthly, are too palpably like Descartes', but the last two are of a quaintness worthy quoting: "Sixthly, it is seated in the very hollow of the brain: which of necessity must be the place and receptacle, where the *species* and similitudes of things reside; and where they are moved and tumbled up and down, when we think of many things. And lastly, the situation we put our head in, when we think earnestly of any thing, favours this opinion: for then we hang our head forwards, as it were forcing the *speciēs* to settle towards our forehead; that from thence they may rebound, and work upon this diaphanous substance."

Dr. Henry More's "Treatise on the Im-

mortality of the Soul" came from the seclusion of a fellowship in Christ's College, Cambridge. To him, as to Descartes, the soul is in the whole body, but that part of it which is called the common sensorium, wherein our five senses are joined in one understanding and reasoning faculty, must have a special seat in the brain. More would place it in "those purer animal spirits in the fourth ventricle of the brain."

The "Anatome Corporis Humani" of Isbrand van Diemerbroeck, professor at Utrecht, printed in 1672, would appear to be the last textbook which discussed the question of the soul as part of a routine description of the human body. After this the soul disappeared from the scope of anatomy as heaven had vanished from the maps of terrestrial geographers. Acuter insight began to distinguish the study of the mind's activities from pursuit of the soul, keener eyes began to trace the intricacies of the nervous system; and scholars came at last to share the opinion of Sir Thomas Browne: "In the brain, which we term the seat of reason, there is not anything of moment more than I can discover in the crany of a beast: and this is no inconsiderable argument of the inorganicity of the soul, at least in that sense we generally so receive it. Thus we are men, and we know not how."

The sober hypotheses formed and discarded at one period of thought often remain alive in the belief of the credulous of a later time. Many pious enthusiasts still have great faith in the results of Piazzi Smith's attempt to prophesy the future by measuring the pyramids of Egypt; and in the same way the pineal gland is now having a revival of interest in Theosophic circles. In 1889, when Madame Blavatsky wrote her "Secret Doctrine," she was not aware of Herbert Spencer's brilliant discovery that the pineal body represents an undeveloped eye which in a few little-known reptiles almost attains perfection

of form; and since the structure was still as inexplicable (lacking this knowledge) as it was in Descartes' time, it was eligible for any function one might wish to give it. So, too, was the hypophysis or pituitary body; and in the new doctrine the latter was made the seat of a new, sixth sense, the power of comprehending unvoiced thought, psychic receptivity; while the pineal gland will be in later and higher races of our line the bodily lodging of the seventh sense, divine insight. Between these two structures there is a delicate connecting strand, whose invisibility to materialistic anatomists is explained by the statement that it is destroyed by shrinkage of the brain after death. Contrary to the usual rule, scientific investigation did not break down these views (as far as the Theosophists were concerned) in suggesting more prosaic derivations and functions of the two mysterious bodies; the proven relations of the hypophysis to bodily growth and the embryological explanation of the pineal as a third eye, when they came, were accepted as renewed evidence of their psychic importance.

When a devotee by special endowment and training acquires the sixth sense, he can observe the functioning of another's inner processes of soul: "When a man is in his normal condition, an adept can see the golden aura pulsating in both the centers, like the pulsation of the heart. . . . The arc of the pulsation of the Pituitary Body mounts upward, more and more, until the current finally strikes the Pineal Gland, and the dormant idea is awakened and set all glowing with the pure Âkâshik Fire. Once the sixth sense has awakened the seventh, the light which radiates from the seventh illuminates the fields of infinitude. For a brief space of time man becomes omniscient; the Past and the Future, Space and Time, disappear and become for him the Present."—At this point the skeptic listener is tempted to quote Robert Boyle:

"This seemingly rude lump of soft matter does for color and consistence look almost like so much custard; yet there are strange things performed in it!"

In this last strange recrudescence, we have an epitome of all searching for the soul in the body of man. If in this case the scientist is more likely to deny than to affirm, so has it always been. It is not the anatomist who has given us such dreams, but rather the mystic or philosopher who first created in his own thought an image of the soul, and set it down in whatever organ of the body seemed at the time most mysterious, most free from sordid function, nearest the inward fire. Into each of these

false temples of the spirit the anatomist has come by turn, but by the very breaking of idols he has helped to win the soul a brighter raiment. By the paradox of time we also count among the builders those who were destroyers, Asclepiades and his followers of all ages, who sought by experiment upon the body to prove non-existence of the soul; and against whom the voices of the pious have never ceased to be raised. So might sun-worshipers have mourned, to know that a prism of glass would one day prove that great light to come from the burning of earth-like minerals; wherein we conceive of Majesty exceeding earth and sun.

THE ESSENCE OF THE MEDIAEVAL SPIRIT

Well indeed may we turn our eyes away from those centuries wherein one of the chief callings of man fell into unexampled and even odious degradation. . . . In the equal eye of history, the Middle Ages teach us that slow and painful travail of natural science is not to be regarded as the belated labor of light in the womb of darkness, nor as a mere stifling of the growth of the human mind by tyranny and oppression, nor indeed as the arming of moral forces against brute forces, but as the condition of time in the making of societies on a necessarily provisional theory of life. They teach us that conduct in state and morals depends upon a theory of life; that although habits and even standards of ethics may abide for a time after the theory on which they were built is sapped, it is but

for a time; that if the social discipline and fruition are to be renewed and enlarged it must be upon a new synthesis, as laborious and ardent as the former, and more true. Meanwhile the business of a nation, whether in war or peace, is first to be quick and strong in action, to be rational afterwards; and swiftness and strength come of union of wills and singleness of heart rather than wisdom. Even within its borders freedom of opinion must awaken slowly; the nation strong enough to suffer irresolutions in its outward policy has yet to appear. Hence it is that we find in ruling classes, and in social circles which put on aristocratical fashions, that ideas, and especially scientific ideas, are held in sincere aversion and in simulated contempt.

Sir Thomas Clifford Allbutt.

THE MEDICAL GODS OF ANCIENT IRAN

By WALTER A. JAYNE, M.D.,

DENVER, COLORADO

(PERSIA)

IN ancient Iran, disease with its treatment was a definite part of the religious system. Medical doctrines and practices were determined by the sacred books and were under the control and direction of the priesthood and physicians. The religion of Zoroaster prevailed in Iran, dating from an early period, and in its development was highly moral and lofty, one of the most interesting of the ancient world. This system was dominant and promised to spread over the Orient, even to Europe, when the ravages following the conquest of Alexander the Great (330 B. C.) checked it and effectually broke its power. The "Avesta," the Living Word, the sacred book of Iran, is now but a remnant of the original, and is the holy scriptures of the Parsees of India. It was a voluminous work in the early days, inscribed with painstaking care on thousands of cow-hides and on bricks in letters of gold, and was religiously guarded in the "Stronghold of Records," the treasuries, and temples. Very much of it was destroyed by the orders of Alexander, and the Mohammedans, after their conquest in the 7th Century A. D., burned all of the remainder that was found. The "Avesta" in its present form is, therefore, a reconstruction from traditions and the memories of devotees. The portion called the Gāthās bears internal evidence, however, in phraseology and dialect, of being more intimately related to the original, and parts of it may be a survival, at least in form. The "Avesta" is divided into several books and treats of the life of Zarathustra (Zoroaster) and his teachings; precepts for sanctity and a religious life; history or cosmology; the law, moral and civil; the liturgy; and the book called the "Vendī-

dād," the Law against Demons. This last book is of especial interest to physicians, as it relates almost entirely to disease. Chapters XX-XXII are strictly medical.

The salient feature of the religion of Zoroaster is a dualism, two creators and two creations. Each creator has a following, creatures emanating from their principal, partaking of their respective characters, depositories of their respective powers and attributes, agents with varied functions to carry out the creator's will and to assist in waging the incessant warfare in which their principals are engaged. Ahura Mazda (Ormazd), above all others, the god of Light, the omniscient and wise creator of the universe and all good things, beneficent in the extreme, is supported by six Amesha Spentas, the "Immortal Holy Ones," representing justice and piety, who form his court. Occupying an auxiliary place are the Yazatas, the "Venerable Ones," his angels who are, for the most part, ancient Aryan gods who have faded or have been demoted in favor of Zoroaster. To these are opposed in unremitting, malevolent, bitter conflict Angra Mainyu (Ahriman), the Enemy Spirit, the Principle of Evil, called "Druji," (Deception), ignorant and shortsighted, who created darkness, sin, disease, suffering, and evil of every kind. With him are six Arch-fiends, the antitheses of the Amesha Spentas, who are his commanders and direct the activities of untold hordes of diabolical, evil spirits. These spirits of evil seek to overcome Ormazd, enslave him, and by every means in their power they endeavor to create confusion in all his good works, to destroy them. They introduce all evil into the world and attack man to his detriment and destruction. Man

ever has a part in this struggle, aiding the one or opposing the other according to his moral attitude. Each work is an act of warfare for the good or for the bad. This conflict between the representatives of good and of evil continues without cessation through eons of time until eventually the world undergoes an ordeal, as of molten metal, by which it is purified. Thereafter evil will be eliminated and Ahura Mazda and goodness will reign supreme.

As is the religion so is the mythology of ancient Iran essentially dualistic and materially influenced by its neighbors, of Mesopotamia on one side and more definitely by the India on the other. Many of these myths are apparently of Aryan origin, and compared with those of the Vedas they show a marked similarity in theme and form, only personalities and details vary. For the most part they are truly Indo-Iranian. These myths all center about the theme of the struggles between the agencies of good and evil, mostly concerning creation and the valiant endeavors of Kings and ancient heroes to secure for the earth and for mankind the light, rain, and other blessings of Nature against the opposing forces of evil, of dragons and tyrants. These cosmic and terrestrial conflicts are often in a storm-cloud amid the raging elements, on a mountain, or in a cavern with thunderbolt, wind, and fire as weapons for the confusion and destruction of the demons.

The myth of the creation of the vegetable kingdom, furnishing later all medicinal plants, is of special interest. Ameretāt (Long Life or Immortality), one of the Amesha Spentas, who had all plants under her guardianship, pounded them all very small and mixed them with water. The dog-star, Sirius, who was a good genius in Iran, made that water rain over the earth and plants sprang up, like hair on the head of man. Ten thousand grew to overcome ten thousand produced in caverns by

evil spirits, and these ten became an hundred thousand. From these germs came the Tree of All Seeds which grew in the middle of the deep sea Vourukasha. Near to this tree, the Gaokerena (Ox-Horn) tree, the miraculous All Healer, developed. This tree was necessary to avert decrepitude and for the renovation of the Universe that immortality might follow. The Evil Spirit, Ahriman, set a lizard in the sea to injure the tree, but Ormazd, to keep that lizard away, created ten kar-fish which circle round it constantly, watch the lizard and guard the tree from harm. They are both fed spiritually and will watch each other until the whole Universe is renovated. The Gaokerena tree is the White Haeoma, a manifestation of the mystical haeoma plant, in its terrestrial form the yellow haeoma. The haeoma is the plant of Indo-Iranian sacrifice from which the famous drink, the haeoma, is made which gives strength and immortality to gods and men. This plant is named in the "Avesta" (Yasna IX-XI), and the preparation of the drink, with ritualistic ceremonies, is described. It is personified, made a divinity, and is invoked by prayers and hymns to drive disease and death away.¹

Much of the "Avesta" is mythical and legendary. It praises and glorifies ancient Iranian kings and heroes. This portion is attributed to pre-Zoroastrian sages. Firdausi in his great Persian epic, "Shāhnāmah" or Book of Kings, written about A. D. 1025, relates many old traditions of Iran, and in historical form celebrates the mythical deeds of ancient kings and heroes, including those of the healing gods and heroes, Thrīta, Thraētaona (called Farīdūn), and Airyaman.

All disease was supposed to be governed by the same dualistic doctrine as religion and mythology. Being an attack or possession by spirits of evil, the power of good

¹ Carnoy, "Mythology of All Nations," Vol. VI, p. 263.

spirits must be evoked to secure relief. The universal conscience was the battleground of Ormazd and Ahriman, and their followers. Sin and disease were on much the same plane. Sin was a spiritual and disease a physical malady. They were breaches of the moral or physical order resulting from pollution, visible or invisible, but substantial. This pollution must be removed by some rite or act which would effect a purification, and supernatural powers were called upon by invocations, hymns, and conjuration, often in conjunction with natural remedies administered with rites and ceremonies.

Ahura Mazda declares that Angra Mainyu created 99,999 diseases, his daughters. Disease was regarded as an entity, often personified by genii, and was given names. Zoroaster came to banish all noxious and evil spirits from the earth, and since they attacked man, causing disease and death, pending the time when evil shall be suppressed, he furnished man with abundant means in the "Avesta" by which he might free himself from their power. In the "Vendīdād" he gave specific directions for their use. Two Amesha Spentas, Haurvatāt (Perfect Happiness or Health) and Ameretāt (Immortality or Long Life) were assigned as special guardians of man, while Ahriman directed Tauru (Disease) and Zairi (Death) to oppose them as their malevolent, sworn enemies. The latter were actively sowing seeds of suffering, disease, and death. The former were provided with remedies to combat these ills, both the supernatural powers of Ahura Mazda, of which they were the repository, and the natural means revealed to Zoroaster by Ormazd, by tens, thousands, and tens of thousands.

The cure is effected by the Amesha Spentas through the medium of the priests and physicians. The "Vendīdād" contains the ritual for the guidance of the priests, directions for the training of physicians and rules

for their conduct, practice, and fees. The "Avesta" describes and lays stress upon three divisions of the healing art: *kereta*, the knife; *urvara*, herbs; and, *manthra*, prayers, in the general sense of conjuration. Of these, conjuration is esteemed by far the most effective in bringing about the perfect cure, since by this means the soul as well as the body is purified and partakes of the cure. The Gāthās contain many hymns and Zoroastrian prayers used to free the sick from disease. By frequent repetition they gain force and effectiveness. Incantations, conjurations containing the celestial or god-like Word, evocations and mystic formulæ or magical spells were in common use. The formulæ themselves were sometimes personified and invoked, as: "Heal me, O Manthra Spenta, O Brilliant One!" Formulas of conjuration were such as: "I conjure thee, death!" "I conjure thee, disease!" "I conjure thee, headache!" Natural means were also sought for purification and remedy for disease. For purification water was always preeminently good, but the urine of cattle was also considered highly efficacious. Sacrifices were made to propitiate and sway the will of supernatural beings and gain their favor. Fire was an averter of all evil and every impurity, an enemy of demons and disease. Magic spells consisting of hymns, prayers, incantations, written or spoken, were esteemed. Charms and amulets were also in vogue to ward off disease, the evil eye, the curse of an enemy, or to gain divine favor. The feather of the bird Vārengana was used, and when rubbed on the body was considered very efficacious to keep back the curse of an enemy. The possession of a bone or feather of this bird was supposed to gain for the owner divine favor. Healing herbs were all derived from the miraculous Gaokerena tree, in the later "Avestas" called the Gokārt tree or White Hōm. It received its healing powers, which approached the magical, from Voku Manah, the son of Ahura Mazda. These were used

by priests and physicians in connection with mantras, incantations, magic formulae and many superstitious ceremonies. The diseases of animals were governed by the same dualism as those of man, and similar measures were used for their cure.

Magic and superstitious practices had a firm hold on the imagination of the people of Iran but were of less importance to them than to their neighbors of Mesopotamia. Though magic was discountenanced by the "Avesta" and at times held in check, rites and ceremonies essentially religious and elevating, symbolic of purification, piety, and virtue, easily degenerated into magic with an objective purely material. It thus crept back into the practices of the people and of the priesthood. Witches and sorcerers, however, were abominations, not to be encouraged. The origin of medicine was supernatural and based upon ancient practices of the people. The "Vendīdād" associated its origin with Thrīta, calls Thrīta the first physician, and ranks him as a god. Thraetaona and Airyaman are mentioned as divine physicians and the hero Yima is credited with powers of healing. Although these gods and heroes were great benefactors of the human race and possessed of marvelous skill in healing, their position as healers appears to have been somewhat theoretical and exalted. They brought the means of healing within the reach of man, but there is little evidence of a closer relation. Their names were used in prayers and hymns, but they did not develop cults, Haeoma and Mithra excepted.

Of all the healing gods Zoroaster, the divine prophet, was first and foremost. He was the inspiration and author of the medical works of the "Avesta." Other healing gods and heroes of Iran were: Thrīta, Thraetaona (Farīdūn), Airyaman, Haeoma, Yima, and Mithra.

THRITA

Thrīta (Thrīta Athwya, or Vedic, Traītana or Trita Aptya), an Indo-Iranian

deity, mentioned in the "Vendīdād" (chapter XX) as the first physician, and associated with the origin of medicine. He was the first of the great, benevolent heroes who, before giving the Law, by means of his magic power caused all disease to cease. Thrīta (meaning third) was the third priest of Haeoma, the Plant of Life, and one of the first to prepare from the plant the drink haeoma, ambrosia of the gods, which was deified as a remedy against disease, and which conferred immortality on both gods and men. In Iranian mythology Thrīta had a secret abode in the sky and was known as the fire of heaven which blew upon the terrestrial fire and kept it alive. This fire he brought from heaven to earth. He was known, too, as an ancient hero, the slayer of a dragon the three-headed, six-eyed serpent Visvarūpa. From Ahura Mazda he sought the source of all remedies, and myriads of healing plants sprang up about the Gaokerena tree. He possessed a knife with a golden point for surgical operations. He was the old wise one, crafty and brilliant, the first healer, the strong "who drove back sickness to sickness, death to death." In Firdausi's "Shāh-nāmah" he is Abtin, the father of Farīdūn (Thraetaona), who is killed by the dragon tyrant Azhi Dahāka. Thrīta was a deity of an early period. As a personality and healer he faded in favor of the great Persian hero, Farīdūn.

THRAETAONA (FARĪDŪN)

Thraetaona was an ancient Iranian deity, son of Thrīta Athwya. In the "Vendīdād" he is invoked against disease and prepares the haeoma. In a mighty struggle, aided by fire, he overcame the dragon tyrant Azhi Dahāka, an imp of deceit, created by Angra Mainyu, who had killed his father and had long sought Thraetaona's own life. This was the dragon with three jaws, three heads, and six eyes, from whose shoulders had sprung two serpents, the result of the kisses of Ahriman. After conquering the dragon Thraetaona fettered him with chains in a

cavern on Mount Damavand for a thousand years and took possession of his palace, reigning peacefully for five hundred years. Firdausi, in his *Shāh-nāmāh*, under the name of Farīdūn, relates this heroic conflict. Thraetaona is credited with being the inventor of medicine, a great healer and a master magician. Aside from this, tradition says little of him. In modern Iran the ancient Thrīta and Thraetaona become fused in the national hero Farīdūn. By this name also he is known as an averter of disease, of all evil and bad influences. His name appears in the medico-magical formulæ and still plays an important part in the magic of the Parsees.

AIRYAMAN (ARYAMAN)

Airyaman, an Indo-Iranian deity, is celebrated in the "Avesta" as a benevolent god, a healer par excellence. He is apparently the personification of prayer, and in this capacity was a most effective healer, since by prayer or conjuration the soul shared in the purification and a perfect cure resulted. Ahura Mazda calls upon him for coöperation, in expelling disease and death. He performed the rite of purification so effectively with his magic formulæ and prayers of praise that he caused 99,999 diseases to cease. He is constantly called the "tree desire."² Later he becomes the tutelary genius of physicians to whom he gives miraculous powers of healing. He is mentioned in the Vedas, and although his rôle is not defined, is sometimes included in the Indian triad, Varuna, Mitra, and Airyaman.

YIMA

Yima (Vedic, Yama), a very ancient Indo-Iranian hero, mentioned in the "Avesta" as The Brilliant, the son of Vivanghvant, who first offered the haeoma to Ahura Mazda. He was a spiritual and material educator of man, the hero of an extensive myth of the early development of the world. He is celebrated by Firdausi,

² Darmsteter, S. B. E., p. 219.

in his *Shāh-nāmāh*, under the name of Jamshid. In the golden age of Yima he was chief of a remote realm in which there was neither cold nor suffering. He subjugated the daevas and all their imps. Here he reigned for from 700 to 1000 years, and for 300 years of this time man never looked on death. The "Vendīdād" describes him as taking the path of the sun to open the earth to mankind, and he is called the Lord of Settlers. The life of Yima and that of the dragon, Azhi Dahāka, appear to run parallel. Azhi Dahāka, the storm-cloud monster, sought to injure the settlers of Yima, and they engaged in a struggle. Yima had committed some sin. The Gāthās state that he had fed his subjects with forbidden food to make them immortal. Firdausi says that, "his mind began to dwell, on words of falsehood and of untruth." Because Yima "diverged from the path of justice" he lost his glory and his kingdom, and was finally put to death by the dragon, who then extended his devilish power over the Aryan world. Later Farīdūn overcame Azhi Dahāka and succeeded to the kingdom. Jamshid is also glorified as being a constructor and the originator of castes. Firdausi ascribes to him medical knowledge and skill, and Jamshid is said to have known:

"Next to leechcraft and the healing of
the sick,
The means of health, the course of
maladies."

HAEOMA

Haeoma (Vedic, Soma), an Iranian deity from primeval times . . . the mystical White Haeoma, identified with Gaoḡerena or Gōkart tree, may or may not have been the same as the haeoma plant of the later "Avesta." It is mentioned in the book of the "Avesta" called the Yasna and from it was made the sacred drink, the Haeoma, which gave strength and immortality to gods and men. This drink was prepared by

the priests according to the Hom Yasht³ with ritual prayers and ceremonies by pressing the juice from the twigs of the plant, filtering and mixing it with milk, honey, or other liquid. It was exhilarating, gave a sense of power and ability, and produced intoxication. It was at one time the subject of orgiastic sacrifice and was banished by the Gāthās. In a later time it reappeared, but without these objectionable features. Vivanghvant first offered the drink to Ahura Mazda, and it was from his son Voku Manah that it received its healing power. Both the drink and the plant were personified and worshiped as divinities and invoked to drive away disease and death. A drop of Haecoma was placed on the lips of the dying faithful. It grew in inaccessible places on the mountains and was brought to earth by divine birds. It also had the power of slaying demons, and of bestowing spiritual light and blessings upon man.

MITHRA

Mithra (Vedic, Mitra), an Indo-Iranian god of great antiquity, and whether of Aryan, Iranian or Vedic origin cannot be determined with any certainty. He was intimately associated with the Vedic god Varuna. They represented moral light, law and order. They were the "Guardians of Holy Order"; they hated, drove away and punished falsehood. The eye of Mitra and Varuna was the sun. Mitra had the occult power by which the dawn appeared, the sun crossed the sky, the clouds obscured it and rain fell upon the earth. Apart from Varuna, the Vedic Mitra was a faint personality.⁴ In the Iranian myth, Mithra had a definite solar nature. At first he was the god of immaterial light and later, by analogy, of the sun. He was also the god of faithful contracts. It is said that Mithra once measured his strength with the sun,

with whom he later made a compact of friendship, and these allies thereafter supported each other in all events. He was the logical son of Ahura Mazda and was the most important Yazata. Among the Iranians he was the god of the plighted word, the protector of justice, the god who gave victory in battles against the foes of Iran, the defender of the worshipers of truth and righteousness.⁵

The cult of Mithra was early identified with occultism and mystic ceremonies. These ceremonies had many points in common with those of the Christians; baptism, communion with bread, and wine; ointments of honey, etc., which resembled the ointment of confirmation. The sacraments were considered beneficial for the cure of the body as well as for the sanctification of the soul. Bread, wine, water of baptism, ointments were regarded as mystic remedies, and all the medicine of the god Mithra was purely mystic. In the baptism of blood, the Taurobole, the patient was led beneath open planks and the blood of a bull above filtered through and fell, in a mystic sense, like a beneficent rain. The cure consisted not in the blood, but in the symbol, the passion of Mithra. The bull, representing the god, shed his blood for the faithful sick; an instance of divine abnegation in a primitive religion. The cult of Mithra, popular and powerful in Iran, spread rapidly to Greece and over the Roman Empire, carrying with it the occultism and mysteries which had characterized it in Persia. The Romans saw Mithra's astrologers passing whole nights on the tops of their towers, and his magicians practiced their mysteries on the slopes of the Aventine and on the banks of the Tiber.⁶ The cult encountered bitter hatred and the opposition of all Christians, and the struggle continued in the more remote quarters into the Middle Ages.

³Yasna IX-XI.

⁴Keith, "Mythology of All Nations," Vol. VI, p. 20.

⁵Carnoy, *Ibid.* Vol. VI, p. 287.

⁶Bruzon, "La Médecine et les Religions," p. 137.

THE "PULMOTOR" OF THE EIGHTEENTH CENTURY

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IN the just published history of the Humane Society of the Commonwealth of Massachusetts, one of the oldest charitable institutions in the United States, is an account of an apparatus designed for the purpose of the inflation of the intestinal canal by tobacco smoke as a means of resuscitation of the apparently drowned. To the public, and even to the medical practitioner of to-day, the story of such a mode of treatment would seem to be almost beyond the bounds of credulity. From what mythical traditions of the past could such a device have been derived, or what could possibly be the physiological action of such a remedy are questions which naturally suggest themselves.

Any student of the medical literature of the seventeenth and eighteenth centuries is familiar with the prominence given to the clyster in the tripod of medical therapeutics. Venesection, emetics and the clyster were the three most potent means of reaching the tissues and fluids of the body in a morbid state and thus clearing out what were then called the "peccant humors."

The importance attached to the last of this trinity is shown at an early date, for we find that Scultetus, in his work on surgery (1671), considers the apparatus devised for this purpose worthy of a minute description and a full-page illustration.

It was at about this period that the writings of Molière served to accentuate this therapeutic custom, or at all events to record the prominent place which it held in the treatment of disease. Be that as it may, the clyster held its own conspicuously among the heroic measures inflicted on suffering humanity for the better part of two centuries.

Among the earliest records¹ we have of the

¹The therapeutic value of tobacco was thus

remedial qualities of tobacco smoke is that quoted by Pia from the history of a Journey to America, in which it is stated that the savages ("d'Acadie") have a singular method of resuscitating the apparently drowned who have swallowed a great deal of water. They fill an animal's bladder, or a large segment of intestine tied at one end, with tobacco smoke and attach it to a tube

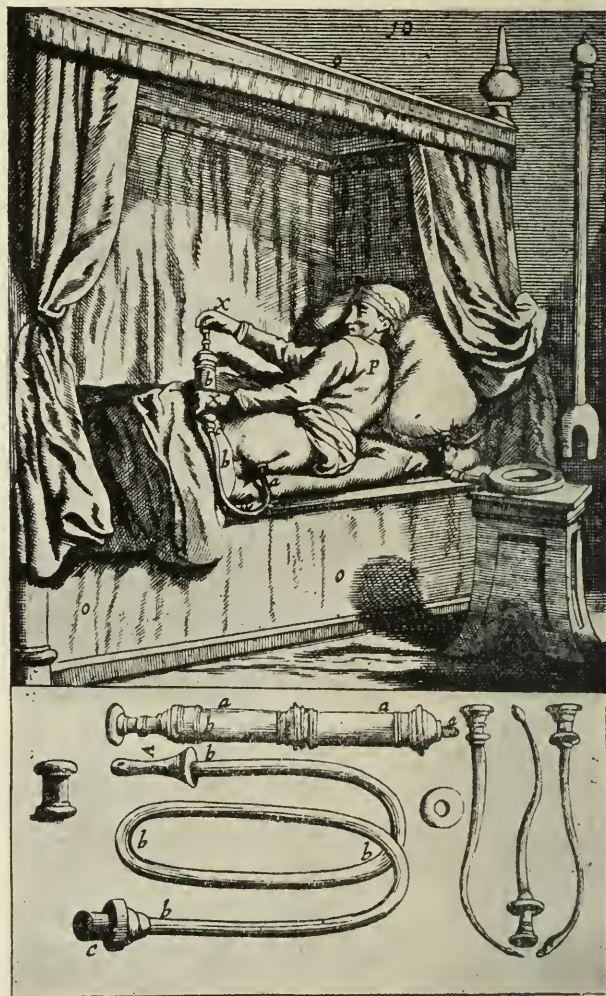


FIG. 1.
Fig. 1 shows the fumigator; a machine for injecting the smoke by way of clyster in those desperate cases which require the application of this remedy. It consists of a pair of bellows to the muzzle of which is fitted a metal box *a* provided with a ring, in the middle of which it may be unscrewed and again closed, after being filled with tobacco and set on fire. The pipe *c* of the flexible tube *b* is introduced into the fundament and thus by means of the bellows *d* the smoke is forced into the rectum.

which is then introduced into the fundament of the patient. By this means the smoke is injected until the abdomen becomes distended. They then hang the patient by the feet to the branch of a tree and the smoke is thus enabled by its pressure to force the water, which the patient has swallowed, out of his mouth.

In France Réaumur (1683-1757), who, by the way, is not generally recognized as having been a member of the medical profession, was the first to introduce the use of tobacco smoke in this way. He suggested that this could be accomplished by breaking off the stem of a pipe and blowing the smoke through it. It is duly recorded that one of his colleagues in the Academy testified to the proper and satisfactory effect of this remedy. His article was published in 1740. Incidentally it may be mentioned that he recommended rolling the patient to and fro in an open barrel, a device which owed its usefulness to the effect it had in producing artificial contraction and expansion of the thoracic cavity, although the restoration of this function was not evidently recognized as an important feature at that time.

In Holland the literature on this subject seemed to have been more abundant than in other countries, as might naturally be supposed from its geographical character. The reports of the Society of Amsterdam are filled with many accounts of the use of the device described by Lobelius in 1576. Speaking of its use by the inhabitants of the West Indies he says, . . . "For you see many sailors who have returned from that country who carry little funnels made of a coiled palm leaf, or of reeds, into one end of which are placed curled, broken up and dried leaves of this (nicotiana) plant. They set light to it, and drawing it into their mouths as much as they can, they suck in the smoke by inhalation. They are thereby enabled to endure hunger and thirst to maintain the strength and to exhilarate their spirits. They declare that it soothes the brain with a pleasant form of intoxication and it certainly gives rise to an incredible quantity of spittle." *The Quarterly Review*, July 1913, p. 139, London.

this remedy. Gobius, a distinguished Dutch surgeon (in his book "Adversaria Varii Argumenti"), employed tobacco smoke in this way for constipation, colic, and strangulated hernia. It is stated that he practiced in a country where the insufflation treatment had been used many hundred times. De Haen had used it two hundred times and for more than one hour at a time, the smoke being introduced with much force and in large quantities, both in experiments on animals and a variety of human ailments. Laurence Heister in his "Institutiones Chirurgicae," Amsterdam, 1750, in a chapter on Clysters, refers to the use of fumigation for incarcerated hernia, and gives a diagram of the apparatus by which tobacco smoke can be blown by the mouth of a surgeon into the intestine, the smoke, according to the author, acting as a stimulus in the intestine and causing the strangulated loop not only to shrink in size, but to retract itself into the abdominal cavity. (Fig. 2.)

Dr. Ludwig Knapp (1908) in a modern rendering of Cangiamila's work on Theology and Midwifery, 1754, mentions among the remedies this ancient author laid down for the resuscitation of new-born infants apparently dead, the use of clysters of tobacco smoke "to establish the peristaltic action of the intestines and thus arouse through cooperation of the diaphragm the action of the heart and lungs." If these are the words of the author, and not the translator's, we have here the first indication of the recognition of a physiological purpose in the use of this remedy.

Christopher Keil, in his handbook on Surgery, 1747, Leipsic, describes the use of clysters and recommends long flexible tubing for the purpose. In a frontispiece in this work an illustration is given of such an apparatus, by which an individual is able to administer to himself rectal insufflation. (Fig. 3.)

In the latter half of the eighteenth century (1772) we find an organization was

established in Paris for the purpose of rendering aid to the apparently drowned. An early report of this institution² describes a box containing bottles filled with various restoratives and a "machine fumigatoire"³ with a bellows and a cannula. In the introduction to the report, it is stated that, at this period, in France, the cities of Paris, Lyons, Tours, Lille, LaRochele, and elsewhere, have founded private organ-

istry, a notice being duly circulated among the provincial officers. Paragraph III of the directions specifies forcible insufflation into the rectum of tobacco smoke, either by a pipe stem, or through the leather sheath of a knife cut open at the point, or by an ordinary bellows.

An extract from an Admiralty Report of the town of Dunkirk, 1777, refers to the fumigating machine kept by the town

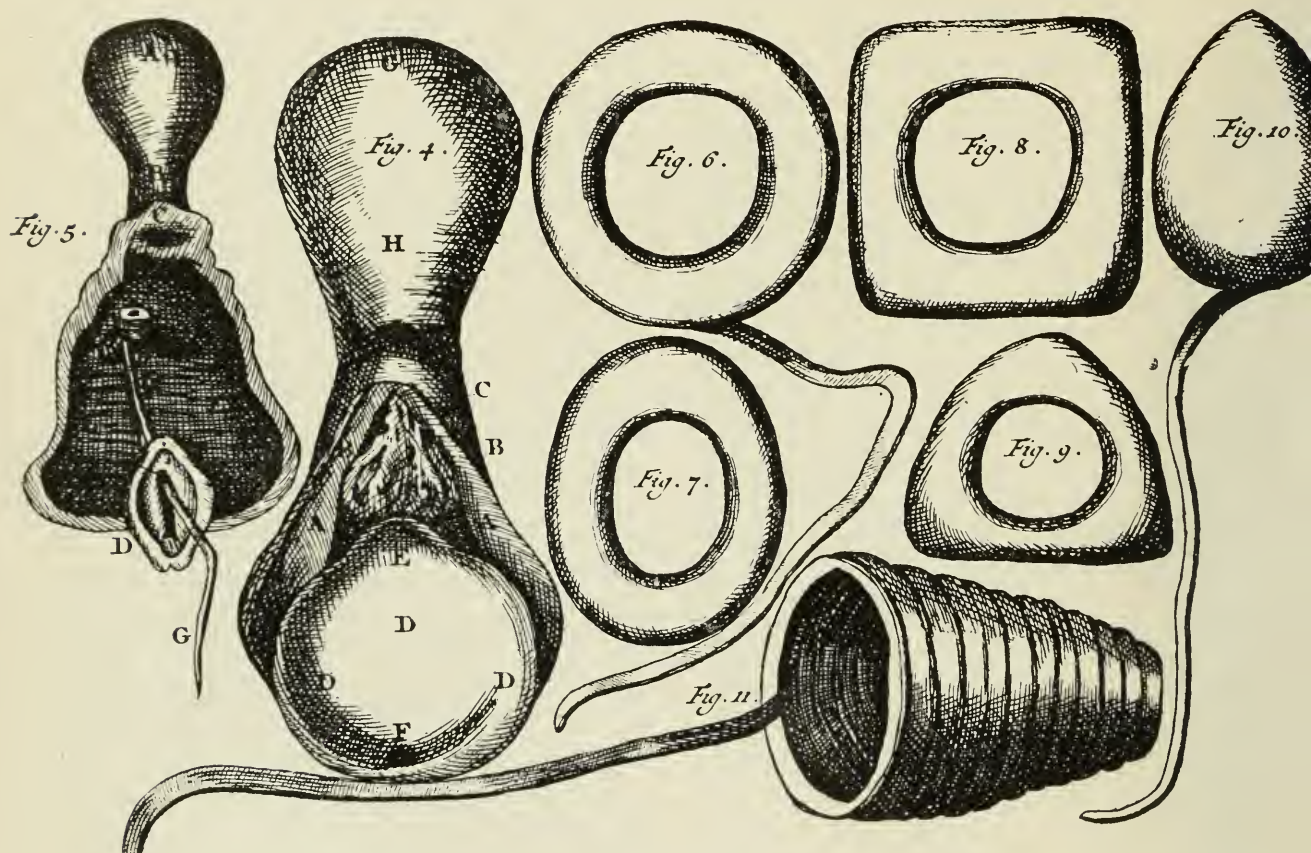


FIG. 2.

izations for the same purpose. The methods generally employed by these various organizations towards the end of the eighteenth century were recommended officially (just as artificial respiration is to-day) by the Maurepas (1701-1781) Min-

authorities for this purpose. Incidentally it may be mentioned that one of the rules laid down by this report was to forbid the rolling of a body in a cask or to hold the body up by the feet.

² Detail des succes de l'establissement que la ville de Paris a fait en faveur des personnes noyées, 1775.

³ "A fumigation machine is kept at every station house. The method of using it is as follows:—Half an ounce of smoking tobacco is placed in the box of

The *Royal American Magazine*, February

the machine and is slightly moistened. The bellows are then attached and force the smoke through a long pipe; three quarters of an hour should be employed in administering the half ounce of tobacco. The bellows should be blown gently."

1774, gives Dr. Tissot's method of restoration of the apparently drowned. Here it is stated that in addition to blowing the warm breath into the patient's lungs, tobacco smoke may be introduced not only into the fundament, but into the lungs as well. After tobacco has been lighted in the bowl of a pipe, the bowl should be wrapped in a paper in which several holes are pricked and through these holes force the breath strongly. It is also recommended by this author that if a surgeon is present the jugular vein should be opened and about twelve ounces of blood taken.

It may be well to give here examples of the methods employed at this period in two cases.

René H., 25 years old, while bathing, was rescued from the water three-quarters of an hour after being submerged. He was unconscious, without voluntary movements and pulseless, and supposed to be dead. Taken to the Guard House the soldiers treated him by insufflation of air into the mouth, rectal fumigations with tobacco, friction of the skin, and application of ammonia to the nostrils, a treatment which extended over two hours, when signs of life began to appear, the eyelids moving and the pulse being felt, etc., and finally movements of the body and cries. He was then carried to a house nearby where warmth was applied. Here he was bled from the arm, instead of the jugular vein, owing to his resistance. Tobacco fumigation produced abundant evacuation of the bowels and an emetic brought up a large amount of salad and other food. He was made to swallow brandy, which served the purpose of an "anti putrid cordial," and revived him. His comrades next took him to their inn and carried out further ministrations advised by the surgeon who bled him. After receiving two purgings, he reported on the fourth day at the City Hall to express his grateful acknowledgments, stating that he had had no recollection of what had happened to him.

The following case is stated to show that rectal insufflation can be employed, even when the necessary machinery is not at hand.

A rescued woman's husband, who thought his wife dead, was told by a passing soldier smoking his pipe to dry his tears, that his wife would soon be revived. Then giving the pipe to the husband, he instructed him how to introduce the stem into the anus, then placing his mouth, covered with perforated paper, to the bowl of the pipe, to blow with all of his force. At the fifth insufflation of smoke a loud rumbling was heard and the patient expelled water from the mouth and a moment later regained consciousness.

But this method, even at this time, was not without its critics, for M. Portal, Professor of Medicine at the Royal College of France, claimed that the insufflation impeded the circulation of the vessels of the viscera in the abdomen and thorax and thus acted injuriously. Pia, however, refers in reply to this objection to the quotation of Heister, which we have already mentioned above, to the effect that tobacco smoke appears to irritate the intestine and cause a diminution of its caliber.

In London we find John Aiken (1775), using the rectal insufflation of tobacco smoke and preventing the over-heating of the tube by wrapping cloths wet in cold water around it. The use of this remedy was recommended by him as a "stimulant to arouse the vital motions."

Cullen, Edinburgh, 1784, in a letter to Lord Cathcart, says, "with regard to the stimulants, I must conclude with observing that when a body has laid but a short time in the water and that therefore its heat and irritability are but little impaired, the application of stimulants alone has often been found to be effectual for recovery. But, on the contrary, when the body has lain a long time in the water and the heat of it is very much extinguished, the applica-

tion of any other stimulants than that of tobacco smoke to the intestines can be of very little service—and the application of others ought never to interfere with the measures of recovering heat and the motion of respiration.”

Goodwyn, (1788) refers to the application of different substances to the skin, the stomach, the intestines, the parts of generation, the nose, the fauces, the extremities of the fingers by Jacob Gummer as based on a mistaken opinion of the principal seat of life.

But Kite, 1795, in experiments on animals rendered insensible by submersion, gives as his opinion, under the head of other remedies, that the “principal of these are electricity, particular stimuli adapted to the different organs of sense and irritating medicines thrown into the stomach and intestines.” Here, for the first time, we find powerful stimuli like that of electricity used for arousing vital action. But while the surface of the body thus has the benefit of the new agencies, the interior surfaces are not neglected. Our old friend “rectal insufflation” is still employed with a view to local stimulation.

But a definite reaction had already set in, for we find that Edward Coleman, London, in 1791, speaks in no uncertain terms as follows: “As tobacco smoke thrown up the rectum in the form of smoke was one of the first remedies employed in suspended respiration, and as we see, to our regret, that it is still too frequently made use of, we shall endeavor by a few animadversions on its effects to proscribe its continuance. . . . The history of medical errors scarce affords a more blind and obstinate prejudice than that which still induces us to adopt a mode of practice so obviously destructive. For smoke and fluids of all kinds, when given in large quantities, will distend the intestines, the result of which will be that their mechanical effect in preventing the easy descent of the diaphragm will neces-

sarily be productive of mischief.” In concluding this statement, he speaks next of the sympathy between the heart and the stomach as being greater than between the heart and intestines. Here evidently was a pioneer in modern therapeutics!

In Dr. Willich's *Domestic Encyclopedia*, London, 1802, is given the list of articles contained in a box devised by Kite and further amplified by Mr. Redlich of Hamburgh, among which is to be found the machine for injecting the smoke of tobacco. Fig. 4. Willich shows clearly in his article that inflation of the lungs is one of the means of restoring life. “Stimulating clysters consisting of warm water and common salt or a strong solution of tartar emetic, or six ounces of brandy should be speedily administered. We do not consider, he says, injection of the smoke of tobacco, or even clysters of that narcotic plant in all instances safe and proper.”⁴

The final touch may have been said to have been placed on this mode of practice by Daniel Legare (1805) who, in an inaugural dissertation, on graduating from the University of Pennsylvania, presented as his graduation thesis experiments upon animals with the rectal insufflation of tobacco. After the insufflation the abdomen was opened and the changes in the circulation carefully observed in a series of cases. He found an increase in the mesenteric arterial circulation, but a diminution of the peristaltic action of the intestines. He concluded that this method was of no value as a means of resuscitation.

Although it is often difficult to repress a smile at some of the medical theories of a bygone period, it is well to pause in this instance before passing final judgment and to ask ourselves whether there may not have been after all some well founded observations which served to implant a thera-

⁴ See “History of the Humane Society of the Commonwealth of Massachusetts,” by M. A. De Wolfe Howe, p. 18.

peutic measure so firmly in the traditions of medical practice.

The ancients were wont to regard the rectum as the *ultimum moriens*. Here there was supposed to exist one of the principal seats of life. Its outlet, an extremely sensitive region, is abundantly supplied with nerves and blood vessels and easily accessible to restorative measures. This faith in

ailments. Moreover, the levator ani muscle, being composed of a powerful enveloping mass of muscular fiber and bearing an intimate relationship to the lower intestinal canal, has been classed by more than one physiologist of the past as one of the muscles of respiration. It is at least one of the groups of muscle which exert an antagonistic action to that king of respiratory muscles,



FIG. 3.

certain sensitive surfaces as the principal seat of life referred to by Gummer foreshadowed only what has quite recently taken the form of a modern cult known as "orificial surgery," the dilatation of these highly sensitized orifices being supposed to exert a strong curative influence in many



FIG. 4.

This illustration is reproduced from Willich's Domestic Encyclopedia (London, 1802). Figs. 1, 3 and 4 represent, respectively, bellows to inflate and extract air from the lungs; a stretcher of wickerwork that water may easily run off, and a warming machine of block tin or copper with double walls to contain hot water.

the diaphragm. The well-known case of *l'homme à l'anus musicale* was a striking illustration of the coordinating power of these two great muscular groups. May it not

have been possible that a powerful stimulus given to the rectal group may have been transmitted by reflex action in certain cases to the thoracic group? Pressure and heat applied to the abdominal region, even from within, may have in times of great stress helped to compress the thorax and to awaken the latent forces in the diaphragm.

Be that as it may, it should not be forgotten that the fullness of time often leads to a new perspective. Who can say that the

modern pulmotor, or the particular method of resuscitation based on claims of accurate laboratory research, may not eventually take their place among the vagaries of the past?

At all events, it is perhaps just as well that practitioners of medicine to-day should look upon this quaint old custom, which died so hard, with an indulgent eye and, reading between the lines, draw from it with becoming humility a moral on the mutability of medical affairs.

COMPIÈGNE

At a confluence of rivers lies the town of Compiègne,
At the wedding of the waters, River Oise with River Aisne.
And across the verdant valley lie everlasting hills
With their sunny slopes and gardens and villages and mills.

Horizon-wide the forest encompasses the town,
And in her spacious bosom the city nestles down
To dream of former glories, e'er this devastating war
Changed all the gracious things that were for grievous things that are.

A thousand years in passing are but a watch at night;
A thousand recollections of kings in armor bright;
A thousand dreams come shimmering across a bending bow
For the true interpretation that only dreams can know.

And on a misty evening, when trunks of ancient trees
Are swaying indistinctly in the intermittent breeze,
I seem to sense the phantoms that crowd the pleasant ways
In restless reminiscence of the long forgotten days.

CARLETON B. McCULLOCH, M.D.

JUNE, 1918.

THE BIRTHPLACE OF THE HUNTERS

By FIELDING H. GARRISON, M.D.

WASHINGTON, D.C.

THROUGH the courtesy of Colonel C. C. McCulloch, Librarian of the Surgeon General's Office, it is our privilege to reproduce an interesting photograph of the old house at Long Calderwood, where John and William Hunter were born. The inscription on the back of the picture is in the handwriting of the late Dr. John S. Billings and reads: 'Long Calderwood, the birthplace of John

showing that the laird himself tilled the soil." Long Calderwood is in the southwestern county of Lanarkshire, a part of the country which had been much fought over by the ancient Romans, and in later wars. Hereabouts the brave Wallace fought and bled; in this county, Mary, Queen of Scots, was defeated at the battle of Langside in 1568; Claverhouse was defeated by the Covenanters at Drumclog (1679) and



FIG. 1. LONG CALDERWOOD

and William Hunter. Rec'd from Dr. Andrew Fergus of Glasgow, Feb. 14, 1885, J. S. Billings."

Long Calderwood, on a small estate, seven miles from Glasgow, is described by Mather, in his biography of the two Hunters, as "A good stone house of two stories, situated near the road leading from East Kilbride to Blantyre, quite like the residence of the laird of the small estate. The house has the appearance of having been all along the abode of 'bein' substantial people, and has behind it a fine large court, enclosed by farm buildings,

himself defeated them at Bothwell Brig (1679). In the eighteenth century, the historic shire was unusually productive of medical talent. Cullen, Smellie, Matthew Baillie, as well as the two Hunters, were all of them Lanarkshire men. The Lanark branch of the Hunters was an offshoot of the Hunters of Hunterston (Ayrshire), an old Norman family of the thirteenth century. As it stands, this stern, gray house, over two centuries old, is representative and typical of the old granite Scotch—their intense love of plainness and simplicity in externalities, their dislike of the showy

and the pretentious. And yet there is about the old house just that suggestion of the romantic in achievement which, as William Ernest Henley said, has given Scotland her unique place in history. The grim, bleak, dour sky, which furnishes the bath of atmosphere, or the lack of it, suggests the "gray Galloway land" nearby, where the whaups cry as of old over the graves of the martyrs of religion:

"Blows the wind to-day, and the sun and rain are flying,

Blows the wind on the moors to-day and now

Where about the graves of the martyrs
the whaups are crying
My heart remembers how.

Gray tombs of the dead in desert places,
Standing stones on the vacant wine-red moor,
Hills of sheep and the homes of the silent vanished races,
And winds austere and pure."

CLINICAL PICTURES FROM HIPPOCRATES

THE greatest and most dangerous disease, and one that proved fatal to the greatest number, was consumption. With many persons it commenced during the winter, and of these some were confined to bed, and others bore up on foot. Most of those who were confined to bed died early in the spring; of the others the cough left not a single person, but it became milder through the summer; during the autumn all these were confined to bed, and many of them died, but in the greater number of cases the disease was long protracted. The onset was usually sudden, with frequent rigors, often continual and acute fevers; unseasonable, copious, and cold sweats throughout; great coldness, from which they had great difficulty in being restored to heat; the bowels variously constipated and again immediately loosened, especially toward the end of

each attack; . . . coughs frequent throughout, sputa copious, congested and liquid, but not brought up with much pain. . . . By far the greatest mischief attending these and the other complaints was the aversion to food, as has been described. For neither had they any relish for drink along with their food, but continued without thirst. There was heaviness of the body, disposition to coma, in most cases swelling, which ended in dropsy; they had rigors, and were delirious towards death.

The habit of body peculiarly subject to phthisical complaints was the smooth, the whitish, that resembling the lentil; the hectic, the blue-eyed, the lymphatic, and that with the scapulæ having the appearance of wings.

HIPPOCRATES. "Epidemics." Book III, 13, 14.

TWO CHAPTERS IN THE HISTORY OF LARYNGOLOGY AND RHINOLOGY¹

By JAMES J. WALSH, M.D., PH.D., Sc.D.

NEW YORK CITY

THE writings and addresses of Dr. D. Bryson Delavan have been especially important in calling attention to the fact that the special chapter in the history of medicine of which physicians in New York have most right to be proud is that of laryngology and rhinology. He has shown that members of the medical profession in New York, during the latter half of the nineteenth century, revolutionized the treatment of diseases of the nose and throat and were pioneers, not only for America, but for the medical and surgical world in this great modern development of medical and surgical practice. The story of the striking evolution of these specialties in New York, beginning with Horace Green and not yet ended, for there are men still alive who have done thoroughly original work and very precious work in this department, is of the greatest interest and significance. Unfortunately, it is not known as well as it should be even by those most deeply interested in the practice of the specialties in question, but then until very recently physicians generally have not been interested in the history of their great profession, though they are waking up now and are learning how many practical, valuable hints might be secured from the history of medicine.

Some of the details of this chapter of surgery in New York must be repeated for their significance to be appreciated. In 1817 Dr. Cheesman, the worthy head of a distinguished series of generations in New

York medicine, published an article upon "Growths and Tumors of the Throat," which represented an appropriate beginning of serious interest in throat diseases. In the late thirties Dr. Horace Green, here in New York, began his epoch-making work in the direct treatment of affections of the larynx and trachea. The surest sign that his work was a real advance and far ahead of anything that had been done before is the fact that it met with decided opposition. I have often quoted Dean Swift with regard to such incidents of opposition to real advance in science which, until we knew history properly, used almost to be attributed to religious intolerance or bigotry of some kind related to religion. The incidents in question are practically always due to the conservative tendencies of mankind. These make them resent important advances, when they are really new, though they are so prone to welcome novelties of no significance. Dean Swift said, in his own bitter frame of mind, of course, but still with an approach to truth that has made the expression one of the oft-quoted passages from his works, "When a true genius appears in the world you may know him by this sign—that all the asses are in confederacy against him." Dr. Green had to struggle on in spite of opposition, which seems lamentable to us as we look back, though our generation has and doubtless will react similarly to other genuine advances.

We in New York had another example of the truth of Dean Swift's expression when sensitive Dr. O'Dwyer found himself alone,

¹ This article is an extension of some remarks at the meeting of the Section on Historical Medicine of the New York Academy of Medicine, when "A Description of a Tonsilectomy Done Seven Centuries Ago" was presented.

with practically all the world in opposition to him, on the occasion of his presentation of the subject of the intubation of the larynx for diphtheria and other stenotic affections. As a matter of fact Dr. Horace Green was laying the foundation on which O'Dwyer was to build, demonstrating clearly that the larynx would tolerate foreign bodies to a much greater degree than had been thought possible. Both of them suffered, but only as did many another discoverer in the history of medicine and science from the ultraconservatism of their contemporaries, and it is well for us to remember that such incidents are not mediæval nor distant in history, but occur in our own time.

Horace Green's work bore fruit, however, in spite of opposition, and by his writings he laid the foundation of the great specialty. His contemporary, Dr. Gurdon Buck, by his studies of conditions of the larynx and especially his epoch-making paper upon "Edematous Laryngitis and Its Treatment by Scarification," made an important advance for all the world. Dr. Ernest Krackowizer received a laryngoscope from Vienna in 1858 and demonstrated its value. Dr. Horace Green predicted that the instrument would work a revolution in laryngology, as it did. Already an American, Dr. Ephraim Cutter, who later practiced in New York, had devised a laryngoscope and the development of the specialty was assured. As early as 1873 the first laryngological society ever organized was established in New York. In 1878 the American Laryngological Society was organized in the city of Buffalo, the main influence in it being New Yorkers. In 1871 the first clinic devoted exclusively to the diseases of the nose and throat was established by Dr. Louis Elsberg. Dr. George M. Lefferts, beginning May 1875, collected a bibliography of laryngology until 1880, when a special journal known as the *Archives of Laryngology*, the first of its kind in the world, was founded.

In the eighties Dr. Joseph O'Dwyer completed the series of experiments on which his method of intubation is founded, and added one of the world's great practical discoveries to this specialty. Dr. O'Dwyer's work was really that of a genius, and he must ever be considered as one of the great men of American medicine.

In the meantime had come the inventions of the Bosworth saw for bone and nasal obstructions and of the Jarvis snare for the removal of enlarged turbinates, and the work of Dr. Roe, of Rochester, in the submucous resection and correction of deformed septum and other nasal obstructions or deviations. The nasal trephine was invented by Dr. James H. Goodwillie, and a whole series of valuable instruments, modifications of preceding less available instruments, were designed. Dr. Rufus P. Lincoln devised the method for the removal of retropharyngeal fibromata through the natural passages instead of by an external wound, which would have required extensive, dangerous dissection, involving serious bleeding and many risks. In 1886 Dr. Thomas French, in Brooklyn, devised a special camera for photographing the larynx, a purpose which had been attempted often enough before, but without any success. In 1897 Dr. Bryson Delavan of New York recommended, instead of cautery, submucous puncture of an intumescent inferior turbinate by means of a cataract knife, some of the vessels being divided and becoming obliterated by the resultant cicatricial tissue. He has also carried out numerous investigations, among them the treatment of atrophic rhinitis by applications of the galvanic current and the value of the x-ray in the treatment of malignant tumors of the larynx. Dr. Morris Asch of New York finally developed and perfected the means of securing correction of certain deformities of the nasal septum which had proved serious obstacles to any improvement in a number of cases where interfer-

ence with natural nasal breathing was one of the most important factors in the case.¹

Surely that long list of pioneers and their discoveries in this specialty, comparatively limited, yet so important for health, makes it very clear that New York well deserves a place of high honor in the history of medicine for the work of the profession in this department. The whole specialty has practically been created here, and modes of treatment, unthought of in preceding generations, have been worked out and presented to the profession of the world. This would seem to be a great new development in surgery.

I think that there is nothing more interesting, certainly nothing more valuable, than to call attention to the fact that this is not a new chapter in the history of medicine, but a revival of an old one. It throws great light on the history of medicine to have our generation reminded that there was a preceding phase of laryngology and rhinology in which some excellent work was done, instruments invented, operations devised, technique elaborated and undoubtedly great good accomplished; and yet practically all of this progress was forgotten, not for a short time, but for centuries, and the whole work had to be done over again. It was done, not in the old world where medical and surgical traditions might have been expected to be revived, but in a new country practically without such traditions—here in America where the practical genius of the people prompted physicians to make their enterprising and progressive development of this subject.

It does not take away any of the credit for thorough originality and progressiveness from the New York founders of this specialty to tell the story of some of the details of an older phase of it, for it is most probable that they knew absolutely nothing about the historical anticipation of their

¹ For other specific details see address of Dr. D. Bryson Delavan.

work and were intent only on solving, as well as possible, the problems which presented themselves to them. What is surprising, of course, is the fact that the medical profession should have made a magnificent development of laryngology and rhinology and then have forgotten about it or lost sight of it and ceased to practice it, until finally the older knowledge went into desuetude. The same thing happened, not alone with regard to this branch of medical and surgical knowledge, but also with regard to a great many other thoroughly practical and extremely valuable developments in professional work, and especially in surgical practice, made by the same generations which brought about the interesting old-time evolution of the specialty of diseases of the nose and throat.

For there is no doubt now that the physicians and surgeons of the thirteenth and fourteenth centuries, some of whose work in laryngology and rhinology I wish to refer to, were using anesthetics and antiseptics, and some of them at least knew that pus, instead of being a necessary accompaniment of healing, is an undesirable complication. They developed, not only laryngology and rhinology, but plastic operations for the repair of mutilating wounds of the face, including the remaking of the nose, did trephining for various conditions within the skull, insisted on lifting up depressed bones in skull fractures, repaired wounds of the intestine, developing a whole interesting technique for this purpose. They fashioned various kinds of metal tubes to be inserted into the intestines in order to maintain the patulousness of the viscera during the process of repair, even suggesting the use of the trachea of an animal for this purpose, and made many other similar surprising anticipations of modern practice supposed to be entirely recent in origin. Little wonder, then, since all these things were also forgotten, that the advances in laryngology and rhinology were lost sight of, but the

question as to how such deterioration came is a fascinating history problem. Anyone who can answer that question in any adequate way knows a great deal about the history of medicine and surgery—ever so much more than I make any pretension to, for I must confess that I cannot answer it.

Surgery degenerated during the seventeenth, eighteenth, and early nineteenth centuries. That is the fact. At the same time hospitals degenerated, until in the early nineteenth century we had the worst hospitals in the world, though the mediæval hospitals had been beautiful in their exteriors and interiors, marvelously practical, well ventilated, with tiled floors that enabled them to be thoroughly cleansed, and many other features that make our modern hospital architects go back to them for suggestions. In the modern period nursing reached its lowest ebb in efficiency; the professional character of those occupied with it was less favorable. As a matter of fact always in the history of medicine those three coordinate factors—the minimization of any one of which at once is a source of serious deterioration of the power for good of all three—go together—good hospitals, good nursing, and good surgery. Whenever hospitals deteriorate, nursing does likewise, of course, and good surgery becomes impossible; whenever the surgeon does not keep the hospital up to its best possibilities surgery itself soon suffers.

It is this chapter of decline in surgery during several centuries before our time that has hidden from us the significance of the older history of medicine. We were inclined to think that if the eighteenth century had neither good surgery nor good hospitals and no development of the specialties, then surely the seventeenth must have had less, the sixteenth still less, and so on until the Middle Ages could have had almost nothing. As a matter of fact that idea of definite gradual progress by which mankind is supposed to have worked itself

up to its present stage of accomplishment finds no confirmation in history. The ups and downs of history are a commonplace to the serious historical student and he finds just as much of them in the history of medicine and surgery as elsewhere. Great advances are made and then forgotten and have to be made over again. That is what happened with regard to the specialty of throat and nose diseases, and it is that story that I want to tell, not in detail, but in a general way, for those who may be interested in this earlier chapter in the history of an extremely important specialty that we who have practiced in New York have a right to claim as our own.

It is assumed that the history of the specialties in medicine begins in comparatively recent times, and that indeed this specialization of attention and effort represents one of the Spenserian processes from homogeneity to heterogeneity which occur in the course of evolution. Men are supposed to have taken the whole body for their field in medicine at the beginning and then with the growth of scientific knowledge to have confined themselves to portions of it, presumably greatly to the benefit of their patients. This limitation of attention is thought to be a matter of the last generation or two and represents the great, absolutely new phase of the development of medical science which has occurred in our time. All of this feeling, though a commonplace in the reading world of our time, is entirely without foundation in any real knowledge of the past. For specialism is very old and the surgical specialties, though all of them redeveloped in our time, have a history well worth tracing in the older books on medicine and surgery.

In this connection Herodotus has some interesting expressions with regard to medicine in Egypt. The great "father of history," though he wrote some 2500 years ago, had his attention particularly attracted to the highly developed specialism among the

Egyptians. He tells us in the quaint language of an old-fashioned English translation:

“Physicke is so studied and practiced with the Egyptians that every disease hath its several physician who striveth to excel in healing that one disease and not to be expert in curing many. Whereof it cometh that every corner of that country is full of physicians. Some for the eyes, others for the head, many for the teeth, not a few for the stomach and the inwards.”

Now here is an historical description of a state of things that existed nearly one hundred generations ago; it makes one think of what has actually come to pass in our time, a condition which we were inclined to think of as eminently modern and, quite surely, a very recent development.

Of course it would be a simple matter to think that possibly Herodotus, in order to add to the interest of his history, had exaggerated somewhat the actual story of specialism as it existed among the Egyptians; but when we know better, in our time, than to accuse Herodotus of perverting the facts of history, for no one has ever been so thoroughly confirmed by all our modern documentary and archæological discoveries as the great “father of history.” A century and a half ago it was the custom to make sport of his credulity, and Voltaire suggested that instead of the “father of history” he should be called the “father of lies.” Voltaire, by the way, also thought Shakespeare an English barbarian, Dante a mediæval barbarian and Homer a wandering balladist the like of whom might be found on the streets of Paris in Voltaire’s own day. He also made some slighting remarks about the Almighty. Voltaire found it very difficult to understand anyone above himself in intellectuality. We know now that Herodotus’s story of the Egyptian spe-

cialties was drawn very mildly, and that the human body was actually divided into some thirty-six regions with specialists for each of them; also that a good deal of jealousy existed between the specialists whenever they happened to invade one another’s territory. All of which is not without practical interest, even in our enlightened time.

Probably the Middle Ages would be almost the last period in history where one would expect to find any particular development of the surgical specialties. The treatment, however, of the nose and throat and of the eyes received a good deal of attention at this time, and we have much documentary evidence of what was accomplished. The first modern medical school was established at Salerno, not very far from Naples, in connection with the health resort which had been established there and which attracted patients and physicians, not only from southern Italy and from Greece, but also from the near East, from North Africa and from the West of Europe. We know that a son of William the Conqueror went down there to be cured of an ailment in the eleventh century, and that many bishops and other churchmen went there in the twelfth century. Salerno provided an excellent medical education in many ways; it placed the department of women’s diseases in charge of women, admitted women medical students as a matter of course, and had very high standards of preliminary and actual medical education. Three years of preliminary study were required by law, four years at medicine, and then a year of practice with a physician before the young physician was permitted to practice. With that in mind it would not be surprising to find that even the surgical specialties developed down there.

The first great writer on surgery was Roger, sometimes called Roger of Parma, and sometimes Roger of Salerno, and he is the first independent writer on medicine in the Occident after the Arabian times. He

lived at the end of the twelfth and the beginning of the thirteenth century and probably wrote his "Practica Chirurgiæ" about the beginning of the thirteenth century. It is usually presumed that these Salernitan physicians living in the Mediterranean region were deeply influenced by the Arabs, above all since, according to a very old tradition, the founders of Salerno were four physicians of very different origin—a Latin, a Greek, a Jew, and an Arab. Much was made of this supposed dependence on the Arabs in the older days, but Gurlt points out, after careful study of Roger's work, that it abounds in Græcisms, not Arabisms, and that evidently Roger was following the old Greek tradition of surgery. This is not surprising when we remember that the southern part of Italy in the neighborhood of Naples had been a Greek colony from very early times and indeed had been known as *Magna Græcia*.²

Roger has written a very interesting description of inflammation of the tonsils with its treatment. He calls these organs

² Probably the greatest influence at work in the organization of the university at Salerno and of the medical school around which the University mainly came into existence was the Benedictine School at Salerno which had been in existence for several centuries. St. Benedict's greatest foundation was at Monte Cassino, not far away, and the Benedictines had been very much interested in the school in Salerno. That their influence continued after the foundation of the medical school will be best understood from the fact that Salerno's greatest writer and teacher on medicine in the eleventh century was Constantine Africanus, the great African physician who had come to Salerno and to whom patients came from all over Europe; he wrote the first modern textbooks of medicine in existence. Constantine and Abbot Desiderius became great friends, and indeed, according to tradition, it was the worthy abbot who insisted upon the necessity of Constantine's writing on the subject of medicine. He finally succeeded in getting him to do this, by taking the time from a very busy professional life.

Constantine became so much interested in the purely intellectual life of medicine that after a time he gave up practice and retired to Monte Cassino

branchi, or branci, and says that they swell interiorly and create, as it were, two almond-like bodies in the throat. As a consequence of this swelling, expectoration is difficult and breathing is conducted with anxiety. For this, gargling should first be used, and if the patient is not relieved recourse should be had to surgery. Then he describes how an operation should be done on them:

"Seat the patient before you and press his tongue down in his open mouth with an instrument, so that you can see the tonsils well. Take hold of the affected one firmly with a bronze or iron hook and incise it with a properly sharpened instrument. Leave the coverings (the pillars of the fauces) which stand next to them uninjured however."

This is of course a description only of a simple opening of a tonsillar abscess. When the inflammation of the tonsils has

to be near his friend the Abbot Desiderius and to enjoy the quiet life of the monastery. Probably he looked forward to years of friendly companionship and the satisfaction of mutual intellectual influence. Only a few years later, however, the Abbot Desiderius, much against his will and in spite of his refusals, was chosen Pope, and so Constantine was left in the monastery without his friend, the Abbot. This seems to have spurred him on to renewed interest in the intellectual life, in order to fill up the void thus created; besides the Pope encouraged him in his writing. The result is that we have a number of works from Constantine.

The story is interesting to us here because it makes very clear the fact that Benedictine influence must have been strong at Salerno, and that the usual assumption that Salerno is an Arabian foundation or was largely influenced by the Arabs is only a part of that tradition which came to be so rife in the eighteenth century, namely, that it was the Arabs and not the Christians who were largely responsible for the revival of interest in the intellectual life after the coming of the barbarians had so thoroughly interfered with the culture of the Roman Empire.

proceeded so far, however, that simple incision will not cure them, he suggests that with instruments made for this purpose they should be completely removed. His Latin words for this, "*et a radice funditus, vellantur,*" which may be translated literally, "plucked away entirely by the roots," probably is responsible for our use of the expression, "under similar circumstances radical operation."

Manifestly there were a number of observations made on diseases of the throat in Roger's time and so we are not surprised to find, a little farther on, a description of a serious condition near the epiglottis which impeded the voice and obstructed the trachea, and which can be cured only by surgical intervention. Gurlt does not hesitate to say that in this Roger was probably describing edema of the glottis. Apparently this condition had been recognized and some mode of treating it discussed, though in his book on surgery Roger only refers to it indirectly.

In elongation of the uvula Roger suggested first the use of medicaments in powder form and then the application of argles.

"If however, the uvula can not be made to shrink in this way then it should be grasped with a forceps made for this purpose near the palate where the uvula itself is sometimes of smaller diameter and snipped off. Care should be taken, however, not to touch the roots of the uvula."

Here evidently he was warning against the radical operation, though in the removal of the tonsils he encouraged thorough radicalness. What is constantly surprising in Roger's work is the mention of various special instruments for these purposes.

Angina was described by Roger under the name *squinancia*, and evidently had

been studied with a good deal of care. It was differentiated into three varieties with slightly different names: *squinancia*, a very severe form; *scinancia*, a milder form, and finally *quinancia*, of which the prognosis was always good. The symptoms were practically all the same—difficulty of inspiration and expiration as well as difficulty in swallowing both food and drink. Sometimes the voice was completely interfered with and the saliva could not be swallowed nor the sputum emitted. The first form of the disease, *squinancia*, was located between the trachea—which, because it carried air was called at that time *trachea arteria*—and the esophagus, at a place called the isthmus. Its prognosis was very fatal and its cure was to be left to God alone. The second form, *scinancia*, much less severe or malignant—Roland's exact word is "*maliciosa*"—had for its characteristic lesion the development of pus, partly deep in the tissues but partly on the surface. The description evidently refers to what we call retropharyngeal abscess, the severer form being retro-esophageal abscess. Roger suggests that the retropharyngeal abscess can be ruptured with the finger or with some instrument, and that it is always well to do this as soon as pus has formed. He said that he had cured some patients with his own hand in this way.

This form of the affection he suggested might be treated as follows: He confesses that it is something of an experiment and uses the word "*experimentum.*"

"Take of salt beef, half cooked, of the size and shape of a chestnut or a filbert,³ and having fastened it firmly by a long silken cord have the patient swallow it and then let the physician pull it out suddenly and violently (*cum violentia*) in order that the abscess may be ruptured."

³ Old-fashioned filberts were larger than ours.

Quinancia was to be treated by gargles, applications, venesection from the sublingual vein, and these methods were to be used at first also in the other forms of the affection.

In the same chapter Roger treats of goiter and suggests various applications, but considers also in the severe forms the necessity for extirpation. He warns against any attempt to remove large goiters, but suggests that a temporary ligature of the goiter might be made and then a subsequent radical removal. Evidently a favorite palliative mode of treatment of his was cauterization with the hot iron and sometimes even penetration of the goiter in that way.

While Roger is the first of the western surgeons who wrote a treatise on this subject, he was very soon followed by Roland, a pupil whose work contains very little of importance that was not covered by his master, but who adds some personal comments which serve to show that men were thinking seriously about a great many surgical problems and solving them very well.

These two were followed in a few years by the "Textbook of the Four Masters," since famous in the history of medicine and surgery. Manifestly within the first century, probably indeed within the first fifty years of western surgical writing, it was recognized that a group of men could make a more complete textbook than a single man. It is usually thought that the "Four Masters" were Archimatteo, Petroncello, Plateario, and Ferrario. Of these only Plateario, or Platearius, is known apart from this book, for he was the son or the grandson of Platearius and Trotula, Platearius having been the Professor of Medicine and Trotula the Professor of Women's Diseases and the head of that department in the medical school of the University of Salerno, and for several generations their sons and grandsons continued to be prom-

inent in the teaching staff of the school.

The next important writer on surgery in Italy, after Roland and Roger and the "Four Masters," was Bruno of Longoburgo, who was born down in Calabria—the heel of the Italian boot, as the name of his birthplace attached to his Christian name indicates—and who was probably a student at Salerno. In the Latin literature of the time, for of course all wrote in Latin, his name was Brunus and it is usually under this name that he is quoted. Though he studied in the south of Italy he practiced and taught in Verona and Padua. His book "Chirurgia Magna" was finished at Padua, as he himself declares toward the end of it, in January, 1252. His volume is noteworthy, mainly for the reason that he was the first of these mediæval surgeons of the West to quote not only the Greeks, but the Arabs. Arabian influence was an afterthought and a subsidiary factor, and not the origin of this mediæval surgery, as it is often declared to be by those who theorize without weighing the facts of chronology.

Bruno, to use his Italian name, has much to say of the treatment of various intranasal pathological conditions which disturb breathing. He describes several varieties of nasal polyps and differentiates one of them as a "malignant tumor." This was of darker color, of slight sensibility and was very hard. He advised against operation upon it and suggested that it should not be touched, as surgical intervention merely hastened its growth and made the patient worse.

With regard to the removal of polyps he quotes Abulcasim, or Albucasis, the Moorish physician, special medical attendant of the Khalif el-Hakim III (961–976). Abulcasim, who flourished in the second half of the tenth century, wrote a very comprehensive medical and surgical work under the title "Altasrif" or "Tesrif," in some thirty books. This Moorish physician, who

is quoted by Bruno, suggests the removal of polyps by drawing them down with a hook, severing the connecting portion with a knife, and then shaving off any projection that may remain. The cautery was used to prevent recurrence and to assure the freedom of the nose for breathing. Bruno suggests that the root of the polyp should be cauterized with a hot iron or with some cauterizing material. He adds that sometimes the use of a cauterizing substance is quite sufficient to destroy a polyp and prevent its recurrence.

Bruno next discusses obstructions of the nasal passages which may occur from overgrowths in the back part of the nose, in the nose and throat space. For the treatment of these he quotes Paul of Ægina, the most famous medical writer of the late Greek time, of whose career we know so little, however, that differing authorities place him anywhere from the fourth to the seventh century A.D. Paul suggested that a ligature with knots at intervals should be passed through a tube into the nose and then brought out through the mouth and by to-and-fro motion employed to cut off projecting growths at the back of the nose. After this, cauterizing materials were to be used to prevent recurrence. Bruno seems to have been quite satisfied that he could make the nose patulous in this way and greatly relieve the patient and prevent the development of complications.

It may seem surprising that a surgeon in the middle of the thirteenth century should have so much surgical sense, but when it is recalled that Bruno was the originator of the expression "union by first intention," it will be easier to comprehend. That expression, so familiar in the modern times, has of course no significance in any modern language except what is lent to it by the old mediæval Latin, *unio per primam intentionem*. Bruno knew exactly what he was talking about when he used it, for he had seen wounds heal without pus and he

knew that this was the ideal way for healing to occur. His great contemporary, Theodoric, whose textbook appeared some ten years later, declared quite explicitly:

"It is not necessary, as Roger and Roland have taught and as many of their disciples are still teaching and as all modern⁴ surgeons profess, that pus should be generated in wounds. No error can be greater than this. Such a practice is indeed to hinder nature, to prolong the disease, and to prevent the conglutination and consolidation of the wound."

Theodoric himself copies Bruno with regard to operations within the nose, and has something special to say with regard to nasal repair after injuries. Every possible portion should be saved and if a part of the nose hang down this should be replaced and very carefully sewed on again. A pledget of silk soaked in warm wine of proper thickness and length should be inserted into the nostrils in order to maintain the parts in their proper places just as far as possible. If the patient's breathing, disturbed by this procedure, threatens in any way to interfere with the success of the operation, then the pledget of silk should have a goose quill run through it in order to facilitate breathing. The older medical and surgical authorities, especially Paul of Ægina and Hippocrates, had suggested a tube made of lead, but Theodoric found a quill much more cleanly and less bothersome.

Theodoric has a good deal to say about the possibilities of repair of disfiguring wounds of the face and is a distinct pioneer in plastic surgery. His use of strong wine as the only dressing, his insistence on the absence of manipulation and his advice not to remove the dry dressing, as it was called—because after a time the strong wine evap-

⁴ How curious this use of the word "modern" seems just after the middle of the thirteenth century.

orated, leaving the dressings perfectly dry—gave him abundant opportunity for securing such healing as would provide the best results. He did not hesitate to say, when a surgeon made an incision in a hitherto unbroken part, that if pus developed in it that complication was due to the surgeon's error—his manipulations were at fault. For this reason he advised against sewing up wounds of the scalp, though he gives a number of details of the procedure that should be employed to bring the parts carefully together and, by proper bandaging and pressure, to keep them together.

Strange as it may seem, Theodoric was a bishop as well as a surgeon and had been a member of the Dominican Order. His textbook of surgery published in the Venetian Collection of surgical works in 1498 makes that fact very clear. He is the first surgical writer who definitely mentions the use of an anæsthetic during operations. He says that its introduction was due to his father Ugo, or Hugh, of Lucca, as he is called, who is known to have been a great surgeon, but who wrote nothing, and whose fame is preserved only through his son's writings. Ugo of Lucca, or Hugh Borgognoni, to use the family name that he and his three physician sons employed, had been a surgeon to the crusaders about 1218 and was present at the siege of Damietta. After his return he was made the City Physician of Bologna, to whom not only matters of health but also of medico-legal significance were referred. His appointment and the statutes granting him powers are the first documents in the history of legal medicine in modern times.

Theodoric wrote of his father's experiences and those of his brothers as well as his own. Many of these details of surgical technique had been carefully treasured as secrets up to this time and transmitted as family heritages, as among the Asclepiadean families in the olden time. Theodoric broke this tradition and published them for the

benefit of humanity in his own and subsequent generations. Among other things, he gave us, particularly, as we have said, the method of producing narcosis, evidently carefully worked out so as to make it possible that extensive surgical work might be done on a patient without his feeling it, or but to a slight degree, and yet without any serious risk of his not awaking at the end of the operation.

Theodoric's description of the mode of obtaining anesthesia practiced by his father is as follows:

“Having made a mixture of the wine extracts of opium, hemlock, mandragora, unripe mulberries and wild lettuce, a sponge should be boiled in this fluid until all is boiled away, and then whenever anesthesia is wanted this sponge should be placed in warm water for an hour and applied to the nostrils until the patient sleeps, when the surgical operation should be performed. At its end another sponge dipped in vinegar should be frequently applied to the nostrils, or some of the juice of the root of hay should be injected into the nostrils, when the patient will soon awaken.”

A mode of anesthesia resembling this in many respects is described by Guy de Chauliac after the middle of the fourteenth century, so that there seems to be no doubt that for several centuries operations in Europe were done under the influence of an anesthetic and that the practice was reasonably successful. It is easy to understand that it was neither so safe nor so sure as our practice in the matter. The surprise is that it should have existed, and for so long, and then have been entirely forgotten, so that the very idea of an anesthetic came as a surprise to the mid-nineteenth century. As a matter of fact the English poet Middleton mentions “the pities of old surgeons”

and how they put them to sleep before cutting them, and there are other literary passages to the same purport; but readers used to think that these represented poetic licenses or were due to the writers' imagination, the poets' enthusiasm spurring them on to tell things that would have been ideal had they existed, though in reality they never did.

We know otherwise now, and knowing the generations that practiced both anesthesia and antisepsis we are not surprised

to find among them developments of the specialty of the nose and throat which would otherwise have seemed almost incredible. How curious it is, however, to find that these two great cycles of development of surgery, including the specialties, should be separated in their initial stages at least by seven centuries. The student of history who can explain the reason for the interval between these two cycles of advance knows something about human history and its philosophy.

THE CHASSEURS D'ALPIN

(The "shock troops" of the French army)

See the Chasseurs marching through
To the front. To the front.
They have Titan's work to do,
Bear the brunt!
O'er the top and through the grass,
Suffocating with the gas
'Mongst the barbèd wire they pass.
'Tis their wont.

Last resource in direst need
On they go. Forward go.
They will die or they'll succeed
O'er the foe.
Hand grenade and glassy steel,
Down and up, and on they reel.
What must be the joy they feel!
'Twas ever so.

They are called the troops of shock.
Sturdy men. Heroic men.
Each attack 'tis theirs to block.
Charge again!
Counter-charge the Hunnish horde,
Purge the pride of Prussia's lord,
Cause a cost he'll ill afford.
One for ten!

Pause while they are passing by,
Contemplate. Meditate.
'Tis a goodly company—
Venerate.
They shall save the Fleurs de Lys,
They shall help us, over seas,
Keep our ancient liberties
Inviolate.

Here a cross and there a mound,
Thus they sleep. Silent sleep.
Sheltered by the kindly ground.
Vigil keep!
For they have not died in vain,
In the groves of Compiègne.
Still their spirits fight again
And glory reap.

Traveler, plait a laurel wreath
Of a girth, majestic girth.
Lay it where they sleep beneath
With Mother Earth.
So may rose and twisting vine
With the laurel intertwine,
Nature's ever vernal shrine
To their worth.

CARLETON B. McCULLOCH, M.D.
MAY, 1918.

MODERN COMMENTARIES ON HIPPOCRATES¹

By JONATHAN WRIGHT, M.D.

PLEASANTVILLE, N. Y.

PART I

PERHAPS it is not the only way, but one of the ways of judging of the excellence of a work of science or literature is to take note of the discussion the author has elicited in less talented readers and the stimulation of the faculties thereby evidenced. In the conceit and braggadocio of Falstaff, aside from his being the butt of jokes, we perceive he is conscious of the quality of his mind when he says he is not only witty himself, but is the cause of wit in others.

There is no standard of truth whereby the accuracy of theory and practice of one age can be judged by another, though there are underlying general principles which persist as much perhaps by their vagueness and lack of limitation and inclusiveness as by their validity, but, for the most part, time withers most specific facts as they were apprehended two thousand or more years ago. When, however, a discourse, an oration, a poem, a philosophical treatise, or a narrative continues for generation after generation, century after century, for ages, to excite the comment of readers, as do, for instance, those of Homer, Herodotus, Hippocrates, Horace, Virgil, we are safe in recognizing in that objective evidence the proof of an inherent excellence which perhaps our own faculties do not reveal to us. Subjective testimony is of little interest to us. We care not if the intellectual creature at our side adores Ibsen—we might hate him; or if the man in the street reads Kipling to-day—to-morrow he may likely never give him a thought. It need not

disturb us if Plato is thought by the young lady at the library to have written something on astronomy or if the man who preaches in our church thinks Aristotle was a monk. We ourselves may be unable to get up any enthusiasm for either. But when we learn that all these men have by their words tapped the ocean of thought in every era of civilization since they lived and at their magic touch abundant streams of mental activity have gone forth to enrich the world, when we once realize what an ever living power they still exercise over the best minds which humanity produces, then what Dotty says about Ibsen or what Bill Broker thinks of Kipling, that the Reverend Mr. Stiggins is mistaken about Aristotle, or that we ourselves fall asleep or our minds wander when we read the "Phaedrus" of Plato or the "Poetics" of Aristotle, is of no consequence. It is a subjectivity which has nothing in the least to do with the quality of the writer's works; that we must judge of from what we come to know of the phenomena which the history of thought furnishes us.

The acknowledgment of this as a reality is common enough, so common as to have become perfunctory and of course occasionally a little ostentatious, but it is seldom the subject of analysis. Why is it, then, that these master artists continue to be the wellsprings of thought and the origin, usually unrecognized, of inspiration? Certainly not because of the facts they display. These are denied or discredited in a short time; but through every vicissitude of

¹ The translations of Francis Adams' Hippocrates, "Genuine Works," v. 1. New York: William Wood & Co., and E. Littré's Hippocrates, "*Œuvres complètes.*" Paris: J.-B. Baillière, 1839-1845. These volumēs have been chiefly used and compared with Littré's Greek text.

theory and every turn in the current of thought, often very shallow, the influence remains profound. Their language is an unknown tongue to many, at least in so far as the finer shades of meaning or of symmetry of form in their more recondite sense are concerned. The charm of rhythm or the subtlety that goes with rhetorical effect is often lost to us. Thus we might proceed in an attempt to understand why such men have dominated the thoughts of posterity, but our endeavors at analysis are defeated and we are driven to extend the many definitions of genius to a pragmatismal conclusion that success in its age-long demonstration is the weightiest factor in our understanding of genius. In this connection, however, that is inclusive of that boast of the old debauchee whom Shakespeare's art has created for us—they are the cause of wit in others.

No remark, preliminary to the study of the writings of Hippocrates, is more helpful than the observation of Littré, who in substance pointed out that while to-day we study disease as an entity and follow the forces of each one from their origin to their post-mortem manifestations, Hippocrates studied man and the reactions he exhibits to his manifold environment. It is the phenomenon presented by man and what it indicates as to the probable result as regards man which he conceived as the chief object of medical study. It requires no very deep reflection to realize that there is a material discrimination to be made psychologically between the concept of disease and the conception of a diseased man. For the former we seek the literature of medicine which has appeared in the last hundred years, for the latter the literature which, originating with Hippocrates, fills the thousands of years which have elapsed since he in his time wrote "On Ancient Medicine." In this essay and in the one following, "On Airs, Waters, and Places," more than in some of his other

treatises, he brings the remote causes of disease and general philosophical conclusions more into prominence. On the other hand, in taking up "The Prognostics" we observe that it is entirely founded on observation. If Hippocrates gathered this experience from the records of clinical observation made by himself and by other priests in the temples of Æsculapius, we find that the methods of observation, which served as the basis of a priestly and magical interpretation, served also for the beginnings of rational medicine. How it came about that historians have ascribed to Hippocrates the fame of being the first to question nature would furnish an interesting and instructive example of how Baconians have perverted the plain indications of history. Evidence has shown Babylonian priests taking meticulous care for unnumbered centuries in recording facts and their sequences, phenomena they observed in the heavens and in the entrails of animals and the mundane events, important to man, which followed the observations. They observed and questioned nature, but they did not reason right.

When Ermerins, whom Adams quotes, made the remarks which follow he only partly disclosed the reform wrought in the ranks of the Asclepiadæ, before the epoch and during the time of Hippocrates, who was their spokesman:

The readers must particularly keep before their eyes this origin and the antiquity of those writings if they would pass a correct judgment on the merits of the Asclepiadæ towards the art of medicine. Whatever in their works we have the pleasure of possessing, all attest the infancy of the art; many things are imperfect, and not unfrequently do we see them, while in the pursuit of truth, groping, as it were, and proceeding with uncertain steps, like men wandering about in darkness; but yet the method which they applied, and to which they would seem to have betaken themselves of their own accord, was so excellent that nothing could surpass it. It was the same method which Hippocrates himself always adopted, and which,

in fine, Lord Bacon, many ages afterward, commended as the only instrument by which truth in medicine can be found out.

As a matter of fact they inherited their method from the rules of the practice of magic, the observation of the stars, the flight of birds and the entrails of animals. They turned from these observations to observations on the phenomena of disease. They recorded one just as they recorded the other, on the walls of temples and on their tablets. What the Asclepiadæ really did was to turn away not from habits of the observation of nature, which we cherish, but from irrational methods of thought. They reformed the rules of logic, but they did not introduce the inductive method; it was already hoary with age.

Although Hippocrates criticised the methods of the Nature philosophers he resorted almost as freely as they to theory building. Dr. Ermerins himself basks in the comfort furnished by theories of vital force rampant in his day. The neovitalism of the nineteenth century had its roots deep in human nature, and it still draws its sustenance from that same fundamental mystery which shrouded cosmic laws from the gaze of Babylonian and Baconian alike. The modern man of science must acknowledge its existence, but when he tries to shelter himself from his difficulties in the practical search of truth by a resort to the covert of vitalism he enters the tomb in which the human mind was imprisoned before the era of Thales and of Hippocrates. It was emancipation from this and not the introduction of inductive philosophy, which we owe to Hippocrates and his forbears. The inductive philosophy of Bacon was the basis of the method that primitive man adopted when he began to develop the memory of his cognitions. To judge from the conventional remarks in regard to it one might suppose it had never existed in the world before the time of Lord Bacon, or at least of Hippocrates. Succinctly

stated, this method, which has achieved such an apparent ascendancy in our day, is to proceed from the study of the particular to the general, to collate facts by observation and experiment and from them to deduce the conclusions which are to be applied to the conduct of life and the further investigations of the laws of nature.

In the quotation from the thesis of Dr. Ermerins which Adams has made, it will be noted that Dr. Ermerins commends Hippocrates for being a Baconian. Nothing, perhaps, is more diametrically opposed to the doctrines of Bacon than those of Plato,² yet in one of his dialogues we find him claiming Hippocrates' support. Socrates in the "Phædrus" asks if the nature of the soul can be intelligently studied without knowing the nature of the whole and the answer is: "Hippocrates, the Asclepiad, says that this is the only method of procedure by which the nature even of the body can be understood." Hippocrates was the slave of no method. He was the critic and the analyst not only of the problems of nature, but of the methods of men who sought to know them.

If we are to apply the Baconian doctrine rigorously and without the compromise that common sense gives to all things, the student cannot start with certain conclusions of a general character, arrived at by methods of which he must necessarily be ignorant, but he must begin *ab initio* and build up his foundation from the apperceptions of primitive man to the level of his first entrance into medicine proper, or in a state of entire ignorance he must face a task to which, even in Hippocrates' day, a trained mind stored with the experience of others alone was adequate. Plato had his opinion how best to train that mind and Hippocrates had another, but in the contact noted by Littré their point of agreement, as evident to the most bigoted

² "The Dialogues of Plato," tr. by B. Jowett. New York: Charles Scribner's Sons, 1911. 4 v.

Baconian as to Platonist, lay in the fact that training was as necessary for the beginning of the study of the soul as for the beginning of the study of the body.

The problem of the method of science is at once encountered in the first lines of "On Ancient Medicine":

Whoever, having undertaken to speak or write on ancient medicine have first laid down for themselves some hypothesis to their argument, such as hot or cold or moist or dry, or whatever else they choose, thus reducing their subject within a narrow compass and supposing only one or two original causes of disease or of death among mankind, are all clearly mistaken in much they say.

There seems no reason to doubt the validity of the arguments Littré advances for supposing that the tract on "The Nature of Man" was written by Polybus, the son-in-law of Hippocrates, as Aristotle, almost a contemporary, asserts. In it, however, we get a reversion to the criticism Hippocrates thus visits upon the ancient Nature Philosophers in the opening sentences of his essay "On Ancient Medicine":

According to one, the air is the unique and only thing, to another fire, another water, another earth, and each one sustains his reasoning by evidence and arguments which are of weight. . . . They pretend, indeed, that there is a single substance, arbitrarily chosen and named by each, and that this substance changes its appearance and its nature under the influence of the hot and the cold becoming in a manner soft, bitter, white, black and all the rest.

He will have none of it and advances his own arguments, which partake of those of Alcmaeon and the theory of crasis, of equilibrium of the mixtures in the blood, the mucus, the yellow and the black bile in which we find an explanation of the nature of man and what makes the difference between disease and health. He substitutes one theory for another, and in this he sins no more plainly than his father-in-law, Hippocrates, against the first precepts

of "On Ancient Medicine," in that essay itself and in others.

It is difficult to find the origin of the idea of the qualities, the moist, the dry, the hot, and the cold, which after the time of Hippocrates became increasingly more prominent in medical writings until Galen transmitted them through the Dark Ages and the Renaissance to almost our own century. Traces of the formulation of these attributes of matter may be found even in the "Rig Veda." It is therefore of secondary importance to discover whom Hippocrates had in mind as the originator of the theories he attacked. Anaximenes,³ Parmenides,³ Anaxagoras,³ Heraclitus,⁴ and many other predecessors of Hippocrates doubtless made it a part of their scheme of things, but it originated with none of them. Like the elements of fire, air, earth, and water, like the blood, the breath, and the soul, as a definition of life they belong to the fundamentals in the primitive thought of mankind. These hypotheses, we are to infer from the remarks of Hippocrates and his followers, were to be avoided, but by no means the records of those observations of phenomena whereby the nature of disease had in the past been manifested to others:

For there are practitioners, some bad and some far otherwise, which, if there had been no such thing as medicine, and if nothing had been investigated or found out in it, would not have been the case, but all would have been equally unskilled and ignorant of it, and everything concerning the sick would have been directed by chance.

Then he proceeds to resume his fling at the Nature Philosophers who before him have adopted the hypotheses to which he specifically alludes:

³ "The First Philosophers of Greece," by Arthur Fairbanks. New York: Charles Scribner's Sons, 1898.

⁴ "Early Greek Philosophy," by John Burnet. 2 ed. London: Adam & Charles Black, 1908.

I have not thought that it stood in need of an empty hypothesis, like those subjects which are occult and dubious, in attempting to handle which it is necessary to use some hypothesis; as, for example, with regard to things above us and things below the earth.

Singular to say, the Platonic Socrates rejected them for another reason—not because they were too theoretical, but because they were not theoretical enough, because they were too materialistic, we would say. He remarked to Cebes in the “*Phædo*”⁵ that there was a time when he thought he understood what was what—“the meaning of greater and less pretty well”—but now “I am no longer satisfied that I understand the reason why one or anything else either is generated or destroyed or is at all, but I have in my mind some confused notion of another method, and can never admit this.” He had once been much troubled about such matters.

Then I heard some one who had a book of Anaxagoras, as he said, out of which he read that mind was the disposer and cause of all, and I was quite delighted at the notion of this, which appeared admirable, and I said to myself: If mind is the disposer, mind will dispose all for the best, and put each particular in the best place; and I argued that if any one desired to find out the cause of the generation or destruction or existence of anything, he must find out what state of being or suffering or doing was best for that thing, and therefore a man had only to consider the best for himself and others, and then he would also know the worse, for that the same science comprised both. And I rejoiced to think that I had found in Anaxagoras a teacher of the causes of existence such as I desired, and I imagined that he would tell me first whether the earth is flat or round; and then he would further explain the cause and the necessity of this, and would teach me the nature of the best and show that this was best; and if he said that the earth was in the center, he would explain that this position was the best, and I should be satisfied if this were shown to me, and not want any other sort of cause.

⁵ “The Dialogues of Plato,” tr. by B. Jowett. New York: Charles Scribner’s Sons, 1911. 4 v.

As he sits there in prison awaiting among his weeping disciples the time for drinking the hemlock, his irony and his humor break forth:

What hopes I had formed, and how grievously was I disappointed! As I proceeded, I found my philosopher altogether forsaking mind or any other principle of order, but having recourse to air, and ether, and water, and other eccentricities. I might compare him to a person who began by maintaining generally that mind is the cause of the actions of Socrates, but who, when he endeavored to explain the causes of my several actions in detail, went on to show that I sit here because my body is made up of bones and muscles; and the bones, as he would say, are hard and have ligaments which divide them, and the muscles are elastic, and they cover the bones, which have also a covering or environment of flesh and skin which contains them; and as the bones are lifted at their joints by the contraction or relaxation of the muscles, I am able to bend my limbs, and this is why I am sitting here in a curved posture; that is what he would say, and he would have a similar explanation of my talking to you, which he would attribute to sound and air, and hearing, and he would assign ten thousand other causes of the same sort, forgetting to mention the true cause, which is, that the Athenians have thought fit to condemn me, and accordingly I have thought it better and more right to remain here and undergo my sentence; for I am inclined to think that these muscles and bones of mine would have gone off to Megara or Bœotia, by the dog of Egypt they would, if they had been guided only by their own idea of what was best, and if I had not chosen as the better and nobler part, instead of playing truant and running away, to undergo any punishment which the state inflicts. There is surely a strange confusion of causes and conditions in all this. It may be said, indeed, that without bones and muscles and the other parts of the body I cannot execute my purposes. But to say that I do as I do because of them, and that this is the way in which mind acts, and not from the choice of the best, is a very careless and idle mode of speaking.

I suppose reasoning of this kind taken as a model for logic ultimately led to the quips and plays on words and puerilities found in

many of the books of the pre-renaissance period. Here half in jest, half in earnest in the mouth of Socrates, sitting there awaiting death, Plato has put it in a strikingly dramatic setting. It is not ridiculous and pedantic; it is saved from that by the tragedy of the scene, which has indeed become one of the great world tragedies for us. This saving grace of the sublime has preserved for us the grain of truth which lies in much of the chaff of Socrates, which was lost in the maudlin pedantry of monastic philosophy. I do not know whether or not Galen also was jesting, but this Socratic discourse always reminds me of what he says of the recurrent laryngeal nerves⁶ to which I have elsewhere drawn attention. At any rate he sets forth the argument also in anatomical terms and ascribes it to the Stoics. If that is so, the Platonic dialogue I have quoted probably is influenced by the same sophism. Galen says the Stoics reasoned thus: "It is evident the voice cometh from the mind. It is also evident it cometh from the larynx. Hence the mind is not in the brain." Galen demolished this sophism thus:

They will wonder when they hear the voice is produced from the brain, and much more after having heard that all voluntary motion is performed by the muscles. . . . For the muscles move certain parts upon which the breathing and the voice depend, and they themselves in their turn are dependent on the nerves from the brain. If you surround any one of these with a ligature, or if you cut it, you will render the muscle to which it is distributed motionless, as well as the limb of the animal which has moved before the nerve was cut.

I take it this is satisfactory to twentieth century materialists, but after all the pigs on whom Galen seems to have experimented have a larynx and recurrent nerves, and however learned they may be at the circus, a four-legged variety do not talk, so I

⁶ "History of Laryngology," by Jonathan Wright. 2d ed. revised and enlarged. Philadelphia and New York: Lea & Febiger, 1914.

prefer to believe with Zeno and Socrates that the mind is an organ of the voice, and that Galen's criticism is a confused and presumptuous tampering with logic and dialectics, in which he was practiced but in which he was not an adept. I may have seemed to wander a little from the subject of the method of science, but the matter I have introduced serves to illustrate that it is not sufficient experimentally to cut or stimulate the recurrent laryngeal nerves and to observe the sequence of events; it is necessary to take into view the differences between a man's voice and that of a pig. Those who are familiar with the technical experiences elicited from an experimental study of the laryngeal nerves a generation ago will appreciate the necessity for the erection of some hypothesis looking to this discrimination. The acceptance of theory erected on the experience of others and rationalistic deductions from it are absolutely necessary for progression beyond the possibilities of mental activity open to primitive man.

Littré has included in his edition of the complete works of Hippocrates a little tractate of unknown authorship, "The Precepts." In it we get a glimpse of the opinions of Hippocrates. It is elaborated from the passages we are concerned with in the essay "On Ancient Medicine" or from some of the other genuine books. Perhaps it is from his own hand. I think the sentiments there expressed perhaps are a nearer approach to the method of Hippocrates than the Baconian which has been foisted on him by the distorted vision of more recent admirers. He who knows that in time occurs the opportunity and in the opportunity a brief time:

In order to practice medicine, should devote himself not at first to the probability of reasoning, but to reasoned experience. Reasoning is a sort of synthesis of all that has been perceived by the senses. . . . I praise, therefore, all the reasoning faculty, if it takes its departure from

the observation and evolves its deductions from the facts as they appear. . . . Intelligence starting from it, as I have said, leads to the truth.

This is a fair summary of the critical argument in the essay "On Ancient Medicine" as to the method of science in which some have recognized the Baconian system, but it is modified in such a way as to appeal to common sense.

There is no one who has done more to advance what we believe is our knowledge of the physics of matter than Clerk Maxwell. It is not of vital importance whether the theories that follow from mathematical and logical deductions from the phenomena of the universe are true or not. It is quite as impossible for me to think of an ether of perfect density yet of perfect elasticity, demanded by some of them, as it is for me to think of influence exerted at a distance through a vacuum, but if the theories work to the end of the discovery of facts in their proper sequence, if they are pragmatical, though they may be far from representing actual facts in themselves, if they suffice for this, we need have no concern as to their own truth. Most facts are secured to us by the incidental revelations which open up to us on false paths. To these false hypotheses we owe most of our knowledge and the hypotheses have been laid aside as useless scaffolding. Maxwell says in his work on "Matter and Motion": "The investigations of molecular science have proceeded for the most part by the method of hypothesis and comparison of the results of the hypothesis with the observed facts." This is not Baconian doctrine at all.

It is a typical example of how out of absurdities realities emerge. We have thus reason to believe that not only do our senses lead us astray as we well know, but the workings of the human mind are impotent in the face of fundamental cosmic facts. It is not for me to speak of the ideas of mental philosophy of which I have

little knowledge and less skill in their exposition, but even the casual reader of the works of the greatest of them can with difficulty come to any other conclusion. Locke in many admirable passages in his "Essay on the Human Understanding" (Our Ideas of Substance) points out that we have no clear idea of "substance," a word in his day not entirely identical with our word matter. Certain attributes of certain categories of matter are conveyed to our cognition by the senses and from these data we form certain ideas or conceptions which find lodgment in our minds. So innumerable are they that we unconsciously assume there is such a thing as substance or substratum or matter which has no attributes to appeal to us—the "Being" of the Greeks—the "*Ding an sich*" of Kant—but of this, these philosophers say we have no assurance supported by observation:

The same happens concerning the operations of the mind, viz.: thinking, reasoning, fearing etc., which we concluding not to subsist nor apprehending how they can belong to body or be produced by it. We are apt to think these the actions of some other substance which we call spirit.

Here we find Locke using the word "substance" in a manner to include the soul as well as the body, the former of which we exclude from our word matter. It will suffice, however, to make us realize that great minds refuse to give credence to the possibility of forming a basic theory of the universe on observation. Theory is not only necessary, but it is *pure* hypothesis or theory which is the most necessary. We perceive then, that modern physics, no less than an ancient cosmology, are built on theories impossible of verification, impossible to submit to the crucial test of experience. We find the modern physicist avowedly basing his systems on them despite the fact that the modern scientist is repeatedly declaring science has nothing to do with them. We cannot, then, reject an ancient

cosmology because it is built on unverifiable theory, on theory which has since proved false, without stultifying modern science, which also is founded on a theory incapable of verification. Yet out of both, out of the ancient as out of the modern cosmology, has Truth arisen.

Hippocrates in his criticism of the Nature Philosophers objects to their cosmic theories because "there is nothing which can be referred to in order to discover the truth," and in lofty scorn the modern scientist, standing with both feet on a tortoise unsupported by any pinions of fact, declares that he has nothing to do with assertions which cannot be submitted to the test of experiment and observation. Sacrilegious though it seems, I confess both Hippocrates and the modern scientist and even Socrates himself seem to me just a little silly. We find both Hippocrates, the ancient scientist, and Socrates, the ancient idealist, objecting to methods which the Nature Philosophers used to open the way to a knowledge of the universe. If they did no more, their services to science were inestimable in postulating cosmic problems whose definitions still remain intact. Thales and Heraclitus and Democritus began to divide and subdivide: "things above us and things below the earth," and the results they attained by methods, which Hippocrates censured and yet was forced to pursue in medicine, constituted the fabric of the knowledge of the whole which both he and Plato agreed was a prerequisite to a further advance. It was as clear to him as it was to Plato that without broad and comprehensive ideas, without a knowledge of the cosmic laws it was idle for the student to begin study, either of the human body or of the human soul. If this is the implication of very many of the passages in Hippocratic writings and in Platonic dialogues, we find others in which they condemn and ridicule it.

Protagoras had from Xenophanes perhaps

the doctrine that man is the measure of all things, discussed in the "Theætetus" of Plato, where much ridicule is thrown upon it as the source of knowledge without, however, arriving at any clearer idea of knowledge. In health a man's wine tastes sweet. When he is bilious it tastes bitter. How is he, then, to know what its properties really are?

In practice Hippocrates, just like the rest of us, seizes on any implement, whatever its provenance, which seems useful in prying open the lid which hides the secrets of nature from us. Occasionally even modern philosophers, like Maxwell and Bain,⁷ in lauding the system of Bacon, pause to insist that both hypothesis (theory, we used to call it, until the word became disreputable) and observation are to be used in combination to attain the best results. No one can deny the necessity of constantly reminding ourselves how dangerous it is to become slack in attempting to submit theory to the test of experience, and this doubtless is the animus which moves such minds as Hippocrates, and many lesser men as well, constantly to preach this doctrine, though as we have repeatedly seen the whole basis of science rests on hypothesis which cannot be submitted to the test of experience or to the exactions of rational thought.

This is an old song, but, as a distinguished advocate of one of the popular modern theories of nature remarked⁸ to me, it is well occasionally to be reminded of it. There is less lack of frequent reminders of these fundamental limitations, both of observation and of thought than of concrete criticism, pointing out just where the scientist violates his principles. I have alluded to their conscious trespassing in modern physical philosophy. It is not difficult to find its unconscious violation by Hippocrates. In this, it is true, he often places himself above the usual pedantry of his

⁷ "Education as a Science," by Alexander Bain. New York: Appleton & Co., 1901.

predecessors, but he none the less erects his own hypotheses, if not on the hot and the cold, the dry and the moist, in the treatise "On Ancient Medicine" at least on the bitter and the sweet, the salt and the acid, upon the form of the internal organs "best calculated to suck to itself and attract humidity from another body." So—"when the flatus encounters a broad and resisting structure and rushes against such a part and this happens when it is by nature not strong so as to be able to withstand it without pain, not soft and rare, so as to receive and yield to it"—remembering how much of our own babbling must in time be devoid of sense, let us draw a veil over the frailties of the human mind which we may be sure we shall need more and in a shorter time than the Master. If Hippocrates exhibited neither error nor tautology, if he perceived the ideas of others were no more theoretical or hypothetical than some of his own, he would be a god, not a man, and he is very human. He is a real man; he is Hippocrates, the physician, not Æsculapius, the son of Apollo, and it is by his lapses of logic, and his feebleness of apperception, not by his immortal genius that we recognize him as a father and a brother. When he reminds us there are wise physicians as well as foolish ones and how difficult and laborious the search for truth is, how urgent it is for us to know the history of the strivings of others after it if we are to prosecute wisely our own search for it, how impossible it is at best for anyone to say one has discovered something unknown to one's predecessors, we recognise the wisdom of the ages, though we often forget it.

It is not clear from the text that the author really means to decry such knowledge, chiefly speculative, as existed in his day of anatomy and physiology. It can scarcely be denied that if a patient must choose to-day between the anatomical expert and him who is ignorant of anatomy but

experienced in the observation of the sick, he would hardly hesitate to prefer the latter. If the anatomist derived his knowledge from his imagination or even chiefly from his speculations, such as we infer was chiefly the source from which the Egyptian physicians drew the remarkable passages on anatomy in the *Papyrus Ebers*⁸ we must confess it would be sound judgment. We have little reason to suppose more accurate anatomical or physiological data existed in the days of Hippocrates. At any rate we may suspect he has better reason for the opinion than appears to us at first thought when he declares it is not for the Nature Philosophers to teach the physicians the origin of nature. It is also not so arrogant as it sounds for him to declare that "one cannot know anything certain respecting 'Nature' from any other quarter than from medicine." The anatomist of the *Papyrus Ebers* and to a certain extent Empedocles⁹ and Alcmaeon,¹⁰ the predecessors of Hippocrates, drew their ideas of anatomy objectively not from dissection, but the former from the processes of embalming and the latter from the sacrifices at the public altars, sources open to all, physicians as well as laity, and from certain other observations and manifest physiological actions. The rest was mere subjective theory. All was better derivable from even the empirical practice of medicine than from any other

⁸ "Blight of Theory," by Jonathan Wright, *New York Medical Journal*.

⁹ "Diogenes Laertius; Lives and Opinions of Eminent Philosophers," tr. by C. D. Yonge. London: Henry G. Bohn, 1853.

¹⁰ "Whether his knowledge in this branch of science was derived from the dissection of animals or of human bodies, is a disputed question, which it is difficult to decide. Chalcidius, on whose authority the fact rests, merely says (Comment. in Plato, 'Tim.' p. 363, 3d. Fabr.), 'qui primus exsectionem aggredi est ausus.' And the word exsection would apply equally well to either case." In "Dictionary of Greek and Roman Biography and Mythology," edited by William Smith. Vol. i, p. 104. London: John Murray, 1870.

calling. Moreover, Nature or *φύσις* was conceived by the Greeks more in the sense of what we understand by the processes of nature, hence, in this limitation the physiology of man, rather than in the sense of our modern wider conception of the term. So Hippocrates was entirely justified historically in claiming medicine to be the teacher of anatomy rather than medicine to be the result of the teachings of anatomy and physiology.

Active investigation or research was not included in the curriculum; the observation of phenomena, even unaided by experimentation, is still often a safer guide than observation controlled by it, and Hippocrates know no other, though he knew that the diaphragm is a broad and expanded structure and that "abscesses occur about it. There are both within and without the body many other kinds of structure, which differ much from one another as to sufferings both in health and disease; such as whether the head be small or large; the neck slender or thick, long or short; the belly long or round; the chest and ribs broad or narrow; and many others besides, all which you ought to be acquainted with, and their differences; so that knowing the causes of each, you may make the more accurate observations." Thus far he recognized the value of anatomy and pathology as an aid

to observation, and there was but little more known, and little more did he know of physiology.

And, as has been formerly stated, one ought to be acquainted with the powers of juices, and what action each of them has upon man, and their alliances towards one another. What I say is this: if a sweet juice change to another kind, not from any admixture, but because it has undergone a mutation within itself; what does it first become?—bitter? salt? austere? or acid? I think acid. And hence, an acid juice is the most improper of all things that can be administered in cases in which a sweet juice is the most proper. Thus, if one should succeed in his investigations of external things, he would be the better able always to select the best; for that is best which is farthest removed from that which is unwholesome.

The last clauses of the treatise of "On Ancient Medicine" but illustrate our egotistical proverb, implying our own *great* knowledge—"a little learning is a dangerous thing."

Yet even here, despite the tautology and the hypotheses I have quoted, despite much more I have not cited from this discourse "On Ancient Medicine," we see the Master headed in the right direction before hardly a path existed. The whole tone of the essay, with its inconsistencies and its frailties, breathes the spirit of modern medical science—better still—of common sense.

[To be concluded]

L'AMBULANTEUSE

Valkyrie is she; on mechanical steed
 Bears wounded warriors from sodden field.
 With flaming exhaust, at extremest speed,
 She rolls to the spot of the greatest yield
 Of the Harvest of Hate. What nobler part
 Could a woman play in the murky hour
 Of the World at War, when the light'nings dart
 That betoken the lust of Teutonic power.

True to tradition and true to herself
 With spirit of Warren and Adams and those
 Who considered a principle greater than self
 And would forfeit their lives if occasion arose,
 She too has surrendered the luminous hours
 Of her maidenly years, to travel the trail
 That beckons her spirit from budding bowers
 To sacrifice all in the Quest of the Grail.

CARLETON B. McCULLOCH, M.D.

JUNE, 1918.

A DESCRIPTIVE LIST OF THE INCUNABULA IN THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

The following is a carefully prepared list of the Incunabula in the possession of the Library of the College of Physicians of Philadelphia up to May 1, 1919. While in no sense a "catalogue raisonné," it can properly be called a catalogue, as it is arranged by authors, with more or less description, to assist in the identification of the edition or publication. Further, it will be noted that this Library follows the ruling of "Hain," and only the books issued in the fifteenth century are classed under the head of "Incunabula."

As a matter of interest to the readers, notes that have been gathered from various sources, are appended in a number of cases. No pretense is made that these notes are authoritative, or absolute; they are given for what they are worth—mostly the comment of some previous owner. The expert bibliographer is welcome to criticise, deny, or confirm the sayings, as he sees fit.

CHARLES PERRY FISHER,

Librarian.

ABIOSUS, JOANNES. [Dialogus in astrologiae defensionem.] [F. 1a:] AD INVICTISSIMVM AC POTENTISSIMVM | BELLO ET PRUDENTISSIMUM SICILIE RE | GEM ALFONSUM. | Dialogus in astrologie defensionem Cnm [sic] Uaticinio a diluuiio vsq[ue] ad Christi annos. 1702. Joannis Abiosi Neapolis Regni Ex balneolo mathematica | rum professoris Artium [et] Meditine [sic] Doctoris. | [Tab. xyl. In fine:] Finit opus Dialogi [etc.] Et impressu[m] Uenetijs Die. 20 octobris | 1494. Per Magistrum Franciscum Lapidam in contrata Sancte Lucie. Ad gloriam Omnipotentis Dei qui assidue benedicatur. |

37 ff. il. 12°. Venice, Franciscus Lapidam, 1494. [Hain no. 24.]

Only work printed by Lapidam.

AEGIDIUS COLUMNA. [De regimine principum.] [F. 1a:] () Eorgio miseratione diuina Archiepiscopo Ulixponen. Sacro- | sancte. Ro. eccesie. tituli sanctoru[m] Petri [et] Marcelli presbyte | ro Cardinali Reuerendissimo ac benemerito: Oliuerius Serui | us Tholentinus. S. P. D. [F. 1b-4 b table of chapter-headings.] [F. 5a:] Incipit liber de regimine p[r]incipu[m] | etc. [In fine:] Explicit liber, etc. Impressum Romae per inclitu[m] viru[m] magistru[m] | Stepha-

num planck. de Patauia Anno domi | ni Millesimo CCCCLXXXIIJ. Die nona Mensis | Maij [et]c. [Register.]

135 ff. F°. Romae, Planck, 1482.

[Hain no. 108.]

AEGIDIUS CORBOLIENSIS, PETRUS [or Gilles de Corbeil] [Carmina de urinarum iudiciis cum expositione Gentilis de Fulgineo] [F. 1a:] Carmina de urina[rum] iudiciis edita ab | excelle[n]tissimo [domi]no m[a]g[ist]ro Egidio cu[m] | co[m]mento eiusdem feliciter incipiunt. | [F. 60b:] Hic modus imponit[ur] Tractulo [d]e cogno | scendis urinis peritissimi magistri Egidii cu[m] | exposit[i]o[n]e [et] [com]me[n]to m[a]g[ist]ri Ge[n]tilis [de] fulgineo | su[m]ma cu[m] dilige[n]tia plurib[us] i[n] locis castigat[us] a m°. | Auena[n]tio [de] camerio[n]o artiu[m] [et] medici[n]e p[ro]f[es]so[r]e | padueq[ue] i[m]p[re]ssus [per] m[a]g[ist]r[u]m matheu[m] Cer | donis [de] uindischgrec[z] die 12 iulii. Anno 1483

64 ff. 4°. Paduae, Mattheus Cerdonis de Windischgretz, 1483.

[Hain no. 100.]

Imperfect. f. 45a blank.

AEGIDIUS CORBOLIENSIS, PETRUS [or Gilles de Corbeil] [Carmina de urinarum iudiciis cum expositione Gentilis de Fulgineo] [ff. 1-59 missing.] [F. 76b:] Hic finis im-

ponitur tractatulo de cognoscendis v[r]-
inis [et] pulsu peri- | tissimi magistri
Egidii cum expositione [et] commento
magistri Gentilis de | fulgineo summa
cu[m] diligentia pluribus in locis castigatus
a mag[ist]ro Auena[n] | tio de camerino
artiu[m] [et] medici[n]e p[ro]fesso[r]e Uene-
tiis i[m]p[re]ssus [per] Benardinu[m] | Ue-
netu[m] expensis d[e] Jeronymi duranti
die 16 mensis feb[r]uarii 1494 |

76 ff. 4°. Venetiis, Bernardinus [de Vitalibus]
for Hieronymus de Durantis, 1494.

[Hain no. 101.]

Imperfect. ff. 1-59 missing.

EGIDIUS CORBOLIENSIS, PETRUS [or Gilles
de Corbeil] [Carmina de urinarum iudicii
cum expositione Gentilis de Fulgineo]
[F. 1a. tit:] [o]Pus excelle[n] = | tissimi
magistri Egidij de v[r]inis et pulsu | cum
expositione clarissimi magistri Gen | tilis
de fulgineo | [F. 1b: vacat.] [F. 2a:] Car-
mina de v[r]inarum iudicijs edita ab |
excellen[tissimo] domino magistro Egidio
cu[m] | commento eiusdem feliciter inci-
piunt. | [F. 59a:] § Incipit liber magistri
Egidij de | pulsibus metricis compositus.
|[F. 80b:] De significationibus magni |
pulsus s[ecundu]m naturam. |

[94] ff. 4°. [Lugduni, Martinus Havard, 1499.]
[Reichling no. 1431.]

Imperfect. f. 65 and ff. 81-94 missing.

EGIDIUS CORBOLIENSIS, PETRUS [or Gilles
de Corbeil] [Liber metricus de pulsibus
cum commentario Gentilis Fulginatis]
[F. 1a:] Uenantius mutius de camerino.
Alexandro de bartholaciis de monte
almi. salutem plurima[m] dicit. *** [F.-
48a:] § Hic finis imponit[ur] tractatulo
pulsuu[m] Magistri | Egidii cu[m] co[m]-
mento Gentilis de Fulgineo qui im | p[re]-
essus fuit Padue per magist[rum]
Mattheu[m] cer- | donis de Uuindisch-
gretz die Januarii Anno | domini 1484. |

48 ff. 4°. Padue, Mattheus Cerdonis de Win-
dischgretz, 1484.

[Hain no. 103.]

ALBERTUS MAGNUS. [De generatione et

corruptione.] [F. 1a:] Liber Alberti De
generatione [et] co[r]ruptione | Incipit
Liber de generatione [et] co[r]ruptione.
Cu | ius tractatus p[ri]mus est de genera-
tione [et] co[r]ruptio | ne in co[m]muni
simpliciter dictis. | [F. 23a:] Imp[re]ssum
Uenetijs per Ioan[n]em [et] G[r]ego[r]iu[m]
de | G[r]ego[r]ijs fratres. Anno. d[omi]ni.-
M.cccc.lxxxv. die | decima Iunij. | ***

24 ff. F°. Venetiis, Johannes et Gregorius de
Gregoriis, 1495.

[Hain no. 517.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a. tit:] Albertus magnus
de secretis | mulierum cum commento |
[F. 2a:] § Expositio super henricu[m] de
sa- | xonia de secretis mulierum In- | cipit
fœliciter. | [F. 56b:] FINIS | § Impressum
Romæ. 1499. | die. 8. Iulii. | ***

56 ff. 4°. Romæ, [Eucharius Silber], 1499
[Reichling no. 372.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a. tit:] Albertus magnus |
de secretis mulie | rum et viro[r]u[m]. |
[F. 33b. 1. 17:] omnium per infinita secula
seculo[r]um. Amen. |

33 ff. 4°. [Augsburg, Johann Froschauer, 1475.]
[Hain no. 555.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a. tit:] Albert[us] Magnus
de secretis mulieru[m] | et viro[r]um |
[F. 2a:] [S]Cribit ph[ilosoph]us philo[s]-
opho[r]u[m] p[ri]nceps. | *** [F. 41b:] Imp-
[re]ssum liptzk per Melchio[r]em | Lotter
Anno Millesimoqui[n]ge[n]tesimo. |

41 ff. 4°. L[e]iptz[ic]k, Melchior Lotter, 1500.
[Hain no. 568.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a:] [S]Cribit philosophus
ph[ilosoph]o[r]um | p[ri]nceps su[m]mus.
*** [F. 83b. 1. 16:] seculo[r]um Amen. |

84 ff. 4°. [Ulmae, Johannes Zainer, 1473.]
[Copinger no. 197.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a. tit:] De fo[r]matio[n]e
ho[mi]nis | in vtero materno | *** [F. 53b:]

Liber de fo[r]matione ho[m]i- | [F. 54a:]
minis in vte[r]o materno | co[n]gruentis-
sime inscriptus finit fe | liciter ad laude[m]
eius qui hu[m]c mo- | du[m] p[ro]pagandi
genus humanu[m] eide[m] benedicendo
instituit dicens Cre | scite et multiplicam-
ini. |

54 ff. 4°. n. p., n. pub., [circa 1490.]

[Not in Hain.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a:] [P]hilosoph[us] ph[ilo-
soph]o[r]um | p[ri]nceps q[ua]rto ethi |
co[r]um scribit. *** [F. 45a:] Finis huius
tractatuli vene- | rabilis Alberti magni. |

46 ff. 4°. [Argentinae, Hein. Knoblochzer,
1480.]

[Hain no. 558.]

ALBERTUS MAGNUS. [De secretis mulierum
et virorum] [F. 1a:] [S]cribit philosophus
philoso | pho[r]um p[ri]nceps. quarto ethi |
co[r]um homo est optimum *** [F. 48a:]
Alberti magni de secretis mulie | rum
tractatus feliciter explicat |

48 ff. 4°. [Antverpiae, Math. van der Goes,
1486.]

[Copinger no. 191.]

ALBERTUS MAGNUS. [Liber aggregationis
seu secretorum de virtutibus herbarum,
etc.] [F. 1a. tit:] Liber secreto[r]um Alberti
magni de virtutibus herba | rum. et ani-
malium quo[r]undam. Eiusdemq[ue] liber.
de | mirabilibus mundi. et etiam de qui-
busda[m] effectibus | causatis a quibus-
dam animalibus [etc.] | [F. 2a:] Liber ag-
gregationis seu liber secreto[r]um Alberti
mag | ni de v[ir]tutibus herbaru[m]. lapi-
du[m]. et a[n]i[m]alium quoru[m]dam | Li-
ber primus de v[ir]tutibus [q]uorundam
herbarum. | *** [F. 16b. l. 26:] § Eiusde[m]
Alberti magni de mirabilibus mundi |
feliciter incipit | *** [F. 34a:] Imp[re]ssum
Auguste [per] Johanne[m] schauren fe[r]ia
| secunda post Bartholomei M. CCCC.
LXXXVj. |

34 ff. 4°. Auguste, Johannes Schauren, 1496.

[Hain no. 542.]

ALBERTUS MAGNUS. [Opus de animalibus
[F. 1a:] Incipit liber Alberti magni ani-
malium | p[ri]mus [qui] est de co[m]muni
diuersitate a[n]i[m]alium | *** [Ad finem:]
Finit feliciter opus Alberti magni philoso |
phi de animalibus: [et] imp[re]ssum Man-
tue per | Paulum Johan[n]is de Butsch-
bach alamanum Maguntinen[sis] dioce-
[sis] Sub anno d[omi]ni Mille | simo quad-
ringentesimo septuagesimonono: die |
uero duodecima Januarij ***

306 ff. F°. Mantue, Paulus Johannes de Butz-
bach, 1479.

[Hain no. 546.]

Imperfect. 2 ff. of table and 1 f. blank missing.

ALBERTUS MAGNUS. [Physicorum s. de phy-
sico auditu libri octo. Alberti magni
Commentaris in octo libros Physicorum
Aristotelis.] [F. 1b.] § Excellentissimo med-
ico preclarissimoque philosopho d[omi]no
Jacobo battifero patri observando. Mat-
heus | battifero vrbinas artium doctor et
medicine S. [In fine.] § Explicit co[m]men-
tum Doctoris excellentissimi | Alberti
magni ordinis predicatorum in libros
phys | icoru[m]. Impressu[m] Venetiis per
Joa[n]nem de forlivio | et Gregoriu[m]
fratres. Anno d[omi]ni M. CCCC LXXX-
VIII. die VIII. Januarii. | [Register.]

168 ff. F°. Venetiis, de Forlivio, 1488.

[Hain-Copinger 518.]

ALBERTUS MAGNUS. [Summa de quatuor
coaevis et de homine.] [F. 1a. tit:] P[ri]ma
Pars Summe | Alberti Magni | De Qua-
tuo[r] Coequeis | vna cum secunda | eius
que est De homine. | [F. 79b. (c. n. 77):]
§ Explicit Liber p[ri]me Partis Su[m]me
D[omi]ni | Alberti Magni de Quatuo[r]
coequeis. | Uenetijs Imp[re]ssum per Si-
monem de Luere | Impensis domini An-
dree To[r]resani de | Asula. 19°. Me[n]sis
Decemb[ri]s. 1498°. Feliciter. | [F. 81a.
(c. n. 79):] § Incipit liber secunde partis
summe Alberti Ma- | gni o[r]dinis p[re]-
dicatorum De homine. | [F. 196b. (c. n.
194):] § Explicit | Secunda Pars Summe
Al- | berti Magni Ratispanen[sis] Ep-

[iscop]i De homine. | Uenetijs Imp[re]ssa
Impe[n]sis d[omi]ni | Andree To[r]resani
de Asula: arte v[er]o Simo | nis de luere.
xvj^o febr[uar]ij. 1498. | Feliciter. |

197 ff. F^o. Venetiis, Simon de Luere for Andreas
Torresanus de Asula, 1498.

[Hain no. 569.]

From the famous Strozzi library.

BERTUS MAGNUS. [Summa naturalium
sive opus philosophiae naturalis.] [F. 1a:]
Phia. d. Alberti. M. | [F. 2a:] Illustrissimi
philosophi & theologi: domini Alberti
magni co[m]pen | diosum: i[n]signe: ac
perutile opus Philosophie naturalis: felici-
ter i[n]cipit. | De acceptione ho[rum]
nominu[m]: natura & naturale. Cap. I. |
*** [F. 52a:] Impressum Venetiis per
Georgium de Arriabenis: Anno Domini.
M.cccclxxxvi. die ultimo mensis Augus-
ti. | *** [F. 53b.] Finis. | ***

54 ff. il. 2 wood-cuts. 4^o. Venetiis, Georgius de
Arrivabenis, 1496.

[Hain no. 506.]

BUCASIS. [Liber servitoris.] [F. 1a:]
INCIPIT LIBER SERVITORIS LIBER
xxxviii. Bulchasi[n] Benaberazerin tra[n]-
latu[s] a Si | mo[n]e ianue[n]sis i[n]terprete
Abraa[m] iudeo tortuosie[n]si. | [D]ixit ag-
gregator huius operis: | Postq[ua]m ego
collegi librum hunc | magnu[m] i[n] medi-
i[n]is co[m]positis: q[ui] e[x] liber
magni iuuamenti: quem | nominavi il-
lorum seruitorem. | *** [F. 64b. In fine:]
Finit Seruitoris prepa[ra]t[i]o[n]e medi-
cin[ar]u[m] si[m]pliciu[m] | i[m]- | pressus
Venetiis p[er] Nicolau[m] Ie[n]so[m] gal-
licu[m]. Mcccclxxi. |

64 ff. 4^o. Venetiis, Nicolaus Jenson, 1471.

[Copinger no. 3450.]

First book on pharmacy. A dated Jenson work.

Only a few copies known.

BUCASIS. [Liber servitoris de prepara-
tionibus medicinarum.] [F. 68a:] Liber
seruito[r]is de p[re]parac[i]oni | bus medi-
cina [rum] *** Incipit feliciter. |

[In- Mesue Damascenus, J. Antidotarium.

*** circa 1480. ff. 68a-92b.]

Imperfect. ff. 93-95 missing.

ALCHABITIUS. [Libellus isagogicus de plane-
tarum conjunctionibus.] [F. 1a. vacat.
F. 1b. Sphaera mundi. F. 2a:] LIBELLVS
YSAGOGICVS ABDILAZI. IDEST
SERVI GLO | RIOSI DEI: QVI DICI-
TVR ALCHABITIUS AD MAGISTE |
RVM [sic] IVDICIORVM ASTRORVM
INTERPRETATVS A IO | ANNE HIS-
PALENSI SCRIPTVMQVE IN EVN-
DEM A IO | HANNE SAXONIE EDI-
TVM VTILI SERIE CONNEXUM |
INCIPIVNT. [Term. f. 26b. Deinde f. 27a.
(c. sign. A.):] COMENTVM IOHANNIS
DE SAXO | NIA SVPER TEXTV AL-
CHABICII. | [In fine:] Finitur scriptum
super alchabitiu[m] ordinatu[m] Ioa[n]ne-
[m] de saxonia in | uilla parisiensi anno.
1331. Correctu[m] per artium & medicinae
doctorem | domi[n]um Bartholomeum de
alte[m] & nusia. Imp[re]ssum uenetiis
p[er] Ioa[n]nem | & Gregoriu[m] de for-
liuio fr[at]rem a[n]no salutis. Mcccclxxxvi.
i[n] die. xxvi. Iulii. | Tabula foliorum
huius operis. | [quae term. verbo:] FINIS. |

82 ff. il. 12^o. Venetiis, Johannes & Gregorius de
Gregoriis, 1491.

[Hain no. 618.]

APICIUS COELIUS. [De re culinaria.] [F. 1a.
tit:] Apitii Celi de re Coquinaria libri
decem. | Suetonius Tra[n]quillus De Clar-
is Gra[m]maticis. | Suetonius Tra[n]-
quillus De Claris Rhetoribus. | *** [F.
32b:] Impressum Venetiis per Bernardi-
num Venetum. | [F. 33a:] C. SVETONII
TRANQVILLI DE GRAMMA- | TICIS:
ET RHETORIBVS CLARIS LI-
BELLVS. | *** [F. 40b:] Suetonii Tra-
[n]q[ui]lli de claris Gra[m]maticis: & rhe-
torib[us]. Finis. |

40 ff. 4^o. Venetiis, Bernardinus [de Vitalibus,
1497.]

[Hain no. 1282.]

ARDOYNUS, SANTIS. [Liber de venenis] [F.
1a:] Incipit liber de venenis quem magis-
ter santes de ardoy | nis de pe[n]sauro
*** [ad finem:] Imp[re]ssum Venetijs opera

Bernardini ricij de nou- | ria *** M.cccc.-
lxxxij. Die. xix. mensis | Julij. ***

105 ff. F°. Venetiis, Riccius, 1492.

[Hain no. 1554.]

DE ARGELATA, PETRUS. [Libri sex chirurgi-
giae.] [F. 1a. tit:] Chirurgia magistri Petri
de largelata. | [F. 2a:] §Incipit liber p[ri]-
mus Chirurgie magistri petri de largelata
| de bononia artium [et] medicine docto-
[r]is. | [F. 128b:] P[r]estantissimi artiu[m]
[et] medicine docto[r]is magistri Pe- | tri
de Largelata chirurgie finis. | §Venetijs
ma[n]dato [et] expe[n]sis Nobilis viri
D[omi]ni Octauia- | ni Scoti Ciuis Modoe-
tie[n]sis. Octauo kalendas Marti- | as.
1497. Per Bonetu[m] Locatellu[m] Ber-
gome[n]sem. |

131 ff. F°. Venetiis, Bonetus Locatellus for
Octavianus Scotus, 1497.

[Hain no. 1637.]

DE ARGELATA, PETRUS. [Libra sex chirurgi-
giae] [F. 1a. tit:] Chirurgia magistri Petri
de largelata | [F. 2a:] §Incipit liber p[r]-
imus Cirugie magistri petri de Large |
lata de bononia artium [et] medicine doc-
to[r]is. | [F. 131a:] *** Venetijs. 1499. die.
12. Septemb[r]is. |

131 ff. F°. Venetiis, n. pub., 1499.

[Hain no. 1639.]

ARISTOTELES. [De natura animalium, etc.]
[F. 1a. tit:] ARISTOTELIS. | De natura
animalium: libri nouem. | De partibus
animalium: libri quattuor. | De genera-
tione animalium: libri quinq[ue]. | IN-
TERPRETE THEODORO GAZA. | [Ad
finem:] FINIS. |

151 ff. F°. n. p., n. pub., [circa 1475.]

[Hain no. 1698.]

ARISTOTELES. [Opera graece.] Venetiis. M.
11 D. Mense iunio Apud Aldum. et hoc
cum priuilegio. [f. gr. ch. c. f. et (excepto
primo vol.) c. c. et ff. n. 30 l. Vol. I. 234
ff. Vol. II. 32 ff. non num. et 268 ff. num.
Vol. III. 457 ff. num. et 9 ff. non num.
(c. vacuo). Vol. IV. 519 ff. indicato modo

num. Vol. V. 316 ff. num., in medio 13 ff.
non num. et in fine 1 f. non num.]

5v. F°. Venetiis, Aldus, 1495-1498.

[Hain no. 1657.]

*First edition. One of the earliest examples of
books printed entirely in Greek characters.*

ARISTOTELES. [F. 1a:] Tractatulus propleu-
ma = | tum [sic] Aristotelis multas | in
naturalib[us] questiuncu = | las admira-
tione dignas | in se continens legentibus |
multu[s] iucundus ac vtilis. | [F. 2a (c.
sign. Aij):] §Incipiunt Propleumata Aris-
totelis. | [F. 35b:] Finiunt Propleumata
Aristotelis. | Anno domini. M.CCCC.-
xciiiij. |

[35] ff. 12°. [Leipzig, Kachelofen,] 1494.

[Hain no. 1732.]

ARNOLDUS DE VILLA NOVA. [Breviarium
practicae medicinae] [F. 1a:] b[r]-
euiariu[m] p[r]atice excelle[n]tissimi Rei-
naldi | de uillanoua medici *** [F. 100a:]
Laus deo et suis sanctis. |

[12 ms. ff.] & 101 ff. F°. n. p., n. pub., [1475.]

[Not in Hain.]

ARNOLDUS DE VILLA NOVA. [Breviarium
practicae medicinae] [F. 1a. tit:] Practica
medicine Arnal- | di de Uilla noua. | [F.
75a:] Uenetijs per Baptistam de to[r]tis.
M.cccc.xciiij | die. xxi. Februarij. |

76 ff. F°. Venetiis, Baptista de Tortis, 1494.

[Hain no. 1801.]

ARNOLDUS DE VILLA NOVA. [Breviarium
practicae medicinae] [F. 1a. tit:] P[r]actica
medicine Arnal | di de Uilla noua. | [Ad
finem:] §Epitoma Medice artis excellen-
tissimi viri Arnaldi | de villa noua Imp-
[re]ssum Uenetijs per magistru[m] Otinu-
[m] | Papiensem de la luna Anno d[omi]ni.
M.cccclxxxvij. | xij. Kal. nouemb[r]is ***

67 ff. F°. Venetiis, Otinus Papiensis de Luna,
1497.

[Hain no. 1802.]

ARNOLDUS DE VILLA NOVA. [De arte cog-
noscendi venena] [F. 1a:] TRACTATVS
MAGISTRI ARNALDI | DE VILLA

NOVA DE ARTE COGNOS | CENDI
VENENA CVM QVIS TIMET | SIBI
EA MINISTRARI | [F. 16a:] Et sic est
finis totius tractatus DEO GRATIAS: |

16 ff. 4°. [Mantuae, Johann Burster, 1473.]

[Hain no. 1805.]

ARNOLDUS DE VILLA NOVA. [Liber de vinis]
[F. 1a:] [H]ienach volget ein loblich
tractat | eins fürnemen docto[r]s der ertz-
ney | mitt namen Arnoldi de noua villa
| *** Wilham vo[n] hirnkofen *** von latin
zü teütsch tran[s]feriert ***

11 ff. F°. [Norimbergæ, circa 1478.]

[Copinger no. 655.]

ARNOLDUS DE VILLA NOVA. [Regimen sani-
tatis.] [F. 138a. (c. sign. ti):] Incipit liber
de co[n]seruatione co[r]pis seu de re |
gimine sanitatis co[m]positus p[er] magis-
tru[m] Arnol | dum de villa noua. | [F.
166b. (c. sign. y5):] Explicit regimen
sanitatis compositum seu o[r]dinatum a
magistro Arnolde de villa | noua Cathala-
no omnium medicorum viuen | tium Gem-
ma. |

[In- Salernum, School of. Regimen sanitatis
Salernitanum. *** circa 1480. ff. 138a-166b.]

ARNOLDUS DE VILLA NOVA. [Regimen sani-
tatis.] [F. 11b. (c. sign. o8):] Incipit liber
de conseruatione corporis seu de re |
gimine sanitatis composicus [sic] per
magistrum Arnol | dum de villa noua. | [F.
135a. (c. sign. r8):] Explicit regimen
sanitatis compositum seu ordi | natum a
magistro Arnolde de villa noua Cathalo
| no omnium viuentium Gemma. |

[In- Salernum, School of. Regimen sanitatis
Salernitanum. *** circa 1480. ff. 111b-135a.]

[Not in Hain.]

ARNOLDUS DE VILLA NOVA. [Regimen sani-
tatis.] [F. 193b. c. sign. o8:] Incipit liber
de [con]seruatione corporis seu de regi |
mine sanitatis compositus per magistrum
arnoldum de villa noua. | [F. 217a. c.
sign. r8:] Explicit regimen sanitatis com-
positum seu ordi[n]a | tum a arnolde de

villa noua Cathalono o[m] | nium medi-
corum viuentium gemma. |

[In- Salernum, School of. Regimen sanitatis
Salernitanum. *** circa 1485. ff. 193b-217a.]

ARS MEMORATIVA. [F. 1a:] Ars memora |
tiva Ad com | memorandu[m] | Terminos
Questio[n]es Argume[n] | ta siue Sermones
quottas.: | [F. 4b:] Imp[r]essum in Ingel-
stat | Laus deo omnipote[n]tu. |

[4] ff. il. 12°. [Ingoldstadt, Johann Kachelofen,
circa 1493.]

[Not in Hain.]

[ARTICELLA.] [F. 1a:] Articella [F. 2a:]
§Incipiunt isagoge Joannitij ad tegni
Galieni. P[r]imus | liber medicine. | [F.
186a:] Imp[r]essum Venetijs per Bone-
tu[m] Locatellum Bergo | mense[m] Iussu
[et] expensis Nobilis Uiri Octauiani Scoti
| Cuius Modoetiensis. Anno Intemerate
Uirginis par | tus. Nonagesimotertio sup-
[r]a Millesimum [et] quadrin- | gentesi-
mum. Tertiodecimo kalendas Januarias.
Cum | Benedictione Omnipotentis dei
q[ui] est benedictus In | secula seculo[r]-
um. Amen. |

144 ff. + 51 ff. F°. Venetijs, Bonetus Locatellus
for Octavianus Scotus, 1493.

[Hain no. 1872.]

AUCTORITATES ARISTOTELIS, SENECE, BOE-
THII. *** [F. 1a. tit:] Aucto[r]itates | Aristo-
telis Senece Boetii Pla- | tonis Apulei
Affricani [sic] Em-pedoclis Po[r]phirii et |
Guilberti po[r]ritani. | [Woodcut. F. 68a:]
§Finit feliciter. | [2 woodcuts.] [F. 68b.
Full-page woodcut.]

68 ff. 24°. n. p., n. pub., [circa 1500.]

[Not in Hain.]

*Unrecorded work from unknown French press.
Pellechet describes 16 other editions printed
at the end of the XVth century.*

AVENZOVAR, ABHUMERON. [Theicrisi dahal-
modana vahaltadabir c. Colliget Avver-
rois] [F. 1a. tit:] Abhumeron Abyenzoar
| Colliget auerrois | [F. 42b:] §Hierony-
mus Surianus physicus domini magistri
Jacobi suriani de Arimino | Artium ac

medicinedocto[r]is p[r]eclarissi [sic] fili[us]
Lecto[r]i Salute[m] plurimam dicit. | *** [F.
43a:] §Incipit liber de medicin[a] Auer-
rois: qui dicitur colliget: | *** [F. 102b:]
*** Imp[r]essum Uenetijs per magistrum
Otinum papiensem | de luna. Anno domi-
ni nostri iesu ch[r]isti. Mccccxcvij. de |
cimo kalendas ianuaras. ***

103 ff. F°. Venetiis, Otinus Papiensis de Luna,
1497.

[Hain no. 2188.]

AVENZOAR, ABHUMERON. [Theicrisi dahal-
modana vahaltadabir c. Colliget Aver-
rois.] [ff. 1-44 wanting.] [F. 45a. tit.:
Colliget Auerrois. | [F. 46a. c. sig. a. ij
et n. 2] Incipit liber de medicina Auerrois:
| qui dicitur colliget. [etc.] [F. 84. c. n. 40:]
Explicit liber Auenzoar. | ff. 85-108 want-
ing.]

108 ff. F°. [Venetiis, Joannes de Forlivio et
Gregorius fratres, 1490.]

[Hain no. 2186.]

Imperfect. ff. 1-44, 85-108 missing.

AVICENNA. [Libri quinque canonis de medi-
cina et antidotarium] [F. 1a:] Liber
canonis p[r]imus quem p[r]inceps aboali
| abinsceni de medicina edidit: translatus
a magistro | Gerardo cremonensi in toleto
ab arabico in latinu[m] | Uerba aboali
abinseni. | [F. 491a:] Expletus est libellus
de viribus co[r]dis quem | p[r]inceps Au-
icen[n]a edidit. Imp[r]essus Venetijs An-
no incarnationis Dominice. M.cccclxxxvi. |

500 ff. 4°. Venetiis, [Petrus Mayfer], 1486.

[Hain no. 2205.]

Imperfect. ff. 347-446 missing.

BAGELLARDUS À FLUMINE, PAULUS. [De
infantium aegritudinibus et remediis.]
[F. 1a:] AD Illustrissimum principem
do | minum Nicolau[m] Tronu[m], dignis-
simu[m] | ducem Ueneciarum dominu[m]
suu[m] p[rae] | cipuu[m]. *** [F. 21b:] Fin-
it per b[r]eue opusculum de infantiu[m] |
infirmatibus remedijs q[ue] ea[rum].
Editu[m] per egregium ac famosissimum
artiu[m] [et] | medicine docto[r]e[m] m[a]-
g[ist]r[u]m Paulu[m] bagel | lardu[m] a

flumine: [et] imp[re]ssus die. 10. noue[m]
bris. p[er] p. matheu[m] [de] vindisch-
g[r]etz. 1. 4. 8. 7. |

22 ff. 4°. [Patavii], Matthaeus [Ceredonis] de
Windischgretz, 1487.

[Hain no. 2245.]

Second edition of first book on diseases of children.

BARTHOLOMAEUS DE PISIS. [Epitoma medi-
cinae.] ff. 1-4 wanting.] [F. 5a. sig. a. 1:]
§EPITHOMA MEDICINE BARTHO-
LOMEI PHISICI DE PISIS. |
[Ad finem:] FINIS. |

104 ff. 4°. [Florentiae, de Morgianis, 1490.]

[Hain no. 2531.]

BARZIZIUS, CHRISTOFORUS [Introductorium
ad opus practicum medicinae cum com-
mentariis in IX Almansoriis.] [F. 1a. tit.:
Cristofori Barzizij | Medici singularis in-
trodecto [r]iu [m] P [r]actica eiusdem. | ***
[F. 256b:] DEO GRATIAS AMEN. | ***
Imp[r]essit PAPIE i[m]p[re]sso[r]ie artis
p[er]itissim[is] Ma- | gister Antonius de
Carchano. Anno salutifero nati | uitatis.
Mccccxxxiiiij°. die. xx. Augusti Ad lau-
de[m] | die [et] eius pie genitricis. | Finis. |

258 ff. F°. Papias, Antonius de Carchano, 1494.
[Hain no. 2666.]

*This edition extremely rare. One of the three
copies mentioned by Pellechet.*

BASILIIUS. [De invidia.] [F. 34a:] BASILII
DE INVIDIA. | BASILII ORATIO DE
INVIDIA E GRAECO IN LATI | NVM
CONVERSA PER NICOLAVM PER-
OTVM | INCIPIT.

[In- Censorinus. De die natali. *** 1497. ff.
34-36.]

BASILIIUS. [De liberalibus studiis.] [F. 29a
(c. sign. g):] SANCTI: BASILII: DE:
LIBERALIBVS: STVDIIS: ET INGE |
NVIS: MORIBVS: LIBER PER LEON.
AR EX GRE. IN LA | TINVM CON-
VERSVS. |

[In- Censorinus. De die natali. *** 1497. ff.
29-33.]

BENEDICTUS, A. [De observatione in pestilen-
tia] [F. 1a. tit:] De obseruatione in pesti-
lencia. | [Eod. f. b:] QVINTII. HAEMY-

LIANI. CIMCRIACI. | POETAE. HEN-
DECASYLLABICON. | IN. V. LI.
ALEXANDRI. | PAENTII. AD | LECT.
[F. 2 et 3. exhib. ep. auct. ad Jac. Con-
tarenum Patr. Venet., etc. F. 4a tab.
Eod. f. b. incip. opus, quod est quintus
liber de febribus. In fine:] FINIS. Quinti
libri de febribus | Impressum uenetiis per
Ioannem & Gregorium de | gregoriis quar-
to Kale[n]das Augustas. | MCCCClxxxiii.
| Iacobi Co[n]tarenii Patricii Veneti: Phi-
| losophi[s] Iurisq[ue] co[n]sultissimi: | Op-
timis Auspiciis. [Ult. f. b:] Errores sparsim
collecti.]

27 ff. sm. 4°. Venetiis, per Johannem et Gre-
gorium de Gregoriis, 1493.

[Hain no. 807.]

BERGOMENSIS, JACOBUS PHILIPPUS [Sup-
plementum chronicarum.] [F. 1a. vacat.]
[F. 1b:] Ad Magistratu[m] Bergomen-
siu[m]: in omnimoda historia nouissime
congesta: Chro | nicarum supplementum
appellata: Prologus. *** Perfectu[m] a[u]t
p[er] me opus fuit a[n]no salutis n[ost]re.
1483. 3°. k[a]l[endas] Iu | lii i[n] ciuitate
Bergomi: mihi v[er]o a natiuitate quad-
ragesimo nono. | Impressum autem hoc
opus i[n] inclita Uenetia[rum] ciuitate:
per Bernardinu[m] de Benalijs ber | gome-
sem eode[m] anno. die. 23°. Augusti. |

116, 180 ff. F°. Venetiis, Bernardinus de Be-
nalliis, 1483.

[Hain no. 2805.]

*Imperfect. Table, 10 ff. unnumbered, missing.
First edition.*

BRUNSWIG, HIERONYMUS. [Buch von der
Pest.] [F. 1a. tit:] Liber pestilentialis de
venenis epidimie. | Das büch der vergift
der | pestile[n]tz das da gena[n]t ist der
gemein sterbent | der Trüsen Blatren.
von Jeronimo b[r]u[n]swig. | [F. 40a:] ***
Und | das getruickt vnd volendt durch
mei = | ster Hansen grüninger vff mitwoch
| nach vnser lieben frowen hymelfart in
| dem iar als man zalt. 1. 500. iar. |

40 ff. il. F°. [Strassburg] Johannes Grüninger,
1500.

[Hain no. 4020.]

BRUNSWIG, HIERONYMUS. [Distillirkunst]
[F. 1a. tit:] Liber de arte distillandi. de
Simplicibus. | Das Buch der rechten kunst
| zü distilieren die einzige[n] ding | ***
[Ad finem:] *** ge | truckt durch den wol
geachte[m] Johannem | grüeninger zü
straszburg in dem achte[n] tag | des meyn-
en. Als man zalt von der geburt | Christi
fünfftzehnhundert. Lob sy got. |

230 ff. il. F°. Strassburg, Johannes Grüninger,
1500.

[Hain no. 4021.]

BURLEY, WALTER [De vita et moribus philo-
sophorum et poetarum.] [F. 1a. tit:]
Uita omniu[m] philoso | pho[r]um [et] poe-
tarum cum aucto[r]itatibus [et] sente[n]-
t[i]s | aureis eo[r]undem annexis. | *** [F.
2a:] Libellus de vita et mo- | ribus philo-
sopho[r]um et poetarum incipit. | [D]e
vita et mo[r]ibus philosopho[r]u[m] *** [F.
86b. l. 27:] §Incipit tabula opusculi
p[re]sentis alphabetica ph[ilosoph]o | rum
nomina efficatio[r]es q[ue] eo[r]um sen-
tentias succin = | cte complectens. Incipit
feliitcer. [sic] | [F. 95a:] §Laus deo. |

96 ff. 8°. [Parisiis, Georgius Mittelhus, 1496.]

[Copinger no. 1389.]

BURLEY, WALTER [Expositio sive scriptum
super artem veterem Porphyrii et Aris-
totelis.] [F. 1a:] Pr[a]eclarissimi uiri gual-
terij burlei anglici | sacre pagine profes-
soris excelle[n]tissimi sup[er] | artem
ueterem porphyrij et aristotelis ex | positio
siue scriptu[m] feliciter incipit. | [F. 119a.
1.30:] Gualterij a[n]glici f[rate]r uilib[is]
p[re]dicam[en]tis. sex p[ri]n | cipijs et
porphyyme[n]ijs Ari. op[us] eme[n]datu[m]
p[er] r[e]ue | re[n]du[m] fratre[m] Sy-
mone[m] alexa[n]drinu[m] ordi[n]is p[re]
| dicato[rum] bachallarium i[m]resu[m] ve-
netiis p[er] mag[ist]r[u]m xp[ist]o foru[m]
arnoldu[m] felicit[er] explicit | [118] ff.
F°. Venetiis, Christopher Arnold, [circa
1477].

[Hain no. 4127.]

First edition.

BURLEY, WALTER [Expositio sive scriptum super artem veterem Porphyrii et Aristotelis] [F. 1a. tit:] Burlei super artem veterem | Po[r]phirii et Aristotelis. | [F. 81b:] §Explicit scriptum preclarissimi viri Gualte | rii Burlei Anglici sacre pagine professoris exi | mii. in artem veterem Porphyrii [et] Aristote- | lis: Uenetiis Impressum per Ottinu[m] Papi | ensem. Anno salutis. M.ccccxcvii. V. Idus | Maii. Regnante inlyto principe Augustino | Barbadico. | ***

82 ff. F°. Venetiis, Otinus Papiensis de Luna, 1497.

[Hain no. 4133.]

Imperfect. ff. 67-72 and f. 82 blank missing.

CANDIDUS, PETRUS [De hominis genitura] [F. 1a. tit:] Candidus de genitura hominis | [F. 11b. l. 9:] imp[r]essum Auguste per Johannem froschauer. | dum legeris ignoscas extere nationi [et] errata castiga- | tio. Finis. |

11 ff. 4°. Augustae, Johannes Froschauer, [1493.]

[Hain no. 4320.]

CANONICUS, JOHANNES [Quaestiones in VIII libros. Physicorum Aristotelis.] [F. 1a:] Joannis Canonici docto[r]is clarissimi o[r]- | di. | mino[rum] sup[er] octo lib[r]os phy- | sico[rum] q[uaesti]o[n]es i[n]cipiu[n]t | [F. 103a:] Q[uaesti]onibus subtilissimis claris- | simi docto[r]is Jo- | annis canonici ex o[r]di[n]e mino[rum] o[mn]i cura [et] dilige[n] | tia venera[n]di fr[at]ris Fra[n]cisci de benzonib[us] de cre | ma bacchalarij sacre theologie i[n] [con]uentu Uene | tia[rum] p[er] i[n]genio adhibita fine[m] i[m]posuit Octavian[us] | Scotus de Mo- | doetia. M.CCCCLXXXI. |

107 ff. F°. Venetiis, Octavianus Scotus, 1481.

[Hain no. 4345.]

CEBES. [Tabula.] [F. 16a:] CEBETIS THE- | BANI TABVLA: E GRAECO IN | LAT- | INVM CONVERSA PER LVDOVICVM | ODAXIVM PATAVINVM |

[In- Censorinus. De die natali. *** 1497. ff. 16-20.]

CELSUS, AURELIUS CORNELIUS [De medicina libri octo] [F. 1a:] AVRELII CORNELII CELSI MEDICINAE LIBER PRI- | MUS INCIPIT. | [F. 144b:] Cornelii celsi de medicina Liber finit. Impressum Mediolani Per Leo | nardum pachel & Vlderichum sinczenzeler. diligentissime emenda- | tum. Anno salutis. M.CCCC.LXXXI. |

152 ff. F°. Mediolani, Leonardus Pachel et Udalricus Scinzenzeler, 1481.

[Hain no. 4836.]

CELSUS, AURELIUS CORNELIUS [De medicina libri octo.] [F. 1a:] AVRELII CORNELII CELSI MEDICINAE LIBER PRIMVS INCIPIT. | [F. 59b:] Cornelii celsi de medicina Finis. Impressor Ioannes rubeus Vercellensis fuit die viii. | mensis Iulii. M.cccc.xciii. Venetiis. |

62 ff. F°. Venetiis, Joannes Rubeus Vercellensis, 1493.

[Hain no. 4837.]

CELSUS, AURELIUS CORNELIUS [De medicina libri octo.] [F. 1a. tit:] CORNELIUS CELSVS | [F. 2a:] AVRELII CORNELII CELSI MEDICINAE LIBER PRIMVS IN- | CIPIT | [F. 94a:] Impressum Venetiis per Philippum pinzi. Sumptibus d[omi]ni Benedicti fontana. Anno | d[omi]ni. M.cccc.xcvii. die. vi. Mai. |

94 ff. F°. Venetiis, Philippus Pincius for Benedictus Fontana, 1497.

[Hain no. 4838.]

CELSUS, AURELIUS CORNELIUS [De medicina libri octo.] [F. 1a:] PRIMO LIBRO CORNELII CELSI. | DE MEDICINA HAEC CONTINENTVR: | *** [F. 7b:] FINIT TABVLA. | [F. 8 wanting.] [F. 9b:] BARTHOLOMEVS FONTIVS SAXETTO SUO. S. | *** [F. 10a:] CORNELII CELSI DE MEDICINA LIBER INCIPIT. | *** [F. 196b:] CORNELII CELSI DE MEDICI | NA LIBER FINIT FLOREN | TIAE A NICOLAO IM- | PRESSVS ANNO SALVTIS M | CCCC L | XXV | III. |

196 ff. 4°. Florentiae, Nicolao [di Lorenzo], 1478.

[Hain no. 4835.]

f. A8 blank missing. First edition.

CENSORINUS. [De die natali.] [F. 1a. tit:] Index librorum: qui in hoc uolumine continentur. | Censorinus de die natali. | Tabula Cebetis. | Dialogus Luciani. | Enchiridion Epicteti. | Basilius. | Plutarchus de Inuidia & Odio. | [F. 1b:] Ad nobilem Bartholomeum blanchinum Philippi Beroaldi Bon. epistola. | *** [F. 38a:] Impressum Bononiae per me Benedictum hectoris bononie[n]sis adhibita p[er] | uiribus silertia & diligentia. Anno salutis. M.cccclxxx. vii. quarto idus Maii | Illustrissimo Io. Bentiuolo. reip. bonon. habenas foeliciter moderante. | Registrum. | [et insign. typogr. c. litt. B. f. r. ch. c. f. 401. 38 ff. c. marginal. et titt. column.]

38 ff. F°. Bononiae, Benedictus Hectoris, 1497.

[Hain no. 4847.]

CERASIANUS, JOHANNES DE MONTE REGIO. [Repetitio c. sententiam sanguinis.] [F. 1a. tit:] Repetitio famo | sissimi c. Sente[n]tia[rum] sanguinis | bona [et] utilis subti. Ne. cle. vel | mo. in qua plenissime [et] pluci- | de tractatur omnis materia in | regularitatis Clericis perma | xime necessaria. | [F. 56a:] §Repetitu[m] [et] resumptu[m] est hoc c. Sententia[m] sanguinis | *** Imp[r]essumq[ue] p[er] Melchio | rem Lotter ciuem Liptzen. Anno xpi. M.cccc.xcix. |

56 ff. 4°. Lipsiae, Melchior Lotter for Johannes Breitenbach, 1499.

[Hain no. 3771 and 4880.]

CERMISONUS, ANTONIUS [Consilia medica.] [F. 1a. tit:] Consilia Cermisoni. | Consilia gentilis. | Recepte gentilis de feb[r]ibus. | Tractatulus de balneis gentilis | Tractat[us] de tyriaca Fra[n]cisci caballi. | [F. 94a:] §Finit liber de animali theria pastillos theriaca[s]q[ue] confi- | ciente a Francisco Caballo B[r]ixiensi viro p[r]eclaro: Ue- | netijs editus. Ibidemq[ue] imp[r]essus [et]c.

94 ff. F°. Venetiis, [Bonetus Locatellus for Octavianus Scotus, circa 1496.]

[Hain no. 4884.]

CHAMPERIUS, SYMPHORIANUS [Practica nova in medicina] [F. 1a. tit:] P[r]actica noua | in medicina. | Aggregato[r]is lugdune[n]sis | domini Simpho[r]iani champerij de omnibus mo[r] | bo[r]um generibus ex traditionibus gre = | co[r]um: latino[r]um: arabu[m]: peno[r]um | ac recentium aucto[r]um: Au | rei lib[r]i quinq[ue]. | Item eiusdem aggregato[r]is liber de | omnibus generibus feb[r]ium | [F. 149b:] §Finitur tractatus de generibus feb[r]ium editus | a d[omi]no Simpho[r]iano champerio Lugdunen. Illu = | strissimi p[r]incipis ducis calab[r]ie: lotho[r]ingie et | barri [et]c. p[r]imario physico. |

155 ff. 4°. [Lyons, n. pub., circa 1500.]

[Hain no. 4907.]

[CHIROMANTHIA.] [F. 1a. c. sign. a1:] Ex diuina philosopho[r]um academia: secundum nature vires ad extra: | chyromantio: diligentissime collectum. [In fine:] Ex diuina philosopho[r]um academia collecta: chyromantica scientia na- | turalis ad dei laudem finit. Imp[r]essum Uenetiis per magistrum Er- | hardum ratdolt de Augusta. |

25 ff. il. 12°. Venice, Ratdolt, [circa 1480.]

[Hain-Copinger no. 4971.]

First edition.

COMPENDIUM SENTENTIARUM PRAECLARISSIMARUM ADVERSUS ASTROLOGIAM. [F. 1 blank. F. 2a:] COMPENDIUM SENTENTIARVM PRAE | CLARISSIMARVM ADVERSVS | ASTROLOGIAM ET EIVS | FAVTORES. [F. 21b:] Finis. | Impressum Mutinae [per] M. Dominicum Rocociolam. |

[21] ff. 8°. Modena, Rocociola, [circa 1490.]

[Hain-Copinger no. 5570.]

DE CRESCENTIIS, PETRUS [Opus ruralium commodorum] [F. 1a. tit:] Opus ruralium com | modo[r]um Petri de | crescentijs. | [Ad finem:] P[r]esens opus ruraliu[m] com[m]modo[r]um Pe | tri de crescentijs *** imp[r]essum est argentine. | Anno

domini. Mcccclxxxvi. Finitum q[ua]n | ta
feria ante festum sancti Grego[r]ij |

147 ff. F°. Argentinae, [Johannes Grüninger],
1486.

[Hain no. 5831.]

CULMACHER, PHILIPP VON EGER [Regimen
wider die Pestilenz.] [F. 1a. tit:] Regimen
zu deutsch Magistri | philippi Culmachers
vo[n] Eger | wider die grausamen ersch-
[r]ecklichenn Totlichen | pestelentz *** [F.
26a. 1. 4.] behutten vnd vo[r]warn Amen. |
26 ff. 4°. n. p., [circa 1480.]

[Hain no. 5848.]

Probably the only copy in this country.

DERRAMES, JOHANNES [Carmina de condi-
tionibus medicinarum solutivarum] [F.
1a:] Joannis derrames Cyp[r]ij carmina
ad eru- | ditu[m] Uatem Petrum paulu[m]
Barbu[m] de pola | de conditionibus medi-
cinarum solutiuarum. | [F. 6b:] Finis op-
eris Die. 4. mensis Julij. 1487. |

6 ff. 4°. [Paduae, Matthaeus Cerdonis de
Windischgretz], 1487.

[Hain no. 6095.]

[DIALOGUS CREATURARUM.] [F. 1a:] §Pre-
fatio in lib[r]u[m] qui dicitur | dyalogus
creaturaru[m] | mo[r]alizatus: omni ma-
terie | mo[r]ali iocu[n]do [et] edificatiuo
[sic] | modo applicabilis Incipit | feliciter.
| [F. 62b:] Presens liber dialogus creatura
| rum appellatus: iocundis fabulis | ple-
nus: industria [et] expensis Con | radi de
hombech incole colonien. | inceptus [et]
finitus est. Anno domi | ni millesimo q[ua]-
dringentesimo octo | gesimoprimo me[n]-
sis octobris die | xxiiii. |

62 ff. F°. Cologne, Homborch, 1481.

[Hain no. 6126.]

DIOGENES CYNICUS. [Epistolae. Diogenis
Epistolae interprete Francisco Aretino.
Bruti et Hippocratis epistolae per Rainu-
cium traductae.] [F. 1a. tit:] Diogenis
Epistole | Bruti | Yppocratis medici | [F.
2a:] FRANCISCI ARRETINI ELEGIA
| ad pium. ii. pontificem maximum | ***
[F. 54a. 1. 4:] FINIS | FLORENTIAE |

facta est harum epistola | rum impressio
Per Antonium | Francisci Venetum. Anno
Domini | M.CCCCLXXXVII X. kalen.
Iulias |

54 ff. 4°. Florentiae, Antonius Francisci, 1487.

[Hain no. 6193.]

DIOSCORIDES ANAZARBEUS, PEDACIUS [De
materia medica.] [F. 1a:] Nota[n]dum
q[ui] libri diasco[r]ides dicti duplex r[e]-
perit[ur] or | dinatio cum eodem tamen
p[ro]hemio omnio *** [Ad finem:] Explic-
[it] dyasco[r]ides que[m] petrus | padua-
ne[n]sis legendo co[r]exit [et] expo | nendo
q[ua] vtilio[r]a su[n]t i[n] luce[m] deduxit.
| Impressus colle p[er] magistru[m] ioh-
[ann]em | allemanum de medemblick. an-
no | xpi. millesimo. cccc°. lxxviii°. mense
| iulij. |

103 ff. F°. Colle, Johannes de Medemblick,
1478.

[Hain no. 6258.]

First book printed at Colle.

DONDUS PADUANUS, JACOBUS [Aggregator
Paduanus de medicinis simplicibus.] [F.
1a:] [F]Ructife[rus] medicis actu | rus
opus: non modo | rudibus tantu[s] & iuue
| nibus *** [F. 1a. col. 2. 11. 52-55:] Opus
quide[m] hoc longis retro | t[ardi]p[re]d[i]bus
inchoatu[m] [com]pletu[m] est p[er] me
artiu[m] et | medici[n]e docto[r]e[m]
M[a]g[ist]ru[m] Iacobu[m] paduanu[m] |
Anno d[omi]ni. M.ccc. octuagesimo quin-
to. | [Ad finem:] Tenasmoni licinium. hali.
ibidem |

286 ff. F°. [Argentinae, Rusch, circa 1470.]

[Hain no. 6395.]

*Earliest known of medical incunabula—F. H.
Garrison.*

EPICTETUS. [Enchiridion.] [F. 21a. (c. sign.
e):] ENCHIRIDION. | ANGELI POLI-
TIANI IN EPICTETI STOICI EN-
CHIRIDION E GRAECO A SE IN-
TERPRETATVM AD LAV | REN-
TIVM MEDICEM EPISTOLA: |

[In- Censorinus. De die natali. *** 1497. ff.
21-28.]

FALCUTIUS [FALCUCCI], NICOLAUS [Sermones medicinales septem.]

- 7 v. in 4. F°. [Papiae et Venetiis, 1484-1491.]
 Sermo 1—Hain no. 11767. Papiae, Johannes Antonius de Businis, 1484.
 Sermo 2—Not in Hain. Venetiis, Bernardinus de Novaria, 1491.
 Sermo 3—Hain no. 11768. Venetiis, Bernardinus de Tridino de Monteferrato, 1490.
 Sermones 4-7—Hain no. 11768. Venetiis, Bernardinus de Tridino de Monteferrato, 1491.

CONTENTS

- Sermo 1—De conservatione sanitatis.
 Sermo 2—De febribus.
 Sermo 3—De membris captis.
 Sermo 4—De membris spiritualibus.
 Sermo 5—De membris naturalibus.
 Sermo 6—De membris generationibus.
 Sermo 7—De cirurgia et de decoratione.

FALCUTIUS [FALCUCCI], NICOLAUS [Sermones medicinales septem.]

- Sermo 5. 294 ff. F°. Papiae, Damianus de Comphaloneriis de Binascho, [1484.]

CONTENTS

- Sermo 5—De membris naturalibus.
 [Hain no. 11767.]

FALCUTIUS [FALCUCCI], NICOLAUS [Sermones medicinales septem.]

- Sermo 5. 190 ff. F°. Papiae, Joannes Antonius de Birretis et Franciscus de Girardengis, 1491.

CONTENTS

- Sermo 5—De membris naturalibus.
 [Not in Hain.]

FICINUS FLORENTINUS, MARSILIUS [De triplici vita]. [F. 1a:] §Marsilius Ficinus Florentinus | de triplici vita. | [Printer's device.] [F. 136a, explicit apologia, l.20:] uitam producendam adhibite moriuntur. | XVI. Septe[m]bris. M.CCCCLXX-XVIII. In agro | Caregio. | [F. 137a (sig. A):] Tabula. | CAPITULA PRIMI LIBRI QUI TRA | CTAT DE VITA SANA. | [F. 140a. 1. 3. In fine:] rias mundana potissimu[m] dona. cap. xxvi. |

- 139 ff. 16°. [Parisiis, Wolf, circa 1492.]
 [Copinger 2497.]
Imperfect. f. b5 missing.

FICINUS FLORENTINUS, MARSILIUS [Epistolae] [F. 1a. tit:] EPISTOLAE MAR | SILII FICINI FLO | RENTINI | [F. 253b:] Marsilii Ficini Florentini Eloquentissimi | mi Viri Epistolae familiares Per Anto | nium Koberger impraesae Anno nincar | nate deitatis. M.cccc.xcvii.xxiiii. febru | arii finiunt Foeliciter. |

- 253 ff. 4°. [Norimbergae], Anthonius Koberger, 1497.
 [Hain no. 7062.]

FIERA MANTUANUS, BAPTISTA [Coena seu de cibariorum virtutibus] [F. 1a:] Baptist[a]e Fiera Mantuani medici Coena. | [F. 19a:] Baptistae Fiera Mantuani medici Coena: | hic consummata est. Index autem sequitur. |

- 20 ff. 4°. [Venetiis, Georgius Cristiner de Boll circa 1485.]
 [Reichling no. 1199.]

FIRMICUS MATERNUS, JULIUS De nativitatibus. [F. 1a. tit:] Ivlius Firmic[us] | de natiuitatibus. | [F. 2a:] §Tabula Libri Iulii Firmici. [F. 4a. col. 2:] §Ioanis Pompeii Corniani Brixiani ad Lectorem in Iulium Firmicum. [F. 5a:] §Iulii Firmici Materni Iunioris Siculi Viri Clarissimi ad | Mauortiu[m] Lollianum Fascibus Capaniae Romanae prouin | ciae proco[n]sulem designatum: *** [F. 119a (CXVa):] IVLII FIRMICI MATERNI IVNIORIS. V. C. MATHESEOS LIBER | SEPTIMVS ET VLTIMVS FELICITER EXPLICIT. | EPISTOLA. [In fine.] DEO GRATIAS IN ETERNVM. | [F. 119b [CXVb):] §Nicolaus Amerinus. | §Registrum. | *** [In fine:] Impressum Venetiis p[er] Symonem | papiensem dictum biuilagua. | 1497. die 13 Iunii. |

- 3, CXV ff. il. F°. Venetiis, Simon de Bivilauqua, 1497.
 [Hain no. 7121 bis.]
First edition. Has xylographic Gothic title.

GADDESSEN, JOANNES [Rosa anglica practica medicinae] [F. 1a. tit:] Rosa anglica p[r]actica me | dicine a capite ad pedes

| [F. 2a:] Nicolaus scyllatius siculus magnifico ac p[rae]stantissimo Amb[r]osio varisio rosato ducali phi- | sico ac [con]-siliario sapie[n]tissimo. S. D. | [F. 177b:] Papie 1492. die. 24. Ianuarij. | Joa[n]nesantonius birreta i[m]p[r]essionis tradidit. |

177 ff. F°. Papiæ, Joannes Antonius Birreta, 1492.

[Hain no. 1108.]

DEL GARBO, DINUS [Expositio super tertia et quarta et parte quinte Fen Avicennae] [F. 1a. tit:] Expositio Dini Flo[r]entini super ter = | tia [et] quarta [et] parte qui[n]te Fen quar = | ti canonis Auice[n]ne cum textu. | Ge[n]tilis de fulgineo sup[er] tractatu de lep[r]a. | Gentilis de flo[r]e[n]tia super tractatibus | de dislocationibus [et] fracturis. | Tractatus Dini de po[n]derib[us] [et] me[n]suris. | Eiusdem de emplastris [et] vnguentis. | [F. 162a:] Imp[r]essa Uenetijs co[m]missione [et] expensis p[ro]uidi viri do | mini Andree de To[r]resano de Asula: p[er]. M. Johannem | Hertzog alemanum de Landaw. Anno salutis domini: | 1499. die vero Decemb[r]is. 4. |

162 ff. F°. Venetiis, Johannes Hamman de Landovia for Andreas Torresanus de Asula, 1499.

[Hain no. 6168.]

GAZI, ANTONIO [Corona florida medicinae sive de conservatione sanitatis.] [F. 1a. tit:] DE CONSERVATIONE SANITATIS. | [F. 2a:] Incipit tabula Capituloru[m] libri huius solemnissimi | qui Corona Florida Medicinae: siue Conseruatio | sanitatis: intitulatur. | [F. 123b:] Impressum uenetiis per Iohannem de forliuio & | Gregorium fratres Anno salutis. M.cccclxxxii. die | xx. me[n]sis Iunii. |

123 ff. F°. Venetiis, Johannes & Gregorius Forlivio, 1491.

[Hain no. 7501.]

GEBER, ABOU MOUSSAH DJAFAR AL SALI [Summa perfectionis magisterii, liber trium verborum, Epistola Alexandri M. Geberi lib. investigationis magisterii, car-

mina lat. et Fr. de Asculo, Fratris Eliae et anonymi carmina ital.] [F. 1a:] INCIPIT LIBER GEBER. | Capitulum Primum. | [F. 114a:] Explicit liber Geber foeliciter. |

122 ff. 4°. [Venetiis, circa 1475.]

[Hain no. 7505.]

Imperfect. f. 56 missing.

GENTILIS de Fulgineo. [Consilia] [F. 1a:] Incipiunt co[n]silia peregregia clarissimi | [et] toto o[r]be medici. Celeb[r]atissimi gen | tilis de fulgineo. P[rimu]m consiliu[m] p[ro] uno me | lancofico. | [F. 47a:] Finit. Laus deo. |

47 ff. F°. [Papiæ, Hieronymus de Durantibus, circa 1480.]

[Hain no. 7574.]

GENTILIS DE FULGINEO. [De proportionibus medicinarum] [F. 1a:] [G]Racia lucidio[r]is habitus quem mesue denotat in mo | dis [et] p[ro]p[or]tionibus medicinarum] que inuice[m] [con]fici debe[n]t | *** [F. 10b:] Explicit tractatus Gentilis de fulgineo. de p[ro]porcionib[us] me | dicinarum ***

10 ff. 4°. [Patavii, Matthaeus Cerdonis de Windischgretz, circa 1480.]

[Hain no. 7569.]

GENTILIS DE FULGINEO. [Super quinto canonis Avicennae] [F. 1a:] Incipit sole[m]ne [et] fidele scriptu[m] ge[n]tilis | de fulgineo. sup[er] qui[n]to canonis. Auicene. | [F. 52b:] Hic finitur singularis expositio claris | simi docto[r]is Gentilis de Fulgineo super | quinto canonis Auicene *** Impensa Ie | ronimi de dura[n]tibus impressa. | Explicit. Laus deo. |

52 ff. F°. [Papiæ], Hieronymus de Durantibus, [circa 1485.]

[Hain no. 7568.]

GERSON, JOHANNES. [De cognitione castitatis et pollutionibus diurnis, etc.] [F. 1a:] Incipit tractatus venerabil[is] m[a]g[ist]ri Iohan[nis] | Gerson Cancellarij parisiensis | de cognicione | castitatis et pollutionibus diurnis. | [F. 14a:] Explicit trac-

tatulus vene[r]abilis magistri | Ioh[ann]is.
gerson de pollutionibus diurnis. | [F. 14b:]
Incipit fo[r]ma absoluc[i]onis sacramental-
[is] | eiusdem Magistri Ioha[n]nis Ge[r]-
son. | [F. 16b:] Explicit fo[r]ma absolu-
c[i]o[n]is sacrame[n]talis ve | nerabilis
M[a]g[ist]ri Ioh[annis] Gerson. deo laus. |
16 ff. 4°. [Cologne, Ulrich Zell, circa 1470.]
[Hain no. 7691.]

GERSON, JOHANNES [De pollutione noc-
turna, an impediatur celebrantem vel non.]
[F. 2a:] Incipit Tractatus venerabilis
M[a]g[ist]ri | Joh[annis] Ger[son] ca[n]-
cellarij parisien[sis] tracta[tu]s de pollu-
c[i]o[n]e noctu[r]na. an impediatur celebra[n]-
tem vel no[n]. | [F. 16b:] Explicit
Tractatus venerabilis Magistri | Iohan-
nis Gerson de pollutione nocturna | An
impediatur celebrantem? An non? |
16 ff. 4°. [Cologne, Ulrich Zell, circa 1472-1473.]
[Hain no. 7695.]

Rare edition, from the first press at Cologne.

GILINUS, CORRADINUS [De morbo quem
Gallicum] [F. 1a:] Co[r]adinus gilinus arc-
tium [et] medicinae docto[r] de mo[r]bo
quem | gallicum nuncupant ad Illustris-
simum. D. sigismundu[m] esten. | [Ad
finem:] Finis. |
4 ff. 4°. n. p., n. pub., [circa 1497.]
[Not in Hain.]

GLANVIL, BARTHOLOMAEUS [De proprietati-
bus rerum]. [F. 1a:] §Incipiunt tituli
lib[ro]- | ru[m] capitulo[rum] venerabil[is]
bar | tholomei anglici de p[ro]p[ri]etati-
bus rerum. [F. 11a:] Incipit p[ro]-
hemiu[m] de p[ro]p[ri]etati[bu]s rerum
fratris | Bartholomei anglici de o[r]dine
fratrum minorum | [F. 456b:] Explicit
tractatus de p[ro]p[ri]etati[bu]s rerum edi-
tus | *** §Impressus per me Joha[n]nem
koelhoff de lubeck Colonie ciuem. Anno
natiuitatis | domini. Mcccclxxxi |
483 ff. 4°. Coloniae, Joannes Koelhoff, 1481.
[Hain-Copinger no. 2501.]

GLANVIL, BARTHOLOMAEUS [De proprietati-
bus rerum] [F. 1a:] Incipiunt tituli |
lib[ro]o[rum] et capitulo[rum] venerabilis

| Bartholomei anglici de p[ro]p[ri]etati-
bus rerum. [Ad finem:] *** Imp[re]ssus
per industrio- | sum viru[m] Anthoniu[m]
koburger inclite Nuren- | berge ciue[m].
Anno salutis gratie. M.cccclxxxiiij. | iij.
kal[enda]s. Iunij. |

266 ff. F°. Norimbergae, Anthonius Koburger,
1483.

[Hain no. 2505.]

GLANVIL, BARTHOLOMAEUS [De proprietati-
bus rerum] [F. 1a. tit:] Liber de p[ro]-
p[ri]etati | bus rerum Bartholo | mei an-
glici | [Ad finem:] *** Imp[re]ssus Argen-
tine | Anno d[omi]ni. M.cccc.lxxxv. Fini-
tus in die san | cti Ualentini. |

300 ff. F°. Argentinae, n. pub., 1485.

[Hain no. 2506.]

GLANVIL, BARTHOLOMAEUS [De proprietati-
bus rerum] [F. 1a. tit:] P[ro]prietates
Rerum do = | mini bartholomei anglici
| [Ad finem:] Explicit liber de p[ro]p[ri]etati-
bus rerum | editus a fratre Bartholo-
meo anglico o[r]d[in]is fratrum mino-
rum. Anno domini | Mcccclxxxviiij.
kale[n]das vero Iunij. xij. |

326 ff. F°. [Argentinae, Joh. Prüss], 1488.

[Hain no. 2507.]

DE GORDON, BERNARD [Practica dicta lili-
um medicinae] [F. 1 blank wanting.] [F. 2a:]
Cy co[m]mence la p[ro]p[ri]etate de tressex |
cellent docteur [et] maistre en medeci =
| ne Maistre Bernard de Go[r]don | qui
sappelle fleur de lys en medecine | [Ad
finem:] Et imp[re]ssus a lyon lan mil. cccc.-
xcv. | le dernier iour daoust. | Deo gra-
tias. |

247 ff. F°. Lyon, 1495.

[Hain no. 7801.]

*First and only edition in French in the 15th
century.*

DE GORDON, BERNARD [Practica dicta lili-
um medicinae] [F. 1 blank wanting.] [F. 2a:]
In nomine dei misericordis incipit |
p[ro]p[ri]etate excelle[n]tissimi medicine monar-
| ce domini magistri Bernardi de Go[r] =
| donio dicta Lili-um medicine. | [F. 205b:]
Imp[re]ssa Lugduni per Anthoniu[m]

la[m]bil | lionis [et] Marinu[m] sarraceni:
co[n]socio[r]um | Anno d[omi]ni. 1491. die
2. maij. Ad laudem | o[mn]ipote[n]tis dei
tociusq[ue] curie celestis. ame[n]. | ***

206 ff. F°. Lugduni, Anthonius Lambillion et
Marinus Saracenus, 1491.

[Hain no. 7797.]

DE GORINCHEM, HENRICUS [Tractatus de
superstitiosis]. [F. 1a:] Incipit tractatus
de sup[er]sticiosis | quibusda[m] casib[us]
[com]pilat[us] in alma vniue[rs]itate studij
Coloniens[is] p[er] | ven[er]abilem m[a]g-
[ist]r[e]m Heinricu[m] de | Goriem. ***
[F. 18b:] Explicit Tractatus cui[us] sup[er]a
| de Celeb[r]at[i]one festo[rum]. |

18 ff. 8°. [Esslingae, Conr. Fyner, 1472.]

[Hain-Copinger no. 7807.]

GORUS, JOANNES DE SANCTO GEMINIANO
[Summa de exemplis et similitudinibus
rerum.] [F. 1a. tit:] Summa de Exemplis
Ac | similitudinibus reru[m] | Nouiter im-
p[re]ssa | [Ad finem:] Imp[re]ssum aut[em]
Uenetijs Ioa[n]ne[m] [et] G[r]egorium de
G[r]ego[r]ijs fratres. | Mcccclxxxvij. die.
x. Ap[re]lilis. | FINIS. |

404 ff. 4°. Venetiis, Johannes et Gregorius de
Gregoriis, 1497.

[Hain no. 7545.]

GORUS, JOANNES DE SANCTO GEMINIANO
[Summa de exemplis et similitudinibus
rerum.] [F. 1a. tit:] Summa magistri
Ioha[n]nis | de sancto Geminiano ordi-
nis fratru[m] predicato[rum] de ex-
[em]plis [et] si[m]ilitudinibus re[rum] [F. 1b:] Cla-
rissimo theologo sacratissimi dei studij
expositori magistro Michael wildeck: |
*** [F. 342a:] Explicit summa magistri
Iohannis de sancto Geminiano ordinis
predicato[rum] in | signis [et] p[er]utilis:
de exemplis [et] similitudi-
nibus rerum: Imp[re]ssa per magistros Io-
hannem Petri de Langendorff [et] Iohan-
nem Froben de Hammelburg Basiliens[is]. vr | bis ciues
Anno domini. M.cccc.xcix. in | die conuer-
sionis sancti Pauli.

342 ff. 8°. Basileae, Joannes Froben de Ham-
melburg, 1499.

[Hain no. 7546.]

DE GRADI, JOANNES MATTHAEUS FERRARIUS
[Expositiones super tractatum de urinis
et vigesimam secundam Fen tertii canonis
Avicennae] [F. 1 blank wanting.] [F. 2a:]
Incipiunt magist[r]i Ioannis Mathei ex
ferrarijs | de gradi Expositio[n]es super
tractatu[m] de vrinis [et] | vigessimam-
secundam fen terciij canonis domini | Auic-
cenne: sup[er] quam nullus ante ipsum
sc[r]ipsit. | [F. 39b:] Imp[re]ssum Medio-
lani per Iacobu[m] de San | cto Nazario
de Ripa a[n]no d[omi]ni. M.cccclxxxiiiij
| Die. xxvi. mensis Iulij. |

40 ff. F°. Mediolani, Jacobus de Sancto Nazario
de la Ripa, 1494.

[Hain no. 7839.]

DE GRADI, JOANNES MATTHAEUS FERRARIUS
[Expositiones super vigesimam secundam
Fen tertii canonis Avicennae] [F. 1a (c.
sig. a. 2):] Expositiones p[re]clarissimi
[et] subtilissimi Ma | gistri Jo. Mathei ex
ferrarijs [de] gradi. sup[er] vigessi | mam-
secu[n]da[m] Fen. terciij canonis. d. Auic.
ad Illu | strissimum Ducem *** [F. 103a.
col. 2:] Imp[re]ssum Mediolani Su[m]mo
studio [et] dili | gentia per Iacobu[m] de
s[an]c[t]o Nazario de la Ripa | Anno. M.
ccccxciiiij. die. xvij. nouemb[er]is. |

103 ff. F°. Mediolani, Jacobus de Sancto
Nazario de la Ripa, 1494.

[Hain no. 7840.]

GRASSI, Beneventus [De oculis eorumque
aegritudinibus et curis.] [F. 1a:] BENE-
VENTI GRASSI HIE | ROSOLIMI-
TANI DOCTORIS | CELEBERRIMI
AC EXPERTIS | SIMI DE OCVLIS
EORVMQVE | EGRITVDINIBVS &
CVRIS FE | LICITER INCIPIT. | [Ad
finem:] SEVER. FERRAR. | F F. IIII. |

35 ff. 4°. [Ferrariae], Sever[inus] Ferrar[ensis],
[1474.]

[Hain no. 7869.]

*First edition of the first book printed on the
diseases of the eye.*

GRÜNPECK DE BURCKHAUSEN, JOSEPH
[Tractatus de pestilentiali scorra sive
mala de Franzos.] F. 1a. tit:] §Tractatus
de pestilentiali Sco[r]ra siue mala de

Franzos. | O[r]iginem. Remediaq[ue] eiusdem continens, co[m]pilatus a venerabili viro Magistro Ioseph G[r]unpeck de Burckhausen. | sup[er] Carmina quedam Sebastiani B[r]ant vtriusq[ue] iuris p[r]o | fesso[r]is. |

12 ff. il. 4°. [Augustae, Johannes Froschauer, 1496.]

[Hain no. 8091.]

GRUNPECK DE BURCKHAUSEN, JOSEPH [Tractatus de pestilentiali scorra sive mala de Franzos.] [F. 1a. tit:] Tractatus de pestilentia | li Sco[r]ra siue mala de Franczos O[r]igine[m]. Remediaq[ue] | eiusdem continens. co[m]pilatus a venerabili viro Magi = | stro Ioseph Grunpeck de Burckhausen sup[er] carmina queda[m] Sebastiani B[r]ant vtriusq[ue] iuris p[r]o- fesso[r]is: | Sco[r]ra de Franssois | [F. 12a:] A M E |

12 ff. il. 4°. [Coloniae, Cornelis de Zierikzee, circa 1497.]

[Hain no. 8092.]

ANTONINUS, ANTONIUS [Opera.] [F. 1 blank.] [F. 2a:] Incipit tractatus de egritudinibus | capitis. editus per Magistrum An- tonium Guaynerium Artiu[m] [et] medi- ci[n]e | doctorem papiensem. | [F. 352b:] In hoc uolumine agregati sunt o[mn]es | tractatus *** studio papie[n]si et antonij de ca[r]cano o | pera papie i[m]pressa a[n]no a natali domini | i. 4. lxxx.i. *** [F. 354 wanting.]

354 ff. F°. Papiæ, Antonius de Carcano, 1481.

[Hain no. 8097.]

Imperfect. ff. 342-353 mutilated.

GUY DE CHAULIAC. [Chirurgia cum aliorum tractatibus de eadem materia] [F. 1a. tit:] Cyrurgia parua Guidonis | Cyrurgia Albu- casis cu[m] caute- | rijs [et] alijs instru- mentis. | Tractatus de oculis Iesu hali | Tractatus de oculis. Canamusali | [Ad finem:] §Explicit liber de curis omnium passionum oculo[rum] que[m] | fecit [et] composuit Canamusali philosophus De Baldach. | Uenetijs per Bonetum Locatel-

lum p[r]esbyteru[m] Ma[n]- | dato [et] sumptibus heredu[m] quonda[m] Nobilis viri domini | Octauiani Scoti Modoetie[n]- sis. Anno d[omi]ni. M.CCCCC. | sexto Kal. Feb[r]uarias. |

68 ff. il. F°. Venetiis, Bonetus Locatellus for Octavianus Scotus, 1500.

[Hain no. 4813.]

GUY DE CHAULIAC. [Opera chirurgica.] [F. 1 blank wanting.] [F. 2a:] Nel nome de dio co[m]me[n]za lo inue[n]tario | ouer colectorio che apartie[n] ala parte d[e] | la cirogia: co[m]posto e compido del a[n]no | de la incarnation del nostro signore | Mccc.lxiii. p[er] lo clarissimo e famoso do | tor maistro. Guidon de gualiaco ciroi | co i[n] lo clarissi[m]o studio de mompolier. | [F. 239b:] Finisse la clarissima opera |*** Et impresso per maistro Ni- | colo girar- dengho de noue: In uene | sia nel. Mcccc- lxxx. adi do del mese | de nouembro. ***

240 ff. F°. Venetiis, Nicolaus Girardengis de Novis, 1480.

[Copinger no. 1548.]

HALY ABBAS. [Liber regalis dispositio nomi- natus ex arabico] [F. 6a:] Liber p[r]imus | In nomine su[m]mi dei qui cu[m] trinus sit personis vnus est | ***[F. 191b:] Im- p[r]essum venetijs. die 25. septe[m]b[r]is. 1492. op[er]a bernar- | dini ricij de nouaria. i[m]pensa vero excelle[n]tissimi artiu[m] [et] medi- | cine docto[r]is d[omi]ni mag- [ist]ri Ioannis d[omi]nici de nigro ***

192 ff. F°. Venetiis, Bernardinus Ricus de Novaria for Johannes Dominici de Nigro, 1492.

[Hain no. 8350.]

HARDERWYCK, GERARDUS [Epitomata seu reparationes totius philosophiae naturalis.] [F. 1a. tit:] In epitomata to | tius naturalis ph[ilosoph]ie que trito sermone rep[ar]at[i]o[n]es appellatur | Alberto centonas [con]tinentia. in bursa Lauren- tiana flo[r]en | tissimi Agrippinensis gym- nasij castigatissime edita epigra[m] | ma ad lectorem: [F. 339b:] § *** scriptis con-

fo[r]mia per Magistru[m] gerardum herderwiccensem *** et *** Burselaurencij *** emendatissime ad vtilitatem | o[mn]i[u]m textu[m] Arestoteles [sic] intel | ligere cupie[n]tium elabo[r]ata. et per honestum viru[m] Henricum | quentel Coloniensem ciue[m] nitidissime *** Anno *** Millesimo quadringe[n]tessimo sup[er] nonagesi | mum sexto p[r]edie calendas martias *** §Telos totius operis multis retro tempo[r]i- b[us] a | studentibus liberaliu[m] artium desiderati. |

3 v. in 1. 340 ff. 3 por. 12°. Coloniae, Henricus Quentell, 1496.

[Hain no. 8362.]

First edition.

HENRICUS DE SAXONIA. [Libellus de secretis mulierum] [F. 1a. tit:] Tractatus Hein | rici de Saxonia Alberti magni discipuli | de secretis mulierum. | [F. 76a:] Explicit tractatus Heinrici de Saxonia Al | bertii magni discipuli de secretis mulierum Im | p[r]essus Auguste Per Anthonium So[r]g feria | sexta post Bonifacij Anno salutis Millesi- | moquad[r]ingentesimooc- tuagesimonono. |

76 ff. 4°. Augustae, Anthonius Sorg, 1489.

[Hain no. 8434.]

HENTISBERUS, GUILIELMUS. [Expositio regularum solvendi sophismata.] [F. 2a (c. sig. a²):] [] Egulas solvendi sophismata. *** [F. 58b. l.24:] Finis egredij hentisberi regula[rum] [et] sophismatu[m] | expo- [sitio]nis p[er] eximiu[m] sophismata[m] [et] philosophu[m] su[m]mu[m] | magistru[m] gayetanu[m] de tienis emendate p[er] acutis | simu[m] artiu[m] ac medicine doctore[m]. m. Franciscum | agubiense[m] mane medicine theorica[m] papie leg- e[n]te[m] | su[m]ma cu[m] diligentia p[er] me andrea[m] de bonetis d[e] pa | pia venetiis i[m]presse. *** M.cccclxxxiiij die. ix. d[e]c[em]bris. Laus deo et beate virgini. | Registrum | *** FINIS. | [58] ff. F°. Venetiis, de Bonetis, 1483.

[Hain-Copinger 8441.]

HERMES TRISMEGISTUS. Liber de potestate et sapientia dei. [F. 1a. (c. sign. a) tit.:] MERCVRII TRISMEGISTI LIBER DE POTESTA | TE ET SAPIENTIA DEI PER MARSILIVM FICI | NVM TRADVCTVS: AD COSMVM MEDICEM. | [F. 32a:] FINIS EST OPERIS ELEGANTISSIMI | MERCVRII TRISMEGISTI | Mercurii Trismegisti per Marsilium Ticinum [sic] Florentinum e | graeco in latinum Traducti Finis. | Venetiis per Damianum de Mediolano. | M.CCCCLXXXIII. die. x. Maii. |

[32] ff. 8°. Venetiis, Damianus de Mediolano, 1483.

[Hain no. 8461.]

HIPPOCRATES. [Libellus de medicorum astrologia.] [F. 45b:] Hyppocratis libellus de medico[r]u[m] astrologia incipit: | a Petro de abbano in latinu[m] traductus. | [F. 49a:] Hyppocratis libellus de medico[r]u[m] | astrologia finit: a Petro de abbano | in latinu[m] traduct[us] Imp[r]essus est arte ac diligentia mira Erhardi Rat- | dolt de Augusta Imperante inclyto Johanne Mocenico duce Uene- | to[r]u[m]: Anno salutifere incarnationis. 1485. | Uenetijs |

[In- Prognosticon de mutatione aeris. *** 1485. ff. 45b-49a.]

[HORTUS SANITATIS.] [F. 1a. tit:] Herbarius zu teüt | sche vnd von aller handt kreüter- | en. | [F. 261b:] §Ged[r]uckt vnd saligk- | lich vol- | lendet dyser Herbarius [d]urch | Hannsen Schönsperger in der | Keyserlichen stat Augspurg an | dem afftermon- | tag nach Tybur | cij. Nach Cristi geburt tausent | vierhundert vnnd in dem d[r]ei- | undeneuntzigsten jare. |

261 ff. F°. Augustae, Johannes Schönsperger, 1493.

[Hain no. 8954.]

[HORTUS SANITATIS] [F. 1a:] Ortus Sanitatis. | De herbis et plantis | De animalibus [et] reptilibus | De Auibus et volatilibus | De piscibus [et] natatilibus | De Lapidibus

[et] in terre uenis nasce[n] | (tibus | De Urinis et ea[rum] speciebus | Tabula medicinalis Cum directo | rio generali per omnes tractatus. | [F. 342b:] Hec Auicenna. Egidius. Isaac. [et]c. Et hec de | v[r]inis dicta sufficient. §Finis. |

360 ff. il. F°. [Argentinae, Johannes Prüss, circa 1498.]

[Hain no. 8943.]

Imperfect. Part of title supplied by hand. ff. 188, 208 & 333 missing.

HORTUS SANITATIS] [F. 1a. tit:] Ortus Sanitatis | De herbis et plantis. | De Animalibus [et] reptilibus | De Auibus et volatilibus | De Piscibus [et] natatilibus | De Lapidibus [et] in terre uenis nasce[n] | (tibus | De Urinis et ea[rum] speciebus | Tabula medicinalis Cum directo | rio generali per omnes tractatus. | [F. 342b:] Hec Auicenna: Edidius: Isaac [et]c. Et hec de v[r]i | nis dicta sufficient. Finis. | [F. 343a-360a. Tabulae]

360 ff. il. 3 pl. F°. [Argentinae, Johannes Prüss, circa 1490.]

[Hain no. 8941.]

Imperfect. ff. 10 & 333 missing.

HUGO SENENSIS. [Super aphorismos Hippocratis et super commentum Galeni.] [F. 1a. tit:] Expositio Ugonis Senensis super apho- | rismos Hypocratis [et] super co[m]mentum | Galieni eius interp[r]etis. | [F. 159b:] §Uenetijs imp[r]essu[m] ma[n]dato [et] sumptibus Nobilis vi- | ri domini Octauiani Scoti Ciuis Modoetiensis. Deci- | [m]o | kalendas Junias. 1498. per Bonetum Locatellum Ber | gomensem. |

160 ff. F°. Venetiis, Bonetus Locatellus for Octavianus Scotus, 1498.

[Hain no. 9012.]

ISAAC JUDAEUS. [Tractatus particularibus diaetis.] [F. 2a:] Eximij Isaac medicine monarce: de p[ar] | ticularibus dietis libel- | [us] *** [F. 59a:] Hic tractatulo de particularibus dietis: excellentissimi | medici Ysaac modus imponitur: cura solerti padue im- | p[r]essus: per magistru[m]

Mattheum Cerdonis de win- | dischgretz. die. 23. Marcij. 1487. |

59 ff. 4°. Paduae, Matthaecus Cerdonis de Windischgretz, 1487.

[Hain no. 9267.]

First edition of the first book on diet.

ISIDORUS, BISHOP OF SEVILLE. [Etymologiarum libri viginti] [F. 1a. tit:] Isidorus ethimologiarum | Idem de summo bono | [F. 99a. col. 2:] §Finit liber tertius [et] vltimus de summo bono sancti Isi- | do[r]i hypsalensis ep[iscop]i: Imp[r]essus Uenetijs p[er] Bonetum] loca- | tellu[m] mandato [et] expensis Nobilis viri Octauiani Scoti | Ciuis Modoetiensis. MCCCCXC-III. | Tertio Idus Decemb[r]es. Cu[m] dei summa laude. |

100 ff. F°. Venetiis, Bonetus Locatellus for Octavianus Scotus, 1493.

[Hain no. 9280.]

JANUENSIS, SIMON [Synonyma medicinae s. clavis sanationis] [F. 1 blank wanting.] [F. 2a:] Incipit clavis sanationis elabo- | [r]ata p[er] venera- | bilem virum magistru[m] Simonem Ianuensem | *** [F. 99a:] Uenetijs per Guilmum de Tridino ex | Monteferrato. Mcccclxxxvi. die. viij. | Nouemb[r]is. ***

100 ff. F°. Venetiis, Gulielmus de Tridino de Monteferrato, 1486.

[Hain no. 14749.]

JANUENSIS, SIMON [Synonyma medicinae s. clavis sanationis.] [F. 1a:] Synonyma Simonis Genuensis. | Cognata non plene medici[n]e no[m]i[n]a reru[m] | *** [F. 157a:] Opus imp[re]ssu[m] M[ed]io[lan]i p[er] Antoniu[m] Zarotu[m] | parm[en]sem a[n]no d[omi]ni. M.cccc.lxxiii. Die. | Martis. iii. Augusti. | FINIS. |

157 ff. F°. Mediolani, Antonius Zarotus, 1473.

[Hain-Copinger no. 14747.]

First edition of the first medical dictionary.

JOHANNES PEACHAMUS, ARCHBISHOP OF CANTERBURY. [Prospectiva communis.] [F. 1a. vacat.] [F. 1b:] Reuerendissimo in Christo patri apostolicoq[ue] p[ro]tonota-

| rio nec no[n] equiti aurato [et] comiti palatino Amb[r]osio grif | fo artiu[m] medicin[ue] docto[r]i p[rae]sta[n]tissimo ac theologo p[er]itissi[m]o | Facius Cardanus. s. d. p. [F. 2a:] P[r]ospectiua co[m]munis. d. Joha[n]nis archiepiscopi Ca[n]tuarie[n]sis | fratris o[r]dinis mino[rum] *** [F. 3ob. l. 28:] Optima que fertur uisus pars optima lecto[r]. | Faustis Co[r]neni clauditur auspitij. | ***

30 ff. il. F°. [Mediolani, Petrus [Cornenus], circa 1480.]

[Hain no. 9425.]

Rare work on optics.

JUNG, AMBROSIUS [Tractatus perutilis de pestilentia ex diversis auctoribus congregatus.] [F. 1a. tit.:] Ein auszerwelt loblich tractat | v[o]n regiment in dem schwären zeit der pestilentz ausz | gezogen ausz den bewärttn v[o]n weysisten alten gsch | riffen der artzney. Durch Ambrosium jung der sibe[n] | freyen künst v[o]n der artzney doctor. [die] zeit der wirdige[n] | herrn vom thüm aü Augspurg geschwornen doctor. | [Icon. zyl. F. 1b. praefatiuncula. F. 2a. c. sign. Xij:] §Die auszteylung dysz tractats | etc. [F. 18a.] Hie endet sich diser tractat des regiments | der pestilentz. Gedruckt und volendet zü | Augspurg Durch Hannsen Schonsper | ger am freytag nach Martini. nach Cristi | geburt. M.cccc. und jm.xciii. iar. |

18 ff. il. 4°. Augspurg, Schönsperger, 1494.

[Hain no. 9473.]

Rare German incunabulum.

JUNG, AMBROSIUS [Tractatus perutilis de pestilentia ex diversis auctoribus congregatus] [F. 1a. tit.:] Tractatulus perutilis de pe | stilentia ex diuersis auctoribus aggregatus Ab exi- | mio arcium [et] medicina[rum] docto[r]i. Amb[r]osio jung *** [F. 18b:] Imp[r]essum Auguste p[er] Johan[n]em schön | sperger Anno d[omi]ni Millesimo q[ua]d[r]ingete- | simo nonagesimo quarto. Feria quinta | post Elisabeth. |

18 ff. il. 4°. Augustae, Johannes Schönsperger, 1494.

[Hain no. 9472.]

KAMITUS, EPISCOPUS ARUSIENSIS. [Regimen contra pestilentiam] [F. 1a:] Regimen contra epidimiam siue pestem | [F. 4b:] Tractat[us] de regimi[n]e pestile[n]tico d[o]m[in]i kami[n]ti ep[iscop]i Arusin[ensis] ciuitatis regni dacie artis medicine expertissimi p[ro]fessoris | finem habet |

4 ff. 4°. [Coloniae, Joannes Guldenschaff, circa 1490.]

[Reichling no. 957.]

KAMITUS, EPISCOPUS ARUSIENSIS. [Regimen contra pestilentiam] [F. 1a. tit.:] Regimen contra pestilentiam | siue Epidimia[m] Reuerendissimi domini Kaminti Episcopi | Arusiensis Ciuitatis regni dacie artis medicine expertissi | mi p[ro]fessor[is] | Regimen sanitatis per circulum anni valde utile. | [F. 6a:] Fundamenta ruunt modicum tunc durat idipsum |

6 ff. 4°. [Moguntiae, Jacobus Meydenbach, circa 1495.]

[Reichling no. 582.]

KAMITUS, EPISCOPUS ARUSIENSIS. [Regimen contra pestilentiam] [F. 1a. tit.:] Regimen contra pestilentia[m] | siue Epidimia[m] Reuerendissimi domini Kamiuti [sic] Episcopi | Arusiensis Ciuitatis regni dacie artis medicine expertissi | mi p[ro]fessor[is] | §Regimen sanitatis per circulum anni valde vtile. | [F. 5a:] Incipit regimen sanitatis | per circulum anni valde vtile. | ***

6 ff. il. 4°. [Moguntiae, Jacobus Meydenbach, circa 1490.]

[Not in Hain.]

Imperfect. f. 6 torn.

KETAM, JOANNES [Fasciculus medicinae] [F. 1a. tit.:] Fasciculus medicine in quo | continentur: videlicet. | *** [F. 4ob:] §Hec Anothomia fuit emendata ab eximio artium *** §Imp[r]essum Uenetijs per Joanne[m] [et] G[r]ego[r]iu[m] de G[r]ego-

[r]ijs fratres. An | no d[omi]ni. M.cccc.xcv.
die. xv. octob[r]is. |

40 ff. il. F°. Venetiis, Joannes et Gregorius de
Gregoriis, 1495.

[Hain no. 9775.]

LACTANTIUS FIRMIANUS, LUCIUS COELIUS
[Opera.] [F. 1a:] Lactantii Firmiani de
diuinis institutionibus | aduersus gentes.
Rubricae primi libri incipiu[n]t. [Tab.
expl. f. 9b.] [F. 10a:] Lactantii Firmiani
errata primi libri q[ui]bus ipse | deceptus
est per fratrem Antonium Raudensem
| theologum collecta & exarata sunt. |
[F. 11b in fine errator:] His carminibus:
frater Adam genuensis increpat fr[at]rem
Antoniu[m] | Hic male corripuit stolidis
Antonius ausis | etc. [F. 12a incipit lib.
divinarum institutionum s. inscr.:] (M)-
Agnō & excellenti ingenio uiri cu[m] sese
doctrinae | etc. [F. 218b in fine:] Arguit
hic hominum sectas lactantius omnes |
etc. Post regina premit quippe colenda
maris. | M. CCCC. LXXI. Adam. |

[218] ff. F°. [Venetiis], Adam [de Ambergau],
1471. [Hain no. 9809.]

LEONICENUS, NICOLAUS [De morbo Gallico]
[F. 1a. tit:] Libellus de Epidemia, quam
| uulgo morbum Galli | cum uocant. | [F.
28a:] Venetiis, In domo Aldi Manutii.
Men- | se Iunio. M.iii.D. |

29 ff. 4°. Venetiis, Aldus Manutius, 1497.

[Hain no. 10019.]

LEONICENUS, NICOLAUS [De morbo Gallico]
[F. 1a. tit:] Libellus de Epidemia quam |
uulgo morbum Galli | cum uocant siue |
brossulas. | [F. 32a:] Liber de epidemia
siue brossulas finis. Impressum Medio-
lani p[er] magistrum Guilielmum signerre
Rothomagensem: | regnante Illustrissimo
principe. d. Ludouico duce Mediola | ni.
Impensa magistri Ioa[n]nis de Legnano,
M.cccc.lxxxvij | die. iij. mensis Iullij. |

32 ff. 4°. Mediolani, Guilielmus Signerre Rotho-
magensis for Joannes de Legnano, 1497.

[Hain no. 10020.]

LEUPOLDUS, DUX AUSTRIAE. [Compilatio

de astrorum scientia.] [F. 1a. tit:] Com-
pilatio Leupoldi ducatus | Austrie filij de
astrorum scientia | Decem continens trac-
tatus. | [F. 2a. sphaera mundi. F. 2b:]
Reuerendissimo in christo patri et
d[omi]no Udalrico de fronsperg pontifici |
tredentino Erhardus Ratdolt Augusten-
[sis]. imp[re]ssor Salute[m]. p. dicit. [F. 3a.
(c. sign. a3):] § Incipit co[m]pilatio Leu-
poldi ducatus Austrie filij de astro[rum]
scie[n]tia. | [F. 109a:] Compilatio Leupoldi
ducatus Au- | strie filij de astrorum scientia:
expliciter | feliciter. Erhardi ratdolt Au-
gusten[sis]. | viri solertis: eximia industria
[et] mira | imprimendi arte: qua nup[er]
venecij | nunc auguste vindelicorum ex-
cellit | nominatissimus. Quinto ydus Ia |
nuarij. M.cccc.lxxxix currente. | Laus
deo. | 110 ff. 12°. Augusburg, Ratdolt,
1489.

[Hain-Copinger no. 10042.]

First Edition.

LUCIAN OF SAMOSATA. [Dialogus.] [F. 20a. 1.
26:] LVCIANI PHILOSOPHI GRAECI
DIALOGVS DE VIR | tute, conque-
re[n]te cum Mercurio. a Carolo aretino
graeco in latinu[m] traductus. |

[In- Censorinus. De die natali. *** 1497. f. 20.]

LUCRETIVS CARUS, TITUS De rerum natura.
[F. 1. blank. F. 2a. c. sign. aII:] T. Lu-
creti Cari. poetae philosophici antiquis-
simi | de rerum natura liber primus incipit
foeliciter. | [F. 95a. 1. 10:] Paulus hunc
impressit fridenperger in uerona. | *** Ab
incarnatione christi: MccccLxxxvi | Die
uigesimo octauo septembris calen. octo-
bris. | *** Finis. |

96 ff. 4°. Veronae, Paulus Fridenperger, 1486.

[Hain no. 10282.]

*Second issue of this work, but the first dated
edition. Only work from this press.*

LUDOVICUS PRUTHENUS S. DE PRUSSIA. [Tril-
ogium animae] [F. 1a. tit:] Trilogium
anime | non solum religiosis veru[m]-
etia[m] se | cularibus p[re]dicato[r]ibus
co[n]fes | so[r]ibus contemplantibus et stu-

|dentibus lume[n] intellectus et ar | dorem affectus amministrans | [Ad finem:] §Post hoc in imp[er]iali ciuitate Nuremberg ad p[r]eces | fratr[u]m mino[r]um | ibide[m] co[m]mo[r]antiu[m]: p[er] Anthoniu[m] kober- | ger ad laude[m] dei imp[er]essum [et] ad hu[n]c vsq[ue] fine[m] feliciter | p[er] ductu[m] Anno d[omi]ni. M.cccc.xcvij.vj. die Marcij. |

354 ff. il. 1 woodcut. 4°. Nurembergae, Anthonius Koberger, 1498.

[Hain no. 10315.]

[LUMEN ANIMAE SEU LIBER MORALITATUM.] [F. 1a:] §Liber moralitatum elegantissimus magnarum rerum naturaliu[m] | Lumen anime dictus. cum septem apparitoribus. necno[n] sancto[r]um docto[r]um o[r]thodoxe fidei [pro]fessorum. Poetarum etiam ac orato[r]um auctori | tatib[us]. p[er] mo[dum] pharatre [secundu]m o[r]dine[m] alphabeti collectis. Felicit[er] incipit | [F. 2a. Tabula. F. 32b.] Tabula moralitatu[m] Secunda super Lume[n] anime finit feliciter. | [F. 33a:] Prologus. | [F. 34b:] Titvlvs Primus | [F. 268a. In fine:] §Liber lumen anime dictus feliciter explici.*** Annoq[ue] a natiuitate d[omi]ni. Milesimoquadringentesimo sep | tuagesimo nono quarta feria post vdalrici, su[m]ma cu[m] dilige[n]tia [com]ple[tus] |

268 ff. F°. [Reutlingae, Michael Greyff], 1479.
[Hain-Copinger no. 10331.]

MACER FLORIDUS, AEMILIUS [De viribus herbarum] [F. 1a:] Incipit libellus Macri de viribus | herbarum. Et p[ri]mo de arthemisia. | [Ad finem:] Herbarum varias qui vis cognoscere vires | Macer adest disce: quo duce doctus eris. |

43 ff. il. 4°. n. p., n. pub., [circa 1491.]

[Hain no. 10419.]

MAGNI, JACOBUS. [Zophilogium s. sophologium.] [F. 1a. tit.:] Sophologium sapie[n]tie magistri Jacobi magni. [Woodcut.] [F. 2a. woodcut portrait-initial:] Doctissimi *** Jacobi magni *** sophologium incipit. | *** [F. 141b.col. 2. 1. 19:] Jacobi magni sophologiu[m] sapie[n]tie finit fe-

liciter. | [F. 142-143. tabula. F. 144b. full-page woodcut printer's device.] JEHAN RICHART. ***

144 ff. 12°. [Parisiis, Felix Balligault for Jean Richart, 1498.]

[Copinger no. 3748.]

MAGNINUS MEDIOLANENSIS. [Regimen sanitatis] [F. 1a. tit.:] [R]Egime[n] sanitatis Magnini medio | lanensis medici famosissimi attre | bacensi episcopo directum *** [F. 128a:] Explicit. |

130 ff. 4°. [Lyons, n. pub., circa 1495.]

[Hain no. 10482.]

MALDURA, PETRUS LUDOVICUS [In vitam Sancti Rochi ***] [F. 1a. tit:] Petrus ludouicus Maldu | ra In Uitam sancti Rochi | Contra Pestem Epidimie Apud d[omi]n[u]m dignissi | mi intercesso[r]is Unacu[m] eiusdem Officio. | [F. 12a:] Theoderici gresemu[n]di Iunio[r]is moguntini Car- | men Elegiacu[m] ad huius libri lecto[r]em in laudem | sancti Rochi. | ***

12 ff. il. 4°. [Moguntiae, Petrus de Friedberg, 1495.]

[Hain no. 10546.]

DE MANFREDI, HIERONIMUS [Liber de homine, cuius sunt libri duo ***] [F. 1a. blank.] [F. 1b:] MEA interest magnifice ac genere Miles Iohannes d[e] bentioliis | *** [F. 2a. col. 1:] LIBER DE HOMINE: CVIVS Su[n]t LIBRI DVO. PRIMVS LIBER DE | CONSERVATIONe SANITATIS | CAPITVLVM PRIMVM DE Ca | VSIS & NATVRIS OMNIV[M] Eo | RVM QuAE SVMVNTVR IN | CIBO. QuESITA. LXX. QuAESI | TVM PRIMVM. | [F. 109-110 wanting.]

110 ff. F°. [Bononiae, Ugo Rugerius et Doninus Bertoehus, 1474.]

[Hain no. 10689.]

Imperfect. ff. 109-110 missing.

MAGNI, JACOBUS [Zophilogium s. sophologium.] [F. 1a. tit.:] Sophologium sapie[n]tie | magistri Jacobi magni. | [Woodcut.] [F. 2a. woodcut portrait-initial:] DOctissimi *** Jacobi magni *** sophologium in-

cipit. *** [F. 141b. col. 2. l. 19:] §Jacobi magni sophologiu[m] sapien- | tie finit feliciter. | [F. 142-143. tabula. F. 144b. full-page woodcut printer's device.] JEHAN RICHART. | ***

144 ff. 12°. [Parisiis, Felix Balligault for Jean Richart, 1498.]
[Copinger no. 3748.]

DE MANLIUS DE BOSCO, JOANNES JACOBUS [Luminare maius.] [F. 1a. tit:] Luminare maius. | Cinthus vt totum radijs illuminat o[r]bem. | Illustrat lateb[r]as sic medicina tuas. | [Ad finem:] Opus diligenter co[r]rectum [et] a multis docto[r]-ib[us] | examinatum. Imp[r]essum in inclita ciuitate Papie stu | dio[r]um omnium altrice per magistrum Antonium [de] | Carchano Mediolane[n]sem imp[r]esso[r]e[m] dignissimum. | Anno saluatoris nostri. 1494. ***

90 ff. F°. Papaie, Antonius de Carchano, 1494.
[Hain no. 10711.]

MARTIUS, GALEOTUS [Liber de homine] [F. 1 blank.] [F. 2a:] GALEOTTI MARTII NARNIENSIS | AD. R. D. ARCHIEPISCOPVM STRIGO | NIENSEM IN LIBRVM DE HOMINE EPISTOLA. *** [F. 76a:] Galeotti Martii Narniensis Secundus & ultim[us] | de homine Liber explicat. |

76 ff. F°. [Budapest, circa 1470.]
[Hain no. 7433.]

MARTIUS, GALEOTUS [Refutatio obectorum in librum de homine a Georgio Merula] [F. 1 blank wanting.] [F. 2a:] Galeotti Martii Narnie[n]sis Epistola Ad Illu | stri. Pri[n]cipe[m] Federicu[m] Duce[m] Urbini Incohat | [F. 104a:] Impressu[m] est opus Venetiis mirabili arte | ac diligentia Per Iacobum Rubeum Na | tione Gallicum huius artis p[er]itissimum. An | no incarnationis dominice millesimo cccc | lxxvi. Andrea Vendremino inclyto Duce | Venetiarum. | Laus omnipotenti deo. |

104 ff. 4°. Venetiis, Iacobus Rubeus, 1476.
[Hain no. 7437.]
Imperfect. ff. 53-68 missing.

MATHEOLUS PERUSINUS. [De memoria augenda s. ars memorativa.] [F. 1a:] Tractatus clarissimi philosophi et me | dici Matheoli perusini de memo[r]ia au-ge[n] | da per regulas et medicinas. | [F. 5b:] Explicit tractatus de memo[r]ia editus in | Italia a d[omi]no Matheolo medicine docto[r]e | famosissimo. mo[r]tuo Anno d[omi]ni milesimo | quad[r]ingentesimo septuagesimo. | [F. 6 blank.]

6 ff. 4°. [Argentinae, Heinrich Knoblochzer, circa 1475.]

[Copinger no. 3912.]

MATHEOLUS PERUSINUS. [De memoria augenda s. ars memorativa.] [F. 1a:] §TRACTATVS CLARISSIMI PHILO | sophi & Medici Matheoli Perusini: de Memoria. | [F. 4b:] §Hec igitur sunt uiri digni medicinalia que inter | alia electissima pro seruanda memoria & ita fine[m] facio. |

4 ff. 4°. [Romae, Eucharius Silber, circa 1476.]

[Reichling no. 253.]

MATHEOLUS PERUSINUS. [De memoria augenda s. ars memorativa.] [F. 1a:] §Tractatus Clarissimi philosophi et | medici Matheoli Perusini de Memo[r]ia. | [F. 4a:] §Hec igitur sunt viri digni medicinalia que | inter alia electissima p[ro] seruanda memo[r]ia: [et] | ita finem | facio. |

4 ff. 4°. [Romae, Stephanus Planck, circa 1490.]

[Reichling no. 1570.]

MATTHAEUS DE LUCHA. [De diebus criticis.] [F. 1a. blank.] [F. 1b:] Ad Lectorem. | *** [F. 2a:] §Artiu[m] & medicine doctoris magistri Mat | thei de Lucha de diebus criticis Dialogus. | [F. 8b:] §Impressum Rome. Mccccxxxiii. Beatis | simo Alexandro sexto imperante quem de | us conseruet. |

8 ff. 4°. Romae, [Andreas Freitag], 1493.

[Hain no. 10257.]

MENSA PHILOSOPHICA. [F. 1a. tit:] Mensa philosophica. | [F. 2a:] §Incipit tabula in li | bru[m] qui dicit[ur]. Men | sa philo-

sophica. Et | p[ri]mo ponu[n]tur tituli | p[r]imi lib[r]i | [F. 96b:] Presens liber que[m] mensa[m] philosophica[m] vo | cant: vnicuiq[ue] p[er]utilis: co[m]pendiose p[er]tractans | in p[ri]mis q[ui]d in co[n]uiuijs p[ro] cibis et potibus su = | mendu[m] est. deinde que sermones illis [secundu]m exi = | gentia[m] p[er]sonaru[m] habe[n]di su[n]t: et que q[ue]stiones | discutie[n]de: q[ue] insup[er] facietie siue ioci intersere[n]di | Feliciter explicit. |

96 ff. 8°. [Coloniae, Joh. Guldenschaaf, circa 1485.]

[Hain no. 11075.]

MESUE DAMASCENUS, JOANNES [Eadem opera cum additionibus et expositionibus aliorum] [F. 1a. tit:] Mesue cum additionibus Francisci de pedemontium. Et ad | ditionibus Petri de Apono. Et cum commento Dini super | Cano. generales. Et cum co[m]me[n]to Christophori de honestis | sup[er] antidotariu[m] Mesue Platearius super antidotariu[m] Nicolai | Et Saladinus de componendis medicinis. | [F. 357b:] Hic finitur Mesue cum Mundi- no super canoni- | bus generalibus Christofaro Geo[r]dio *** Et imp[r]essa Uenetijs per Pelegrinum de | pasqualibus de Bononia sub a[n]no d[omi]ni. 1491. *** LAUS DEO. |

358 ff. F°. Venetiis, Pelegrinus de Pasqualibus de Bononia, 1491.

[Hain no. 11110.]

MESUE DAMASCENUS, JOANNES [Eadem opera cum additionibus et expositionibus aliorum] [F. 1 blank.] [F. 2a:] [I]N nomine | dei mise[r]ico[r] | dis cui[us] nutu [ser]mo recipit | gra[tiam] [et] doctrina p[er]fectione[m] | *** [F. 391a:] Hoc loci consum- [m]atur vniuersa opera Diui | Ioannis Mesue cum complemento *** An | no saluato[r]is cristi Iesu. M.iiij.lxxviiiij. p[er] | die kale[n]das Feb[r]uarij. Imp[r]essa venetijs op[er]e et impensis Rainaldi Nouimagij. ***

392 ff. F°. Venetiis, Rainaldus de Novimagio, 1479.

[Hain no. 11108.]

METLINGER, BARTHOLOMAEUS [Regiment der jungen Kinder] [F. 1a:] [W]Ann nach ansehung götlicher | vnd menschlicher o[r]denung *** [F. 27b:] da | mit sich das vierd capitel endet v[o]n dar dur | ch dises büchlin Dar von got dem almechti | gen Er wurd v[o]n lob gesagt sey vnd seiner | werde[n] müter der iungfrauwe[n] marie Gesche | hen als ma[n] zalt nach xpi geburt tausent vier = | hundert vnd in de[n] lxxiiij. jar an dem achten | den tag sant End[r]is des zwölff boten. |

27 ff. F°. [Augustae, Gintherus Zainer], 1473.

[Hain no. 11127.]

f. 21 replaced by fac-simile.

MOLITOR, ULRICUS [De lamiis et phitonicis mulieribus.] [F. 1a.] §De lanijs [sic] [et] phitonicis mu | lieribus ad illustrissimum p[r]incipem dominu[m] Sigismundum | archiducem austrie tractatus pulcherrimus. | [Woodcut.] [F. 22a. l. 26.] Ex Constantia anno domini. M.cccc.lxxxix: die | decima mensis Januarij. | §Tue celsitudinis humilis consiliarius [et] seruulus | Ulricus molito[r]is de Consta[n]tia decreto[rum] docto[r]. |

22 ff. il. 7 woodcuts. 12°. [Cologne, Cornelius de Zierikzee, circa 1490.]

[Copinger no. 4338?]

Most famous XVth century work on witchcraft.

MONTAGNANA, BARTHOLOMAEUS [Consilia medica] [F. 1a. tit:] Consilia Magistri Bartholomei Montagnane. | Tractatus tres de balneis patauinis. | De compositione et Dosi medicinarum. | Anthidotarium eiusdem. | Consilia D[omi]ni Antonii Cermisoni. | Tractatus de theriaca: a Fra[n]cisco caballo edit[us] | [F. 401b. n. 405b:] §Hoc uolumen Imp[r]essum est Uenetijs per | Simonem de Luere Impe[n]sis D[omi]ni Andree | To[r]resani de Asula. xx. Aug. M.ccccic. | ***

420 ff. F°. Venetiis, Simon de Luere for Andreas Toressani de Asula, 1499.

[Copinger no. 4342.]

Imperfect. ff. 402-420 missing.

MONTAGNANA, BARTHOLOMAEUS [Consilia medica] [F. 1 missing.] [F. 2a:] §Gerardo bolderio Uerone[n]si tanq[ua]m patri obseruandissi- | mo Jacobus de vitalibus B[r]ixiensis. S. P. D. | [F. 395b: (c. n. 387)] §Gratias altissimo deo qui antidotis d[omi]ni magistri Bar- | tholomei de mo[n]tagnana. Et [con]seque[n]ter toti[us] huius op[er]is fi | nem i[m]ponere dedit. Ma[n]dato ac sumptib[us] nobilis viri d[omi]ni Octauiani Scoti ciuis Modoe- tie[n]sis. quarto nonas Au- | gusti. 1497. per Bonetu[m] Locatellu[m] Bergomen- sem. |

396 ff. F°. [Venetiis], Bonetus Locatellus for Octavianus Scotus, 1497.

[Hain no. 11552.]

MONTAGNANA, BARTHOLOMAEUS [De urinarum iudiciis] [F. 1a:] Tractatus de v[r]inaru[m] iudicijs p[er]utilis excel | le[n]tissimi viri Bartholomei de montagnana | [F. 25b:] Imp[r]essus padue per Magis- trum Matheum cerdonis de | vindisch- grecz. Anno d[omi]ni. i4. 87. die vero. i7. me[n]sis febr[uar]ij. |

26 ff. 4°. Paduae, Matthaeus Cerdonis de Windischgretz, 1487.

[Hain no. 11553.]

E MONTIS, PETRUS [De diagnoscendis hominibus libri sexti] [F. 1a. tit:] PETRVS MONTIS DE DIGNOS- CENDIS HOMINIBVS | INTER- PRETE G. AYORA CORDVBENSI. | [F. 228b:] CONSVMATVM EST. | Antonius Zarotus Parmensis Mediolani hoc Opus impressit Mille | simoquadringentesimo nonagesimosecundo: secto decimo | Chalendas Ianuarii. ***

228 ff. F°. Mediolani, Antonius Zarotus, 1492.

[Hain no. 11608.]

MOSES MAIMONIDES [Abu Amrân Musa Ben Meimun] [Aphorismi medici.] [F. 1a:] §Incipiunt aphorismi excellentissimi Raby Moyses se | cundum doctrinam Galieni medicorum principis. | [F. 133b:] Bononie i[m]pressum impensa Benedicti Hectoris

librarii: Ope | ra uero Platonis diligentis- simi impressoris Bononiensium. | Anno gratie. M.cccc.lxxxviii. quarto calendas Iunii. | *** [F. 135a:] Amphorismi [sic] Iohannis damasceni. | *** [F. 154a:] §Finis. | §Laus deo. |

154 ff. 4°. Bononiae, Plato de Benedictis for Benedictus Hectoris, 1489.

[Hain no. 10524.]

MOTIS, JOHANNES [Invectiva coetus feminei contra mares] [F. 1a. tit:] §Tractatuli duo metrici b[r]eues, quo[rum] p[ri]mus | continet recommendationem seu defen- sio- | nem mulierum contra viros seu mares. | §Secundus remedium viro[rum] contra con- | cubinas atq[ue] coniuges [et]c. | [F. 8b:] §Quinq[ue] sunr [sic] que p[er]turba[n]t | rempublica[m] siue bonu[m] co[mi]te. | ***

8 ff. 4°. [Memmingen, Albertus Kunne, circa 1500.]

[Hain no. 11623.]

NICEPHORUS. [Logica cum aliis aliorum operibus Georgio Valla interprete] [F. 1a. tit:] Geo[r]gio Ualla Placentino Inter- prete. | [F. 156b:] §Impressum Venetiis per Simone[m] Papiensem di | ctum Beuil- aquam. 1498. Die ultimo Septembris | Cum gratia [et] p[ri]uilegio. | ***

156 ff. F°. Venetiis, Simon Papiensis Bevilaqua, 1498.

[Hain no. 11748.]

NICOLAUS PRAEPOSITUS SALERNITANUS. [Antidotarium***] [F. 1a:] Iohannis Me- sue Grabadin In | cipit Quod est aggregacio [et] an = | tidotarium electuario- [rum] et co[n] | fectionum [F. 45a:] [A]nti- dotarius Nicolai medi | cinalis cum omni- bus suis | receptis Incipit feliciter. | [F. 67b:] Antidotarius medicinalis | Nicolai Explicit. | [F. 68a:] Liber seruito[r]is de p[re]parac[i]oni | bus medicina[rum] ta[m] lapidu[m] mine = | raliu[m] q[ua]m radi- cu[m] pla[n]ta[rum] ac etia[m] me | dici- [na]rum ex a[n]i[m]alib[us] su[m]pta- [rum] ***

95 ff. F°. [Argentorati, Johannes Prüss, circa 1480.]

[Hain no. 11762.]

Imperfect. ff. 45 & 46 mutilated. ff. 93-95 missing.

NIDER, JOH. [Tractatus de morali lepra.] [F. 1a:] Jncipit (sic) tractatus venerabil[is] magistri. Joha[n] | nis Nider ordinis p[re]dicato[rum]. De morali lepra | [O]-Lim deum legim[um] [etc.] [F. 102b. 1. 19:] Explicit tractatus de lepra morali. Fratris. Jo | ha[n]nis. Nyder sacre theologie professoris ordinis predicatorum. |

104 ff. 8°. (22cm.) [Colon., Zell, circa 1470.]

[Hain-Copinger no. 11814.]

[Proctor no. 844.]

First edition. Extremely rare. One of the only two copies of this edition in America.

[F. 103 & f. 104 blank.]

DE NURSIA, BENEDICTUS [Libellus de conversatione sanitatis secundum ordinem alphabeti distinctus] [F. 1a blank.] [F. 1b:] Pulcherrimum & utilissimu[m] opus ad | sanitatis co[n]seruationem. *** Incipit foeliciter. | *** [F. 139b:] Tractatus quidam de regimine sani | tatis opera & industria Dominici de | Lapis. impendio tamen Sigismundi | a libris ciuis atq[ue] liberarii Bononien | sis feliciter finiunt. | Anno. D.M.CCCC.lxxvii. |

140 ff. 4°. Bononiae, Dominicus de Lapis, 1477.

[Hain no. 11920.]

DE ORBELLIS, NICOLAUS [Logica.] [F. 1a. tit:] Logica Magistri Nicolai de Orbellis una cum | textu Petri hyspani. | [F. 134a:] Explicit Logica magistri Ni | colai de o[r]bellus vna cum te- | xtu Petri hispanus feliciter. | Imp[r]essa Uenetiis per Al- | bertinu[m] Uercellensem: die. x. | Marcii. M.ccccc. | Registrum. | abcdefghiklmnop- | qr. Omnes sunt quarter | ni p[ra]eter r que est ternus. |

134 ff. diag. 8°. Venetiis, Rubeus, 1500.

[Hain-Copinger no. 12052.]

Commentary on the writings of Petrus Hispanus who became the medical Pope, John XXI.

ORTOLFF [HEYDENBERGER] VON BAYRLANDT [Artzneybuch] [F. 1a:] Hie hebt sich an das register des | nachuolgenden artzeneipuchs | *** [F. 4b:] Nach Christi vnse[r]s lieben herre[n] gepurt als man zalt Tau = | sent vierhundert vnd sibenvndsibentzig Iar *** Nurenberg Ist di- [eses] Artzneybuch mit sunderm fleis durch | Anthonij koburger Burger daselbs ged- [r]ückt *** [F. 84a. 1. 7:] ein ende. |

84 ff. 4°. Nurnbergae, Anthonius Koburger, 1477.

[Hain no. 12112.]

PAULUS VENETUS, NICOLETTUS [Expositio librorum naturalium Aristotelis.] [F. 1 blank wanting.] [F. 2a:] [P]Lurimo | ru[m] astri- | ctus p[re]cibus: quo[r]u[m] p[ri]- de[m] mee i[n]troducio | nis *** [F. 215b:] Explicit sexta [et] vltima pars su[m]me natu- | raliu[m] *** [con]fecto Uenetijs im- p[re]ssione[m] habuit i[m]pen | sis Ioha[n]nis de Colonia socijq[ue] eius Io | hannis ma[n]then de Gherretzem. Anno a | natali ch[ri]stiano M.cccc.lxxvi. |

223 ff. F°. Venetiis, Johannes de Colonia et Johannes Manthen de Gerretzem, 1476.

[Hain no. 12515.]

PETRUS DE ABANO. [Conciliator differentiarum philosophorum et praecipue medicorum] [F. 1 blank] [F. 2a:] Conciliato[r] differentiaru[m] philosopho[r]u[m] [et] p[re]cipue medico[rum] clarissimi viri Petri de Abano Pata | uini feliciter incipit. [F. 280b:] §Exegimus deo fauto[r]e op[us] Co[n]ciliato[r]is magistri | Pet[r]i ab Aba[n]o medico[rum] physico[rum] q[ue] sua tempesta | te p[ri]ncipis: impe[n]sa v[er]o caractereq[ue] incundissimo ma- gistri Ioha[n]nis herbo[r]t de Selge[n]stat alemani cuius | ars [et] ingeni[u]m ceteros facile supe[r]minet o[mn]es: Impres | sum Uenetijs a[n]no v[m]. 1483. nonis feb[r]- uis. | ***

284 ff. F°. Venetiis, Johannes Herbort de Seilgenstat, 1483.

[Hain no. 6.]

PETRUS DE ABANO. [Conciliator differentiarum philosophorum et praecipue medicorum. Eiusdem tractatus de venenis.] [F. 1 blank.] [F. 2a:] Conciliato[r] differentiariu[m] philosopho[r]um [et] p[re]cipue medico[r]um clarissimi viri Petri de Abano Pat[er] tauini feliciter incipit. *** [F. 280b:] Exegimus deo fauto[r]e opus Co[n]ciliato[r]is magi- | stri Petri de abano medico[r]um physico[r]um q[ue] sua tem- | pestate p[ro]incipis: Imp[re]ssum papie per Gab[ri]ele[m] | de grassis anno d[omi]ni. 1490. die sexta. nouemb[ri]s. | *** [F. 293b:] LAUS DEO.

293 ff. F°. Papiæ, Gabriel de Grassis, 1490.

[Hain no. 3.]

PETRUS DE ABANO. [Expositio problematum Aristotelis.] [F. 1-3:] Tabula. *** [F. 4. cum sign. a2.] Expositio p[re]clarissimi atq[ue] eximii artium ac medi- | cine docto[r]is Petri de Ebano Patauini in lib[rum] | p[ro]blematum Aristotelis feliciter incipit. | [F. 312 a. cum sign. Q6, in fine:] Explicit *** ea nullo p[ro]i | us interp[re]tante incepta quidem Parisius [sic]: et laudabiliter Padue terminata. arte hac impen- | sa Joannis herbo[r]t Alemani *** verum ut laute sint etiam elabo[r]ata. | Anno. M.cccc.lxxxii. die. xxva. Feb[ru]arii. | [F. 312b. Register.]

312 ff. F°. [Venetiis, Herbort, 1482.]

[Hain-Copinger no. 17.]

PETRUS DE ABANO. [Tractatus de venenis.] [F. 1a:] Incipit p[ro]logus in libellum de vene- | nis: Excellentiss[im]i medici m[ag]is- | tri Pe- | tri de Abbano. Anno d[omi]ni. i. 4. 8. 7. | [F. 34a:] Et sic imponit[ur] finis tractatui de venenis [sic] peritissimi medici magistri Petri de abba- | no *** Imp[re]ssus p[er]. p. matheu[m] cerdois [de] vni- | dischgrez. Anno d[omi]ni. i. 4. 8. 7. die i8 dece[m]bris. |

36 ff. 4°. [Paduae], Matthaëus Cerdonis de Windischgretz, 1487.

[Hain no. 12.]

PETRUS DE ABANO. [Tractatus de venenis.]

[F. 1a. blank.] [F. 1b:] §Tractatus de Uenenis: a magistro Petro de Albano [sic] edit[us]. | [F. 18b:] §Finit Tractat[us] vtilissimus de venenis per magi- | stru[m] Petru[m] de Abbano [com]positus. Imp[re]ssus Rome | Anno d[omi]ni. M.cccc.-lxxx. die v[er]o. xvii. Marcij. |

18 ff. 4°. Romae, [Stephanus Planck], 1490.

[Hain no. 13.]

PETRUS HISPANUS. [Pope John XXI] [Practica medicinae, quae thesaurus pauperum nuncupatur.] [F. 1 wanting.] [F. 2a:] QVI IN COMINCIA IL LIBRO CHIAMATO | TESORO DE POVERI COMPILATO | ET FACTO PER MAESTRO | PIERO SPANO. *** [F. 70b:] Stampata in Venecia per Gioan ragazzo & Gioan- | maria Compagni. del. M.cccclxxxiii. | a di xxvii. Marzo. Laus Deo. | ***

70 ff. 4°. Venecia, Giovanni Ragazzo e Giovanni Maria [da Occimiano], 1494.

[Hain no. 8715.]

Imperfect. f. a1 title-page, missing. First dated Italian edition.

PEYLIGK, JOHANNES [Compendium philosophiae naturalis] [F. 1a. tit:] Philosophic Naturalis | Compendiu[m] Lib[ri]s phi- | sico[r]um *** [F. 97b:] *** Imp[re]ssu[m] est opus istud in insigni oppido Liptzensi ope- | ra [et] solertia Melchiar Lotter Anno salutifere incarnat[i]o[n]is Mil- | lesimo quad[ringentesimononogesimalono] p[ro]idie idus septe[m]bris |

97 ff. F°. Lipsiae, Melchior Lotter, 1499.

[Hain no. 12861.]

PICO DELLA MIRANDOLA, GIOVANNI COUNT [Opera.] [v. 1. F. 1a. tit:] Conmentationes [sic] Ioannis Pici Mirandulae in hoc uolu- | mine co[n]tentae: quibus anteposit[ur] uita per Ioanne[m] fran- | ciscum illustris principis Galeotti Pici filium co[n]scripta. | *** [F. 151a:] Diligenter impraessit Bene- | dictus Hectoris Bononien. adhibita pro uiribus solertia & dilige[n]tia ne ab archetypo ab- | erraret: Bononiae Anno Salutis. Mcccclxxxvi. die uero. xx. Martii. |

[Registrum.] [v. 2. F. 1a. tit.:] Disputaciones Ioannis Pici Mirandulae litterarum principis | aduersus astrologiam | diuinatricem qui | bus penitus sub | neruata cor | ruit | [F. 3a-6a:] Tabula. [F. 7a:] Prooemium. | IOANNIS PICI MIRANDVLAE CONCORDIAE COMITIS IN DISPVTATIONES ADVERSVS ASTROLOGOS. | [F. 126a:] Finis | Disputationes has Ioannis pici Mirandulae concordiae Comitum | litterarum princi | pis aduersus astrologos: diligenter. |

2 v. in 1. [152 & 126] ff. il. F°. Bononia, Benedictus Hectoris, 1496.

[Hain-Copinger no. 12992.]

Imperfect. f. 24 of v. 2 missing. First edition, including his medical and astrological treatises.

PINTOR, PETRUS [Aggregator sententiarum doctorum de praeservatione curationeque pestilentiae.] [F. 1 blank.] [F. 2a:] §Ad beatissimum [et] clementissimum Dominum nostrum dominum Alexandrum se | xtum Pontificem Maximum Petrus Pinto arcium medicine Magister p[re]fateque sanctitatis medicus hu[m]ilissimum libellum dirigit qui agregato[r] sententiarum doctorum omnium de p[re]seruatione curationeque pestilentie intulatur. | [F. 92a:] Explicit libellus agregato[r] sententiarum doctorum omnium de p[re]seruatione [et] curatione | pestilentie intulatus *** p[re]fateque sanctitatis medicum Rome impressus | per venerabilem virum Magistrum Eucharium Silber Anno salutis. M.ccccic. Die. xx. mensis Februarij. |

92 ff. F°. Romae, Eucharius Silber, 1499.

[Hain no. 13009.]

PLATINA, BARTHOLOMAEUS [De honesta voluptate.] [F. 1a:] Platyne de Honesta Voluptate: [et] Valitudine. ad Amplissimum ac Doctissimum. D. B. Rouellam. S. Clementis | Presbiterum Cardinalem. | [F. 89b:] Finis. | Viri doctissimi

Platyne opusculum de obsoniis: ac de honesta voluptate [et] valitudine: impressum in Ciuitate Austriae: impensis [et] expensis Gerardi de Flandria. Venetiarum | Duce Inclito Ioanne Moce[n]ico. | Nono Kalendas Nouembris | .M°.cccc°.lxxx°. | Laus Omnipotentis Deo. [F. 90a-93a tab. F. 93b registr.]

92 ff. 12°. Civitate Austriae, Gerardi, 1480.

[Hain no. 13052.]

First book printed in Cividale.

PLATINA, BARTHOLOMAEUS [De honesta voluptate.] [F. 2a:] Platynae De Honesta Voluptate: et Valitudine. ad Amplissimum ac Doctissimum. D. B. Rouellam. S. Clementis | Presbiterum Cardinalem. | [F. 90b:] Habes splendidissime lector uiri doctissimi Platinae opusculum de obsoniis: de honesta uoluptate ac ualitudine diligenterque Bononiae Impressum per Ioannem antonium Platindem Benedictorum bibliopolam necnon ciuem Bononiensem sub Anno domini. Mccccxcix. die uero. xi. mensis Maii Ioanne Bentiuolo foeliciter illustrante. |

95 ff. 4°. Bononiae, Johannes Antonius Benedictorum, 1499.

[Hain no. 13056.]

Imperfect. ff. 1 & 8 missing.

PLINIUS, CAJUS SECUNDUS [Historia naturalis.] [F. 1a:] HISTORIA NATVRALE DI. C. PLINIO SECONDO | TRADOCATA DI LINGVA LATINA IN FIORENTINA | PER CHRISTOPHORO LANDINO FIORENTINO | AL SERENISSIMO FERDINANDO RE DI NAPOLI. | PROHEMIO. | [F. 5a:] LIBRO PRIMO DELLA NATVRALE HISTORIA DI. C. | PLINIO SECONDO TRADOCATA IN LINGVA FIORENTINA PER CHRISTOPHORO LANDINO FIORENTINO | NO AL SERENISSIMO FERDINANDO RE DI NAPOLI. | PREFATIONE. | [F. 413b:] OPVS NICOLAI IANSONIS GALLICI | IMPRESSVM | ANNO SALUTIS. M.CCCCLXXVI. | VENETIIS. |

413 ff. F^o. Venetiis, Nicolaus Janson Gallicus, 1476.

[Hain no. 13105.]

Believed to be the first Italian edition of any classic.

LUTARCH. [De invidia et odio.] [F. 37a (c. sign. h):] PLVTARCHI LIBELLVS DE DIFFERTIA INTER | ODIVM ET INVIDIAM INCIPIT FOELICITER. |

[In- Censorinus. De die natali. *** 1497. ff. 37-38.]

OGGIUS, JOH. FRANCISCUS. [Facietiarum liber.] [F. 1a. tit.] Pogii florentini oratoris | clarissimi facietiarum [sic] | [F. 1b:] POGII FLORENTINI ORATORIS CLARISSIMI FACFTIARUM [sic] LIBER INCIPIT FELICITER. | [F. 58^a. l. 26:] fabulandi[ue] consuetudo sublata. | Finis | [F. 58^b. Device, with motto, CEST MON DESIR DE DIEV. SERVIR. POUR. ACUERIR SON BON PLAISIR.] [58] ff. 4^o.

[Paris, Le Noir, circa 1495.]

[Copinger no. 4787.]

Only two other copies of this edition known. According to Census of the Bibliographical Society this is the only copy in America.

PROGNOSTICON DE MUTATIONE AERIS. Acced: Hippocratis libellus de medicorum astrologia, a Petro de Abano in Latinum traductus.] [F. 1 blank.] [F. 2a:] Opusculu[m] reperto[r]ii p[r]onosticon in | mutationes aeris tam via astrologica | q[uam] metheo[r]ologica vti sapie[n]tes experientia comperientes voluerunt p[er]-q[uam] | vtilissime o[r]dinatu[m] incipit sidere felici | [et] p[r]imo p[r]ohemiu[m]. | [F. 50a:] Hyppocratis libellus de medico[r]u[m] astrologia finit: a Petro de abbano | in latinu[m] traduct[us]. Imp[re]ssus est arte ac diligentia mira Erhardi Rat- | dolt de Augusta Imperante in clyto Iohanne Mocenico duce Uene- | to[r]u[m]: Anno salutifere incarnationis. 1485. | Uenetijs. |

50 ff. 4^o. Venetiis, Erhardus Ratdolt, 1485.

[Hain no. 13393.]

PUBLICIUS, JACOBUS [Ars memorativa] [F. 1a. tit:] §Jacobi publicii in arte memo[r]ie. | Item Regimen sanitatis salernitanum nec non | magistri Arnoldi de noui villa. | §Venundantur parrhisii in vico sancti Iacobi ab Alexand[r]o aliatte e regione diui benedicti. | [F. 12a:] Explicit ars memoratiua | Iacobi publicii. | [F. 12b:] Regimen sanitatis | [F. 18b:] §Hoc opus optatur quod flos medicine vocatur. |

18 ff. 4^o. Parisiis, Alexander Aliatte, [circa 1490.]

[Not in Hain.]

PUBLICIUS, JULIUS [Artis oratoriae epitome; ars epistolaris et ars memoriae.] [F. 1 blank. F. 2a (c. sign. A):] ORATORIAE ARTIS EPITOMA: *** INSUPER ET PERQUAM FACILIS MEMO- | RIAE ARTIS MODUS *** [F. 51b:] Iacobi Publicii Florentini ars memori[a]e feliciter incipit | *** [F. 66b:] Erhardus Ratdolt auguste[n]sis ingenio miro & arte p[er] polita im- | pressionem mirifice dedit. 1485. pridie calen[da]s. februarii. Venetiis. |

66 ff. il. 12 wood-cuts. 8^o. Venetiis, Ratdolt, 1485.

[Hain no. 13546.]

Duke of Sussex's copy. Most beautiful book printed by Ratdolt.

PURBACHIUS, GEORGIUS Theoricae nouae planetar[um].

[In- de Sacro Bosco, J. Sphaera mundi. 1490. ff. 30b-47b.]

[QUAESTIONES NATURALES ANTIQVORVM PHILOSOPHORVM DE DIVERSIS GENERIBVS CIBORVM ET POTVS] [F. 1a. tit:] Quaestiones naturales anti- | quo[r]um philosopho- | rum tractantes de diuersis | generibus cibo[r]um et potus *** [F. 10a:] Imp[re]ssum in Colonia apud conuentu[m] p[re]dicato[r]um per me Co[r]nelium de Zyrychzee |

10 ff. il. 4^o. Coloniae, Cornelius de Zyrychzee, [circa 1500.]

[Reichling no. 706.]

RABANUS MAURUS, MAGNENTIUS [Opus de universo.] [F. 1a:] Epistola Rabani ad ludouicum regem | inuictissimu[m] [et]c. incipit foeliciter. | [F. 166b. col. 2:] vna | potestas vna coop[er]atio est. |

168 ff. F°. [Argentorati, Adolf Rusch, circa 1467.]

[Hain no. 13669.]

REGIOMONTANUS, JOHANNES Disputationum Ioannis de monte regio contra cremonensia in planetarum | theoricas deliramenta praefatio. |

[In- de Sacro Bosco, J. Sphaera mundi. 1490. ff. 22a-30a.]

RHAZES, [ABU BEKR MUHAMMED BEN ZAKHARIAH ALRACI] [Liber ad Almansorem, etc.] [F. 1a:] Contenta in hoc volumine. | §Liber Rasis ad almanso[r]em. *** [F. 159b:] §Explicit hoc opus mandato [et] expensis nobilis viri do | mini Octauiani Scoti Ciuis Modoetiensis. per Bone | tum Locatellum Bergomensem. i497. die septimo me[n]- | sis Octob[r]is. |

159 ff. F°. [Venetiis], Bonetus Locatellus for Octavianus Scotus, 1497.

Hain no.]31 893.]

RHAZES, [ABU BEKR MUHAMMAD BEN ZAKHARIAH ALRAZI] [Liber nonus ad Almansorem cum commentario Sillani de Nigris.] [F. 1a:] Almanso[r]is liber Nonus | cum expositione Syllani. | [F. 2a:] §Incipit nonus liber Almanso[r]is cum expo | sitione eiusdem clarissimi docto[r]is Syllani de | nigris de Papias. | [F. 89b:] §Excellentissimi doctoris domini Petri de | Tussignano Recepte super nono alma[n]soris fe | liciter finiunt Impresse Uenetiis per Otinum | Papiensem de Luna. Anno salutis. M.cccc | xcviij. xii. Cal[endas]. Augusti. | ***

89 ff. F°. Venetiis, Otinus Papiensis de Luna, 1497.

[Hain no. 13897.]

RHAZES, [ABU BEKR MUHAMMAD BEN ZAKHARIAH ALRAZI] [Tractatus decem medici. Eiusdem liber divisionum et alii tractatus.

Galieni, Hippocratis, Joannis (Mesue) Damasceni aliorumque opuscula] [F. 1a:] Abubecri rasis filij zacharie liber. | *** [F. 218 a:] Imp[ressum] Mediolani per p[ro]fessores | opifices Leonardum pachel [et] Uldericum | scinzceller Teuthonicos anno a natiuita | te domini Millesimo quadringentesimo | octuagesimo p[ro]f[essum] mo. xvi. k[alendas] martias. |

218 ff. F°. Mediolani, Leonardus Pachel et Uldericus Scienzenceller, 1481.

[Hain no. 13891.]

RODERICUS SANCTIUS Bishop of Zamora. [Speculum vitae humanae.] [F. 1a:] Ad sanctissimu[m] et B. d[omi]n[u]m. *** Paulum secu[n]dum | pontificem maximu[m]. liber incipit dictus spec[u]l[u]m vite | humane. *** [F. 125b:] Finit liber dictus Speculu[m] vite humane. *** rec[ta]m [et] his specula[n]di | p[ro]scribendo norma[m] a Ginthero zainer ex Reutlingen | cui progenito. vrbe aut[em] co[m]manenti Augustensi: arte | impressoria in mediu[m] feliciter deditus: Anno a partu | virginis salutifero Milesimo quadringentesimo sep | tuagesimo primo: ydus vero Ianuarias tercio. [Register.]

[128] ff. F°. Augsburg, Zainer, 1471.

[Hain no. 13940.]

Rare and beautiful specimen from the first press at Augsburg.

ROLAND OF PARMA. [De curatione pestiferorum apostematum.] [F. 1a:] Rolandi capelluti Chrysopolitani Philosophi. parme[n]sis: ad Magistru[m] Petru[m] de gnala[n]dris de parma: Cy | rugicu[m] optimum: Tractatus de curat[i]o[n]e pestiferoru[m] | apostematum. Incipit feliciter. | [Ad finem:] Rome impressum p[er] Ingeniosu[m] viru[m] Ma | gistru[m] Vdalicu[m] gallu[m] de Almania. |

6 ff. 4°. Romae, Udalicus Gallus, [circa 1471.]

[Hain no. 4374.]

RUSTICHELLI, PIETRO TORRIGIANO [Commentum in Galeni librum, qui Microtechni intitulatur.] [F. 1a. tit:] Tursani monaci

plus[que] [com]mentum in | microtegni gali-
 lieni | Cum questione eiusd[em] de ypos-
 tasi. [F. 2a (c. sign. A. 2 et n. 2):] Trusiani
 Monaci cartusiensis plus[que] co[m]men-
 tu[m] in libru[m] | Galieni. qui microtechni
 in titulatur. [F. 136b. col. 2:] Explicit Com-
 mentum Turisani in librum Galieni qui |
 microtechni inscribitur. [Acced. tab. et
 quaestio de ypostasi. F. 141b. col. 2:]
 Turisani de Flore[n]tia, explicit de ypos-
 tasi tractus. tria | habens capitula. | Uene-
 tiis impressus ma[n]dato [et] expe[n]sis
 nobilis Uiri Do | mini Octauiani Scoti
 Civis Modoetiensis. 1498. pridie | ydus
 apriles. Per Bonetu[m] Locatellu[m] Ber-
 gomensem. |

141 ff. F°. Venetiis, Bonetus Locatellus for
 Octavius Scotus, 1498.

[Hain no. 15684.]

DE SACRO BOSCO, JOANNES [Sphaera mundi.]
 [F. 1a. tit.:] SPHARA | MUNDI. | [F.
 1b. icon xyl. F. 2a. c. sign. a ii:] SPHAE-
 RAE mundi compendium foeliciter in-
 choat. | *** Co[n]tra- | q[ue] cremone[n]-
 sia i[n] planetar[um] theoricas delyra-
 menta Ioan[n]is de mo[n]teregio disputa- |
 [ti]o[n]es *** Nec no[n] Georgii purbachii:
 i[n] eoru[m]de[m] motus planetar[um] ac |
 curatis. theoricae. *** [F. 47b:] Hoc
 quoq[ue] sideralis scientie singulare opus-
 culum Impressum est Venetiis man- | dato
 & expensis nobilis uiri Octauini scoti
 ciuis modoetiensis Anno Salutis | M.cccc.-
 lxxxx. quarto nonas octobris. | [F. 48a:]
 REGISTRUM. | *** FINIS. | [Rubra
 typ. insig. c. litt. OSM.]

48 ff. il. 1 wood-cut. 8°. Venetiis, [Bonetus
 Locatellus], 1490.

[Hain no. 14113.]

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum] [F. 1 blank.] [F. 2a:] Incipit
 regime[n] sanitatis salernitanu[m] excel-
 lentissimu[m] p[r]o [con]ser | uatio[n]e san-
 itatis toti[us] humani generis *** [F. 8ob:]
 Regimen sanitatis.

80 ff. 4°. [Lugduni, n. pub., circa 1485.]

[Copinger no. 5058.]

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum]. [F. 1a. tit.:] Regimen sani-
 tatis [F. 2a:] §Incipit regimen sanitatis
 salernitanu[m] *** Arnaldo de villa noua
 *** M.CCCC. octuagesimo. *** [F. 83b:]
 Hoc opus optatur q[uod] flos medicine
 vocatur. | §Tractatus excellentissimus qui
 de regimine sa | nitatis nuncupatur. §Finit
 feliciter. |

83 ff. 8°. [Montpellier], 1480.

[Hain-Copinger no. 13747.]

*First dated edition—[Brunet.] According to
 Ebert and Choulant, the first edition.*

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum.] [F. 1a:] Regimen sanitatis
 salernitanu[m] necno[n] et | mag[ist]ri Ar-
 noldi [de] noua villa feliciter i[n]cipit |
 A[n]glorum regi scripsit scola to | ta saler-
 ni: [F. 135a:] Explicit regimen sanitatis
 compositum seu ordi | natum a magistro
 Arnaldo de villa noua Cathalo | no om-
 nium medicorum viuentium Gemma. |

135 ff. 8°. [Louvain, John of Westphalia, circa
 1480.]

[Hain no. 13749.]

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum]. [F. 12b. c. sig. ciiii:] Regi-
 men sanitatis | §Regimen sanitatis saler-
 nitanum necnon et magi | stri Arnoldi de
 noui villa feliciter incepit [sic]. | [F. 18b. c.
 sig. ciiii:] §Hoc opus optatur quod flos
 medicine vocatur. |

[In- Publicius, J. Ars memorativa. *** circa
 1490. ff. 12b-18b.]

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum] [F. 1a. tit:] REGimen sani-
 tatis Salerni | [F. 2a:] Regimen sanitatis
 Salernitanu[m]: necno[n] et ma = | gistri
 Arnoldi de noua villa feliciter Incipit. |
 [F. 87b:] Hoc opus optatur quod flos
 medicine vocatur |

[88 ff. 4°. [Parisiis, Guido Mercator, circa 1484.]

[Copinger no. 5063.]

SALERNUM, SCHOOL OF [Regimen sanitatis
 Salernitanum] [F. 1 blank.] [F. 2a:] Regi-
 men sanitatis salernitanu[m]. necnon |

m[a]g[ist]ri Arnoldi [de] noua uilla. feliciter i[n]cipit | *** [F. 136a:] Explicit regimen sanitatis compositum seu ordi[n]a-
tum a magistro arnoldo de villa noua Cathalono o[m]nium medicorum uiuentium gemma. |

136 ff. 4°. [Lovanii, Joh. de Westfalia, circa 1485.]

[Copinger no. 5056.]

SALERNUM, SCHOOL OF [Regimen sanitatis Salernitanum] [F. 1a. tit:] Regimen sanitatis | [F. 2a:] Incipit regime[n] sanitat[is] salernitanu[m] excelle[n]tissimu[m] p[ro]p[ri]o conseruatione sanitat[is] *** [F. 80a:] Hoc opus optatur quod flos medicine vocatur. | Tractatus qui de regimine sanitatis nuncupatur | Finit feliciter. Imp[ressus] Argen. Anno d[omi]ni | M.cccc.xcxj. In die sancti Thome cantuarien[sis]. |

80 ff. 4°. Argentorati, n. pub., 1491.

[Hain no. 13758.]

Genuine edition.

SALERNUM, SCHOOL OF [Regimen sanitatis Salernitanum] [F. 1a. tit:] Regimen sanitatis cum ex-positio[n]e magistri Arnaldi de villanoua | [F. 64b:] Hoc opus optatur quod flos medicine vocatur. | Tractatus qui de regimine sanitatis nuncupatur: finit | feliciter. Imp[ressus] argen. anno domini. M.cccc.xci. | In die sancti Thome cantuariensis. |

64 ff. 4°. Argentorati, n. pub., 1491.

[Hain no. 13757.]

According to Proctor this edition is a Venetian reprint of the genuine edition printed at Argentorati.

SALERNUM, SCHOOL OF [Regimen sanitatis Salernitanum] [F. 1a. tit:] REGIMEN SA = | nitatis cu[m] expositione magistri Arnaldi de villanoua Cathellano Nouiter imp[ressus]. | [F. 82b:] HOc opus optatur: quod | Flos medicine vocatur. |

82 ff. 4°. [Venetiis, n. pub., circa 1500.]

[Copinger no. 5052.]

SALERNUM, SCHOOL OF [Regimen sanitatis Salernitanum.] [F. 1a. (c. sign. ai):]

Regimen sanitalis [sic] salernitanu[m] necno[n] [et] | m[a]g[ist]ri Arnoldi de noua villa Feliciter incipit. | [F. 136b. (c. sign. sv):] Hoc op[us] optatur quod flos medicine vocat[ur]. [F. 137 blank. F. 138a. (c. sign. ti):] Incipit liber de co[n]seruatione co[r]p[or]is de re | gimine sanitatis.*** [F. 166b. (c. sign. yv):] Explicit regimen sanitatis compositum | seu o[r]dinatum a magistro Arnoldo de villa noua Cathalano omnium medicorum uiuentium Gemma. |

166 ff. 8°. [Coloniae, circa 1480.]

[Hain no. 13751.]

DE SALICETO PLACENTINUS, GULIELMUS [Summa conservationis et curationis] [F. 1 blank wanting.] [F. 2a:] In nomine domini nostri | iesu Ch[r]isti [et] matris eius virginis Marie *** [F. 178a:] Imp[ressus] Venetiis Anno domini. M.cccclxxx. | die. viij. mensis Madij *** FINIS LAUS DEO | Finito lib[r]o referamus gratia Ch[r]isto. |

178 ff. F°. Venetiis, [Johannes et Gregorius de Gregoriis], 1490.

[Hain no. 14145.]

SAVONAROLA, GIOVANNI MICHELE [Canonica de febribus] [F. 1a. tit:] Practica Sauonarole De Febribus: [F. 2a:] Canonica de febribus magistri Michaelis sauonarole ad Raynerium siculum incipit. | [F. 111b:] Ad laudem omnipote[n]tis dei: ac gloriose eius | matris Marie *** Venetiis imp[ressus] p[er] Christo-ferum de pe[n]sis de Mandello anno Domini. MC | CCCLXXXVI. die. xvi. Octobris. Laus deo. | ***

111 ff. F°. Venetiis, Christophorus de Pensis de Mandello, 1496.

[Hain no. 14488.]

SAVONAROLA, GIOVANNI MICHELE [De balneis et thermis naturalibus omnibus Italiae] [F. 1a. tit:] SAVONAROLA DE OMNI- | BVS MVNDI BALNEIS. | [F. 32b:] Impressum Venetiis per Cristo-

feru[m] de Pensis | de Mandello die. xx.
Nouembris. | ***

32 ff. F°. Venetiis, Christophorus de Pensis de
Mandello, [1497.]

[Hain no. 14492.]

SAVONAROLA, GIOVANNI MICHELE [Opus
medicinae, seu practica de aegritudinibus
de capite usque ad pedes] [F. 1a. tit:]
P[r]actica Ioannis Michaelis Sauonarole. |
[F. 2a:] §Ad Sigismundu[m] Polcastru[m]
Uiru[m] quippe ingeniosissi- | mum operi
p[r]actico deditu[m] amicum optimum. |
[F. 7a:] §Ioannis Michaelis Sauonarole
Patauini clarissimi | ac sui te[m]po[r]is
medico[rum] p[ri]ncipis opus p[r]acticum
in sex tra- | ctatus diuisum feliciter in-
cipit. | [F. 282a:] *** Imp[r]essum vene-
tius ma[n] | dato [et] expensis. Nobilis
Uiri d[omi]ni Octauiani Scoti Ci- | uis
Modoetie[n]sis. 1497. Quinto Kal[endas].
Iulias | Per B[o]netum Locatellum Ber-
gomensem. |

282 ff. F°. Venetiis, Bonetus Locatellus for
Octavianus Scotus, 1497.

[Hain no. 14484.]

SAVONAROLA, GIOVANNI MICHELE [Summa
de pulsibus, urinis et egestionibus] [F. 1a.
tit:] SAVONAROLA DE PVL[S]IBVS |
VRINIS: ET EGESTIONIBVS. | [F.
44a:] Impressum Venetiis per Magistrum
Cristofo- | rum de Pensis de Mandello.
M.cccc.lxxxvii. die | decimo mensis Feb-
ruarii |

44 ff. F°. Venetiis, Christophorus de Pensis de
Mandello, 1497.

[Hain no. 14491.]

SAVONAROLA, GIROLAMO [Ricetto contra
morbo spirituale.] [F. 1a:] §Frate Hierony-
mo da Ferrara del ordine de predicatori
a | suoi dilecti fratelli in Christo Iesu
gratia pace & conso | latione dello spirito
sancto. | [F. 2a. 1. 10:] §In conuentu
sancti Marci Florentie. xv. Iulii. M.cccc.
| lxxxvii. | Laude di fra Hier. ad inflam-
mare il core al diuino amore | ***

2 ff. 4°. [Florentiae, Bartholomaeus de Libris,
1497.]

[Hain no. 14371.]

SCANAROLUS, ANTONIUS [Disputatio de mor-
bo Gallico] [F. 1a. tit:] Disputatio Utilis
de mor | bo gallico Et opinio[n]is | Nicolai
Leo[n]iceni Co[n] | firmatio co[n]tra Ad |
uersarium Ean | de[m] opinione[m] oppug-
nan | tem. | [F. 16a:] Explicit disputatio
Vtilis de Morbo Gallico | Impressu[m]
Bononiae, Die uero. xxvi. | Martii. M.-
CCCC. | LXXXX. | VIII. | § |

16 ff. 4°. Bononiae, [Benedictus Hectoris], 1498.
[Hain no. 14505.]

SCHRICK, MICHAEL [Von den ausgebrannten
Wassern] [F. 1 blank.] [F. 2a:] [H]ienach
steend verzeichnet die au[ss]geb[r]anntten
| wasse[r] *** [F. 3a:] [H]ie nachuolget
ein nützliche materÿ von man- | gerley
au[ss]geb[r]anntten wassern *** [F. 15b:]
§Ged[r]ückt vnnd vollennndet von Io-
| hanni Bämle zü Augspurg. An sant |
Margarethen abent. Anno domini. | M.-
cccc.lxxxij. jar. [et]c. [F. 16 blank.]

16 ff. F°. Augsburg, Johannes Bämle, 1482.

[Copinger no. 5318.]

SCOTT, SIR MICHAEL [Liber physionomiae.]
[F. 1a (c. sign. aii-2b tab.):] [F. 3a (c.
sign. aiiii):] Incipit Liber Phisionomiae:
quem compi | lauit magister Michael
Scotus. *** [F. 46b:] Michaelis Scoti de
procreatione & hominis Phi | sionomia
opus feliciter finit. |

46 ff. 12°. n. p., n. pub., [circa 1490.]

[Hain no. 14546.]

SCOTT, SIR MICHAEL [Liber physionomiae]
[F. 1a. tit:] Liber phisionomie | magistri
michaelis | scoti. | [F. 3a:] [I]Nci | pit li |
ber phisi= | onomie: | *** [F. 34a:] Mi-
chaelis Scoti de p[ro]creatio | ne et homin-
is phisionomia | opus feliciter finit. |

34 ff. 4°. n. p., n. pub., [circa 1489.]

[Hain no. 14543.]

Imperfect. ff. 4-5 missing.

SCOTT, SIR MICHAEL [Liber physionomiae.]
F. 1a. (c. sign. ai):] (p)RIMA pars libri
huius Cap. i. | [F. 4 (c. sign. aiiii):]
(i)NCIPIT Liber Phisionomiae: que[m] |
compilauit magister Michael Sco- | tus

*** [F. 77b. (c. sign. kvi):] Michalis Scoti de procreatione & hominis | Phisionomia opus feliciter finit. | M.CCCC.LXXVII.

77 ff. 12°. [Venice, Jacopo de Fivizano], 1477. [Hain-Copinger no. 14550.]

First dated edition of the earliest printed work on generation.

[SCRIPTORES ASTRONOMICI VETERES.] [pt. 1 wanting.] [pt. 2. f. 1a. (c. sig. A):] MARCI MANILII ASTRONOMICON | AD CAESAREM AVGVSTVM | LIBER PRIMVS. | [pt. 2. f. 124a.] ARATI PHAENOMENON RVFO | FESTO AVIENIO PARAPHRA | STE, | *.FINIS.* | [pt. 2. f. 125a:] *** ARATI SOLENSIS PHAENOMENA | CVM COMMENTARIIS. | [pt. 2. f. 185a:] PROCLI DIADOCHI SPHAERA, ASTRONOMI | AM DISCERE INCIPIENTIBVS VTILLISSIMA. | THOMA LINACRO BRITANNO INTER- | PRETE, AD ARCTVRVM, CORNV | BIAE, VALLIAEQVE ILLVSTRIS | SIMVM PRINCIPEM. | [pt. 2. f. 192a:] Venetiis cura, & diligentia Aldi Ro. Mense octob. | M. ID. Cui concessum est ***

pt. 2. 192 ff. il. F°. Venetiis, Aldus Manutius, 1499.

[Hain no. 14559.]

SERAPION, JOAN. [Breviarium medicinae.] [F. 1a. tit:] P[r]actica Jo. Serapionis dicta | b[r]euarium. | Liber Serapionis de simplici | medicina. | Liber de simplici medicina. dictus | circa instans P[r]actica platearij. | [F. 211b:] §Imp[r]essum Uenetijs mandato [et] expensis nobilis viri | domini Octavianus Scoti Cuius Modoetiensis per Bo- | netu[m] Locatellu[m] Bergomense[m]. 17. kal. Ianuarias. 1497 [sic]. | 212 ff. F°. Venetiis, Bonetus Locatellus for Octavianus Scotus, 1497.

[Hain no. 14695.]

SERAPION, [JOAN.] the younger. [Liber Serapionis aggregatus in medicinis simplicibus.] [F. 1a vacat] [F. 1b-2b tables.] [F. 3a vacat.] [F. 4a (cum sig. a2):] Liber Serapionis aggregatus in medicinis simplicibus. Tra[n]slatis Symonis

Ia | nuensis interprete Abraam iudes tortuosi | ensi de arabico in latinu[m] Inquit Serapio. | [F. 136a. col. 2:] Opus impressum Venetiis per magi | strum Reynaldu[m] de Nouimagio Al | manum. Anno domini. MccccLxxix | die octauo mensis Iunii. [Register.]

[2], [133] ff. F°. Venetiis, Raynaldus de Nouimagio, 1479.

[Hain no. 14692.]

SERENUS SAMONICUS, QUINTUS [Liber medicinae.] [F. 1b:] Sulpitius Verulanus ad | unumquemq[ue] lectorem: | *** [F. 2a:] QVINTI SERENI SAMMONICI | LIBER | *** [F. 25b:] Q. SERENI SAMMONICI | FINIS: | ***

26 ff. 8°. [Romae, 1490.]

[Hain no. 14698.]

SERMONETA, JOHANNES [Quaestiones super libb. aphorismorum et super lib. Tegni.] [F. 1a:] Questiones subtilissime Johannis | Sermonete super lib[rorum] affo[r]ismo- [rum] | Eiusdem super lib[r]um tegni. | [F. 72b:] §Uenetijs vero imp[r]essa mandato et expensis Nobilis | Uiri D[omi]ni Octavianus Scoti Cuius Modoetiensis. 1498. | p[r]idie Kal. ap[r]iles. Per Bonetum Locatellum Ber- | gomensem. |

73 ff. F°. Venetiis, Bonetus Locatellus for Octavianus Scotus, 1498.

[Hain no. 14701.]

SILVATICUS, MATHEUS [Liber pandectarum medicinae] [ff. 1-7 wanting.] [F. 8a:] Liber pa[n]dectaru[m] | medicine: omnia medicine simplicia co[n] | tinens: quem ex omnibus antiquo[r]um | lib[r]is aggregavit eximius artium *** [Ad finem:] Opus pandecta[rum] medicine emenda- | tum *** Et imp[r]essu[m] p[er] Her- | manum lichtenstein coloniensem p[r]o- | batissimum lib[r]arie artis exacto[r]em Uin | centie |

321 ff. F°. Vincentiae, Hermannus Liechtenstein, [circa 1478.]

[Hain no. 15193.]

Imperfect. ff. 1-7 missing.

SILVATICUS, MATHEUS [Liber pandectarum medicinae] [F. 1 blank.] [F. 2a:] Matheus

mo[r]etus B[r]ixiensis: Ad reue- | rendis-
simum in ch[r]isto patre[m] ac dominu[m]
Dominum Franciscu[m] de gonzaga Car-
di | nale[m] Mantuanum ac Bononie lega-
tu[m]. | [F. 7a:] Liber pandectarum medi-
cine omnia medicine simplici[us] contine[n]s:
quem ex om | nibus antiquo[r]um lib[r]is
aggregauit exi | mius artium & medicine
docto[r] Mathe | us siluaticus ad serenis-
simum sicilie rege[m] | Robertum. | [F.
308a:] [Con]disi quid est lege literam
condes. |

308 ff. F°. [Argentorati, Adolf Rusch, circa
1470.]

[Hain no. 15192.]

ILVATICUS, MATHEUS [Liber pandectarum
medicinae] [F. 1b:] Matheus mo[r]etus
B[r]ixiensis ad reuerendissimum in ch[r]isto
patre[m] ac Dominu[m] D[omi]n[u]m fran-
ciscu[m] | de gonzaga Cardinalem Man-
tuanu[m]: ac Bononie legatum. | [F. 206a:]
Opus pandectarum medicine emendatum
*** Et i[m]p[r]es | sum Uenetijs arte et
ingenio Marini saraceni | Anno d[omi]ni.
M.cccclxxxviiij. xiiij. kal. Iunij. | FINIS |

206 ff. F°. Venetiis, Marinus Saracenus, 1488.

[Hain no. 15200.]

ILVATICUS, MATHEUS [Liber pandectarum
medicinae] [F. 1a. tit:] Opus pandectarum
Matthaei silua | tici cum Simone ianuense
et cu[m] | quotationibus aucto[r]itatum
Plinii galieni | [et] alio[r]u[m] aucto[r]um
| in locis suis | [F. 154a:] Per Bernardi-
nu[m] stagnin de | Tridino mo[n]tifferrati.
M. | cccc.lxxxix. Die ve- | ro. xxvij. Mar-
cij | Uenetijs. |

154 ff. F°. Venetiis, Bernardinus Stagninus de
Tridino de Monteferrato, 1499.

[Hain no. 15199.]

ADDEO FIORENTINO. Libellus de sanitate.

[In-de Nursia, B. Libellus de conseruatione
sanitate. *** 1477. pp. 265-279.]

ARTARETUS, PETRUS [Totius philosophiae
necnon metaphysicae Aristotelis expositio]
[F. 1 wanting.] [F. 2a:] Questiones
admodu[m] subtiles et | vtiles cu[m]

medulla totius materie ar | tium quat-
tuo[r] lib[r]o[rum] sententia[rum] *** [F.
147a:] §Fructuosum facileq[ue] opus in-
trodecto[r]ium | in logicam philosophia[m]
*** Imp[r]essu[m] v[er]o | cura [et] indus-
tria Nicolai vvolf alemani. Anno | [Christ]-
iane salutis. 1500. die vero. 10. decem-
b[r]is. |

v. 2. 150 ff. 4°. [Lugduni], Nicolaus Wolff, 1500.
[Hain no. 15345.]

THEOBALDUS, BISHOP [Physiologus de naturis
duodecim animalium]. [F. 1a. tit.] Physiol-
ogus theobal | di episcopi de naturis |
duodecim animalium. | [F. 2a:] () Uoniam
[secundu]m platonem nihil est [or]tu[m]
sub sole | *** [F. 20a:] Finit phisiologus
de duodecim naturis a[n]i[m]alium. |

20 ff. 8°. n. p., n. pub., [circa 1480.]

[Hain no. 15467.]

First edition.

THEOPHRASTUS, ERESIUS [De historia et
causis plantarum.] [F. 2a (cum sign. aaa
et n. 1) Incipit Theophrasti. hist. plan-
tarum; deinde ejusd. libb. de causis
plantarum, qui term. f. 227a (c. n. 226):]

[In- Aristoteles Opera graece. 1497. v. 4. ff.
2a-227a.]

[Hain no. 1657.]

THEOPHRASTUS, ERESIUS [De historia et
causis plantarum] [F. 1 blank.] [F. 2a:]
THEODORI GRAECI THESSALONI-
CENSIS AD NICOLA | VM QUINTVM
PONT. MAX. | [F. 4b:] THEOPHRASTI
DE HISTORIA PLANTARVM LIBER
PRI | MVS PER THEODORVM GA-
ZAM IN LATINVM EX GRAE | CO
SERMONE VERSVS. | [F. 156a:] IM-
PRESSVM TARVISII PER BAR-
THOLOMAEVVM CON | FALONER-
IVM DE SALODIO. ANNO DOMINI.
M.CCCC. | LXXXIII DIE XX. FEB-
RVARI. |

156 ff. F°. Tarvisii, Bartholomaeus Confalon-
erius de Solodio, 1483.

[Hain no. 15491.]

DE THIENIS, GAIETANUS [Recollectae super
VIII libb. physicorum Aristotelis.] [F. 1a:]
Gaietani [de] thyenis vince[n]tini philo-

sophi | preclarissimi r[e]col[l]ecte sup[er]
octo libros phy | sico[rum] Aristotilis [sic]
incipiunt feliciter. | [F. 94a:] Finis recollecta-
taru[m] Gayetani de tyenis | phylosophi
preclarissimi f[elicitate]r libris octo phy-
| sicorum a[r]istotelis ad laudem dei amen.

[Register. In fine:] Deo gratias |
96 ff. F°. [Tarvisium, Hessen, 1474.]
[Hain no. 15496.]

*Important and little known work by the third
printer in Treviso, who printed only two works.*

DE TORNAMIRA, JOHANNES [Clarificatorium
super nono Almansoris cum textu Rhasis.]
[F. 1a. tit:] Incipit clarificato[r]iu[m]
ioha[n]nis de to[r]namira | super nono al-
ma[n]so[r]is cu[m] textu ipsius Rasis. | [F.
160b:] P[r]eclarissimi opus Ioha[n]nis de
to[r]namira do = | cto[r]is famosissimi ***
imp[re]ssum lug[du]ni. p[er]. Ioha[n]nem
trechsel | alemanu[m] artis imp[re]ssio[r]ie
mag[ist]r[u]m Anno n[ost]re sa | lutis Mil-
lesimoquadringsimo nonagesimo |
die v[er]o decimaseptima me[n]sis Iunij
finit feliciter. | [F. 161.] Tabula. | [F.
162a.] Epistola. |

162 ff. 4°. Lugduni, Johannes Trechsel, 1490.
[Hain no. 15551.]

[TRACTATUS DE VINO ET EIUS PROPRIETATE]
[F. 1a blank.] [F. 1b:] §Genus hominu[m]
hac nostra etate multis laborare | *** [F.
2a. 1. 7:] §Tractatus de uino & eius pro-
prietate. | §De uindemiis Capitulum pri-
mum. | [F. 8b:] Finis. |

8 ff. 4°. [Romae, Johannes Besicken et Sigis-
mundus Mayer, circa 1490.]
[Reichling no. 351.]

VALESCUS DE TARANTA. [De epidimia et
peste.] [F. 1a:] Incipit tractatus de epid-
imia et peste | domini ualasti de tarenta
artium et medicine | docto[r]is excellen-
tissimi Prologus | [F. 20a:] Et sic est finis
totius tractatus Deo gracias |

20 ff. 4°. n. p., [circa 1475.]
[Hain no. 15245.]

VALESCUS DE TARANTA. [De epidimia et
peste] [F. 1a:] Incipit tractatus de epid-
imia [et] peste | domini valasti de tarenta:
artiu[m] [et] me | dicine doctoris excel-

lentissimi p[ro]log[us] | [F. 14a:] Finis
huius. Deo gratias |

14 ff. F°. [Argentorati, Martinus Flach, circa
1470.]

[Hain no. 15244.]

[VERSEHUNG VON LEIB, SEELE, EHRE UND
GUT] [F. 1a. tit:] Versehu[n]g leib sel | er
vndd gutt | [F. 2a:] In disem puch ist
geschriben | ein | notturftige nutzliche
trostliche | v[o]n der mass vo[r] vner-
ho[r]te vn | terweisung zu uersechu[n]g
eines | menschen leib sell er vnd gutt. |

[F. 181a:] §Ged[r]uckt in der erentreichen
| stat nürenberg in dem. lxxxix. iare. | ***

181 ff. il. 4°. Norimbergae, [Conrad Zeninger],
1489.

[Hain no. 16019.]

VINCENTIUS BELLOVACENSIS. [Speculum
naturale] [v. 1. F. 1a:] Incipit speculu[m]
naturale Vincentij beluace[nsis] | fratris
o[r]d[in]is p[re]dicatorum. Et p[ri]mo p[ro]-
logus [de] | causa suscepti op[er]is et eius
materia. P[ri]mo p[ri]mo p[ri]mo p[ri]mo p[ri]mo
perstricta sunt. sed latiore in fine speculi
hysto = | rialis. p[er]patescunt. Amen. |

2 v. 368 & 328 ff. F°. [Argentinae, Adolf Rusch,
1473.]

[Copinger no. 6256.]

WIRECKER, NIGELLUS [Speculum stultor-
um.] [F. 1a. tit:] Brunellus in speculo
stulto[rum]. | [F. 2a:] [S]Uscipe pauca tibi
veteris guillermi nigelli | Scripta, etc. [F.
60b:] Brunelli in speculo stultorum | Finis
adest feliciter. Amen. |

[60] ff. 1 woodcut. 8°. [Leipzig, Kacheloven,
1494.]

[Hain no. 16217.]

ZENO, ANTONIUS [De natura humana.] [F.
1a:] PETRUS Barbus polensis Sacrae
Medicinae | Docto[r] ad Lecto[r]em. | ***
[F. 58b:] §Imp[re]ssus Anno d[omi]nicae
natiuitatis. M.cccc. nonagesimo p[ri]mo | mo
Ianuarij p[ri]mo p[ri]mo hic: per Diony-
sium. Bononiensem | Uenetijs libellus est
faustis ominibus. | ***

58 ff. 4°. Venetiis, Dionysius Bononiensis, 1491.
[Hain no. 16281.]

*Imperfect. v. 2 (sig. b-p)—Liber Mercurialis,
missing.*



EDITORIALS

RENÉ THÉOPHILE HYACINTHE LAËNNEC (1781-1826)

OUR cover illustration reproduces the features of the great internist to whom we owe the discovery of the stethoscope. Born in Quimper in Brittany, February 17, 1781, René Laënnec grew to manhood during one of the most troublous years in the history of France. He studied medicine at Paris, receiving his degree of doctor in 1804. While yet an undergraduate student he had published a report of the clinical and pathological findings in a case of cardiac disease with pulmonary complications. After graduation he continued his researches in pathological anatomy. In 1816 he became chief of service at the Necker Hospital and in the same year he discovered the use of a hollow tube for the purpose of listening to the intrathoracic sounds and interpreting their significance. The value of percussion had been discovered by Auenbrugger in 1763, and it had been much employed by Corvisart, Laënnec's chief teacher. Auscultation of the chest by the application of the ear to its wall shocked the vanity of some physicians, and Laënnec realizes that the filthy condition of patients in the hospitals made it repugnant to them,

a curious reflection on hospital conditions at the time. Laënnec was led to his great discovery by observing some children playing in the gardens of the Louvre, at listening to the transmission of sounds along pieces of wood. The next day he experimented in his ward at the Necker Hospital, with a piece of rolled-up paper, and the stethoscope was found. The early stethoscopes which he contrived were constructed of cylindricals of glued paper, the later of wood. Laënnec gave the name to the appliance, forming it from two Greek words, one meaning the chest, the other to observe or regard. He communicated the result of his observations before the Medical Society of Paris and to his students in his lectures and clinical teachings, but it was not until the summer of 1819, just one hundred years ago, that he published his book, "De l'Auscultation mediate ou Traité de diagnostic des maladies des poumons et du cœur fondé principalement sur ce nouveau moyen d'exploration." Seven years later, on August 13, 1826, at the early age of forty-five, he died in the quaint old Breton town in which he first saw light.

HENRY E. HANDERSON'S "GILBERTUS ANGLICUS."

THE Cleveland Medical Library Association has not only rendered a graceful and well-deserved tribute to the memory of the

late Dr. Henry E. Handerson, but has done a service to the profession in printing posthumously for private distribution his

last contribution to medical literature, "Gilbertus Anglicus, a Study in Thirteenth Century Medicine." Dr. Handerson's article was originally designed for publication in the *Cleveland Medical Journal*, which unfortunately ceased to exist before it could appear in its columns. The article was in type at that time. Shortly after Dr. Handerson died and the editors of the *Journal*, with the consent of his family, turned it over to the Council of the Cleveland Medical Library, who, recognizing its value, have given it to the profession in its present form. To those who are aware of the erudition, critical ability, and accuracy of all of the author's previous work, this scholarly study of the "Compendium Medicinal" of Gilbert of England, the earliest complete work on general medicine by an English author, will be most welcome. Reviewing all the data available and adding materially to it, on the disputed points, as to the exact period of the life of Gilbert and the date at which his book was written, Handerson concludes that he was born about 1180, and that his book was written *circa* 1240. The contents of the Compendium are carefully reviewed and analyzed and the chief editions described. It is curious that the Compendium was held in such esteem by subsequent generations, that a printed edition of it appeared as late as 1608. Dr. Handerson's study will be found an invaluable addendum to the previous studies by Dr. J. F. Payne on this extremely interesting Father of English Medicine, and is stimulating as illustrating the method to be employed in such research. A word as to Dr. Handerson himself is due, largely because of the excessive modesty with which he was wont to obscure his light. He was born in Ohio in 1837 and began his medical studies at the Medical Department of the University of

Louisiana, now Tulane University. The outbreak of the Civil War interrupted his course. Dr. Handerson enlisted in the Confederate Army, in which he finally achieved the rank of major. During the last year of the Rebellion he was a prisoner of war. When it was over he resumed his career as a medical student at the College of Physicians and Surgeons of New York, graduating in 1867. From that date until 1885 he practiced his profession in New York City, then going to Cleveland, Ohio, where he remained until his death, which took place on April 23, 1918. During the last two years of his life Dr. Handerson was totally blind. From a very early period Dr. Handerson was deeply interested in the history of his profession. In 1883 he published The "School of Salerno," an historical sketch of medieval medicine, which is one of the best studies of the subject in English, but his *magnum opus* was his translation of Baas' "History of Medicine," which appeared in 1888. This is really much more than a translation, as the section dealing with the history of medicine in this country was really written by Dr. Handerson, and his notes on and revision of the German text add greatly to the value of the work. It is this book which is probably referred to more often than any other by medical men in the United States, when seeking light on matters connected with the history of medicine. Dr. Handerson was a pioneer worker in medical history in this country and his work has never received sufficient recognition. The posthumous tribute of the Cleveland Medical Library Association is most just, and we can imagine no other offering to his memory which would have been more appreciated by Dr. Handerson himself.

FRANCIS R. PACKARD



HISTORICAL NOTES

CURRIE'S "JOURNAL"

DR. JAMES CURRIE'S manuscript "Journal," sold, with many letters, at Sotheby's July 24th, 1918, has an interest for American readers. He is remembered as the first editor of the collected works of Burns, and as an early student of thermometry and hydro-therapy.

As an apprentice lad at Cabin Point, Virginia (1771-1776), his Tory principles were the cause of much trouble. After many difficulties, fully narrated in his "Life" (1831), he escaped. The "Journal," which with many letters was bought by the Public Library, Liverpool, is the diary of a voyage from Nixonton, N. C., to the Island of St. Martin, between September 19th and October 29th, 1776. It is not of much interest except as illustrating the careful self-education of a Scotch lad, and the horrid discomforts of a sea-voyage in those days. Much more interesting in the same volume is the manuscript of a letter which Currie wrote in defense of the Scotch in Virginia, and which appeared in *Pinkney's Gazette* on the 22d and 24th of March, 1775. For fifty years the Glasgow merchants had the lion's share in the tobacco trade of the colony, and their agents were slow in joining the newly formed continental association, which made them unpopular, and led to abusive attacks. Currie writes in defense of his countrymen, posing as a resident of forty odd years. It is a remarkable letter for a young man of nineteen, full of good sense and well expressed.

The other letters sold related chiefly to Burns and his friends, many of which were used by Currie in writing the life of the poet. There were three letters from Benjamin Rush, in one of which he begs to inform his friend, Dr. Currie, that "peace, order, and plenty continue to pervade every part of the United States." It is satisfactory to know that the most important of these documents were secured by the Public Library, Liverpool.

A few years ago a valuable group of Burns' manuscripts, which had belonged to Dr. Currie, were sold by the Liverpool Athenæum, to which they had been presented by his son. There was a public protest, but fortunately the purchaser, a citizen of Philadelphia, gave them to the Burns Library, Kilmarnock.

Currie had deservedly a most successful career in Liverpool. His "Life" is well worth reading, and the two volumes of his "Medical Reports on the Effects of Water," 1797, are full of original observations on the clinical use of the thermometer. In this study he was far in advance of his contemporaries, who looked askance at his researches; so much so that the German translator quoted them in illustration of the backward state of English Medicine! Weir Mitchell, who had a great admiration for Currie, called my attention to his works, which he regarded as among the most valuable in English medical literature.

WILLIAM OSLER

LOCAL HISTORY

THE histories of local institutions which have performed important functions in the life of any community and their compilation is a duty which, conscientiously performed, furnishes material of the greatest value to the historian, as well as stimulating local pride in their continuance and welfare.

Two books of this character have recently been brought to our notice, both dealing with institutions situated in Boston, which, however, have exercised an influence for good far beyond the local confines of that city. "The History of the Boston Medical Library,"¹ by Dr. John W. Farlow, its distinguished Librarian, is of the greatest interest, not only to the medical profession, but also to all those concerned with library work. The Boston Medical Library was founded in 1805, by a group of prominent medical men belonging to the Medical Improvement Society of that city. In 1826 it was merged in the Boston Athenæum. In 1875, chiefly owing to the activity and zeal of Dr. James R. Chadwick, it was determined by a number of physicians to once more establish a distinct medical library, the drawbacks to having collections of medical books merely as sections of other public libraries such as the Athenæum and the Boston Public Library, having become manifest to all. Thus was begun the Boston Medical Library Association, the word Association not being dropped from its title until 1896. From its foundation it was successful. By the acquisition of medical libraries belonging to individuals, either by gift or bequest, and of libraries founded by other societies, such as the Medical Observation Society, and the Massachusetts Medical Society, its growth soon assumed phenomenal proportions. As it grew, it became necessary to move its quarters from time to time, until finally, in 1901, the

¹ "The History of the Boston Medical Library," by John W. Farlow, M.D., privately printed 1918.

library was housed in the beautiful building which it now occupies on the Fenway. Besides having one of the largest collections of medical books in the world, it also contains a most valuable collection of medical medals, autographs, and pictures, and a number of very important medical incunabula.

The other book records the great achievements of the Humane Society of Massachusetts² during one hundred and thirty years of beneficent activity. The Society was founded in 1785 by a group of well-known Bostonians to whom the work of the British Royal Humane Society had been described by an English traveler. Its first object was the resuscitation of persons drowned or suffocated, for which purpose it studied the various methods to be employed, procured appliances useful toward that end, and bestowed rewards on various rescuers. One method of resuscitation which the Society especially studied and for some years approved, was the use of tobacco fumigations in the rectum, special fumigators being provided in convenient places where drowning accidents were frequent. Circulars were drawn up for distribution conveying instructions for resuscitation. From its origin to the present day, the Society has numbered the most prominent citizens of Boston among its active members and friends. It early began to enlarge its scope by the erection of huts of refuge along dangerous points on the Massachusetts coast wherein shipwrecked mariners would find tinder and material for making a fire, blankets and food. These huts were the first organized effort at establishing anything like a life saving service on our coast, and they proved of the greatest value. Stimulated by their success, the Society,

² "The Humane Society of the Commonwealth of Massachusetts," an historical review, 1785-1916, by M. A. De Wolf Howe. Boston, 1918.

which had launched the first lifeboat known in the United States in 1807, in 1840 began the establishment of life-saving stations, equipped with boats and crews to man them, at intervals on the coast of the State. In 1869 there were no less than 92 of these stations in active operation. Two years later, in 1871, the United States government instituted its coast guard system, thereby obviating to a great extent the necessity for private enterprise, so that by 1916 the Society had decreased the number of its stations to 36. The records of some of the heroic rescues, made by its crews, fill pages of the book before us, and cause a thrill of grateful admiration towards the Society which rendered them possible.

Many and various were the other public

benefactions of the Society. It offered a reward for the best collection of facts bearing on the origin of yellow fever, hoping that if the cause might be ascertained, the recurrence of the disease might be averted. In 1843 it gave \$500 towards the purchase of a telescope for the astronomical observatory at Harvard. It contributed liberally, from its funds, towards the establishment of the Massachusetts General Hospital and other objects connected with the public health. It is doubtful if any other organization in the United States possesses so long and varied a record of useful benevolence, and preservation of its history in permanent form is well worth while.

FRANCIS R. PACKARD

PASTEUR DRAMATIZED

THE great French pictorial weekly *L'Illustration* has recently resumed its practice of publishing as a supplement the current plays of literary worth produced in the theatres of Paris. On March 1st it published in this manner "Pasteur," a play in five acts, written by Sacha Guitry, and produced for its premier at the Vaudeville with the author's father, Lucien Guitry, in the title rôle. M. Guitry states that he was stimulated to write the play by reading the classic life of Pasteur by Valery-Radot. The action is based on facts narrated in the book, especially the inoculation of Joseph Meister, the first patient upon whom Pasteur used the antirabic virus. Many of the lines in the play are Pasteur's own utterances. The final act is the great reception in honor of his

seventieth birthday. M. Guitry has used with dramatic effect some of the vivid incidents in the great man's life, and the play gives a moving idea of his unswerving devotion to scientific truth and of the irritation caused him by the unscientific criticism of his logical methods and the absolute accuracy with which he employed them. We know of no similar dramatization of a great scientist's achievements, and the value of such a production in its effect on either professional or lay audiences must be immense. Appended are a number of criticisms by the leading French dramatic critics which are unanimous in their expressions of approbation.

FRANCIS R. PACKARD



BOOK REVIEWS

ASPECTS OF DEATH AND CORRELATED ASPECTS OF LIFE IN ART, EPIGRAM, AND POETRY. Contributions towards an Anthology and an Iconography of the Subject. Frederick Parkes Weber, M.A., M.D., F.R.C.P., F.S.A. XI+786 pages; 145 illustrations, third edition, revised and much enlarged. Price \$7.50 net. New York: Paul B. Hoeber.

The byways of literature are much frequented by doctors—to their great benefit. With a hobby a man is reasonably secure against the whips and arrows of the most outrageous fortune. Among our English brethren an avocation is more common than in America, and in the midst of a busy practice a man will keep a keen interest in literature or botany or archæology. It is interesting to note that at present the President of the Poetry Society, the President of the Bibliographical Society, and of the Classical Association, are physicians.

The volume before us represents the avocational studies of one of the best known of London physicians, and a student of extraordinary keenness. To-day Dr. Parkes Weber is in medicine the successor of Jonathan Hutchinson, and an anomalous case or a new disease is sure to be illustrated at once from his wide experience. This work is an outcome of his studies in Numismatics, to which subject he has made many valuable contributions, and on which his father, the late Sir Hermann Weber, was a distinguished authority.

The book has grown in a remarkable way: the first edition, 1910, consisted of a series of articles reprinted with alterations and corrections from the *Numismatic Chronicle*. A second enlarged and revised edition appeared in 1914. The present greatly enlarged and rearranged edition combines an

exhaustive iconography of death with a complete anthology. It forms, as the author says, an “essay on the mental attitudes towards ideas of death and immortality,” and the various ways these have affected the individual, as illustrated in epigram, poetry, and the minor works of art, such as gems, medals, jewels, etc.

Of the four parts into which the work is divided, the first is general and historical, the second an arrangement and analysis of the various possible aspects of death, the third deals with medals and coins, and the fourth with engraved gems, rings, and jewels, and representations in pottery. It forms an extraordinary study on the reaction of man’s mind towards the last great act; and one is astonished at the industry and versatility of the author who has laid under contribution the literatures of all time. Every aspect of death is discussed, and he clothed the time-worn skeleton by correlating every aspect with the living.

Of special interest to the doctor is the long section in Part 2, dealing with the medical, sanitary, and social attitudes towards death.

It is astonishing how much medical history may be read from coins. From the fifth century B.C. are Sicilian coins illustrating the freeing of Selinus from a pestilence, possibly malaria, by the drainage of the neighboring marshlands. The special work by Pfeiffer and Ruland—“*Pestilentia in Nummis*”—deals with the medals and tokens relating to epidemics of plague and other infectious diseases. The literary value of the work is enhanced by references from the authors of every period; for example, under this section of the emblematic representation of disease, Johnson’s striking statement is quoted:

It was a principle among the ancients, that acute diseases are from Heaven, and chronic from ourselves; the dart of death, indeed, falls from Heaven, but we poison it from our own misconduct: to die is the fate of man; but to die with lingering anguish is generally his folly.

Numerous references are given to the extensive lore dealing with the evil eye—talismans, amulets, and charms, and to the cramp-rings, on which Raymond Crawford has written so learnedly. In the appositeness and fecundity of his quotations Parkes Weber reminds one of Robert Burton, and nowhere in literature is to be found such a collection as that given in this section on the satires, sayings, and epigrams relating to physicians and their art. He quotes a delicious one which I picked up many years ago from the *Spectator*:

Vise Arruns, asked "How long will Caius live?"
Replied, "Three days the fatal sisters give":
And Arruns knew the prophet's art. But lo!
Stronger than gods above or gods below,
Euschemon comes: his healing art he tries,
And in a single day poor Caius dies.

The author turns out to be the well-known scholar, the Rev. A. J. Church.

Part 3, dealing with the aspects of death in coins, medals, and tokens, is one of the longest, and of extraordinary fullness. Illustrations are given of coins from the fifth century B.C. down to the medals struck in Germany for the sinking of the *Lusitania*. To many the book will be a revelation; while the learned author disclaims an attempt to make an exhaustive treatise on the iconography of death, or a complete anthology of poetry and epigrams relating to it, he has made by far the most important contribution in English on the subject. The author's new preface is preceded by an original poem on the mystery of pain and death, on which his own views are worth quoting. ". . . The balance of evidence which, however, everyone will and must admit, is mainly of a subjective kind) seems to me to point to there being something

more of immortality in human souls than can be included under August Weismann's theory of the immortality of the germ-plasm of animals and plants. Whether or not this 'something more' is quite as much as a personal 'immortality of souls' is a question which should not really affect us. One can understand the possibility of a kind of reward or punishment, and of continued physical activity after the death of the body, without being absolutely convinced of personal immortality."

As an introduction to the literature of subjects with which we have to deal daily, the work should go in the bedside library of every physician.

May I end with a personal note? Friends have associated my name in a kind way with a good many books, but I have never before had a dedication which illustrates the *curiosa felicitas* of the scholar-student.

WILLIAM OSLER.

BENJAMIN RUSH AND HIS SERVICES TO AMERICAN EDUCATION. By Harry G. Good, Ph.D., Professor of Education, Bluffton College. X+219 pages. Price \$1.60 net. Berne, Indiana: Witness Press. 1918.

There have been so many studies of the American Sydenham's career and labors written from the medical point of view, that it is refreshing and timely to find him depicted from another standpoint, and when the task is performed by so well fitted an expert as Professor Good, we may be sure it will be well done. Rush is, of course, well known as a teacher of medicine, but the fact that he wrote often and well on educational topics not pertaining to his profession, and his instrumentality in the foundation of Dickinson College, is not familiar to many. In a very complete bibliography of his writings appended to this book, those on educational subjects form a conspicuous part, as do his articles advocating the abolition of slavery, prohibition and penal reform. We of the

profession know with what vigor he was wont to enunciate his very pronounced views on medical subjects, and he carried no less vehemence into his publication on other matters. Professor Good bestows much praise on the enlightened and advanced opinions which Rush held in educational matters. Rush showed no less aggressiveness and determination when he came to the practical application of his ideas in the foundation of a college. Good describes how it was principally due to his initiative, determination, and influence with his contemporaries that Dickinson College came into being and was given the impetus which in subsequent generations has raised it from small beginnings to an excellent rank among the smaller colleges of the United States. The book only serves to add to the great desire of those who are interested in Rush, that some day an adequate biography of the great man will be written, one which will explain the obscure political secrets which are interwoven with his history as a public man and throw some light on his transactions during the critical period of the foundation of the United States.

FRANCIS R. PACKARD

THE HISTORY OF ST. BARTHOLOMEW'S HOSPITAL.
By Norman Moore, M.D. 2 vols. quarto. Vol. I, pp. xxii + 614, 41 plates. Vol. II, pp. xiv + 992, 6 plates. London: Pearson, 1918.

The very distinguished author of these volumes was born in 1847 and educated at St. Catharine's College, Cambridge, of which he is an Honorary Fellow. On leaving the University he entered as a student of St. Bartholomew's Hospital, and has been closely connected with that institution for nearly half a century. In 1883 he was elected Assistant Physician, in 1902 Physician and in 1911 Consulting Physician. In 1918 Dr. Moore became President of the Royal College of Physicians of London, a foundation with which his connection has

been as close and as long as with St. Bartholomew's Hospital. Dr. Moore has been recognized for many years not only as an eminent physician, but as a most learned medical historian of high scholarship and literary attainments and especially equipped for mediæval studies. Personally he has earned the respect and affection of generations of students and younger workers, not only by his learning and clinical skill, but by geniality of character and an unrivaled power as a raconteur. This truly monumental work by Dr. Moore undoubtedly marks an epoch in the history of medicine. The preparation has been a labor of love of thirty years' duration and it is now presented by its author to the Hospital where so much of his life has been spent. It is a gift in which any institution might well glory.

In attempting to deal with a document of this order the reviewer is in a serious difficulty; to summarize it is impossible, to criticise it seems impertinent, to praise it would be superfluous. He will, therefore, not attempt any of these, but will devote himself rather to some attempt to place the work in what appears to him its rightful position in the literature of Medical History.

So far as English writing is concerned the earliest important medico-historical author was certainly John Freind (1675-1728). His work "The History of Physick from the time of Galen to the beginning of the XVIth century chiefly with regard to Practice," was drafted while in prison (1722) under a charge of complicity in a Jacobite plot, and first printed in 1725. It is not entirely original, but is of value and interest and may be read with profit even at the present day, and is especially remarkable for its date in the attempt it makes to trace the continuity of ideas from age to age. In his own century Freind was followed by several of his countrymen; by Richard Mead (1672-1754), eminent alike as bibliophile physician and patron of learning, who

contributed the "Diseases Mentioned in Sacred Writings" (1749), as well as a work on the physicians of ancient Rome (1724), and on whose advice, stimulus and expense, certain Arabic medical works were rendered into English; by Edward Milward (?-1757), who wrote an "Account of Alexander Trallian" (1734); and by James Greive (?-1778), who published in 1756 an annotated translation of Celsus that remains the best in our language. The only other medico-historical document of any importance that appeared in England in the 18th century is the "History of the Origin of Medicine" (1776) of John Coakley Lettson (1744-1815), a man of remarkable attainments who exhibited some of the newer influences of which we shall presently speak.

In the meantime the prevailing biographical note of British medical scholarship had long asserted itself. As early as the 17th century Baldwin Hamley, the younger (1600-1676), prepared a series of sketches of his contemporaries, which remain in manuscript but have been much used by later writers. In 1715 appeared also what was probably the first systematic medical bibliography, the "Bibliographiæ Anatomicæ Specimen" by the distinguished anatomist, James Douglas (1675-1742). This important contribution undoubtedly formed the basis of the well-known work on the same subject by his friend Albrecht Haller. Numerous other attempts at medical biography and bibliography were made, but among them we need only refer to Edward Milward (?-1757), who published his "Letter to all Orders of Learned Men concerning a History of the Lives of British Physical and Chirurgical Authors" in 1704, and the "Biographical Memoirs of Medicine in Great Britain from the Revival of Literature to the time of Harvey," by John Aikin (1747-1822) which appeared in 1780 and contained accounts of fifty-five authors from the time of Gilbertus Anglicus to that of Glisson. From Aikin onward biography has been the strength

and weakness of English medico-historical work, the most important contributions in this department having been made by William Munk in his "Roll of the Royal College of Physicians of London" (1st edition 1861; 2d edition 1878), Benjamin Ward Richardson in his "Disciples of Æsculapius" (1900) and Dr. Norman Moore himself, who has contributed a host of admirable medical biographies to the "Dictionary of National Biography" (1885-1912). In this prevalent biographical tone English, and, it may be added, American medical scholarship, have been somewhat isolated from the main current of Historical Research to which we may now return.

The year 1776 is a landmark in the history of scholarship, for there then appeared a volume which was not only an extraordinary feat of learning, but a work of the highest and most original genius. In that year Edward Gibbon (1737-1794), now in his fortieth year, published the first volume of the greatest of all historical writings. During the twelve years preceding 1788, when the last volumes of "The Decline and Fall of the Roman Empire" saw the light, a revolution in historical thought and historical method had been effected comparable only to that of the general acceptance of evolutionary doctrine in the following century, to which movement indeed it is related. It is not too much to say that Gibbon's was the first great evolutionary historical work, that evolutionary teaching is implicit in the "Decline and Fall"; and that the evolutionary school of historians was a necessary preliminary to the evolutionary school of biologists. From Gibbon's date onward all historical work of permanent interest and value became instinct with his spirit; from his time onward the main duty of the historian has been the demonstration of continuity, the process by which the phenomena of each age are derived from the preceding age and pass into that which follows, and the secular interaction of forces

has riveted the attention of the ablest historical writers. As the years have gone by and as history has come more and more into line with biological teaching, a yet further phase has appeared or rather has logically developed from Gibbon's method. No longer content with relations of the deeds of kings and conquerors, nor even of statesmen and religious leaders, we seek to know how these men came to be what they were, and we look to our historians to tell us of the origin and development of our economic and social systems. Their search is thus less often among the annals and treaties of states, and more often in merchants' accounts and folk tales. Even the grandiose monuments and records of conquering things are no longer taken literally, but by means of ethnological researches and archæological exploration we read between the lines of their statements and often enough find them little else than lies. Men, we know, may be largely explained as the result of their inheritance and environment, and since the most interesting and important part of Man is the thoughts and ideas of which he is the carrier, we are beginning to write the history of thought with reference to the inheritance and environment of those ideas and thoughts. With this newer and nobler view of history in our minds let us turn to the achievements of English speaking peoples in the history of our special subject.

The striking feature of Freind's work, and of Leclerc's, who preceded him, is that they seem prophetically though dimly to have perceived the attitude of the later historians, and to have devoted themselves to some extent to the demonstration of continuity. It is not, however, until we get to the very end of the 18th century, that we encounter a true medical historian of the first rank in the person of Kurt Polykarp Sprengel (1766-1833), whose "Pragmatic History of Medicine," published at Halle between 1792 and 1813, is not only a monu-

ment of historical method, but a mine of information that is hardly yet worked out. Sprengel exhibits to the full the influence of the new school. On the continent other works of similar character rapidly followed on Sprengel's, but in spite of the example of our great historian of science, William Whewell (1794-1866), England had long to wait for a work of medical scholarship that did not suffer from the biographical obsession. This perhaps was owing to the suspicion in this country of the work of Auguste Comte (1798-1857), who more than any other man opposed the static aspect of history and, foreseeing its biological meaning, summed up his view in the aphorism that "an idea cannot be understood until its history is known." His phrase would provide an admirable text for a history of medicine.

In 1844 there appeared from the pen of Francis Adams of Banchory (1796-1861) the first work of scholarship of the front rank that had been produced by an English medical writer. But his "Seven Books of Paulus Ægineta" (1844) is more than a work of scholarship, it is a true historical work "embracing" as its sub-title, not unjustly, claims, "a complete view of the knowledge possessed by the Greeks, Romans, and Arabians on all subjects connected with medicine and surgery." This is still a standard work and remains by far the best in English on the medicine of classical antiquity. In spite of the high standard of the other works of Adams the "Extant Works of Aretæus the Cappadocian" (1846) and the "Genuine Works of Hippocrates" (1849), his "Paulus Ægineta" must be considered his masterpiece. It contains much real history well arranged and indexed and is especially valuable as one of the few works of medical scholarship in which the clinical experience of the author definitely asserts itself.

The "Origin of Species" had already seen the light for five years before the most important piece of medical scholarship that

has yet appeared in English was issued from the press. This work is most curiously not by a medical man, but by a clergyman of the Church of England. The "Leechdoms Wortcunning and Starcraft of Early England" (1864-1866) of the Rev. Oswald Cockayne (1807-1873) conceals under a maddening combination of misarrangement, perverse conservatism, vicious English, and hideous typography, a mass of learning, patient labor, and scientific method that places it, as it appears to the present writer, without rival as the most important and fundamental work of medical scholarship of any English writer. The basis of the work had been prepared in the previous hundred years by the recovery of the Anglo-Saxon language from the manuscripts by the labor of such men as Hickes, Kemble, Thorpe, Wright, and Bosworth, but to the edifice that they had constructed Cockayne made definite and permanent additions and his work will always be treated with respect, not only by medical historians, but by all concerned with the origins of the English language. On account of its linguistic and philological value, of the originality of its conception, of the thoroughness of its scholarship, of its interest as our source book of Western barbarian medicine, and in spite of its absence of literary form and repellent presentation, we are convinced that posterity will regard the work of Cockayne as the most important original English contribution to the History of Medicine. Cockayne's work is especially important since the Anglo-Saxon Leechdoms contain the only considerable remnants of a barbarian medical system that have survived to our day from the period of the decline of the Roman Empire. These remains, properly sifted, can be made to yield a fairly accurate and adequate idea of the medicine and science of the Teutonic tribes of northern Europe.

After Cockayne the second place, as it appears to us, may be disputed between

the work of Dr. Norman Moore which lies before us, and the "Paulus Ægineta" of Francis Adams. In all these three works of the front rank we are inclined to think that posterity will observe with regret a relative absence of regard for the results of continental scholarship, a respect in which they are excelled by several living medical scholars, and by at least one who is no longer with us. The late J. F. Payne (1840-1910) was a man of wide learning and general culture, who possessed a fine literary sense and was fully acquainted with the revolution that the studies of the mediæval school of continental historians had accomplished in the history of medicine. Payne was especially familiar with the great triumph of that school in the recovery of the Salernitan literature, and the use of this knowledge by him gives his reinvestigation of Cockayne's work a distinct historical value. But on the whole we may say that this writer's extreme diffidence and exaggerated caution prevented his actual historical performances from approaching within measurable distance of his great powers and reputation, and his work must rank definitely below that of Cockayne, Adams, or Dr. Moore.

Turning again to the volumes of Dr. Moore that lie before us, we find the entire first and one-third of the second occupied with a detailed description of the charters and other material that have survived concerning the St. Bartholomew's Hospital from 1123-1537. This collection is by far the fullest and most complete that has been attempted for any such institution. It is unlikely that any future worker will find even gleanings in a field where the learning and industry of Dr. Moore have garnered so long and so faithfully, and this work will remain permanently as a source book and a type of what such a history should be. The large number of illustrations, consisting as they do almost exclusively of beautiful reproductions of charters, will, in addition,

render it welcome to the student of palæography. When we come to the later period the work is no less valuable, but in a somewhat narrower field. The science and medicine of the 17th, 18th, and 19th centuries emanated from a larger number of centers and were less uniform in character as well as far greater in literary output than in the centuries that preceded. For this later period Dr. Moore's work will be valued as probably the best extant account of a single institution, and the future medical historian will seek to incorporate its material in a picture of the general stream of medical thought. The tendency, however, of political history to deal with ethnic movements and economic forces must ultimately assert itself also in the history of medicine, where it will be represented by streams of ideas and thoughts rather than accounts of per-

sonalities. When that time shall come the biographical work of Dr. Moore may perhaps be less read by the general reader, but it will not cease to be regarded by the historical specialist, who will study him for the accuracy and fullness of the records that he has handed down.

A very touching and pleasing feature of the work is the manifest affection of its author for his Hospital, and especially for its suffering inmates, and these volumes will keep his memory green so long as men who speak the English tongue love old things and good writing and simple acts of mercy. As we close the cover we join Dr. Moore in the time-honored toast with which he terminates this great book: "Prosperity to St. Bartholomew's Hospital and Health and Ease to the Poor Patients."

CHARLES SINGER



CORRESPONDENCE

THE STERILITY OF CATHERINE DE MEDICI.

A CORRESPONDENT having heard the frequently made statement that the sterility of Henri II's Queen, with her subsequent remarkable fecundity, was due to a malformation of the King's urethra which was corrected by operation, writes for further information on this much discussed topic. A valuable recent contribution to the subject is that of Dr. Cabanès,¹ which gives all the known facts in the case with full references to the chief authorities for the various versions of the stories anent the subject. These may be summarized as follows: Catherine de Medici was born at Florence in 1519 and was married to Henri II in 1532, when not quite fourteen years old. Henri was but a few months her senior. Her father, Laurent de Medici, as well as her mother, having died in her infancy, her marriage had been arranged by her uncle, Pope Clement VII, and he was so anxious to have some proof of the consummation of the marriage of these two children that he remained at Marseilles thirty-four days after the ceremony hoping that such proof might be apparent before he left the newly married pair, and when nothing transpired, he made his famous remark to Catherine, "Posterity never lacks to a girl of spirit." For ten years the Queen was childless, to the great unhappiness not only of herself and her husband, then the Dauphin, but also of her father-in-law François I, and the French people. The question of a divorce was agitated and according to Miss Sichel, Diane de Poitiers, the King's mistress, had almost convinced François that

Catherine should be repudiated and a wife capable of bearing children provided for Henri in her stead, when Catherine quite unexpectedly became pregnant, and on January 19, 1543, gave birth to the future François II. This happy event was followed by the birth of nine other children, the last accouchement being with twins on July 24, 1556. Thus Catherine had her first child when she was twenty-four years old and her last when she was thirty-seven. During the long period of her sterility she had recourse not only to physicians, but quacks, magicians, and astrologers in her efforts to secure advice which would enable her to become pregnant.

It is known that Henri's father, François I, and Catherine's father, Laurent de Medici, both had syphilis, but there is positive evidence that neither of them manifested the disease before the births of their respective children. Henri and Catherine were both physically well and strong, Henri's greatest passion being for tournaments and hunting, the latter being also a favorite amusement of his wife's, so much so that on several occasions she suffered severe injuries from falls from her horse. There are many contemporary expressions of admiration at the health enjoyed by the royal couple. Contrary to the general trend of stories told on the subject, the sterility was not due to impotence on Henri's part, as he had in 1538, long before the birth of his first child, an illegitimate daughter by a Piedmontese girl, who was brought up at court and known as Diane de France. He also had various liaisons, especially that with his father's mistress, Diane de Poitiers, whom he loved with the

¹ "Le Cabinet Secret de l'Histoire," Article "La Stérilité de Catherine de Medicis."

deepest affection, although she was some seventeen years older than he; and though for that reason some have thought their friendship purely platonic, there is proof in their correspondence that it was far otherwise.

As to Fernel's share in the change of Catherine's lot, Cabanès points out that Plancy, his historian and disciple, makes no mention of the matter in any way, whereas as Plancy was twenty-nine years old when François II was born he must have heard about the circumstances and had no reason to conceal any fact that would so much redound to his master's credit. Likewise neither Brantôme nor L'Estoile, who certainly were *en rapport* in all court gossip, make any reference to Fernel in their writings, which are so full of details of all court doings, and especially of spicy ones. In fact L'Estoile states that Catherine's first pregnancy had resulted from the aid given her by a "woman." De Thou and Scaliger who wrote towards the close of the 16th century do not either of them give any clue in the matter.

The first mention of Fernel's intervention occurs in Louis d'Orleans' book, "Plante Humaine," and is given by Cabanès:

"Henri II not being able to have children consulted many skillful physicians of the Faculty of Medicine of Paris, who refused to help him. Someone suggested Fernel to him, and he laughingly demanded of him in the presence of the Queen if he could cause her to have children. Fernel replied that it belonged to God to give them, to her Majesty to make them, and to him to teach her the precepts of the art, by which she could arrive at it. Some time afterward the Queen became pregnant, and on perceiving it sent him ten thousand écus, and when couched as much again with a buffet of silver, and this she did at each accouchement."

Gabriel Naudé, the famous librarian of Cardinal Mazarin, in the course of an address at a seance of the Faculty of Medicine of Paris in 1628, repeated this story of

d'Orleans' with the modification that it was the King and not the Queen who so liberally rewarded Fernel.

Cabanès next quotes the historians Mezeray and Varillas as stating that Fernel's counsels consisted in advising the King to have intercourse with the Queen during her menstrual period, and quotes their statements that the ill-health of their offspring was attributable to conception having occurred at this time. The theory that conception was most apt to follow intercourse at a menstrual period and that the fruit of such conception was liable to be unhealthy was very common among the Ancients.

The famous surgeon Dionis in his "Traicté sur les Accouchements," published in 1718, states that Fernel, after a study of the relations of the King and Queen, counseled a particular posture to be used by the King during intercourse.

Cabanès quotes in a footnote a passage from Balzac's "Études philosophiques sur Catherine de Medicis" the statement made by Balzac, referring to Bayle as his authority, that Fernel operated on Henri II, and I believe that this is the source from which most readers have drawn their mistaken ideas in the case. After reviewing the above statements it would seem very probable that Fernel had nothing to do with it beyond his attention at the Queen's accouchements, and it is certainly very doubtful if any operation at all was performed on the King. Operations on royalty for many years subsequent to Henri's time were matters of common talk, no matter how indelicate the nature, witness the operation on Louis XIV for fistula in ano, which even led to nobles of the court being operated on or pretending to be, for the same disorder. As the story originated when Henri had been dead for half a century and is unsupported by any contemporary testimony it may, as Cabanès states, be regarded as utterly without foundation.

FRANCIS R. PACKARD.

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A HOUSE-SURGEON'S MEMORIES OF JOSEPH LISTER¹

(Born April 5, 1827. Died February 10, 1912)

By SIR ST. CLAIR THOMSON, M.D.

LONDON, ENGLAND

AS WE ALL know, Robert Browning lived a great part of his life in Italy and died there. Many years before his death another of our greatest poets, Percy Bysshe Shelley, was drowned off the coast of Leghorn and lies buried in the Cimitero degli Allori, just inside the walls of ancient Rome. This was some time before Browning settled in Florence; thus it came to pass that when, once in Italy, Browning made a friend who had known Shelley personally he was so overcome by the thought that he was looking into the eyes of one who had actually gazed on Shelley, in his very habit as he lived, that he wrote of it in these lines:

“And, did you once see Shelley plain,
And did he stop and speak to you,
And did you speak to him again?
How strange it seems and new!”

It has struck me that before the genera-

tion to which I belong passes away, it is a duty, as it is a very grateful task, for those who once saw Lister plain, to put on record some of our personal recollections and impressions of that great man; great, not only in that his name as a scientific surgeon and a benefactor of humanity will live forevermore, but in that he exerted on those who came into personal contact with him an influence, a devotion, and an elevation of thought and soul that had in it a touch of inspiration. In commenting on a paper of mine on “Shakespeare and Medicine,” that well-known authority on Shakespeare, Sir Sidney Lee, said that Shakespeare, after God, had created most in the cosmic universe. I venture to say that, as an instrument in God's hands, Lister has wrought more for the relief of suffering, for the security of life, for the prevention of anxiety, and for the promotion of happiness than any one man who has ever trod this earth. And, in addition, those who chanced to come near him caught glimpses

¹ An address delivered in the College of Physicians, Philadelphia, on June 14, 1919.

of a spirit such as is seldom revealed to us.

On Monday, October 1, 1877, I entered as a student at King's College, London, attracted there entirely by the great name of Lister, to whom my attention had been directed by a brother who had been his



LORD LISTER, aged 69.

pupil in Glasgow. On that same first day of October, 1877, Lister, coming from Edinburgh, entered on his duties as professor of clinical surgery in King's College Hospital.

Educated at University College and a graduate of London University, Lister had already achieved what some would think the success of a lifetime, in that, though an Englishman by birth, he had migrated to Scotland and had there successively filled the chair of surgery in the two great universities of the north,—in Glasgow from 1860 to 1869, and in Edinburgh from 1869 to 1877. He had been working all that time at the process of healing in wounds and the best methods of promoting it. The so-called

“antiseptic system” had been evolved in Glasgow and developed in Edinburgh. I say advisedly “so-called system” for almost through his whole life Lister had to fight hard in defence of the principles on which he based his methods of wound treatment; the methods employed were, of course, subject to constant revision, alteration and improvement, and so could not sclerose into “a system,” though the principles remain fixed. But the unthinking crowd, even in a learned profession like ours, shies at principles and always wants to pin the wings of thought down upon the cardboard of what the Englishman likes to call “practical methods.” Hence Lister's treatment of wounds was frequently called the “carbolic method,” or “the gauze and spray system.” He once said to me that he expected to spend his life searching for an antiseptic that was non-irritating. In these efforts, he moved from carbolic lotion to boracic, or made trial of corrosive sublimate, and then reverted to carbolic. Or he saturated his gauze with carbolic iodoform, eucalyptus or double cyanide of mercury. These seekings after truth were all causes for stumbling to the average individual, who loves finality and a ritual he can adopt—no matter if he does so unthinkingly—so long as he can carry on with it indefinitely. This appreciation of general principles, so natural to the logical Latin mind of France and Italy, is strikingly wanting in the national character of England. As Matthew Arnold says, we have no



Upton House, in the County of Essex. Birthplace of Joseph Lister, April 5, 1827.

nse of the idea. This is strange when we collect that some of the greatest abstract thinkers have belonged to the British Isles—Hume, Hamilton, Locke, John Stuart Mill, Bain, Adam Smith, Herbert Spencer. But, on scrutinizing these names more closely, we cannot help noting that the majority of them indicate that their owners came from north of the Tweed. Certainly in Scotland, Lister had a far larger and more devoted following of pupils than he ever obtained in London. In Edinburgh the number of students who crowded the theatre to attend his regular course of clinical surgery frequently exceeded 400; and foreign surgeons from all the countries of America and Europe, and even the outmost dwellers in Mesopotamia, had been flocking for years to Glasgow and Edinburgh. A few, very, very few young surgeons from London had ventured north to see and hear about this new antiseptic method of treat-

ing wounds, the two most notable being his own nephews—Marcus Beck, afterwards on the staff of University College Hospital, and Rickman Godlee, later on president of the Royal College of Surgeons and the author of that biography of his uncle which every physician should read.



JOSEPH LISTER, aged about 28.



LISTER, aged thirteen years. A silhouette by his father.

What induced Lister to leave the high position he had in Edinburgh, his wards of sixty to seventy beds in the Royal Infirmary, and these crowded classes of attentive students, to come to a small school in London where only twenty-four beds were allotted to him and where the students of all four years (the curriculum was then a four-year one) together only amounted to 142? In Edinburgh the average annual entry of medical students was over 180; in King's College it was less than 25. In London, instead of the University spirit of the northern capital, he was sure to be met with the insularity and parochialism which is perhaps more marked in London

than in any other spot in the United Kingdom. His coming was not in order to have a larger field for private practice. Always blessed with a sufficiency of private means, Lister at no time courted the pecuniary rewards of practice, and he died a compara-



PROFESSOR JAMES SYME.

tively poor man. It was not to hunt for honors or distinctions; Lister, brought up a Quaker, thought little of such adornments. All who knew him are convinced that he accepted the invitation to come south simply and solely because he felt that on the larger and more central stage of the metropolis he could so demonstrate his work that he would the sooner fulfil his mission and win the whole world to accept his principles. In taking leave of his class in Edinburgh he expressed the pleasure that, under the risk of having his motives in leaving Edinburgh for London quite misunderstood, so large

a number of Edinburgh students did really believe what was the truth—that it was only a sense of duty which had made him come to the decision to leave that school. He added that it was a wrench to leave a school in which he had received great kindness, and to take a cold plunge into what might prove to be a sea of troubles.²

He was indeed right; a cold and stormy sea of trouble was awaiting him. Lister returned from professorships in the Scottish Universities to his own southern people, to the city of his birth and the country of his own form of faith. He returned to his own and his own received him not.

On Monday, October 1, 1877, as already recorded, I entered King's College, London, as a student and Joseph Lister entered it as a professor. But, in addition, on that day he also delivered the introductory address of the session 1877-1878. These inaugural orations have nearly died out; at that time they were almost universal. As a rule they were devoted to pointing out to freshmen the nobility, responsibilities and privileges of the profession to which they were about to devote themselves, and urging them by hard work, simple living and high thinking to make themselves worthy of it. They were, as a rule, friendly functions; the usual oration did not make too much demand on

² *Brit. M. J.*, 1877, vol. ii, Aug. 4, p. 145.



Glasgow Infirmary, where Lister held the chair of surgery from 1860 to 1869.

our thinking capacity, and we all came away cheered, as we always are, by a call to high endeavor, to "make our reach exceed our arm, else what's Heaven for?" As a rule they were limited to the past and present students of each school.

But Lister, to most people's astonishment, opened his address by stating that he was going to record some experiments he had made (during his holidays, forsooth!) 'to obtain some positive and definite knowledge of the essential nature of a class of phenomena which interest alike the physician, the surgeon and the accoucheur, viz., the changes in organic substance which are designated by the general term fermentation.'³ This address was delivered from behind a table, covered with pipettes, test tube stands, glass flasks, tubes containing milk and blood, and the other paraphernalia required to demonstrate Lister's contention that neither milk nor blood had any inherent tendency to putrefaction, and that if either of these fluids was drawn and preserved under what we should nowadays call "sterile conditions," they remained free from putrefaction indefinitely. This is all accepted doctrine nowadays, as "most can raise the flowers now, For all have got the seed" (Tennyson). But although it was not so forty-one years ago, I need not deal further with the lecture, which can be read in full in the *British*

Medical Journal of that year. What I would like to recall is that, although the large theatre in the College was crowded from floor to ceiling, and although Lister had a warm reception from former pupils and distinguished men of science, and



JOSEPH LISTER, as he appeared when about 40 years old.

³ *Brit. M. J.*, 1877, vol. ii, Oct. 6, p. 465.



Edinburgh Infirmary, where Lister lectured from 1869 to 1877.

although many surgeons had, on this opening day of the session, left their own schools to come and hear him, yet it was generally thought that such an abstruse subject as lactic acid fermentation had no concern for a professor of surgery, that he did not seem the sort of teacher to show a student how to get through his examinations, that this man fiddling about with flasks and test tubes and talking about "putrefactive fermentation" could not be the "practical man" so dearly beloved in that Victorian generation, which could not possibly have imagined that a medical man like Clemencau could write novels and at seventy-five

years of age be the leader of a great nation like France, or that a soldier like Foch might write books on war and be a lecturer in a military academy, and yet lead to victory the greatest army the world had ever seen, or that a college professor like Woodrow Wilson would be elected as their President by a nation of one hundred millions of practical people.

I sadly confess that at Lister's opening address we students were bored, and we showed it. Forty-one years ago it was not thought to be discourteous or "bad form" to disturb or even kick up a row at a lecture. Consequently we shuffled our feet and reminded the lecturer *sotto-voce* that his hour was up and that it was tea time! When he was describing his investigations on the fermentation of milk he had occasion to refer to the cow-house and to cows—and then we boo-ed, and if he mentioned the dairy-maid we said "tut, tut," and thought ourselves very funny fellows!

This first plunge at the College was certainly chilly, but it was at the hospital that Lister encountered his full sea of troubles. He had stipulated that he should be allowed to bring with him from Edinburgh four assistants already trained in his methods and attached solely to his service. This was a cause of offence; first, because it was held that any dresser could employ carbolic lotion and gauze, just as previously he had learned to apply water-dressing or oakum; and second, because in those days operations were so uncommon that a single house-surgeon and one theatre had previously sufficed for all the three senior surgeons of the staff. The house-surgeon whom he brought with him came from the Shetland Isles, and his name will not be unknown to you as Sir Watson Cheyne, who later succeeded his master as professor in King's College Hospital, served as president of the Royal College of Surgeons, and now, retired from practice, is an active Member of Parliament. The senior dresser

came from this side of the Atlantic. Dr. John Stewart of Halifax, Nova Scotia, was one of the most affectionate pupils of the master, whom he has drawn in many telling pen pictures. From 1878, when I had last seen him acting as a dresser in London, forty years passed before we met again. Then I found him a year ago following the flag in France, and serving in his seventieth year as Commandant of a Canadian hospital in Havre.



The Old King's College Hospital, London, where Lister worked from 1877 till 1893. The building has now been pulled down.

Vexatious opposition to Lister and his energetic though humane work came chiefly from the nurses. In those days the Hospital did not control its own nurses; the nursing was, so to speak, leased out to a body which was much more a religious sisterhood than a nursing staff, composed of the Sisters of St. John, an Anglican community, much given to ritual repression, frigid rules, the exaltation of what was considered the religious care of the patient above his medical well-being, and withal, with a mailed fist ever clenched and ready for any helpless student, resident, or even member of the staff who showed any tendency to *lèse-majesté*. I could many a tale unfold of these far-off days and battles long ago between the nursing and the medical staffs. I only men-

tion them because Lister suffered more than any other member of the staff from their petty restrictions, their frigid rules, and their repressive formality. They made themselves particularly obnoxious to Lister, as he gave more work than any other surgeon; he visited his wards daily, instead of twice a week; he had the boldness to show himself at the Hospital after dinner, or even on a Sunday if a case gave him any anxiety; also the technique of his dressings involved much washing-up and the spreading of mackintoshes to limit the effects of the clouds of watery carbolic spray in which we then worked. At least two hours daily were taken up by dressings, which Lister insisted on carrying out himself or seeing carried out under his own eye; there was much upset in the wards by his having patients carried or wheeled into the operating theatre for his regular clinical demonstrations; in fact, he upset these pious ladies by disturbing the atmosphere they had created, which clearly suggested that medical men were allowed on sufferance in a hospital to do an operation or write a prescription, but that it was the nursing which took first place, and that the all-important points were that the bed should be stiffly tidy, the patient's face shinily clean, and that he should say his prayers!

Worse than these two cold douches was what John Stewart describes as the colossal apathy, the inconceivable indifference, shown by the students and surgeons of London. The wards of most of the hospitals in England at that time stank with the hospital air of putrefaction. I remember the tin tray placed below an amputated stump to catch the dripping pus, and the frequency with which in the postmortem room we saw the amyloid degeneration which indicated the patient's long and weary passage to the grave with hectic and surgical fever. Lister's wards were sweet; his dressings, when taken off, were free from putrefactive odor; they were handed round for confirma-

tion, and I can remember the surprised and approving sniff with which the visitor—generally a foreigner—confirmed Lister's frequent and pleased remark: "You will note, gentlemen, that the discharge is serous and quite sweet."

Yet Londoners did not come to see this revolutionary change, to hear, to smell, and to be converted.

In Edinburgh his class frequently numbered four hundred students; in London some ten to twenty might turn up, but these gradually fell off. I have heard a carefully prepared, thoughtful, philosophic lecture, one which helped to lay the very foundation of a physiological understanding of our work, delivered by Lister to half a dozen men, and many a time I have seen him at work in theatre or ward, accompanied only by his own suite. When completed, this consisted of six dressers, three clerks (who must all have previously served as dressers) and his house-surgeon. Each office lasted for six months. It was only the enthusiasts, or those who had some inkling that they were serving a great master, who cared to give six to eighteen months to receiving this precious instruction in the science and principles of surgery. The rest cared for none of these things, they were indifferent, they were utilitarians, who, with what the world might in its foolishness call "shrewd common sense," saw that Lister's teaching was no use to them, for he did not coach them in the subjects required for examination, nor hand round the tips which were to get the student through. Lister noticed that though the London student has an affection for his school, he has none for the University of London where he graduates, or for the Royal Colleges where he takes his diploma, and hardly any for the city in which he studies. The Scotch student has more *esprit de corps* and more *feu sacré* in following a teacher or getting to the root of a subject. (Strange that we have to employ

French words to explain these un-English traits!)

The English student is keener on securing a diploma with which to earn his living. But is he entirely to blame for this? In London much is sacrificed to the examination system, which encourages cramming, stifles any spirit of inquiry or love of knowledge for its own sake, and compels the teacher to limit his instruction to preparing the student to pass, not only certain examinations, but certain examiners. The complete separation of teacher from examiner also handicaps the student. It is not the student who is to blame; it is our faulty methods of teaching and examination. Ten years later Lister referred to his small classes at King's, after his crowded audiences at Edinburgh, as "a humiliating experience."

But, if students and London surgeons were apathetic and short-sighted over the revolution being wrought in surgery, it was not so with the foreigners. In the entrance hall of the old Hospital there was a notice board forbidding smoking in English, French and German, thus:

Smoking forbidden
Il est défendu de fumer
Das Rauchen ist verboten.

In later years many must have wondered when the necessity had occurred for this polyglot announcement, for it was rare for any Frenchman or German to find his way there, and if he did, he was so solitary and felt so much the repressive atmosphere of our misty island, that he would hardly have had the hardihood to light an innocent cigarette. But it was different in the eighties. When I was Lister's house-surgeon in 1883, foreigners poured in from the ends of the earth, crowded the entrance hall, and there, while waiting for the master, they would make the air thick with tobacco smoke. Twenty to sixty of them would fill the front seats of the lecture theatre;

indeed, I remember a time when the students complained of this and also of the fact that not infrequently Lister gave half his lecture in French or German, for he could make an extempore speech quite easily in either language. This complaint came round to Lister's ears, and I remember how he took the opportunity of a quiet day to refer to it, saying that if the students showed as much enthusiasm as the foreign visitors he would see to it that they were not ousted from the best seats. Like all his little corrections, this was said most courteously and more in sorrow than in anger.

Among the visitors from overseas we made many interesting acquaintances. I remember an American surgeon turning up one day who told me he had been to Vienna to see Billroth, but he did not consider him equal to a "bully operator" they had in Buffalo, from which the visitor came. He arrived at the hospital on Saturday just before lunch, and I told him Lister was not expected till two o'clock. He said he would wait, and asked if he could not look around the hospital in the meantime. I had the happy thought of turning him over to the secretary, whom he dragged all over the building and reduced to a limp mass before two o'clock.

When the master arrived promptly, our visitor said, "Professor Lister, Sir, I am told your wounds heal without suppuration, and I've come all the way from Buffalo to see them." The ever courteous professor said he was sorry, but that no cases required dressing that day; that the next day was a Sunday, and as he had no class he would be changing the dressings in the morning. The irrepressible visitor said, "No matter, I'll be there." And there he certainly was, on the Sunday morning. When all had been shown him he exclaimed, "Sir, I was like the doubting Thomas in the Scriptures, I would not believe without seeing; and, like Thomas, I've seen and now I believe. Buffalo shall hear of this." Need I add that

his easy reference, without a prefix, to a New Testament saint, and this breaking in on the Sabbath morning calm of their disciplined wards, caused the caps of the High Church sisters of St. John to stand straight up from their heads. Lister beamed; he had no insular prejudices, and always liked the expansive manners of foreigners.

How different from this chilly English reception of 1877 was that extended to him only two years later at the International Congress of Medicine at Amsterdam! The *British Medical Journal*⁴ tells of Lister's reception by the Congress with an enthusiasm which knew no bounds: "When he stepped forward to the desk to open his address (which was delivered, with but few notes, in improvised French), the whole assembly arose to their feet, and with deafening and repeated rounds of cheers, waving their hats and handkerchiefs, hailed the distinguished Professor of King's College with exclamations renewed minute after minute, and time after time, as his name was again shouted forth by some grateful and enthusiastic acolyte. This remarkable scene—unprecedented, we imagine, in the history of medical science—continued for some minutes, until Professor Donders, the president, advancing with the distinctive grace and dignity for which he is remarkable, and taking Lister by the hand, as he stood overwhelmed with this magnificent ovation, obtained a moment's silence, and addressing him said, 'Professor Lister, it is not only our admiration which we offer you; it is our gratitude, and that of the nation to which we belong.'"

Foreign surgeons attending the next International Congress (it was in London in 1881) must have marvelled amongst themselves when they heard London and British surgeons attempt to cast doubt on the principles which Lister had evolved, and belittle the results he had given by basing his practice upon those principles.

⁴ *Brit. M. J.*, 1879, vol. ii, p. 453.

But when the International Medical Congress again met in London in 1913, the light of Lister's good work was shining before men, although his body had been buried in peace. As we all know, Congresses and such-like events are commemorated by the issue of a medal. In monarchical countries it is a usual custom to engrave the head of the reigning sovereign on one side of the medal; and the medal of the International Medical Congress in London



The head of Lister which appeared on the International Congress of Medicine Medal struck off in 1913, at London.

in 1881 bears on the obverse the features of Queen Victoria. But in 1913, it was felt in Britain that there was only one effigy worthy of being stamped on the medal of a Congress in London, and that was the head of Joseph Lister.

My audience will hardly believe me when I tell them that in my student days the surgeon of one of the largest teaching hospitals could always raise an appreciative laugh by telling anyone who came into the operating theater to shut the door quickly, in case one of Mr. Lister's microbes came in! Nor can they credit it that, as late as the nineties of last century, another leading surgeon had the courageous ignorance to publish the results of an experiment he made, in which the patients on one side of a ward were treated by the older methods, i. e., water-dressings, poultices, lint, oakum,

strapping ointment and so forth, and those on the other side with Lister's "antiseptic method." The fact that Lister would never publish his statistics was another cause of offense. How could he, when he was carrying out operations never attempted before in the history of surgery?

The first case in which Lister wired a fractured patella—I suppose the first case in the world in which a healthy knee joint was ever opened for such a purpose—was in 1877. When I was his house-surgeon I



Tympanum of Policlinico Umberto I, Rome. The façade in bas relief shows Lister operating.

had the honor of bringing together the first seven cases which he showed before the Medical Society of London in October, 1883.⁵ Some of them were recent and others old ununited fractures. All were successful. I remember the astonishment with which Fellows of the Society tried to feel the buried silver wire, and the surprise with which they heard that one patient had returned to his occupation as a bus-conductor, and was able to hop off and on his step and climb the bus stairs. But others were present who were aghast at the unwarrantable danger incurred in opening a healthy knee, and so running the risk of ankylosis, or of amputation and even death. One surgeon said that if the next case died Lister should be prosecuted for malpraxis, and another exclaimed: "C'est

⁵ *Proc. M. Soc.*, London, 1884, vol. vii, p. 8.

magnifique, mais ce n'est pas la chirurgie." In his reply Lister simply said that he considered that was "chirurgie" which saved people's lives.

The public had not heard his name then, nor for many years afterwards. I remember soon after starting practice, I thought I would strengthen my position in one family by mentioning (quite casually of course!) that I had been house-surgeon to the great Sir Joseph Lister. "Yes," said the patient, "a great man; he must have made a pile of money out of Listerine!"

When house-physician I remember telling Dr. Lionel Beale that I had just seen Lister resect a piece of rib in order to drain a pleural empyema. He was horrified and said I surely meant that Lister had simply tapped the pleura; and when I assured him of the fact, he said these surgeons would not stop till they had taken out the heart or resected the medulla oblongata!

Ovariectomy results at King's College Hospital had been so disastrous that the governors had forbidden the staff to undertake it. Lister changed all this.

Slowly, very slowly, but surely, his work was winning its way to recognition. But even then, as his principles were being accepted, recognition was given grudgingly. One of his own colleagues, Professor John Wood, said that Lister's fame came from Germany, that the "Germans were dirty people," but that the antiseptic system "was not really necessary in [England]." Efforts to depreciate him were made by saying that there was nothing in his methods except cleanliness, and late converts concealed their overdue repentance by rapturously embracing asepsis and vaunting its superiority over the "antiseptic system," as it was still called.

But all this was later. In these early years of Lister's advent a little personal recollection will illustrate how slowly his evangel spread, yet how courageously confident he was of his mission. I was standing beside

him one day on the steps of the hospital in 1883 as he waited for his carriage to pull up, soon after the attack had been made on him for opening a healthy knee joint. He began by quietly remarking that the day must surely come when the profession would accept the principles of his methods, "and," he added warmly, "if the profession does not recognize them, the public will learn of them and the law will insist on them." Then, in one of those serious, almost solemn, and always arresting little speeches, into which he occasionally and unexpectedly dropped, he placed his hand on my shoulder and added pathetically, "Thomson, I do not expect to see that day, but you may." Within a decade from that day he had left King's College Hospital, but not before his mission had been fulfilled. We all know the story. Sir James Simpson, a colleague of Lister's in Edinburgh University, asserted that "the man laid on the operating table in one of our surgical hospitals is exposed to more chances of death than the English soldier in the field of Waterloo."⁶

Before the coming of Lister the death rate in major operations was from 25 to 40 per cent; in other words, the chances were that one out of every 3 or 4 patients would die. These figures included cases which were not necessarily serious on admission. Nowadays the death rate is 2 to 3 per cent, and this is practically made up of cases admitted almost moribund, such as advanced intestinal obstruction, and others operated on *in extremis* with the faint hope of saving life.⁷

Dealing with the surgical revolution of the Victorian era, Treves writes: "It is a question if any change in human affairs or any disturbance in human creeds has ever been at once so striking, so thorough, and

so unexpected as has been this stirring crisis of the healing art."⁸

Let us hearken to what one who was at no time his pupil said of Lister's work:

"Lister created anew the ancient art of healing; he made a reality of the hope which had for all time sustained the surgeon's endeavors; he removed the impenetrable cloud which had stood for centuries between great principles and successful practice, and he rendered possible a treatment which had hitherto been but the vision of the dreamer. The nature of his discovery—like that of most great movements—was splendid in its simplicity and magnificent in its littleness. To the surgeon's craft it was but 'the one thing needful.' With it came the promise of a wondrous future; without it was the hopelessness of an impotent past." (Treves.)

In 1892 Lister delivered his last lecture as he had to retire under the age limit of 65; but he was invited by the Council to continue his wards for another year and finally left King's College Hospital at the end of the summer session of 1893.

In 1897, the year of Queen Victoria's second Jubilee, he was made a peer on New Year's Day, his peerage having been the first ever conferred upon a surgeon. In the following May an address and a dinner were offered to him by his old pupils, and I had the honor of being the secretary of that festival. No less than thirty old house-surgeons and one hundred dressers were gathered together on that occasion, some of them having come from the far ends of the earth. Many have told me that they have never seen such a manifestation of personal esteem and admiration as that night when his health was drunk with Highland honors. I took the opportunity of reminding the chief of his words to me on

⁶ "The Works of Sir J. Y. Simpson." Edinburgh: 1871. vol. ii, pp. 289-392.

⁷ W. Watson Cheyne. *The Practitioner*, 1897. vol. lviii, June, p. 632.

⁸ F. Treves. *The Practitioner*, 1897. vol. lvii, June, p. 632.

the steps of the hospital fourteen years previously, and I pointed out that he had not been imprisoned like Galileo, burnt at the stake like Giordano Bruno, or crucified like other pioneers of truth, but that we had both lived to see the day when his principles were universally accepted. Then,



PASTEUR'S JUBILEE, 1892. The painting represents Lister greeting Pasteur at the Sorbonne.

drawing a newspaper of the day from my pocket, I called his attention to the fact that the other part of his prognostication had been fulfilled, for this recorded that a midwife in Germany had been sent to prison for manslaughter, as she had attended a confinement without providing herself with a proper antiseptic outfit!

In proposing Lister's health at a Royal Society dinner Mr. Bayard, the American Ambassador, exclaimed: "My Lord, it is

not a profession, it is not a nation, it is humanity itself which, with uncovered head, salutes you."

What was the personality of this master of surgery? He was tall, well built, thick chested. He had a profusion of thick iron-gray hair, worn somewhat long; except for small side whiskers, he was clean shaven. I never saw him in any other pattern of collar or necktie than those seen in all his portraits. You will observe that the upright collar has the peaks turned down over a black silk bow tie. This was his one and only form of what the haberdasher calls "neck wear." His costume never varied; it was always a grayish pair of trousers and a frock coat made of the shiny black material called broadcloth, and nowadays only seen on undertakers and country hotel waiters. His hands were large and neither graceful nor delicate looking; yet he was a steady, firm and deliberate operator. With the least exertion he perspired freely, and it was always one nurse's duty to stand behind him ready armed with a clean towel, to which he frequently turned during an operation to mop his streaming forehead. His voice was low and musical, with a rather attractive hollowness about it, and with an occasional slight stammer. His manner was generally serious, but relieved by what Dr. John Stewart calls his "gentle, amused and somewhat pensive smile." His manner to many had a certain aloofness about it, and even his life-long disciple, Watson Cheyne, confesses that Lister always inspired him with a certain sense of awe. I myself always felt that his soul was like a star and dwelt apart. Yet he commanded not only veneration, respect and admiration, but a feeling of trust and devotion which could only be explained by the nobility and sincerity of his character. Though separated from him by the broad Atlantic for thirty-four years, a former pupil could write: "It is beyond my power to express the feelings of reverence and

love I have for Lord Lister, or to say how much his life has been to me." (John Stewart, 1912.) For my part, I can only say that no teacher, no friend, no man I have ever known has impressed me as Lister has done. To none of them do I feel the debt I owe to him for the example of his veracity of thought and word, his patience under persecution, his constancy in the pursuit of truth, his eagerness to instruct his pupils, his long-suffering with stupidity, his tenderness to the poor and his gentleness to the sick and maimed. He was universally courteous and, by treating others with respect, even his most violent critics, he appeared to be able to elicit the same consideration in return.

As an illustration of his devotion to our profession and the high esteem of which he considered it worthy, I will read you a few sentences from an address he gave to the newly qualified students in a Graduation Address in 1878:

"If we had nothing but pecuniary rewards and worldly honors to look to, our profession would not be one to be desired. But in its practice you will find it to be attended with peculiar privileges; second to none in intense interest and pure pleasures. It is our proud office to tend the fleshly tabernacle of the immortal spirit, and our path, if rightly followed, will be guided by unfettered truth and love unfeigned. In the pursuit of this noble and holy calling I wish you all Godspeed."

When anything went wrong with a patient, and when a patient died, Lister was touchingly cast down and sorrowful. I remember an incident when he was working at the radical cure of hernia. Before his time, and particularly in King's College Hospital, efforts to effect this were attempted by a complicated method of sub-

cutaneous wires.⁹ Well, Lister was going to try, probably for the first time in the world's history, the open method on a somewhat emphysematous subject. The twenty-four hours before the operation were very foggy; I went over the patient's chest carefully (having previously been house-physician, I may remark); and when Lister arrived, I reported that the man was very bronchitic and that he might like to defer the operation. After making some inquiries and hearing that the patient's pulse and temperature were normal, he decided to go on with it. The man died three days later from bronchitis and pulmonary edema. I do not, of course, quote this to emphasize my own perspicacity, but to illustrate how Lister acted under the circumstance. He selected as subject for his next lecture, "The medical care of surgical cases," narrated the history of the bronchitic man, and his deep grief that he had not paid more attention to the warning of his house-surgeon. There are few professors who would have had such sincerity, courage and magnanimity.

But his biographer relates that though he felt things very keenly at the time, a certain buoyancy soon restored his equanimity and forward-looking temperament. He writes thus when on a holiday: "I have the happy faculty of being able to throw off all thoughts of work for the time being." Real idleness was not congenial to him. He fished, but as his biographer says, he was a diligent amateur but never an expert. His efforts at skating were more like a scientific pursuit, and he could do 8's and 3's,—but of small dimensions. He took a fair share of vacation and, on his holidays, like all large minded men I have met, he could be light hearted and boyish. But complete idleness never appealed to him; on his holidays there were usually proofs to correct, or addresses to prepare; on the Continent he practised and improved his very good French and German; during winter visits to Spain between 1887 and

⁹ Sir W. Fergusson, "A System of Practical Surgery." London: 1870. 5th Ed., p. 646.

1889 he acquired a certain amount of Spanish; he was devoted to walking and excursions; he was interested in botany and bird-life; and he could always fall back on a

12 Park Crescent
Portland Place
12th March 1883

My dear Lynam,

I shall not be able to be at Hospital till 3 today. Will you therefore please have notices put up in College & Hospital to the effect that I am not able to meet my class today; & also, if the empyema patient

ipsissima verba you will not "see Lister plain," but you will come into very close contact with his noble character. It reads as follows:

Has telegraphed that he will be at the Hospital today, will you please telegraph again to hurry putting him off till Wednesday, so as to avoid his exposing himself in vain this cold day

Yours very truly
Joseph Lister

Facsimile of a letter written by his wife and signed by Joseph Lister.

pocket-volume of Horace, Dante or Goethe.

Another trait of his character was his invariable gentleness and sympathy with the humblest or roughest of his hospital patients. He seldom referred to a patient as "a case," but introduced his remarks with such kindly terms as "this poor fellow," or "this good woman" or "this little chap." To demonstrate this to everyone here to-day I will hand round a letter written by Lister to the house surgeon who preceded me, Dr. R. G. Lynam, now of Oxford. You will note that this letter is entirely concerned with the interests of his students and a hospital patient, for whom he shows a touching consideration. He sent the letter to the Hospital by special messenger, there being no telephone in these days. In reading his

We are fortunate in possessing a perfect pen-picture of the master in imperishable verse written by W. E. Henley, who was at one time his patient in the Edinburgh Infirmary:

"His brow spreads large and placid, and his eye
Is deep and bright, with steady looks that still.
Soft lines of tranquil thought his face fulfill —
His face at once benign and proud and shy.
If envy scout, if ignorance deny,
His faultless patience, his unyielding will,
Beautiful gentleness, and splendid skill,
Innumerable gratuities reply.
His wise, rare smile is sweet with certainties,
And seems in all his patients to compel
Such love and faith as failure cannot quell."

Lister lived most of his life and died a member of the Church of England. But he

as brought up a Quaker and it has been well said of him that "he belonged to a society the members of which called all men Friends; and now in truth because of his inestimable beneficence and service to mankind, all men the world over call him friend." (Sir Michael Foster.)

Lister was blessed with a loving and devoted wife. She was a daughter of Professor Syme, whom he had served as house-surgeon in Edinburgh, and she appeared to have no thought or interest beyond her husband. She not only loved and shielded him in every way, but entered intelligently into all his work and researches; helped him in his studies; worked in his laboratory; wrote his letters; and often when I arrived at his house early in the morning to go with him to a private operation, I would find Mrs. Lister preparing and checking off his instruments. In their pleasures, as in their work, they were united. They were inseparable companions on all his holidays, and in the

numerous Continental trips he loved to make. It was while on one of these in Italy that his wife died, after a very brief illness, in 1893. They had no children; and after his wife's death Lister was a very lonely man.



Original model for Sir Thomas Brook's medallion of Lister, in Westminster Abbey.



LADY LISTER.

His last years were saddened by slowly failing health. On the tenth of February, 1912, he died at Walmer, a little fishing village on the English Channel, which looks across the Goodwin Sands to the shores of France.

He would have been buried at Westminster Abbey had he not left clear instructions that he wished to be laid to rest beside his wife in West Hampstead Cemetery. Before this took place a public funeral service was held in Westminster Abbey on February 16, 1912, and the pall-bearers were representatives of the Order of Merit, the Royal Society, the Royal College of Surgeons, the Universities of London, Edinburgh and Glasgow, the Lister Institute, and King's College Hospital, which was represented by his first house-surgeon in London and faithful disciple, Sir Watson Cheyne.

In the north transept of Westminster

Abbey there is a marble medallion of Lister's bust, placed near to those of the great scientists Darwin, Stokes, Anderson and Watt. It is extraordinarily like "the Chief," as his students called him in Edinburgh.

Those who attended that impressive requiem in the Abbey will never forget the stately pomp and circumstance of a public funeral service, when not only the nation's representatives, but delegates from all the world over manifested their mourning for a man who had made humanity his debtor.

But more soul-stirring still were the words of Handel's anthem, so peculiarly applicable to our dear Master, as the music of it rolled through long drawn aisle and fretted vault:

"When the ear heard him, then it blessed him and when the eye saw him it gave witness of him; he delivered the poor that cried, the fatherless, and him that had none to help him. Kindness, meekness and comfort were on his tongue. If there was any virtue, and if there was any praise, he thought on those things. His body is buried in peace, but his name liveth forevermore."



Armorial Bearings of Lord Lister, the Serpent of Æsculapius appearing for the first time on the quarterings of a Peer of the Realm.

THE OXFORD PHYSIC GARDEN¹

By SIR D'ARCY POWER, K. B. E., M. B. OXON.²

LONDON, ENGLAND

I HAVE recently been engaged in transcribing the commonplace books of the Rev. John Ward which are preserved in the Library of the Medical Society of London. The volumes are sixteen in number, and an account of them appears in my presidential address to the Medical Society of London.³

Ward was born in the year 1629 at Spratton in Northamptonshire, the elder of the two sons of John Ward, M. A., of Pembroke College, Oxford, by Dorothy, a daughter of Richard Pargeter. John Ward the elder was a gentleman of property who became a lieutenant in Colonel Appleby's Regiment of Foot at the beginning of the Civil War, was taken prisoner by the Parliamentary forces at Naseby in 1645, and probably died soon afterwards, for John Ward the younger makes no mention of his father, though he speaks of his mother as living some years later. The younger son, Thomas, became rector of Stow-in-the-Wold, a small market town situated in the Cotswolds, a few miles from Oxford.

John Ward, the writer of the notebooks, went to Oxford in the middle of "the broken times," as they were called by Anthony Wood, when the University lists were badly kept. It is not surprising therefore that his name does not appear in the registers. He states, however, that "I was presented Mr. of Arts about the year 1652 in Easter term. Anthony Ratcliffe and Philip Gerard and Mr. Temple with us." Reference to Foster's "Alumni Oxonienses" shows that:

Anthony Ratcliffe of Magdalene College, Cambridge, matriculated 1st October 1645, was incorporated 16th March 1648-9 student of Christ Church by the visitors; B. A. 23rd May 1649; M.A. 6th May 1652; Canon (of Christ Church Cathedral, Oxford) 11th February 1680-1; Chaplain to Henry, Earl of Arlington; Vicar of Leigh, Kent, 1661; died June 1703.

Philip Gerard, son of William of London, gent. Christ Church, matriculated 29th January 1646-7, aged 13 from Westminster school B. A. 8th July 1649; M.A. 6th May 1652."

"Mr. Temple" was John Temple of Pembroke Hall, Cambridge, where he was admitted 30th January 1645-6; student of Christ Church 1648 by the visitors; B. A. 8th July 1649; M.A. 6th May 1652; vicar of Haughton 1660 and of Portslade, Sussex, 1669.

Ward also speaks of "our table at Christ Church," i. e., the master of arts table in the hall where the resident masters dined together. It is fair to assume, therefore, that Ward matriculated at Christ Church at the end of 1646 or the beginning of 1647, graduated B.A. in July, 1649, and took the degree of M.A. on May 6, 1652. It is interesting as a sign of the times in which he lived that although his father had suffered in the Royalist cause, two of his friends, viz., Ratcliffe and Temple, had been admitted to Christ Church, Oxford, from Cambridge by order of the Parliamentary visitors, so that they must have had Parliamentary sympathies.

WARD'S GRADUATION THESIS

The second volume of Ward's notebooks begins on May 27, 1652, and gives in full his thesis "An Æstate an hieme plura sunt oblectamenta. Affirmatur quod æstate." It

¹ Read before the Ashmolean Society, Oxford, May 13, 1919.

² President of the Section of the History of Medicine, the Royal Society of Medicine.

³ *Tr. M. Soc. Lon.* The Rev. John Ward, M.A. Vol. 40, 1917.

is a good example of the Austin disputations which preceded admission to the degree of master of arts. Such a disputation or exercise was performed by every bachelor of arts once a year unless he had obtained a dispensation. It was held on any Saturday in term time between the hours of one and three o'clock in the choir of the University Church and was presided over by the masters of the schools, who received either a drachma (4d., equivalent to about ten cents) or a pair of gloves as a fee. Three days' notice had to be given by affixing the subject of the disputation and the names of the disputants on the doors of the Church. A text of these Austins is now so rare that it is worth while to reproduce Ward's disputation in extenso so far as it can now be read. It runs as follows:

AN ÆSTATE AN HIEME PLURA SUNT OBLECTA-
MENTA?

Affirmatur quod æstate

“Coram quem quæritis adsum et ego, Auditores, de æstate pace vestræ peroraturus interim tamen qui quidem instante hieme ingravente frigore, tantum non congelasco, verum enimvero ni male memini Autumnus adhuc se sistit. Ideoque nondum favorem vestrum in tantum declinasse autumor quin ad blandiente vultu conatus meos quales sint, satis superque foveatis; sed esto; adsit canora hiems nihilominus tamen aliquales æstatis laudes scriptitare nec solæcismum erit nedum intempestivum. Imprimis autem liceat mihi modo lubet per totum oblectamentorum Zodiacum dico quasi pede pertransire neque hac in re ullam agnoscam Cancris tropicum dicimus ideo æstatem esse earum omnium deliciarum nutricem, quas obstetricante sole dudum vere peperit materna tellus quas æque vobis recensere impar sum, ac flores, fruges, herbasque tandem delectissimas enumerare adeo cujusve generis amœnitatibus fœcundat ista tempestas,

ut cuilibet in cœlis rutilanti suum in terris videatur respondete æmulum pulcherrimos scilicet flosculorum quasi constellationes ita ut haud facile dictu utrum hic an illic major pulchritudo, major suavitas herba quælibet suum habet oblectamentum suum denique colorum vel ipsæ veneris in ipsissimæ formæ adversi omen neque hi sistendum est sed ulterius suum uberrimum sinum repandit nobis exhilarans æstas neque intra quotvis vel dicendi vel sentiendi campos coangustantur ejus oblectamenta; sensus quilibet suum habet objectum proprium vividum torridum et opprime satis adaptatum; gustus sapidas suas et succulentas qualitates; olfactus suos spiritus reviviscentes, visus colores speciosos eximie variegatos; harmonias suas dulcissime sane concinnatos habet etiam auditus ipse, imo, tat tantiza exuberat ornamentis ut necessum esse philosophis videatur occultos concessisse qualitates, tales scilicet quales melius capiat sensus nullum percipiat Organon ita ut superfœtare videatur æstas etsi precedet in excessu tamen pervadere, neque solius sensus cervum et ingens intellectus hunc temporis efflorescunt jucunditates. Unde, quæso, oriuntur subtiles istæ intellectus præcisiones et verum etiam a se invicem sublimationes et abstergationes nisi ab æstivo verum conspectu et virescente seu maturo statu hinc, hinc se sursum provocat intellectus et quamvis sit nobilior ipsius animæ facultas, haud minimum tamen ejus auxilium huic debet tempestati.

“Quis philosophus usquam, mi Antagonista, dedisset nobis discrimen inter essentiam rei et existentiam nisi emblemata sunt quasi de hoc sumptis notionibus; hieme ergo his notata sunt. Quasi inesse in suis causis, æstate autem extra causas in meo opinione quantum ergo rosa in hieme ab eadem in æstiva differt tanto tamen æstatis gaudia hiemalibus istis

præferenda. Hyems naturæ ponit obiens quosdam et repagula ut suos neuriquam excutiat lætantes fœtus congeliantur omnia et meatus ejus tanto frigore tantisque velaminibus obstruuntur ut intus hospitantes ejus voluptas nequaquam in apricium proferat.

“Quicquid nisi geras quicquid denique voluptatis pluvia afferantur fotum hoc habeamus et per me licet omnibus oblectamenti hoc sequente hieme et sic denique abunde fruatur, Antagonista, cui modo penes me essent assignare domicilium, esset ei circiter polum arcticum aut plaga sui borealis ubi cerebrum et cerebellum ejus, cranii meningumque vice glaciali quodam integumento incrustantur et nassus obstergerentur et denique tenebræ frigus fimusque et hiemis comites satis superque ei adessent. Verbo, dicam, quod hiemali tempore aliquanto supplet artificium illud ipsum a natura æstate pervenit; hæc a priori isto et defæcationi caloris fonte fomentemur illa carbonarios illos putidos et male olentes focos in hunc finem videamus, huc omnia valemus vigore quodam naturali donata illuc autem condita variisque modum ad eam insimulanda præparata ita ut nullo negotio asseramus siqua hiemi voluptas adest eandem meram esse æstatis umbram; . . . nac plus veræ in se lætitiæ quam æstatis habet quod tamen minimum.

“Testor vos, juvenes, an melius imo jucundius vobiscum si res habet cum dilucalo satis vesticos vestras matutino frigore hiemali commutetis postea quoque redivivo spiritu digitos vestros refocilletis quanquam alios si res habet profecto tunc temporis tantum abhorretis istam philosophiam vel ipsam animam esse totam in toto asserventem ut vix eandem in qualibet parte hospitari judicetis; quicquid igitur aggerat, Antagonista, nemo nisi Scythia, nisi Hyperboreus aut Muscovita aut qui veras et æstivos tell-

uris amœnitates nescivit sed solum vigente bruma et pontum et terram videntur astrictis pedibus ibit in istam sententiam.

“Qualis, quæso voluptas in manuum frictionibus, pedum pulsationibus totiusque corporis ab ingravente frigore quotidianis concussionibus; quorum hæc nisi et vitales et animales spiritus intus ad fontem attrahentes tota hac agitatione. Præberentur hæccine voluptas hoccine oblectamentum; quis unquam somniavit has lætitiæ, hac tempestate oriundas, nisi misenda quædam metamorphosi summos dolores in summam salutem commutare queat. Taceo morbos istos tunc temporis ut plurimum cheu grassentes, taceo tantum illum sanguinis fluxum et effluxum, unde tot oriuntur pessimæ obstructions, taceo denique poros istos totius corporis spiramenta graviter obstructos unde nisi uti scio oriatur boni nisi ventriculi . . . itos; taceo denique contrarios æstatis fructus scilicet, salutem hilaritatem totius composui vigorem imo ipsissimam vitam. Bruma enim est quasi omnium interitus dum æstas vegetabilia, animalia ipsa quoque homines pristino vigore, calore, et cras redintegrare videtur; superideam igitur, auditores, hæc in re ulteriorem vobis restituere panægyria me sudores, me corripiant aut vos invadat nimium frigus et nullus dubito quin vos omnes, si non in præsentiarum dudum tamen, si tam chara maneat materia combustibilis non solum pedibus sed et toto corpore in meam ibitis sententiam.

DIXI

RICHARD LOWER

Ward continued to live in Christ Church after he had taken his M.A. degree, interesting himself in what would now be called natural science. He speaks repeatedly of “Dick” Lower, who is better known to us as Richard Lower, one of the most gifted of the band of Oxford men who founded

the Royal Society. It was Lower who helped Willis in those dissections of the brain and nerves which have made his name immortal, and there is very little doubt that Ward helped Lower. At this time Lower was working especially at the color and movement of the blood and chyle, though his

the Vicarage of Stratford-on-Avon where he remained until his death in 1681. For a year or two he lingered in Oxford, paying repeated visits to London; in these years he interested himself in botany; and it is to this period of his life that I am asking your attention.

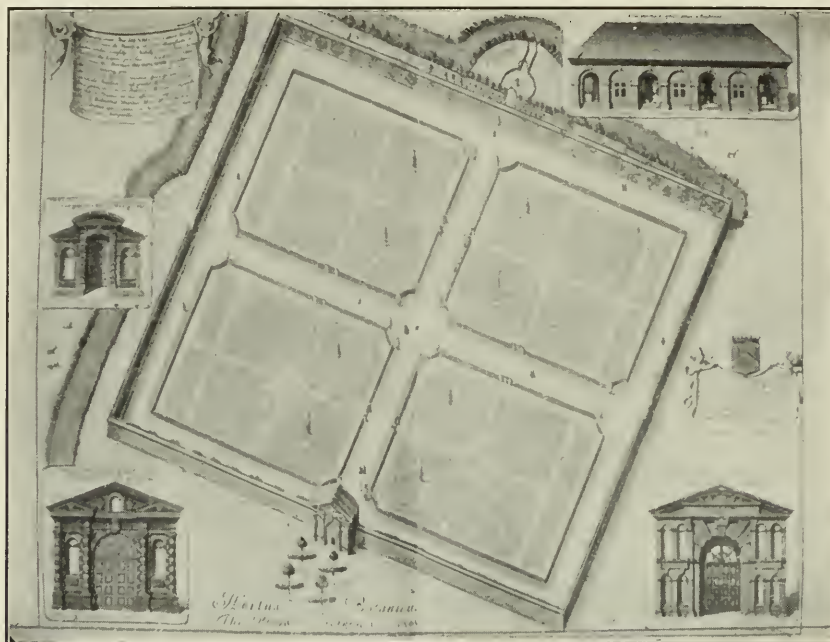


FIG. 1. The Oxford Physic Garden, from Loggan's "Oxonia Illustrata," 1675.

name is more familiar to anatomists than physiologists, owing to the adoption of the term "the tubercle of Lower" for the thickening of the lining membrane on the posterior wall of the right auricle of the heart between the openings of the two venæ cavæ. Lower moved to London and obtained a large practice, much of which he afterwards lost on account of his Whig tendencies.

Ward, like Lower, found life in Oxford comfortable enough until the Restoration. The old order then returned and Ward determined to leave the University. He came to London, therefore, undecided whether to enter the Church or obtain a degree in medicine from a foreign university and practice medicine. The Church prevailed, and after some inquiries he bought

Most of Ward's botanical knowledge was gathered from three persons whom he mentions repeatedly: Jacob Bobart, who was clearly his teacher; Dr. Modesy, of whom he always speaks in terms of great respect, and Ned Morgan, with whom he was intimate.

JACOB BOBART

Jacob Bobart was the gardener at the Oxford Physic Garden, and I need hardly remind you that this garden [Fig. 1] was a benefaction of Henry, Lord Danvers, Earl of Danby, and that it was opened with befitting ceremonial on 25th July, 1621, just forty years before the time of which we are now speaking. Jacob Bobart [Fig. 2] had been appointed *horti præfectus* in 1632 and for his services in this capacity "the

Earle of Danby doth covenant for him, his heirs and assignees, to pay yearly to Jacob Bobart (The University Gardener) the summe of £40 in consideration of his dressing, manureing and planting the sayed garden."

younger (1641–1719), who was appointed Professor of Botany at Oxford in 1683.

The elder Bobart appears to have been one of the Oxford characters of his generation. He had a long beard which on days of rejoicing he used to have tagged

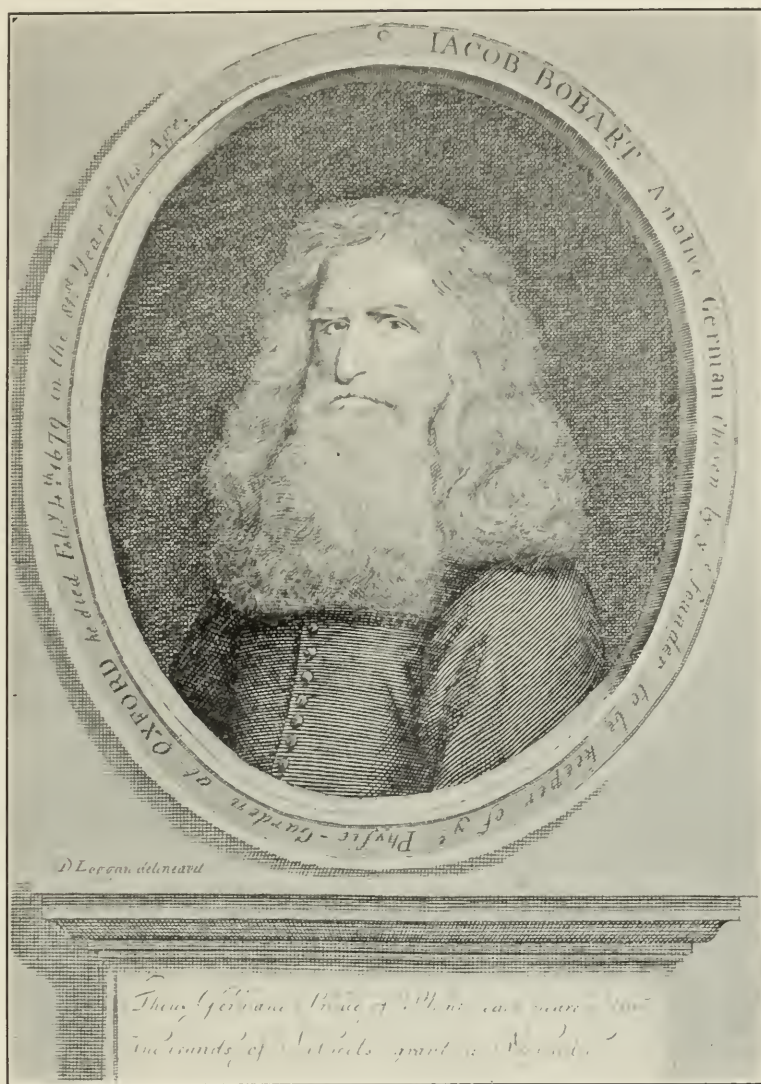


FIG. 2. JACOB BOBART, from an engraving by D. Loggan.

Of Bobart we know that he was born in Brunswick probably in 1596 and died on February 4, 1679–80, being buried in the Churchyard of St. Peter's-in-the-East. In 1648 he published anonymously a catalogue of sixteen hundred plants then under his care. He revised this catalogue in 1658 with the help of his son, Jacob Bobart the

with silver, and he was usually accompanied in his walks by a goat instead of a dog. Anthony Wood reports of him that "Jacob Bobart senior, keeper of the Physic Garden, Oxon., used to wear a long beard, whereupon Mark Colman, a melancholy distracted man, sometime a singing man at Ch. Ch. walking in the physic garden catcht fast

hold of his beard crying 'Help! Help!' upon which people coming in and enquiring of the outcrie, Colman made reply that 'Bobart hath eaten his horse and his tayle hung out of his mouth.' "

Bobart's salary was sometimes seriously in arrear, and he complained after the death of the Earl of Danby that he had received nothing for several years. It is not surprising, therefore, that on great occasions he was not above receiving presents of money for showing the garden. Thus on May 4, 1669, Cosmo di Medici, Prince of Tuscany and son to the Grand Duke, "went and saw the Physic Garden and being there (Bobart the Keeper having presented him with a very fine nosegay in the morning) the said Bobart spoke a speech in the German tongue to him, which he liking and his garden, he gave him a reward." A memorial of this visit still remains in the form of a view taken by an artist in the suite of Cosmo. The original is in the Laurentian Library at Florence and there is a photograph of it in the Bodleian Library. The view is taken from Cherwell Hall at the end of Cowley Place.

Amongst other triumphs of Bobart's art were two yew trees which grew close to the entrance gate of the garden. These trees he had clipped into the form of giants, and by a very bad pun the wits of the time called them his yewmen of the guard. They seem to have been replaced in Loggan's engraving [Fig. 1] by two statues.⁴

⁴ Messrs. Vines and Druce in their interesting "Account of the Morisonian Herbarium," (Oxford 1914, p. xvii), quote Baskerville's account of Bobart: "Here I may take leave to speake a word or two of old Jacob who now is fled from his Earthly Paradise. As to country he was by birth a German, born in Brunswick that great Rum brewhouse of Europe. In his younger dayes, as I remember, I have heard him say he was sometime a soldier by which Employ and Travail he had opportunities of Augmenting his knowledge, for to his native Dutch he

For a long time I was unable to identify the person whom Ward always calls "Dr. Modesie" or "Dr. Modesy" until by piecing together the information he gives about him I arrived at the conclusion that he could be none other than the famous gardener, Dr. Robert Morison.

ROBERT MORISON

Morison [Fig. 3] was born at Aberdeen in 1620 and graduated in the University of Aberdeen in 1638. He devoted himself at first to mathematics and Hebrew, being intended for the ministry. In taking part in the Civil War on the Royalist side he received a wound of the head while fighting at the Brigg of Dee. He afterwards went to Paris and took the degree of M.D. at Angers in 1648. He was then received into the household of Gaston, Duke of Orleans, in the capacity of physician upon the recommendation of Vespasian Robin, the French King's botanist. It is probable that his botanical tastes were fostered by his association with Abel Bruyner and Nicholas Marchant, the keepers of the Duke's garden at Blois. He held the appointment of physician, to which a handsome salary was attached, from 1650 until 1660, and it was perhaps at this time that he changed his name from Morison to Modesi as being easier of pronunciation by the French tongue. While in the Duke's service he was sent to Montpellier, Fontainebleau, Burgundy, Poitou, Brittany, Languedoc and Provence in search of new plants.

added the English Language and he did understand Latine pretty well. As to fabrick of body he was by nature very well built (his son in respect of him but a shrimp) tall, straite and strong with square shoulders and a head well set upon them. In his latter dayes he delighted to weare a long Beard and once against Whitsontide had a fancy to tagg it with silver, which drew much company in the physick Garden. But to save you further trouble view his shadow in this Picture." [See Loggan engraving Fig. 2.]

orison became known to King Charles while at Blois, and at the Restoration he was appointed senior physician, King's botanist, and superintendent of all the

audiences at a table covered with botanical specimens placed in the middle of the physic garden. The lectures were given twice a year, in May and September, each



FIG. 3. DR. ROBERT MORISON, from a portrait prefixed to the third volume of his works.

royal gardens in England at a salary of 200 a year and a house. He was incorporated M.D. Oxon. from University College in 1669, and in the same year he became Mercurian Professor of Botany in the university. He lectured to considerable

course consisting of three lectures a week for five weeks. While on a visit to London he was struck in the chest by the pole of a coach as he was crossing the Strand from Northumberland House to St. Martin's Lane and his skull was fractured by falling

on a stone. He was carried to his house in Green Street, Leicester Square, where he died the next day, November 10, 1683, without regaining consciousness. He was buried in the church of St. Martin's in the Fields.

Morison appears to have been a good botanist with a clear notion of genus and species and a conception of the family which is almost identical with that now

held. He seems, too, to have been one of the first to make use of dichotomous keys to specific characters, and he denied the existence of spontaneous generation.

Anthony Wood gives an interesting sidelight upon Morison when he says that upon the occasion of the visit to Oxford of the Duke of York (afterwards King James II) with the Duchess of York on May 18, 1683, "Dr. Robert Morison the botanick professor speaking an English speech was often out and made them laugh. This person, though a master in speaking and writing the Latin tongue yet hath no command of English as being much spoyled by his Scottish tongue." He seems to have been more fortunate on September 9, 1680, for he presented—no doubt in Latin—an address to the Electoral Prince Carolus, Comes Palatinus ad Rhenum, Dux Bavariae, to Convocation for the degree of Doctor of Physic.

EDWARD MORGAN

"Ned Morgan," who will be mentioned so often is, I believe, the Morgan referred to by Evelyn in his "Diary" under the date June 10, 1658, where there is an entry: "I went to see ye Medical Garden at Westminster, well stored with plants under Morgan a very skilful botanist." This Westminster Medical Garden, the site of which I have not been able to identify, is said to have existed and to have been used as

Shakespeare Drayton and Ben-Johnson had a merry meeting and it seems drank too hard for Shakespeare died of a feavour there contracted.

hares in ye winter time turne white all ouer Livonia. Whether a Justice of peace after hee is made high-sherif is ipso facto outed from being a Justice until hee gets a new Commission, itt is affirmed yt hee is; whether a Lord may at all bee arrested or not. I have heard not; A Lord cannot bee arrested by a warrant from a Justice or a supplication out of ye Chancerie, only ye Lord Chancelour may graunt a sub-poena to ye Lord.

A fine barrs only Issue: a common recoverie barrs all Remainers in tail as Brothers & whosoever.

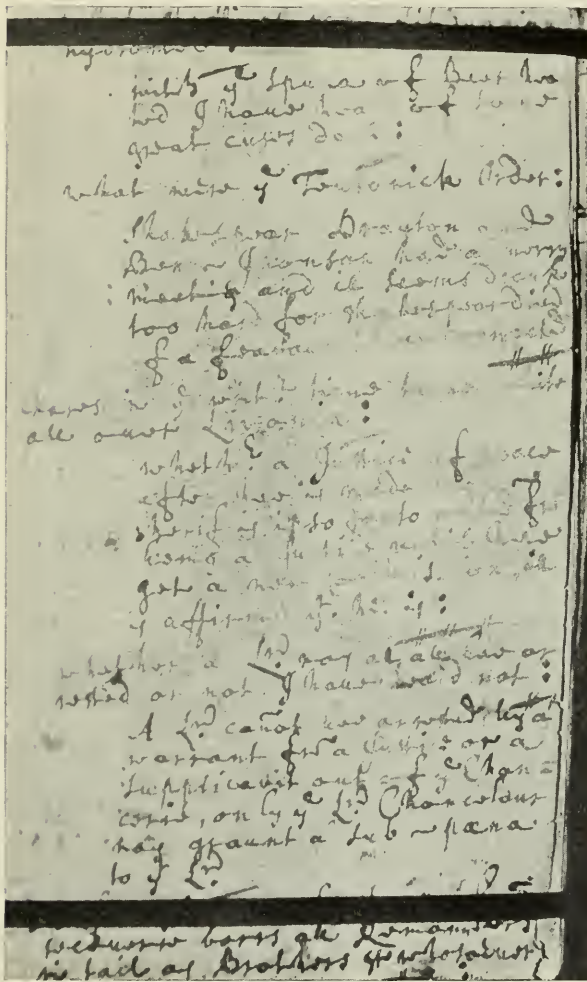


FIG. 4. Photograph of a page of John Ward's diary.*

* The volume from which this page of Ward's diary is taken has a colophon: "This book was begunne ffeb.21.1661; and finished April ye 24th. 1663; att Mr. Brooks his hous in Stratford uppon Avon in Warwicke-shire." The page contains the often quoted entry about the death of Shakespeare.

What stuffi is your Lithuanian hydromel.
With ye Spuma of Beer method I haue heard of some great cures done
What were ye Teutonick Order;

a physic garden by the Society of Apothecaries before they established the well known one at Chelsea. At any rate in 1676 the Court of Assistants of the Apothecaries Company agreed to take over the lease of the Westminster Garden from Mrs. Gape, the tenant, in order to remove the plants it contained to the newly founded garden at Chelsea; and in 1677 "Mr. Morgan the gardener asked for increased consideration' for keeping the garden and for his plants." Morgan may, therefore, have acted as gardener at the earliest period of the Chelsea garden; but there is no farther allusion to him in the Court Minutes of the Society of Apothecaries, and Pigott is usually said to have been the first person put in charge of the garden. The last number of *The Bodleian Quarterly Record*⁵ contains an interesting note by Mr. G. Claridge Druce entitled "Edward Morgan's Hortus Siccus." He says that the Bodleian Library contains three large folio volumes which up to 1845 were kept in the Botanic Garden Library. They are bound in rough calf and each contains about 160 leaves. They are entered in Bernard's Catalogue (1697) as "Hortus Siccus sive Collectio Plantarum ab ipso Eduardo Morgano facta ordine alphabetico, his mille circiter plantarum species exhibens." The work seems to have been begun in 1672, and here is a letter from "Thomas Thornes to Edward Morgan liveinge att Bodesclen" offering anything in Leweny (Hall in Denbighshire). Aiton ascribes the introduction of *Phlomis purpurea* to Morgan. Mr. Druce also states, on the authority of Mr. J. Griffith, the Welsh archæologist, that the family of Robert Wynn (a branch of the Gwydur family) intermarried with the Morgans of Golden Grove—a seat about 4 miles from Rhuddlan—and there was a son who became a Benchet of the Middle Temple in 1597 and died in 1611. He had a son—Edward Morgan—who died without issue. This

son was probably the Ned Morgan who was Ward's friend.

WARD'S ALLUSIONS TO BOTANY

Ward's first reference to botany is found in the book which "was begunne about November ye 13th. 1660 in London." Fig. 4, which is photographed from one of

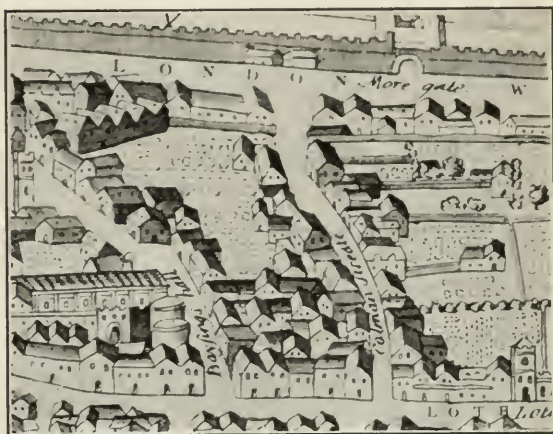


FIG. 5. The Elsing Spital garden from Agas' Map of London, dated 1560.

the pages, will show the peculiarities of the handwriting.

The earliest entry about botany runs:

"Palyurus or Christ's Thorne I saw itt in ye physicke garden and haue, I think, a piece of itt in my Botanologicall Booke; itt is very sharp. They fain yt ye Thorny-Crowne wch Christ wore was made of this.

"Bobart ye physick gardiner hee had a feavour an. 1660 and after itt his hands and his feet pilld (peeled); his very flesh came off.

"This present year 1660 Bobart says hee never saw nor never knew so many things in flour as yr was before ye 20th. day of ye month of Januarie.

"Five sorts of fritillaries Jacob saies they have in ye garden; wee saw ym in flour March ye 23 1661 in ye Garden.

"The 28th. March 1661 wee went to Shotover to find Ianaria by Jacob's directions but found none but fragarias

⁵ *The Bodleian Quarterly Record*, vol. 2, p. 227.

and *Cerefolium silvestre* and some few others.⁶

“White Anemones found on Shotover Hill.

“I was upon New College wall on ye 17th April 1661 to find *ruta muraria* (*Adiantum album*) but could find none but much *adiantum nigrum* (*Capillus veneris*) was there.

“The foye grape is very large but sour and bears little and one of the worsor sort as Jacob told mee, though sometimes you shall have a branch of 2 pound weight.

“Jacob found two chestnut trees wild toward Newberie and many hee hath seen growing in Sion-Colledge garden which brought chestnuts to perfection.”

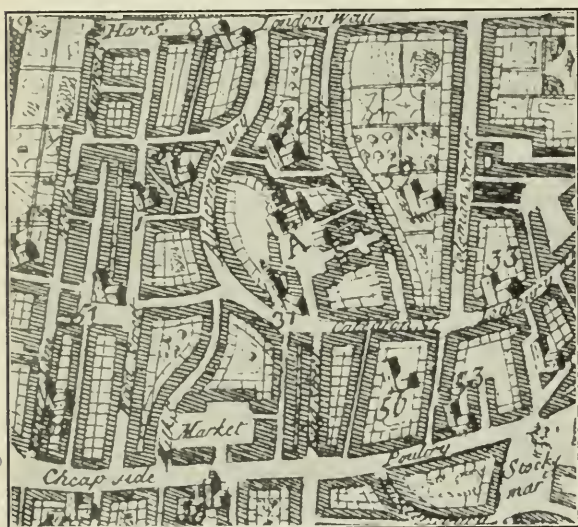


FIG. 6. The Garden of Sion College, from the plan of the City of London, dated 1720.

Sion College, now situated on the Thames Embankment close to Blackfriars Bridge, was then in London Wall, where it was built in 1623 on the site of the Priory of Elsing Spital—a religious house consisting of four canons regular whose duty it was to minister to the blind.

Agas' map, published in 1560 [Fig. 5] and the plan of the City issued in 1720 [Fig. 6]

⁶ In other words he went to look for soapwort and found strawberries and chervill.

both show a large garden bounded by Coleman Street on the east and London Wall on the north, which possibly represents this garden.

“Jacob hath a very prettie Orchis which resembles a Bee. I saw itt May ye 4th. 1661.

“*Dentaria* (Tooth Violet) I saw but itt was somewhat withered; hee told mee there was one at Cornbury park yt. spred extremely.”

Cornbury Park is near Charlbury and was a part of the Wychwood forest. Its present owner—Mr. Vernon Watney—lately offered to store and brick up any treasures from the Bodleian Library which might need protection from air raids.

“There is a gentleman in Worcester-shire wch. hath made very considerable progress in altering flowers artificially, as Jacob told mee, he knows not his name.

“That sedum in Bobart's house hath hung up these 8 years only by taking of ye cloth now and yn and anointing itt with oil once a quarter and so putting itt on againe.

“Hot Beds made with horse dung a foot deep in very fine sifted and fat mold.

“There are 8 kinds of sorrel; ye common, ye greater french; ye great German; ye little round leafd french; ye sheep's and three Lujulas. This Jacob told mee. Parkinson only knew of two 'the common sorrell familiar enough in many places of this land the other a strangere as farre as I can learne and onely cherished in the gardens of those that are curious. This groweth in divers shadowie places about Sevill in Spaine and in gardens at Mompellier.’

“May ye 9th. An. Dom. 1661 att ye physick garden. Almonds in ye physic garden come to some kind of ripeness.

“Oil of Almonds made only by powdering ye Almonds and pressing of them; such almond oil is to bee drawne fresh.

"There bee 3 sorts of plantaine, ye Common wch. is broad-leafd; ye quinquervia Latifolia wch. is hairy and ye narrow-Leafd Ribwort.

"Out of Grubbs wch. is a kind of short worme comes ye rose-flie as Jacob told mee.

"A spider with her eggs I saw in ye Physick garden May 27 1661. A vine grew 26 feet in one year, Jacob himself measured itt.

"The great red Oreleance grape grows in ye Crosse In (n) yard in Oxford; itt is a very good grape."

The Cross Inn stood in Cornmarket reet on the Carfax side of what is now market Street. The building was of great tiquity and had the whipping post just front of its doors, and a celebrated pump pplying petrifying water close to it.

"Lychnis noctiflora flowers only in ye night, begins about 8 o'clock. Malva horaria lasts but 8 hours; Cistus anglicanus—Lilium dierum—ye flowers last only for one day, Jacob informed mee truly.

"Bobart had a bunch of grapes once ripe on ye 5th. August wch. hee presented to ye Swedish Embassador yn att Oxford, they usually not coming till ye Latter end of August or beginning of September.

"Jacob Bobart spake with Dr. Modesay and says of him ye whole world yields not ye like man, hee never heard a man talk att yt. gallant rate in his life. Hee shewed ym all his designs in ye new Garden; There are to bee walks in itt of thirtie foot wide as hee saies.

"The Aloes in ye Physic garden wch. is mucronated is ye Indian; ye other wch they use to hang up in ye houses is ye Spanish one. Tribulus terrestris is in Mr. Howard's garden att Dorking, Jacob saw itt and many other rarities."

Evelyn paid two visits to these gardens.

On the first occasion he writes in his "Diary" under the date August 1, 1655: "I went to Dorking to see Mr. Cha. Howard's amphitheatre garden or solitarie recesses, being 15 acres inviron'd by a hill. He shew'd us divers rare plants, caves and an elaboratory." The second visit was on September 13, 1670, "to visite . . . Mr. Charles Howard at his extraordinary garden at Dipden (Deepdene)."

"Jacob saies hee thinks Parkinson hath 500 plants more yn Gerard only Gerard's paper is better & his Cutts better, they being dulled ere they came to his hand; 2 sorts of *Adiantum* wch. yet I know not.

"Bobart spreads white sand under his plants yt hee may discover when ye seed falleth.

"I have heard Jacob say they planted ye raisins but itt bare fruit only like ye Currant.

"There is ye Rhenish grape in ye Physic Garden.

"English fligs I saw ripe at ye Physic Garden September 21 1661 some were presented to ye Chancellor. They were good to eat.

"Lentils commonly soused in some parts of Oxfordshire. Jacob told mee they call ym Dily; hee could never see it nor I.

"Jacob saies hee hath seen the double pomegranate as high as their garden wall with 500 Balaustines or flowers uppon itt at once.

"Wee had a bout at simpling ye 2 October 1661 when I had full satisfaction about ye Hieracium ac (cipitrina) nigræ; Chondrilla foliis; and sonchus radicum and ye knapweeds (*Centaurea*), ye media is that wch. grows with a tuft or thrumb in ye top; ye spicata and minima or herba impia."

Much interesting lore attaches to the herba impia. Pliny,⁷ says:

"Concerning the herba impia, which is

⁷ Pliny, lib. 24, cap. 19.

of a hoary colour and white withall, it resembleth in show the Rosmarie, rising up with a maine stem, leafed and headed in the manner of a Cole-stocke; from which principall bodie there grow fourth other small braunches, every one being little tufts or heads rising and mounting above the mother stocke (whereupon they called it in Latine Impia, for that the children overtopped their parents; yet there be others who have thought it rather so called, because there is no beast will touch or taste it). This hearb if it be ground between two stones, waxeth as hot as fire, and yeeldeth a juice which is excellent for the squinancie, if the same be tempered with milke and wine. But this is straunge, that is reported moreover, namely, that whosoever hath once tasted of this hearbe shall never be troubled with that disease, and therefore they used to give it in wash and swill to swine, but looke which of them refuse to drink of this medicine shall die of the said squinancie. Some are of opinion that in birds nests there is some of this hearbe commonly set and twisted among other sticks whereby it commeth to passe that the yong birds never be choked, gobble they their meat as greedily as they will."

SIMPLINGS

The "simplings" or "herborizings" were essential parts of the botanical teaching of medical students when botany, rather than anatomy was used as the basis of medical education. They were systematised in London as early as 1633 under the auspices of the Society of Apothecaries. In 1634 there was a travelling Club of Botanists with Thomas Johnson—the editor of the second edition of Gerard's "Herbal" and the translator of Ambroise Paré's surgical works—as Convenor or at any rate as Recorder. The *Socii Itinerantes*, as they called themselves, published by his hand a little account of their travels and dis-

coveries under the title "Mercurius Botanicus sive plantarum gratis suscepti itineris Anno MDCXXXIV descriptionum earum nominibus Latinis & Anglicis &c." (Lond. Excudebat Thom. Coyes MDCXXXIV). The outing was evidently successful, for a second part appeared in 1641, from which it appears that the party had travelled into Wales in July 1639 going by way of Aylesbury, Henley-in-Arden, Wolverhampton and Stockport to Flint, Carnarvon and Snowdon. They crossed the Menai straits and returned by Ludlow, Gloucester and Oxford.

Mr. Claridge Druce⁸ points out that Edward Morgan was of the party and acted as interpreter while they were in Wales (sed nobis antiquæ Linguæ Britannicæ ignaris opus erat interprete, in quem finem Edoardum Morganum rei herbariæ etiam studiosum nobis adjunximus, eique sumptus prebuimus).⁹

The herborizings reached their zenith in London about 1798, when they were under the active superintendence of Thomas Wheeler, who led the expeditions from the time of his appointment as *horti præfectus* at the Chelsea Physic Garden, when he was aged twenty-four, until they were abandoned in 1834, when he was eighty.

There were five herborizings yearly which the apprentices of the Apothecaries Society were enjoined to attend; two in May, one in June, one in July and one in August. Each apprentice attending was allowed a shilling for breakfast and a plain but substantial dinner; and in 1816 it was resolved by the Society of Apothecaries that "an allowance should be made of a bottle of wine among four or a bottle of cyder between two but that no porter or other malt liquor should be allowed except table beer and that tea be given as Usual." The apprentices assembled punctually at six

⁸ *The Bodleian Quarterly Record*, vol. 1, p. 227.

⁹ "Mercurii Botanici pars altera." London: 1641, p. 3, ad finem.

clock in the morning at St. Bartholomew's Hospital, where Mr. Wheeler held the office of Apothecary, or as it would now be termed, of "Resident Medical Officer." The excursions were made along well-known routes necessarily within walking distance of the City: sometimes to Hampstead Heath by way of Islington; sometimes along the Kent Road to Greenwich and Blackheath; at other times to Battersea by way of Lambeth and so along the river bank to Putney, Hammersmith and Richmond. Some well-known inn served as the rallying point on each occasion, and after dinner the plants which had been gathered by the way were exhibited, named and had their uses explained.

In Oxford I do not think they had quite died out in my own time. Professor Lawson and Professor Ray Lankester used to invite one or two undergraduates like myself to walk over to Dorchester with them on a Sunday to look for *Myxomycetes* in the tanyard and to pick and name the various wild flowers on the way. We lunched either there or at Shillingford and walked home in time for Hall.

"There is an old lime tree in Stow wood as I heard Jacob say. Jacob told mee he used in his quartane Lap. Contraervæ and a little posset-drink; hee took itt a little before ye fit and sweat mightily.

"The contrayerva stone here mentioned was made of calcined hart's horn, prepared red coral, pearl, white amber crabs eyes and contrayerva root all mixed together and made up into balls with a solution of gum Arabick. It was used in place of Gascoign's powder as a diaphoretic. The jelly of vipers' skins was added and it was wrapped in gold foil."

It is evident that Jacob Bobart was not very well about this time, for there is the following prescription for "A Plaister laid to Jacob's wrists;—R;—Half an Orange pounded in a mortar, currance (currants) as much, sal prunellæ 3 ii. M. ft. emplastrum." (At this time and for many years previously plaisters were applied to the wrists of

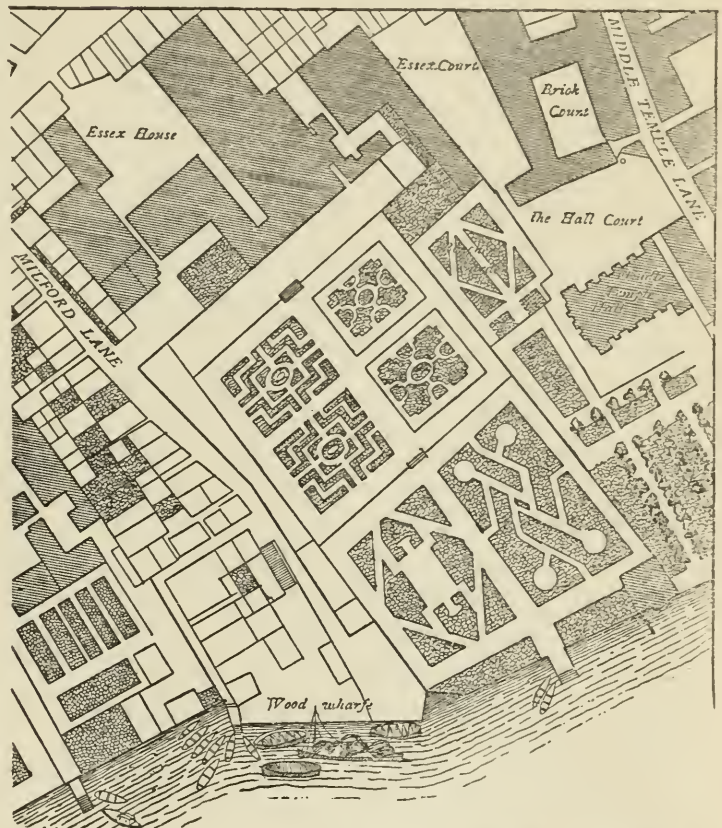


FIG. 7. Essex House Garden, from Hollar's engraving reproduced in Ogilby and Morgan's twenty-sheet plan of London.

patients just as they are now applied to their backs.)

"I saw ye Simnel gourd in ye physick garden wch. being prickt full of holes and some barley-cornes put into itt they will grow out and show very prettily.

"Tribulus quercus foliis. I saw much of itt in Lambeth Jan. 16 1661.

"I saw chestnuts and almonds in their shells but ordinarily sold in London by hucksters.

"I was at Essex House gardens Jan. 22 (1661-2) where ye Dutches of Somerset livd. I saw no great matter but only Oranges and myrtles. Ye plot is handsome and a wilderness but nothing of any great raritie planted as I saw."

The general appearance of these gardens is seen in Fig. 7, which is taken from an etching by Hollar in Ogilby and Morgan's twenty-sheet plan of London. Essex House was situated in the Strand just west of the Temple and adjoining Arundel House. The names of the two houses are still preserved in Essex Street and Arundel Street, Strand, which occupy their site.

"One Mr. Baker is Gardiner att Syon House." [Sion House is situated on the Thames just opposite Kew Gardens. Evelyn in his "Diary" writes of it: "July 7 (1665) To London to Sr. Wm. Coventrie and so to Sion where his Majesty sat at Council during the contagion; when business was over I viewed that seate belonging to the Earle of Northumberland, built of an old nunnerie of stone and faire enough but more celebrated for the garden than it deserves; yet there is excellent wall fruit and a pretty fountaine; nothing else extraordinarie."]

"One Mr. Ball keeps a great garden about Brainford (Brentford) of flowers and a Nurserie likewise.

"A Boon-Crysson, Mounseer John and Mon Dieu, all French pears. Staphesacre, Dr. Modesey hath itt. ('Itt is not easily preserved in cold Countries,' says Dr. Lovell in his 'Compleat Herball,' published at Oxford in 1665.)

"Feb (1661-2) Dr. Modesay says hee never studied grasses and mosses.

"Dr. Modesay told Ned Morgan yt ye Duke of Orleance sent but 4 persons with 4 men and horses to seek out strange plants and they went toward ye Alps and Italy and in all this journey they found but 3 very strange plants and yt voyage

cost ym more—ye Duke—Dr. Modesay thought, yn all ye Gardens did beside.

"I was with Dr. Bruce att his chambe behind ye New Exchange, allso with Dr. Modesie att ye King's Garden who showed us some of his very rare plants a Marum Syriacum (Mastick), Crithmun spinosum (The Samphire) and Barba Jovis¹⁰ with others; hee commends Ned Morgan's for ye best collection of plants in England; hee seems to bee a morose man.

"Dr. Modesy says yt *Lysimachia purpurea spicata* is an euphrasia both by flour and seed, ye 2 ways by wch. hee judges.

"Dr. Modesy says yt. yt. wch wee call *Chelidonium majus* and minus are neither of ym so but *Ranunculus* both.

"ffabius Columnus Dr. Modesy doe much commend.

"Sycamore, Dr. Modesie saies, is *Ace majus* as appears by ye seed. Hee judge of all plants, what tribe they are of, by ye seeds; a good way indeed."

The following information was probably also the result of a conversation with Dr. Modesy:

"Rablais is a kind of romance writ by one Rablais—a Spanish physician—and ye way of itt was to requite ye bookseller for a book wch. hee had formerly wrote wch. did not sel. Rablais was a physitian (Ward adds subsequently) and wrote ye romance of *Pantagruel* in recompense to him for a Book wch hee had before, wch would not sell.

"At Dr. Modesy's garden September y^e 1st. 1662; itt is a very rare (fine?) thing to discourse with him. I saw there *Jacobœa crithmifoliis*; *Capparis Fabago*; *Cappadiis*; *Capsicum polygala*; *Valentina Clusii* and many other rare plants. The Doctor entered into a most noble and

¹⁰ The barba Jovis or silver bush had only recently been introduced into England.

elaborate discourse about ye true way of reducing plants by their seeds to a tribe and yt hee had a treatise to yt purpose."

Amongst the rare plants mentioned above which Dr. Modesy showed to Ward are some of the *Capparidææ*, and it is noteworthy that Morison's name is preserved in connection with this order, for a West Indian genus of the caper family is still called *Morisonia*. The *Jacobæa critbimifoliis* was named by Morison in honor of James Duke of York, to whom he dedicated it.

"Ned Morgan told mee of a person yt hee knew yt would undertake to raise 500 plants more yn ever was in England in one or 2 yeeres if hee had but In-couragement. I suppose hee meant Dr. Modesie.

"Three sorts of *Leucojum Bulbosum*, Ned Morgan told mee hee had. A very pretty Iris wch. hee calld persica. I saw itt in his garden; Ye flowers open with a mouth like snapdragon.

"Dr. Modesie is acquainted well with Dr. Bonie and seldom goes abroad without him.

"Dr. Dale and another had a designe to amend ye phytologia Brittanica to adde somewhat and take out somewhat, but Dr. Modeseye's coming to Towne itt's thought hindered itt.

"Ned Morgan tels mee next Dr. Modesy, Dr. Dale, Dr. Merit and Mr. Goodyer are ye best botanists of their age in London, ye 3 last were about a new phytologia 3 or 4 years agoe Dr. Modesie coming to towne Ned Morgan thinks they left off."

ROBERT DALE

Robert Dale was a Bachelor of Arts of Magdalen College, Oxford, who practised medicine at Stourbridge in Worcestershire and was admitted an Extra-Licentiate of the College of Physicians of London on

October 1st, 1663. No record of his attainments in botany seems to have survived.

CHRISTOPHER MERRITT

Christopher Merritt was a more distinguished person. He was born at Winchcombe in Gloucestershire on Feb. 16, 1614, and was admitted a student of Gloucester Hall, Oxford—the present Worcester College—in 1631. He afterwards migrated to Oriel, whence he graduated B.A. in 1634; but he returned to Gloucester Hall and took his M.B. and M.D. degrees. He was admitted a Fellow of the College of Physicians of London in 1651 and was one of the original Fellows of the Royal Society. He was a friend of Dr. William Harvey, who nominated him the first Librarian at the College of Physicians then in Amen Corner, where he lived free of rent and taxes from 1654 until the Great Fire in 1666, the salary of the office being twenty pounds a year. The College lost heavily by the fire and it was thought that perhaps Merritt, as the resident Librarian, might have saved more of the books and valuables. He was deprived of his place and took action in the law Courts. The College defended its position by saying that as there were no duties to perform there was no need to pay a Librarian. Much ill-feeling was aroused, and the College eventually expelled Dr. Merritt, who died in Hatton Garden on August 19, 1695, and was buried in the Church of St. Andrew's, Holborn.

I can find no trace of Mr. Goodyer, the third of the botanists mentioned above except that he went to Wales as a member of the *Socii Itinerantes* and was a good friend and able assistant to Thomas Johnson in producing the "*Mercurii Britannici pars altera*."¹¹

"A cinara spinosa et aculeata Ned Morgan showed mee.

¹¹ "*Mercurii Britannici pars altera*," London: 1641.

"Muscus filicinus is winged like ferne. Much of it gathered in Hamden woods.

"Gramen Innatans and fluviatile Ned Morgan told mee and Burri (?) as it hath a yellow spike on top. Ilex cocciger grew in ye privy garden. Itt was a tall tree and blown down about such time as ye King was beheaded.

"4 sorts of Ilex att Ned Morgan's; Ilex coccigera; 2. Ilex glandifera; 3. Ilex aktæ-foliis; 4. ye common.

"Ned Morgan told mee yt hee had seen Ginger grow in England like Iris.

"Your Red Mint wch. grows commonly in water is Sysymbrium aquaticum; and ocimastrum some call Sisymbrium nosterti.(?)

"Dr. How hath put out a piece showing what plants Parkinson stole out of a manuscript of Lobel's wch. never was put out but came by chance to Dr. Modesy's hand."

(Again I am unable to discover any facts about this Dr. How who seems to have convicted Parkinson, the great herbalist, of plagiary from Lobel.)

"What bilberries are? Whether like a black cherry or not as I heard some affirme.

"Whether Hart cherry is not so called because it is like ye Heart.

"White saxifrage roots very small.

"Remember to see pomegranates, ye fruit itself."

This is one of the numerous instances illustrating Ward's bad memory. He is constantly reminding himself of what he should do. An amusing instance occurs when he gravely makes the entry:

"Remember to excommunicate ye two persons yt committed adultry; ye woman yt turned Catholic and to warn drunkards and ye like." (This occurs a few years after the time which is now under consideration, and when he was Vicar of Stratford-on-Avon.)

"Adiantum album much upon Windsor wall in ye Castle.

"I saw a Medler tree at Ned Morgan's hee also had ye physic nut but itt was gone; and ye yellow Jessemine but dead.' The physick nut is the strychnos Nuxvomica.

"The humble plant shrinks and falls ye sensible only shrinks up."

(These facts are clearly derived from Bobart who was working about this time at the mechanism of the sensitive plant.)

Parkinson recognises two varieties of sensitive plant. The one he calls the herb of life or love; the other the Mimicke mocking or sensitive plant.

"The admirable propertie of the herb of love is that if any shall touch it with their hand and some say that if any man doe but breathe upon it, it will presently draw it selfe together, and if one would take it into their hand it will close together as if it were dead. But that which is more admirable is, that if they shall withdraw their hand it will quickly after as it were revive againe and spread it selfe as it was before it was touched, and this it will doe many times in a day if it be touched and let alone againe without touching. Other properties it is sayd to have as to restore Virgins that have been defloured, if ye will beleeve, to procure love betweene man and woman, and as *Acosta* saith he was informed by an Indian physicion of good credit, that he would cause any woman to be at his will and pleasure, so that he would but declare her name and use it (or rather abuse it) as he would appoint him, but the fact being unlawfull, he refused the condition."

The sensitive plant Parkinson had seen "as it grew in a pot at Chelsey in Sir John Danvers Garden where divers seed being sowne therein about the middle of May 1638 and 1639 some of them sprang

up to be nearly half a foot high. . . . This plant is said not to be so quicke in apprehension as the former. . . . This upon touch or breathing there on would not fall downe as in the former and rise againe but is said to fall away, that is the lower leaves and so likewise the upper leaves if they were touched againe, but the stalk also would breake off and fall down upon the touch or breathing.”

“Fraxinella,” says Ward, “bears a brave large spiked flower much like paryssey rosted in a pidgeon’s belly.

“I saw at Ned Morgan’s ye Bead tree (*Zizipha*) because ye seeds are like beads, also *Glaux maritima* and *Cruciata marina*.

“I was with Ned Morgan July ye 3rd. where I saw some pretty plants as *absynthium arborescens* and *absynthium inipidum et inodoratum*; itt had neither taste nor smell; a very pretty plant; very like common wormwood.

“‘Flore Incarnato’ is (to be translated by) with a blushing kind of flower.

“There was a pretty hedge of Spanish broom.

“Remember all in my garden.”

I have no doubt that by this time Ward had been inducted into the Vicarage of Stratford-on-Avon, and that with the parage there went a garden. His duties at Stratford did not leave him time for botany, and there is very little further mention of the

subject in its scientific aspects after this last entry.

I have read this paper to you this evening for two reasons. In the first place it appeared to me that living in Oxford you would be interested in the mention made by Ward of some of our predecessors here; and also because it is only by learning at first hand what subjects employed the thoughts of those living at any given period that it is possible to reconstruct their lives. Ward lived in Oxford, as I have said, during one of the most active periods in its history and, as he was a faithful reflection of his surroundings, we are able to gather what his great fellow graduates were doing and thinking. While he was in residence Wilkins was considering the problem of perpetual motion; Harvey and Bathurst the development of the chick; Wallis the circulation of the blood; Willis and Lower anatomy in relation to the brain and the heart; Bobart botany; Boyle was advancing physics; Goddard was doing something to make medicine scientific; and Barlow of the Bodleian was advancing the knowledge of Oriental languages. Ward interested himself in the work of all and more especially perhaps in that of Boyle, whom he calls persistently “Boghil,” so that as in the case of Dr. Modesy I had some difficulty in identifying him under the disguise of phonetic spelling. I hope on some future occasion to treat of him as I have now treated of Bobart.



MODERN COMMENTARIES ON HIPPOCRATES*

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PART II

AFTER reading the "Airs, Waters and Places," one is astonished at the emphasis laid upon them by Hippocrates as factors in the etiology of disease, and upon reflexion one is also surprised that modern medicine has laid upon them so little stress.

Whoever wishes to investigate medicine properly, should proceed thus: In the first place to consider the seasons of the year, and what effects each of them produces (for they are not at all alike, but differ much from themselves in regard to their changes). Then the winds, the hot and the cold, especially such as are common to all countries, and then such as are peculiar to each locality. We must also consider the qualities of the waters, for as they differ from one another in taste and weight, so also do they differ much in their qualities. In the same manner, when one comes into a city to which he is a stranger, he ought to consider its situation, how it lies as to the winds and the rising of the sun; for its influence is not the same whether it lies to the north or the south, to the rising or to the setting sun. These things one ought to consider most attentively, and concerning the waters which the inhabitants use, whether they be marshy and soft, or hard, and running from elevated and rocky situations, and then if saltish and unfit for cooking; and the ground, whether it be naked and deficient in water, or wooded and well watered, and whether it lies in a hollow, confined situation, or is elevated and cold; and the mode in which the inhabitants live, and what are their pursuits, whether they are fond of drinking and eating to excess, and given to indolence, or are fond of exercise and labor and not given to excess in eating and drinking.

From these things he must proceed to investigate everything else. For if one knows all these things well, or at least the greater part of them, he cannot miss knowing, when he comes into a strange city, either the diseases peculiar to the place, or the particular nature

of common diseases, so that he will not be in doubt as to the treatment of the diseases, or commit mistakes, as is likely to be the case, provided one had not previously considered these matters. And in particular, as the season and the year advances, he can tell what epidemic diseases will attack the city, either in summer or in winter, and what each individual will be in danger of experiencing from the change of regimen.

At first, making all due allowance for the things Hippocrates did not know and discounting as much as is possible the large amount of knowledge we think we possess, there still remains a discrepancy which it is difficult to understand between the ancient attitude towards these factors in the environment of man and our own way of looking at things. In the course of the last century this antithesis has become much accentuated. There is no doubt this is due to our acceptance, which on the whole has continued to become constantly more absolute, of the doctrine that the germ-plasm of living things is, at least in many of its ontological manifestations, but little modified by the environment which is comprehended in the title of this Hippocratic book. Moreover, in the latitude where high civilization reigns today as it has never reigned anywhere nor at any time before man is shielded from the influences of the environment in very many ways that were unknown to the balmy Mediterranean where life for the most part was spent out of doors subject not only to the actions of the air, the water and the wind, but to the inimical influences in the way of contagion common but unsuspected then, and more effectually guarded against now. Nevertheless, notwithstanding this difference in the incidence

* Part I of this article appeared in vol. ii, no. i.

f the hostile forces of nature once unimpeded, and now more successfully resisted, it was rather in the theoretical attitude of thinking men toward biological phenomena that we are to seek the reason for that deference once paid to the environment of man of which we are now so forgetful.

We have turned from the environment of man to his innate heredity for an explanation of so many things which befall him that theoretically we are unmindful of the fact that the incidence of disease is chiefly dependent on the former. Singular to say, in modern medicine science lays the practical emphasis on the environment so far as it is inclusive of man's microbial enemies and looks coldly on the innate factors of heredity when expressed in the term of "systemic predisposition," yet this is what in other biological fields receives the chief attention. The vast preponderance of modern medical thought centers in man's microbial environment and the reaction of the somatic cells. The minimum of attention is devoted to the relation of these things to the germ plasm, though of course these two aspects of the biology of disease, the environment and the germ plasm in their relation to one another are not entirely ignored.

It may seem stretching the argument beyond the limits to which it applies to adduce it as a cause of the modern neglect of climate in the etiology of disease. For the ancients, indeed, until within a century at farthest, the two aspects were inseparable. What hurt the stamina of the individual injured the stamina of the race. We get some glimpses of the stern law of nature in Herodotus which led Malthus and Darwin and Spencer to the realization of the struggle for existence, the survival of the fittest or natural selection, the several ways of expressing the same factor, as the mainspring of the theory of evolution. But though clearly expressed it was a spark in the days of Herodotus which kindled no

fire, a seed which fell on unsuitable soil, a dead-born child, just as most germs of mighty things which every day and in every age are missing their proper environment. Burnet¹¹ thinks that Anaximander had an idea of what is meant by adaptation to environment and survival of the fittest, and that he saw the higher mammals could not represent the original type of animal.

For this he looked to the sea, and he naturally fixed upon those fishes which present the closest analogy to the mammalia. . . . His proof that man must have been descended from an animal of another species has a curiously modern ring. The young of the human species require a prolonged period of nursing, while those of other species soon find their food for themselves. If, then, man had always been as he is now he could never have survived.¹² . . . Animals appeared when the primitive liquid earth dried up, and were originally fish in form. Then some of them, adapting themselves to their new environment, became land animals.¹³

One of the Darwinian arguments for the modern doctrine rests upon an observation of this kind. Anaximander included man also in his scheme of evolution.

We get the same germ of natural selection in the wild theory of Empedocles, the dream of the true paranoiac. Curiously enough, Empedocles seems to have separated his stages of evolution into, first, the time in which various parts of animals arose separately, and then the time when the scattered limbs united. But they united in an entirely unsymmetrical way, so that no harmony could be established between their movements or their functions. We infer from his esoteric philosophy that these two stages were governed by the dominant influence of Aphrodite or Love, identified usually as

¹¹ Burnet, John, "Early Greek Philosophy," 2d. edition. London: Adam and Charles Black, 1908.

¹² Burnet, John, "Greek Philosophy." Pt. 1. Thales to Plato. London: Macmillan and Co., Ltd., 1914.

¹³ Windelband, W., "History of Ancient Philosophy." Tr. by Herbert Ernest Cushman. 2d. ed. New York: Charles Scribners' Sons, 1906.

chemical attraction by modern commentators. There then came a third state when strife destroyed the unity of the sphere. This is reminiscent of concepts in many if not in all religions, the battles of the Titans, the contest of Ormuzd and Ahriman, of the Æschylean Prometheus and of the Miltonic Satan. The Golden Age of Hesiod is succeeded by the strife in the subsequent epochs of his Theogony. Thus Empedocles, too, bears evidence of the impress made on his budding rationalism by myth and the conventional beliefs of his day. Then came the real world, his fourth stage in which the sexes and species had been separated. New animals no longer sprang from the fertile mud of the marshes, but now they are produced by generation. Thus facts and theories live and thrive not because they are mirrors of truth, but because they fit into the environment. One can scarcely forbear to indulge in the jest that this is a true example of the "survival of the fittest." Even Burnet¹⁴ betrays a sense of humor in the attempt when he quotes from Aristotle:

In both these processes of evolution, Empedokles was guided by the idea of the survival of the fittest. Aristotle severely criticises this. . . . One curious instance has been preserved. Vertebraion was explained by saying that an early invertebrate animal tried to turn round and broke its back in so doing. This was a favourable variation and so survived.

The Darwinian giraffe acquiring extra cervical vertebrae by reaching successfully after the tufts in the lofty palms is a mere refinement of this idea.

To return to Herodotus,¹⁵ (III, 108) he says in his pious way, forestalling criticism by saying that the Providence of God proves itself wise!

¹⁴ Burnet, John, "Early Greek Philosophy." 2d ed., London: Adam and Charles Black, 1908.

¹⁵ Herodotus, "Histories of Herodotus," Tr. by Henry Cary. New York: D. Appleton and Company, 1904.

Whatever creatures are timid, and fit for food have been made very prolific, lest the species should be destroyed by constant consumption; but such as are savage and noxious, unprolific. For instance, the hare, which is hunted by all, beasts, birds, and men, is so prolific that it alone of all beasts conceives to superfetation, having in its womb some of its young covered with down, others bare, others just formed, and at the same time conceives again. Such, then, is the case. Whereas a lioness, which is the strongest and fiercest of beasts, bears only one once in her life.

When, however, the theories of generation were spread abroad in the pre-Hippocratic world of Greece there was innate in them another germ of Darwinism, pangenesis, which in the decades succeeding the era of Hippocrates was clearly set forth by Aristotle:¹⁶ "The semen comes from all parts of the body, sound from the sound parts and unhealthy from the unhealthy parts. If then children with bald heads are born to parents with bald heads; and children with blue eyes to parents who have blue eyes; and if the children of parents having distorted eyes squint also" . . . then artificial deformation of the head through pressure is apt to produce long headedness in the children of those who were submitted to the custom prevailing among certain people in infancy. Aristotle is inventing nothing of his own but he is setting forth the ideas of others when he further says:

Some assert, that the seed is emitted from the whole of the body. . . . Mutilated animals are generated from mutilated parents; for they say, that in consequence of a part being wanting, the seed does not thence proceed; and that it happens the part is not generated from which it does not proceed. In addition to these arguments, they adduce the similitude of offspring to parents. For as the whole body is generated similar to the whole, so, likewise, the parts to the parts. (Book I. Chap. xvii.)

¹⁶ Aristotle, "On the Generation of Animals." In his Treatises, tr. by Thomas Taylor, vol. iv, p. 241, London, 1808.

In the flitting thought of Herodotus and in the more circumstantial elaboration of Aristotle, in natural selection and in pangenesis we have the two leading ideas of the method of evolution as they existed in the mind of Darwin. Lesser men who have come after him have for the most part had room for only one of them in their cranial cavity. Men who preceded him by some 2500 years were in the same plight, but the pangenesis germ sprouted in their minds, while in the minds of those who followed and *out-Darwined* Darwin the germ, minute as we have seen it in Herodotus, Anaximander and Empedocles, became the conceivable germ plasm of Weissmann in his early days. I am free to say that I do not perceive that Burnet and especially Comperz are justified in drawing the parallel quite so closely between the old and the new evolutionary theories. The ancient nature philosophers, Parmenides, Alcmaeon and Empedocles, like Galton, all drew the simple conclusion that the resemblance of mental and physical characters of the offspring depends on the proportion in which the seed of the parents enters into the constitution of the offspring. Ætius reports that Empedocles believed that the offspring were affected by maternal impressions, a firmly held doctrine of more modern times—or by the fancy of the woman at the time of conception—the basis of the philosophical theory of Goethe—*Elective Affinities*—"for tentimes," he says, "women fall in love with images and statues and bring forth offspring like these."¹⁷

So we recognize the vagaries as well as the other details in the evolutionary doctrine of the day which are useful in allowing us to perceive the very quintessence of a belief in the modifiability of the germ plasm. We see that even at that dawn of history this doctrine, familiar to us in the works of Hippocrates and of Aristotle, was original

¹⁷ Fairbanks, Arthur, "The first Philosophers of Greece," New York: Charles Scribners' Sons, 1898.

with neither. We may easily go back of Empedocles, who so influenced them both and who said: "it is not the difference in the vines that makes the wine good or bad, but in the soil which nourishes them."¹⁸ In the views of Empedocles, not only the nourishment of plants but perception of animals by the senses is effected by the attraction of kindred elements through their pores from the earth in which they grow and by the environment from objects of sensory emanations. These emanations are themselves an idea of primitive man. In another essay¹⁹ I have drawn attention to the conception of the Australian savage and of other men scarcely less primitive who conceive of the soul as emitting emanations from its tenement in the body of a magician which may be blown by the winds into the patient. They pass unseen through the pores of the witch doctor into those of his patient who sits in his lee. The conception of the soul which leaves the body temporarily often existed in the primitive mind in a sense similar to our demonstration of radial matter. The emanations of the soul of the savage may be considered the prototype of the sense emanations of Empedocles. Many primitive men have this conception of the radial energy of the human soul, and it is not at all difficult to follow traces of it into the science and the philosophy and especially into the religions of the modern world.

As to the senses Empedocles supposed that the percepts of the mind arrive there through the sense organs by pores which admit the emanations from objects visualized or noises heard, or odors smelt, savors tasted, surfaces touched. Of specific kinds these emanation atoms are recognized by like specific kinds within the organization

¹⁸ Burrows, Ronald M., "Discoveries in Crete," New York: E. P. Dutton, 1907.

¹⁹ Wright, Jonathan, "Blood and the Soul." *N. York M. J.*, July 20, Aug. 10, Aug. 17, 1918.

of the perceptible by the soul. Empedocles was the great homœopathist. Out of this form which homœopathic or sympathetic magic took in the doctrines of Alcmaeon and Empedocles and Aristotle and the followers of the latter for two thousand years sprang the firm conviction of mankind in the inheritance of acquired characters. Like attracts like and like begets like. The idea is inherent in the magic of primitive man so prominently that ethnologists epitomize its manifestations under the heading of homœopathic magic. Neither primitive man nor Empedocles nor Hippocrates nor Aristotle nor their followers up to the middle of the nineteenth century ever had any other thought than that the race of men or the race of plants was governed in the manifestations of its heredity by the environment in which its ancestors have been placed. The whole order of the thought of mankind was indeed, until very recent times, pantheistic, an order in which kindred emanations of a universal spirit pervaded all nature and modified one another both somatically and in their heredity. The idea that there was something in nature not affected by its environment, spirit or body, soul or matter, at once placed it in a new category of mysticism, essentially modern.

The old order of thought is plainly manifested in the conceptions of a larger and larger class of cosmic phenomena, the further back we go in tracing the history of thought. As knowledge has advanced, one thing after another has emerged from the realm of mysticism and taken its place in the domain ruled by natural law. Empedocles and Aristotle thought their explanation placed heredity there, inefficient as it is in the ultimate analysis, but it remained for the nineteenth century biologists to place it back again in a new realm of mysticism by separating germ plasm from all other cosmic phenomena. It is the only thing which, we are now asked to believe, is unaffected by any of the rays of the

environment Empedocles had in mind when he postulated his theory of the rays, which we have identified in chemistry, in physics and in biology. The forces of nature, as open to the observation of the savage and of Hippiocratic Greek as to our own, we are assured have no influence on the germ plasm or on the units into which it is being subdivided.

I am eluding all responsibility for the truth or the error of such a conception. All I mean to say is that, although this basis lies outside of the reasoning powers of man so far as they attempt to conceive of a material object unaffected by the proximity of another material object, it is a perfectly practical one upon which to rest certain phenomena in biological classification, which is always a provisional and temporary adjustment. It is practical and of value because it allows biologists to separate them into two categories:—one in which no proof exists that environmental influences have any effect—one in which such proof does exist. There has been a ceaseless shifting from the first to the second category since this basis was adopted by an influential school in biology, and this capability to provide for future results attests its practical value. Anything that is clearly shown by evidence to be modified in its potentiality is not germ plasm. As soon as certain transmitted characters are shown to be changed, then the hypothetical units of the germ plasm on which they depend must be removed from the terms of the general hypothesis. Simply because a person might differ from his grandfather, owing to his father's having lived in a different climate, has not until comparatively recent times seemed sufficient reason for removing the phenomenon from any dependence on the true germ plasm.

It was about twenty-four hundred years after the death of the author of "Airs, Waters and Places" that such an idea found lodgings in the brain of man. Unnoticed by

its advocates, so far as I have observed, it takes its place alongside of the eternal and unchanging things whose existence we are forced to acknowledge but of which we can have no conception. If it is a reality, we must accept it as we must the actuality of time and space, something lying outside of every possibility of reasoning by analogy. Though Weismann himself finally recoiled before this logical deduction, it is not necessary here to decide whether we are as yet really driven to this desperate refuge or not. It is entirely sufficient here to draw attention to a possible reason why Hippocrates introduced, as such important factors in the etiology of disease, the environment of the air we breathe, the water we drink and the localities we inhabit, things which modern medicine for the most part seems to ignore—which we actually do ignore in our nosology. It was the absence of this miracle of the nineteenth century germ plasm, this unthinkable formula from the thoughts of men.

He had an added incentive for doing so. He believed they influenced not only the mortal body of man, but his soul and his heredity. When they enter into our consideration it is in the course of an enthusiasm for the therapeutical value of sunlight and fresh air in their effects on the *tubercle bacillus*, supposed to be wholly made up of germ plasm, in the course of our observation of the effect of heat and moisture on various protozoal agents of disease whose albuminoids are, I infer, not wholly germ plasm, or in the course of dietetic studies which convince us that in certain localities the human organism assimilates, less readily than elsewhere, food of high caloric value.

In a historical essay, such as this pretends to be, I can thus enter into the modern biological argument only far enough to suggest it as one very important reason why Hippocrates seems to have exaggerated and why we very likely underrate the factors of air, water and localities in our

classification of disease etiology. Granting that this is an important reason, we may understand why the older commentators assumed a more sympathetic attitude toward this part of Hippocratic doctrine, and why, as we approach the era of Darwin, it recedes from discussion; notwithstanding the fact, entirely obvious to the quick perception of the student of modern medicine, that I am making the very scantiest allusion possible to other fields of modern research, very much affected indeed by considerations of airs, waters and localities. We cannot fail to realize, that, lately, in a historical sense, the advent of Darwinian doctrine and its further development in biology has radically changed our views of the effect of environment on disease. We have our ways of studying its connection with disease which differ from those of Hippocrates, and it will be interesting, biologically as well as historically, to take note of this difference.

It will not be entirely devoid of historical interest, at least, to see how Hippocrates made these factors influence not only the diseases of man, but, as I have foreshadowed, the nature of man itself. Of late years there have been undercurrents of opinion among ethnologists which deprecate extreme notions as to the racial differences of men, which to some extent are identifiable with ideas of stable elements in the human germ plasm in the conception of the biologist.

The idea seems to be that there is in reality one race of men whose somatic attributes are modifiable by the environment, climatic, as well as social and intellectual, but on the whole, this once eliminated, mankind is all much alike, especially from a point of view of brain capacity. I do not know that Hippocrates discusses the latter at all aside from his view, which agrees largely in fundamentals with this order of thought among ethnologists, but differs radically from that of the Weismannian or

ultra Darwinian theory. So far as the principle is concerned, he made no discrimination between the effects of the environment on the body and on the soul of man, on his mortal and his immortal part, on his soma and on his germ plasm, if you will, for I know of no other class than that of the soul, in Hippocrates' conceptions, in which to place the germ plasm. In reality as I have sufficiently insisted, it is something new, a third order of mental concept, partaking of the body in its manifestation and of the soul in its immortal nature, if we are to speak of the germ plasm in terms of the Hippocratic philosophy. I shall speak only of malaria here in its relation to the attitude he evinces towards the question which has for fifty years interested modern biologists.

MALARIA

Hippocrates emphasizes the differences which he declares exist between inhabitants of Asia and Europe. He says the environment of one continent had made the people quarrelsome, assertive, independent, brave, and the environment of the other across the narrow seas had rendered them mild, temperate, indolent, soft and cowardly. He does not develop his argument far in explanation of this, but his critics have, it seems to me, missed the only indication he gives of how he explained to himself the manner in which this change comes about. He recognizes that the warlike and the courageous themselves will be changed by the *institutions* under which they live.

No one will dispute his assertion that it is the change from the mean of climate that stimulates the physical and intellectual energies of men to activity. When, through the influence of an equable climate of a high temperature, those subjected to it have fallen under the sway of political institutions such as the ancient oriental monarchies, it becomes obvious to the dullest that their bravery, their vigor and their self denial are called into play for the exclusive benefit of

those invested with the supreme power. Into this order of thought we must introduce modifications. We know that Asiatics may be brave men and, even if they are not capable of sustained vigor of mind, they often exhibit a contempt of life and a readiness to die, equal, at least, to anything Hippocrates had observed among the victorious Greeks of his day. He had not seen Asiatics or Africans fired with the visions of Paradise. If the religions of Christ, of Mohammed and of the Mahdi had been phenomena of his day, raised up to counterbalance the pains of this life, he would have realized that there are other institutions, besides the political organizations of freedom, which are quite as capable of stimulating the furious valor of countless millions of men. But he knew only those political and social institutions which could do this and which make life worth while to free men. He did right in recognizing, as did Xenophon and many others, that it was the intellectual and political freedom of their cities which made men ready to die for the glories of Greece. Fanaticism, which, as we have known it in the annals of history for two thousand years, also makes men quite as ready to die, was a closed book to him. Devotion to a local god or to the heterogeneous assortment on Olympus was not calculated to inspire men with the maddened desperation to which the Prophet spurred on his Arabians, panting for the sensual joys of Allah, or with the valor which strove for the beatitude kept under the keys of Rome, and which carried the cross as well as the crescent through the blood of a thousand fields of battle both in Asia and in Europe.

These are phenomena, knowledge concerning which the world has garnered from the annals of history and stored up as the wisdom of ages since the days of Hippocrates; but he knew the political causes of cowardice and lethargy in men as well as we. The phenomena of fanaticism and faith

are "institutions," which change cowardice into courage, but they were not the institutions Hippocrates had in mind. He had in mind the political institutions and the ideals, inherited from brave ancestors, for which men have just died on the battlefields of Europe. So far, then, as he seems to have had some sort of hereditary influence in mind, affecting the nature of man, it was a social heredity; a kind of heredity we recognize in which, at least, the modern germ plasm plays a secondary, and the environment a primary rôle. I fancy none of us, neither the modern Lamarckian nor the Weismannian, would claim that such environment as works through social and political institutions upon the social and moral impulses of men has any effect upon the physical nature of man, but this confusion of social heredity with biological heredity often unconsciously invades the sense of modern discourses on the biology of man and his institutions.

The analogy to biology has always been pushed to ridiculous limits by the sociologists. It is likely to lead them far astray in theory, whether the biological theory is right or wrong, but it can hardly fail to do so when the model they pattern after is itself wrong. In practice "the survival of the fittest" has been the shibboleth in the present politico-social convulsion which has brought death and innumerable woes to many. If the unwary of today are betrayed into these lapses of logic and on the other hand apply to biological phenomena, including social phenomena, a charge to which Herbert Spencer himself was open, we can hardly expect such analytical discrimination could have been appreciated by the immediate successors of the Nature Philosophers of 2,500 years ago. However, I think it can be perceived from the text that Hippocrates was not entirely oblivious to the differentiation which today is imperative. In this analysis, revealed only by the introduction of his reference to institutions, there is of course no conception

of the intermediaries through which his airs, waters and places work in producing disease. He perceived, perhaps, that it was through "institutions" that the climate worked upon the nature of men, but he had no inkling that there were different intermediaries through which the climate worked to cause the diseases of men. He traced to climate and locality, as causes, the phenomena of the moral nature of man, and he was instinctively right in reasoning by analogy that they were also often the causes of his diseases. The sickliness, the jaundice, the "quartan fevers," the lack of bodily and mental vigor, he was right in bringing into relation with the winds, the waters and the sun exposure. This time there was no "institution" to interpose as a direct influence, but there was an institution—a micro-organism of which he knew nothing but the results. It was hidden from him just as the fanaticism, from which the Greek world was free, was hidden from him. One of the factors influencing the moral nature of man and one of the factors influencing the bodily nature of man were alike absent from his field of observation. It is not directly the sun's heat, nor the fog and moisture of the marsh lands, it is not the failure of the breezes which parch up the veins of the sons of men who dwell there or relax the flesh of their bodies and change the color of their skins to a yellow hue. (However, these are the elements in the environment which call into existence the two links we have discovered during the last generation in the chain of causation.) It is the *anopheles fasciata*, it is the *plasmodium* which it carries that stands between the factors with which Hippocrates and, Littré and Adams were familiar—airs, waters and places—and ague. It is the parasite of Laveran which alters the blood their fathers have transmitted to them, not the forces of nature which have altered the heredity of men.

It is quite impossible to know what type

of malarial poison infested the shores of Greece²⁰ and Asia Minor 2,500 years ago. Nothing is more improbable than that they were always afflicted by the same forms with which we are familiar, or that malaria in any form was constant in any one locality, or that the malignity of the type was such as now fills the army hospitals at Salonica, but the evidence is indubitable that in the Greece of Hippocrates, in some of the islands of the Ægean and on the littoral of Asia Minor—perhaps sometimes in one place, sometimes in another, varying from generation to generation, certainly from season to season—malaria was behind much of the confused picture of disease we find in the Hippocratic writings.

I see no evidence that such affections have ever permanently affected the course of empire, though it is always impossible to say what might have been the course of events if anyone of the innumerable cosmic factors which have shaped history in the abyss of time had been absent. We may be disposed to deprecate the importance of the factor of malaria, but it is impossible to ignore the fact that disease has often in specific instances halted the march of armies on the road to conquest and raised the siege of cities. It is not impossible that in the past, as at present, in some of the districts of central Africa, and in some of the mediæval cities, epidemics may have desolated lands and somewhat altered permanently the course of human events; but for the most part the evidence in regard to the permanent influence of disease on empires and civilizations is dubious. Yet Hippocrates was dealing with this very problem when he noted the effect which airs, waters and localities had on the nature of man. The factors of this problem are not entirely clear in the light modern science has thrown on them, but they are dark indeed, and but a tangled skein of thread,

²⁰ Jones, W. H. S., "Malaria and Greek History." Manchester: University Press, 1909.

as we gaze on them in the writings of Hippocrates, through the dimness of more than two thousand years. In the "Epidemics," we perceive easily, after reading Littré's masterly analysis of the first and third books, that the severest types of malarial fever prevailed on the mainland and the islands which fringed the shores of Greece and Asia Minor in the days of Hippocrates. We take note of the fact that he confused to some extent, as do modern biologists and ethnologists, the effect of "institutions" on men, and the effects of the malarial poison working through the lassitude of their bodies on their moral natures.

Many critics have noticed in Hippocrates the absence of any indication which they can plainly recognize of his appreciation of the infective nature of fevers arising from proximity to the stagnant waters of many of the Greek rivers and swamps. I think this can hardly be laid at the door of antiquity with justice since even in Hippocrates we find reference to the influence of locality on the type of disease in such connection that it can scarcely be doubted that he was familiar with pestilential varieties of swamp fever even if he did miss the *plasmodium malariae* and took no note of the *anopheles fasciata*. In this book we should not fail to notice in this connection his remark that:

Such cities as lie well to the sun and winds, and use good waters, feel these changes less, but such as use marshy and pooly waters, and lie well both as regards the winds and the sun, these all feel them more. And if the summer be dry, those diseases soon cease, but if rainy, they are protracted.

It is interesting in this connection to read what Diogenes Laertius says of the wonders wrought by Empedocles. I give it as translated by Yonge.²¹

²¹ Diogenes Laertius, "Lives and Opinions of Eminent Philosophers," tr. by C. D. Yonge. London: Henry G. Bohn, 1853.

XI . . . When a pestilence attacked the people of Selinus, by reason of the bad smells arising from the adjacent river, so that the men died and the women bore dead children, Empedocles contrived a plan, and brought into the same channel two other rivers at his own expense; and so, by mixing their waters with that of the other river, he sweetened the stream. And as the pestilence was removed in this way, when the people of Selinus were on one occasion holding a festival on the bank of the river, Empedocles appeared among them; and they rising up, offered him adoration, and prayed to him as to a God: And he, wishing to confirm this idea which they had adopted of him, leaped into the fire.

It is very evident that to Alcmaeon and to Empedocles the Hippocratic collection owes much of its physiology and anatomy; perhaps to the former a whole treatise, and it is improbable in the extreme that Hippocrates himself was not familiar with the influence of swamp land on the production of certain types of fever. Reference is made to those that accompany the prevalence of miasms from marshy places in the second book on "The Diet" (38), but no classification or comprehension of them based on pathology can be found, conforming to the nosology which has resulted from the discovery of the plasmodium and its carrier, until well within the experience of living men. The comments of Adams and of Littré are scarcely less confusing to the recent graduate than those of Hippocrates. Indeed, in a way, Hippocrates and his immediate predecessors were more alive to all the factors entering into the etiology of malaria than were these gentlemen of the middle decades of the last century. As for us the *plasmodium* and the *anopheles* have all but eliminated from our thoughts the environment which makes their existence possible. For us a chain hangs down out of the sky and we only keep constantly in our visual focus these two links. What is the *plasmodium* to us but for the *anopheles*? What

would become of the *anopheles*, but for the swamp and and the heat, and so on ad infinitum. The literature which has grown up around the *plasmodium* and its carrier serves to alienate the mind, especially the mind uninstructed in the history of the medical art, from an attitude toward the intermittent and continued fevers with which Littré and his contemporaries two generations ago were familiar, and Hippocrates quite as intimately two thousand years ago and more, though the evidence of it is more convincing elsewhere than in this book on the "Airs, Waters and Places."

In addition to the incidental interest to be noted in an account of early attempts to eradicate malaria, and in the reference I have made to early evolutionary doctrine, I have especially striven in the foregoing to show how intimately in the thought of Hippocrates was combined the influence of the same environment on the corporeal and on the spiritual nature of man as well as on his social and political relations. This catholicity of thought is entirely foreign to our modern medical mentality and I cannot urge with too much emphasis that we are thereby the losers. It is that broadening of medical thought which should be the concern of all education, but it is nowhere so lacking in the liberal professions as in the curriculum of the student of medicine. Incoherent as it may appear to the modern reader in the Hippocratic text, which I fear I have not made much more coherent in the foregoing, such defects must be charged to the reader and to the expositor rather than to the author, to whom, obviously, there was no gap in the consecutiveness of the reasoning in his apprehension of the cosmic laws applying to the spiritual and the physical phenomena of human beings. To him, indeed, as to Terence, nothing which was of human interest was foreign.

THE RISE AND EARLY HISTORY OF CLINICAL TEACHING

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THE history of medicine is in a sense the history of civilization. Among a given people, ancient or modern, the state of medicine is as much an index of its culture as are its art and its literature. The world is, however, too busy to study medical history in order to find out what level a nation has attained at any particular time. This applies not only to the non-medical world but also to medical men themselves. Only a few have an interest in the history of their calling; and yet nothing is more instructive or inspiring, whether viewed from the narrower standpoint of the physician or from the broader one of the student of the race, than is the development of medicine throughout the ages. At the present day the lay public knows a great deal about medicines, but very little about medicine. If the people knew more concerning it they would have a greater respect for what medicine has accomplished.

From the vast and inexhaustible mine of the history of medicine I have extracted a single chapter, in itself large and fascinating, yet, strange as it may seem, few have written upon it. There are tomes upon tomes of medical history, some dealing with the doctrines and practices in vogue at different epochs or periods—Hindoo, Greek, Egyptian, Arabic, Talmudic medicine, for example. Few, however, concern themselves with the history of medical teaching, with the ways in which the accumulated knowledge has been transmitted from generation to generation. It is a consideration of that phase of medical history that I have made my task in this essay.

The medical students of to-day, who are virtually living in the wards of hospitals for the greater part of their last year in medicine, and in that way coming into direct personal

contact with patients, cannot realize what the teaching of medicine was a few generations ago. In my student days we saw only a few medical cases close at hand. Most of them were seen from the benches in the amphitheatre and I do not think that we ever had an opportunity of making a complete physical examination of a single patient. Yet we were better off than the men who were our teachers; and if we go back but a little farther, we come to a time when there were no clinical facilities whatever. J. Marion Sims was graduated in Philadelphia in 1835 and immediately went to his home in South Carolina to practise. His sign, which was a very big one, had not been out long before he was called on to treat a child of the leading citizen of the town. He had never until then been in contact with a patient and had never made a physical examination. In consequence, he felt himself helpless, and when the child died he was profoundly depressed. Then when a second child in the same family died shortly afterward under his ministrations, he quietly took down his sign, dropped it into a well, and migrated to Alabama. Fortunately for American surgery he did not carry out his intention of giving up the practice of medicine for good.

The first teacher of medicine was necessity. When primitive man received a wound during the chase or in combat, another member of his tribe or of his family applied soothing herbs, the virtues of which he knew as the result of some happy accident. After having obtained success with this treatment, he would initiate his son or some one else into the secret of the preparation and use of the soothing lotion. Thus arose surgery. In the case of internal diseases, and especially those of epidemic character,

the causes of which were to him unfathomable and mysterious, man sought the help of his gods and naturally applied to those who knew the wishes of the gods, the priests. These tried to appease the wrathful deity with prayers and incantations—a survival of which we see to-day in public prayers for the sick. The priests were always the ablest and shrewdest men in the community and by experience through the ages gained considerable practical knowledge in the treatment of disease. In that way there came to be added to the religious ceremonies methods of therapy of more or less value. The religious practices and therapeutic methods were handed down in the priestly castes by oral tradition.

Among the Greeks, however, the priesthood never had a very strong influence; and the practice of medicine was rather a secret of certain families or social groups. The first teacher of medicine among the Greeks was the legendary Esculapius, who taught his son Machaon to bind up the wounds of the Trojan warriors, and his other son, Podalirius, to attend to their internal ills.

Eventually the common experience of the medical families was written down; and a study of the written works was added to oral tradition. The actual teaching was carried out in the so-called *iatria*, which may be compared to our out-patient departments or dispensaries, and which were usually built in close proximity to an Esculapian temple. In the *iatria*, the physician received and examined the patients, prescribed and distributed medicines, performed surgical operations and gave instruction to pupils. The most famous *iatria* or schools, were those of Cnidos and of Cos. The latter was the birth place of Hippocrates, under whom, at about 400 B.C., Greek medicine reached its zenith. As teachers of medicine Hippocrates and his contemporaries, for the most part unknown to us, were not excelled for a thousand years; indeed, for nearly two thousand.

Hippocrates was a wonderful observer

and impressed upon his disciples the importance of bedside observation. In a sense, physical diagnosis originated with him; for he discovered the succussion splash, pleural friction and pulmonary râles. He advised that in order to hear these sounds the ear be laid upon the chest for a considerable length of time. This is the earliest mention of auscultation. The Hippocratic School also tested the temperature of the body with the hand, and by palpation determined the boundaries of the liver and spleen. It is scarcely believable, and yet it is a fact, that fifteen hundred years later these simple but valuable physical methods were thought to be of no importance and were scarcely taught anywhere.

After Alexander the Great's time, Alexandria became the center of Greek life and medical teaching. Under Herophilus and Erasistratus, the Alexandrian School attained great fame, so that it was a distinction to any physician to be able to say that he had studied at Alexandria.

Among the Egyptians, from whom the Greeks undoubtedly derived some of their knowledge, medicine was in the hands of the priests, who controlled all the learned occupations. The foundations of instruction were the Holy Books in which all Egyptian knowledge was contained. These books were an encyclopedic work of forty-two parts, of which the last six were devoted to medicine. The first of these treated of anatomy; the second, of diseases; the third, of surgery; the fourth, of drugs; the fifth, of diseases of the eye; and the sixth, of diseases of women. Only fragments have come down to us. They are contained in the "Book of the Dead," and in the "Ebers Papyrus." There are medical allusions in the cuneiform inscriptions of the Babylonians and the Assyrians; but in so far as they have been deciphered, they tell us little about the teaching of medicine, and are chiefly formulas or, as in the Code of Hammurabi, tables of fees and penalties.

Among the Hindoos, the teaching of

medicine early reached a high plane; and the Yajur Veda, in the Commentaries of Charaka and Suśruta, contains explicit instructions as to the education of the physician. Suśruta recommends to the student of medicine both theoretical and practical training. "He who is only theoretically educated," says Suśruta, "and is inexperienced in the details of practical treatment, does not know what he should do when he receives a patient, and conducts himself as foolishly as a coward on the battle-field. On the other hand, a physician who is educated practically and not theoretically lacks the esteem of better men." This reminds one of the dictum of Osler, "to study the phenomena of disease without books is to sail on an uncharted sea, while to study books without patients is not to go to sea at all." The Hindoo teacher was therefore advised to instruct his pupils in the use of salves and remedies, in the performance of surgical operations and in general medical practice, "since through hearing lectures no one can become proficient in the medical calling." Suśruta taught that the sweet taste of urine was a sign of disease. He advised that a thorough history be taken of every patient, saying that the patient should be asked where he lives, the season of the year in which his trouble arose, his position, his affairs, the nature of his pain, his general strength, appetite, and the duration of his illness. Operations were taught on inanimate objects. No physician was allowed to have more than five or six pupils.

Hospitals existed in India not alone for human beings, but even for animals as early as 300 B.C. (There is one known to have existed on the island of Ceylon in the fifth century B.C.) In view of the fact that the study of anatomy was totally neglected it is remarkable that Indian medicine was able to reach such a high plane. This is one of the riddles of medical history.

Among the Romans, medicine was on a much lower level than among the Greeks. Sacrifices, magic formulas and oracles were

supposed to cure disease. A few curative herbs were employed. As stated by Seneca: "Medicina quondam paucarum fuit scientia herbarum quibus sisteretur fluens sanguis, vulnera coirent" (Medicine was the science of a few herbs by means of which the flowing blood was staunched and wounds were united. Epis. 95).

Under Greek influence, a higher type of medical practice gradually came into vogue; yet medicine was for a long time looked upon as a despised trade. The Roman nobles had it taught to their slaves; or sometimes, as in the case of M. Portius Cato, they acquired it themselves in order that they might teach it to their slaves and keep a watch over the health of their own families. But with the tremendous political and social development of imperial Rome, medicine could not long remain patriarchal. Probably the constant foreign wars, requiring the services of skilled physicians, helped to bring about the downfall of the patriarchal system. For a long time, however, medicine remained a private matter or a free trade that could be followed by anyone. Under Alexander Severus, special auditoriums were assigned to medical teachers, in return for which they had to instruct poor students free of charge. It is probable that the *valetudinaria* which rich Romans established for their slaves were used for medical instruction. That this instruction had a decidedly modern aspect is shown in a sort of novel by Philostratus, in which mention is made of two physicians who visited the sick accompanied by thirty pupils. Such visits were made in large consultation rooms, called *tabernæ medicinæ*, or simply *medicinæ*. As a further evidence that clinical teaching similar to our ward visits existed, we have the famous lines of Martial (Epigr. V. 9):

Languebam, sed tu comitatus protinus ad me
Venisti centum, Symmache, discipulis,
Centum me tetigere manus aquilone gelatæ,
Nec habui febrem; Symmache, nunc habeo.

I'm out of sorts, but Symmachus is here,
His hundred pupils following in the rear;
All feel my pulse with hands as cold as snow,
I had no fever then—I have it now.

After the fall of the Roman Empire we find the teaching of medicine conducted like the apprenticeship of a trade. A youth who wanted to become a physician would attach himself to a friendly practitioner, much as in the preceptorial system. This arrangement in a modified form lasted until about twenty-five years ago.

With the spread of Christianity and the establishment of hospitals by the ecclesiastical orders, medical practice, to a large extent fell again into the hands of the priests, particularly the Benedictines who according to Puccinotti were the first in the Middle Ages to give clinical and didactic instruction. It seems also that in the time of Charlemagne, 764-814, the teaching of medicine received some attention at his court; few data, however, have come down to us regarding this school.

When celibacy became a law among ecclesiastics, priests were forbidden to practice surgery and to treat diseases of women.¹

Among the Arabs at this time, medicine was at a very high level. They had hospitals with vast numbers of students, who were instructed both practically and theoretically. There were hospitals at Damascus, Bagdad, Cairo, and probably elsewhere in Europe and Northern Africa, wherever the Saracens had gained a strong foothold. Yet progress under the Arabs was not so great as it might have been, despite clinical teaching in the hospitals, for the reason that dissection was indirectly forbidden by the tenets of the Koran, a corpse being "unclean."

¹ It appears that for a time celibacy was enforced among physicians also. At any rate, in 1452, Cardinal Estouteville, charged by Pope Nicholas V. with the reorganization of the University of Paris, obtained the suppression of celibacy "as an impious and unreasonable thing for a doctor." (Supoy, "Le Moyen âge médicale," p. 27).

The first real progress in medical teaching after this time is coincident with the rise of the great University of Salerno, the origin of which is shrouded in obscurity, although, according to some of the Italian historians (as for example, Puccinotti: "Storia della medicina," vol. II, part I, p. 247, "La Scuola detta Salernitane é benedettina e Cassinense di origine"), it is the offspring of the Benedictine monastery of Monte Cassino.² Since Charlemagne is known to have been interested in it (Ravon: "La France médicale," 1902, p. 409), its origin certainly dates back to the eighth century. Its medical faculty was composed of Greek, Italian, Jewish, and Arabic physicians, so that almost anyone could there study medicine in his own language. It was unusually free from ecclesiastical influence; the professors were married. Strange as it may seem, some of the lectureships were held by women, usually the wives or daughters of professors. Abella wrote: "De atro bilo et de natura seminis humani"; another, the famous Trotula, published a work on diseases of women entitled, "De mulierum passionibus ante, in et post partum"; and Rebecca, one on fevers, urines and the embryo.

The school received a great impetus through the Crusades, and many a wounded and sick Crusader as, for example, Robert of Normandy, son of William the Conqueror, was treated there. Clinical instruction must have been carried out at Salerno, although details are meagre. We do know, however, that special attention was paid to dietetics. Under the great emperor Frederick II, in versatility and in ruthlessness not unlike the last of the Hohenzollerns and like him of Swabian blood, the medical school at Salerno in 1213 grew into a complete university. It is a fact

² Daremberg ("Histoire des Sciences Médicales," Tome I, p. 259) denies that the medical school of Salerno originated from the Benedictines, the Arabs, or the Jews, and holds that it is Neo-Latin or Greco-Latin in origin.

worthy of note that the two great Continental universities of the Middle Ages, Salerno and Montpellier, arose out of medical schools. Frederick also gave to the Salernitan school an excellent code of laws and a curriculum. Three years had to be devoted to philosophy, and five to medicine, with examinations at the end. Just as in Pennsylvania at the present time, this university examination did not *per se* confer the right to practice; the young physician had to associate himself for one year with an older practitioner—a custom similar to our hospital year.

I have just spoken of Montpellier, which is of particular interest to us, as the great Sydenham studied there. Montpellier was founded under the influence of the Saracens, who came from neighboring Spain. In 1137, the medical school had its own building. Its fame really begins with the advent of Solomon Matthæus from Salerno in the twelfth century. In 1220, Cardinal Conrad,³ a German, demanded that everyone who intended to teach there must pass an examination. Pope Clement V, in 1308, established the rule that medical students must hear lectures for five years and during eight months, or two summers must attend a physician in medical practice. An intense rivalry existed between the University of Montpellier and the University of Paris. This rivalry was probably good for medical teaching; its bitterness is well illustrated in some of the Latin verses of Gilles de Corbeil,

³ It may not be without interest to quote a statute of this Cardinal dated 1220 regarding the University of Montpellier. It is a medieval example of the black list: "If a professor is in litigation with one of his pupils with respect to his salary or for any other reason, no other professor shall knowingly receive this pupil until he has given or promised satisfaction to his former master." The same statute forbids sordid competition among the professors: "No teacher shall attract to himself the disciple of another teacher, in order to take him away, by solicitation, present or any other means whatsoever."

the great medical teacher of Paris in the thirteenth century. (Viellard: *La France médicale*, 1902, p. 397.)

Under the corroding taint of scholasticism, both the University of Salerno and that of Montpellier rapidly deteriorated; the latter suffering eclipse through the growing fame of the University of Paris. In the seventeenth century, Montpellier experienced a temporary revival through the fame of Charles Barbeyrac (1629–1699), called the Hippocrates of Languedoc, who is remembered as one of Sydenham's teachers.

It seems that after the decline of the schools of Salerno and Montpellier, and at a time when learning in general was beginning to reanimate the world, in preparation for the coming of the Renaissance, medical teaching ebbed to almost the lowest possible point. Instruction degenerated into dialectical discussions and hairsplitting arguments based chiefly on the writings of Hippocrates and Galen. Even the great Rabelais was roused to wrath by the medical teaching of his day, which was "toute livresque." (Ledouble: *La France médicale*, 1907, p. 207.) There is extant a program of lectures in medicine at the University of Heidelberg for the year 1569. Professor Curio lectured on "De generibus morborum" of Galen, and explained "De morborum signis" of Hippocrates. Professor Erastus did not lecture, because he had gone to the fair in Frankfort. Professor Melancthon, a nephew of the great Protestant reformer, delivered lectures in medicine on the basis of Galen. Would not Hippocrates, who had taken his pupils to the bedside of his patients and had taught them physical signs and keen observation, have marveled at the fact that, twenty centuries after his time, such inane discourses should constitute the sole instruction in medicine? Another hindrance to progress was the interdiction by the Church of dissection of the human body; and even after that was lifted, the obtaining of

udies for dissection was a difficult matter.

It is interesting to learn through the searches of Sudhoff ("Studien zur Geschichte der Medizin," Heft. 8) how medical students were taught in the University of Leipzig during the first hundred years after its foundation in 1409. The lectures were given from six to seven o'clock in the morning during the summer and from seven to eight during the winter. During the first and second semesters, the first canon of Avicenna, during the third and fourth the *Opera tegni* of Galen, and during the fifth and sixth the aphorisms of Hippocrates, with commentaries by Galen, were explained. The course in "practical medicine," so-called, took place in the afternoon. The holder of the chair explained a book of Aphorisms, the first chapter of the fourth book of Avicenna, and the fourth chapter of the first canon by the same author. The lectures were given in the church of St. Nicholas. As for surgery and anatomy, they were completely neglected at Leipzig during the first century of this school's existence.

At the University of Montpellier, which was already ancient when the University of Leipzig was established, teaching was carried out as follows: The lectures began at six o'clock in the morning and lasted one hour. They consisted of dictation or reading of Latin texts and making comments upon them. Dissections, inaugurated in 1376, did not take place more than once or twice a year and then the entire public was permitted to attend on paying an admission fee. There was absolutely no clinical teaching. The whole course occupied a total of about six months. At the end of this time the student in order to obtain his license had to practice six months outside of the city. If then he passed his examinations as a bachelor, the beadle clothed him with a red robe, while his comrades one by one administered a good blow with the fist. To obtain the doctorate he had to pass sixteen

examinations. When his studies were finally completed, the new doctor had expended about sixteen thousand francs though after the year 1550 the cost was reduced to eighty-one hundred and fifty francs, still a formidable sum (Paul Delmas, *Bull. mensuel de l'Académie des sciences et lettres de Montpellier*, March, 1913, No. 3).

Although hospitals were springing up all over Europe (in Germany, for instance, the Order of the Holy Ghost founded not less than 154), clinical instruction was not given in any of them. Not even in the great Hotel Dieu of Paris, founded in the eighth century, was any use made of its wealth of clinical material for nearly a thousand years. What practical experience the student got was obtained by his attaching himself to some obliging physician outside of the university, who acted as an extramural teacher and took him along on his rounds. This custom eventually led to the establishment of polyclinics, apparently first at Montpellier. By "polyclinic" is meant something quite different from that which the word polyclinic now connotes, namely, an organization for visiting patients in their homes in various parts of the city. Hence, the word poli-clinic (*πόλις*, city); the present term, "poly-clinic" (*πολύς*, many), being really a misnomer. One of the Montpellier physicians, Theophrastus Renaudot, migrated to Paris, established a polyclinic there, and became a protégé of Richelieu and physician to Louis XIII. In the Rue de Calandre at the Sign of the Golden Cock he established a sort of dispensary for the poor. He incurred, however, the enmity of the faculty of the University of Paris—particularly of its brilliant but vindictive leader, Guy Patin⁴ (1601-1672), whose motto, "*Saigner et senna*" (Bleeding and senna) helped to make him famous.

⁴ Guy Patin anathematized William Harvey and spoke of Harvey's discovery of the circulation of the blood as "paradoxical, unintelligible, absurd, and harmful to human life."

In consequence the dispensary did not last long; and yet it was practically the only attempt at clinical teaching in Paris for several centuries. It is almost inconceivable that the material of the Hotel Dieu, which at this time had a capacity of two thousand beds, was not used for medical instruction. The conditions in this famous hospital were very remarkable as we know from a graphic account written by a Saxon tailor, Christoph Rink. This man entered the hospital as a patient and was received by an old barber, who touched him in various places to determine the nature of his disease. A priest recorded his name in a book, and two assistants conducted him to his quarters, where he was placed in a large bed between two other patients, in such a way that his head lay between the feet of his bed-fellows. This sort of community of living was quite the rule in those days; and even in the eighteenth century, three, four and even five patients were often placed in a single bed. Frequently as many as four puerperal women were put together. Both of Rink's bed-fellows died. The first treatment our Saxon tailor received was psychic, an attempt being made to persuade him to believe the right religious doctrine; but he was a staunch Lutheran and resisted. The following day the doctor came, with the apothecary and the barber; and the traditional bleeding began. Rink was bled not less than twenty times, and yet lived to tell his tale. For the nuns, who conducted the nursing in the hospital and of whom there were three hundred, he had only the highest praise.

Molière, in his inimitable comedy, "Le malade imaginaire," has drawn a true picture of the time. The son, Thomas of Diafoirus, comes up for his baccalaureate degree in medicine; and in his behalf the following statements are made: "He is firm in dispute, and strong like a Turk in his principles; and he never recedes from his

opinion, but presses the argument to the last vantage point of logic; but, above everything else, that which pleases me," says his father, "and in which he follows my example, is that he is attached blindly to the opinions of the ancients, and that he will not comprehend nor hear the reasons and the experiences of the pretended discoverers of our times touching the circulation of the blood or any other opinion of equal stripe." To all questions as to the remedies to be used in the various diseases, Thomas invariably answers:

Clysterium donare,
Postea seignare,
Ensuita purgare,
Reseignare, repurgare
Et reclysterisare—

to which the chorus makes the following response:

Bene, bene, bene,
Bene respondere.
Dignus est intrare
In nostro corpore.

In Rome, as late as the sixteenth century, in order to become a physician the medical student had to pass an examination on the physics of Aristotle and the doctrines of Galen. This was followed by a question in which one of the examiners described the symptoms of a disease and then asked the name and treatment. Having passed this test, the final act of initiation was the giving of a banquet to the examiners.

About the middle of the sixteenth century, near the close of the Renaissance, Professor Dal Monte,⁵ a friend of Vesalius,

⁵ Dal Monte took an active part in the battle raging between the two camps into which the profession was divided in his time on the matter of bleeding. The one upheld the Arabic method, according to which the bleeding was to be done at the point farthest removed from the disease focus; at the foot, for example, in pneumonia; the other practiced the Hippocratic method, according to which the patient was to be bled from the arm corresponding to the side affected. Dal Monte and Vesalius were Hippocraticists.

made the first modern attempt at clinical teaching, in the hospital of St. Francis at Padua. Little resulted from Dal Monte's efforts, but under his successors, Oddi and Bottoni, in about 1578, real bedside teaching began. Until quite recently I accepted it as a fact, having seen it in a number of works, that the first clinical teacher was Boerhaave; but Renaudot, Petersen, Puschmann and other reliable authors have clearly demonstrated that the credit for inaugurating clinical teaching belongs to these two otherwise unknown Italians, Oddi and Bottoni. Oddi gave his clinical lectures in the women's ward and Bottoni in the men's ward of St. Francis' Hospital. They illustrated their lectures with autopsy material. Autopsies were, however, still forbidden by the ecclesiastical authorities. Not long after Oddi and Bottoni, a blight struck the University of Padua, so that when the Dane, Thomas Bartolin, visited the city, he found only a *scola de pulsibus et urinis*." Nevertheless, that short as the period of clinical teaching was in Padua, it bore great fruit. The new era was transplanted first to Holland, where Jan Van Heurne, who had studied at Padua, introduced it. His own success was slight; far greater was that of his son, Otto Van Heurne, who followed him in 1601. Somewhat later, in 1636, Wilhem Van Den Broucken (1593-1681) established a remarkable clinic at Utrecht. He examined patients in the presence of a class of students, and discussed the diagnosis, prognosis and treatment with them. Following this, there was a public debate concerning the nature of the disease.

Under Otto Van Heurne the students in Leyden visited the clinic two days a week, our students acting as clinical clerks, as we know from an extant letter of Thomas Bartolin. The authorities, however, in their wisdom, decided that this sort of teaching was not of much use and commanded the professors to instruct their students in the knowledge that can be gained from a study

of the pulse and the urine. As most of the diseases were believed to have their seat in the blood, and as the urine was looked upon as a percolate of the blood, it seemed logical to determine the chemical composition of the latter by a study of the former. This rendered diagnosis extremely easy. As an illustration, I might cite what the monk Mercurius taught (at a somewhat earlier period, it is true) regarding the pulse: "If one lays four fingers of the right hand on the pulse of the right arm of the patient, one can conclude that the disease is in the head if the pulse is felt mainly by the index finger; that the disease is in the thorax if the middle finger feels it; and that it is in the abdomen if the fourth finger perceives the chief impact." One of the notable Byzantine physicians, John Actuarius, distinguished fourteen colors of the urine, each one having a definite diagnostic meaning.

In the days of Van Heurne, enemas were greatly in vogue, and much time was spent in instructing the students in their preparation.⁶

Under the stimulus of the invention of the thermometer, the magnifying lens, the microscope, and above everything else, through the epoch-making discovery by William Harvey, of the circulation of the blood a spirit of rebellion arose against the authority of the ancients that had held medicine in bondage for so long. When a man appeared upon the scene who taught medicine at the bedside, students flocked to

⁶ A famous enema of Van Heurne's had seventeen ingredients, for the mixing of which the most minute directions were given. I might also mention another famous preparation—the mystical theriacum—which had no less than seventy-two constituents, and was looked upon as the apothecary's masterpiece. It is recorded that in 1754, in Nuremberg, the completion of this drug, which had required two months' labor under the supervision of the Senate, was celebrated with many civic festivities. Both Boerhaave and Van Swieten used theriacum, although the former's motto was *simplex sigillum veri*.

him from all parts of the world. This man was Boerhaave, called "*Medicorum Univerſæ Europæ Præceptor*," under whom the medical school of Leyden attained an extraordinary fame. As a teacher his influence has probably never been equaled. The son of a clergyman, he was himself prepared for theology but preferred medicine. His teaching consisted in lectures and beside demonstrations in which he followed the cases through their course. His, to us, absurd theories of *fluida* and *solida* and of temperaments, are characteristic of his time, but could not endure when morbid anatomy in the epoch-making work of Morgagni (1682-1771) showed that disease had a local habitation. Boerhaave had a good deal of common sense and attributed many diseases either to poverty or to luxurious living, "*nihil citius debilitat quam luxus*." It does not appear that he made any autopsies, being in this respect far behind his predecessor in the Leyden chair, the famous De La Boë, or Sylvius (1614-1672). Considering that the seat of diseases was in the blood or the bile, he naturally could not appreciate the importance of local pathologic processes. The methods of the Leyden Clinic, which had only twelve beds, were carried to all parts of Continental Europe and by Pringle and others to England. In Edinburgh a number of men, directly or indirectly pupils of Boerhaave, established clinical teaching early in the eighteenth century. It appears that one Daniel Duncan inaugurated such teaching in 1720, but the first regular courses were given by Rutherford and afterwards by Cullen, Gregory and Drummond. The last two were the first to teach in the English language, Latin having been used prior to that time. In the days of which I am speaking, every physician had to know Latin virtually as well as his mother tongue, and the better educated also knew Greek. It was the possession of the Latin language that made it possible for men to study and to teach in any university in Europe,

enabling Sydenham to go to Montpellier and Harvey to Padua. I am one of those who regret to see the Latin language disappearing from the college curriculum. A fair amount of Latin and a little Greek are of inestimable value to the medical student and the physician.

The Edinburgh school is of special interest to Americans, as it was there, under Cullen and others, that John Morgan, the founder of the medical school of the University of Pennsylvania, the first medical school in this country, was educated as well as William Shippen, Jr., Benjamin Rush, Samuel Bard and many other pioneers.

One of Boerhaave's greatest pupils, Van Swieten, was called to Vienna by Maria Theresa and there laid the foundation for Vienna's subsequent position as a center of clinical teaching. Being overwhelmed with practice, Van Swieten in 1754, called Anton de Haen, also a pupil of Boerhaave, from the Hague to take charge of clinical teaching in Vienna. De Haen received the enormous salary of five thousand florins in order that he might devote himself exclusively to teaching. He was thus the first of full-time clinical teachers; but as the position yielded the munificent income just mentioned, his problem was not quite as difficult as that of professors in American schools confronted with the question of deciding between full- or part-time teaching. There are other reasons why De Haen should be remembered. He reintroduced the Hippocratic practice of allowing fever patients to have fresh air. On the basis of the doctrine of crises it had become the custom to swathe and cover fever patients and keep every breath of air from them, a practice that has not altogether died out among our foreign population, especially among the Italians.

De Haen espoused the study of bowel excretions as a means of diagnosis and prognosis. This study, though not pursued in quite as unscientific a manner as was

that of water casting, was very popular among medical men, which fact led the satirical Gideon Harvey, physician of Charles II, to speak of doctors as "*medici stercorarii qui morbos per anum expellunt.*" One of De Haen's assistants, a Jesuit priest by the name of Stoll, deserves to be mentioned in a history of clinical teaching. Aside from having the questionable honor of being the father of the bilious diathesis, which has dragged itself through the ages to this day, he has the greater distinction of being one of the first to insist upon thorough physical examinations. He did not, however, resort to percussion, though he writes that in pleurisy the percussion note is like that of the thigh.

The impetus given to clinical teaching by these men endowed the Vienna school with a wonderful reputation, which later great clinical teachers maintained until the outbreak of the world war.

The French school of clinical teaching began a little later and passed through numerous vicissitudes. Although clinical teaching was proposed as early as 1562 by one Pierre de la Ramée, practically nothing was done until the close of the eighteenth century. It is doubtful whether anything could have been done in Ramée's time, for one physician then had charge of about a thousand beds in the Paris hospitals. Lamenting the utter inadequacy of the teaching of medical students, Ramée exclaimed: "*de nouveau médecin, cimetière boussu.*" About two hundred years later (1778) Duchannoy and Jumelin proposed the reintroduction of clinical teaching. Arguing in favor of such teaching they expressed themselves as follows: "Young medical students may reasonably be regarded after their studies as a body of young soldiers who, abandoned to themselves and without leaders, ravage the provinces of a country which they should protect and succor." Their suggestion and protests were of no avail, and as late as 1787 the Royal Society of Medicine

was compelled to make the statement that in France no physician had studied his art at the bedside of a patient. In not a single one of the thirty-two medical faculties of France was there any clinical teaching worthy of the name prior to the Revolution. Desault, in 1787, and Corvisart, in 1788, must be looked upon as the founders of clinical teaching in Paris. During the French Revolution all the old institutions and corporations were overturned. The medical faculty and the academy of surgery were abolished; the masters of medicine had no place to exercise their teaching, and the students had no schools, no instruction. Two courageous men, Forcray and Thorat, protested publicly against the prevailing political spirit which "seeks to destroy everything and to build up nothing"; an utterance that reminds us of the charge so frequently made to-day against Bolshevism.

On an earlier page I spoke of Morgagni and the influence of his work in morbid anatomy upon the teaching of medicine. Morgagni, as the founder of the anatomic school, placed the habitat of disease in the organs instead of in the humors. But neither he nor his immediate successors divined any relation between the diseases of various organs. Another great generalization was necessary, and that we owe to François Xavier Bichat (1771-1802), who by showing that there was a similarity in the tissues composing the different organs of the body, became the founder of general anatomy. From his day onward disease was placed not in the organs as a whole but in the tissues composing them, and the fact became established that the same tissues in different organs might be subject to the same disease processes. It remained for the great Rudolph Virchow to carry the anatomic idea one step farther by his formulation of the cellular doctrine, under the ægis of which morbid anatomy has made enormous strides and maintains itself until this day.

Toward the end of the eighteenth century a powerful impetus was given to clinical teaching by John Peter Frank (1745-1821). Of a restless, roving disposition, Frank taught at Padua, Vienna, Göttingen, in Russia, and, for a brief period, in Edinburgh. The Edinburgh method of long discourses on certain diseases, without special reference to any particular case, in other words, the didactic lecture, did not appeal to him. In his courses he divided his students into two groups, the auscultants, who did not take part in practical demonstrations, and the practicans, who participated in the practical exercises. Believing that the functions of the teacher were to teach the healing art, he totally ignored incurable cases as being of no moment. He established a mortuary so that one could preserve a patient and be sure that he was dead before beginning the autopsy. His instructions to students are of interest: the history must be full of details, must be carefully taken and kept up from week to week. If the patient died the student had to read the history at the autopsy. The student who had assisted in the morning had to come back in the evening at a definite time to visit his patient. If any patient was seriously ill, the professor himself came. John Peter Frank, as well as his son Joseph, was an ardent supporter of the fantastic doctrines of John Brown, who was responsible for the promiscuous and intensive bleeding in vogue at the end of the eighteenth and at the beginning of the nineteenth century. Brownianism, though originating in Edinburgh, found its most zealous advocates in Germany and in America, particularly in Philadelphia.

One of the greatest advances in clinical teaching, indeed in the whole practice of medicine, came about through a discovery made in the latter half of the eighteenth century, but not fully utilized until fifty years or more afterwards. In 1761, Leopold

Auenbrugger, a modest physician connected with the so-called Spanish hospital of Vienna, published a small booklet of ninety-five pages which he called, "Inventum Novum ex Percussione Thoracis Humani ut Signo Abstrusos Interni Pectoris Morbos Detegendi," in which he showed that valuable information might be obtained from striking the chest with the finger or, as he termed it, by percussion. The work remained unnoticed. Even his great fellow-citizen, Van Swieten, in a book on pulmonary phthisis and empyema published in 1765, does not mention percussion. A Frenchman, Rogières de la Chassagne, of Montpellier, translated the work into French and incorporated it as an appendix to a manual on pulmonary diseases, but so little did he think of percussion that he especially said that it would never occur to him to use such an absurd method.⁷

It was Napoleon's physician, Corvisart, who by translating the little work of Auenbrugger into French gave the method its second birth. Immediately percussion became widely popular, with the result that the Paris school under Louis, Laennec and Piorry was for a time the Mecca of those seeking clinical instruction. Through the application of Auenbrugger's methods, and through the discovery of the stethoscope, physical diagnosis was advanced by leaps and bounds, almost to the stage in which we now have it. Notwithstanding the brilliance of the Paris medical faculty

⁷ Another author had the hardihood to write as follows: "La clinique, ou la leçon médicale au lit du malade (tel est le sens du mot *clinique*), se réduit maintenant à l'exploration sous toutes les formes: percussion, auscultation, mensuration et autres procédés qu'on qualifie ridiculement de scientifiques, et qu'on met volontiers en relief et en grande vénération auprès de la sotte majorité, en les affublant de noms étranges, bizarres, hybrides, le plus souvent absurdes, surtout quand ils sont empruntés de la langue grecque, en dépit de la logique et de l'étymologie." (Guardia: "La Médecine à travers les Siècles," p. 724.)

at this period, it had a great and worthy rival in the Dublin school, in which perhaps the best clinical instruction of the world was given in the middle of the last century. Graves and Stokes took their students with them into the wards of Meath Hospital and inaugurated the type of clinical bedside teaching in vogue at the present day. I have elsewhere published⁸ the history of these great Irish clinicians, as well as that of Corrigan and Cheyne, all men who in power of observation, in keenness of analysis, and in the exercise of common sense, have not been surpassed in any land. In England medical teaching early took on a practical character. The reasons for this change are to be found partly in the practical type of mind of the English and their innate aversion to philosophical hypotheses, and partly in the fact that in England medical schools were not as on the Conti-

⁸*The Johns Hopkins Hosp. Bull.*, Balt. vol. xxiv, no. 270, August, 1913.

ment, integral parts of universities, but were in intimate relation with the metropolitan hospitals where some of the physicians took pay pupils with them on their rounds.

The preëminence of the French school did not last long. Dominated by the spirit of Laennec, its great fault was a disregard of physiology. In overemphasizing anatomy, gross and microscopic, it ignored the fundamental fact of biology—that form is an expression of function. The Vienna school soon became preëminent as the center of clinical teaching, and, as I have said above, remained so until the outbreak of the War.

I shall not carry the subject beyond this point. The next great step in the progress of clinical teaching came through the conjunction of the work of the laboratory with the work at the bedside. That step, which constitutes the greatest advance contributed to the teaching of medicine by our own time, lies beyond the scope of this essay.

THE FACIES HIPPOCRATICA

IN acute diseases, the physician will note the following: he will consider first of all the patient's expression of countenance to see if it is like that of healthy people, but above all to see if it is like the patient's own natural appearance. This would be the most favorable facial expression, and the more it is departed from the greater the danger. It will have attained the last degree of alteration when the nose is sharpened to a point, the eyes sunken, the temples depressed, in relief, the ears cold and contracted, the lobes of the ears detached, the skin of the

forehead dry, tense and arid, the skin of the whole face yellow or black, livid or leaden. If the patient have this appearance at the beginning of the disease, and if the condition is not explicable from the other symptoms, inquire if the patient has lost sleep or been purging or has suffered from hunger; if any of these causes are owned to, the danger is much less; and it can be decided in a day and a night whether this facial appearance is due to these causes or no. If not, and if the symptoms do not subside, then death is at hand. HIPPOCRATES. "Prognostics." 2.

NAPOLEON'S CAMP AT BOULOGNE

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MOST text books of French, English, and American history give a very brief description of that phase of Napoleon's history dealing with his proposed invasion of England between 1803 and 1805. The events leading up to the establishment and demolition of the French camp at Boulogne, and an outline of its medical organization are of interest, however, to all medical officers who have been stationed in that city between 1914 and 1918.

At the beginning of the nineteenth century France was at war with Austria and Great Britain, and in a condition of armed neutrality with Russia, Prussia, Sweden, and Denmark. A successful Italian campaign against Austria resulted in the Treaty of Lunéville in 1801. The Peace of Amiens was concluded with the British in 1802, after they had driven the remains of the French Army from Egypt and had captured Malta. The essential question in the latter negotiation was the control of the Mediterranean. After a long controversy, England agreed to withdraw from Malta in favor of some neutral power, although deferring evacuation because the island lay in an important strategic position between the western and eastern extremities of the Mediterranean, and because Napoleon's recognized ambition was to acquire a colonial empire. In May 1803, a year after the Treaty was signed, Napoleon demanded the immediate release of Malta. England answered by seizing 1200 French and Batavian ships and by withdrawing her ambassador from Paris. Napoleon, feeling that the state of Europe was sufficiently quiet, determined to invade England with a force of 150,000 men, 10,000 to 15,000 horses, and

enough artillery, siege guns, equipment, food and munitions to last for at least three weeks of fighting during which time extra supplies could be sent over. Such a plan demanded a large sum of money and the suitable organization of a combined army and navy.

A reference to the history of the United States explains Napoleon's method of financing his expeditionary force. During the seventeenth century, the French had gradually extended their explorations in America westward along the Great Lakes. In 1673 Joliet and Marquette penetrated to the upper waters of the Mississippi River, and in 1681 Robert Cavellier de la Salle went down the river to its mouth where he tried to form a colony. This first attempt failed, but in 1699 Louis XIV detailed two Canadian Frenchmen named Iberville and Bienville to found a second colony at the same place, which became permanent. The territory on the western side of the river was called Louisiana, in honor of the King, and a few years later the city of New Orleans was founded.

After this, French colonies gradually developed along the river with the idea of uniting Canada and Louisiana by a chain. In the meantime, the English had begun to direct their attention to trade in the land west of the Alleghanies so that in 1755 French and English interests in America conflicted and a war broke out. A year later this merged into the Seven Years' War in Europe in which were involved England and Prussia against France, Spain, and Austria. England and Prussia were successful. By the Treaty of Paris, 1763, France was compelled to give Great Britain all French possessions in North America east of the Mississippi River, Spain

¹ Major, United States Army Medical Corps, Base Hospital No. 5.

gave Great Britain her American colony of Florida, France gave Spain, to compensate for this loss, all French possessions west of the Mississippi River as well as the island on which New Orleans stands. Finally, the treaty provided that British vessels should enjoy the free navigation of the river.

in exchange for the Grand Duchy of Tuscany which was to be given to the Duke of Parma, son-in-law to the King of Spain. The effect of this act was felt in America two years later, when the Spanish Governor of New Orleans withdrew the "right of disposal" from American colonists, presumably so that Louisiana might be hand-



Boulogne harbor in 1776, before the camp was established.

In 1783, after the War of Independence, the western boundaries of the United States were agreed to be those of the British Colonies according to the Treaty of Paris, and navigation of the Mississippi River continued to be free to United States ships. The latter clause was modified in 1795 by Thomas Pinckney, who made a new treaty with Spain. As a result, that power agreed to designate "a right of disposal" by which American goods might be stored free of duty in Spanish territory while awaiting transshipment from river-going boats to ocean boats.

A part of Napoleon's schemes for French colonization had resulted in 1800 in the secret treaty of San Ildefonso with Spain, by which Louisiana was returned to France

ed over to France free of all encumbrances. This act aroused the settlers so much that they were eager for war. They believed that as long as Spain,—a weak nation and growing weaker,—held Louisiana, the development of the United States in the west would be undisturbed, but with France in control, the situation would be different. President Jefferson wrote the American minister at Paris that rather than see France in possession of Louisiana, the United States would combine with Great Britain to destroy the French power at sea. At the same time he thought that the action of the Spanish Governor in withdrawing "the right of disposal" might be unauthorized, so he restrained popular opinion in America for five months until he was

informed by the Spanish minister that "the right of disposal" would be restored. Finally he sent Monroe to Paris in January 1803 as a special envoy to attempt to buy Louisiana.

In the meantime, Napoleon's war with the British had become imminent and he was already planning the invasion of England. At about the time Monroe arrived in

at a distant point and gradually cruise or fight its way to the designated port. It seemed probable that a successful landing could be made if the channel were blockaded from the English for even a few days. The closest co-operation between the army, the navy, and the engineers, who were to build the boats, was necessary to carry out such an offensive.



A view of the Boulogne camp in 1803. The picture illustrates the manner in which the harbor had been widened and how the boats were stored. Troops are seen drilling on the beach. The coast of England is visible at the extreme right.

Paris, Napoleon took up the question of the sale of Louisiana on his own account. The transaction was completed in April 1803, a month before the English embassy left France. Louisiana was sold to the United States for sixty million francs and Napoleon had a large sum of money to draw on.

Napoleon's plan for his English campaign was, in a general way, as follows: A large force of troops was to be trained and equipped at a French port having a harbor in which enough small fast ships could be stored to transport the army across the channel. The crossing was to be protected by the French fleet, which was to assemble

Boulogne was selected as the point of embarkation. The city was at the mouth of the narrow river Liane, which was of such configuration and formation that it could be widened and made into a large harbor capable of storing a great number of small boats. There were *plateaux* on either side of the mouth of the river, exposed to the weather but nevertheless suitable for large concentration camps. Secondary camps could be established at two nearby inlets: one at Étapes and Montreuil to the south, and another at Ambleteuse and Wimereux to the north. Finally, the port lay close to England and the prevailing channel current and wind would tend to

help send the fleet to a point on England's coast fairly opposite so that the time spent in transshipment would be short. For these reasons Napoleon chose Boulogne as a starting point of the invasion of England. He hoped that his army could safely row or sail across the channel when the sea was quiet, possibly in a fog or after a storm when the British fleet would be rendered useless by weather conditions.

Napoleon visited Boulogne for the first time in June 1803 to supervise the beginning of his undertaking which he hoped to start early in the next winter. A camp, called the Camp of Saint Omer, was established on either side of the mouth of the Liane large enough to hold 36,000 men. A second camp for 24,000 was made at Étaples and Montreuil. A third camp was set up at Wimereux and Ambleteuse to be used for the troops sent down from Lille, Douai and Arras.

Boulogne City was also taken over by the army. Offices, storehouses, and hospitals were made from the larger houses and farms. The men were put in barracks or tents as they first came in, and the horses were stabled in rapidly constructed sheds. Food supplies and wood for buildings were requisitioned from Boulogne and its environs to a large extent, though such staples as flour, rice, salt meat, cheese, wine and brandy were sent from Russia, Sweden and Holland.

Five to six thousand professional wood and metal workers were conscripted to begin immediate shipbuilding; 20,000 sailors and 10,000 men were required at once for various labor details. The different units were hurried to Boulogne, and as they arrived were made to dig in the harbor or to construct barracks, ships, and roads. They were clothed like workmen, shod in sabots to keep their feet dry, and from the outset were well lodged, well fed, and well paid. As soon as enough ships were built, the soldiers were drilled at loading, rowing, sail-

ing, and landing, so that each man knew his position in his boat and exactly how to act. Drills were held by night as well as by day, and in storms or smooth water in order to be prepared for all weather conditions.

The English fleet was able to move up and down the coast in front of Boulogne so various forms of protection were constructed. Forts were built on either side of the entrance to the harbor, big guns were mounted along the coast, and a wooden fort was set up in the water at the mouth of the river. Thus in a few months, the little fishing city was transformed into a large and active military centre.

Napoleon returned to the city in September 1803. By this time the shipbuilding, camp construction, and concentration of troops had advanced materially. The British offered difficulties by shelling the town from the channel frequently, and by sending in small landing parties which were able to do considerable damage. Since a large part of the construction work and boat drill was done on the beach when the tide was low, Napoleon devised two new methods to keep the British at longer range. One was the use of explosive bullets which did far more damage than a simple penetrating bullet. The other was the use of "submarine batteries" which were ranged along the beach at different levels, covered by water at high tide, but effective at low tide.

At this visit in September 1803, Napoleon gave up the idea of trying to start the expedition at once, and decided to wait until the following summer. By June, 1804, after the camp had been occupied for a year, the harbor was completed, nearly 2000 boats were built, and an army of 150,000 was assembled. The men were so well trained that all could get into the boats with their entire equipment in three or four hours, and they had become practised rowers and sailors. Napoleon's chief naval advisers, Admirals Decrés and Bruix,

however, asserted that the navy was not strong enough to offer the necessary protection to the army even under most favorable conditions. Therefore the start of the expedition was postponed for a second time.



Napoleon's Column at Boulogne. The review was held near this spot. The foundation stone was laid in 1804, by the Grand Army as a mark of devotion to the Emperor. The monument was completed in 1845.

Napoleon moved his headquarters from Boulogne to Pont à Briques and returned for a tour of inspection on July 20, 1804. He decided to hold a review on his birthday, August 16th, using the occasion to distribute the Cross of the Legion of Honor to certain of his veteran soldiers who were in camp, and at the same time to infect all his troops with his own enthusiasm and to celebrate the proclamation of the Empire, which had occurred on the 18th of May.

Various generals, dignitaries and ladies from the neighboring country sat in a gaily decorated grandstand close by. The troops were massed about this centre in tiers extending almost as far as the eye could see; platoons of infantry were nearest, and on the outskirts mounted soldiers. Napoleon

himself faced inland and was surrounded by 100,000 of his men. He stood up and explained what the Legion of Honor meant. The artillery fired salutes from their emplacements all around, drums beat, and trumpets sounded. The new members of the Legion of Honor marched past Napoleon's throne to receive their crosses, officers and men together, each swearing to shed his blood in England if necessary, and to make his country and commander supreme in the world. The British fleet helped to add to the excitement of the day when some raiders came over and met the French in front of the harbor. A sharp cannonade took place, which the spectators of the review watched through glasses with great interest.

After this activity in the camp there was another year of monotony only interrupted by daily marches and drills. It became increasingly obvious that the expedition would fail unless the French navy did its share. In the early spring of 1805 its main body was in two squadrons, one under Admiral Villeneuve cruising in the Mediterranean, and the other under Admiral Ganteaume blockaded in the harbor of Brest. Napoleon directed Villeneuve to cruise to the West Indies where Ganteaume was to meet him. By such an extraordinary manoeuvre the true purpose of the fleet would be hidden from Admiral Nelson, and such a combined fleet would be strong enough to take control of the channel from the British ships guarding it.

Villeneuve left Toulon on March 30th according to schedule. He arrived at Martinique on the 14th of May, where he was to wait forty days (until June 23d) for the other squadron. His men developed sickness, possibly yellow fever, and a large number deserted. So he started for a short cruise to the Barbadoes where the English had an important base, to kill time and prevent further desertions. He captured a convoy of vessels on the way, and was in-

formed that Nelson with a large fleet was on the high seas in pursuit. He made up his mind to take no further chances but to turn about and sail for Europe. He arrived at the Azores on June 30th, having heard nothing of Ganteaume and giving up hope of meeting him. From there he started toward Finistère and the channel. The wind changed off the Cape, and sickness again broke out amongst his men. He became so

perhaps allow Admiral Ganteaume to escape and what was left of one or both fleets would proceed to Boulogne. Villeneuve sailed from Ferrol on August 10th, but instead of obeying Napoleon and attempting to relieve Brest, he acted on his own responsibility and went south to Cadiz.

At the time, Napoleon was at Boulogne and in a fever of impatience and eagerness.



The Boulogne camp in 1805. The fortifications at the mouth of the harbor are complete. The port is full of ships. The wooden fort is seen at the left of the picture.

much discouraged and depressed that he changed his mind and decided to sail for Ferrol to get reinforcements and news. He met a part of the British fleet under Admiral Calder on the way, and fought an indecisive battle owing to adverse wind, untimely fog, and partly owing to his own lack of aggression. However, he made the port on the second of August without serious casualties.

In the meantime, Ganteaume had not succeeded in escaping from Brest. When Napoleon heard that Villeneuve had returned to Ferrol, he ordered him to proceed to Brest at once and engage the British fleet at any cost. A battle there would

He felt convinced that his army was as well trained and equipped as possible, that the journey across the channel was nothing more than a movement of troops across a wide ditch, and that if the navy made him master of the channel for only three days he could put an end to England. When he heard of Villeneuve's desertion on August 22d, he was almost out of his mind with rage and disappointment. His burst of temper was short lived, though, for he wrote Talleyrand on the next day that if the French fleet came into the channel he would still cut the knot of all coalitions in London. On the other hand, if his admirals failed him, he would enter Germany, march

through Vienna, take away Venice and all of Italy which remained in Austrian hands, and chase the Bourbons from Italy. Having pacified the continent, he would return to the ocean and work anew at a maritime peace.

As the fleet never came, Napoleon was compelled to give up his plans of the invasion of England and to turn his attention to other matters. He left Boulogne for the last time on September second, 1805, and was soon followed by all troops except three regiments and a few other men who stayed to protect the boats and stores which were abandoned. As a final note to the history of the expedition, it is interesting that Fulton came to Boulogne in 1805 and attempted to convince Napoleon that the army should be sent across the channel by steamboat. Inasmuch as the "Clermont" moved upstream on the Hudson River two years later, it is probable that the necessary machinery was nearly perfect when offered to the French, and that the idea was not so ridiculous as it first seemed.

As might be expected with such a large military project on hand and with such genius for detail as Napoleon always showed, his plan of medical administration for the Boulogne camp was remarkably complete and had been logically evolved.

MILITARY SURGEONS IN THE 16TH CENTURY

Up to the end of the sixteenth century military surgeons were unheard of in France, possibly owing to the lack of organized armies. The different seigneurs paid private surgeons to accompany them on campaigns. These surgeons treated such men as needed care more or less at haphazard, and when the campaign was over returned to their villages to resume civil practice. Many of the wounded who had been abandoned on the wayside were treated by charlatans following the army, and were eventually left to the mercy of friendly peasants or monasteries.

Ambroise Paré (1509-1590) is properly considered the first military surgeon in France. King Henry IV (1589-1610) was instrumental in developing surgeons as an integral part of the army, and his adviser Sully (1560-1641) was the first to organize hospitals for the wounded. He introduced the "ambulance," which was a mobile hospital where early treatment could be given; stationary hospitals were placed well back of the lines for later treatment. Richelieu (1585-1642) created regimental surgeons, and after 1731, when the Académie royale de Chirurgie was founded, all French surgeons of repute went through a certain amount of military training.

EARLY MILITARY AMBULANCES

The French Army Medical Corps, or "Service de Santé," was developed further during the reign of Louis XV (1715-1774). Army medical schools were established at which army officers were taught. There were seventy military hospitals to which "ambulances" were attached and to which were allied charity civilian hospitals. In times of war a mobile hospital received the wounded and evacuated them as quickly as their condition allowed to a stationary military hospital somewhere near the front. These hospitals in turn evacuated their cases to the nearest charity civilian hospital in the interior.

The ambulance wagons used for the mobile hospitals were heavy vehicles which carried an immense amount of equipment. Each one was drawn by forty horses and had a personnel of 134 men. Of these, 41 were surgeons, and 31 were supposedly trained nurses. Each mobile hospital was detailed to look after 20,000 men. The great objection was that it was unwieldy in bad roads and that it had to stay at least three miles behind the fighting. The wounded remained on the field until the day's battle was over when they were collected in a group. The ambulance approached at its

convenience, which was often twenty-four hours later. Many of the wounded died through lack of immediate care and were abandoned in case of a retreat.

Napoleon had two remarkable surgeons in his command who made notable progress in the systematization of military surgery. Larrey (1762-1842) realized the necessity of helping the wounded on the field of battle and of removing them under fire. He formed the legion of mobile ambulances (*Légion de l'ambulance volante*). Each legion consisted of three units under the command of a major with two aids, twelve junior surgeons, and an administrative and working force of 340 men. Each unit operated twelve light ambulances and four heavier ones. The light carriages were drawn by two horses and carried two stretcher cases. The heavier ones were drawn by four horses and held four stretcher cases. The wagons were well ventilated and were so constructed that a wounded man could be put inside on a stretcher in horizontal position. Bandages and instruments were part of the equipment. An officer or nurse could drive anywhere for the wounded, dress them on the field when necessary, place them in the ambulance, and gallop off at top speed to a mobile hospital outside the battle zone. Percy (1754-1825) modified Larrey's system by sending out trained stretcher-bearers to render first aid to the wounded and to collect and carry them back.

NAPOLEON'S MEDICAL ORGANIZATION

Thus when the camp at Boulogne was established, Napoleon's medical organization was somewhat as follows: Trained stretcher-bearers collected the wounded on the battlefield, applying dressings on the spot if necessary, and carried the patients to rapidly moving ambulance wagons. These, in time, took the men to the advanced mobile hospital, where further care was given. Finally, the wounded were sent

back to permanent stationary hospitals outside the battle area for treatment until they recovered.

The most modern touch to this system was added in Boulogne by Napoleon himself. In 1803 he wrote a letter to the commanding general of the Saint Omer Camp, recommending that all the sick should be retained in hospitals in the town. He felt that there was nothing worse for sick soldiers than travel. Furthermore, men once sent away from their own units were lost as effective soldiers for long periods of time.

In order to prevent overfilling the hospitals in the area, he ordered the establishment of a convalescent camp big enough to contain a thousand men. All patients on discharge from the hospital were to be sent to this camp for one or several weeks, after which time they were to be returned to their own units for duty. The men in the convalescent camp were to be properly fed and exercised, were to be given a daily ration of wine and the necessary medicines. The medical care of the men was to be undertaken by regimental medical officers or doctors from the hospitals. The military side of the camp was to be in charge of a senior officer with a sufficient number of junior captains and lieutenants.

HOSPITAL TREATMENT AT BOULOGNE IN 1805

On the whole, the organization of the French camp at Boulogne in 1803-1805 was remarkably comparable to that of the British camp there in 1914-1918. Both armies turned the city into a military centre and took for army purposes various civilian buildings making them into storehouses, offices, and hospitals. Both armies had numbers of men under canvas on the *plateaux* at the mouth of the Liane and at Wimereux and Étaples. In 1805 the wounded were collected and dressed on the battlefield, were taken quickly to advanced mobile hospitals, and were later evacuated

to permanent hospitals outside of the battle area. Suitable cases were sent to a convalescent camp in order to be returned to their proper units for duty and so that a man with a minor wound or ailment should not be lost for military purposes. In 1918, the wounded were treated in much the same fashion.

Whether or not Napoleon's proposed invasion of England was feasible as a military project is a debatable question. The history of the Boulogne camp is worth remembering in any event, for it was associated with American development and

helps to illustrate the close fashion in which American, British, and French interests have combined or conflicted during the last two centuries.

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RHAZES ON THE ONSET OF SMALL-POX

THE eruption of the Small-pox is preceded by a continuous fever, pain in the back, itching in the nose, and terrors in sleep, These are the more peculiar symptoms of its approach, especially a pain in the back, with fever; then also a prickling which the patient feels all over his body; a fullness of face, which at times goes and comes; an inflamed colour, and vehement redness in both the cheeks; a redness of both the eyes; a heaviness of the whole body; a great uneasiness, the symptoms of which are stretching and yawning; a pain in the throat and chest, with a slight difficulty in breathing, and cough; a dryness of the mouth, thick spittle, and hoarseness of the voice; pain and heaviness in the head; inquietude, distress of mind, nausea and anxiety (with this difference, that the inquietude, nausea and anxiety are more frequent in the measles than in the small-pox; while, on the other hand, the pain in the back is more peculiar to the small-pox than to measles); heat of the whole body, an inflamed colour and shining redness, and

especially an intense redness of the gums.
 . . . There is a bad and fatal sort of the white and large pustules, viz., those which become confluent and spread, so that many of them unite and occupy large spaces of the body or become like broad circles, and in colour resemble fat. As to those white pustules which are very small, close to each other, hard, warty, and containing no fluid, they are of a bad kind, and their badness is in proportion to the degree of difficulty in ripening. And if the patient be not relieved upon their eruption, but his condition continues unfavorable after it is finished, it is a mortal sign. And as to those which are of a greenish, or violet or black colour, they are all of a bad and fatal kind; and when, besides, a swooning and palpitation of the heart comes on, they are worse and still more fatal. And when the fever increases after the appearance of the pustules, it is a bad sign; but if it is lessened on their appearance, that is a good sign.

RHAZES. "De variolis et morbillis."
 (Greenhill's translation).

WILLIAM OSLER, THE MAN¹

By HARVEY CUSHING

BOSTON, MASS.

WHATEVER may be said of Sir William Osler in days to come, of his high position in medicine, of his gifts and versatility, to his contemporaries, love of his fellow-man, utter unselfishness, and an extraordinary capacity for friendship will always remain the characteristics which overshadow all else. Few so eminent and so industrious come in return to be so widely beloved for their own sake. Most of us do well with what Stevenson advises—a few friends and those without capitulation—but Osler had the God-given quality not only of being a friend with all, high or low, child or grown-up, professor or pupil, don or scholar, but what is more, of holding such friendships with an unforgetting tenacity—a scribbled line of remembrance with a playful twist to it, a note of congratulation to some delighted youngster on his first publication, the gift of an unexpected book, an unsolicited donation for some worthy cause (and giving promptly he gave doubly), a telegram to bring cheer or consolation, an article to help a struggling journal to get a footing, a cable such as his last on the day of his operation to his old Hopkins friends, which was given by them to the press for the benefit of countless others who shared their own anxiety—all this was characteristic of the man, whose first thoughts were invariably for others.

He gave much of himself to all, and everyone fortunate enough to have been brought in contact with him shared from the beginning in the universal feeling of devotion all had for him. This was true of his patients, as might be expected, and he was sought far and wide not only because of his wide knowledge of medicine and great wisdom, but because of his generosity, sympathy and great personal charm. It was

true also—and this is more rare—of the members of his profession, for whom, high or low, he showed a spirit of brotherly helpfulness untinged by those petty jealousies which sometimes mar these relationships. “Never believe what a patient may tell you to the detriment of another physician” was one of his sayings to students, and then he would add with a characteristic twist—“even though you may fear it is true”; and he was preëminently the physician to physicians and their families, and would go out of his way unsolicited and unsparingly to help them when he learned that they were ill or in distress of any kind. And no one could administer encouragement, the essential factor in the art of psychotherapy in which he was past master, or could “soothe the heartache of any pessimistic brother,” so effectively and with so little expenditure of time as could he.

During one of his flying trips to America some years ago, as always with engagements innumerable, he took time to go from Baltimore to Boston for the single purpose of seeing a surgical friend with literary tastes who for some months had been bed-fast with a decompensated heart; and James Mumford, for it was he, always said that this unannounced visit was what put him on his feet again. I knew of his doing the same thing for an Edinburgh physician of whose illness he heard by chance just as he was leaving the steamer, in Liverpool. He was due for an address before the British Medical Association in Oxford, but without hesitation he took the first train to the north and managed to get back to Oxford just in time for the address, blithe and gay as though he had not spent two nights on a train. Indeed he was invariably punctual and somewhat intolerant of tardiness in others. “Punctuality is the prime essential

¹ An amplification of a note on Sir William Osler which appeared anonymously in the *Boston Evening Transcript*, January 3, 1920.

of a physician—if invariably on time he will succeed even in the face of professional mediocrity.”

The universal devotion he engendered was no less true of those with whom he came in contact outside his profession, and his points of contact through his varied interests were innumerable. Man, woman or child—and in children especially he delighted as they did in him—felt from the first moment of meeting a rare fascination in his personality. In a poem, “Books and the Man,” dedicated to Osler and read before the Charaka Club, March 4, 1905, Weir Mitchell recalls in these three verses their first meeting in London twenty years before.

Do you perchance recall when first we met—
And gaily winged with thought the flying night
And won with ease the friendship of the mind,—
I like to call it friendship at first sight.

And then you found with us a second home,
And, in the practice of life's happiest art
You little guessed how readily you won
The added friendship of the open heart.

And now a score of years has fled away
In noble service of life's highest ends,
And my glad capture of a London night
Disputes with me a continent of friends.

On Osler's seventieth birthday, just passed, the medical world set out to do him honor—unknown to him, for he was one to elude public testimonials and did not suffer adulation gladly, quick as he was to give praise to others. For this occasion many of his former pupils and colleagues in Baltimore wrote a number of papers containing the sort of things rarely said or written about a man or his work until after his death. Among these papers is one by his present successor there, on “Osler the Teacher” which deserves quoting in full, but which after an enunciation of his traits ends with this picture of the man as his hospital associates and students remember him.

If you can practice consistently all this, . . . and then, if you can bring into corridor and ward a light, springing step, a kindly glance, a bright word to everyone you meet, arm passed within arm or thrown over the shoulder of the happy student or colleague; a quick, droll, epigrammatic question, observation or appellation that puts the patient at his ease or brings a pleased blush to the face of the nurse; an apprehension that grasps in a minute the kernel of the situation, and a memory teeming with instances and examples that throw light on the question; an unusual power of succinct statement and picturesque expression, exercised quietly, modestly and wholly without sensation; if you can bring into the lecture-room an air of perfect simplicity and directness, and, behind it all, have an ever-ready store of the most apt and sometimes surprising interjections that so light up and emphasize that which you are setting forth that no one in the room can forget it; if you can enter the sick-room with a song and an epigram, an air of gaiety, an atmosphere that lifts the invalid instantly out of his ills, that produces in the waiting hypochondriac so pleasing a confusion of thought that the written list of questions and complaints, carefully compiled and treasured for the moment of the visit, is almost invariably forgotten; if the joy of your visit can make half a ward forget the symptoms that it *fancied* were important, until you are gone; if you can truly love your fellow and, having said evil of no man, be loved by all; if you can select a wife with a heart as big as your own, whose generous welcome makes your tea-table a Mecca; . . . if you can do all this, you may begin to be to others the teacher that “the chief” is to us.

Little wonder that he was idolized by the students. This was natural enough, but he in turn took pains to know them by name, gave up an evening in each week to successive groups of them at his home, learned them as individuals and never forgot them. And it was the same with his hospital juniors, whether they happened to be members of his own staff or not. Preserved among some papers I find this characteristic undated note of *circa* 1898, concerning an early effort which had been submitted to him. It is scribbled in pencil on a bit of paper.

A. A. 1. report! I have added a brief note about the diagnoses. I would mention in the medical re-

port the name of the House Physician in Ward E & the clin. clerk, & under the surgical report the name of the House Surgeon who had charge. We are not nearly particular enough in this respect and should follow the good old Scotch custom. Yours, W. O.

This habit of giving credit to everyone who may have been brought into contact with a case was most characteristic of the man. Even his "Text-Book of Medicine" contains so many references to places and people that it led to these amusing verses taken from a long poem by a student which appeared in the *Guy's Hospital Gazette* some years ago:

For why should it matter to usward,
If Osborn has sent you a screed,
Or why have you sought a brief mention of Porter,
Or Barker, or Caton, or Reed?
I sometimes am seized with a yearning,
In Appleton's ledger to look,
What fun it would be if we only could see
Whether each of them purchased the book!

But when of the names we are weary
(Directories muddle the brain),
We're provided by you with philosophy too
In the trite Aphorisms of Cheyne.
Geography also you teach us,
Until I came under your thrall,
I don't mind confessing that Conoquenessing
I never had heard of at all.

But with all his abundant learning, his high spirits, his playful wit and love of a practical joke, he was incapable of offending. "If you can't see good in people see nothing." Charitable to a degree of others' foibles, even when he had to oppose or to fight in public for a principle he did so without leaving hurt feelings. This lay at the bottom of the great influence he exercised and the universal admiration felt for his character.

Probably no physician during his life has been so much quoted nor so much written about, and the chief periods of Osler's eventful and migratory career are too well known to need more than brief mention.

His father, a clergyman, Featherstone

Lake Osler, with his wife, Ellen Pickton, left Falmouth, England, in 1837 and settled in the Province of Ontario. William, the eighth of their nine children, several of whom have become highly distinguished in Canadian affairs and in the law, was born July 12, 1849, at Bond Head. A graduate of Trinity College, Toronto, in 1868, he took his medical degree four years later at McGill University; then after two years of study abroad, returning to Montreal in 1874, he leapt into prominence as the newly appointed Professor of the Institutes of Medicine of his alma mater. A professor at twenty-five, in a chair which covered the teaching of pathology and physiology! And there followed ten years of active scientific work which laid the foundation for his subsequent eminence in his profession.

In 1884 he accepted a position in the University of Pennsylvania, and five years later was called to Baltimore as Professor of Medicine in the newly established Johns Hopkins Medical School. There, marrying in 1892 Grace Revere, the widow of Dr. S. W. Gross of Philadelphia, he remained for sixteen years. It was the Golden Age of the Johns Hopkins during the presidency of Daniel C. Gilman, and during this period through his writing and teaching Osler became recognized, one may say without exaggeration, as the most eminent and widely influential physician of his time.

Many calls to other positions during these years met with refusal until in 1904, when fifty-six years of age, he accepted the Regius Professorship of Physic at Oxford, the most honored post in medicine that the United Kingdom can offer. Though this position on a royal foundation centuries old (Henry VIII, 1546) is a sinecure and was doubtless accepted to give leisure for literary pursuits, he was not one to take advantage of ease. The succeeding fifteen years in Oxford represent, if possible, a period of even greater activity and more far-reaching influence in many directions than the fifteen

years at the Johns Hopkins, where despite his absence his stimulating spirit of work for work's sake still reigns.

Established in a delightful home where he and Lady Osler continued to dispense their unbounded hospitality, so much so that 13 Norham Gardens came to be known as the "Open Arms," elected a Fellow of

strict adherence to the humanities, its comfortable spirit of *laissez faire*, had drawn into its net a restless spirit who knew the modern outside world, and he was responsible for such changes even in the established procedures of the Bodleian as were thought impossible of accomplishment, if indeed modern library methods were really desir-



A snapshot of Sir William Osler taken in the Bodleian Library in 1909, holding open Sir William Stirling-Maxwell's copy of Vesal's *Tabulae Anatomicae*.

Christ Church, Woolsey's College, put upon the Hebdomadal Council, a small body which takes the initiative in promulgating all the legislature of the University before its submission to Convocation, he was soon appointed one of the curators of the Bodleian Library, and elected a Delegate of the University Press. There can be no doubt but that these latter positions gave him his greatest extra-professional pleasure and satisfaction during his Oxford life, and to the Library and the Press he gave largely of his time.

But Oxford, with its hoary traditions, its

able. But a man, particularly when energetic, unselfish and likeable, who could talk Aristotelian philosophy with the dons at the high table and at the same time knew science and the value of laboratories as well as libraries, could not but leave his impression on the ten centuries, more or less, of Oxford's habits and customs.

There were, indeed, many Oslers: the physician, the professor, the scholar, the author, the bibliophile, the historian, the philanthropist, the friend and companion for young or old. Though no man loved his home more nor kept its doors more widely

open to the world, he was in demand everywhere, and was eminently clubbable. Few dinners, of the Samuel Pepys Club, the Roxburghe or the Colophon Clubs, of the inner circle of the Royal Society, of his college, failed to be enlivened by his presence, and he had just been made a member of the famous Johnson Club, one of the oldest and most select dining clubs in existence.

His Oxford home, even more than in Baltimore, had become such a gathering place, particularly for Canadians and Americans, that how the scholar did his work was a mystification to many. An omniverous reader with a most retentive memory, possessed of a rare literary gift and with the power of immediately concentrating on the thing which was to be done, no matter what had occupied his attention the moment before or was laid out to be done the moment after—these were probably the elements of his great productivity.

With it all he was a writer par excellence of countless brief missives—even the fragment pencilled on a postcard during his outings and sent to an unexpected friend whom some incident had led him to recall, invariably contained some characteristic message, quip or epigram worth preserving. During a brief sojourn in Paris in the winter of 1908-9, he writes:

I've just been going through the Servetus Trial for Astrology, 1537. 'Tis given in full in du Boulay's History of the University of Paris. I wish you could see this library. I've wasted hours browsing. Meanwhile I've read through six volumes of Swinburne. I did not know before of his Children's Poems. We are off on the 13th, first to Lyons to see Symphorien Champier and Rabelais. We'll stop at Vienne to call on Servetus and Appolos Revoire, doubtless the father of the late Paul Revere.

He subsequently went down into Italy, and some of the readers of a journal of medical history may like to trail him by a letter and by some picture postcards, on a

quarter of which he could squeeze much in his fine writing.

Cannes.

A great coast. Such sunshine. We have been here 1½ weeks—delighted with everything. This is a gorgeous spot. Where I put the + is the little town of Gourdron. They had to get high up on account of the Moors. I am thinking of settling at Monte-Carlo—they say there is a good opening. I lost \$.25 in five minutes and then stopped. We go to Rome on the 7th. So far as women are concerned this is the Remnant Counter of Europe. . . .

Milan.

I forgot whether I wrote about the Vesal *Tabulæ sex* at the San Marco— I think I did. Splendid as illustrating the evolution of his knowledge—also of Calcar as they are very crude in comparison with the 1542. Nothing much in Pavia—nothing in comparison with Bologna and Padua. Library good—no Vesal items of moment, not even the 1543. A 1st ed. of Mundinus, but no plates. I have not been able to locate a single Mundinus MS.—I wonder where they can be. The Ambrosiana here is a fine collection. I had 5 original MSS. of Cardan to look over—the autobiography is complete—he wrote a wonderful hand—no wonder the printers liked to get his copy. Hopli here has no large stock—tho' the best publisher in Italy. Love to the bairns. . . .

Rome.

Rome at last! Wonderful! What pigmies we are in comparison with those old fellows. So much to see and everything intensely interesting. I have not yet been to the Vatican Library. Splendid bookshops here. I have already got some treasures. Redi and Valisneri—splendid editions. So glad of your letter today (11th). Love to the darlings.

Florence.

Yours came this morning—two days late for personal attention to your Lang commission. I was recalled to Rome (stranded American) and I *sanctified* my fee by buying three copies of Vesal. 2nd edition, fine one for myself. A first for McGill (300 fr. was stiff but it goes for 500!) and another for the Frick Library. I was sorry to miss the Rhazes—the Brussels Library secured it. I have two copies also of the Venice edition of the Vesal. Have you one? I will send your list to Lang. They are Germans and know their worth. I bought one *Imperialis* for the sake of the Vesal picture—they have another which I will ask them to send. The Gilbert facsimile is good and the Berengarius. Did I tell you I got the original Gilbert at the

Amherst sale? I got a beauty Aristotle 1476 de partibus animalium at Laschers. This place is of overwhelming interest—libraries, pictures, etc. The Laurentian library is just too splendid for words—7000 chained mss., all in the putei designed by Michael Angelo. I have a photo of the end of one for you. The book shops are good. B—one of the best in Europe. He has 500 incunabula on the shelves, a Silvaticus—a cuss of no moment—of 1476, a superb folio, one of the first printed in Bologna—fresh and clean as if printed yesterday and such a page! but . . . asks 1500 francs. His things are wonderful. But really auction sales (are) is the only economical way to get old books. The dealers have to put up their prices to pay interest on the stock. I am sorry not to have seen the Junta Galen—there are 5 Venice editions of that firm! By the way the Pitti picture of Vesal is very fine—I am looking for a photo—the beard is tinged with grey. . . .

Re Alcmeon, see Gomperz Greek Thinkers—he was the earliest and greatest of the Magna Graeca anatomists. We go from here to Bologna, Padua, Venice, &c. I have a set of Votives for the Faculty—terra-cotta arms, legs, breasts, yards, eyes, ears, fingers—which the votaries hung in the Æsculapian temples in gratitude to the God—the modern R. C. ones are wretched (tin) imitations.

I am in a state of acute mental indigestion from plethora—it is really bewildering—so much to see and to do.

Naples.

Thus far on the trip. Glorious place—glorious weather. I wish you were *mit*. I dreamt of you last night—operating on Hughlings Jackson. The great principle you said in cerebral surgery was to create a commotion by which the association paths were restored. You took off the scalp—like a *p. m.* incision—made a big hole over the cerebellum and put in a Christ Church—whipped cream—wooden instrument and rotated it rapidly. Then put back the bone and sewed him up. You said he would never have a fit again. I said solemnly, I am not surprised. H-J. seemed very comfortable after the operation and bought 3 oranges from a small Neapolitan who strolled into the Queen-Square amphitheatre! I have been studying my dreams lately and have come to the conclusion that just one-third of my time is spent in an asylum—or should be!

Two years later, in 1911, he made a winter's trip to Egypt and as usual was

enthusiastic about all he saw and did. Here is a somewhat longer letter.

S. S. "Seti"

Feb. 22nd, 1911.

Such a trip! I would give one of the fragments of Osiris to have you two on this boat. Everything arranged for our comfort and the dearest old dragoman who parades the deck in gorgeous attire with his string of 99 beads—each one representing an attribute of God! We shall take about 10 days to the Dam (Assouan), 580 miles from Cairo. Yesterday we stopped at Assiut and I saw the Hospital of the American Mission—200 beds, about 20,000 out-patients. Dr. Grant is in charge with 3 assistants and many nurses. I found there an old Clevelander . . . who had fallen off a donkey and broken his ribs, and on the 8th day had thrombosis of left leg. He was better, but at 76 he should have stayed at home. The Nile itself is fascinating, an endless panorama—on one side or the other the Arabian or the Libyan desert comes close to the river, often in great lime stone ridges, 200–800 ft. in height; and then the valley widens to eight or ten miles. Yellow water, brown mud, green fields and grey sand and rocks always in sight; and the poor devils dipping up the water in pails from one level to the other. We had a great treat yesterday afternoon. The Pasha of this district has two sons at Oxford and their tutor, A. L. Smith, a great friend of his, sent him a letter about our party. He had a secretary meet us at Assiut and came up the river to Aboutig. We had tea in his house and then visited a Manual Training School for 100 boys, which he supports. In the evening he gave us a big dinner. I wish you could have seen us start off on donkeys for the half mile to his house. It was hard work talking to him through an interpreter, but he was most interesting—a great tall Arab of very distinguished appearance. A weird procession left his house at 10 P.M.—all of us in eve. dress, which seemed to make the donkeys very frisky. Three lantern men, a group of donkey men, two big Arabs with rifles and following us a group of men carrying sheep—one alive! chickens, fruit, vegetables, eggs, etc., to stock our larder. We tie up every eve about 8 o'clock, pegging the boat in the mud. The Arabs are fine: our Reis, or pilot, is a direct descendant, I am sure, of Rameses II, judging from his face. After washing himself he spreads his prayer mat at the bow of the boat and says his prayers with the really beautiful somatic ritual of the Muslem. The old Pasha, by the way, is a very holy man and has been to Mecca where

he keeps two lamps perpetually burning and tended by two eunuchs. He is holy enough to do the early morning prayer from 4 to 6 A.M. with some 2000 sentences from the Koran. It is a great religion—no wonder Moslem rules in the East. Wonderful crops up here—sugar cane, cotton, beans and wheat. These poor devils work hard but now they have the satisfaction of knowing they are not robbed. We are never out of sight of the desert and the mountains come close on one side or the other. Today we were for miles close under limestone heights—800–1000 feet, grey and desolate. The river is a ceaseless panorama—the old Nile boats with curved prows and the most remarkable sails, like big jibs, swung on a boom from the top of the masts, usually two and the foresail the larger. I saw some great books in the Khedival Library—monster Korans superbly illuminated. The finer types have been guarded jealously from the infidel, and Moritz, the librarian, showed me examples of the finer forms that are not in any European libraries. Then he looked up a reference and said—“You have in the Bodleian three volumes of a unique and most important 16 cent. arabic manuscript dealing with Egyptian antiquities. We have the other two volumes. Three of the five were taken from Egypt in the 17th century. We would give almost anything to get the others.” And then he showed me two of the most sumptuous Korans, about 3 ft. in height, every page ablaze with gold, which he said they would offer in exchange. I have written to E. W. B. Cyclops Nicholson urging him to get the curator to make the exchange, but it takes a University decree to part with a Bodley book! Curiously enough I could not find any early Arabian books (of note) in medicine, neither Avicenna or Rhazes in such beautiful form as we have. I have asked a young fellow at school who is interested to look up the matter. We shall have nearly a week in Cairo on our return. I went over the *Ankylostoma* specimens with Looss and the *Bilharzia* with Ferguson—both terrible diseases here (not the men!)—the latter, a hopeless one and so crippling. There were a dozen or more bladder cases in the hospital and the polypous cholitis which it causes is extraordinary. They must spend more money on scientific medicine. Looss has very poor accommodations. The laboratories are good, but the staffs are very insufficient. The hospital is impossible. I am brown as a fella—such sun—a blaze all day. We reached Cairo in one of those sand storms, the air filled

with a greyish dust which covers everything and is most irritating to eyes and tubes. This boat is delightful—five—six miles an hour against the current, which is often very rapid. The river gets very shallow at this season, and is fully eighteen feet below flood level. I have been reading Herodotus, who is the chief authority now on the ancient history of Egypt. He seems to have told all of the truth he could get and it has been verified of late years in the most interesting way. Tomorrow we start at 8 for the Tombs of Denderah—a donkey ride of an hour. We are tied up to one of Cook's floating barge docks, squatted out side is a group of natives and the Egyptian policeman (who is in evidence at each stopping-place) is parading with an old Snider and a fine stock of cartridges in his belt.

P. S. 24th. Have just seen Denderah and the Temple of Hathor. Heavens, what feeble pigmies we are! Even with steam, electricity and the Panama Canal.

What fun to travel with a spirit like this, and he rarely went anywhere without having two or three youngsters on his trail. The summer his Oxford decision was finally made two of us crossed with him, indeed shared the same small stateroom, and, as I recall it, were not permitted to pay our share. We learned something of his methods of work, and had we not been on this intimate basis he would have appeared to us, as to the other voyagers, as the most care-free individual aboard. As a matter of fact he was always the first awake, and we would find him propped up with pillows reading or writing, and his bunk was so cluttered with books during the whole trip that there was scant room for its legitimate occupant. He breakfasted while we dressed, and then went on with his morning's work while the rest of us wandered about the deck with good intentions but usually with an unread book under our arms. At luncheon he would appear; the remainder of the day was a continuous frolic. We roped in the ship's doctor and got up a medical society of the physicians aboard. I find that I have preserved the program which he arranged.

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By Members of the North Atlantic Medical Society

Edited by

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of

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All this was doubtless very frivolous but he spent no idle hours, and getting enjoyment out of trifles at the proper time and making others participate was as characteristic of the man as his hours of industry when sitting down to the day's work.

Few scholars have received more recognition for their work, few have received so

many honors nor carried them so well. With it all he preached and practiced humility. To quote from one of the essays in "Aequinimitas":

"In these days of aggressive self-assertion, when the stress of competition is so keen and the desire to make the most of oneself so universal it may seem a little old-fashioned to preach the necessity of this virtue, but I insist for its own sake, and for the sake of what it brings, that a due humility should take the place of honour on the list."

His charm as a writer had much to do with his great success as a teacher, and his bibliography, covering a period of 49 years, is most extensive—730 titles, including his collected essays and addresses, having been assembled by Miss Blogg in commemoration of his last birthday. There is a great range of subjects beside those pertaining to medicine and medical history. His "Text-Book of Medicine," of which nearly 200,000 copies have been printed, kept constantly under revision, translated into French, German, Spanish and Chinese and now entering on its ninth edition, was written during his early years in Baltimore and since 1892 has been read—nay devoured—by countless medical students and graduates alike. It remains probably the most used and most useful book in medicine today.

As is well known, his attachment to young men and his fondness for literary allusion once got him into trouble by a quotation from "The Fixed Period," one of Anthony Trollope's rarer novels, which probably few have read and which is difficult to obtain, as the present writer knows to his cost. Thus the remark about chloroform, really Trollope's, was made in the course of his farewell address to his devoted Baltimore colleagues and friends, many of whom were over 60, an age he was approaching himself. And he would have been the last to have offended them. It was an address full of deep feeling for all that he was soon to leave behind, but the represen-

tatives of the press who were present singled out this one remark to be headlined. The sad feature of this episode is that it stands as one of the best examples of the heartlessness of the press when an opportunity offers itself for copy, no matter who may be sacrificed. On the eve of his departure from America the notoriety probably hurt him considerably, though he wisely made no reply, not even at the great banquet which was given him at the time by the profession of the country, on which occasion Weir Mitchell presented him with the rare Franklin imprint of Cicero's "De Senectute." He knew when to keep his tongue as with a bridle.

His Ingersoll Lecture on "Science and Immortality" is a good example of his charming literary style, and there is an interesting story of how he came to accept the lectureship, which others must tell. It was given late in 1904, a few months before his transference to Oxford, when he was in great demand everywhere and by everyone and could find no time for its preparation. Finally, a few days before the date of the occasion, he slipped away one night to New York, hid in the University Club, and wrote the lecture in a single morning. It is so full of allusion that to appreciate it fully one must read it with the Bible in one hand, the "Religio Medici" in the other, and "In Memoriam" near by. In this he gives his own *confessio fidei* to the effect that, as Cicero had once said, he would rather be mistaken with Plato than be in the right with those who deny altogether the life after death.

At seventy in the forefront of activities innumerable, of unusual physical vigor and buoyancy, coming of a long-lived race, William Osler's death may be regarded as the consequence of the war. No human being is soothed by strife more than he; few had been so successful in avoiding it in any guise. This characteristic made him suffer unduly from the very outbreak of the conflict. He

nevertheless threw himself into it with characteristic energy in connection with the War Office, on committees, in hospitals, and as a senior consultant to the Forces he received a Colonel's commission. The British reply to the famous German professional note issued early in the war was, I believe, written by him and shows the man's spirit and, as always, his charity. The opening and closing paragraphs may be quoted:

We see with regret the names of many German professors and men of science, whom we regard with respect and, in some cases, with personal friendship, appended to a denunciation of Great Britain so utterly baseless that we can hardly believe that it expresses their spontaneous or considered opinion. We do not question for a moment their personal sincerity when they express their horror of War and their zeal for "the achievements of culture." Yet we are bound to point out that a very different view of War, and of national aggrandizement based on the threat of War, has been advocated by such influential writers as Nietzsche, von Treitschke, von Bülow, and von Bernhardi, and has received widespread support from the press and from public opinion in Germany. This has not occurred, and in our judgment would scarcely be possible, in any other civilized country. We must also remark that it is German armies alone which have, at the present time, deliberately destroyed or bombarded such monuments of human culture as the Library at Louvain and the Cathedrals at Rheims and Malines. No doubt it is hard for human beings to weigh justly their country's quarrels; perhaps particularly hard for Germans, who have been reared in an atmosphere of devotion to their Kaiser and his army, who are feeling acutely at the present hour, and who live under a Government which, we believe, does not allow them to know the truth. Yet it is the duty of learned men to make sure of their facts. . . .

The German professors appear to think that Germany has, in this matter, some considerable body of sympathizers in the Universities of Great Britain. They are gravely mistaken. Never within our lifetime has this country been so united on any great political issue. We ourselves have a real and deep admiration for German scholarship and science. We have many ties with Germany, ties of comradeship, of respect, and of affection. We grieve profoundly that, under the baleful influence of a military system and its lawless dreams

of conquest, she whom we once honoured now stands revealed as the common enemy of Europe and of all peoples which respect the Law of Nations. We must carry on the war on which we have entered. For us, as for Belgium, it is a war of defence, waged for liberty and peace.

His only child, Revere, an Oxford undergraduate and his father's devoted playmate, who too hated strife, on coming of military age underwent training as a field artillery officer, was commissioned Lieutenant, served with his battery with great credit for a year in France, and was mortally wounded in action September 2, 1917, in the Ypres salient. Thus the great grandson of our Paul Revere who roused Lexington and Concord lies under a wooden cross in Flanders in the corner of a foreign field that is forever England. By a strange coincidence, a group of American officers, who knew what grief this would bring, were there to bare their heads at his Last Post.

From this loss, particularly heartrending to one of his nature, his father never fully recovered. Though unchanged in his outward dealings with people and affairs, he suffered much from insomnia and his health was so undermined that he became an easy prey to an old enemy, bronchial attacks. He finally contracted pneumonia and died suddenly on December 29th from one of its complications which had made an operation necessary.

At the time of the farewell dinner in New York in 1905, Dr. Osler confessed under the emotion of his reply to the tribute that had been paid him, that to few men had happiness come in so many forms as it had come to him; that his three personal ideals had been, to do the day's work well, to act the Golden Rule in so far as in him lay, and lastly to cultivate such a measure of equanimity as would enable him to bear success with humility, the affection of his friends without pride, and to be ready when the day of sorrow and grief came to meet it with the courage befitting a man.

During these last two years, though he must have felt at times, as did his anxious friends, that possibly his span was run, his spirit was unflagging. His son, though essentially an out-of-doors boy, through living in an atmosphere of books acquired bibliophilic tastes of his own and had formed, like Harry Widener at Harvard and Alexander Cochrane at Yale a valuable collection of imprints of the Tudor and Stewart periods. To this collection, Sir William subsequently made many additions from his own carefully chosen books and manuscripts. He and Lady Osler presented the collection to the Johns Hopkins undergraduates as a memorial to their son, to become something like the Elizabethan Club at Yale, a rallying point for young college men with literary and bookloving tendencies. He worked, too, at every odd moment to complete, so far as possible, the unique catalogue of his own lifetime collection of treasures relating to the history and literature of medicine, ranging from a medical tablet from Sardapolis through a series of priceless manuscripts and incunabulas to the essential contributions to medicine in their originals of our own time.

This incomparable collection with its elaborate catalogue, which is not a mere enumeration of volumes but is largely biographical, indeed autobiographical in character, is destined for the library of McGill, where he held his first chair in medicine. Sir William as may not be generally known had lately been offered but had refused the position as the head of that great Canadian university. He also received a year ago the amazing offer from both political parties that he stand as fusion candidate for the Oxford seat in Parliament, but refused on the ground that it should in justice be offered to Asquith.

As President of the Classical Association one of his most notable and, so far as I know, his last address, on "The Old Humanities and the New Sciences" was given

before that body in Oxford, May 16th, 1919. That a scientist and physician should become president of the most eminent group of British scholars, whose aim is to "promote the development and maintain the well-being of classical studies" would seem incongruous did one not know the man whose Greek Testament always stood by the "Religio Medici" at his bedside. Disclaiming that he had "ever by pen or tongue suggested the possession of even the traditional small Latin and less Greek," in this remarkable address given in his most brilliant style he makes a plea for no human letters without natural science and no science without human letters.

It was inevitable that the address should be colored by frequent allusions to the war and appeals for individual service to the community. Quoting Plato's "Republic" that "States are as the men are, they grow out of human characters," he concludes with this paragraph:

With the hot blasts of hate still on our cheeks, it may seem a mockery to speak of this as the saving asset in our future; but is it not the very marrow of the teaching in which we have been brought up? At last the gospel of the right to live, and the right to live healthy, happy lives, has sunk deep into the hearts of the people; and before the war, so great was the work of science in preventing untimely death that the day of Isaiah seemed at hand "when a man's life should be more precious than fine gold, even a man than the gold of Ophir." There is a sentence in the writings

of the Father of Medicine upon which all commentators have lingered, ἦν γὰρ παρῆ φιλανθρωπία, πάρεστι καὶ φιλοτεχνίη—the love of humanity associated with the love of his craft!—philanthropia and philotechnia—the joy of working joined in each one to a true love of his brother. Memorable sentence indeed, in which for the first time was coined the magic word *philanthropy*, and conveying the subtle suggestion that perhaps in this combination the longings of humanity may find their solution, and Wisdom—philosophia—at last be justified of her children.

Two of Osler's lay sermons to students have been published, in which his own life habits are more or less reflected. In one of them given at Yale where he was giving the Silliman Lectures in 1913, he offered "his fellow students" a way of life—"a path in which the wayfaring man cannot err, a life in day-tight compartments, the main business of which is not to see dimly at a distance, but to do what lies clearly at hand."

In 1910 "Man's Redemption of Man" was delivered at a service for the students at the University of Edinburgh. Osler unconsciously chose as his text from Isaiah what he himself has been to those who knew him.

And a man shall be as an hiding-place from the wind, and a covert from the tempest; as rivers of water in a dry place; as the shadow of a great rock in a weary land.



SIR WILLIAM OSLER, A TRIBUTE¹

By HOWARD A. KELLY, M.D.

BALTIMORE, MARYLAND



HERE clearly existed among all who knew him well, a widespread desire, manifesting itself in many circles, to commemorate Sir William Osler's seventieth birthday in July. It seems well worth while to inquire into the reasons for this unwonted stir among the brethren of the stethoscope and the scalpel.

I am sure I shall not be dubbed *méchant* if I venture delicately to hint that at least a little piquancy is added to the celebration of the seven decades, rotund and replete with years of splendid activities, by the obvious fact that our dear friend has cheated his own jesting computation of the years of a man's fertility by several lustra; and who among his friends are entitled to make so merry at this happy birthday party as we, his hoary contemporaries, who have also escaped the penalty of innocuous desuetude?

Without being minutely analytical, we boldly claim that our Osler is some sort of a genius, not perhaps a vast scientific genius of the laboratory, nor yet a genius through the excess of any one predominant quality, but rather the possessor of a rare combina-

tion of gifts, of a mental and spiritual endowment and balance which always attract and inspire men to higher ideals, and which recall them to a renewed dedication of life and service to more worthy and nobler ends.

Philadelphia lost Osler, I think, because the way to preëminent leadership there seemed barred, while instinct led him to seek the highest office the profession held as a gift for the rare man. Baltimore offered him scope for the development of all his capabilities in the Johns Hopkins Hospital, and in the inauguration and untrammelled growth of a new medical school on new lines; the time for a change was ripe in medicine, the field was open, and the man arrived to claim the opportunity as his right.

When Osler settled in Baltimore, the medical profession was rent with internal dissensions fostered by a numerous progeny of starveling medical schools, with "professors" who secured the charter in order to gain the title, and who took the title in the hope that they might thus learn medicine,—offshoots of one venerable school with a noble history, the University of Maryland. With this complete disruption all progress was stayed and the harmony and united effort essential to progress

¹ EDITORIAL NOTE: The articles by Drs. Howard A. Kelly, John Ruhräh and Fielding H. Garrison, and the historical note on page 211 were written prior to Sir William Osler's death on December 29, 1919.

seemed impossible; chaos reigned. Osler chiefest of all, but to be just, both Osler and Welch, and again Hurd and Halsted, by virtue of certain high spiritual qualities, and with infinite patience, and by continually manifesting the interest they one and all felt in men in the other schools, as well as in our own, gradually drew together these discordant elements, and converted a hostile community into a big medical fraternity and a cöoperative workshop.

The plain lessons of Osler's life are first of all, his supreme devotion to the ideals of his profession; the cultivation of broad tastes in fields contributory to the medical sciences; a policy of discovering the best in all men, and uniting the profession to serve. This latter quality was counterbalanced by a willingness to enter into a fight for principle when it was vital.

I might pause to speak of Osler's rare books in which I felt a collector's keen interest, or of his inspiring relations to his students, or again of his numerous original medical investigations; but others are better fitted to tread these fields than I. To my mind the greatest thing about Osler was this spiritual quality on which I love to dwell, and without which I think no man is ever truly great. In developing this, his best and strongest side, he was fortunate

indeed in finding the one person in the world capable of bringing his talents to their highest perfection—I refer to Lady Osler. I think Sir William himself will readily agree that he never would have become the man he is without Lady Osler's companionship; so close and so perfect has been this fortunate union that it is not possible to think of one without the other.

The years are now running into the decades and Osler continues to live and work among us here in Baltimore in spirit as of yore. We have our Phipps Clinic, our Laennec Society, our Book and Journal Club begotten by him, our Medical and our Historical Societies, and our Library, all of which he fostered so diligently; here too is the resuscitated and vitalized Medical Chirurgical Faculty in its splendid new quarters, corresponding to the College of Physicians of Philadelphia. The core of this heart of Baltimore and Maryland medicine is Osler Hall with its gallery of past presidents presided over by Osler at the rostrum in paint and in stone. And so in very deed and truth Osler, though loaned to our British cousins and knighted by the King, yet lives and moves and inspires us here, and is likely to continue in perpetuity as the patron saint of our Maryland medicine, and in some degree of the entire country.

OSLER'S INFLUENCE ON MEDICAL LIBRARIES IN THE UNITED STATES

By JOHN RUHRÄH, M.D.

BALTIMORE, MARYLAND

"It is hard for me to speak of the value of libraries in terms which would not seem exaggerated. Books have been my delight these thirty years, and from them I have received incalculable benefits. . . . For the teacher and the worker a great library such as this is indispensable. They must know the world's best work and know it at once. . . . For the general practitioner a well used library is one of the few correctives of the premature senility which is apt to overtake him. Self-centered, self-taught, he leads a solitary life, and unless his everyday experience is controlled by careful reading or by the attrition of a medical society it soon ceases to be of the slightest value and becomes a mere accretion of isolated facts, without correlation." From "Books and Men," *Boston Medical and Surgical Journal*, 1901.

IF the name Osler had been left out of the title of this paper, those at all familiar with American medical libraries would have been able at once to fill the omission. There is none other who has had such an universal influence. Scores there are and have been who have left an imprint on one medical library, and there are some whose influence has extended to two or three, but Sir William Osler is the only one whose magic has touched all.

From Boston to San Francisco, from Montreal to New Orleans, all, in one way or another, are witness to his remarkable sympathy and interest. Small libraries like that of the Luzerne County Medical Society at Wilkes-Barre, as well as large ones like that of the Surgeon General's Office at Washington, bear testimony to his helpfulness, both material and spiritual. How can one appraise at its full value his influence? To estimate it correctly would take another and a wiser man; but if one can spin a thread on which may be strung some of his pearls of thought, and a few from others, and so make a sort of rosary with which to tell the story, perhaps the reader who has not fallen under his spell may be made to feel it, and come to know in a way what he has missed.

Those of us who have known and loved the man, who have felt the magic of his

influence, need no reminder of it. A worker¹ in one of the larger medical libraries wrote: "Who can sum up any adequate description of the indescribable charm, friendliness and interest he has always taken in everything medical, and in medical libraries in particular? All of his visits to us have been of a character to make us feel that our efforts are the *magnum opus* of human endeavor, and the small services we have rendered him have been so appreciated as to make us feel these visits as red-letter days."

Wherever he happened to be his interest in the medical library was paramount. For example, whenever he visited the Massachusetts General Hospital we are told that no matter how pressing his other duties, he invariably found time to run into the Treadwell Library for a few moments, and he followed up his visits with letters and suggestions to the librarian. This he did for all the libraries encountered in his travels.

There is an active, wide-awake library at Wilkes-Barre, Pennsylvania; his interest in it has been continuous and most beneficial. At the occasion of his last visit there the library had been started in a small way. His personal remarks, and letters to members interested, have stimulated and sustained them in their zeal for a real collection

¹ Mrs. Laura E. Smith, Library of the New York Academy of Medicine.

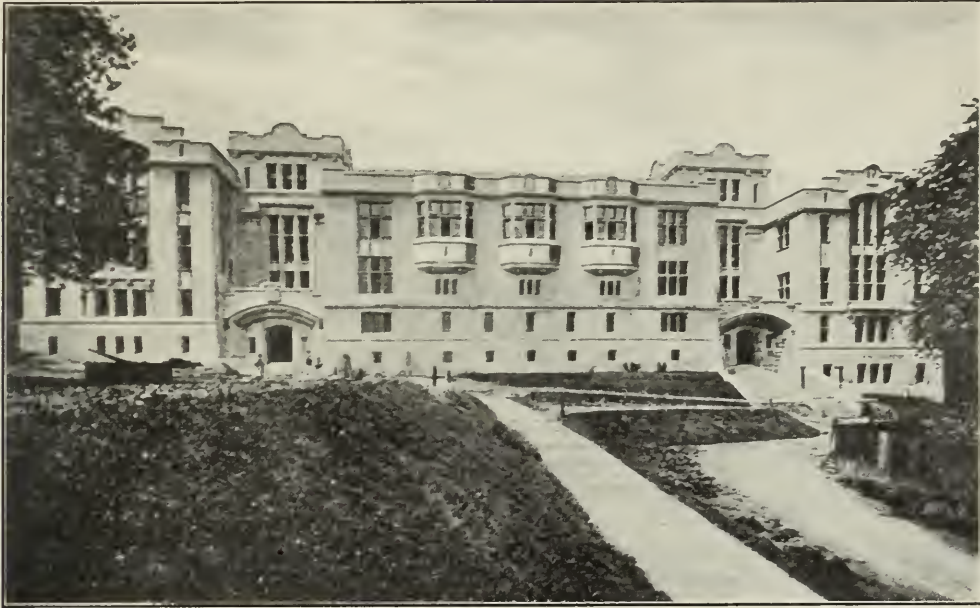
of books. Here, again, his interest has manifested itself in more material ways, and these gifts of his mean much, for they help others to give. If one far away and detached can give, why should not those near at hand and directly benefited? But let him tell you himself about a gentle art:

“May I say a word on the art of giving?

The essence is contained in the well-known sentence, ‘Let every man do according as he is disposed in his heart,

depend—the men of moderate income, who have a balance, however small, at the end of the year. To devote a fraction of this to the needs of the profession by which they have lived is, on the lowest motives, good policy, on the highest, a delightful privilege.

“Beyond a modest competency the sensible doctor does not aspire, but in the profession of every state there is a third group, composed of a few men, who, dry-



The Medical Library of McGill University is in this new building.

not grudgingly or of necessity.’ Subscriptions to a cause which is for the benefit of the entire profession should truly be given as a man is disposed in his heart, not in his pocket, and assuredly not of necessity, but as a duty, even as a privilege, and as a pleasure. Some of us, the younger men, cannot give. The days of travail and distress are not yet over, and to give would be wrong. It is sufficient for such to have the wish to give; the elder brothers will bear your share; only be sure to foster these generous impulses, which are apt to be intense in direct proportion to the emptiness of purse.

“Upon a second group we must chiefly

nursed by us, sometimes by the public, have become prosperous, perhaps even wealthy. Freely they have received, freely they should give. It must be acknowledged, however, that the admonition of Sir Thomas Browne, ‘Should your riches increase, let your mind keep pace with them,’ is not always regarded by the men of this group. We have seen a good deal in the papers about the large fortunes left by the doctors who have died in the past few years; but it has not been a pleasant feature to note, with scarcely an exception, either an entire neglect or a very beggarly remembrance of the profession in which these men had at any

rate laid the foundation of their large fortunes.”²

The young man Osler received his medical education at McGill University, in Montreal, and when his student days were over continued his residence there, eventually becoming a member of the faculty. Thus it was that the Library of the Medical Department of McGill University was the first love, due to the subtle charm

other times things pertaining to medical lore. On one occasion, he sent from Italy a superb collection of early Venetian diplomas; on another a lot of votive offerings from the shrine of Æsculapius. Various libraries shared in these *ex votos*. Dr. Casey Wood, of Chicago, once crossed the ocean on the same steamship with Osler, and the splendid collection of books relating to ophthalmology that now grace the shelves at McGill was the result. Here as elsewhere



The reading room at McGill University.

of youth and propinquity, and it is whispered that in spite of many favors in the past it is to be the recipient of more. Here the student Osler browsed among the books and laid the foundations that served so well in after years. Later on the Library was his hobby, and although never one of the Library Committee, his wishes were always carried out. His contributions were numerous—books of all kinds, on the fly leaves of which will be found annotations about the author in his own handwriting. Sometimes a check for a hundred dollars accompanied a letter of encouragement; at

² “The Functions of a State Faculty,” *Maryland M. J.*, 1897.

he gave many rare and valuable copies of the old masters of medicine. It is related that a friend once saw him emerging from an Edinburgh bookshop. In his arms he clasped a large volume and his face wore that peculiar expression of mingled pride of possession and happiness common to collectors who are rejoicing in *une trouvaille*. This “find” was the first edition of Andreas Vesalius, printed by Oporinus in 1543, and bearing the colophon, familiar to book lovers, of a semi-nude man, astride a swimming dolphin. The man is crowned with a wreath and is playing a harp in most animated fashion. This volume is illustrated with woodcuts of such quality that in their

day they were ascribed to Titian. It went to McGill, but later, when he replaced it by another, was sent to the Library of the New York Academy of Medicine.

The library in San Francisco is grateful to Osler for many favors, and after the fire in 1906 he got together a number of books which were later sent to the San Francisco County Society. With these he sent an engraving of Servetus and a copy of his monograph on this worthy medical martyr.

Even in Denver Osler's influence was felt, though here, apart from copies of reprints, it was more his kindly interest than anything else, but perhaps more than this was his interest in a little publication edited by Dr. C. D. Spivak, called *Medical Libraries*, the first attempt at a publication devoted entirely to this subject in this country. Continued from 1898 to 1903, this little publication was aided by his financial contributions and by his securing new subscribers. This publication is practically represented now by the *Bulletin of the Medical Library Association*.

His experience with the Boston Medical Library began early, as he says:

"In the first place I have a feeling of lively gratitude towards this library. In 1876 as a youngster interested in certain clinical subjects to which I could find no reference in our Library at McGill, I came to Boston, and here I found what I wanted, and I found moreover a cordial welcome and many friends. It was a small matter I had in hand but I wished to make it as complete as possible, and I have always felt that this Library helped me to a good start."³

From this time on he was a constant and helpful friend. His interest has not been unappreciated, for he was the first to be made an Honorary Member of the Library, in 1911, and is at present the only one living.

³"Books and Men," Boston Medical Library, *Aequanimitas*, 1901.

When the Library was moved to its present building (1901), he was one of the principal speakers at the dedication exercises. His "Books and Men," delivered on that occasion, is now familiar to all interested in medical libraries. In the same year, he



The Boston Medical Library. At the dedication Osler delivered one of the addresses.

read there one of his delightful biographical papers, the one on Linacre. As at the Surgeon General's Library later, he was here a great advocate of getting the rare and interesting volumes out of their hiding places in the mouldering dust of the stacks into the light of day. How practical he was about it! He gave two hundred dollars with which to purchase show cases for the main reading room in which are displayed some of the treasures of the Library. It may not be amiss to note that this money was the major part of his honorarium for delivering the Ingersoll lecture on "Science and Immortality."

Not alone this, but numerous other gifts of rare and useful volumes are available through his generosity. The medical libraries, even during the war, with all its

sorrows for him, have seen a continuance of his gifts, of his messages of inquiry and greeting.

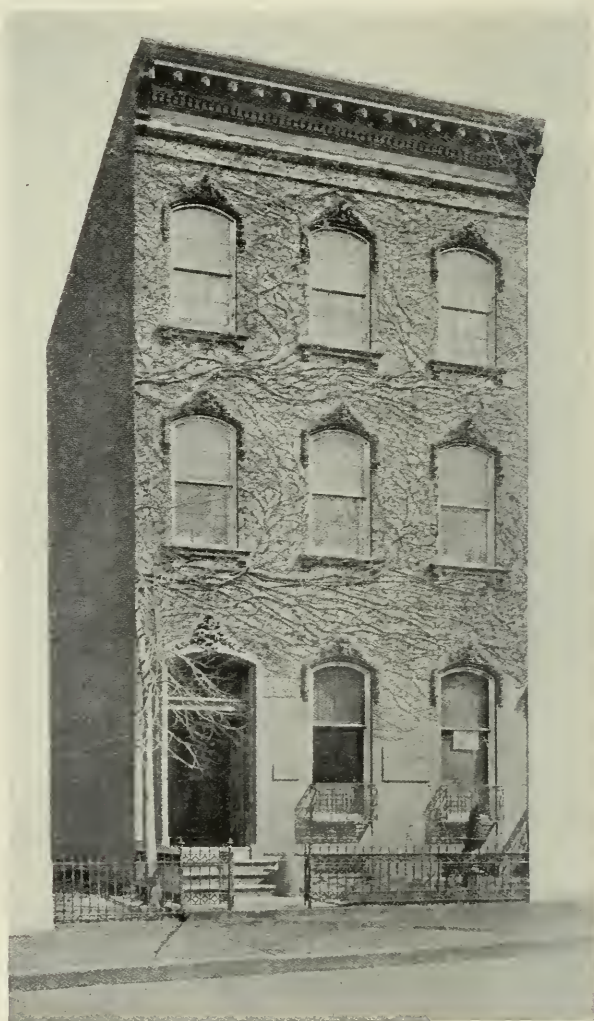
On leaving Montreal Osler went to Philadelphia, and on January 7, 1885, was elected a Fellow of the College of Physicians of that city. A year later, on January 6, 1886, he was made a member of its Library Committee and served in that capacity until the end of 1888, when he left Philadelphia to become the Professor of Medicine in Johns Hopkins Medical School. Mr. Charles Perry Fisher says:

“Dr. Osler took an active interest in the affairs of the Library and with his exceptional personality and rare charm that nature is mighty chary in bestowing, coupled with an open generosity, was of the greatest service, and it was with deep regret that we saw him go; but his interest in the Library and his generous spirit has never left us; not a year passes that the shelves of the Library are not enriched with the gift of some rare volume sent with his remembrance.”

It would be neither possible nor profitable to enumerate here all of Osler's gifts to the various medical libraries; but some idea may be had from the following list, which represents a few of his donations to the College of Physicians of Philadelphia. Some day a complete list should be compiled and printed as an example to the rest of us.

- | | | | |
|------------------|-----------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------|
| Aldrovandi, U. | Serpentium. . . . Bononiae, apud C. Ferronium, 1640. | Jenner, E. | Further observations on the variolae vaccinae. . . . London, Low, 1799. |
| Allut, P. | Étude bibliographique sue Symphorien Champier. . . . Lyon, Scheuring, 1859. | Redi, F. | Osservazioni intorno agli animali viventi. Firenze, Matini, 1684. |
| Bourne, H. R. F. | Life of John Locke. 2 vols. London, King, 1876. | Sydenham, T. | Tractatus de podagra et hydrope. London, Kettilby, 1683. |
| Browne, Sir T. | Pseudodoxia epidemica. . . . London, Dod, 1646. | Tuke, S. | Description of "The Retreat," an institution near York for insane persons of the Society of Friends. York, Alexander, 1813. |
| Browne, Sir T. | Religio medici. ill. Argentorati, Spoor, 1665.
Religio medici. 10 ed. London, Curll, 1736. | Whiter, W. | Dissertation on the disorder of death . . . London, Hayes, 1819. |
| Browne, Sir T. | The works. . . . ill. port. London, Baffet, 1686. | Wotton, E. | De differentiis animalibus libri. . . . Lutetiae Parisiorum, Vascosanus, 1552. |
| Fothergill, A. | Copy of (his) will. Manuscript. | | |
| Galen, C. | Opera omnia. 5 v. Venetiis, Aldus 1525. (Greek text.) | | |

When we come to Baltimore, we feel more sure of our ground. We know so well what his influence meant. Miss Marcia C. Noyes has written a sympathetic account of his influence on the Library of the Medical



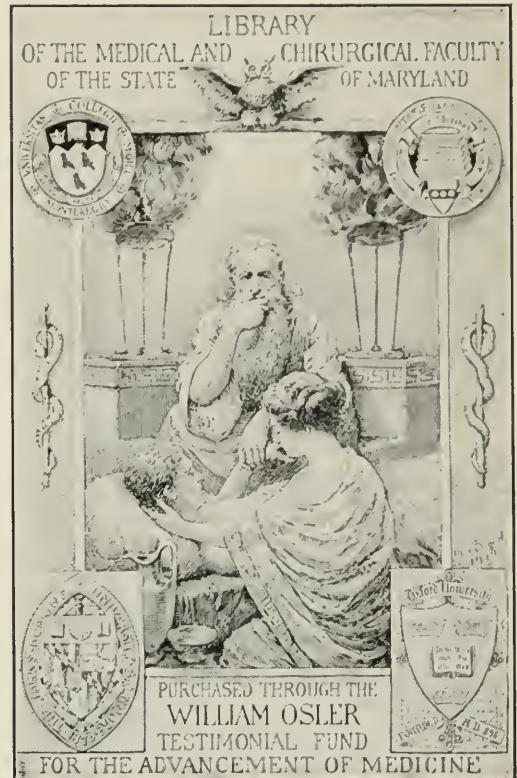
The building used for the Library of the Medical and Chirurgical Faculty of Maryland, Baltimore, before the new building was undertaken.

and Chirurgical Faculty of Maryland and on the Society itself. This old library, one of the oldest in the United States, was founded in 1830, and was buffeted about from place to place until 1881 found it housed in the basement of the old Maryland Historical Building, on St. Paul Street. It did not take Osler long after he came to Baltimore, in 1889, to become intimately associated with the Maryland Library. In 1892 he was made a member of the Library Committee and served until he left for Oxford in 1905. Although never chairman, he was the influential member who conceived and carried out innumerable plans for betterment. Of all this he was to say later:

“Unlike other state organizations, this faculty has in its Library an important educational function. It was a singularly judicious action on the part of the men who controlled this institution (in the thirties), to begin a collection of books. They knew the true gauge of a profession's standing, not the number of its schools, not the length of the roll of students, not the material wealth of the physicians; these are as dross and slag, chaff and dust, in estimating the true worth of a profession. Books are tools, doctors are craftsmen, and so truly as one can measure the development of any particular handicraft by the variety and complexity of its tools, so we have no better means of judging the intelligence of a profession than by its general collection of books. A physician who does not use books and journals, who does not need a library, who does not read one or two of the best weeklies and monthlies, soon sinks to the level of the cross-counter prescriber, and not alone in practice, but in those mercenary feelings and habits which characterize a trade.”⁴

⁴ “The Functions of a State Faculty,” *Maryland M. J.* 1897.

The Library of the Faculty was an integral part of an organization which had played an important part in the medical life of Maryland. It had had various periods of lethargy, and like the Beauty of the fairy tale it was awaiting a Prince Charming. It was not dead, not moribund, but asleep; and Osler succeeded in waking it. In 1895,



The book plate of the Osler Fund, designed by Dr. Max Broedel.

it was moved to a building at 847 North Eutaw Street (Hamilton Terrace) and in the following year the need of a well trained librarian was so apparent that Osler himself saw to it that the present librarian, Miss Noyes, was employed.

The Library, when Osler found it, was a collection of a few thousand medical books, mostly old, and some journals. When he left us, in 1905, there were 14,590 volumes, and it has grown rapidly ever since. Through his influence it acquired its own building, and after he left in 1909 it was moved once more to the comfortable, specially built

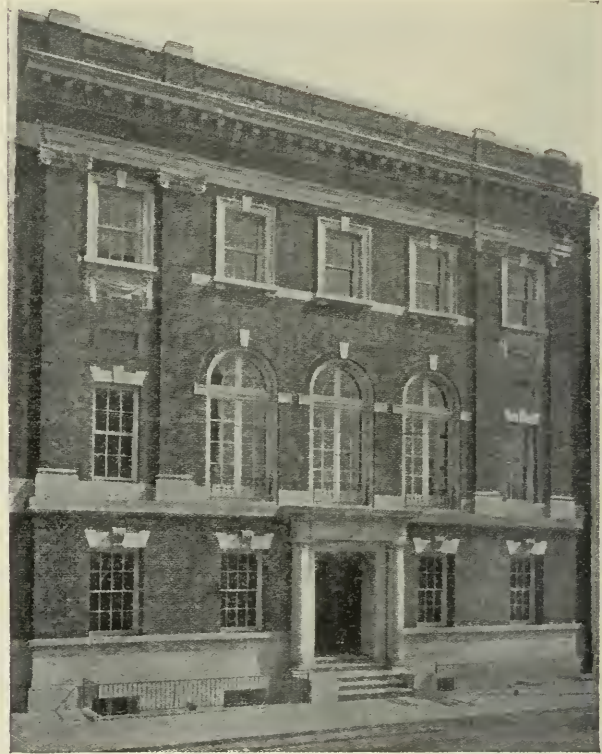
library building at 1211 Cathedral Street. This new building was directly due to the cast mantle of the "Chief." After his departure, a project was on foot to buy his house at 1 West Franklin Street and use it for a memorial and library building. A considerable fund resulted, but subsequently the plan was changed and the money turned over to the Building Committee of the Faculty.

Among the other things Osler was influential in founding was the Charles Frick section of the Library, which was made possible through the generosity of Messrs. William F. and Frank Frick, and which has been greatly helped since by Mrs. Henry Barton Jacobs, *née* Frick, and Mr. James Swan Frick, as well as by Sir William himself. In his presidential address, "The Functions of a State Faculty," he said:

"I envy Charles Frick the good fortune to go down to the future generations in this faculty with his name linked to an important section of our Library. Posthumously and by proxy, as it were, thus to carry on, though dead, the work he was interested in while living, is the nearest approach a man can make to cheating the great enemy, and in Charles Frick's case it is in a measure a compensation for the untimeliness of his taking off. It is proposed to make the Frick Library the strictly medical section, in contradistinction to general surgery, and obstetrics and gynecology. How suitable it would be to connect also these departments with other names of men who have won sufficient recognition. Than this there is no more appropriate way to perpetuate an honored name in our ranks."

How gratifying it must be for him to know that his name is now forever linked with the Faculty Library. In the new building, the large meeting room is known as Osler Hall. There is also an Osler Endowment Fund and, perhaps of more importance, an Osler

Fund for the purchase of books relating to medicine. The former was started by Sir William years ago, and since he left his name has been added to it. The latter is the residue, with some additions, of the money collected for an Osler Testimonial, and at present amounts to an investment of ten thousand dollars. It is a great pleasure to all his friends to know that in the future his



The new library building of the Medical and Chirurgical Faculty of Maryland at Baltimore.

name will be constantly before the medical profession in connection with the Library which was once his hobby, and that future generations may know and partake of his genial spirit which must of necessity linger about the Library as long as it shall last.

No one realized more than Osler how important it was to have the Library well financed, and he did a great deal to put through many much needed improvements, sometimes out of his own pocket, sometimes through a generous friend, and constantly by appealing to the profession. He believed

the profession should be responsible for the Library, but he also knew that the Library had its responsibility, its duty, to the profession. And once he voiced this in his presidential address:

"But to maintain a modern medical library is a very serious undertaking. So extensive has the literature become that even well-endowed institutions find it impossible to meet the incessant demands in all departments. The Faculty has the nucleus of an excellent collection, and through the kindness of our friends we have been enabled this year to add a long list of most valuable journals and many complete sets. Within a few years, this most valuable section of the Library should be greatly enlarged. The true worker does not want text-books; he looks to journal literature and monographs, and the extraordinary development of all special departments makes the work of a Library Committee very difficult unless it has a rich appropriation. In a year or two we should be able to give the Committee at least double the present allowance."⁵

Another thought was the Book and Journal Club, an excellent idea for an impecunious library. With the small dues of five dollars a year, a group of over one hundred men were induced to join this Club, the meetings of which, under Dr. Osler, were a delight to all book lovers. Most of the money went to the use of the Library, chiefly to journal subscriptions, but a portion of it, aided very generously from Dr. Osler's own purse, went to two or three meetings a year at which many of the best medical minds of the country contributed to the intellectual side; and Dr. Osler's human instincts saw to it that the inner man was not forgot. This ability to get men out to meetings and to get them interested in things was one of his

⁵ "The Functions of a State Faculty," *Maryland M. J.*, 1897.

very marked traits, and he succeeded because he knew so well how to deal with the human being. He knew there were some who could be attracted by the way of the esophagus, and having attended one meeting, perhaps for purely physical reasons, would also return to the subsequent ones for intellectual and spiritual benefit.

Another value of the Library that Osler realized fully was its effect on the men who make it, the value of striving, of getting together for a common purpose. Certainly at no time in its history was the Faculty of Maryland more alive than in its struggle for a new building. This common aim brought men together and made them friends and brothers. It was this value and meaning of the Library that he sensed in his presidential address before the Medical Library Association:

"The organization of a library means effort, it means union, it means progress. It does good to men who start it, who help with money, with time and with the gifts of books. It does good to the young men, with whom our hopes rest, and a library gradually and insensibly moulds the profession of a town to a better and higher status."⁶

Of Osler's influence on the study of the history of medicine it is not for us to speak; and yet the impetus that he gave to it through his writings, by word of mouth, and through his constant interest, has left its effect on the collectors of medical books in America. First, it stimulated the collection of incunabula and of old medical books in general; secondly, it led to the purchase of books about medical history and bibliography; and lastly, it opened up a new field to many students and physicians, so that the medical library had a new interest, a new meaning for them. So too it increased the number of readers and the influence of

⁶ "Some Aspects of American Medical Bibliography," *Boston M. and S. J.*, 1902.

the library as a school. He always seemed to be saying with Richard de Bury,

"Aye, come ye hither to this pleasant land."

On the subject of such study he said:

"By the historical method alone can many problems in medicine be approached profitably. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life. The past is a good nurse, as Lowell remarks, particularly for the weanlings of the fold."⁷

Another memorable thing which Dr. Osler accomplished was the dragging from the shelves and from hidden corners into the light of day the great contributions in medicine.

They did not seem like books to him,
But Heroes, Martyrs, Saints,—themselves
The things they told of, not mere books
Ranged grimly on the oaken shelves.

This has been commented upon above, but one cannot refrain from quoting his own words on the subject:

"I should like to see in each library a select company of the Immortals set apart for special adoration. Each country might have its representatives in a sort of alcove of Fame, in which the great medical classics were gathered. Not necessarily books, more often the epoch-making contributions to be found in ephemeral journals. It is too early, perhaps, to make a selection of American medical classics, but it might be worth while to gather suffrages in regard to the contributions

⁷ "Books and Men," *Boston M. and S. J.*, 1901.

which ought to be placed upon our Roll of Honour."⁸

In Osler Hall there is a case containing Osler's own writings. To-day these are highly prized, to-morrow this case and its contents will be numbered amongst our most precious possessions. These books and essays contain so much of his spirit, hold such wise counsels and such high ideals, that from them may be garnered a store of wisdom sufficient to last the moderate life time of the average physician.

Enough! Mere words can never tell
The influence of the grateful spell
Which seems among these books to dwell.

The Library at Johns Hopkins Hospital was started about the same time as the Hospital (1887), and room was made for it in the administration building. Looking backward, it seems strange that Billings should have made such inadequate provision as to space, but this is to be remedied in a splendid new building, the gift of an anonymous donor. This little library had wise heads to start it, but no one took a greater part than Osler. He donated much and sought out material for it when abroad, and all accessions were gone over from week to week. He not only used the Library himself, but made his students use it, giving them references to journal articles or monographs and teaching them to go to original sources for their information. He also insisted on consulting the world's literature, not only American or English writings, but French and German as well, or even articles in other languages, if the student's linguistic ability permitted. He was instrumental in getting various gifts, notably the Marburg collection, a set of older books on medicine which he discovered in his European wanderings and which he induced Mr. William A. Marburg to present to the Library.

⁸ "Books and Men," Boston Medical Library, 1901.

In Toronto the library was a matter of keen interest to him from the formation of the Ontario Medical Library Association in 1887. He gave a large number of books, including some old rare items and certain incunabula, and also established a fund in honor of his old teacher, Dr. James Bovell, to whom in part his text book on medicine is inscribed. The interest of this fund is used to purchase books on medicine, physiology or pathology. The older library has been merged with that of the Academy of Medicine and to this Osler has made a number of other gifts of money.

Just how much Dr. Osler had to do with the actual founding of the Medical Library Association, which started in May, 1898, originally with the name of "The Association of Medical Librarians," it has not been possible to ascertain. One suspects a great deal, although Dr. George M. Gould has generally been given the credit for it, and as far as putting the actual machinery of the organization into action and for helping it in its earlier years, deserves it. The idea originated with Miss M. R. Charlton, at that time librarian at McGill, and the first secretary of the Association. This Association was started for the purpose of fostering medical libraries, and the exchange of medical literature among them, as well as for having annual meetings at which the medical librarians could exchange views. Dr. Osler was president from 1901 to 1904, and gave the Association the benefit of his inspiration and experience. He attended and addressed the meetings and furthered the work in every way. On October first, 1901, he sent an appeal to the medical profession, an appeal which may be echoed to-day:

"I write to ask your active coöperation in the work of this Association which was organized three years ago with the object of promoting the interests of medical libraries in the United States and abroad. We have established an exchange or

clearing house from which libraries may fill out files or periodicals and obtain books wanted. Through it they may also dispose of duplicates which are of great value to libraries just forming.

"So far as libraries are concerned the work we do is largely gratuitous, each receiving several times over the value of their yearly dues. Thirty-five libraries have joined the Association.

"You can help us—(first) by joining the Association and contributing your annual subscription of \$5.00. (Second) by sending old medical works and files of the more important journals. On account of limited space, no shipment of books should be made until notification is received from the manager of the Exchange.

Faithfully yours,

WM. OSLER,
President.

Miss M. C. NOYES,

Manager of the Exchange,
Baltimore, Maryland.

(To whom subscriptions may be sent.)

Sir William Osler is now an honorary member of this association, and still from time to time sends it words of cheer and encouragement. His lively interest in it meant much in keeping it going during its early years, until now it seems able to walk alone. His last visit, during the meeting in the Blue Room of the New Willard Hotel, Washington, D. C., in 1914, is memorable to those who were present.

The Library of the Surgeon General's Office, in Washington, the greatest medical library in the world, naturally found a warm place in Osler's heart. As a reader and borrower of books he appreciated what a treasure house it was. Let him tell in his own words how he began to use the Library:

"In 1881 I paid my first visit to the great Library of the Surgeon General's

Office, Washington, to look up the literature of echinococcus disease in America, a subject in which I had become interested. At that date the Library had not yet moved from the old Pension office, and the books had far outgrown the capacity of the building. It was my first introduction to Dr. John S. Billings, at present the head of the Public Library, New York, to whose energy and perseverance the profession of the United States is indebted for one of the greatest collections of medical works in the world. He handed me over to the care of an elderly gentleman, who very quickly put at my disposal the resources of the Library, and for two days did everything in his power to further my wishes. This was the beginning of a warm friendship with Dr. Robert Fletcher, and during the thirty years which have since passed I always found him a kindly, wise, and generous adviser in all matters relating to medical bibliography. Probably few men in the profession owe a deeper debt of gratitude to the Surgeon General's Library than I. Not only did I enjoy the friendship of the officials of all grades, but from the Library itself, and from its two great publications—the Index Catalogue and the Index Medicus—I have had constant help in my literary work. Among the many congratulations I received last year on the occasion of my baronetcy, none touched me more than a round-robin sent from the staff of the Museum and the Library.”⁹

“Any time during the past twenty-five years special visitors to the great medical library in Washington have been received in a room next to that of the principal librarian, and have had their wants and wishes attended to by a courtly and learned man who has just passed away in his ninetieth year. Surrounded by

⁹ “Robert Fletcher,” *Bristol M.-Chir. J.*, December, 1912.

books of reference, volumes of the Index Catalogue, tables strewn with proof sheets and the newest journals, Dr. Robert Fletcher looked like a student of the old days. But he was more—he had two essential qualities of a great librarian—kindliness of manner, and a genuine interest in books. With Dr. John Billings, and the successive Surgeons General, he has had an important share in two of the greatest bibliographical works of modern times, the Index Catalogue, and the Index Medicus.”¹⁰

Dr. Garrison speaks thus of the later relation:

“Since the deaths of Dr. Fletcher and Dr. Billings, Sir William Osler has continued his friendly relation with the Surgeon General's Library, always visiting the establishment and looking up members of its staff whenever he was in Washington for any length of time. He has made many personal gifts to the collections, and his kindly interest has been manifested by wise counsel and through the routine correspondence which he has always maintained with the successive Librarians and some of us of the staff. It was Osler who suggested to Colonel McCaw that the unique collection of medical classics buried in the alcoves of the Library be brought together, preserved and protected under glass. Following his suggestion this was done, and a catalogue of the historical collection was prepared and published in Volume xvii of the second series of the Index Catalogue. In earlier days, the Association of American Physicians frequently held its annual meetings in the Library Hall and on these occasions, those of us who were shut up in the confinements of official routine enjoyed the rare privilege of hearing Sir William speak. The most memorable oc-

¹⁰ “Robert Fletcher,” *Canadian M. Assc. J.*, N. S. 3, 1913, p. 227.

casation of this kind was at the closing exercises of the Army Medical School on February 28, 1894, at which he delivered his stirring address to the graduates on William Beaumont. When he received his baronetcy, a round robin of congratulation, signed by the entire Library force was sent him, as he records. He has always been regarded as one of the best friends the Library has ever had, and for myself, the stimulation of his generous encouragement and the sense of his personality, across the sea, has been the finest thing of the kind that I have experienced in life."

Osler knew and praised the inestimable value of the Index Catalogue and the Index Medicus, for which the world is indebted to Billings and Fletcher and, at this later day, to the untiring efforts of Garrison. A silent tribute is due these men whenever we think of these great works, and even the merest tyro in medical bibliography finds occasion to call the editors blessed.

"I need not refer in this audience to the use of the Index Catalogue in library work; it is also of incalculable value to anyone interested in books. Let me give an everyday illustration. From the library of my friend, the late Dr. Rush Huidekoper, was sent to me a set of very choice old tomes, among which was a handsome folio of the works of du Laurens, a sixteenth-century physician. I had never heard of him, but was very much interested in some of his medical dissertations. In a few moments from the Index Catalogue the whole bibliography of the man was before me, the dates of his birth and death, the source of his bibliography, and where to look for his portrait. It is impossible to overestimate the boon which this work is to book lovers."¹¹

This respect for the past, and for the masters of medicine, is an essential trait of

¹¹ "Some Aspects of American Medical Bibliography," *Boston M. and S. J.*, 1902.

Osler, and he has imparted much of the same spirit to his students and associates. No one has deplored more the lack of appreciation of those who have preceded us.

"Of the altruistic instincts veneration is not the most highly developed at the present day; but I hold strongly with the statement that it is a sign of a dry old age when the great men of the past are held in light esteem."¹²

For the book lover, the bibliomaniac, he has had the affection of a brother. There certainly were but few of any prominence that were not his warm friends, and he did much to induce them to make a practical use of their predilection and knowledge. He appraises them in no uncertain terms:

"The men I speak of (bibliomaniacs) keep alive in us an interest in the great men of the past, and not alone in their works, which they cherish, but in their lives, which they emulate. They would remind us continually that in the records of no other profession is there to be found so large a number of men who have combined intellectual preëminence with nobility of character."¹³

An example, to cite but one, was the case of the scholarly Cordell, for years an amateur of the history of medicine, particularly that of Maryland. Under the genial patronage of Osler this talented worker gathered his forces and his notes and brought out the *Medical Annals of Maryland*, one of the best pieces of medico-historical work produced in this country.

In this connection, it is interesting to note that Osler, while a book lover, a bibliomaniac if you will, was singularly well poised in that he not only knew the value of books and libraries, but their place as well.

¹² "The Functions of a State Faculty," *Maryland M. J.*, 1897.

¹³ "Books and Men," *Boston M. and S. J.*, 1901.

For the man so intoxicated with learning that his powers of action were paralyzed he had the greatest sympathy. It has been said of a physician, since dead, that he was succeeding very well until one of his friends gave him a microscope. Ever after histologic study proved his undoing. In like manner, many a man has been ruined by browsing in a library. Of this he once remarked:

“Curiously enough, the student practitioner may find studiousness a stumbling-block in his career. A bookish man may never succeed; deep-versed in books, he may not be able to use his knowledge to practical effect; or, more likely, his failure is not because he has studied books much, but because he has not studied men more. He has never got over that shyness, that diffidence, against which I have warned you. I have known instances in which this malady has been incurable; in others I have known a cure effected not by the public, but by the man’s professional brethren, who, appreciating his worth, have insisted upon utilizing his mental treasures.”¹⁴

On the other hand, no one has had a livelier appreciation of the dangers of ignorance. No one in our time has done more to lead the doctor to the library. All that is new may be found there if one will but take the trouble to find it out.

“It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it. Not three months ago a physician living within an hour’s ride of the Surgeon General’s Library brought to me his little girl aged twelve. The diagnosis of infantile myxedema required only a half-glance. In placid contentment he had been practising twenty years in ‘Sleepy Hollow,’ and not even when his own flesh and blood was touched did he rouse

from an apathy deep as Rip Van Winkle’s sleep. In reply to questions: No, he had never seen anything in the journals about the thyroid gland; he had seen no pictures of cretinism or myxedema; in fact, his mind was a blank on the whole subject. He had not been a reader, he said, but he was a practical man with very little time.”¹⁵

What has been Osler’s influence on American medical libraries? This question is in a measure answered above and chiefly in his own words. He has a keen appreciation of the value of medical books, as summed up in that wonderful epigram: “To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all.” In addition to this, he has appreciated medical libraries at their full value, not only for himself, but for others. This he taught to his students and to the profession. He knew and emphasized the use of the recent journals and monographs, the necessity for knowing the latest and best, and pleaded, and not in vain, for the historical method of approach, and pointed out the impossibility of clear vision without it. Then, too, he did much to encourage the study of the lives of the masters: a major part of recent biographical sketches of medical worthies is due directly or indirectly to his influence. He taught us not only to study the great teachers of other days, but to accord them reverence and their due meed of honor. To drag the treasures of the bookshelves into the open and make them mean something is another lesson he has taught. This lesson has fallen largely on barren ground, although there is hope in the future.

He has taught the art of giving practically; he not only gave himself, but led others to do likewise, not as a necessity but

¹⁴ “The Student Life,” *Med. News*, N. Y., 1905.

¹⁵ “Books and Men,” *Boston M. and S. J.*, 1901.

as a privilege. Witness the Frick, the Marburg, the Casey Wood contributions, to mention only three.

He knew that a library must be financed, and here again he gave, led others to give and used such delightful methods of raising money as the Book and Journal Club. He did much to do away with the old-fashioned librarian and encouraged the helpful, cheerful variety. He made the librarians feel that their work was of great importance and did much to develop the *esprit de corps* which the Medical Library Association has gone on fostering.

His chief influence, however, is that he has imparted something of his spiritual quality to those about him and to those with whom he came in occasional contact.

This intangible something, which defies description or analysis, he possesses in generous measure; this Oslerian spirit will long pervade all the libraries with which he has been personally associated.

His reward is to have lived to see the seed which he planted grow and mature, to have as his the love, esteem and gratitude of thousands of students and friends, and among these there are none more grateful, more appreciative, than the workers in the medical libraries of this country. One can perhaps best summarize in the words of Shattuck: "There is no medical man of my time, and there have been few in any other time, who has exerted so wide spread and so sweetly wholesome an influence as has he."

ARIPHRON'S HYMN TO HEALTH¹

O holiest Health all other gods excelling,
 May I be ever blest
 With thy kind favour and for all the rest
 Of life, I pray thee ne'er desert my dwelling:
 For if riches pleasure bring,
 Or the power of a king,
 Or children smiling round the board
 Or partner honoured and adored,
 Or any other Joy
 Which the all bounteous gods employ
 To raise the hearts of men
 Consoling them for long laborious pain;
 All their chief brightness owe, kind Health,
 to you;
 You are the Graces' spring;
 'Tis you the only real bliss can bring,
 And no man's blest when you are not in
 view.

C. D. YONGE, B.A.

¹ There are two English versions of Ariphron's Paean or Ode (Fourth Century B. C.) both given in the Bohn translation of "Athenaeus." "Yonge's is nearer to the original in metre (dactylo-trochaic) but less liberal than Sanford's." (Withington). The Greek exists also on a stone inscription revered at Casel.

¹ This Greek poem with its accompanying note was forwarded to the ANNALS OF MEDICAL HISTORY by Sir William Osler.

SIR WILLIAM OSLER'S CONTRIBUTIONS TO MEDICAL LITERATURE

By FIELDING H. GARRISON, M.D.

WASHINGTON, D. C.

A FEW months ago, the eminent engraver who made the portrait of Sir William Osler for the Anniversary Volumes¹ requested the loan of a few photographs and collateral human documents in aid of completing the picture which he had to work out on the steel plates, an ocean's width from his subject. On reading a few bits from Osler's writings, he expressed what seemed but natural and inevitable enthusiasm for the charm of style, the fine humanism which enabled him so much the better to sense the character and personality of his distant and invisible sitter. The anecdote is apposite. Were Osler's essays as widely known among the cultivated laity as among our profession, they would be read and re-read with the same pleasure and edification which we derive from the purely literary performances of Holmes and Weir Mitchell. As the admirable editorial in the *Journal of the American Medical Association* for July 12 (Osler's birthday) has expressed it, his essays "belong, many of them, more to the permanent 'literature of power' than to the short-lived 'literature of knowledge.'" What is the 'literature of power'? Is it not the literature which helps us to live out our brief lives here upon earth in a cheerful, decent, independent, equable self-respecting manner; the literature which (as Matthew Arnold said of all creative and imaginative literature) is essentially a "criticism of life," the literature which recognizes that conduct (say the conduct of a medical practice) is "three-fourths of human life"? To such literature, this great physician has indeed been a unique and remarkable contributor. Through his broad culture, his

¹ Steel engraving, made by Mr. G. F. C. Smillie, Washington, D. C.

deep knowledge of his subject, his keen vision, the extent of his experience with human nature, his warmth of sympathy and his innate geniality and kindness of disposition, he is the essential humanist of the medicine of our time, and great will be the reward which awaits him among the physicians of the future.

In the first twenty years of his medical life (1870-90), Osler was almost exclusively occupied with the practice and study of clinical medicine, in following up the end-results of disease in the dead-house, in training young students in the wards and at the bedside. With the single exception of the memorable valedictory address "Æquanimitas" (University of Pennsylvania, 1889), there are no purely literary contributions in this period. Prior to the appreciative address about Weir Mitchell, at the presentation of his portrait to the College of Physicians (April 22, 1890), all but one of the 278 contributions listed in Miss Blogg's bibliography of Osler are purely scientific contributions to clinical medicine, histology and pathology, each of them none the less attractive reading, through the clarity of style, the lively humor, and the ease and simplicity with which very real and living knowledge is conveyed. Even in the earliest of these, there are some traces of the elevating literary quality, the artist's avoidance of the trite *cliché*, the big human *oratio directa*, adumbrated in Professor Gildersleeve's lines—

"Aesclepius was Apollo's chosen son,
But to that son he never lent his bow,
Nor did Hephæstus teach to forge his net;
Both secrets hath Imperial Osler won.
His winged words straight to their quarry go,
All hearts are holden by his meshes yet."

And beginning in 1891 with the address on

Virchow, what a wonderful and fascinating array of essays on medical biography and the history of medicine! The great work on the "Principles and Practice of Medicine" (1892), the most readable and informing ever written, took hold with the profession immediately through its unaffected charm of style, the wealth of literary and scientific allusion, and the clear, terse mode of presentation. The burlesque examinations on Osler's "Practice," which were published at the time, suggested the need of actual notes and commentaries for the more recon-dite allusions, some of which still have us guessing. The value of the literary method, as a fillip to the reader's ignorance, and as a means of arresting his attention, is equally manifest in Osler's very latest contribution, his monograph on "The Treatment of Disease" in *Oxford Medicine* (1919). A few paragraphs from this last will serve. They are pure Osler, ever the eloquent, witty, courageous, sagacious Osler of the "Practice":

"For long centuries disease was believed to be the direct outcome of sin, 'flagellum Dei pro peccatis mundi,' to use Cotton Mather's phrase, and the treatment was simple—a readjustment in some way of man's relation with the invisible powers, malign or benign, which had inflicted the scourge. From the thrall of this 'sin and sickness' view, man has escaped so far, as no longer, at least in Anglo-Saxon communities, to have a proper saint for each infirmity."

"One special advantage of the skeptical attitude of mind is that a man is never vexed to find that after all he has been in the wrong. It is an old story that a man may practice medicine successfully with a very few drugs."

"Why, for example, should Y and Company write as if they were directors of large genito-urinary clinics instead of manufacturing pharmacists?

It is none of their business what is the best treatment for gonorrhœa—by what possibility could they ever have known it, and why should their literature pretend to the combined wisdom of Neisser and Guyon? What right have Z and Company to send on a card directions for the treatment of anemia, and dyspepsia, about which subjects they know as much as an unborn babe, and, if they stick to their legitimate business, about the same opportunity of getting information? Far too large a section of the treatment of disease is today controlled by the big manufacturing pharmacists, who have enslaved us in a plausible, pseudo-science."

"A Philadelphia friend once jokingly defined my practice at the Johns Hopkins Hospital as a mixture of hope and nux vomica, and the grain of truth in this statement lies in the fact that with many hospital patients once we gain their confidence and inspire them with hope, the battle is won."

Between the "Practice" (1892) and the monograph just quoted from, we find a brilliant series of literary contributions fit to furnish forth several reputations. First of all, the series of biographical essays—Charcot (1893), William Beaumont (1894, 1902), O. W. Holmes (1894), Bassett, the Alabama Student (1896), John Keats (1896), Thomas Dover (1896), Louis (1897), William Pepper (1899), Elisha Bartlett (1900), John Locke (1900), Alfred Stille (1902), Richard Morton (1904), Jesse W. Lazear (1904), Sir Thomas Browne (1905), Harvey (1906), Fracastorius (1906), Linacre (1908), John Hewetson (1910), Servetus (1910), Pasteur (1911), Robert Fletcher (1912), Stensen (1912), Sir Samuel Wilkes (1912), Gui Patin (1912), George Bodington (1912), John Caius (1912), Winslow (1913), John Shaw Billings (1913), Nathan Smith (1914), Weir Mitchell (1915) and Trudeau (1915).

You will sense the breadth of Osler's sympathies from this calendar of tributes to the great and deserving of the profession. Then the big humanistic addresses dealing, sometimes in friendly, hortatory manner, with the larger aspects and ethical problems of medicine, such as Teaching and Thinking (1895), Nurse and Patient (1897), Chauvinism in Medicine (1902), The Master Word (1903), Unity, Peace and Concord (1903), The Student Life (1905), The Male Climacteric (1905), The Faith that Heals (1910), Man's Redemption of Man (1911), A Way of Life (1913), Examinations, Examiners and Examinees (1913), Specialism in the General Hospital (1913), Bacilli and Bullets (1914), The Medical Clinic (1914), Science and War (1915), and the learned Oxford address on The Old Humanities and the New Science (1919); finally the larger contributions to the history of medicine such as those on Medicine in Plato (1882), British Medicine in Greater Britain (1897), Medicine in the Nineteenth Century (1901), The Coming of Books and Men (1901), The Evolution of Internal Medicine (1907), Age of Internal Medicine in the United States (1915), and the still unpublished Yale Lectures of 1913, which are an aëroplane panorama of the progress of medicine in space and time. An outstanding feature of these historical studies is the surprising array of new facts and new knowledge presented. Americans, for instance, should not forget that what we know of the actual scientific achievement of our colonial and early nineteenth century physicians, the things they are remembered by today, is largely due to the enthusiastic researches of Osler and his students.

During the war period, Osler has turned his attention to medical bibliography and medical library problems as evidenced by such titles as The Proposed General Catalogue of Incunabula (1914), Early Printed Books (1914), MSS and Books in the Bodleian Illustrating the Evolution of British Surgery (1914), The Jonathan Hutchison

Iconography (1915), The Science of Librarianship (1917). He is now preparing a unique collection of original texts and documents relating to the basic discoveries, inventions and advances in scientific medicine and it is the hope and wish of all his friends that he will complete the reasoned catalogue of this wonderful gathering. Such a catalogue will be bibliography in the finest sense, a purview of the great landmarks of medicine *sub quadam specie æternitatis*. The only thing resembling such work might be the great catalogue of the medical collections of the Bibliothèque Impériale, usually attributed to Emile Littré which Taschereau printed as an impersonal public document, under the auspices of the third Napoleon, without so much as a mention of Littré's name. In this work, it will be remembered, the medical texts are arranged in chronologic order under each subject.

The main lesson conveyed to our profession in the writings of Osler is summed up in the title of one of his earliest addresses, "Æquanimitas," the last word of the emperor Antoninus Pius, of which a corollary is the other Roman device: *medium tenuere tutissimum*. Keep cool; avoid extremes and excesses; don't despair; don't whine and complain; avoid the anxiety-neurosis; repose is better than male hysteria; "the ego disturbs the cosmos"; "the gods approve the depth and not the tumult of the soul"; never lose your self-possession; in plain English, don't make an ass out of yourself. Do not be a petty "have not." Envy is the sign of inferiority. The great of old, the Homers, Shakespeares, Newtons, Beethovens, Pasteurs, have not been grabbers but *givers* of the most priceless things we have. Do not worry about the future, nor glue your eyes to a hypothetical reputation which may never come. Let Fate deal the cards. Take no thought of the morrow; attend to the immediate duties and "demands of the hour" (Goethe's word). The world is from of old, and it will all be the same a

hundred years hence. Avoid controversy; live on good terms with your colleagues and do not condemn if you can help it. "Silence is a powerful weapon." To pursue your own course in equanimity, independence, self-possession, *si fractus illabatur orbis*, is the surest way to keep fools and rogues at a distance, and to can the bore. Victories are usually won by the nations and individuals who remained sturdily and steadily on their own ground and did not make the initial offensive—

"Who bides at home, nor looks abroad,
Carries the eagles, and masters the sword."

Needless to say, these are among the permanent ideals of the Anglo-Saxon race, but few have lived up to them as Osler has. There are people who have abused him, but he himself

has cherished ill feelings against no living being. A few harmless quips among his intimates, outspoken, vigorous denunciation of the evils and follies of the hour, that is the sum of his offensive. During the great war, whatever his private and personal feelings may have been, never once has he taken the weak line of decrying the literature, art and science of the enemies of his country. And such dignified reticence is not either an index of rancor or abjection, but of personal noblesse and nobility of mind; since to jape at the products of mind, of whatever origin, is only *bêtise*. If one might venture to describe Sir William Osler at seventy, it would perhaps be in the sentence of his beloved Landor: "He never contended with a contemporary, but walked alone on the far eastern uplands, meditating and remembering."



PRESENTATION TO SIR WILLIAM OSLER, F. R. S., BART.

ON THE OCCASION OF THE SEVENTIETH ANNIVERSARY OF HIS
BIRTHDAY AT OXFORD, JULY 11, 1919

THERE was a very large gathering in the Barnes Hall of the Royal Society of Medicine [London] on Friday July 11th, 1919, to commemorate by the presentation of two specially prepared volumes of medical and biological essays the arrival of Sir William Osler at the age of seventy. The volumes contain contributions of about 150 writers drawn from both sides of the Atlantic.

Professor Sir T. Clifford Allbutt occupied the chair and made the presentation. He was supported by Col. Sir D'Arcy Power, R. A. M. C., Sir Donald MacAlister, General Birkett, C. A. M. C., Mr. J. Y. W. Macalister, Sir Wilmot Herringham and Dr. Charles Singer. Among those present were Lady Osler, Lady Power, Sir George Perley, High Commissioner for Canada, Dr. Pasteur, Lieut. General Sir John Goodwin, Director General Army Medical Service, Sir Bertrand Dawson, Sir David Bruce, Lady Strathcona, Sir Anderson Critchett, Sir William Hale White, Mrs. Charles Singer, Major W. W. Francis, C. A. M. C., Sir Archibald Garrod, Mr. D. J. Armour, Dr. Archibald Malloch, Professor G. Drezer, Prof. Ramsay Wright, Mr. R. R. Steele, Dr. E. Ainley Walker, Surgeon Vice Admiral Sir Robert Hill, Medical Director of the Royal Navy, Major General G. Ia F. Foster, Director General Medical Services Canadian Forces, Sir G. H. Savage and Sir Walter Fletcher.

The Chairman: Ladies and gentlemen, we are assembled here today to do honour to our colleague, Sir William Osler. Unfortunately, another important meeting has clashed with this one, so that several of our friends who would willingly have been here, are very disappointed at their inability to be with us. Among them are Sir Norman

Moore, Sir Humphrey Rolleston, Sir Frederick Mott, and Dr. Raymond Crawford.

Sir William Osler, ladies and gentlemen: To me, as one of your oldest friends in time, and perhaps the oldest in age, has fallen the honour of announcing our celebration of your seventieth birthday, one universal of many years of supreme service in two kindred nations and for the world. The last lustrum of your three score-and-ten, if now merged in victory, has been a time of war and desolation, of broken peoples and stricken homes. Yet through this clamour and destruction your voice, among the voices in the serener air of faith and truth, has not failed, nor your labour for the sufferings of others grown weary.

But, while thus we celebrate your leadership in the relief of sickness and adversity, we are far from forgetting the sunnier theme, the debt, none the less, which we owe to you in other fields of thought. In you we see the fruitfulness of the marriage of science and letters and the long inheritance of a culture which, amid the manifold forms of life and through many a winter and summer, has revived to inspire and adorn a civilization which, so lately, has narrowly escaped the fury of a barbarian.

And now I will not avoid a topical allusion, an allusion to your recent Presidential Address to the Classical Association at Oxford: an address which, in its various learning, its wisdom and its wit, brilliantly illustrated this fecundity of letters and science, embodied a common spirit of science and art, and conferred a distinction upon our profession.

In these volumes, we hope, you will find the kind of offering from your fellow workers which will please you best: immaterial offerings indeed, but such as may outlive a more material gift. As to you we owe

much of the inspiration of these essays, and as in many of their subjects you have taken a bountiful part, so, by them, we desire to give some form to our common interests and affections.

We pray that health and strength may long be spared to you, and to her who is the partner of your life: and that for many years to come you will abide in your place as a Nestor of modern Oxford, as a leader in the van of medicine, and as an example to us all.

Sir Clifford Allbutt then made the presentation.

Sir William Osler: Sir Clifford Allbutt, ladies and gentlemen, as the possessor of a wild wagging tongue, which has often got me into trouble, I thought it would be better, on such an occasion, to put down what I am going to say.

Two circumstances deepen the pride a man may justly feel at this demonstration of affection by his colleagues on both sides of the Atlantic—one, that amid so much mental and physical tribulation my friends should have had the courage to undertake this heavy task, the other, to receive this presbyopic honour at the hands of my brother Regius, friend of more than forty years. There is no sound more pleasing than one's own praises, but surely an added pleasure is given to an occasion which praises the honourer as much as the honoured. To you, Sir, more than to anyone in our generation, has been given a rare privilege: when young, the old listened to you as eagerly as do now when old the young. Like Hai ben Zagzan of Avicenna's allegory, you have wrought deliverance to all who have consorted with you.

To have enshrined your gracious wishes in two goodly volumes appeals strongly to one the love of whose life has been given equally to books and men. A glance at the long list of contributors, so scattered over the world, recalls my vagrant career—Toronto, Montreal, London, Berlin and

Vienna as a student: Montreal, Philadelphia, Baltimore and Oxford as a teacher. Many cities and many men, truly, with Ulysses, I may say "I am part of all that I have met."

Uppermost in my mind are feelings of gratitude that my lot has been cast in such pleasant places and in such glorious days so full of achievement and so full of promise for the future. Paraphrasing my life-long mentor—Sir Thomas Browne—among multiplied acknowledgments I can lift up one hand to Heaven that I was born of honest parents, that modesty, humility, patience and veracity lay in the same egg and came into the world with me. To have had a happy home, in which unselfishness reigned, parents whose self-sacrifice remains a blessed memory, with brothers and sisters helpful far beyond the usual measure—all these make a picture delightful to look back upon. Then to have had the benediction of friendship follow one like a shadow, to have always had the sense of comradeship in work, without the petty pin-pricks of jealousy and controversy, to be able to rehearse in the sessions of sweet silent thought the experiences of long years without a single bitter memory—to do this fills the heart with gratitude. That three transplantations have been borne successfully is a witness to the brotherly care with which you have tended me. Loving our profession, and believing ardently in its future, I have been content to live in it and for it. The moving ambition to become a good teacher and a sound clinician was fostered by opportunities of exceptional character, and any success I may have attained must be attributed, in large part, to the unceasing kindness of colleagues and to a long series of devoted pupils whose success in life is my special pride.

And to a larger circle of men with whom my contact has been through the written word—general practitioners of the English-speaking world—I should like to say how

deeply their loyal support has been appreciated.

And if, in this great struggle through which we have passed, sorrow came where she had not been before, the blow has been softened by the loving sympathies of many dear friends. And may I add the thanks of one who has loved and worked for our profession, the sweet influences of whose home have been felt by successive generations of students?

To the Committee and Editors I am deeply indebted for the trouble they have taken in these hard days, and to the publisher, Mr. Hoeber, for his really pre-war bravery. And our special thanks are due to you, dear friends—and in this I include Lady Osler's—you who have graced this happy ceremony with your kindly presence.

Sir D'Arcy Power: Ladies and gentlemen, it is my very pleasant duty to close this interesting meeting by proposing a vote of thanks to Sir Clifford Allbutt for having come here this afternoon to preside over us and make this presentation. I suppose this is the first occasion on which the two Regius Professors of the two Universities of Oxford and Cambridge have come together for such a function. I hope it is a good augury for the future. We owe to Sir Clifford Allbutt our very best thanks for coming to London for this purpose.

Sir Donald MacAlister: On behalf of those who are not members of the Committee, for whom Sir D'Arcy Power has spoken, I have been asked to support this vote of

thanks to Sir Clifford Allbutt. The function he has carried out is one we all feel grateful for. And, more than that, those of us who come from Cambridge feel proud of him. We were perfectly aware that when the Regius Professor of Cambridge undertook to make the presentation to the Regius Professor of Oxford, it would be done in the most perfect possible manner. The—to use his own words—variety of learning, the wit, the wisdom, and, I may add, the deep feeling, which characterised his utterance in making the presentation to our dear friend Osler, fully justified our expectation and our pride. It was only right that Oxford and Cambridge should join in the presentation, and that Oxford and Cambridge should join in thanks to him who has taken the chair.

Sir Clifford Allbutt: Ladies and gentlemen, that you should so cordially and kindly thank me for taking the chair on this occasion came to me, when a few minutes ago I heard of it, with great surprise. It seems to me contrary to what ought to have taken place, for it is I who ought to thank you for giving me the one great privilege of my life, of coming forward on an occasion which may, perhaps, be described as unique, to voice your feelings in this matter, to be your intermediary in this presentation to our honoured friend Sir William Osler. It is a matter on which I have most cordially to thank you, rather than to receive your thanks.

(The proceedings then terminated.)



ADDITIONS TO THE LIST OF INCUNABULA IN THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

The following are additions to the list of the Incunabula in the possession of the Library of the College of Physicians of Philadelphia published in Vol. II, No. 1, pp. 44-78, of the ANNALS OF MEDICAL HISTORY.

CHARLES PERRY FISHER,
Librarian.

AQUINAS, THOMAS. [Commentarius in libros Aristotelis de anima.] [F.1a:] Incipiunt comentaria [sic] gloriosi | simi docto[r]is sancti. Thome de | aquino ordinis p[r]edicatoru[m] su | pe[r] libris aristotelis de anima. | [F.61b:] Explicit commentum Sancti Thome de | aquino o[r]dinis p[r]edicatoru[m] super lib[r]os | aristotelis de anima. Papiæ Imp[r]essum per Martinu[m] de laualle de mo[n]ferato. An | no christi. M.cccc.lxxxviii. die ultima men | sis setemb[r]is. | [Registrum.]

[61] ff. F°. Papiæ, Martinus de Lavalle de Monferato, 1488.
[Hain no. 1521.]

ARISTOTELES. [De generatione et corruptione liber.] [F.1a vacat.F.2a (c.sig.a2):] Textus Ar[istotēlis] de generatione[et] corruptione cum | expositione omniu[m] expositio[rum] eius optimi interpetris | Egidij Romani Feliciter incipit. | [F.32a:] Explicit expositio Egidii super pri | mum librum de generat[i]one Aristotelis. | [F.54b:] Explicit textus Aristotelis de generatione | et corruptione una cum expositionibus Egi | dii de roma o[r]dinis heremita[rum]. | *** Impressum patauij.M.CCCC.LXXX. die XXIIIj.feb[r]uarij | i[n]genio [et] impensa Joannis gra[n]dis herbort [de] silgenstat. | [F.55 vacat.F.56a:] Questiones clarissimi philosophi Marcilij inguen su | per lib[r]is de generatione et co[r]ruptione incipiunt. [F.124b:] Expliciu[n]t q[uesti]o[n]es sup[er] lib[r]is de g[e]n[er]at[i]one et co[r]rupt[i]o[n]e Ari. | *** eme[n]date p[er] *** Nicoletu[m] vernia [m] theatinu[m] *** Anno

d[omi]ni. m.cccc.lxxx.die xxix. feb[r]uarii] [Deinde tab.quaestionum et versus de emptore et Marsilio. Seq.3 ff. appendix et registr.]

[127] ff. F°. Patavii, Johannes Herbort de Seligenstat, 1480.
[Hain no. 1692.]

BEROALDUS, PHILIPPUS.¹ [Annotationes in Commentarios Servii in Virgilium.] [F.1a:] Ad magnificum virum Franciscum Lasatum | *** Philippi Beroaldi Bononensis epistola. | [F.33a:] Laus deo. [F.33b.] post endecasyllabon ad libellum: Impressum Bononie per me Henricum de | Colonia su[m]ma diligentia [et] cura. Anno do- | mini. Mcccclxxxij me[n]sis Noue[m]b[r]is. |

33 ff. 4°. Bononiae, Henricus de Colonia, 1482.
[Hain no. 2944.]
[Bound with Plinius, C. S. Epistolarum. *** 1483.]

BEROALDUS, PHILIPPUS.¹ [De felicitate opusculum.] [F.1.tit.:] Philippi Beroaldi de fe | licitate opusculum. | [F.2:] AD ILLUSTRUM MARCHIONEM | JACOBUM BADENSEM PHI | LIPPI BEROALDI BONO | NIENSIS EPISTOLA. | [F.3 vacat. F.5. (c.sig.a i) in rubem:] ORATIO PHILIPPI BEROALDI BO | NONIENSIS DE FELICITATE HABI | TA IN ENARRATIONE GE | ORGICON VIRGILII et | COLUMELLAE. [F.35a:] O P VSculu[m] hoc de felicitate luculentu[m] i[m]presso | ria Platonis de Benedictis Bononiae incude egre | giis his characteribus excussum Anno salutis Mil- | lesimo quadringentesimo nonagesimo quinto | Calendis aprilibus lector amplectere et foue si fe | lix esse cupis. | REGISTRUM. | Primo folio continentur Epistola Deinde | a.b.c.d.omnes sunt quaterniones. | [Insign. typ.] PLA.

[35] ff. 12°. Bononiae, Plato de Benedictus,
1495.

[Hain-Copinger no. 2969.]

HUGO SENENSIS. [Expositio in libros tegni Galeni.] [F.1a:] Expositio Ugonis Senensis super lib[r]os tegni Galieni. | [F.2a:] § Incipit expositio Clarissimi viri Ugonis sene[n]sis super | lib[r]os tegni Galieni. | [F.93b:] Opus imp[r]essum venetiis: mandato et sumptibus Nobilis | viri Domini Octauiani Scoti Cuius Modoetiensis. Un | decimo kalendas Julias.1498.per Bonetum Loca | tellum Bergomensem. | Registrum | *** Finis. | [Insign.typ.] O.S.M.

[93] ff. F°. Venetiis, Octavianus Scotus per Bonetum Locatellum, 1498.

[Hain no. 9015.]

HUGO SENENSIS. [Expositio super primo canonsis Avicennae.] [F.1a.tit:] Expositio Ugonis Senensis | super p[r]imo Canonis Aui | cenne cum questioni | bus eiusdem | [F.124b:] § Opus imp[r]essum Uenetus mandato et expe[n]sis nobilis | [Uiri D[omi]ni Octauiani Scoti Cuius Modoetie[n]sis Qui[n]to | kalendas Maias 1498. Per Bonetum Locatellum | Bergomensem. | Finis. | [F.125a:] Registrum. | Finis | [Insign.typ.] O.S.M.

[125] ff. F°. Venetiis, Octavianus Scotus per Bonetum Locatellum, 1498.

[Hain no. 9017.]

HUGO SENENSIS. [Tractatus utilissimus circa la conservazione della sanitade.] [F.1 (c. sig.a):] Tractatus utilissi[m]o circa la [conser]uat[i]o[n]e[de] la sa[n]ita[de] [com]posto p[er] il cla[r]i[ssimi] [et] | excelle[n]ti philosofo[et] doctore di medici[n]a Me[ss] Ugo Be[n]zo. [F.52a (c.sig.g4):] Exactum est hoc opus M[edio]l[an]i | cu[r]a diligentia Petri de co[r] | neno Mediolane[n]sis.148i. p[r]i | die kalendas Junias. *** [F.52b-54a: registrum.]

54 ff. 4°. Mediolani, Petrus de Cornerio, 1481.

[Hain no. 9021.]

JACOBUS FORLIVIENSIS. [Expositio in primum librum canonis Avicennae.] [F.1a. tit.]: Expositio Jacobi fo[r]liuiensis super

cano | nis Auicenne cum questionibus eiusdem | [F.36 (c.sig.EE6) col.1.l.24:] § Scripta Flore[n]tie et [com]pleta p[er] me Ugone[m] Se | ne[n]sem. Anno domi[ni] ab i[n]carnat[i]one. 142i. [sic] die. 2. Januarij ame[n] | [Tabula. Registrum.] FINIS | [Insign.typ.] O.S.M.

[126], [36] ff. F°. [Venetiis, Octavianus Scotus per Bonetum Locatellum, circa 1495.]

[Hain no. 7245.]

MOSES MAIMONIDES. [Aphorismi medici.] [F.1:] Hoc in volumine hec continent[ur]. | Apho[r]ismi Rabi moysi. | Apho[r]ismi Jo. Damasceni. | Liber secreto[rum] Hipocratis. | Liber p[ro]nosticationum [Su]m luna[m] in si- | gnis et aspectu plane- tarum Hipoc. | Liber q[ui] dicit[ur] cap- sula eburnea Hipo. | Liber de eleme[n]tis siue de humana na | tura Hipocratis. | Liber de aere [et] aqua [et] regio[n]ib[us] Hip. | Liber de pharmacijs Hipocratis. | Liber de insomnijs Hipocratis. | Liber zoar de cura lapidis. | [F. 48a:] [In[sic]- p[r]essum est p[r]esens volumne[m] Vene- tijs per.m.Joha[n]- | nem hertcog de Landoia alumanu[m] Anno iubilei. 1.500. | Die vero decimo Januarij. | Laus deo. | Registrum. | *** Finis. [Zyl. typ. insign.]

48 ff. F°. Venetiis, Johannes Hamman de Lando-
via, 1500.

[Not in Hain.]

PETRUS DE ABANO. [Tractatus de remediis venenorum.] [F.1a:] Tractat[us] Pe[tri] d[e] Abano de remediis ueneno[rum] [F. 32b:] § Finiunt Pe[trus] de Abano remedia ueneno[rum].

32 ff. 4°. [Romae, circa 1473.]

[Not in Hain.]

PLINIUS, CAJUS SECUNDUS. [Epistolarum libri IX] [F.1a: vacat, manque.F.2a (c. sign.a ii):] CAII PLINII SECUNDI NOVOCOMENSIS ORATO | RIS FACUNDISSIMI EPISTOLARUM LIBER PRI | MUS INCIPIT. | [F.92b:] FINIS. Impressum quidem est hoc opus

Taruisii per Magistru[m] | Ioann | em
Vercellium. Anno salutis. Mccccxxxiii. |

92 ff. 4°. Tarvisi, Johannes Vercellensis, 1483.

[Hain no. 13113.]

[Contains also Beroaldus, P., Annotationes in
Commentarios Servii in Virgilium. 1482.]

POGGIUS, JOH. FRANCISCUS. [Facetiarium
liber]. [F.1a (c.sign.a2.):] POGII FLOR-
ENTINI ORATORIS CLARISSIMI
FACETIARVM LIBER INCIPIT FE-
LICITER. [F.50b:] Poggii florentini secre-
tari apostolici facetia[rum] liber absolut-
[us] | e[st] feliciter. Impressum Venetiis
anno. M.CCCCLXXXVII. Die. X. men-
sis Aprilis.

[50] ff. 4°. Venetiis, 1487.

[Hain no. 13193.]

F. 1 blank; ff. 41-47 (sign. f) supplied in MSS;
additional facetiæ on f. 55.

REGIUS, [RAPHAEL]. [Epistolae Plinii] [F.1a
tit. (c.sign.a,):] Raphaelis Regii epistolae
Plynii: qua libri naturalis histo | riae
Tito Vespasiano dedicantur: enarrationes.
| Eiusdem de q[ua]tuor Persii locis: uno
Valerii maximi: duo- | bus Tullii de offic-
iis: ac tribus oratoriis q[ue]stio[n]ibus
disputatio. | Eiusdem de quibusdam
Quintiliani locis cum quodam | Calfurnio
dialogus. | Eiusdem loci cuiusdam Quin-
tiliani ac eius Cicerouis [sic] ad | Atticum
epistolae: cuius initium est: Epistolam
hanc conuicio | efflagitarunt codicilli tui:
enarratio. [F.1b:] RAPHAEL REGIUS
DOMINICO GRIMANNO PA- | TRIC-
IO VENETO EQVITI SPLENDIDISSI-
MO SE | NATORIQVE SAPIENTISSI-
MO SALVTEM. | [Scripta est ep.:] Pa- |
duae pridiae [sic] nonas martias. Mcccc-
xxxx. | [F.2a (c. sign. a2):] IN PLINII
MAIORIS EPISTOLAM AD TITVM
VE | SPASINVM RAPHAELIS REGII
ENARRATIONES. | [F.37a:] *** rogat
Gulielmus Tridi- | nensis cognomento
Anima mia: cuius opera hoc opusculum |

Venetiis fuit descriptum Principe August-
ino Barbadico de | cimo Calendas Iunias.
Mccccxxxx. |

38 ff. 4°. Venetiis, Guilielmus (de Plano)

Cereto de Tridino de Monteferato cogno-
mento anima mia, 1490.

[Hain no. 13810.]

SAVONAROLA, [GIOVANNI] MICHELE. [De
balneis et thermis naturalibus omnibus
Italiae.] [F.1a:] Ad Illustrem d[omi]n[u]m
Bo [r] siu[m] estensem Ca | strinou[i] tor-
tonensis d[omi]n[u]m. libellus Micha | elis
Sauanrole Illustris p[ri]ncipis d[omi]ni leo
| nelli marchio[n]is estensis ph[ys]ici.de
balneis [et] thermis naturalibus omnibus
ytalie sicq[ue] to | tius o[r]bis p[ro]
p[ri]etibusq[ue] ea[rum] i[n]cipit feliciter
| [F.39b:] Explicit liber de balneis [et]
thermis na | turalibus o[mn]ibus ytalie
p[ro] p[ri]etibusq[ue] earu[m]. editus a
d[omi]no Michaeli Sauo | narola. im-
p[re]ssus Ferrariae p[er] m[a]g[ist]rum
Andream gallum. M°.ccccxxxxv°. die x°.
me[n]sis noue[m]bris. Deo gr[at]ias—
Finis. | Registru[m] huius libri. |

39 ff. 4°. Ferrariae, Andreas Bellfortis Gallus,
1485.

[Hain no. 14493.]

TORRELLA VALENTINUS, HIERONYMUS.
[Opus praeclarum de imaginibus astrolo-
gicis.] [F.1a.tit.]: Hieronymi [to[r]rella me-
dici Ua | lentini opus p[re]claru[m] de ima-
ginibus astrologicis no[n] | solu[m] medicis
verum e | tiam litteratis vi | ris utile ac
ame | nissimu[m] | [F.92a.l.22.]: Et [com]-
pletu[m] e[st] hoc opusc[u]l[u]m p[ri]ma
me[n]sis Dece[m]bris | anno salutis
[christ]iane. Mccccxxxxvi. Finis. |
§ Impraeusu[m] est hoc opusc[u]l[u]m
Uale[n]tie p[er] alfonsu[m] [de] o[r]ta | [F.
93.] § Correctio |

[93] ff. 4°. Valentiae, Alphonsus de Orta, 1496.

[Hain-Copinger 15560.]

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EDITORIALS

ABRAHAM JACOBI (1830-1919)

With the death of Dr. Abraham Jacobi, at Bolton Landing, N. Y., on July 10, 1919, at the age of 89, there passed away the founder of American pediatrics and one of the great leaders of our American profession. In spite of injuries sustained in a fire at his summer home, in which some of his valuable manuscripts were lost, Dr. Jacobi retained his cheerful poise and serenity to the last.

He was born on May 6, 1830, in the village of Hartum, Westphalia, where his parents conducted a small business in cattle-trading and storekeeping. His early education, acquired with difficulty at the village school and the Gymnasium at Minden, fitted him for matriculation at the University of Greifswald in 1847, and after the usual sequence of semesters at other universities (Göttingen and Bonn), he graduated at Bonn in 1851. His graduating thesis was a Latin dissertation "*Cogitationes de vita rerum naturalium* (Cologne, 1851), which is, in effect, a materialistic consideration of the nature of life and the forces of nature. Its conclusions are *nil extra naturam; nil extra materiae leges, nullus in natura hiatus*.

While at Göttingen, Jacobi became involved in the revolution of 1848, his political activities were continued at Bonn, and when he went up to Berlin for his state examination, he was arrested on a charge of

lèse majesté, and imprisoned for two years. Escaping to England in 1853, he finally reached America, and eventually settled down to practice in New York, where he was soon able to make a living. In 1854, he invented and used a laryngoscope, some time before the appearance of Garcia's instrument. In 1857, he was lecturing on pediatrics in the College of Physicians and Surgeons of New York, being the first to teach this specialty in the United States. Later on, he was successively professor of diseases of children in the New York Medical College (1860), the Bellevue Hospital Medical College (1861), the Medical Department of the University of New York (1865), and again in the College of Physicians and Surgeons (1870-99). He taught his specialty for nearly half a century, and in 1862, established our first pediatric clinic in the New York Medical College building in East 13th Street. He thus, as his colleague Adams has said, "pressed the button which set the pediatric clinic in motion," and, incidentally was the first to institute public bedside teaching in our country.

During his long and active life, from the date of his inaugural thesis, Dr. Jacobi was a prolific contributor to medical literature. Mere writing became second nature to him, his mastery of the English idiom was complete, his knowledge of his science set off by wide and varied reading, particularly in



Abraham Jastrow

the literature of classical antiquity and of the history of medicine. His writings fall readily into three classes; viz., the larger treatises and monographs, such as those on diphtheria (1876), intestinal diseases of infancy and childhood (1887), therapeutics of infancy and childhood (1896-1903) and the splendid study of infant hygiene in the Gerhardt *Handbuch* (1876); the original scientific contributions, such as that on diseases of the thymus gland (1876), and the many descriptions of infantile disease in the American and German periodicals; and the brilliant array of miscellaneous essays addresses, public letters and speeches, which have been gathered in the "Collectanea Jacobi" (8 vols. 1909). The latter include some of the best things ever written on the history of pediatrics, in particular the history of American pediatrics in the eighteenth century (1902), the St. Louis address of 1904, the elaborate and authoritative history of American pediatrics in the Baginsky *Festschrift* (1913), the history of cerebro-spinal meningitis in America (1905) and the history of pediatrics in New York City (1917). To the general history of medicine, he made many learned contributions, notably the compact histories of nursing (1883) of American medicine (1900), of therapeutics (1905), of medical libraries (1906), the wonderfully exhaustive and patriotic letters to a German periodical on the condition of American medicine in 1909, and the charming biographical sketches of Samuel Bard, Virchow, Austin Flint, Carl Gerhardt, Ernst Krackowizer and others. Mention should here be made of the monumental discourse "Non Nocere," delivered at the International Medical Congress at Rome in 1894, replete with practical sense, and the learning and wisdom of a lifetime. The writings of Jacobi are remarkable for racy idiomatic English (which he wrote like a native), intellectual and civic courage of the highest order, omnipresent humor and a delightful vein of quaint,

elusive irony. In addressing an audience, he never flattered them, but, in his pleasant, humorous manner, told them plain, unvarnished truths. Concerning this trait, Dr. Robinson, the editor of the "Collectanea Jacobi," has said:

"What attracted me to Dr. Jacobi long before I had the pleasure of his personal acquaintance was his sturdy honesty, his rugged fearlessness, which one could readily feel in his public speeches and addresses. He never missed an occasion to inculcate a wholesome lesson. And he was never afraid of his audience. Where another person would pour out fulsome, cloying praise, he would offer healthy criticism; where another person would dispense nothing but taffy, Dr. Jacobi would present a good dose of Epsom salt; to dispense undeserved flattery has always been as distasteful to him as to receive it. And if his audience did not like some of the wholesome but bitter truths that he gave them, why, he just let them dislike them."

In 1865, John Stuart Mill, prior to his election as member for Westminster, was publicly asked whether he had written a passage stating that the English working classes were "generally liars," and elicited tumultuous applause by replying simply "I did." Under other conditions of space and time, he might have been greeted with a volley of oaths or brickbats. In public and civic relations, Jacobi was ever one of Milton's "sad friends of truth," the man who cares more for the truth than for himself or his own personal safety. His utterances under this head are to the point, the views of one who constantly kept the finer morale of life in its proper place, at the front:

"When your anger arises within you over some unjust thing, be not afraid of showing the blush on your face; when an iniquity is perpetrated, resent it. Be not afraid of slapping the cheek that deserves it in private or in public. Personally I hate enmities;

they always fretted and worried me and gave me sleepless nights; but I never was afraid of the enemies I made as long as I fought the battle of professional or civic decency and dignity. If there be a bad, or a ludicrous, or a dangerous man, and if he feels offended by my telling him of his misdeeds and my trying to protect the profession or the community against him, here I plead guilty, and I shall do it again forevermore. When I shall stop, then call me old." [1900.]

"Many a young man sins because he knows no better, and was not told. If the teachers of medicine, if the great professors of specialties in the schools of learning, neglect the duty of teaching from their platforms the morals as well as the science and art of medicine, it is they from whom comes the harm." [1894.]

Who, save Emerson or Thoreau, has spoken so plainly and forcefully of our national failing, smooth humbuggery?

"And here is a word to the young. I am afraid we old men are past changing, but it is a failing in our national character to be always cordial, always courteous, always handshaking. We do not identify the sin and the sinner; we abhor the former, and are too good-natured to shun the latter. If there be a danger to our morals and our politics, it is there. If you, the young men in the profession, will refuse approval and honors to men whose actions and methods you condemn, if you will only show them that your heart is chilled against them—some of them are in public positions—there will soon be an end to offences which need not always result from wickedness, but from bad taste only. There are those indeed among the vain who fear the display of bad taste more than the perpetration of sin." [1900.]

Equally vigorous and straightforward are Jacobi's strictures on the land of his birth, as he knew it in his youth. One recalls the remark of Helmholtz that the English

universities excelled in turning out men who wrote their language well and whose traditions and training were those of the gentleman; or Billroth's condition that his favored assistants should be men of gentle nurture (*aus gutem Haus sein*), as contrasted with those who have "the information but no corresponding degree of refinement."

"How low would be the level of our German Fatherland were we to judge it only by its visible leaders! For these do not grow simultaneously with a new generation or with a new century. At the beginning of the century, Stein; Fichte, the philosopher of the German nation; at the end, the vain and deluded Nietzsche. One hundred years ago, Schiller and Goethe, Wallenstein and Faust; to-day, Sudermann and his 'Sturm-geselle.'" [1903.]

"The latest events at the German universities are not calculated to confirm one in the impression that the study of the humanities necessarily has for its product humane youth. The brutalities of the anti-semitic movement find their chief leaders on the one hand in the refuse of the ignorant populace of the large German cities and on the other in the 'jeunesse dorée' of the gymnasia. The mediæval barbarity of the 'hep hep' delirium is diligently practised by the young men who, as has been documentarily proven, have had the advantage of an acquaintance with Homer, Horace, and even Sophocles. Judging from the German press there is not a more repulsive class of brutes than that which loves to give itself such airs in the German auditoria and beer-houses. Unfortunately these are facts well-known to all of you. Although in the light of our more liberal institutions and our more humane manner of viewing things, they surpass our understanding. This much, however, is certain that either Homer, Horace, and Sophocles alone will not redeem the barbarian, or that forsooth the study of the great minds of the ancient world as it has been and still is carried out

in the German secondary schools is capable perhaps of stuffing the head but not of purifying the heart." [1880.]

"So long as the honor of the student permits or demands that he jostle the civilian and call him philistine, so long as a great number of the songs he sings in his Kneipe are drinking songs or worse, so long will he be devoid of any sense of intimate coherence with and respect for his own family, the citizen, the people. The dashing students of my period, therefore, became the best servants of the State, according to Bismarck's views. Whatever liberty they wanted they had had in overflowing measure at the university. The prosecutors in the Communist trials at Cologne, and in the much more horrible Rostock trials, were all former dashing students. When I witnessed a performance of Alt-Heidelberg, tears of rage rose in my old eyes. In this play the loud, noisy, thoughtless gayety of the students is promptly transformed into toadying and servile shrinking the moment their fellow-student—against his wish and merit—becomes a reigning prince. How much better does the prince appear than his former boon companions, now all submissive devotion!" [1903.]

"In F. Nasse, I had, fifty years ago, a teacher of unadulterated humanity, combined with all the scientific eagerness of his mental youth of exactly seventy years. From him also, though he was not a democrat nor a revolutionist, I learned the sacredness of individual right and life which I have never ceased to respect. Thus I learned two things: first, never to let up in my care of individual life when entrusted to me; secondly, that no single political or religious creed ever owns, or controls, or interferes with the dictates of humanity and common sense. Man is above theories or creeds." [1900.]

But if Jacobi indulged the "whom he loveth he chasteneth" principle in criticizing

American conditions, he would permit no one else to criticize them. I have known him to take up the cudgels for the slightest medical journal, the smallest medical society. His interest in American medicine was sincere, and his feeling for his adoptive country was one of genuine gratitude.

"Books on general American topics, like that of the surly and clumsy L. Buechner of Germany, or that of the ignorant and stupid though elegant Bourget, of France, written after a few weeks' hasty observations with narrow opportunities, are more apt to obscure the mental view than enlighten the mind. The spirit of de Tocqueville is no longer alive in the tourist." [1900.]

"Yes, we poor Americans have at last reached the point when, during sessions of International Congresses, entire papers—left with the publishers before the author's departure—'telegraphed over on account of the great interest which they aroused' are published by the daily papers. All this happens, I admit, but it is not American but only commercial, speculative. We suffer grievously through transactions of this sort, and through the presence of this sort of men in the great medical forum. The process of learning that which modestly remains in the background, is a slow one; only that which loudly pushes to the front easily makes a general impression." [1900.]

"I came here a foreigner, and never was made to feel I ever was a foreigner. I emerged from a European state prison to breathe the pure air of a free country. My political and social ideals were not all fulfilled, it is true, for nothing is perfect that is human; that is why it was still necessary for me to be an abolitionist and a mugwump, with the perfect assurance—which I still hold—that some time or other the minority turns out to be the majority." [1900.]

"Who is there that wondered that when many years ago the great honor of a responsible position in a foreign country

was offered me, it took me a single minute only to decline? I was, I am, rooted in the American profession, that I have observed to evolve without governmental aid, out of its own might, to become equal to any on the globe. I was, I am, rooted in the country that was my ideal when I was young, my refuge when, alone and persecuted, I stole away, and always, clouds or no clouds, my sunny hope forevermore." [1900.]

Contrast these exalted utterances of refined patriotism, with his captivating banter at one of the Ann Arbor dinners.

"In the circular of your committee of arrangements, reference is made to the Ann Arbor round table, an unassuming way they have of speaking of themselves. My intuition tells me it was more. That secret round table was a sort of modern Grail Society, which assembled, like the Knights of the Ancient Grail, under the tavern sign of the dove. They met annually. From Wagner's "Lohengrin," you recollect:

'Once every year a dove from heaven descended,
To strengthen the Grail anew for works of grace.'

"The dove, however, was not exactly a dove, but some other biped, such as a squab or chicken, or duck, with concomitant vegetables and what is called in English 'hors d'œuvres, entrées, sauce à l'Anglaise,' etc. There is this difference, however, between the mythical grail and the modern round table, that our men did not insist upon being unrecognized. What they want of you they say over their own honored names,—and when I look about I know they have succeeded." [1899.]

Arch and piquant, also, were his passing references to the history of medicine. His knowledge of the subject was wide and deep, but there was no pedantic parade of learning; the theme was usually exploited by him as a vehicle for wit, much as the modern French painters employ color solely to convey the sensation of light and motion.

"Rokitansky and Skoda cared more for the dead bodies than the living convalescents; the former proclaimed loudly that the only thing scientific in medicine was the autopsy, and the Nihilism of Vienna was that time's modern therapy. You and the patient met only twice—first, when you made the diagnosis of his case; second, at his autopsy." [1900.]

"Old Cato, the arch enemy of Carthage and of the Greek physicians who immigrated into Rome, cured everything with cabbage and incantations. Antonius Musa, who lived one and one-half centuries later, was the first exclusive hydropath of the old style that used cold water only. He cured the Emperor Augustus and enjoyed riches and honors. The Emperor's nephew, Marcellus, however, died under the treatment, and Dio Cassius charges the doctor with having killed his patient—*tout comme chez nous*." [1904.]

"We are not so fortunate, as, according to Herodotus, the ancient Egyptian doctors, 'who had many advantages,' he says; 'who spent and consumed none of their own property, but ate the ritual offerings, and received every day many geese, and meats, and wine.'" [1898.]

"As Virchow expresses it, every epidemic is a warning that should teach a statesman that there is a preventable or curable disorder in the organism of the commonwealth. Unfortunately it is too often true, what Anarcharsis said of Athens, that the wise men do the talking and the others the ruling." [1900.]

"Hahnemann was learned, so he found it easy enough to adopt the principle of potentialities from Arnold of Villanova, who lived 400 years before, and that of *similia similibus* from Paracelsus." [1904.]

"When the great surgeon, Dupuytren, had an empyema, he was told to have it opened, and he replied that he preferred to fall into the hands of God rather than that of man. So he did fall into the hands of

God in the year 1835, only 57 years old. Mind, that was in the nineteenth century, when the hands of Laennec's successors, Andral, Piorry, Louis, could have been had for the asking." [1905.]

"Not very long before my time the amenities of professional intercourse cannot have been very great, when Lisfranc called Dupuytren the butcher of the Hotel Dieu, and Dupuytren dubbed Lisfranc the murderer of the Charité." [1900.]

"A mechanic is expected to learn his handicraft before practising; but the medical student is permitted to practise on his fellow men without having the required schooling. This is what gives so much probability to Ughetti's story of a Scotch king who would not admit a doctor to his own land until he had practised at least twenty years amongst his enemies." [1905.]

"There is nobody, however, who can know all the various specialities or practice them. Seneca said 2,000 years ago: 'The man who is everywhere is nowhere'—*nusquam est qui ubique est.*" [1904.]

"Nearly forty years ago my surgical colleague, Carnochan, performed operations in the then New York Medical College on the cadaver and on the living patient on the same revolving table in the amphitheater, in the same purple velvet gown, and, I do not remember, perhaps even with the same knife." [1899.]

But, it is after all, in the field of his actual life-work, the practice of medicine and the ethics of the profession, that we find Jacobi at his best. Here he is at once learned, pungent, practical, informed with wisdom, rectitude and the genius of humanity.

"In large cities the thorough, all-around, general practitioner is becoming scarce. Now and then he is expected to be but the city directory, or the agent for the specialists in brain and nerves, in kidneys and appendages, in uterus and appendages, in skin and corns, in heart and lungs, in stomach,

throat, nose, eyes, ears, and what not. It will be very difficult to stem the current, for, indeed, the evolution of specialties, both in science and practice, is spontaneous and legitimate. But the waters left their bed long ago. The tendency of the time is mercenary, the medical man is still a man and but human and many a one is very, very young, and expects to make a great reputation and an easy living out of very little mental capital, and out of a little manual dexterity, to the neglect of general medicine." [1894.]

"A young medical man who runs off into a specialty, honestly believing that a human organ can be studied and treated separately, like the wheel of a watch, has not intellect enough to be a physician, and ought to have been discouraged from entering the ranks. He who undertakes it from mercenary motives ought to be frowned down, and told that his tendencies and faculties belong to the places where they sell their wares and souls for lucre, and call it business, not a sacred vocation." [1894.]

"Statistics are said to prove that pneumonias will get well without medication. Which pneumonia, and whose? It should be a great satisfaction to a man dying of pneumonia to learn that his neighbor got well without medication, if stimulation in time, perhaps venesection, might have saved his own individual life. It is the duty of the physician to judge of and to treat his individual case, and not the pneumonia of Louis and of Dietl, and of other statisticians. Treat the man who is sick, and not a Greek name." [1898.]

"I was present when a minister of the gospel in my city rebuked us doctors roundly for not finishing the misery by a friendly poison. When I heard it, I remembered the little sentence in the Latin primer of my early childhood: '*Medæ projeciebant moribundos canibus*; 'the Medes threw the dying to the dogs.' When we doctors become Medes, we shall obey the ruling of that

clergyman. Meanwhile we have sworn with Hippocrates: 'I will give no deadly medicine to anyone if asked, or suggest any such counsel.'" [1905.]

"I am so convinced of the good effect of a spare diet in old people, that I have often insisted that the change be made. In consequence, I have frequently seen aged men and women with sour temperaments, flatulency and muscular and mental incompetency, become cheery and active—nor old people only. According to Keith's East Indian experience, it is the unanimous verdict that spare frames and spare eaters bear tropical climates best. Three hundred pounders do not prove satisfactory. The teacher who initiated me into the mysteries of the alphabet was very frail and was considered tuberculous. Being so lucky as to have to live on the equivalent of \$30 a year, and not striking oil at any time, he lived on healthy but spare diet up to his present age of 87, which he spends with books and painting. Thus it happens that the feeble should not be despaired of; they may reach an old age, while the very vigorous, who do not suffer at once from their transgressions, are tempted by this apparent immunity to repeat them and succumb to their consequences. Nor do I think that the old Egyptians would, altogether, protect themselves against the results of their indiscretions by their custom of taking a purgative and an emetic three times a month." [1898.]

"When the Vienna school, following the French under Broussais and others, elaborated pathological anatomy and diagnosis—I refer mainly to Rokitansky and Skoda—they declared that diagnosis and autopsy were the only quintessences of medicine. Even Wunderlich proclaimed in his early career that medicine should be science, not art. But the very accuracy of the diagnosis and of autopsies facilitated the appreciation of the effects or of the failures of medicines. The co-operator of those illustrious men—

Hebra—proved every day of his life that diseases, hitherto incurable, were cured and healed by local treatment. The isolation of morphine by Magendie, and of numerous alkaloids afterward, rendered medication more accurate and controllable. Annual experiments added wonderfully to the certainty of drug-action; it was soon learned that much of that certainty was due to the chemistry of the drugs; this was the first step in the direction of compounding new drugs by synthesis." [1898.]

"Do not blame bacteriology for the sins of some few workers." [1905.]

"There has been, for instance, an egregious amount of talk among us about the power of nature and the incompetency of man. *Natura sanat, medicus curat.* Nature is the healer; the medical man just takes care of the patient, and sees to it that nature can perform its work. Why, then, insist upon these cruel and brutal exertions, most of which are discovered and advised by men possessed of a schematic knowledge of a pathological process, which leads them to kill their patients while trying to destroy a bacillus? *Le sujet est mort, mais il est mort guéri.*" [1894.]

"Nature does not kill and does not heal. If there were consciousness in nature, she would feel indifferent about what she is, viz., mere evolution. Nature is sunshine that grows harvests and sunstrokes; she makes moonshine for lovers and for burglars, and rain to feed men and to drown them, and the sun warms the unjust and the just. Nature is a Mauser bullet; stand in its way, you are hit; dodge, and you are saved—it makes no difference to nature. In nature a diphtheria bacillus has its democratic rights and duties like George Washington, and it killed him; she has not predilections, no reasoning; she is cause and effect. She can be led and doctored. The engineer heals her deformities in the interest of commerce; insurance companies correct her failures or calamities; indeed

the logical mind of man and the logical necessities of "nature" are engaged in a constant strife for superiority. In matters of health and disease of *homo sapiens* the doctor utilizes or combats the doings of nature. By caring he cures. Curing has long ago lost its literal meaning (*curare*). It is healing." [1898].

"The old physicians, with their maxim *qui bene purgat, bene curat*, hit the nail quite frequently." [1898.]

"If the countries be overrun with proprietary and quack medicines and foods, it is to a great extent the fault of the doctors, even those highest in rank. They will accept and praise and certify to the merchandises of the vendors—I am afraid some of you carry them in your own pockets this moment—open and strengthen the market for them, and thus educate their public into attending and drugging themselves. If there is to be a pharmaceutical gospel, it ought to be for all of us the national pharmacopœias." [1894.]

"Medicine, like politics, will be purer for the money put into it, instead of being taken out of it." [1900.]

"We all agree not only that over-dosing is wrong and harmful, but also that it is being practised. To give mercury to salivation; salines until the rest of soluble albumin and salts is gone; digitalis until heart and pulse are below danger line; belladonna until the throat is as hard as a gridiron; quinine until you get deaf; iron until gastric catarrh and constipation destroy what is left of health; to burn noses for everything in the line of ailment that may befall the flesh; to cut the cervix uteri for sterility and endometritis; to sew up the cervix uteri for sterility and endometritis; to cauterize and otherwise handle the problematic ulcerations of the uterus for sterility and endometritis, are abominations to the minds of well-meaning physicians. Still they are being done, and will continue to be done until knowledge increases,

judgment improves, the mercenary spirit disappears from our ranks, and perhaps the public refuses to submit. *Non nocetis.*" [1894.]

"It is not enough to avoid legal responsibility, the civil law is mostly on your side—our law-book is the history of our art and the dictates of our heart. Both say that the so-called expectant treatment has done, and is daily doing, more harm than over-dosing. Our sins are those of omission as well as of commission. A whooping-cough leading to broncho-pneumonia, pulmonary hemorrhage, or convulsion in the fifth or sixth week, while it might have been mitigated or checked before, is an arraignment of the doctor. The self-limited eruptive fevers, measles, scarlatina, typhoid, each of them liable to lead to myocardial changes, heart failure, and death, or to mental disturbance, which were not actively treated in time by absolute rest, reduction of heat, and moderate or vigorous early stimulation; the pneumonia which, when delirium, cyanosis, and dilatation of the right heart became urgent dangers, was not relieved by a venesection; the protracted and hesitating convalescence, with its anæmia and flagging pulse, which was not supported by heart tonics, not 'pro re nata,' for res was 'nata' already, before it was too late forever, are, and must be for life, loads on the practitioner's conscience. Sophocles says (Aias 581): 'οὐ πρὸς λατροῦ σοθοῦ θρηνεῖν ἐποδὰς πρὸς τομῶντι πήματι' (No bright physician mourns plaintively over a case where he ought at once to use the knife)." [1894].

"You do not save a burning building with an atomizer, but with a hose." [1905.]

"In accordance with my democratic schooling, I was fortunate enough to have respect for the individual. That is why I found it easy to imagine myself in the place of a patient, and to spare his feelings if I could not preserve his life. Where you cannot save, you can still comfort. I

never told a patient he had to die of his illness, and hope I shall never be so careless or so indolent as to do so in future. The magnetic needle of professional rectitude should, in spite of occasional deviations, always point in the direction of pity and humanity. Another lesson I learned early was this, that my patient had to be treated, and not the name of his disease, and, also, as my illustrious medico-poetical friend proclaimed in Washington a few days ago: "'Tis not the body, but the man is sick.'" [1900.]

"Listen to what I read in Ughetti's book—I believe he spoke of you and me: 'When a doctor runs away from an epidemic he is a coward; when he stays and fights it, he is forgotten; when it kills him, his family will starve.' I have seen all that and it looks gloomy, does it not? But you do not look frightened at all. And such is the fascinating sacredness of the calling you are entering upon, my young colleagues and fellow students, and if you asked an old man who had been through hard lifelong work and heart-rending scenes, through successes, maybe, and endless failures and disappointments, if you asked him what he craved to be if he began life again, he would, I think, reply: 'Just a modern doctor.'" [1905.]

From the remaining extracts subjoined, one may further sense the depth of Jacobi's wisdom, the edge of his wit, and the wide range of his interests and experience.

AUTOBIOGRAPHICAL

"The first of my professional successes was the fact that it took my first patient only a fortnight after my new shingle began to ornament No. 20 Howard Street, to call on me with his twenty-five cent fee. That was in November, 1853. I must have had quite a reputation at that time, for his only excuse for coming at all was that he had heard of me. I think I must have

gathered many more such fees, for after less than four years I was one of the founders of the German dispensary, in which treatment was strictly gratuitous. About the same time of this memorable achievement of mine, Dr. Stephen Smith, that good and glorious man, accepted from me a long series of extracts from European journals and books, mostly on diseases of children, and within another year, he was pleased to accept, what I am still pleased to call, original articles. About the same time my inexperience made me try my first lecture on half a dozen suffering students (in the spring course, of 1857) of the College of Physicians and Surgeons. I nearly broke down, more or less deservedly. My subjects were the diseases of the young larynx and laryngismus stridulus. *Nolens volens* I exhibited in my own person an attack of laryngismus. We all survived. A similar experience I had three years afterward when I had been made professor of infantile pathology and therapeutics in the New York Medical College, then located on East 13th Street. If some one were anxious to learn how I, with my knowledge of pathology and therapeutics, which indeed was rather infantile, became a professor, this is how it happened. A friend of mine, who has a tablet of his own in the history of American obstetrics, had taken a chair in the re-organized school. So my dear Charles Budd wished me to go in with him, and came as a committee to offer me a place in the faculty. When I used what I had of common sense and replied that I did not feel competent, he tried his great art on himself. He delivered himself, with forcible tongue, of so many uncomplimentary remarks about me, that I accepted his terms at once.

"The very next year, the eighth, I made a heap of money out of literature, which is remarkable for a medical man, unless he be Weir Mitchell, or Osler, or Holt. It happened this way,—perhaps someone wishes to imitate me. Indeed, I believe he should.

In 1859, E. Noeggerath and I published a big volume, 'Contributions to the Diseases of Women and Children,' at an expense to ourselves of \$800; a few years afterward we sold the edition as waste paper for sixty-eight dollars, a clear profit—compared with nothing.

"Thirteen years passed, and I suffered from fire; some rare books and specimens that I could never replace burned down with the University Medical College building on Fourteenth Street. Over the ashes of my property Tammany Hall was erected, which refuses to burn, at least in this world. About the same time I cashed my first big hospital check in the shape of a petechial typhus, of which I got well after public prayers had been offered by some good old ladies.

"After seventeen years, I scored quite a success when I—refusing to resign—got myself expelled from a public institution for proving a hundred per cent mortality amongst our babies, and for insisting upon a farming-out system." [1900].

"When I was a young student, the medicine of Germany was just waking up from a forty years' slumber caused by the unintelligence of what was called *nature philosophy*. At that time, the Viennese earned pathological anatomy from the French. One of the greatest teachers of that branch was Rokitansky. For him all there was in medicine was the study of the dead body. For Skoda, however, all there was in medicine was diagnosis, mostly through percussion and auscultation. For the patient, all there was to do was to go to the hospital, to be diagnosed by Skoda, and to be opened by Rokitansky. Medical science and the patient met only twice, once on the hard hospital bed, next on the autopsy table. The patient had done his full duty when the diagnosis and the result of the post mortem examination agreed. Of therapeutics there was none. The time of ig medicine bottles with the nauseating

draughts had gone by, thanks to Hahne-
mann, however, could not meet with the approval of unsophisticated savants. So there were no drugs, no treatment. While formerly both medication and bloodletting had been overdone, now everything was discarded. Dietl, of Vienna, and Ham-
mernjk, of Prague, founded that nihilism of the Vienna school that under the flag of so-called pure science had resulted in driving the patients into the camps of sectarians or quacks, who after all hold out some promise to the despairing." [1905.]

NEW YORK IN 1788

"Nearly a hundred years ago, when the first dispensaries were established, religious feeling was no longer strong enough to prompt the giving of proper care to the sick and helpless. The only public hospital in New York was the New York Hospital. And this was held in such slight esteem or respect for its public service that in April, 1788, the sight of a human limb at one of the windows caused a bloody riot, the 'doctor's mob,' in which a number of prominent citizens, among them John Jay and Baron Steuben, were wounded by the ruffians. The physical and moral condition of the masses—even in a city that hundreds of years ago counted but 23,000 inhabitants—was so depraved, that only those can perhaps form an idea of it who are able to recall the July riots of the year 1863. And those who have read the painfully exact description by McMaster of certain social conditions, cannot refuse their admiration to those physicians and laymen who established the first dispensaries in aid of the indigent sick." [1900.]

RECOLLECTIONS OF JOHN W. FRANCIS

"His literary and artistic tastes kept him in contact with professional men of all kinds. That is why very few men whom

I knew in the profession of New York could at any time compare with him in mental breadth and vigor. He was very social when you knew him more intimately, and inclined to be jocose. I had seen him a few times only, when one day he stopped me at the corner of Broadway and Bond street, near where he lived. 'They speak well of you,' he said, 'and you will get on; only people want sometimes some outward show. Now, I am an old man, and you will not mind it when I say you ought to have another tailor.' I replied: 'You see, Dr. Francis, you are an old doctor, and famous, and you can afford to wear the old-fashioned clothing of the eighteenth of Brumaire and of the century of William Penn, but I cannot afford yet a better tailor.' My remarks on his clothing appeared rather to please than to shock him. He was somewhat inclined to be a little pompous, and the cut of his clothing was fashionable when he was a boy." [1907.]

OVERPLUS OF MEDICAL SCHOOLS

"In regard to our medical schools, it should be remembered that, with few exceptions, all of them were at one time, and most of them are still, private institutions. An intelligent American audience need not be told that vanity, avarice, territorial pride, professional jealousy, had a good deal to do with the mushroom growths. St. Louis and Chicago had at one time, and have perhaps to-day, thirty medical schools between them. That is why professors are as numerous as crab-apples and plain doctors are scarce, at least in large cities. I am certain I express the opinion of all here when I say that medical teaching will be better, and more uniform, and more in accordance with the requirements of the public, when our one hundred and fifty schools will have been reduced to twenty-five, and each of them will be connected with a university as its medical department." [1900.]

MAN'S DEBT TO THE PAST

"No single man can stand alone, a law to himself and others. Even genius is the child of its time. No Washington or Lincoln, no Hippocrates or Aristotle, no Virchow or Pasteur, or even Koch, none of these immortal ones is a world by himself, and an isolated, self-lit sun illuminating and warming the universe. Every one has been raised on the shoulders of his predecessors." [1880.]

AUTHOR AND PUBLISHER

"Our book stores are the largest and most magnificent in the world; public libraries are found in towns one side of which still adjoins the primeval forests or the prairie, and our publishers build themselves palaces—which, however, cannot be often said of the authors."

A TEST OF SCIENTIFIC BOOKS

"In forming a judgment of books, I use a method peculiar to myself. Should a novel, for instance, fall into my hands, I always look at the last page first. If they are married and live happy ever after, or if no other calamity occurs, the novel is readable. At least it does not help to increase earthly misery. But I must know beforehand that everything takes its proper course. And this is the way I frequently handle scientific works." [1901.]

STATUS OF PEDIATRICS IN 1898

"Few professorships exist for pediatrics; and they are mostly nominal. The neglect shown it by the official faculties is readily taken by students as their guidance, and the results are unavoidable. Infants cannot complain, and they cannot vote; even less so than the private in an army. The old principle, '*infans nondum homo*,' an infant is not quite a human being, has not died out yet. That the embryo and the fetus are of still less account is only too true. Genuine humanitarianism has not yet risen to the dignified place held even by the unborn

in the teaching of at least two religions—the Jewish and the Roman Catholic. After all, I hold that teaching pedology as an obligatory study, mainly at the bedside in children's hospitals, and raising it to the dignity of full chairs in our leading institutions, is amongst the most valuable means of reducing infant mortality." [1898.]

STATISTICAL REPORTS

"Nothing appears to be more eloquent than the figures of these glittering reports. Those, however, who remember the champion liar Talleyrand's brilliant saying, are aware that language, printed and spoken, may conceal as much as it publishes." [1898.]

ADVANTAGES OF TRAVEL

"The Siamese twins were carried over fifty thousand miles, but I am sure the only place they knew anything about was their South Carolina village." [1905.]

SAVOIR FAIRE

"The wise Swiss Sonderegger—to whom his countrymen ought to erect a monument before they forget what they lost by his death—says, 'The man who makes his own position awkward is always a fool.'" [1899.]

"I have been told that though a man displays both thunder and lightning, he is not necessarily a Jupiter." [1909.]

Dr. Jacobi was highly honored in his life. He was President of the American Medical Association in 1911, of the New York Academy of Medicine and of many other societies. He received the degree of LL.D. from Columbia, Yale, Harvard, Washington and Jefferson universities, and from the University of Michigan. The complimentary dinner given to him in New York on his seventieth birthday (1900), with the presentation of a *Festschrift*, will be long remembered. On his eightieth birthday, he received a bronze medallion of himself from the Medical Society of the State of

New York. He was an active publicist in the city, and had he lived to complete his ninetieth year, the demonstrations of gratitude and praise would have extended far beyond the bounds of the local profession. The funeral ceremonies at the New York Academy of Medicine were impressive.

In 1873, Dr. Jacobi married Miss Mary C. Putnam, a daughter of Mr. George P. Putnam, the publisher. She was the first woman admitted to the *École de Médecine*, Paris, graduating in 1870; became a famous physician, and died June 10, 1906. Three children were born to Dr. and Mrs. Jacobi. The first died in infancy, and the second, Dr. Jacobi's much beloved son, at the age of seven, in 1883. Mrs. George McAneny, survives.

Dr. Jacobi was a man of noble presence. His splendid head was of rare distinction, and acquired a leonine appearance *en profil*, as the wavy crown of hair whitened with age. The gaze of the fine eyes, now grave, now subtle, now humorous, was fascinating and compelling—

"*Des yeux attirants comme ceux d'un portrait.*" His manner, quiet, dignified, old-fashioned, like the subdued tones of his well-bred voice, was of unfailling charm. So great was the reverence in which he came to be held, that even in extreme old age, when he seemed like the wraith of some great master of learning of the past, his voice, however low and soft, could still be heard through the hush which fell upon public assemblies. In private life his conversation was sometimes all banter, but no one could remain in his presence long without sensing the worth and value of an elevating personality. In such relations, he conferred an incalculable benefit by simply being himself. His future position in medical history is secure and high, and in the minds and hearts of those younger people to whom his kindly encouragement meant everything, his memory will have a shrine of its own, *pia anima in pace.* F. H. GARRISON.

MEMORIAL NOTICE: MORTIMER FRANK (1874-1919)

IN the death of Dr. Mortimer Frank, at Chicago on April 21, 1919, at the early age of 44, the cause of medical history in this country loses one of its most promising and active adherents. Dr. Frank was born in Buffalo, N. Y., on May 26, 1874, and after the usual schooling in Chicago, graduated in engineering with the degree of B. S. at the Massachusetts Institute of Technology (1897). During the next two years, he was engaged as a civil engineer on the Cleveland, Cincinnati, Chicago and St. Louis Railroad. Subsequently taking up the study of medicine, he received his degree from the Medical Department of the University of Illinois in 1901. After taking post-graduate courses in Philadelphia and New York, he commenced practice in Chicago, and soon became well known as a skilful and sagacious specialist in eye diseases and eye surgery. As the local newspapers record, he had the enviable record of never once turning away a patient who was unable to pay for treatment. He was ophthalmologist to the Michael Reese and other hospitals, and a member of various local and national medical societies. To his subject he contributed a number of good papers, notable those on congenital sincipital encephalocele (1903), color perception in relation to distant signal lights (1904), the eye symptoms in myasthenia gravis (1905), rachitic erosions of the teeth in lamellar cataract (with I. A. Abt), and the schematic eye (1919). To Dr. Casey Wood's System of Ophthalmic Operations (1911, 1, 17-41), he contributed a valuable illustrated historical article on representative eye surgeons.

In 1905, Dr. Frank turned his attention to the history of medicine and produced in succession, a series of excellent papers on the charlatan oculists, John Taylor (1905) and Sir William Read (1905), the Resurrectionists (1907), Philip Syng Physick (1911), Caricature in Medicine (1912),

Medical Instruction in the Seventeenth Century (1915), Tagliacozzi (1916), the Discovery of the Secretary Glands, read before the Medical History Clubs of the Johns Hopkins and Harvard Universities (1916), and the above mentioned paper on the Schematic Eye, contributed to the Osler Memorial Volumes (1919).

In 1915, he became Secretary of the Chicago Society of Medical History, and editor of its Bulletin, which owes much of its improvement in format and subject matter to his enterprise and good judgment. In the same year, he published at his own expense an elegant reprint of Henry Morley's Anatomy in Long Clothes, for the Vesalian quadricentennial (1915). Dr. Frank was elected a member of the German Medical History Society (Leipzig) in 1916. At the June Meeting of the American Medical Association in 1918, he gave an exhibit of early medical books from his private library, with a printed *catalogue raisonné*. In addition to outdoor sports, fishing and gardening, his personal tastes were in the direction of collecting rare medical books, fine bindings and medical engravings, and from these, he made many generous donations to the Surgeon General's Library, which have been acknowledged in its Index Catalogue. In the last years of his life, Dr. Frank, through his exceptional *flair* and knowledge, acquired a choice and valuable collection of medical rarities, which went, after his death to the University of Chicago and the Surgeon General's Library.

I first met Dr. Frank when he visited Washington in the summer of 1915, in company with Mr. Hoerber, and was struck at once with his refined manner, his clear intelligence, and his easy familiarity with the source and reference books of medical history. Sometime after, he announced his intention of translating Choulant's History of Anatomical Illustration, which he com-

pleted in two years' time. In this task, he learned to know what hard work means. His performance, which includes a large amount of original research, is in every way creditable. There was a genuine need for such a translation, since the original text, one of the classics of medical history, a *vade mecum* for anatomists, artists and medical



MORTIMER FRANK (1874-1919).

librarians, has been long since out of print. The publication of this history in 1852 was an affair of the right "psychological moment," in the true and false meanings of the term; the circumstances which impelled Choulant to assemble his material, to shape it, and to publish it about the middle of his century, were equally fortunate. After this time, anatomical illustration by means of free hand drawings became merged into

photography, lithography and other reproductive processes, and was further neglected through the growth of histology, morphology and embryology. Students now learn their anatomy by dissecting. Artists, who once, as Streeter has shown, outpaced the doctors in the dissection and delineation of anatomical structures, now copy directly from the nude body or the photograph. The merits of Choulant's book, then, are of a unique order. It is a key to the comprehension of the older illustrated writings upon which the modern science of anatomy is based. The prosy, sesquipedalian, sometimes obscure sentences of the original, have been vivified and clarified in Frank's translation, by bisection, dissection and simplification, without any loss of the original meaning; the text has been enlarged by additional chapters, including a clear and exhaustive account of Sudhoff's researches on the MS illustrations of the Middle Ages; the bibliographies have been extended and improved. When Choulant began his studies for this work, he had nothing to go on, beyond the scattered original texts. Haller's *Bibliotheca Anatomica*, Hain's list of incunabula, a few art catalogues, and the brief observations of William Hunter and Blumenbach on the hand drawings of Leonardo da Vinci. The work is a monument of original research, not to be duplicated, a definite source book for the future, as well as for the present and the past. Frank's version converts it into a viable and readable modern book.

Dr. Frank leaves a widow, Mrs. Dorie K. Frank, of Chicago, and two daughters.

In person, Dr. Frank was a man of highly attractive and friendly character, generous, sportsmanlike, of unflinching good nature, and with the well-born gentleman's innate delicacy and sure intelligence, which wins esteem by respecting the personal rights and private feelings of others. His loss will be keenly felt by all whom he counted as friends.

F. H. GARRISON.

LORD LISTER

In the present issue of the ANNALS we have the pleasure of presenting to our readers some personal reminiscences of the founder of modern surgery, from the gifted pen of one who knew him well and did much to further the propagation of his methods at a time when he was encountering fierce opposition from those leaders of the profession who should have been foremost in at least studying and trying to understand the objects for which he strove. The article is timely in view of the comparatively recent publication of the authoritative biography of Lister by his nephew, Sir Rickman John Godlee.¹ Even though it appeared at the height of the great struggle, when all men's minds were occupied with the vital question as to what would be the outcome, the book created a diversion of thought, more especially as the lessons impressed on the minds of surgeons, and in fact of the laity, proved most clearly the eternal truths upon which Lister based his epoch-making labor. In reading it one is impressed with its likeness to the biography of another great scientist, who though not himself a medical man, did more to advance the science of medicine and surgery than any one man has ever done. We refer, of course, to the "Life of Pasteur," by Valéry-Radot, and it is high praise of any biography to state that it stands comparison with that masterpiece of French literature. The books, in fact, present certain features of likeness to one another. Both are written by kinsmen of their respective subjects; both authors are clearly under the spell of the wonderful personalities of whom they write, and in the lives of both Pasteur and Lister we find many coincidences. Neither of them contain any startling adventures; their lives from some viewpoints would be con-

¹"Lord Lister," by Sir Rickman John Godlee, Bt. London: Macmillan & Co. Ltd., 1918.

sidered as rather destitute of exciting episodes or novel experiences, and yet if any more dramatic situations could be portrayed than those described in the lives of hard work and drudgery led by these two men we fail to imagine them. Both Valéry-Radot and Godlee show their appreciation of the intensity of their struggles, of the obstacles they both had to encounter, where they should have been least led to expect them and the holy joy, the divine afflatus with which they were filled when they witnessed the triumph of their work over the narrow-minded and obstinate resistance which they had to overcome.

Lister possessed certain advantages at the outset of his career. The offspring of parents in easy circumstances who afforded him every facility to pursue his chosen career, there is no doubt that he derived immeasurable benefit in his youth and early manhood from the scientific character and attainments of his father. His early association with Syme, the great Edinburgh surgeon, whose daughter he married, also aided him. Yet when he began the first investigations which, after lasting many years, culminated in the establishment of the principles not only of antiseptic but also of aseptic surgery, he had to labor single-handed and combat the incredulity, not only of his avowed opponents but even of some of those who wished him well.

It is curious how prevalent the idea has become that Lister was a Scotchman, although he was born near London, studied medicine and received his M.B. at the University of London, and lived and practiced in that city from 1876 until his retirement. This misconception arises from his long sojourns as a teacher of surgery in the cities of Edinburgh and Glasgow, a period extending from 1853 until his settlement in London.

From the outset he made his mark as a

teacher. His first efforts in this direction were in Edinburgh and were characterized by the care with which he prepared his lectures and the attention he bestowed on his students and patients. Strangely enough, throughout his life, in spite of carefully laid plans, notes, and preparations, Lister seems always to have been terribly rushed to complete any address or lecture which he proposed giving when the time for delivering it arrived. One reason for this apparent unpunctuality may be found in the fact that his public utterances were almost always based on his own original research work, and as his experiments were continuously in operation he frequently held up a paper in order to finish experiments to be recorded in it. His laboratory work was conducted under the greatest difficulty. He had no separate, well-equipped room, with all the supposedly needful appliances. Much of his work was done in his own house, even in his consulting room. His researches led him into the fields of chemistry and cryptogamic botany, regions far afield from the engrossing labor of a most arduous surgical practice. He had to do considerable vivisection, and we trust that the letter which he wrote to Sir Henry Ponsonby, the Queen's private secretary, when requested by that functionary to make an authoritative statement "opposing" it will be widely read. It contains in a short

summary the best and most logical statement of the benefits derived from vivisection and of the foolishness of its opponents.

The story of how his experiments and investigations ultimately led him to the formulation of the principles of antiseptic surgery is too long to enter into here. It should be read by every one in the pages of the volume we are now considering. The relationship of his labors to those of Pasteur are fully gone into, and the beautiful acknowledgment by each of these two truly great men of the value of the work of the other forms an instructive picture of the highest type of intellectual community, of scientific aim and purpose. The great help Lady Lister accorded to her husband is touchingly recorded; and the various aspects of the hostility shown to Lister by his colleagues, sometimes from the inertia of conservatism, sometimes from pettier motives, is impartially described. Like most prophets his teachings received their most cordial reception elsewhere than among his fellow-countrymen.

Now that he has passed away, his laurel wreath is nowhere more loudly acclaimed than in the localities wherein he at first met with his hardest rebuffs. The English medical profession is to be congratulated on its acquisition of this thoroughly adequate biography of one of its greatest surgeons.

FRANCIS R. PACKARD.

LA SOCIÉTÉ FRANÇAISE D'HISTOIRE DE LA MÉDECINE

After an interruption of five years in its activities this distinguished organization has once more resumed its meetings. In no country has more genuine interest in the history of medicine been manifested by members of the profession than in France. The French historical school of medicine counts on its roll the names of many who have advanced our knowledge of the sub-

ject and stimulated interest in its study. Daremberg, Littré, Deseimeris, Dariot, Renouard, by their researches and writings have laid the whole world under obligation. Cabanès has written many volumes on medico-historical subjects with verve and wit, and his study of Marat and other medical personages of historic renown are invaluable. Lucien Nass in his "Curiosities

Medico—Artistiques” anticipated the ponderous tomes of Holländer. Chereau’s medical “Parnassus” is a splendid example of what should be done in other countries for the poetical love of the profession. The edition of Paré’s complete works by Maligne with its invaluable historical introduction on the history of surgery, is one of the greatest treasures of medical literature. The memory of the great Pasteur has been embalmed in what is quite generally con-

sidered one of the most beautifully written biographies ever penned. It is quite impossible to attempt anything like an adequate summary of the services of the French medical historians to their confrères, but it is of world-wide interest that the Société Française d’histoire de la Médecine has begun again its beneficial activities, and we wish it every success in the continuance of its splendid national tradition.

FRANCIS R. PACKARD.

EDITORIAL NOTE

The ANNALS regrets that in the article “The Pulmotor of the Eighteenth Century” by Dr. J. Collins Warren, appearing on page 14, Volume II, Number 1, the legend which should have accompanied Fig. 4 was erroneously placed under Fig. 1. This first illustration was taken from Scultetus, A.D., 1671. As here correctly reproduced,

Fig. 2 shows a man’s head blowing smoke through a tube, the essential point of the illustration to which the author wished to direct attention. This portion of the illustration was accidentally omitted in the previous reproduction. Similar apparatus is shown in Fig. 3 (Keil, A.D., 1747) which appears on page 19 of the same article.

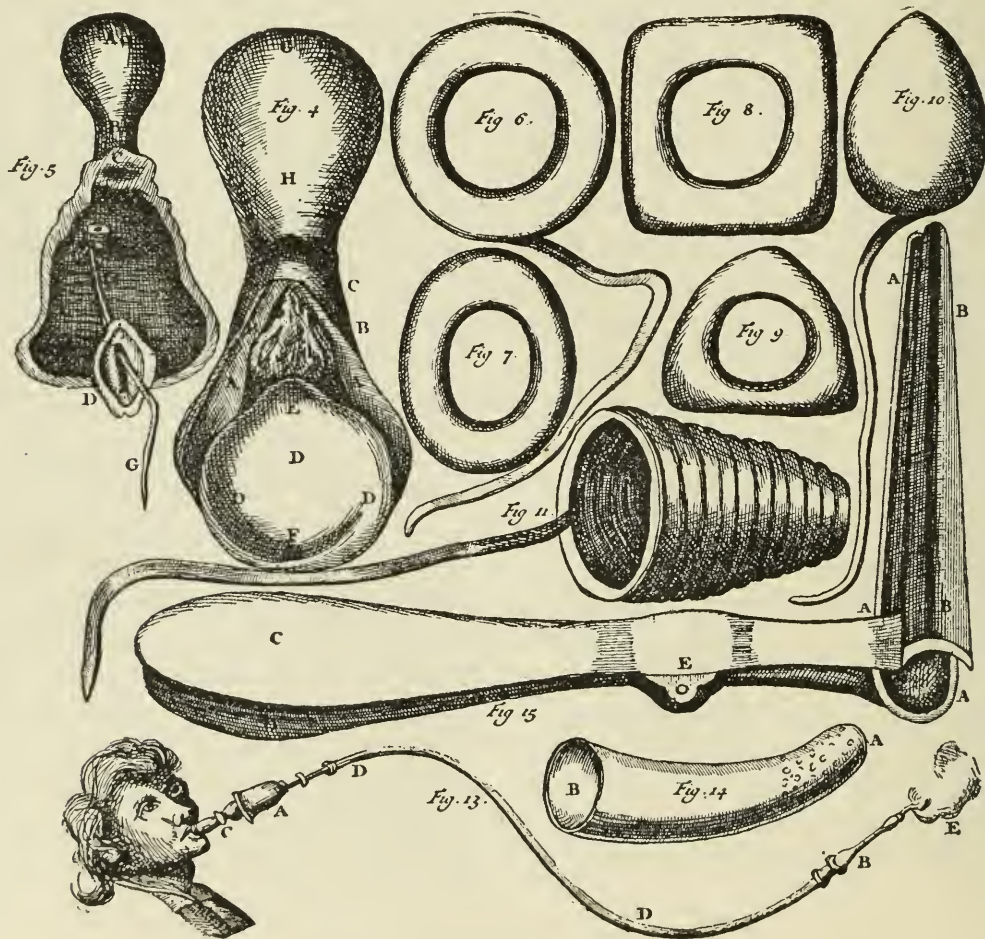


FIG. 2. HEISTER, A. D., 1750



HISTORICAL NOTES

EXHIBITIONS AT THE CLASSICAL ASSOCIATION

In connection with the meeting of the Classical Association under the Presidency of Sir William Osler in May last at Oxford, there was a Loan Exhibition of Early Scientific Instruments, which it is to be hoped will serve as a stimulus for others of a similar kind. Oxford University is peculiarly fortunate in its possession of much material of this sort, particularly that in the Orrery Collection; but even in the United States it would be possible to collect objects of the greatest interest, either from their antiquity or from the personal interest attached to them through their use by famous investigators, or from their design. The exhibition at Oxford consisted chiefly of astronomical, mathematical and physical apparatus, but it contained also some notable microscopes. In America there is too great a tendency to "junk" such articles; but if efforts were made, there could be gathered at very slight expense, collections for deposit in connection with our scientific and medical museums and libraries which would help to visualize our scientific progress and stimulate our interest in its history.

At the meeting, Sir William Osler also presented what he termed "Illustrations of an attempt to collect a Bibliotheca prima in Science and Medicine" which he explained in the following way:

"Faced with a bewildering variety and ever-increasing literature, how is the hard-pressed student to learn

1. The evolution of knowledge in any subject, and

2. The life and work of the men who made the original contributions?

"So far as concerns science and medicine, an attempt is made to answer the question by the collection of a Bibliotheca prima, examples from which are here shown. The idea is to have in a comparatively small number of works the essential literature grouped about the men of the first rank, arranged in chronological order.

"I have put out the *editiones principes* of twenty of such works. The fundamental contribution may be represented by a great Aldine edition, e. g., Aristotle, by the brief communication such as that of Darwin and Wallace in the *Proceedings of the Linnean Society*, 1858, or by a three-page pamphlet of Roentgen.

Plato.....	1513
Hippocrates.....	1526
Aristotle.....	1495-8
Theophrastus.....	1483
Galen.....	1525
Dioscorides.....	1499
Celsus.....	1478
Plotinus.....	1492
Rhazes.....	1476
Avicenna.....	1486 (not ed. pr.)
Averrhoes.....	1473
Copernicus.....	1543
Vesalius.....	1543
Agricola.....	1556
Gilbert.....	1600
Bacon.....	1620
Galileo.....	1632
Harvey.....	1628
Descartes.....	1637
Newton.....	1687

The works given above are on exhibition.

“From the card lists of Galen, Hippocrates, Vesalius, and Harvey, those interested will see the aim and scope of the collection.”

This is so splendid an example of the methods employed by Sir William to further scientific study and research that we feel it should be given the widest publicity in

order to extend its sphere of usefulness. Elsewhere in this issue of the ANNALS some of the achievements of the greatest of living Anglo-Saxon physicians are dealt with. The present example shows that he is still seeking further opportunities to improve our knowledge of the foundations of our art.

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ANCIENT POEMS ON INFANT HYGIENE

By JOHN FOOTE, M.D.

WASHINGTON, D. C.

DIDACTIC poetry, perhaps one of the earliest forms of verse, has become a rarity in modern times, esteemed chiefly as a curiosity of literature. Indeed, some critics are positive that the words didactic and poetry are of themselves so incompatible that no real poetry can be didactic. And yet, Hesiod, that shadowy rhymester, who seems as composite an individual as Homer himself, wrote the first didactic poems of which fragments have come down to us, and the elegant Aratus and Lucretius and Virgil followed in the footsteps of the rustic singers of ancient Greece. This could not fail to impress and influence those students who in later days read Greek and Roman literature. So it was that the intensive study of the old languages and the classical authors which came with the "revival of learning," and the practice of writing Latin verses which was a fashionable affectation of erudition in the Renaissance period and later, caused

a revival of the study and imitation of the ancient poems in European countries which influenced writers for at least two centuries. Indeed much didacticism is found in late eighteenth-century poetry; Pope was essentially a didactic poet.

Like some primitive civilized peoples who put all their knowledge into verse, so that their learned men forgot nothing old yet originated nothing, these later didactic poets forgot little of the ancient learning, good or bad, and in their passion for precedent learned little that was new. Their scope was wide and versatile—they instructed the public in philosophy, astronomy, agriculture, religion and especially in medicine. Nauseous as the remedies of that day certainly were, the prescriptions were sweetened and sugared with rhyme, so that no patient with a soul attuned to verse could well refuse them. There is, for example, the very ancient regimen of health of the University of Salerno, claimed by some to be as old as that venerable shrine of learning itself—and conservatively placed as early as the thirteenth century—the equivalent of our modern books on personal

hygiene. It is a little difficult to realize that people were interested in hygiene in that remote period—yet here is the proof.

The eighteenth century witnessed a perfect flood of medical didactic verse, some of the type of Garth's "The Dispensary," a poem which endeavored to reduce the excessive charges of the apothecary—a very serious evil in that day. Not only were many English medical poems written at that time, but a fairly large number were translated from other languages into English.

We are learning slowly enough that there is nothing very new under the sun, but we always mentally reserve certain ideas of the present day which are so peculiarly identified in our minds with modern thought and modern progress as to constitute in themselves a landmark between old times and modern days. One of these is the idea of educational propaganda by means of books and pamphlets to prevent infant mortality. Because of this it will come as something of a surprise to learn that in the didactic poetry of the eighteenth century at least two such treatises were translated into English from foreign languages—one, "The Nurse,"¹ by Tansillo, from the Italian by Roscoe; the other, "Pædotrophia, or the Feeding and Uprearing of Children,"² by St. Marthe, a French writer of Latin verse, translated by H. W. Tytler, M.D. "The Nurse" was printed in London in 1798 and reprinted in New York in 1800, while St. Marthe's poem was translated from the Latin into French, exhausted ten editions in its native tongue and was given two separate English translations, the last published in London in 1797.

In 1776, more than two decades before

¹ Luigo Tansillo: "The Nurse," translated from the Italian by William Roscoe, Liverpool. London: 1798.

² "Pædotrophia; or, the Art of Nursing and Rearing Children," translated from the Latin of Scévole de St. Marthe by H. W. Tytler, M.D. London: 1797.

either of these translations appeared, Dr. Hugh Downman, an English physician who dabbled in classic literature, wrote a didactic poem in his native tongue called "Infancy, or the Management of Children,"³ which went into seven editions. As a historical source it has little value as compared with the translations by Roscoe and Tytler, though it is probable that its publication may have stimulated interest in the foreign literature on the same subject. Throughout the six books the author seems more concerned with airing his classic lore than anything else, and the anxious mother would have a difficult time to remember his florid axioms, excellent though they were. Both Tansillo and St. Marthe expressed themselves both more succinctly and more wisely than Dr. Downman—because they really wrote for the mothers of their day. "Infancy" deals with breast feeding, accessory feeding, weaning, diet for older children, clothing and bathing, walking and exercise, and the simpler ailments.

In the sixth book Dr. Downman pays a tribute to Lady Mary Montagu, and credits her with having established the practice of inoculation to prevent smallpox. As this work was published in 1776, it precedes Jenner's publication of vaccination by many years. Though the poet says inoculation has "saved thousands," he details no personal experiences with it.

She hath been the cause
Of heartfelt joy to thousands; thousands live
And still shall live through her. . . .

Yet Downman corroborates the statement of Klebs and others that inoculation against smallpox was widely used in England before vaccination was shown to be of greater value. There are so many apostrophes to eminent physicians—Armstrong and Garth (the medical poets), Cullen, Hunter, Mead, Hewson, Codrington and

³ "Infancy, or the Management of Children," by Hugh Downman. Exeter: Trewman & Son, 1803. 6th ed.

many others, to say nothing of long and intimate talks with Fame, Duty, Affection, Habit and many other qualities, virtues and vices, that the more one reads the more he is convinced that Downman was writing up to his literary and medical friends rather than down to the uninformed, or at least uninstructed mother of his day. This not only takes away from the author's originality but also from the vivacity of his narrative, in marked contrast with Tansillo, who ignored his contemporary physicians, or St. Parthe, who recognized them only for the purpose of confounding them.

I. THE NURSE

William Roscoe in his translation of Tansillo's "La Balia," or "The Nurse," placed a scholastic chip on his shoulder by paralleling his translation with the original on the opposite page. Tansillo, born about 1510, was by profession a soldier and by avocation a poet. He was a very good soldier, as his progress in the profession of arms attested, and his contemporary, Torquato Tasso, spoke of his sonnets as elegant, while Zeno averred that they would not suffer by comparison with Petrarch's—proof enough, it would seem, of his poetic ability. "The Nurse" was not his only poem. Early in his career he wrote a dialogue in verse called "Il Vendemmiatore," which, while admittedly witty, was generally condemned for its licentiousness, and indeed resulted later in having all of his works placed by Pope Pius IV on the "Index Expurgatorius." This was a very serious matter to any Italian author—as serious as the plight of a modern war correspondent who has fallen under the displeasure of the censor. Besides Tansillo seems to have been of really good character, and the interdiction hurt his reputation and his position. "Haste was my life, though wanton was my page or shall one blot deform my riper age.

So he wrote in his apology which took the form of an ode to the Pope appealing for

the removal of the ban on his writings. Whatever may have been the influence of this appeal Tansillo's works were not forbidden in the next edition of the "Index."

Besides "The Nurse," Tansillo wrote some comedies and a long didactic poem "Il Podere"—"The Country House." His writings were long neglected and "The Nurse" was not published till 1767, two centuries after the author's death.

We may safely assume from the context of this poem alone that Tansillo was a husband and a father. No mere bachelor could feel so strongly concerning the advantages of maternal breast-feeding as compared with the mental and physical dangers accompanying the practice of abandoning babies to the care of a wet nurse. The poem is, in fact, a pamphlet against an evil that at various periods of the world's history among the wealthier nations has engaged the attention of the philosopher and the propagandist. In Alexandrian Egypt, as in the Athens of Pericles, the Rome of the Cæsars or the France of Louis XIV, and Elizabethan England—wherever and whenever, in fact, wealth and luxury and artificial standards of fashion set their mark upon maternity—mothers have been in the habit of delegating the task of nursing the infant to foster mothers of a lower social order, and foster mothers have always been found venal enough to neglect their own babies in return for money and creature comforts. "The Nurse" is not only interesting as a document in the social history of Italy in the sixteenth century, but also because of its value to the medical historian in giving an authoritative retrospect of the practices and beliefs concerning wet-nursing maintained during the period in which it was written. That these same practices and beliefs existed in England two hundred years later would seem incredible, if the translator did not naively inform us that such was the case.⁴

⁴ Luigo Tansillo: *loc. cit.*

"Such is the coincidence between the state of manners in Italy in the sixteenth century and England in the eighteenth," he tells us, "that the translator though intending to accommodate the poem to modern times has seldom found it expedient to vary from the original in the slightest degree."

The practices of wet-nursing and baby-farming were notorious evils in seventeenth- and eighteenth-century England. Animal milk was not used in artificial feeding to any extent, not only because of the unsanitary conditions surrounding its production, but for other reasons. London in the sixteenth and seventeenth centuries was crowded and filthy—cows and other animals were often kept in noisome cellars. It was soon found that children fed on cow's milk died of "the watery gripes." The "Booke of Children," the first English nursing manual, written by Thomas Phayre (1551), and also the works of his successors, Walter Harris and John Pechy of the succeeding century, warned against the use of cow's milk. And so pap and Lisbon sugar and similar feeding adjuncts were employed, with or without breast milk, so that nutritional diseases were widespread and rickets came to be known on the continent as the English disease. For while Jacques Guillemeau described beading of the chest in infants in 1609, it was the English physician, Glisson, who named and studied what he called "an absolutely new disease, rickets," publishing his classical study in 1650. The fashionable woman who wished to wean her infant, and there were many such, usually came to grief unless she could secure a wet nurse. As a natural result good wages were paid young country girls who had breast milk to sell. Moreover, these young women were unusually well cared for and well fed so that their milk might be of good quality. The moral effect of this condition of affairs was pernicious. Large numbers of young women became mothers of illegitimate children which were immediately placed in baby-

farms, while the mothers proceeded to dispose of themselves as wet nurses to more fortunate infants. The baby-farms had a tremendous mortality, as might be expected, and as really was expected. This state of affairs became such a notorious evil in the eighteenth century that legislation was passed in an attempt to at least regulate if not control the conditions producing this tremendous mortality. From 1775 to 1796, 99.6 per cent of 10,272 children admitted to the Dublin Foundling Hospital died. At about the same time the Paris Foundling Hospital had a mortality of over 80 per cent. And the private baby-farms were, if possible, worse than these public institutions.

Tansillo's poem was translated at about this time, 1798, the year in which Jenner announced his work on vaccination, and St. Marthe's was published the previous year. Both translations were undoubtedly part of the propaganda for reform that was in the air concerning infant mortality and children's diseases. Underwood had just written his text book, the first complete treatise in English, comprising not only a consideration of children's diseases, but also completing the work on the care and nursing of the infants begun by Walter Harris in the preceding century and Cadogan in his own day. George Armstrong too had written his "Essay on Nursing" and conducted his dispensary and small hospital for poor children in London where he spent time and money until lack of support forced him to close it. The translation of poems bearing on infant hygiene at this particular time cannot, therefore, be looked upon as a mere coincidence or an accidental happening.

The practice of not nursing the infant indulged in by fashionable mothers was one of the evils which was prevalent in England in Roscoe's day as it was in Italy in Tansillo's.

The poet refers to this tendency rather forcibly in the following:

What fury hostile to the human kind
 First led from Nature's path the female mind,
 Th' ingenuous sense by fashion's laws repress,
 And to a babe denied its mother's breast?

Very early in the book the poet asks this question, which he rhetorically neglects to answer in his lyric fervor against the mother who takes every care of the embryo child only to refuse it natural care after it has come into the world:

Hopeful that pity can by her be shewn
 Who for another's offspring quits her own.

Most of the medicine of Tansillo's day was based on the works of Celsus, Galen, and other classical writers. It is not surprising, therefore, to discover that he has borrowed some of his ideas from the "Noctes Atticæ" of Aulus Gellius.⁵ The philosopher Favorinus holds forth in the "Attic Nights" on this very theme, in sentiments almost identical with Tansillo's. He also asserts the belief maintained by most ancient writers that milk and blood are practically identical substances, differing only in color, and that premature checking of breast secretion must cause serious derangement of bodily functions. The translator points to a similar quotation in Gellius and cites Nicolas Puzos, the famous French teacher of midwifery, in support of the view elaborated in the following stanzas:

Check ye the milky fountain as it flows?
 Turn to a stagnant mass the circling flood
 And with disease contaminate the blood?

O crimel with herbs and drugs of essence high
 The sacred fountains of the breast to dry,
 Pour back on Nature's self the balmy tide
 Which Nature's God for infancy supplied!

There is really little difference between his practice and infanticide, says Favorinus.⁶ His Italian follower, is, if anything, more insistent.

⁵ Aulus Gellius: "Noctes Atticæ." (Beloe edition.) Book XII, i. London: 1795.

⁶ Aulus Gellius: *loc. cit.*

Social customs, even more than history, repeat themselves when certain favoring conditions are present. Kipling's "Judy O'Grady and the Colonel's lady" had really fewer points in common than the matron of Rome in the first century revealed when compared with the fashionable mother of London in the eighteenth. The ancient writers were nothing if not logical, whatever their premises may have been. And so, once admitting that milk and blood are identical, it would follow that any woman who can bear a baby can also nurse it. Tansillo puts this rather more elegantly:

'Tis his, not hers—the color only changed
 Erstwhile through all the throbbing veins it ranged;
 Poured through each artery its redundant tide
 And with rich stream incipient life supplied.

To shape and strength th' unconscious embryon
 grows
 But when 'tis born then Nature's secret force
 Gives to the circling stream another course.

Probably in every age philosophers have ruminated on genetic problems of some sort or another. No one has ever quite satisfactorily explained the reason why animal pets increase in inverse ratio to the human birth rate. Plutarch records how Julius Cæsar walking through Rome saw some strangers playing with lap dogs and monkeys which they carried, and asked: "Do not their wives bear children?" As it was in Cæsar's day so was it in Tansillo's; the sixteenth-century poet ridicules the meticulous care taken of these imported pets in the following passage:

What fears ye feel as slow ye take your way
 Lest from your path the minion chance to stray,
 At home on cushions pillowed deep he lies.

Whilst your young babe that from its mother's side
 No threats should sever and no force divide
 In hapless hour is banished far aloof
 Not only from your breast, but from your roof.

The translator testifies to the existence

two hundred years later in eighteenth-century England of "this detestable custom . . . which is probably more frequent in Italy than in this country." That it was far from infrequent in England in Roscoe's day may be deduced from Hogarth's pictures—often showing a dog or a monkey as part of the furnishings of the fashionable drawing room of that period. Monkey parties are, however, not growing in popularity in modern society.

Tansillo evidently had some misgivings as to the immediate effect of his propaganda, for he essays to give negative directions as to the proper procedure in choosing a wet nurse. Perhaps his knowledge of the medical classics was too strong even for his prejudices. Ever since medical authorities learned to write, directions have been laid down as to the qualities which a wet nurse should or should not possess. Celsus had some ideas on the subject; Aulus Gellius made his wise character Favorinus discuss it. Soranus of Ephesus, who wrote in the second century, gave most sensible and explicit directions in his work on gynecology, while the *Suśruta Samhita*, the great work on Indian medicine, which probably came later than the sixth century, devoted part of a chapter to its consideration. The weight of medical authority still lay heavy on the minds of men, and so Tansillo, implying with a poetical shrug, "if you must, you must, though I have warned you," continues:

But if the pleasing task you still refuse
 Ah deaf alike to nature and the muse!
 Let prudence then th' important choice direct
 Nor let your offspring mourn a new neglect.
 To seek a nurse ye trace the country round
 At length the mercenary aid is found—
 Some wretch of vulgar birth and conduct frail;
 Some known offender, flagrant from the jail;
 In mind an idiot, or depraved of life,
 A shameless strumpet or impoverished wife;
 Or be she brown or black, or fresh, or fair,
 Or to the mother no resemblance bear,
 She brings, it seems, a full and flowing breast—
 Enough—your care excuses all the rest.

It was undoubtedly Favorinus of the "Attic Nights" who supplied the poet with the foregoing argument, and he it was who originally emphasized the need of choosing a wet nurse of the same type and complexion as the child. For again, "since milk is blood" why could not physical and mental qualities be acquired through breast milk? That is why such emphasis is laid on "be she brown or black, or fresh, or fair," etc. Happily these fantastic beliefs have long ago passed into the oblivion of a thousand other speculative hypotheses of the past concerning human physiology.

Avails it aught from whom the embryo sprung,
 What noble blood sustained th' imprisoned young,
 If, when the day-beam first salutes his eyes,
 His earliest wants a stranger breast supplies?
 From different veins a different nurture brings,
 Pollutes with streams impure the vital springs?
 Till every principle of nobler birth,
 Unblemished honor and ingenuous worth,
 Absorbed and lost, he falsifies his kind,
 A groveling being with a groveling mind.

There is no uncertainty in the foregoing passage as to the belief—that mental and moral attributes were conveyed in the breast milk.

In the second canto of the poem Tansillo speaks of prenatal care, and elucidates the old-time doctrine of longings, desires and frights and their influence in producing birthmarks and deformities. Old-time doctrine it was and is—yet in many communities today the belief that frights and unsatisfied desires may deform the unborn child still holds undisputed sway. The translator, in a footnote, rejoices that "modern ideas have at length nearly banished an opinion formerly very prevalent and productive of great unhappiness to the female sex—namely that the child before its birth is liable to be partially affected by the imagination of the mother." The unhappiness of the poor male who had to gratify all manner of strange whims of a capricious wife under penalty of being held responsible

for some hideous deformity, might also have won the sympathy of the translator, who was himself a married man. Perhaps his undoubted gallantry restrained him from expressing his true sympathies!

The late eighteenth century was not wholly unprogressive, for a little later Roscoe says: "The absurd custom of binding down infants hand and foot with bandages . . . has at length given away to the voice of reason and common sense."

No woman of much character would deprive her own infant to nurse another, says the poet, and in a final outburst of indignation he exclaims:

O past all human tolerance the curse,
The endless torments of a hireling nurse!
If to your children no regard were due
For your own peace avoid the harpy crew;
A race rapacious, who with ceaseless strife
Disturb the stream of calm domestic life.

Also, there is always the possibility that the infant may learn to love this impossible and unworthy foster mother more than the real parent, the poet argues, and then conjures up new perils:

This can ye bear? Another curse awaits.
Her tribe of followers besiege your gates,
Brothers of doubtful kin and friends by dozens
With female troops of sisters, aunts and cousins;
Without reproof you hear their loud carouse,
While frightened order abdicates your house.

The dangers to her powers of lactation by the visits of lover or husband are spoken of with much more directness than poetry, and the possible disaster to the infant as a result of these visits is graphically depicted:

Self her sole object—interest all her trade,
And more perverse the more you want her aid;
Sinks the poor babe without a hand to save
And from the cradle steps into the grave.

And the still greater physical danger from the loose moral standard of the wet nurse of his day, and the prevalence in that period of the most deadly of the so-called social diseases is thus emphasized:

Say, is there one with human feeling fraught
Can bear to think, nor sicken at the thought
That whilst her babe, with unpolluted lips
As nature asks, the vital fountain sips;
Whilst yet its pure and sainted shrine within
Rests the young mind, unconscious of a sin,
He with his daily nutriment should drain
That dread disease which fires the wanton's vein,
Sent as the fiercest messenger of God,
O'er lawless love to wave his scorpion rod?

Again he reverts to the innumerable exactions of the wet nurse—citing as her prototype the wolf who nurtured the founders of Rome, in contrast with the tender maternal care shown by Mary when:

. . . . At a Saviour's birth
With secret gladness throbb'd the conscious earth,
Whose fostering care his infant wants repress,
Who laved his limbs, and hushed his cares to rest?
—She, at whose look the proudest queen might hide
Her gilded state, and mourn her humble pride.

The complaints of nature outraged are emphasized at some length and in the ensuing lines an appeal is made to young women newly married who expect to become mothers:

Not half a mother, she, whose pride denies
The streaming beverage to her infant's cries,
Admits another in her rights to share,
And trusts his nurture to a stranger's care.

This passage, as well as much that precedes it, was borrowed almost word for word from Aulus Gellius.

Probably no difficulty existed in persuading women of the lower classes in Italy to nurse their offspring. The chubby babies of the Italian Renaissance painters were just as certainly breast-fed, as some of the rachitic looking infants of the Bruges Master and other German and Flemish primitive painters were not. Frequently the pap bowl is seen in the Dutch, German and Flemish pictures of infants of that period—reason enough for their thin, weazened appearance. But it is to the great, fashionable ladies of Italy that Tansillo appeals—witness his concluding stanzas devoted to an invocation to "Le Colonne, le Ursini, le

Gonsaghe—" all illustrious names. Not to be outdone, the translator interpolates a dedication to the Duchess of Devonshire:

Illustrious Devon led Britannia's train,
And whilst by frigid fashion unrepres't
She to chaste transports opened all her breast,
Joyed her loved babe its playful hands to twine
Round her fair neck, or midst her locks divine
And from the fount with every grace imbued
Drank heavenly nectar, not terrestrial food.

The Duchess was, undoubtedly, a conspicuous example of maternal fidelity in a period when society women were allowed to believe and practice the belief that it was beneath their dignity to nurse their own children. But the observation of Tacitus concerning the care which women of the Germanic tribes, regardless of their tribal station, took in nursing their children, or the historic example of that Queen mother of France who snatched the infant prince from the arms of a lady in waiting who had presumed to nurse it, and going even farther thrust her royal fingers down the little prince's throat until he expelled the less noble milk—neither of these historic citations or examples found any repetitions in the maternal customs of the eighteenth century in the period of Roscoe, Pope, Hogarth and Underwood. And yet, Roscoe's translation of a poem two centuries defunct was not the only sign post of the trend of opinion in his day. There is other evidence that the English nation, aroused partly, no doubt, by the loss of life in the Napoleonic wars to the necessity for devising all possible means to preserve the national virility, was at last attempting to take seriously the problems of infant care and infant mortality, and was writing letters and pamphlets, and—as we have seen—even poems, just as Englishmen in the past have always done, prior to going seriously into the correction of the evils, which they eventually and quite definitely dispose of.

II. PÆDOTROPHIA

Tansillo had been dead for about fifteen years and his poems almost forgotten when in 1584 Scévole de St. Marthe from his native city of Loudun, in France, wrote the dedication of *Pædotrophia*, a Latin poem on prenatal care and infant hygiene. He was distressed by the civil wars in his beloved country, and had just finished an extensive reading of ancient medical authorities, studied in an effort to assist in the cure of some ailment in one of his own children. He was at this time treasurer general of one of the provinces of France, "nevertheless"—as he said in his dedication to his royal patron, Henry III, "I have sought acquaintance with the muses," this acquaintance being utilized in the work of "preserving those young and tender plants against an infinite number of storms and tempests which menace and frequently destroy them as soon as born." The then rather novel doctrine that the crown or the state should be interested in the prevention of infant mortality is implied, rather timidly it is true, when he speaks of the power of the crown "not only over countries, cities, castles and other things inanimate, but also principally over many millions of souls, and of living persons, in the preservation of which Your Majesty has a notable interest; whether it be to serve in your Majesty's armies, or for letters, or for traffic, or other different occupations."⁷

Henry III, a weak, effeminate little man, the favorite son of Catherine de Medici, had ten years before this succeeded his brother, Charles IX, to the throne of France. In spite of his many weaknesses, however, Henry rivaled Francis I as a patron of art and literature, and he seems early to have recognized St. Marthe's ability not only as a scholar but as a statesman. William Butler Yeats enunciated in our own day the statement that only

⁷ "Pædotrophia," *loc. cit.*

dreamers are practical. St. Marthe, whether or not he was a dreamer, was not only a poet of sorts but also at various times mayor of his city, representative at the Parlements of the kingdom held at Blois and Rouen and had, moreover, proven a telling factor in recovering for the king the province of Poitou after it had deserted to the League. A monument was erected to him by the States of Loudun in recognition of distinguished services to his native city. Altogether he seems to have been a busy as well as an important man. An ample fortune and a wealthy marriage placed him beyond the need of noble patronage or royal favors.

"Pædotrophia" was destined to see ten editions in the author's lifetime, was translated from Latin into French and into ten foreign languages. It was given two English translations, the first dedicated to Dr. Garth, of which the second edition appeared in 1718. The translation of 1797 by H. W. Tytler, M.D., was dedicated to the Earl of Buchan and sold by subscription. It was a very creditable literary effort and displays a spontaneity frequently missing in translations. Tytler was not only a scholar after St. Marthe's heart, but an enthusiastic admirer of that poet, not hesitating to place Pædotrophia next in merit to the "Georgics" of Virgil as a specimen of didactic poetry. Besides, the translator was a physician and all the more qualified to value the extraordinary knowledge displayed by this poet and statesman on the subjects of nursing and medical treatment.

Again we meet quotations from Aulus Gellius, who was so much favored in Tansillo's poem, and Dr. Underwood's⁸ new book is also referred to in the preface as the favored authority. Yet, it would seem that Van Swieten's "Aphorisms of Boerhaave"⁹

⁸ "A treatise on the Diseases of Children," by Michael Underwood. London: 1799. 4th ed.

⁹ Van Swieten: "Commentaries on the Aphorisms of Hermann Boerhaave." Translated by J. Kapton, *et al.* Edinburgh: 1776, vol. xviii, 80.

influenced the editorial notes more than any other work on medicine and nursing.

The book is dedicated to the author's wife, in a passage which contains some rather astonishingly frank compliments, recalling a warning expressed by the translator in his preface, which reads:

"If, after all the pains that have been taken, there may be still one or two passages with which some nice young ladies will be apt to find fault, I would advise such to be sparing of their censures till they are married, and in a way to become mothers themselves; when it is not unlikely but they may peruse with the greatest benefit these very places which at present they will most readily condemn." . . .

The purpose of the book, too, is expressed in St. Marthe's dedication to his wife—rather a fine passage:

Accept my song, hence thy soft cares improve,
And learn to nurse the pledges of our love;
Lest, when pale Death demands us for his own,
When iron slumbers press our bodies down,
When our departing souls disperse in air,
No son remain, no daughter's tender care
To pay the funeral rites, the loss to mourn,
And pour their tears on our neglected urn.

Pliny, in Chapter ix of the twenty-eighth book of his "Natural History," says: "The mother's milk is the natural nourishment for infants." And Favorinus, the philosopher of Gellius, in whose mouth he puts so much wisdom, declares that the woman who does not nurse her baby is not "half a mother." St. Marthe had one or the other in mind when he wrote:

A Sage declared, and with the speech I'm pleas'd,
No mother should from nursing be released,

The ancient doctrine that milk is metamorphosed blood is again expressed:

Besides since ev'ry milky fountain flows,
By the same feed from which the foetus grows,
What kinder nourishment could Nature give?
By what so proper means could infants live,
As from this sacred source to draw their food,
And with their own, to mix their mother's blood?

“Nothing can be more natural or beneficial for the child,” said Van Swieten, in Boerhaave’s Aphorisms,¹⁰ “than that it should be nourished by the milk of its mother. In the womb it had its nourishment and growth from the mother’s humours; nay, it seems very probable, that, in the last month of pregnancy the milk was carried to the uterus and the fœtus.”

Here in the poem, is the same idea:

. . . . the fragrant spring
The same that, ere his eyes beheld the day
While yet imprisoned in the womb he lay,
Was given by Nature for his earliest food,
And filled his slender veins with circling blood.
The dye just changes, when by winding ways
Swift through the breast the vital current strays;
Thro’ glands pure white th’ exulting juices flow
Leave the firm red, and melt in tides of snow;
Of milk, the colour and the name, they take
But yet their ancient nature ne’er forsake.

.
That snow-white colour too, most undefiled,
Suits best the nature of an infant child,
Who ne’er should tinge his tender jaws with blood,
As if from recent slaughter came his food,
Lest, from his early years, he should acquire
A cruel heart and burn with impious fire.

A discourse on prenatal precautions then follows with a poetic summary of the early signs and symptoms of pregnancy. The mother is enjoined not to emulate Gallic mothers and “gird too tight, the swelling waist,” and to obtain plenty of sleep. Exercise too is prescribed, in moderation, as witness the following:

Have you not seen from lakes and marshy ground
The stagnant wave spread noxious vapours round,
But running water, from the sparkling rill,
Shines in the glass, and you with pleasure fill?
The body, thus, from exercise, acquires
New Health, new strength, and brisker vital fires.

The “fair of France” come in for some criticism for the “modern dances” of that period which St. Marthe evidently disapproves of—it was not so in the good old days, he says:

¹⁰ Van Swieten: *loc. cit.*

But these good times are o’er; each frisking dame
Will dance as drunk, and lost in fear of shame.

.
They hug the men; off their loose garments fly,
Their naked beauties meet the wanton eye.

In fact so vividly does St. Marthe describe this scene, that Tytler, being doubtless mindful of the “certain young ladies” whose anticipated criticism he so boastfully discounts in the preface, loses his courage and neglects to translate lines 303 and 304. Probably in extenuation, the translator appends a note, quoted from Smollett, criticising “the manner in which the ladies’ faces are primed and painted.” “From common accounts of the manners of the French ladies, they would not seem to be much altered for the worse since the days of St. Marthe” says the worthy Dr. Tytler, triply damning them with the faintest praise. But this was written in a day when in the British Isles to decry anything French was considered almost a corporeal work of virtue.

The diet of the expectant mother receives careful consideration from St. Marthe. Of course he does not call a pheasant a pheasant—that would not be poetic. When he means a pheasant he says:

That sweet bird which we from Phasis name.

The patient either had to know her classics or—but he probably thought it did not matter what happened to anyone who was so ignorant. And yet, after all, is a menu that would have to be interpreted by means of a dictionary of mythology a bit more absurd than one written in modern table d’hôte French—for which no kind of dictionary exists anywhere in the universe?

Dr. Léméry,¹¹ a French physician of the eighteenth century, son of the chemist, who wrote a pharmacopœia and discovered iron in human blood, was probably the leading authority of his century on diet. So when

¹¹ “Traité des Aliments,” by Louis Léméry, Paris: 1702–1705. Translation, London: 1704.

St. Marthe commends as a food "Cytherea's dove" he distinctly means the turtle dove as distinguished from the wild pigeon. Those of melancholic habit should eat of pigeons rather sparingly, observed Dr. Léméry. He prefers that these individuals eat the young turtle dove, agreeing with Galen's observation that "it is a food neither too gross, nor too slight, and, in a word, very wholesome."

Léméry, too, recommends the flesh of the young kid—still suckling—in contrast with St. Marthe, who says: "not till his horns are grown." Now these various recommendations did not have as much to do with the digestibility of the proposed food, as with the effects of certain imaginary volatile principles—supposedly contained in the flesh of these animals—which were imparted to those feeding on them. Thus Hippocrates, Aristotle and Plutarch all maintained that the flesh of the female goat differed from the meat of the male goat and should not be eaten by invalids. And to point a moral and adorn a tale the learned Dr. Léméry tells us how "a certain ancient wrestler of Thebes accustomed himself to live upon goat's flesh, and that he excelled all others of his time in strength; and this might be because the goat, being a lively, nimble and light animal, and consequently containing many exalted principles, communicated those very volatile and active principles to him."¹²

We need not be surprised, therefore, at the minute, and to us somewhat absurd, directions regarding the kinds of food to be eaten, for they all had excellent authority for their promulgation.

The strange and perverted appetite for unusual foods which some prospective mothers possess has from earliest times been noted and commented upon. Pliny called this condition malacia; Goræus called it citta, from the Greek equivalent for magpie, possibly because these appetites are as

¹² Léméry, Louis: *loc. cit.*

varied as the magpie's feathers—or because the magpie accumulates strange objects without any apparent reason for doing so. That there is danger in not gratifying these desires is another time-honored fallacy which is expounded graphically in the poem:

The gastric fibres burn with fierce desire
Of food, and oft unnat'ral meats require.
Then (wonderful to tell) if you deny
The strange request, nor with their wish comply,
Avenging Nature, from unknown designs,
With spots and marks the infant's body signs.

And! (stranger still) while in the mother's breast
This passion sways, and rages o'er the rest,
Whatever place she scratches, or besmears
A mark, in the same part, her infant bears.
Hence, oft unseemly moles and freckles grow
On virgin bosoms white besides as snow;
O'er beauteous bodies veins and tumors steal
And, for the mother's guilt, the daughters feel.

Just where this belief in the origin of moles, blemishes and tumors through prenatal influences arose is not clear; but there is no doubt that it is one of the most ancient and tenacious of the superstitions of medicine.

The ensuing paragraphs deal with the preparations of the mother for labor and her conduct during that ordeal. An episode describing the Garden of Eden then follows, and the eating of the forbidden apple by Eve is pictured:

She ate, she glutted on the food, possess
With all the longings of a female breast,
And thus, betrayed by her impure desire
Began what pregnant mothers yet require.

The origin of the longings and the pains of labor is given in this way an explanation probably as rational as any other which could be attempted. It was an original idea, in a way, for up to this time the wonderful story of Genesis had not been told in heroic poetry, much as it was favored by the primitive painters. Milton was yet to write his "Paradise Lost"—and it is not only possible but probable that he read St. Marthe's poem, even if he did not profit by it.

The second book of "Pædotrophia" treats of the management of healthy children from birth to the time of weaning. No mention is made of artificial feeding excepting as supplementary to breast milk. The danger of keeping children too warm and excluding the external air is a point dwelt upon with emphasis by the writer. Directions are given as to the preparation of the mother's bed and the infant's cradle. Van Swieten explained the desire of the child for the motion of the cradle by a prenatal habit of the unborn acquired as a result of having been shaken "this way and that while the mother moves her body."¹³ Moschion, too, gave specific directions about the cradle, advocating the type "swinging from ropes."

There are rather minute directions to the midwife, particularly regarding the proper procedure in ligating the cord:

With dust of mastich sweet take care to stir
The finest powder of more fragrant myrrh;
Let this united fill the recent wound,
And with soft wool the shorten'd cord be bound.

In Van Swieten's day hemostatic substances such as myrrh were not used. Among the "Aphorisms" he quotes the French surgeon, Levret, who advises against either binding or cutting the umbilical cord until the child has breathed, and urges that the amputation be made not too near the umbilicus.¹⁴

The prognosis of the infant based on its cry occupies a small portion of the "Papyrus Ebers"—the oldest written manuscript on medicine. It seems almost incredible that a medical superstition of this type should survive since the day when Moses was a young man, but if it did not survive it curiously reappears in the sixteenth century. Witness the following:

'Tis useful too t' observe, with cautious eye,
The signs, on which all prudent minds rely,
That may foretell long life, or early death,
To the young infant, just endowed with breath,
From languid cries, one knows not to express
But you their meaning, by experience, guess.

¹³ Van Swieten: *loc. cit.*

¹⁴ *Idem.*

The danger of exposing the newborn infant to cold air—a very important point—and one still adhered to, is dwelt upon, as well as the necessity for avoiding extreme heat in summer. Soranus laid down these same principles in the second century, and they are found in the Indian Suśruta. The resuscitation of the child that does not breathe properly is discussed and St. Marthe recommends the use of wine internally, and blowing into the child's nostrils. The editor quotes Dr. Underwood, who advocates blowing into the infant's mouth rather than its nostrils.

Bathing is next discussed. St. Marthe decries the practice of bathing the infant in cold water, comparing it to the custom described by Tacitus among the barbarous Germanic tribes, of plunging the newborn baby in the icy Rhine as a test of hardihood. In this passage, the translator again quotes Underwood in deprecation of cold bathing of the newborn which he characterizes as "savoring of unnecessary severity." That it was the practice to wash the newborn in cold water even in the middle of winter is attested by Underwood who describes just such a scene in which the infant is "itself in one continued scream, and the fond mother covering her ears under the bed clothes that she may not be distressed by its cries." St. Marthe does not approve of this ancient German practice—

But you forbear, what fame reports of old
The Germans used, a race inured to cold,
To war, to labour from the cradle bred,
And like themselves the infants fared and fed,
The newborn child, yet reeking from the womb
They took to what oft gave him to the tomb;
Lest he should from his father's strength decline
They plung'd him shiv'ring in the freezing Rhine.

After bathing the child in warm water perfumed with musk, it is advised that the infant's limbs be examined for deformities which if found should be corrected at once. From earliest times, among all the nations of antiquity except the Egyptians and the

Spartan Greeks, the practice of swaddling was utilized because of a supposed necessity for keeping straight the limbs of the infant presumably cramped in a curved position for a long period before birth. Salting, that is, rubbing the newborn with salt, was also practiced. Galen and the ancient writers advised this procedure, possibly to help in removing the greasy covering of the skin of the newborn. Both of these time-honored customs are described and commended in this poem. Dr. Tytler, however, in his commentary tells us that "the aintient method of swathing children with tight bandages is now justly laid aside."

Little food is needed at first, says the poet. The ancients of Greece and Rome used honey and water as the first food of the baby. Soranus said that no other food should be given for forty-eight hours after birth. This, too, St. Marthe approves of, saying:

No sugar is so good, no fruit so fine
No milk so rich, nor nectar more divine.

Narbonne honey is the especial variety endorsed by the poet. Dr. Léméry also praises Narbonne honey because, he says, it is largely made from rosemary flowers. Honey was the sugar of the ancients: Virgil called it "celeste donum," and Pliny "divinum nectar." Pythagoras, who lived to be ninety, attributed his long life to the liberal use of honey, while Pliny relates how one Vedius Pollio, who lived to be one hundred, told the Emperor Augustus that he had retained vigor and years by the use of honey within and oil without. As a matter of fact, honey containing a readily digested sugar was very well adapted to the purpose for which it was used in the infant feeding of antiquity.

St. Marthe believed in fresh air and combated the tendency found even today in France, of keeping infants in close, illy ventilated rooms:

Misguided fondness make our nurses err
By heating infants and excluding air.

Not a very good rhyme, but a very good idea. He relates at length the tragic death of the son of Francis II, duke of Brittany, which he attributes to this custom. The pernicious practice of treating acute fevers such as smallpox with heat and exclusion of air survived for many generations after this poem was written, and it is certain that St. Marthe's innovation was severely criticized by the physicians of his day.

The practice of wet-nursing is roundly condemned by the poet, as well as the custom of feeding other things than the mother's milk. Van Swieten writes of the virtues of the first thin milk of the mother and quotes Munro, the great Scottish physician, in corroboration. The use of pap made from milk, or broth, Van Swieten condemns as being "altogether unfit" at this time. "A few hours before," he says, speaking of the infant, "it lived upon its mother's humours; humours of like nature are ready in the breasts, prepared in the mother's body."

Like Tansillo, St. Marthe adds some directions as to the choice of a wet nurse. A test for the quality of breast milk is also given—the finger-nail test.

Avoid what on your nail too ropy proves
Adheres too fast or thence too quickly moves.

Who first described this test? It is found in Soranus' text book in the second century and its very simplicity probably made it survive the assaults of time.

A proper regimen for the nursing mother is prescribed by St. Marthe. Fresh air is again praised, and exercise in the open where there is sunlight. Occupancy with household tasks, too, is urged as wholesome and even necessary. The technique of nursing is described—including the necessity for cleanliness, frequent washing and the removal of the first milk. And here is sensible advice as to the quantity of food:

Think well, beside, what his young frame may bear,
 For, strong or weak must different methods rear,
 If healthy, copious nourishment is good
 If sick or feeble, spare the grateful food.

During dentition he warns against feeding the child too much, and advises giving solid food only after the teeth have come. But he also counsels:

Be light and easy still what e'er he eat.

A list of undesirable foods is given, including sweets, meat and other "heavy viands." Some quite modern directions follow:

When now you change, and give but half the breast,
 Food most resembling milk is still the best;

.

Hence nurses give, nor shall the Muse dissuade
 Broth by itself, or often mixed with bread.

Flour, meal and cereal gruels are also described as appropriate foods. Modern mothers might well heed the following:

But trust not always to his infant cry
 Which not from thirst or hunger constant springs,
 But oft from gripes that indigestion brings.

.

Wherefore at proper times twixt ev'ry meal
 Observe if his distended belly swell; . . .
 Then, tho' continued cries declare his need
 Obey the symptoms and forbear to feed.

This, of course, is far from lyrical and let us hope that it glided more smoothly in the original tongue; but it is splendid hygiene.

Let the baby cry a little, says St. Marthe—doubtless thereby acquiring the rancor of every grandmother who could read in sixteenth-century France. Yet he continues:

And moderate cryings come oft not in vain
 They stir a dull and cleanse a watery brain.

It was believed by some later writers, at least, that tears literally cleared the brain. James Primerose in his "De Morbis Puerorum,"¹⁵ published about a century after

¹⁵ James Primerose: "De Morbis Puerorum." Also in "Contributions to Medical and Biological Research Dedicated to Sir William Osler, Bart., M.D., F.R.S."

"Pædotrophia," may have taken St. Marthe's statement literally, or possibly had earlier authority for the dictum that "tears are serous Humors which the brain discharges through the eye." Here was a real anatomical basis for the propriety of crying. No poet of the sixteenth or seventeenth century in the face of this could speak of tears as "idle tears," or say "I know not what they mean."

Daily bathing is prescribed, and again fresh air.

Amuse him often with some blithesome tale
 And take him out to breathe the balmy gale,
 When air is pure, when clouds, when vapours fly,
 And favouring west winds sport along the sky.

The mother should nurse the child, partly or wholly when possible, for two years, St. Marthe declares. The period of breast-feeding has apparently steadily been growing shorter. In St. Marthe's day the average was two years, while in Tytler's time, two centuries later, it had contracted to six months. Underwood proposed one year as the proper period—provided the child has good digestion and has cut at least four teeth. Today it is nine months. Directions for weaning—mostly quite sensible directions—are given, and there are numerous annotations from Underwood by the translator.

The second book of the poem closes with a description of the civil wars of France under Charles IX, and an elegy to the memory of St. Marthe's friend, "Damon," who was killed in the civil strife. "The original," says the translator, "may be compared with the finest parts of Ovid." Whatever the style may have been in the original Latin, there can be no doubt that the poem itself was an admirable adventure

New York: Paul B. Hoeber, 1919, vol. i, 177, "Some Seventeenth Century Writings on Diseases of Children" by George F. Still; and "The History of Infant Feeding from Elizabethan Times," *Proc. Roy. Soc. Med.*, Lond. 1910-11, vol. iv, 110-140.

into preventive medicine, displaying a great deal of common sense and freedom of thought on a subject which the author found overgrown with absurd tradition.

The third book of "Pædotrophia" deals with the treatment of diseases of infants. While his hygiene was excellent, so much cannot be said for St. Marthe's diagnosis and treatment.

Among the disorders treated are thrush, ranula, teething, indigestion, worms, eruptions, smallpox and epilepsy. Smallpox, which evidently existed in the poet's family, should not be treated by sweating and exclusion of the air—such is the rather revolutionary statement which he makes. Apparently this good advice was little heeded by succeeding generations since the treatment of fevers by heat, starvation and exclusion of air and light continued for full three centuries.

Of course we laugh at the therapeutics of the past—just as future generations will laugh at our remedies. Even at this date, however, we have not greatly improved the treatment of certain conditions. Lack of intestinal action was treated in the infant of St. Marthe's time by the administration of honey. The suppository made from the root of the mallow was also used in obstinate cases. Intestinal parasites in children are treated today with santonine, the active principle of santonica or wormseed. Yet wormseed was the remedy used in the sixteenth century, and even before that time.

Use chief the chaffy seed, renowned in fame
That from the worms itself derives its name . . .
This proves a certain cure, nor need I mind
What other we from old physicians find.

For epilepsy mistletoe was recommended—and no doubt was quite as effectual as many of our more modern remedies, which is really not overpraising it. Less useful was another remedy suggested:

Or burn a human skull to ashes white
And with fine powder of those horns unite
That from the heads of deer like branches come
And add the fragrance of Arabian gum.

And yet, the use of remedies such as the foregoing was so general in his day, that it is a tribute to the poet's good sense that he did not endorse a greater number of them.

"Pædotrophia" ends with a pious invocation and a wish that the desire of King Henry for an heir should be granted—a wish that no doubt brought the poet much favor.

All in all, these ancient poets did a good work, sowing in the ages long past the seeds that developed in our modern work in infant welfare. While there are many things in these verses that violate all the proprieties of poetry and the canons of lyric art—many passages even ludicrous to the modern reader, yet in the spirit of such compositions there is much to praise, much to endorse and, in all fairness be it said, surprisingly little to actually condemn in the nursing technique which they taught, or hoped to teach to the mothers of their day and age. And they are especially useful to the student of the history of the nursing art, since they were written in a period when the physician affected to consider the care of the child and its nursing a matter for midwives alone, in fact, the subject was thought to be rather beneath the doctor's dignity. Even the earlier textbooks on diseases of children seem to apologize for introducing matter relating to nursing. So it was that these popular nursing manuals of the sixteenth century were written by laymen for the use of the laity, and contained much information not available in the medical textbooks. Buchan, in the second edition of Armstrong's work, quotes John Hunter as saying: "Nothing can be done for sick children." Whether or not Hunter actually made this remark, in his day the medical profession acted as if they believed it; and so the initiative in infant hygiene propaganda as exemplified in these old verses of the sixteenth century should be credited to the singers of songs rather than to the prescribers of pills and potions.

WALTER HARRIS, A SEVENTEENTH-CENTURY PEDIATRIST

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PEDIATRICS is a modern specialty, and the practitioner or investigator devoting his whole time and energy to the study of the diseases of infants and children is inclined to think our knowledge of the subject a thing belonging to the very end of the nineteenth century and to the twentieth. Payne has very aptly styled the present era "the Age of the Child." It is interesting, therefore, to look backward over the centuries and try to see what the medical men of other times thought or knew about morbid manifestations in the young. Garrison has given a delightful account of the history of pediatrics (soon to appear), to which the writer owes any knowledge he may have of the subject; and he is indebted to the same generous donor for the stimulus and the opportunity to study the books of the early writers.

Children were not entirely neglected by the ancients; Hippocrates and Soranus in the olden days, Avicenna and Rhazes later, and in mediæval times Metlinger, Bogelardus and Roelants (the last better known under the name of Austrius, who appropriated his writings with scant acknowledgment), all devoted a certain amount of attention to the little understood subject, writing either separate treatises or including material dealing with children in their works. Then came Felix Würtz, a delightful old character of Basle, a surgeon who wrote down what he saw or believed, and produced one of the first contributions to pediatrics based on personal observation and not on academic discussion. After Würtz came Walter Harris, a pupil of the doughty Sydenham, the master who is said to have advised him to study Don Quixote as a preparation for the study of medicine; a jest which the great master is also said to

have made to Richard Blackmore, and perhaps truly, as even in these days, we know how a prosperous saying will be used over and over again. We may suspect the worthy old doctor of something of the same spirit in the remark he made about Harris' book, which Harris takes great pains to quote:

"I might add, and positively affirm, that the same excellent Author, after he had vouchsafed to read the first Edition of this Book, was pleased, out of his great good Nature, to speak to me in the following Words: 'I never flatter any Man, nor shall I flatter you, when I tell you, that I never before saw any Book that I had Reason to envy. For in Truth, I think your little Book may be of more Service to the Publick, than all my own writings.' I do not mention this from any Principle of Vanity, Self-Love, or ill Design, but as it were from the Impulse of some hidden Reason. For of what Use is Flattery, or vain popular Applause in an advanced Age? Or what can an undeserved Commendation signify to a Man, who is just leaving the Vanities of this World?"

Of Harris' life we know but little. The "Roll of the Royal College of Physicians" furnishes nearly all the biographical information which we possess. Short accounts are also given in Haeser's "History of Medicine," by Norman Moore in the "Dictionary of National Biography," and there are a few notes here and there in some of the various collections of medical biography, such as Bayle and Thillaye or Jourdain.

Harris was born in 1647, at Gloucester England.¹ He was sent to Wincheste

¹ Hirsch gives the date as 1651, but this is doubtless an error.

School and from there to New College, Oxford, where he received his degree of B. A. on October 10, 1670. He then changed his creed to become a Roman Catholic, and resigning his fellowship journeyed to France, where he studied medicine, finally taking his doctor's degree at Bourges on July 20, 1675. In the following year he returned to London. In 1678, in consequence of the Oates plot, all Roman Catholics were ordered to leave the metropolis. This caused Harris to recant. He left the Church, publishing an article entitled "A Farewell to Popery." In the following year, 1679, he received his doctor's degree from Cambridge, and on April 5, 1680, became a candidate of the College of Physicians, being one of the censors in 1688, 1698, 1700, 1704 and 1714. He was treasurer from 1714 to 1717 and *consilius* from 1711 until the time of his death.

In 1581, in the twenty-fourth year of the reign of Queen Elizabeth, Richard Caldwell, M.D., a fellow of the Royal College of Physicians, and Lord Lumley, founded a surgical lectureship and endowed it with fifty pounds a year, laid as a rent charge upon the lands of Dr. Caldwell and Lord Lumley. The early lecturers were appointed for life, but later on the period was changed to five years, and since 1825, the lecturer has been nominated annually, but generally two years in succession. The Lumleian lectureship was held by distinguished physicians; but strangely enough, most of their names are not familiar. William Harvey expounded his views on the circulation as Lumleian lecturer in 1616. Richard Bright held the position in 1837. It is pleasing to note that Walter Harris was appointed in 1710, and held the position until his death on August 1, 1732. In 1711, he lectured on "De Ossibus Capitis," in 1714, on "Phlegmon," in 1715, "De Erisipellate et de Morbis Cutaneis," and in 1716, "De Febribus."

Another honor accorded Harris was delivering the Harveian oration on several occa-

sions. This lectureship was founded by Harvey himself, who conveyed his paternal estate of Burmarsh to the college. This was left to promote friendship; once a month a collation was provided for such as came, "and once every year a general feast for all the fellows: and on the day when such feast shall be kept, some one person of the College . . . shall make an oration in Latin publicly." Harris delivered orations in 1699, 1707, 1713, and 1726; that of 1707 was printed.

In passing, one might comment on this pleasant custom of breaking bread together, one of the best ways of getting acquainted and fallen too much into disuse by the modern medical societies.

As a physician Harris was a pronounced success; and enjoyed a large and fashionable practice in the gay whirl when good Prince Charlie reigned as Charles II. Then came the Revolution, and on the recommendation of Archbishop Tillotson he was made physician to King William. These connections brought him into greater prominence and he enjoyed an intimate acquaintance with royalty, as King William took him to Holland on one of his campaigns, and their discussions on the absorbing topic of gardening led to Harris' publishing a description of the King's Palace and Gardens at Loo.

In 1694, Queen Mary caught smallpox, which developed into the hemorrhagic variety, and she died on the eighth day. Harris sat up with her on the sixth day of the disease. This case of smallpox led to some difference of opinion and involved the famous and thoroughly delightful John Radcliffe, three years younger than Harris, and at the time physician to the Princess Anne. According to Bishop Burnet, Radcliffe was regarded as negligent and unskillful and he was blamed for the Queen's death. He himself, however, thought differently and stated that "her majesty was a dead woman, for it was impossible to do any good in her case, when remedies had

been given that were so contrary to the nature of the distemper; yet he would endeavour to do all that lay in his power to give her ease." Harris was among those present at the necropsy. One cannot pass Radcliffe by without quoting the well-known anecdote of that sharp-tongued physician: "In 1699, King William, after his return from Holland, sent for Radcliffe, and, showing him his swollen ankles, while the rest of his body was emaciated, said—'What think you of these?' 'Why truly,' replied Radcliffe, 'I would not have your Majesty's two legs for your three kingdoms'."

As to Queen Mary's case, Harris himself attributes her death to her taking the advice of Dr. Richard Lower, given years before. Lower advised the Queen, when she was indisposed, to take a large quantity of Venice treacle on going to bed and so promote sweating. About two years before her fatal smallpox, she told Harris of this and he advised against the practice, warning her that "your Majesty will some time or other undergo an extreme Hazard of your Life from a Medicine so intensely hot, whensoever you shall be seized by a permanent and continued Fever." He goes on to relate:

"However, this justly admired Queen, forgetting all that I had said, and fixing the famous Lower's Advice firmly in her Memory, was pleased, at the first Attack of the Small-pox, to take Venice Treacle the first Evening, and finding no Sweat appear as usual, she took the next Morning a double Quantity of it, to throw out a Sweat in vain, before she asked the Advice of the Physicians. Thus it pleased the most wise Governor of all things, suddenly to translate the best of Queens from her unworthy People into Heaven. Never was any Mortal bewailed with so many Tears, such sincere Lamentations, and such universal Sorrow, not even the

most beloved Parent by the most darling Child. For not only the Loss of the Queen was deplored, but the Ruin also and Destruction of the whole Kingdom was at that Time apprehended. But the vehement Grief which the Remembrance of so great a Calamity always renews, is much lessened to me, when I recollect that I pointed out the Rocks on which she was cast away, and admonished her of the future Danger."

He continues with an account of Her Majesty's fatal illness of which he gives a graphic description.

Harris was the author of a number of works, for the most part containing the substance of his lectures at the College of Physicians. The following list is given in the "Roll of the Royal College of Physicians":
Pharmacologia Anti-Empirica; or, a Rational Discourse of Remedies, both Chemical and Galenical. 8vo. London, 1683.

De Morbis Acutis Infantum. 8vo. Amsterdam, 1698.

De Morbis aliquot Gravioribus Observationes. 8vo. London, 1720.

De Peste Dissertatio, cui accessit Descriptio Inoculationis Variolarum. London, 1721.

Dissertationes Medicæ et Chirurgicæ. 8vo. London, 1725.

Following the account of the diseases of children in the English translation are some seventy-nine pages entitled: "Book the second. Containing Observations on several grievous Diseases." He begins:

"I have thought it not improper to add a few Cures of grievous Diseases, which perhaps will not be very displeasing, and not altogether unprofitable to the Reader. If I relate but few Observations, there will be the less waste of Time, and the Reader will not spend many good Hours idly. Let others, who love a commendable Leisure, or who have immense Treasures

of Science, or who can as easily root out any Diseases, as kill Flies, or tell Stories, let such furnish out a Medical Banquet, furnished with a sufficient Number of Observations, to satisfy the voracious Appetite of the most greedy after Learning. A frugal and philosophical Repast is at present sufficient for the Narrowness of my Circumstances. Nor is a sober and sparing Table to be quite despised, especially by Physicians, who are used to impose a Rule on others in every thing, and commonly deliver rigid and temperate Rules of preserving Health."

There follow observations on epilepsy, palsy, diabetes, quinsy, and the like. In commenting on the use of turpentine in the relief of the flatus encountered in cases of palsies, he takes a literary flight:

"But it is not so easy to explain, as it is true to affirm, that wandering Flatus's in the Body are the immediate and nearest Cause, both of manifold Pains which torture the Miserable, and also of this Disease, which is in a Manner anodyne and insensible, distinguished rather by a Stupidity than Pain. The Theory of Flatus's flying through the Body, seems as hidden and unknown to us, as the Nature of stormy winds, when they war sometimes in the Sky with a great Noise and thundering, is a hard and difficult philosophical Speculation. And, indeed, as Winds sometimes raise Storms and Tossing of the Waves from the Bottom of the Sea up to Heaven, as they sometimes cause Tremblings and Earthquakes, when they are inclosed in the Bowels of the Earth; so do Flatus's, being bred and shut up in human Bodies, cause Gripings, racking Pains, and Convulsions."

The remaining thirty pages of his book are given over to various phases of venereal disease. He appreciated their seriousness and their devastating influence.

"The first State of this Distemper, which affects only the Pudenda, may be slighted, and made a Jest of by our Beaux and Rakes, who are wont to look upon it as a Matter of small Concern; but whensoever that first Degree of Contagion, or the following ones, shall at last get into their Blood, and spread the Poison through the whole Body, they will abundantly suffer the Punishment due to their Follies."

The modern vice crusader and the propagandist of the scientific control of venereal diseases might well quote Harris. Both classes write and teach as if they had discovered a new thing, as if no one before in the history of the world had ever suggested the methods now in use. The more one reads the earlier writers, the more one believes the dictum of Solomon. If not new, neither is his suggestion correct, as it only involves one part of the problem. Listen to Harris:

"But this we know for a Certainty, that there were formerly a great many Hospitals built among us for the Reception of leprous Persons; and I am much mistaken, if we have now so much as one single House remaining for the Reception of those who are afflicted with the Leprosy. The same Cause of venereal contagion has always exercised his Tyranny, namely, the casual and promiscuous Use of Harlots; and there has never been any Age without infamous Strumpets, who have made a vile profit by the Prostitution of their Bodies; now the Cause being given, the Effect also is given, as the Effect is taken away when the Cause is taken away. For in whatsoever Countries or Places, those Prostitutes and common Corrupters of Youth are driven far away, and the Severity of the Laws restrains all whoring, there this Disease is also banished together with the impure Harlots. But wheresoever Brothels are per-

mitted, either by the Remissness or Conivance of the Magistrate; or where-soever strumpets can securely acquire impure lurking Places; there this Plague, with its horrid Train of Evils, and all it's Family of Miseries, prevails far and wide. And, in my Opinion, this Disease is as certainly and naturally produced in the impure Wombs of common Prostitutes, who mix their Embraces with many different Men, as Lice and Fleas are produced from Filth and Uncleanliness. And because the Corruption of the best is always the worst, may not that venomous Disease be naturally produced by the depraved and incongruous Corruption of the prolifick Seed, which is designed for such great Uses of Nature?"

Lack of space prevents quoting some of our author's statements about the origins of venereal diseases. He calls attention to certain Hippocratic descriptions, to various current opinions, but in the end he says: "I shall leave the Learned at full Liberty to dispute." He pays an eloquent tribute to the quacks and pretenders, and he tries to inculcate the same lesson as that taught to-day by the United States Public Health Service in their Bulletin, and on the placards exposed in certain places, and thus familiar, at least, to all who patronize the Pullmans.

"But what Sort of Physicians are these? Why, truly, Taylors and Blacksmiths most commonly, and such like Artificers, idle Ale-housekeepers, and Cooks, who have already lost their Credit in their own Shops. How unhappy therefore and miserable is the Condition of the Infected, who suffer double Punishment, and are condemned not only to the Tortures of a most cruel Disease, but also to the dangerous Ignorance of an unskillful Quack! As if any of the slightest Disorders stood in need of the Skill of a Physician, and the most doubtful of all

Diseases, that is quite fixt into the Marrow, might safely be committed to the most illiterate Fellow!"

In closing his little book on several grievous diseases, Harris sums up in a page or so his *via vitæ* and it is a page written by a sound philosopher or at any rate by a follower of sound philosophy, whether one accept the Ciceronian view of death or not. He counsels honesty, freedom from avarice, charity, helpfulness and courage. In a sense, his philosophy is pragmatic and not unlike that of Corin, the shepherd, in "As You Like It."

"I may seem to have described the Violence of this Disease with more Severity, than some Pretenders to Physick, who are wont to slight it, and look upon it as nothing; that they may make an Ostentation of a certain exquisite Art which they have somewhere learned; but, in Reality, in order to pick the Purses of the Unwary, to oppress their Acquaintance, and to turn everything unjustly to their own Gain and Profit. But it is far better for an honest Physician, who has been instructed in the Liberal Arts, to speak the Truth, rather than to be seduced by any Gain, and to prefer the common Advantage to his own. Let no one repent of having a moderate Fortune, provided it be honestly acquired. For a little sometimes satisfies our Desires, and a great deal seldom satiates the Mind. A moderate Plenty of things necessary for living well and conveniently is easily supplied, and is seldom wanting to good Men. But in heaping up Superfluities, there is commonly no End of most grievous Cares, no Weariness of the greatest Troubles, no Bound of Rapines; as if that dreadful Execration, or Fascination, always accompanied the Unjust and Avaritious, that they should be poor in the Midst of Wealth, and be condemned to spend a very unquiet and penurious

Life in the Midst of Abundance. Our short Lives slide away with a precipitate Course. And there is no need of a great Pomp of Provision, to make the Journey agreeable, nor is so great a Plenty necessary to be laid up for so short a Way. I think it well done by them, who pass their lives in doing well. Nor should wise Men lament the Death of the Body, which is followed by the Immortality of the Soul. For then at last it is manifest that we live, when we are departed out of this Life. How excellently did the Philosopher speak to this Purpose, when his Breast was swelling with Hope, full of Consolation, and his Mind greatly aspiring to future Joys, when he was approaching to old Age, and nobody praising it? If I err in this, says he, that I believe the Souls of Men to be immortal, I willingly err: Nor will I suffer myself to be persuaded out of this Error as long as I live."

The little book on diseases of children was the popular treatise from his time until it was supplanted in 1784 by the work of Michael Underwood. The first edition was printed at Amsterdam in 1689, while Harris was in Holland with King William. It was reprinted in 1705, 1720, 1736, 1741, and 1745; translated into German in 1691, French, 1738, and twice into English, 1742 (Norman Moore). The English translation was by John Martyn, F. R. S., professor of botany at Cambridge, and the title-page states that it was "written originally in Latin by the late Walter Harris, M.D., Fellow of the College of Physicians at London and Professor of Chirurgery at the same College." Martyn states that a previous translation into English "was in a most uncouth style." This having been out of print, the 1742 translation was published with a translation of the author's observations on several grievous diseases. Martyn states that "he wished that the learned author had used rather less prolixity in his

writings and been more sparing in his "Digressions." He wisely also omitted "the long enumeration of the Titles of the Illustrious Parents of the Doctor's Infant Patients."

Harris was a conceited man, of that there can be no doubt; and had Fate been kind enough to spare us his portrait there is no doubt he would have shown it in his face. Still, he disclaims any credit for his work in his preface, where the modern psychoanalyst would shrewdly discern that in attempting to keep away from a subject he overstepped it in another direction.

"For let a Piece be ever so well written, yet we ought by no Means to suffer ourselves to be proud of it. For the highest Wisdom and Knowledge of Men seems to be that which places our common Folly and Ignorance before our Eyes. And the more any one exceeds others in being conscious to himself of this common Ignorance of Things, and Deficiency of right Reason, the more I think him superior to others, and to obtain the first Place in Knowledge."

Physicians are not able to do much for suffering humanity. Among the causes of their inefficiency Harris gives the following:

"Because of the usual Delay of sick Persons, and their foolish Procrastination, before they will consent to send for a skillful Physician; because of the great Abundance of Medicines, both simple and compound, and the avoiding of too much of a candid simplicity of prescribing, instead of which has succeeded a fine and glorious Method, but more fallacious in the Variation of Remedies, for fear the Learned should seem to others to be not sufficiently instructed in the Knowledge of the abundant Profusion of Medicines; and also because of the necessary Variation of the Method of Cure in different Countries and Climates, which is also to be changed in the same

Country, according to the various Seasons of the Year; and because of the successive Change of Helps in almost every Age, according to the Modes of Practice that prevail; and, lastly, because of the different Opinions and dissimilar Doctrines of learned Men, who eternally differ from each other."

The difficulties and discouragements of pediatric practice made a deep impression on Harris and he is at pains to let it be known, just as he also points out what he regards as an infant and the diagnostic methods to be pursued in dealing with such uncommunicative creatures.

"I know very well in how unbeaten and almost unknown a Path I am treading; for sick Children, and especially Infants, give no other Light into the Knowledge of their Diseases, than what we are able to discover from their uneasy Cries, and the uncertain Tokens of their Crossness; for which Reason, several Physicians of the first Rank have openly declared to me, that they go very unwillingly to take care of the Diseases of Children, especially of such as are newly born, as if they were to unravel some strange Mystery, or cure some incurable Disorder.

"There can be no Doubt but that a perfect Cure of the Diseases of Children is as much to be desired by all, as any Thing else whatsoever in the whole Art of Physick. Nor is it of consequence only to the noble, the powerful, and the wealthy, who are desirous of having Heirs, and preserving them, but to all Parents of any Rank whatsoever; for Nature has instilled into all Men an almost invincible Love and Care of their own Offspring. Wherefore I shall think myself happy, if I can strike out a few Hints, which others of greater Abilities may improve, and bring to Perfection."

"By an Infant I mean not only with

Galen, one of a Month, two Months, or at most three Months old, but in a more extended Sense, as it is commonly understood, a little Child something older, as far as to the fourth Year. Under the Name of a Child I comprehend all from that Age to the fourteenth Year. And the younger the Patient is, the more easy will be the Cure of any severe Disease, as I have found from the best Reasoning, confirmed by manifold Experience. For any Impression, either good or ill, is sooner made on the moist than on the dry, on the soft than on the hard, tho' in the dry and hard, when it is once made, it continues longer. Infants fall into Diseases the most easily, and unless they are unskillfully or too late taken care of, are most easily restored to Health.

"The Diagnostick of the Disorders of Children is not to be formed from their own Account, or from the Consideration of their Pulse, or from a curious Examination of their Urine, so much as from the Answers of their Nurses, and of those who are about them. For the Women are able to tell whether they are sick and vomit, and how long they have done so; whether they throw up Milk or Food curdled; whether frequent Cries, Watchings, and Uneasiness, discover them to be griped; whether they have sour Eructations or Hickups; whether they have any Cough; whether their Stools are larger, smaller, or more frequent than usual; what Colour they are of, whether white, green, or of the full yellow Colour of the Bile. They can tell whether they have little Ulcers, called the Thrush, spreading in their Mouths and interrupting their feeding. If you ask them, they can answer whether they have Convulsions, greater or less, of a longer or shorter Continuance, and whether they have frequent or seldom Returns; they can see whether any Part of the Gums grows white or swells, and therefore, whether it is their being about

their Teeth that disorders them; lastly, whether there is any Thing else of Consequence, whether they have a Swelling of the Abdomen, or any other Part, whether they have any Eruptions or Pustules, and whether a yellow or red Colour appears externally. As for most other Enquiries, they seem to me to belong rather to subtil Speculation than Practice."

Hereditary influence in the production of disease in children was correctly estimated by Harris, who states that "the Knowledge of the procatartic Cause must not be totally omitted." He dwells on this and adds an interesting little paragraph on eugenics:

"There is no one who will deny, that there are hereditary Diseases, proceeding either from one or other of the Parents; or question but that the Gout, Epilepsy, Stone, Consumption, etc. sometimes flow from the Parents to the Children. Whole Families proceeding from the same Stock, often end their Lives by the same Kind of Disease. For the prolific Seed often so rivets the morbid Disposition into the Fœtus, that it can never afterwards be removed by any Art or Industry whatsoever. But let those who prefer a strong, vigorous, and healthy Offspring before Money, take care to avoid epileptic, scrophulous, and leprous Mothers."

With the passing of the mint julep of the South, the only julep which the mind conjures up at the mention of the word, it is not uninteresting to read a paragraph on the juleps of Harris' day and of the pearl julep and others later on.

"The modern Juleps by the Way, derived from Distillation, were wholly unknown to the ancient Physicians. Water, Wine, Ptisan, or a Decoction of decorticated Barley; Melicraton, or an extemporaneous Mead; *Οινομέλι*, or

Vinum passulatum, a Sort of Raison Wine, being expressed from dried Grapes; Sapa, or boiled Wine; Posca, Oxycratum, or Vinegar mixt with Water, were almost all the Juleps that were used by our Ancestors, in the Practice of Physick. But whether these Juleps of the Ancients, on Account of their Simplicity, Smallness of Expence, and *εὐποροῦσια* or those in modern Practice, because they are more agreeable to the Palates of the Nice, and Desires of the Rich, ought to be preferred, I shall leave to the Determination of the sagacious, skilful, and honest Physician."

Harris knew full well the importance of correct diet in early life and cautions especially against errors in this regard. He condemned the use of flesh in infancy and stated that the results of this regimen are "almost inseparable from the overfeeding of tender Infants." Also, "Crude and undigested ailment necessarily produces a Putrefaction of Humours: from which Putrefaction not only Worms are generated, but various and grievous symptoms, by which the poor Wretches are wasted, very often depended upon it."

In these dry and parlous days (July, 1919), Harris' views on wine may not be amiss. Correctly he is against its use in early life, as was Galen of old, and there are those who agree with his decision regarding later life.

"The nearer any one approaches to old Age, the more does Wine moderately taken usually agree with him. For the languid Heat of old Men evidently stands in need of spirituous Helps, which are plentifully supplied by Wine, both for the Preservation and Increase of their natural Heat. Wherefore the Nature of Infants, being the most remote from that of old Age, is greatly injured by Wine, for their Nerves being exceedingly weak are easily destroyed thereby, and their tender Bodies are gradually dissolved, or else

rush hastily into feverish Flames, by the subtle Heat of Wine."

How delighted, however, would the West-erville set and their followers be over the following paragraph! It reminds one somewhat of the descriptions in school physiologies.

"Wine of all Sorts taken too freely, as well as all Sorts of Spirituous Liquors, destroys the natural Ferment of all Stomachs, especially of those of Children: they impair the Appetite, burn up the Coats of the Stomach, and wrinkle them like Parchment that is scorched by the Fire; but they most of all injure the nervous Coat, which in this Case is of the greatest Moment, and by Means of this Coat, weaken all the Nerves of the Body, and most certainly drive the animal Spirits into all Sorts of Confusion. What does the least Injury to this tender Age is White Wine, which was accounted cold by the Ancients, but is not absolutely cold, but only comparatively with Regard to other Wines, whether red, tawney, or yellow. But Galen, as was said before, forbids Children to taste any Wine at all."

In another place, after reviewing the modern writings on acidosis, the present writer was tempted to paraphrase Pilate's query: "And what is acidosis?" We present-day moderns, as many now agree, are too prone to the vulgar error that our own opinions are new and original. As a matter of fact, for the most part, they are neither. Ideas do not die. They fall asleep, perhaps for centuries, and then come to life often simultaneously in several different places as a "Schwebender Gedanke." Witness Garrison's account of the caduceus used as a medical symbol by the Babylonians and disappearing to bob up in England and Switzerland in the sixteenth century.

To read the moderns is to believe that

acidosis and alkalies as a cure date from yesterday. If ever any one lived who thoroughly believed in the noxiousness of acid and in the effectiveness of testaceous remedies it was Harris. Of the latter we shall speak further on. Of acidosis he says:

"All the Causes of the Diseases of Infants, which have been already mentioned, and all that may be derived from them, center in one next and immediate Cause, namely, an Acid prevailing universally."

He describes the symptoms as follows:

"That unequal Condition of the Chyle or Nutriment, constantly owing itself to a predominating Acidity, chiefly produces a Sickness, Vomiting, and sour Eructations. If the Affair is farther prolonged, they grow paler and paler by Degrees, and the discoloured Countenance discovers a Mixture of yellow or green. Then the Stomach swells with Inflations, and flatulent Eruptions are thrown upwards. In the mean Time a red Pimple or two, a sure Sign of an abounding Acid, appears on the Skin, in some upper Part of the Body, sometimes on each Cheek, sometimes on the Chin, sometimes on the Forehead, or Neck, or sometimes lower; and the Infant daily grows worse. He wheezes also, and draws his Breath so hard as to disturb the Ears of those who stand by; [acidosis and asthma] which Symptom is always found to affect him, especially if he is fat, whensoever the Disease is of the acute Kind. Besides, he is often affected with a light, dry, and sometimes suffocating Cough; a dry one, because the Acrimony of the Humours continually vellicates the Branches of the aspera arteria, which are very sensible; a suffocating one, because the Bronchia of the Lungs are grievously loaded with serous Humours distilling upon them, and not finding an

Outlet. Moreover, because they have the greatest Weakness of their nervous System, and have the highest Degree of Softness and Tenderness in their Constitution, therefore they are ready to sink under the violent Agitation of the Breast, being in a Manner suffocated, and black in the Face. But if the Coagulations already mentioned descend presently, as they often do, from the Stomach into the Intestines, they sometimes produce Gripings, sometimes greenish Stools, and sometimes violent Loosenesses. But whilst the Tragedy is acted in the lower Belly, either the great Pain of the Gripes lights up an acute Fever, which, if not rightly managed, usually deprives the Infants of their Lives; or else the Pain being a little more moderate, and giving Way perhaps to some unskillful Cure, often ends in a hard Tumour of the Abdomen, [Tabes mesenterica] which in some readily serves to promote the Rickets or King's Evil."

He paints a gruesome picture of marasmus, convulsions and death, and includes in the list of troubles owing their origin to acid, thrush, ulcers in the mouth, green stools, the watery gripes. [Cf. Howland's and Marriott's work on the acidosis accompanying infantile diarrheas and their suggestion of the use of sodium bicarbonate.]

Harris was not modest about his hypothesis, for he immediately starts out to disclaim any honor, a sure sign that he thought it his due.

"Here I shall note by the by, that I do not by any Means seek after the Honour, if there is any to it, of finding out a new Hypothesis, nor if I have found out, or in any Manner established an Hypothesis, do I think it my Business, to force all Sorts of Arguments, even in spite of Nature, as the Custom is, to strengthen and support such an Hypothesis."

He also foresaw a discussion with which he did not propose to bother himself.

"I know well enough, that all the subtle Animadvertisers, will find fault with this Notion that I have started, of an Acid prevailing in all the more remarkable Disorders of Children."

He goes on to quote at length from Hippocrates and states:

"From these, and many other Things of the same Sort, which are laid down at large in the above-mentioned Book, it is plain, that our Divine Old Man, who excels all others in Medical Knowledge, determined as a certainty, that those secondary Qualities, namely, Acidity, Bitterness, Saltness, and such Like, being joined with the Symptoms of Heat or Cold, are to be considered chiefly as Principal and efficient Causes of Diseases. And therefore I shall make no Doubt to add that it necessarily follows, that the Cure itself is to be directed in the first Place, not so much to the extinguishing of Heat by Cold, as to the blunting of an Acid, the latering of a Bitter, the tempering of a Salt, the cutting of thick Humours, and the rendering of such as are thin and too fluid more compact, the asswaging such as are rough, and, lastly, to the opening of the obstructed Ducts of the Body, and freeing them from their Infarctions.

"But before I attempt the Cure itself, it may seem proper, according to usual Custom, to premise some Prognosticks."

His statement about the seasonal appearance of diarrhea is equally true to-day; we have done little to make any change in it necessary.

"From the Middle of July to about the Middle of September, the Epidemical Gripes of Children are so rife every Year, that more of them usually die in one Month, than in three or four at any other Time: For the Heat of that Season com-

monly weakens them at least, if it does not entirely exhaust their Strength."

Harris gives Sylvius de le Boë credit for having written about acids as a cause of disease in infants, but he scorns him for his use of narcotics and applies to him the name of the "Opiate Doctor."

As to cure, Harris wisely insisted on simplicity, which we of to-day applaud; yet some of his prescriptions look formidable enough. On this point he says:

"As their Ailment is the most simple, so the Medicines that are commonly to be given them, ought to be simple, but little receding from their natural State, and for the most Part void of too laborious an Artifice."

Of the cure another quotation may be used:

"But if we may be allowed fairly to speak the Truth, and so not desire to lose all our Pains and Troubel, those Things which tend directly to subdue an Acid, are the only Things that promote the Cure; but whatsoever do not tend that Way, at least disturb the tender Bodies of Infants more or less."

His idea was first to neutralize the acid and get rid of it by purgation. The first he expounds learnedly and at length, as the preparation of the acid; finally, after paying his respects to Hippocrates and Sydenham, and skillfully belittling the efforts of others, he comes to the meat of his therapeutics:

"The Preparation therefore of which we are now speaking, is not by any Means to be obtained by Sudorificks properly so called, that is, by Medicines that heat the Body, which are not in any Degree of Advantage to tender Infants or Children, but are found many Ways to hurt them. Whereas things that are quite temperate will securely absorb the prevailing

Acidity, gradually assuage the Ebullition, and become powerful and safe Anodynes. Such are Crab's Eyes and Crab's Claws, Oister Shells, Egg Shells, Chalk, Coral, Coralline, Pearls Mother of Pearl, oriental and occidental Bezoar, burnt Hart's-Horn, burnt Ivory, Bone of a Stag's Heart (the terra sigillate of the ancients), shavings of Hart's-Horn, Unicorn, Armenian Bole, sealed Earth, Blood Stone, &c. Of Compounds, Gascoign's Powder, Goa Stone, and Species of the Confection of Jacinth, will obtain the first Place."

On the choice of these "testaceous powders or absorbents of acid," he descants at some length, declaring that the cheaper are as good as the more expensive, albeit "For such Things as cost a great deal of Money, and are brought a great Way, are always the best in the Opinion of the Ladies."

Of the cheaper varieties he has certain preferences:

"But yet if, among many testaceous Bodies of almost the same Nature, I would prefer one before the rest, I should commend common Oister-Shells, such as are found on the Sea-Shoar, and have endured a long Insolation, being ripened into Use by the benign Rays and vivific Heat of the Sun, and thereby far better prepared than by a Chymical Fire, and changed into a bluish or yellowish Colour."

Of other alkalies, he has not much to say, but dismisses them with the following statement:

"I have designedly made no mention of Volatile Salts, whether they be oily or spirituous; none of Mineral, Lunar or Solar Bezoar; none of Spirit of Sal Ammoniac, none of that of Hart's Horn; of which Spirits the use is however not to be

entirely exploded with Regard to the most tender: because they excel in a Power of Absorbing Acids; but I would observe, that they are to be used with the greatest Caution, because of the no small Heat that accompanies them. And therefore we have to Reason to extol lixivial Salts, or the hotter Cordial Waters, such as compound Peiony Water, Plague Water, Aqua Cœlestis, Aqua Mirabilis, strong Cinnamon Water, and such like, unless they are given in a very small Quantity, and so diluted with other more temperate Waters, so as to make their heating Power almost insensible to the Taste."

After going over his ideas on the subject of acid, he comes to the practical part designed to help the "young beginner." Some idea of his practice may be had from the following suggestions:

"But to pursue my Design, for an Infant of a Year old in a Fever, or, as it commonly happens, tormented with the Gripes, we may prescribe as follows:

"Of the simple compound Powder of Crab's Claws, of each one Dram, divide them into six equal Parts.

"Or,

"Oriental Bezoar, Pearls prepared, and Crab's Eyes, of each half a Dram, Species for the Confection of Jacinth one Scruple, reduce them to Powder, and divide them in like Manner.

"Or,

"Oister Shells, prepared without Fire three Drams, Native Sulphur one Dram, Crystal Mineral two Scruples, reduce them to Powder, and divide them into twelve Papers.

"Or,

"Simple Powder of Crab's Claws one Dram, Crab's Eyes prepared two Scruples, Cochineal six Grains, reduce them to a very fine Powder, and divide them into six Papers.

"The Infant may take one of these Doses immediately, and repeat it, if necessary, two Hours afterwards, and then once in four Hours, except when asleep, for the first two Days. The Powder may be taken in a Spoonful of the following Julap, drinking another Spoonful after it."

His suggestions as to purges for infants are certainly sound, for after mentioning several, both simple and compound, he sums up with a strong vote in favor of rhubarb:

"Of all the purging Medicines, I know none more suitable to the puerile Age, or more innocent in itself, than Rhubarb, which is so well known, and so much in Use. It brings down the Matter of the Fevers of Infants both gently and safely: it mildly purges the Stomach, nay and the whole Body, of vicious Humours, and strengthens it also; and therefore is the fittest to be given to Infants, Children, women with Child, old Men, and such as are already weak with any Disease. Rhubarb seems better to deserve the Name of Hiera or sacred, than Aloë, which was so wonderfully extolled by the Ancients, and has not been undeservedly celebrated by the Moderns, and holds the first Place, and is the Basis of almost all Officinal Pills. Indeed, on Account of its extraordinary Bitterness, it often deserves no small praise in grown Persons; but because of it's Acrimony, corroding, and the Heat that it gives the Body, it is not very safe for Children."

The last score of pages digress somewhat from the diseases of children to a sort of rambling philosophy on the nature of things in general. He pays his respects to the "Chymists" and their "Chymicals" which he is none too ready to use; he gets after the "bellows blowers," "quacking operators," and "old women," and gives an estimate of

the worth of the wisdom of the ancients. He closes his treatise in a pious prayer, which shall be our last quotation:

“May the great and good God, from whom, as from an ever inexhaustible Fountain, all good and happy Things continually come down, and on whose Favour and Blessing the happy Success of the Art of Physick chiefly depends, vouchsafe, out of his immense Goodness, to bless what I have faithfully written with a sincere Mind, that it may be for the Publick Benefit, which ought always to be preferred before private Advantage.”

Harris was not a great physician, not a master mind, not an original thinker, but he wrote a good book that held its place an

hundred years; he was a shrewd and honest practitioner; a keen observer, particularly of the action of drugs, which led him to teach simplicity, caution and common sense. As will be seen from the portions of his work cited, he was *au fond* one of the soundest of the earlier writers on pediatrics. Was he bombastic? So was his teacher Sydenham, and the age in which he lived was tinctured with bombast. Was he garrulous? So was his very human contemporary Pepys; so, too, at times, were Hippocrates and Galen. Was he conceited? So have been many men who were successful practitioners but not very profound students of life. Taken all in all, he was a delightful old fellow and one with whom any present-day pediatricist might spend an hour with pleasure and with profit.

JOSEPH RODMAN DRAKE, M.D.

This year marks the centenary of the death of a young American physician whose fame as a poet far overshadows any reputation he might have acquired in his brief life as a physician.

Joseph Rodman Drake was born in New York on August 7, 1795 and died in that city on September 21, 1820. He was buried in a small cemetery in the Bronx, which some years ago was acquired by the city. Drake began writing poetry when but fourteen years old. He studied medicine under Drs. Bruce and Romagne, and received the degree of M.D. from Columbia College.

There is no information extant as to whether he ever seriously followed his profession. In 1816 he married a Miss Eckford, the daughter of a very wealthy shipbuilder, and it is probable that he then felt at liberty to devote himself entirely to literary work. It was in the summer of 1816 that he wrote the poem by which he is chiefly remembered, “The Culprit Fay.” He and Fitz-Greene Halleck, the poet, were the closest friends and wrote much in collaboration. Halleck was at his bedside when he passed away and wrote of him afterwards the familiar lines,

Green be the turf above thee,
Friend of my better days;
None knew thee but to love thee,
None named thee but to praise.

NEW OBSERVATIONS IN PALEOPATHOLOGY

By ROY L. MOODIE, Ph.D.

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CHICAGO, ILL.

RECENTLY the writer was able¹ to spend some time studying evidences of paleopathology in the principal museums of the Eastern cities, which resulted in a number of new observations on the nature of many ancient diseases. It is thought worth while to present here a discussion of the new facts and those observations which correct previous false conclusions. A full discussion, with appropriate illustrations, will be presented in a treatise on paleopathology, now in course of preparation, showing the relation of these new facts to previous observations, and drawing further conclusions.

Spondylitis Deformans in the Dinosaurs.—Coalesced vertebræ have been frequently seen, described and figured, in the skeletons of the huge land reptiles of the Mesozoic, and Osborn especially has referred to them as being the *resting point* of the tail, which means, I assume, that these gigantic animals stood erect and supported themselves with the tail, like the kangaroos. The difficulty with this interpretation is that the coalesced vertebræ often occur elsewhere in the skeleton than at the proper point in the tail. Coalesced cervicals are known in *Camarasaurus*, *Diplodocus* and *Tyrannosaurus*, and doubtless close scrutiny of the known material would reveal the lesions elsewhere in the body. The condition was extremely puzzling until a series of five caudals of *Diplodocus* were studied in the American Museum of Natural History. A fortunate post-fossilization fracture revealed the unaffected articular surfaces of the vertebræ in two places and showed the ring-like growth of the lesion, similar in all respects to the modern advanced cases of *Spon-*

dylitis deformans, seen so commonly in mammals and in man. Ruffer has reported a case of *spondylitis* from a Miocene crocodile of Egypt, so the disease is not unknown among reptiles. Its age, however, is greatly extended by the recent observations, and it is probable that further study will carry the antiquity of this peculiar pathological condition far back into geological time.

Spondylitis Deformans in Eocene Mammals.—Definite evidences of similar pathology were observed in two small mammals from the Eocene, one being in the tail, and the other in the anterior dorsal region. The lesions are so similar to those of human pathology that additional descriptions are unnecessary. No evidences of the incipient lipping were definitely observed, though it was suggested in a number of cases. The lesions may not have followed the same method of formation in ancient times which they follow now.

An Ankylosed Elbow-Joint in an Eocene Mammal.—A small, primitive, five-toed ungulate from the Eocene, known as *Ectoconus*, had in life suffered a fracture of the left humerus immediately above the condyles, resulting in the coalescence of the articular end of the humerus in the olecranal fossa. A pseudarthrosis was formed between the fractured end of the humerus² and the radius particularly, though some new joint surfaces occurred also on the ulna. The joint surfaces were dense and eburnated, recalling in their ivory-like consistency, the eburnated surfaces in joint lesions of the so-called rheumatoid arthritis. The fracture had evidently been extremely septic, for the whole lateral surface of the ulna is pitted with necrotic sinuses and roughened

¹ Aided by a grant from the Committee on Scientific Research of the American Medical Association.

² I have seen a similar fracture in the femur of a bison from the plains of Kansas.

with carious bone. In fossilization the bones were all crushed flat, so a detailed study of the joint lesion would not reveal a great deal more than is shown in an external examination. This is the oldest known ankylosed elbow, with an antiquity of many millions of years.

A Subperiosteal Abscess.—The limb bones of the huge dinosaurs of the Mesozoic were seldom fractured, because of their great size and strength. A single limb bone of one of the largest animals has a length of six feet and a weight, as fossilized, of about 700 pounds. But one of the horned dinosaurs of the *Edmonton Cretaceous*, discovered by Barnum Brown, has suffered an oblique fracture of the humerus which healed in a very bad way, resulting, as Mr. Brown said, "In the sickest fossil bone I have ever seen." On the anterior surface of the bone the periosteum had doubtless been greatly elevated by an ingrowth of callus, which later ossified into a bridge of bone connecting the lower articular surface with the enormous deltoid crest, and covering an enormous abscess, capable of holding several liters of pus.

Prehistoric Trephining.—The antiquity of this interesting surgical process is clearly established, and there are hundreds of trephined skulls in various museums which yield much information to the student of paleopathology. An interesting series at the United States National Museum reveals a number of interesting points with remarkable clearness. The skulls are from Peru of pre-Columbian age, a very large percentage of which show clearly that trephining was performed by the primitive surgeon to relieve fractures, either depressed or linear. The injuries to which the heads of the ancient Peruvian Indians were subject were made by: (a) Blows from the star-shaped club so commonly used by these people; (b) sling shot injuries, which would produce small depressed fractures often penetrating the two tables of the skull; (the use

of sling shots is very common in Peru and men, women and children are adept in the use of this instrument; the process of trephining, if completed, would often remove all traces of this type of fracture if made with a small rounded pebble) (c) blows of other kinds or falls producing fractures; and (d) arrow point injuries. Trephining for any of these injuries falls into four categories, given in the order of frequency; (1) Sawing; (2) cutting; (3) scraping; and (4) boring.

In practice of scraping the outer table was completely denuded over a wide area, often covering six square inches of bone, and the trephine opening made in one margin of the scraped area. Sawing and cutting were done by bronze or obsidian instruments. Doctor Hrdlička showed me some of the obsidian knives which doubtless had been used for this purpose. The plaque of bone removed at the operation was seldom replaced and usually the scalp was drawn over the opening and closed with healing herbs and gums, the use of which were clearly known to the Peruvians of ancient times. Occasionally fragments of gourd was inserted into the opening and fitted to it. Metal was also used. There are some evidences of successful bone grafts in the skull, but their relation to trephining has not been clearly established. The geographical distribution of the operation was curiously irregular, but it spread northward from Central Peru as far as the Rio Grande. In Macchu Picchu no evidences of trephining were found, but from Paucarcancha, Patallacta, and Torontoy MacCurdy³ has described great numbers of trephined skulls, many of them trephined more than once. One skull in Yale University had been operated upon at five different times; twice in the left frontal, the openings almost contiguous, once in the vertex, once in the right parietal and once in the right occipital.

³ *Art and Archeology*, December, 1918, "Surgery Among the Ancient Peruvians."

The margins of these openings show clear evidences of healing. Ruffer suggested that trephining was always performed near the vertex because this was the most convenient place, but clearly the Peruvian skulls do not show this. The operator attacked the site of the injury, irrespective of location. Trephining was done on men, women and children, on deformed and normal skulls. There is, however, no evidence to show that the operation was ever performed for the removal of diseased bone, and patches of necrotic bony tissue are fairly common in these skulls. It seems probable that the prehistoric surgeon practiced his operation on dead material and reached his conclusions from experimentation and logical deduction.

Osteoporosis.—This pathological result is often evident in ancient human skulls, and is many times bilaterally symmetrical. Patches of bone in the roof of the orbits, on the parietals, frontals and elsewhere, bilaterally symmetrical, show the dissolution of the bone in the curious rounded openings, largest at the center and becoming smaller toward the periphery. Hrdlička has described and figured the best known example of this in an adult male skull from Peru. Often, however, porosities occur which are not of this type. They often result in penetrating sinuses through the entire skull wall. Eaton has interpreted one example of this type as due to syphilis. It is probable, however, that there is some relation between these necroses and a curious type of osseous, reticular tumor occurring on the skull, a splendid example of which is in Yale University. It is hoped that Doctor MacCurdy will soon describe this interesting tumor.

Osteomata.—Small ivory-like, smooth, osteomata are often seen on prehistoric skulls very similar, in general appearance, to the button-like growths of eburnated bone seen on modern skulls. Their etiology is doubtless similar. They occur most often on the frontal, and are always single.

Paleopathology of the Pre-Columbian North American Indians.—The Indians of North America were relatively free from disease in general, and most of our modern virulent diseases were apparently absent. The greatest difficulty in the study of the ancient diseases of this continent is encountered in the inability to determine the age of the bones exhibiting the pathology. Intrusive burials into ancient mounds and the late formation of the burial mounds, continued for centuries after the white men reached this continent, are responsible for the difficulty. On this account it was especially interesting to learn from Doctor Hrdlička that there is in San Diego a splendid collection of pre-Columbian North American Indian skeletons from a single locality, exhibiting many forms of pathology. All of this is ancient, and a study of this collection would result in our having a fundamental idea of the types of pathology present among our predecessors, the red men. An interesting ancient cemetery at Madisonville, Ohio, has already been explored and has yielded many types of pathology.

American Cave Bears.—Virchow, Mayer, Esper, Schmerling and the other founders of paleopathology did their initial observations on the diseased bones of cave bears of Europe. Esper, in 1776, initiated the subject by describing what he took to be an osteosarcoma on the femur of a cave bear. It is extremely interesting then to observe in the United States National Museum, in a collection of mammalian fossils from the Cumberland Cave deposit of Maryland, diseased bones of a large American cave bear. A right femur shows on the lower posterior surface a wide area of carious roughening, with low, blunt osteophytes. A skull of an ancient pig shows similar carious patches on the left mastoid. This collection, soon to be described by Doctor J. W. Gidley, will add much to our knowledge of disease in the American Pleistocene.

Pathology of the Clam.—In the Miocene

of the Eastern States there occurs a large species of clam, known to paleontologists as *Venus tridacnoides*. The shell is immensely thickened and very heavy. Doctor Gilbert Van Ingen of Princeton, to whom I am indebted for calling my attention to this species, regards the form as a pathological race of *Venus rileyi*, a normal clam occurring in the same beds. Thickening in the tests of ancient invertebrates, simulating osteohypertrophy in vertebrates, is fairly common. A careful study of this pathological clam would result in interesting data.

Definition of the Term Paleopathology.—The term, so far as I can learn, was first placed in the literature by Doctor Ruffer in 1914, and his definition has been given in a previous paper.⁴ The subject, however, had received earlier attention in this country in the paleontological laboratory of the state museum of New York, where Doctor John M. Clarke has done so much on the nature of Paleozoic parasitism, and the intimate association of primitive animals, which was the initial step of parasitism, and which is essentially pathologic. The idea, however, while original with Ruffer, had doubtless occurred to workers in other fields, and while Ruffer properly is entitled to the credit of first publishing a definition of the term, the other workers should receive due recognition.

Caries.—I have stated elsewhere that caries of the teeth is fairly common among fossil vertebrates, yet a careful investigation into the matter reveals the interesting fact that it seems to be the rarest form of pathology in ancient times. It is true that Dollo in the mosasaurs, Renault in fishes and Leidy in the mastodon, have described this form of pathology; yet it seems not to be common. Experienced collectors of fossil mammals have never seen a carious tooth. In one of my papers on the basis of the appearance of the photograph I figured

⁴ ANNALS OF MEDICAL HISTORY, vol. i, No. 4, p. 374.

what I took to be a carious spot in the lower premolar of a three-toed horse. Examination of the specimen, however, reveals the fact that the defect is a post-fossilization fracture and is not due to disease. Mr. Anderson at the American Museum, showed me some thin sections of a tusk of *Mastodon obscurus* which showed undoubted carious spots along the edge of the dentine. The pathology is, however, not common.

Regeneration.—This phenomenon is essentially not pathological but that it often follows traumatism, is my excuse for mentioning it here. Mr. Frank Springer at the United States National Museum showed me some Silurian crinoids which had apparently had an arm broken or bitten off and in the process of regeneration often two arms took the place of the lost one, the regenerated arms being usually smaller than the normal ones. Mr. A. H. Clark, of the same institution, has lately made a study of the pathology of recent crinoids, and his results will be incorporated in Volume II of his forthcoming "Monograph of Existing Crinoidea."

Necrosis.—The huge glyptodonts of the Pliocene and Pleistocene of South America, in spite of their heavy armoring of bone on skull, body and tail, were often subjected to injuries which became infected and produced extensive necroses in the bony carapace. Doctor Sinclair of Princeton suggests that these necrotic sinuses were caused by injuries from the isaberrtoothed cat, which in attacking the glyptodont and finding himself baffled by the bony armor, clawed and bit the carapace of the beast. If the giant Pleistocene cat's teeth and claws were as septic as the modern house cat's are reputed to be, sepsis may well have followed such an attack. Similar necrotic sinuses were seen in the dermal plates of the giant dinosaur, *Stegosaurus*, which bore a huge armament above his vertebral column.

Opisthotonos.—Paleontologists on the whole are decidedly averse to accepting the

writer's ideas that fossil animals preserved in the opisthotonos, pleurothotonos and emprosthotonos, were the victims of disease. One pitfall in the acceptance of this idea is that they all regard these phenomena as being restricted to man, not knowing, as every sophomore medical student knows, that opisthotonos, pleurothotonos and emprosthotonos, in the order of frequency seen, are extremely common in the laboratory animals in medical schools, whether in pharmacology, medicine, physiology, pathology, or bacteriology. These phenomena are so frequently seen that no one, apparently, has paid any attention to them, for there is no medical literature on the subject, which makes the field a splendid one for investigation. The very meanings of the terms are in doubt. "The Century Dictionary" regards opisthotonos as a disease, which it clearly is not. In view of this uncertainty in the medical world it is no wonder that one paleontologist, Bashford Dean, writing in *Science*,⁵ should say that opisthotonos does not occur in mammals, when as a matter of fact it is extremely common in all forms of mammals, birds, amphibians, reptiles and fishes. Cats, inoculated with cerebrospinal meningitis, often die during the night and are fixed in the opisthotonic attitude by the "rigor mortis." If the cat were to be fossilized it would be in splendid condition to show the position in which it died, millions of years hence. We can only interpret the past by what we see at the present time, and if opisthotonos is an accompaniment of disease today, it certainly was in ancient times. Another convincing argument is that in ancient skeletons, as in modern forms, opisthotonos is the more common phenomenon, pleurothotonos being less commonly seen. The drying of the ligaments is to my mind inadequate to produce this position, for often heavy-headed animals are preserved in this attitude, and no liga-

ment is sufficiently elastic even in life to draw a heavy head several feet or yards from its normal position. There is no data to prove that ligaments in drying contract, or, if they do, there is no data to prove that the dorsal ligaments would overpower the ventral ones. The pull is exerted by the muscles and tendons, and this pull is stimulated by some neurotoxin upon the nerve supply of these muscles while in a spastic condition. Vertebrates preserved under water would not be subject to drying and they frequently exhibit the above phenomena.

Fractures.—This form of traumatism is extremely common among fossil vertebrates, more so in some forms than in others. Nearly every modern phase of fractures is to be seen among ancient animals, the form of the skeleton, of course, modifying the pathology. A skull fracture, for instance, in an ancient teleosaur, a long-snouted crocodile-like creature, would not be of the same nature as a skull fracture in man. Fractures are especially common in the skeletons of *Moropus*, a large, heavy, clawed ungulate of the Tertiary, with much the appearance of a horse, though the fore limbs are longer than the hind, and are provided with huge claws. These Chalicotheroidea must have had a pugnacious disposition, for they suffered many severe fractures of the skeleton. There are many dozens of fractures evident among the five or six thousand bones of this genus preserved in the American Museum of Natural History. Fractures in this animal are interesting to the paleontologist as indicating something of the habits of life of the animals; but to the medical man the fractures are interesting in the form of pathology which is evident. Fractures in the skeleton of this beast will be described and illustrated in the forthcoming treatise on paleopathology.

Paleopathology, as Depicted on Ancient Peruvian Pottery.—Ruffer especially has called attention to the representation of

⁵ April 11, 1919.

certain forms of pathology among the ancient Egyptians, in their stelæ, tomb sculpturing and other archeological objects; and his results, as well as those of Hamburger and Charcot, are well known. It is perhaps not so well known that the ancient inhabitants of Peru had a similar custom, although attention has been called to these objects by the South American writers, Tello, Tomayo, de Palma, Escomel and others, and by the American, Ashmead. An important fact in this mode of preservation of medical history is that dermatological lesions, which would be lost on the bones, are often clearly depicted on the "huacos" as the water jars are called. The most common disease represented on the ancient pottery is the "uta," the etiology of which has been so admirably described by Strong and his associates in their report of the Harvard expedition to Peru in 1913. This disease, distributed in America, from Argentine to central Mexico, properly a form of leishmaniosis, attacks chiefly the lips and nose, eating away the nasal cartilages and the entire lip. Some potteries depict a smooth clean cut surface of the upper lip suggesting that a form of prehistoric amputation of the lip was performed to prevent the further spread of the disease. A photograph of one of these pots placed alongside of a photograph of a recent advanced case of "uta" is strikingly similar in all the horrid aspects. The disease is a very loathsome one, and is very common in Peru to-day. Another disease, which so far as I know does not occur in Peru to-day, depicted on these ancient water jars is that of "goundou" or "gundu," a tropical disease seen in Africa and recently described by Schlagenhaufen from Malaysia. It is characterized by a swelling at the base of the nasal bones, giving the root of the nose a bulbous appearance. This same pathology has been noticed by Letulle in an ancient Peruvian skull from Ancon. Ashmead has figured a curious piece of pottery

representing a dwarf, of the achondroplastic type, whose body is covered with skin lesions resembling those described by Strong as *Verruga Peruviana*, the etiology of which is given in the Harvard report. The disease is confined to South America and has doubtless been in existence there for many centuries. Amputation of the limbs was performed by prehistoric surgeons in ancient Peru, as seen in the figures depicted on these ancient water jars. An interesting example of this is in the American Museum of Natural History, where the seated figure is examining a bone cap which he is about to place over the amputated stump. These caps are often depicted in dances, indicating a means of equalizing the length of the limbs. A most interesting relic of ancient parasitism is that seen in a pair of curious water jars where human figures are seen examining the soles of their feet which are covered with large rounded openings. At the present day there is a tick known as the "nigua" which infests sandy places and deposits its egg sacs in the bare feet of the Indians. If these egg sacs are not entirely removed serious results follow. The ancient water jars then depict the results of the removal of these egg sacs in ancient times. The archeological evidences of paleopathology are thus seen to provide a new and rich field of study. There have been occasional incursions into this territory, but the whole subject has never been adequately discussed.

Crinoid Tumors.—The swellings in crinoid stems, often termed "galls," indicate in some cases infections by parasitic worms; but the care with which the interpretation must be made is evident from the fact that Fig. 4 of my paper "Studies in Paleopathology," depicted as a crinoid tumor, is not a tumor at all, but a geode, as I suggested it might be. Geodes are very commonly formed in crinoid stems and often resemble these crinoid galls. Etheridge and Graff are the students who have described these

galls in ancient crinoid stems, but so far as I could discover true crinoid "galls" are not known from American deposits.

Ankylosed Atlas.—Skulls, with the atlas ankylosed more or less firmly to it, have been frequently described by writers on paleopathology who have ascribed the union to Spondylitis deformans. An examination of a series of skulls in the United States National Museum, however, proves conclusively that this phenomenon is not one of disease at all, but a question of developmental anomaly. Anthropologists are not yet clear as to the meaning of this ankylosis, but it is clearly not a pathological problem. It is true that absence of parts of the atlas may result in pathology, since the congenital absence of the anterior arch of the atlas may result in paralysis, by pressure of the odontoid upon the medulla.

The Origin of Disease.—Some paleontologists are of the opinion that disease arose coincidentally with animal and plant life on earth. Dr. John M. Clarke of Albany has suggested that the student of invertebrate fossils, which were the earliest types of animals, is seldom confronted by the obvious lesions such as are so frequently in evidence among the vertebrate remains. There have frequently been recorded lesions on the shells of brachiopods, cephalopods, and lamellibranchs, which may have been due to injuries to the mantle, caused more frequently by parasitic attacks than by external accidents. There have been many cases observed which have never been recorded, and often paleontologists, chiefly interested in the specific determination of the forms, have cast aside as useless the injured and diseased fossils. It is not unusual to find abnormal growths in the structure of the hinge line in the lamellibranchs, and occasionally in the development of such delicate organs as the calcified brachial

supports of the brachiopods. The network of the ancient glass sponges is often torn and repaired, lesions which are probably entirely accidental. Among the simpler forms of the earlier faunas, among which we may look for evidences of the origin of disease, pathologic conditions seem to be intimated by biological interdependence which may eventuate in total dependence or true parasitism. Examples of true parasitism are known from the Devonian. Dr. Clarke concludes: "It is, however, indicated from present evidence that the world of life, in the earlier stages of its history, was comparatively free of associations which might be construed as pathological except, of course, so far as the activity of bacteria is concerned. Here is a large and wide-open field of great interest and very important bearings."

Multiple Arthritis in a Mosasaur.—Mr. H. T. Martin of Kansas University has recently loaned me for study a nearly complete series of the left hallux of a large mosasaur, *Platecarpus*, from the Cretaceous of Kansas, showing extensive arthritic lesions in all the joints of the toe. The metatarsal is especially pathologic, flattened, shortened, necrotic and covered with a carious roughening. When compared with a normal metatarsal the pathology is very evident. Each successive joint is deformed, enlarged, necrotic, with the articular ends of the phalanges lipped, similar to the lipping observed in arthritis in human skeletons. This is the first known example of multiple arthritis in a fossil vertebrate. The primary lesion was doubtless at the metacarpotarsal junction. Whether the other lesions are to be regarded as metastases is uncertain. Microscopic study of the lesions will be made and the specimen will be more carefully described and illustrated later.

JEAN PAUL MARAT, PHYSICIAN, REVOLUTIONIST, PARANOIAC¹

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JEAN Paul Mara (the final "t" was added later) was born on May 24, 1743, in the village of Boudry, now in the Swiss canton of Neuchâtel, but then a fief of the Prussian crown. His racial stock—human breeds intermixed to make him—is unrecorded. His father, about whom little is known, migrated from Sardinia, and during his life worked at several occupations, being in turn a chemist, a designer, and a teacher of languages. His mother, of whom also little is known, had a French father. One of her neighbors evidently had a very bad opinion of her, because, when the Marats moved to Geneva, she sent after them an anonymous letter accusing Mrs. Marat of possessing a diabolical tongue, of being a most notorious liar, a woman of no character, and of having a husband who was a downright hypocrite and a canting humbug. The letter throws more light on the character of the writer than on that of Mrs. Marat, who was far from deserving such a castigation, while her accuser was, in theological language, possessed by a devil, or, in scientific language, so poisoned by the toxins of anger, that reason abdicated and uncurbed emotion ruled.

We possess little data as to Marat's family inheritance and in consequence are ignorant of the real causes of his being the man he was. We also know but little of the environmental influences to which he was subjected in childhood and youth. In later life he gave in the *Journal de la République Française* the following, almost wholly subjective, autobiographical account, which is to be taken with several grains, indeed many bushels, of salt. He writes:

¹ Read at the College of Physicians, November 6, 1918.

"Born with an impressionable nature, a fiery imagination, a hot, frank, and tenacious temperament, an upright mind, a heart open to every lofty passion, and above all to the love of fame, I have never done anything to pervert or destroy these gifts of nature, but have done everything to cultivate them.

"By an exceptional good fortune I have had the advantages of receiving a careful education in my father's house, of escaping all the vicious habits of childhood that enervate and degrade a man, of avoiding all the excesses of youth, and of arriving at manhood without having abandoned myself to the whirlwind of the passions. I was pure at the age of twenty-one, and had already for a long time past been given to the meditation of the study. The only passion that devoured my mind was the love of fame; but as yet it was only a fire smouldering under the ashes. The stamp of my mind had been impressed upon me by nature, but it is to my mother that I owe the development of my character. This good woman, whose loss I still deplore, trained my early years; she alone caused benevolence to expand in my heart. It was through my hands that she caused the succor that she gave to the indigent to pass, and the tone of interest she displayed in speaking with them inspired me with her own feelings.

"Upon the love of humanity is based the love of justice, for the notion of what is just comes from sentiment as much as from reason. My moral sense was already developed at the age of eight. Even then, I could not bear to behold ill-treatment practiced upon another; the sight of cruelty filled me with indignation, and

an injustice always made my blood boil with a feeling as of a personal outrage.

"During my early years, my constitution was very delicate; moreover, I never knew either petulance or obstinancy or the games of childhood. Docile and diligent, my masters obtained everything from me by gentleness. I was only chastised once, and the resentment at an unjust humiliation made such an impression upon me that it was found impossible to bring me again under my instructor's authority. I remained two whole days without taking nourishment. I was then eleven years old, and the strength of my character may be estimated from this single trait. My parents not having been able to bend me, and the paternal authority believing itself compromised, I was locked up in a room; unable to resist the indignation that choked me, I opened the casement and flung myself into the street; happily the casement was not high, but I did not fail to hurt myself seriously in the fall, and bear the mark on my forehead to this day.

"The shallow men who reproach me with being a 'tête' (obstinate fellow) will see from this that I was such at an early age; but they will refuse perhaps to believe that at this time of life I was devoured by the love of fame; a passion that has often changed its object at different periods of my life, but which has never quitted me for a moment. At five years of age I wanted to be a school master; at fifteen a professor; at eighteen an author; and at twenty a creative genius. This is what nature and the lessons of my childhood have made me. Circumstances and reflection have done the rest. I was reflective at fifteen, a thinker at twenty-one. At the age of ten I contracted the habit of a studious life; mental work had become a veritable necessity for me, even in illness, and my

greatest pleasures I have found in meditation."

He paints himself as perfect, a satisfied self-worshipper.

Almost no man, and certainly no one of histrionic temperament, ever writes of the



JEAN PAUL MARAT, born 1743, murdered 1793.

psychical experiences of his boyhood truthfully; he looks back at them through the mist of illusions of memory, is a victim of paramnesia, remembers things that never happened, because he has the will to believe in their reality, credits ideas, opinions, and emotions of his adult life to an earlier time. I doubt not, Marat described his early mental life, his psychical development, as he believed it to have been, but he so believed because he wanted such a boyhood; he was, to himself, his image of a hero, and as such he paints himself. To the psychiatrist what he wrote is valuable, because it reveals his nature all unconsciously to himself—the vanity of the man, his self-centeredness, his feeling of being persecuted, his feminineness in mistaking

feeling for thought, mistaking intuition, which is really emotional guessing, for ratiocination, and his worship of words. His writings so accurately portray his mental makeup, his temperament and character, that I have, at the risk of being almost unbearably boresome, quoted quite extensively from this source. In drawing conclusions, however, we, who are of British inheritance, must remember that in France, especially during the Revolutionary period, it was quite the proper thing not to be restrained, reserved, in talking or writing about one's self, but to take, or pretend to take, the hearer or reader to one's bosom. He may have been precocious, he probably was; but precocity means premature rotting as well as apparent premature ripening. Normal men do not believe that their moral sense was "developed at the age of eight," and do not boast of having thrown themselves out of windows at eleven because their parents punished them. Healthy children are not devoured by the love of fame.

Whatever Marat's heredity may have been, his parents were kind, and realized the value of education. Whether his home environment was of the wisest, we do not know, but in childhood and youth he certainly escaped the interference with his mental growth which many fear the American boy of the twentieth century will not escape. Outside, conditions probably were commonplace. At about his seventeenth year he left home to seek university learning, apparently with the definite idea of becoming a physician. This proves that he had qualities far above the average youth, but, like many another paranoiac in the making, he worshipped the tongue in action and measured professorial wisdom by the rapidity of the flow of words from the professorial mouth. He studied at Toulouse, Bordeaux, Paris, London, and in Holland. About 1765 he started to practice medicine in Church Street, London, and

remained there approximately twelve years. It is unknown when and where he got his first degree in medicine, but in 1775 he was granted a kind of honorary degree of doctor of medicine by the University of St. Andrews at the request of two physicians, Dr. Hugh James and Dr. William Buchan. It was not unusual to confer such a degree at that time, and the granting of it carried no connotation of distinction or eminence.

While in London he wrote much on scientific and philosophic subjects. His first work was "An Essay on the Human Soul" which he later expanded into "A Philosophical Essay on Man, or the Principles and the Laws of the Influence of the Soul on the Body and the Body on the Soul." Such books appeal to minds of a certain type and continue to be published, even in this day of assumed greater knowledge and wisdom. Another book was "The Discoveries of M. Marat on Fire, Electricity and Light," which received honorable mention and approbation from the French Academy. He published during the same period pamphlets on a "Singular Disease of the Eyes" and "An Essay on Gleets," both of which are wholly sane in manner and matter, but not in the least remarkable except for his boastful claim of ability to cure any case of gleet. Since, however, some physicians of our own day do not hesitate to admit the same belief in their infallibility without being accused of mental abnormality, we must not hastily draw conclusions about Marat.

The following extract from his philosophical essay is of interest as showing his scholastic viewpoint. He, as is quite natural when we consider the age in which he lived, accepts as correct the division of man into soul and body. In searching for the dwelling place of the soul, without, however, having first defined what the soul is, he concludes:

"Anatomists agree that we must look for the seat of the soul in the head; but

they are not unanimous as to what place it occupies in that part of the body. Some place it in the pineal gland, others in the corpus callosum, others again in the cerebrum; some in the cerebellum, and some in the meninges. But of these different opinions, the last one is well founded; for, if we trace the nerves to their entrance into the membranes of the brain, we shall find they confound themselves with the meninges, and form one simple uniform substance with them.

"Hence, if the nerves only are sensible and if the sensations are not continued to the soul by these organs, we plainly perceive that the meninges must be esteemed the seat of the soul. For as the membranes and their productions are the general organs of sensation of the body, its seat must be in that part where the concourse appears, viz., at the centre of all the organs of sensation: these membranes are this centre.

"Experience likewise daily confirms it; the slightest inflammation of the meninges occasions a delirium, and a temporary insanity. The irritation of the nerves, by the fumes of wine from drinking to excess, or by the fumes of tobacco, is followed by the irritation of the meninges, and the loss of reason; this never happens to any other part of the head.

"The substance of the cerebrum or cerebellum may be taken from a living animal without the soul's being instantly affected; and though the wounds of the centre of the brain, of the pineal gland, and of the corpus callosum sometimes injure the functions of the soul, it is not because the seat of the mind is in either of these parts, but because these parts secrete a fluid which is necessary to its operations, and by reason of the irritation which wounds in these parts communicate to the meninges. In these membranes Eternal Wisdom has placed the soul, and

united it to our organs by imperceptible bands; here it has fixed the seat of thought, of memory, and of will."

The following written years before he became a leader of the mob, is of interest when one considers his own conduct in later life.

"Such as are brought up in an excess of delicacy, and a continual habit of indulging themselves in every sort of pleasure, are not affected by the sufferings of others: their sensibility is constantly employed on themselves; they are altogether unconcerned about other beings, and their hearts are steeled against the sufferings of mankind. In proportion as this love of self increases, pity decays, and frequently becomes extinct. He who melts into tears at the distress of the unfortunate, were he his enemy, instead of alleviating would aggravate his misfortune.

"Nero, who wished he had never learned to write when pressed to sign the warrant for a criminal's execution, could delight in the murder of his enemies. This tyrant, who loudly bewailed the fate of Andromache as presented on the stage, could hear without emotion the cries of those he had doomed to destruction.

"Pity is destroyed by the passions; it is even generated in the heart only by prudent reflection, is nourished only by tender sentiments, and is wholly extinguished by the frequency of those objects which ought naturally to confirm it. Let us suppose a man has never heard anyone discourse on ideas of justice, goodness, clemency, and generosity; he must remain forever ignorant of the very names of those virtues.

"By a frequent attendance at those bloody feasts, which in some great cities are given by avarice to idleness, you will soon lose all sense of the strong emotions

you had hitherto felt at the cries of the mangled animals; in time you will hear them with pleasure, and wait impatiently for a repetition of them. By frequenting such scenes, the soul becomes callous to impressions, is unaffected by the prospect of human miseries, and insensible to every tender emotion. Do not these reasons prove that pity is not a native of the human breast?"

Voltaire, who certainly had a clear head and much learning, as well as a caustic wit, did not hold Marat in high esteem as an explainer of the universe. In one place Marat, giving himself up unrestrainedly as he had a habit of doing, to the enjoyment of fine writing, i.e., writing which is sonorous but meaningless, refers rather emphatically to thought making a man enjoy nothingness. Voltaire comments: "It (nothingness) is a great empire; reign there, but insult a little less those who are something." Marat said Voltaire's contemptuous attitude was caused by grief at seeing himself put in his proper place in the "Essay on Man." This little incident is an example of how small a thing may throw a bright light on a man's nature. Marat believed he had a much greater intellect than Voltaire.

His first political book, entitled "Chains of Slavery," "a work wherein the clandestine and villainous attempts of princes to ruin liberty are pointed out and the dreadful scenes of despotism disclosed," was published in 1774. Its purpose was "to secure the triumph of liberty in England," "to paint the inestimable advantages of liberty, the frightful evils of despotism." The title, which is too long to quote in full, is suggestive to the psychiatrist, because political paranoiacs of the book-writing class are prone to long descriptive titles, and revel in the words despotism, villainy, liberty, tyranny, and such phrases as "the people's friend," "the wickedness of kings," "the sinfulness of the rich," and the like. Every

collection of such books shows a family likeness in all the title pages. In describing the making of the book he says—and I quote him verbatim—he devoured thirty volumes, worked twenty-one hours a day for three months, and kept himself going by drinking excessive quantities of coffee. Like many of the writers and teachers of the newer sociology of today, he imagined that all that is necessary to become an expert on any subject is to read some books, take pen, and let the ink flow. Such men lack the ability to meditate, they do not know what meditation means: it is outside their world. Immediately on completion of the book he fell ill became stuporous, dazed, lost all power of memory, and was miserably weak physically. He recovered in thirteen days "by aid of music and repose." It is noteworthy, in the psychology of authorship, that men who make great, fundamental discoveries in science, or who by their writings on political matters help this poor old world along to wherever it may be going, are not broken by their labors and never become hysterical or histrionic, while the gentlemen who continuously, in print or on the platform, protest their love of the people, without ever in any way helping us by good deeds, are very prone to hysterical disorders. We have had illustrations of this in our recent political history, in men who have bulked momentarily large in the public eye. The explanation is simple: such men overwork their emotions and think they are overworking intellect; they are feeling, not thinking animals. The real thinkers are not troubled by unruly emotions concerning the things they write about, and have other outlets for their emotions.

Light is thrown on Marat's mental nature by his description of his troubles, many of them largely imagined, but all having a foundation of fact, in getting "The Chains of Slavery" printed. The book was written to show the wickedness of Lord North and his administration of the British Govern-

ment. It never entered Marat's head, so convinced was he that he was a savior whose mission was to free unconscious slaves, that the English people might regard it as an impertinence, if indeed the mass of them thought of the matter at all, for an unknown and rather ignorant foreigner to attempt to advise them how they should govern their country. He was astonished that when he offered the book to the printers no one cared to publish it. Several gave no reason; but one, Woodfall, suggested that the introduction was of a nature to give offence in powerful quarters. This explained matters to Marat; the printer, he was convinced, was bought up. The fact that the Prince of Wales' bookseller wished his name struck off the list of subscribers, strengthened his belief in a conspiracy. Marat tells us he "became heroic." He slept for six weeks with a brace of pistols under his pillow, in order that he might receive in proper fashion any minion of the state who might be sent to seize his papers. Notwithstanding his preparations nothing happened, and he concluded that the British government, having learned of his determination to protect his papers even by gunfire, had decided to use cunning instead of brute force. Finding publication in the ordinary way impossible, he decided to send copies to the so-called patriotic societies in the north of England. But, as he believed, Lord North heard of this, surrounded him with spies, tried to corrupt his servants and his landlord, intercepted his family letters, and indeed used the whole governmental machinery to stop the circulation of the book. Marat then determined to put the government off its guard by disappearing. He accordingly went to Holland and immediately returned to the north of England, where he visited all the patriotic societies, this bit of childish cunning being, in his opinion, enough to mystify all the English spies and detectives. All of the societies gave him the civic crown, and one even

insisted on contributing to the cost of printing the book which Marat believed the British government had spent eight thousand guineas in suppressing. The only comment one can make is that though Lord North may not have been, indeed was not, the wisest of men, and certainly was more than unfriendly to Marat, he was not the sort of man to value Marat at any such price. He may have spent eight thousand shillings of the taxpayers' money in the suppression of free speech by Marat, but it is doubtful. If he did he wasted money.

In 1777 an incongruous event happened in the life of him who was later to be self-styled "the people's friend." He became physician to the *Garde du Corps* in the Comte d'Artois' household. Writers who do not approve of him state incorrectly, and rather maliciously, that his real position in the household was that of a horse doctor. Having obtained the position, he desired to prove his own right of nobility, feeling he properly belonged to the same class whose company he was keeping, and he wrote to the chief of the heraldry office about the matter. The hater of despotism and the believer in the equality of men took service under an aristocrat of the first water and wanted the bauble of nobility himself. He doubtless held with Emerson, before Emerson was born, that consistency is the bugbear of little minds. He retained this position till 1786. Meanwhile he wrote much on scientific subjects—on light, fire, electricity, optics. None of these writings are remarkable and they did not aid the progress of science in any way. He did, however, at that time, have a real desire for knowledge. His scientific and medical writings were not a pose, but were honestly written by a man interested, and somewhat trained, in scientific matters. His own opinion of his position in the world of science is revealed by him in the following quotation: "Calumny has flown from Paris to the Escorial to blacken me in the mind of a great king

and an illustrious Maecenas. Who are my detractors? Envious cowards, the numerous crowd of whom does not cease to devote itself to my destruction—modern philosophers, hidden under anonymity or false names in order to defame me. Scarcely had I attained the age of eighteen, when our pretended philosophers made various attempts to drag me into their party.” He was sure one of his books was prohibited in France because certain French philosophers were envious of him. What he thought of himself as a physician the following quotations will show. “Many sick persons,” he says, “of distinguished rank, who were despaired of by their physicians, and to whom I had restored health, joined with my friends in endeavoring to induce me to fix my abode in the capital. I acceded to their persuasions; they promised me fortune, I have found only outrage, annoyance, and trouble.”

“The fame of the surprising cures I have made,” he continues, “drew to me a prodigious crowd of sick people; my door was continually assailed by the carriages of persons who came to consult me from every quarter. As I exercised my art as a physician, the knowledge of Nature gave me great advantage, no less than my swiftness of eye and accuracy of touch, and my multiplied successes caused me to be called ‘the physician of the incurable.’ . . . My successes gave umbrage to the doctors of the Faculty, who calculated with sorrow the big amount of my profits. [I may say parenthetically, he never made any money, never tried to, was careless about money and financially honest. He died almost penniless.] They consoled themselves by forming a project to dry up their source. I could prove, if need be, that they held frequent meetings to consider the most efficacious means of slandering me. Henceforth, calumny spread in every direction, and anonymous letters reached my patients from all sides

in order to alarm them with regard to me. A large number of persons, whose friendship for me is founded on esteem, took up my defence, it is true; but their voices were drowned by the clamour of my opponents. All these facts are matters of public notoriety.

“Disgust, inseparable from the practice of medicine, made me sigh more than once for the retirement of the library; I then gave myself up entirely to my favourite studies. Could I have foreseen that I was to make for myself a new cause for envy?”

His opinion of himself as a statesman, and a partial catalogue of his acts, is shown in the following quotation:

“All that a man of sense and a man of heart could do to save his country I have done to defend mine. Alone and without support, I have fought for two whole years against the commissioners of sections, the municipal administrators, the chiefs of police, the courts of justice, the tribunal of state, the government, the prince, the National Assembly itself, and often with success. I have exposed the black designs of the court, detected its snares, its artifices, its plots; I have disconcerted the conspirators, prepared the fall of Le Châtelet and brought about that of an adored minister. I have unmasked the Parisian general, raised the army and the fleet against their despotic chiefs; more than once I have compelled venal committees to resign, to suspend or to revise their projected decrees; I have struggled against oppressors of every kind; I have rescued a hundred thousand victims from judicial tyranny. More than once I have made the tyrant on his throne turn pale, and dismiss his frightful agents. Always in arms against the traitors to the fatherland, indignant at their crimes, and shocked at their atrocities, I have torn away their masks, I have made a

spectacle of them, their impostures, their defamations; I have braved their resentment, their fury. Exposed to their wrath, I have been pursued again and again by the ministers and the municipal administrators. Twenty military expeditions directed against me, and a whole army mobilized to tear me away from the people, have only increased my audacity. A price has been put on my head; five cruel spies put on my tracks, and two thousand assassins, paid to slay

“This kind of life, the mere recital of which freezes the most callous heart, I have led for eighteen long months without one moment complaining, without once asking for rest or recreation, without heeding the loss of my health, of my estate, and without blanching at the sight of the sword always pointed at my heart. What do I say? I might have been advanced, caressed, fêted, if I had been willing merely to keep silent, and how much gold would have been lavished upon



MARAT as the firebrand of the French populace.

me, have not for an instant succeeded in making me betray my duty.

“To escape the steel of the assassins, I have been obliged to betake myself to a subterranean life; hunted out from time to time by batallions of alguazils, compelled to flee, wandering through the streets in the dead of night, and often not knowing where to find refuge, in the midst of weapons pleading the cause of liberty, defending the oppressed with my head on the block, and thus growing ever more redoubtable to our oppressors and the public rascals.

me if I had been willing to dishonor my pen. I have repulsed the corrupting metal, I have lived in poverty, I have preserved my heart pure. I might have been a millionaire today if I had been less scrupulous and if I had not always forgotten myself.

“But I am going to abandon to my creditors the remains of the little which I have left, and without money, without assistance, without resources, I shall betake myself to vegetate in the only corner of the earth where I may still breathe in peace. Preceded by the clamors of cal-

umny; defamed by the public rascals whom I have unmasked, loaded with the curses of all enemies of our country, abhorred by the great and by men in power, and set down by all ministerial cabinets as a monster to be stifled, perhaps I shall be forgotten by the people to whose advantages I have immolated myself; happy if the regrets of patriots accompany me; but I take with me the honorable testimony of my conscience and I shall be followed by the esteem of mighty spirits.

“However frightful may have been my fate during my long captivity, and however sad the prospect that opens before me, I shall never regret the sacrifices that I have made for my country or the good that I have wished to accomplish for humanity. I have fought without ceasing till this day, and I have not deserted the post of danger till it was taken by storm. If there is in France a single man of insight and determination who dares to reproach me with having too soon despaired of the public safety and with a lack of constancy, let him take my place and retain it for only a week.

“Citizens, I ask of you neither regrets nor gratitude—do not even preserve the memory of my name; but if ever some unexpected turn of destiny brings you victory, remember to make it assured by taking advantage of your success, and never forget, to assure your triumph, the advice of a man whose life was devoted to establishing among you the reign of justice and liberty.”

I have quoted so largely from Marat because the man is revealed in his writings. In all the quotations, though there is in every statement an element of truth (he was an important revolutionist, he did break many men in political life), there is shown pathological suspicion, a tendency to find evil in all men who would not follow his

leadership, a total inability to measure himself correctly, intense egoism and megalomania. Political biography does not reveal any man who more strongly believed in government by murder than Marat. He was not a hypocrite, but firmly believed that the whole art, craft and mystery of statesmanship consisted in enraging the populace so that they would destroy.

Though “The Chains of Slavery” was written in 1774 and the first edition of “A Plan of Criminal Legislation” in 1780, it was about 1788 or 1789, the year of the fall of the Bastille, that he became a politician pure and simple and proceeded to attempt the task of saving humanity by preaching killing. He was a product of Rousseauism—Rousseauism filtered through a paranoiac brain.

I have not time to recite the political doctrines of Marat. Everyone knows them. He spread them by orations and by his paper, *The Friend of the People*. The people, according to him, meant only the propertyless and those without any occupation. They alone had the right to govern and to own, because, according to his philosophy, they alone produced and originated all wealth. He made each difference of political opinion the occasion of a personal quarrel. If anyone disagreed with him that person was a scoundrel, a criminal, a murderer; he could not conceive that any man might hold views unlike his own and yet be honest. He had almost no friends, though many followers, and his judgment of men was almost always wrong. For example, on Mirabeau’s death he wrote: “People, give thanks to God. Your most redoubtable enemy has fallen beneath the scythe of fate. Riquetti is no more; he dies a victim of his numerous treasons, victim of his atrocious accomplices. . . . Adroit rogues, to be found in all circles, have sought to play upon your pity, and already duped with their false discourse you regret this traitor as the most zealous of your defen-

ders." This is his sincere opinion of a statesman whom sane Frenchmen had hoped would live, knowing that he alone could chain the wild men and thieves who were ruining the country. Marat had no conception of constructive statemanship; all his opinions were destructive and hence he could not in any degree comprehend a man of Mirabeau's type. Mirabeau knew that there are natural political laws, just as there are natural physical laws. Marat could not conceive this. Though he had been trained a little in natural science, his intellect was not of the kind that could really form a conception of the meaning of a natural law. He could not conceive inevitability. Mentally, in his earlier life in many ways he resembled the sentimental sympathizers with Bolshevism who are to-day making so much noise in America. It is noteworthy that almost all the American born among them have led shielded lives, have never been in contact with the realities of life, have never had to work (their fathers did that for them); the women advocates have failed in woman's first and natural function. Among the foreign born are internationalists, parasites, and those who left the countries of their birth for their countries' good.

It is not easy to discover much about his physical appearance. No one has given an unbiased, unemotional description. Carlyle, who was not a historian, but a master of a certain dramatic style, an artist, and who thought, probably correctly, that truth is greater than fact, describes him as a "large-headed, smoke-bleared, dwarfish individual with blue lips." A contemporary says he was five feet high, with bow legs, a very large head, and aquiline nose. Fleischmann, a recent writer, says he had brilliant eyes, full of fire, and as one cheek was higher than the other the two eyes were not in the same horizontal line. Madame Roland, an unfriendly and contemporary witness, relates in her memoirs that his open shirt

showed a yellowish chest and that his long finger nails were filthy and his face hideous. Dr. John Moore, a sane observer, who traveled in France during the Revolution and saw him many times, says, "Marat is a little man of a cadaverous complexion, and a countenance exceedingly expressive of his despotism: to a painter of massacres, Marat's head would be inestimable. Such heads are rare in this country [England], yet they are sometimes to be met with at the Old Bailey." With one quality which under most circumstances all men praise, Moore credits Marat, but damns him for it. He writes: "This man certainly possesses a great deal of courage both personal and political. No danger can terrify him, nothing can disconcert him: his heart, as well as his forehead, seems to be made of brass."

From about 1789, he suffered continually from a skin disease which caused an agonizing pruritus. The only relief he got was from a continuous bath, and much of his writing was done while bathing. Cabanès, who made a very careful study of him, concludes his skin disease was eczema, that he was hypochondriacal, had insomnia and constant headaches and that all his mental peculiarities were largely bound up with his bodily suffering. Dr. C. E. Wallis quotes Dr. Graham Little as being of the opinion that the skin affection was probably a dermatitis herpetiformis, on the ground that the irritation and pain from which he suffered were alleviated by sitting in a bath of water, whereas eczema itself would have been aggravated by contact with water. Whatever his skin disease may have been, the agony of the pruritus was intense, and for years he had no relief save when in his tub. He stayed in it for hours, worked in it and was killed in it.

A word about his murder. Charlotte Corday, a woman lacking three months of twenty-five years of age, murdered Marat on July 4, 1793. Her life contains nothing of interest save her one act of crime, which

she believed to be an act of heroism. She was the daughter of a rather decayed gentleman, and at the time of the Revolution was living in Caen. She read with all the fervor of the time Plutarch, Rousseau, and Voltaire, and conjured up in her mind a picture of the Roman Republic such as never existed. She hoped that France would soon be a modern antique Rome. She was in sympathy with the Girondists whom Marat hated. She went to Paris, bought a knife, visited Marat while in his bath, spoke a few words and stabbed him, making a wound "between the first and second rib, traversing the upper part of the right lung as well as the aorta, and going into the left clavicle." He died. She tried to escape, or did not, according to whether you believe anarchists or sane men. She was made to confront the corpse at midnight. She bore the ordeal well, indeed was quite heroic, and said: "Yes, it was I who killed him." She was guillotined. Meanwhile the mob made a God of Marat, and then, after the fashion of the mob, very soon ceased to worship, in order to curse and destroy all memorials in his honor.

Where should Marat be placed in a psychological classification of men? Paul Lacroix, some fifty years ago, wrote: "There were two Marats—the Marat who is known to everyone, and the other Marat whose existence no one at the present day suspects: the one was the pupil and admirer of Rousseau, the lover of nature, the learned author of many discoveries worthy of mention in chemistry and physics, the energetic and brilliant writer who produced a book of philosophy worthy of the philosopher of Geneva—the one who wrote only scientific, philosophical, and literary works; he was a doctor in the Comte d'Artois' body-guard; he died, or rather he disappeared, at the end of the year 1789, to give place to his namesake." G. Edward Wallis, in his interesting little pamphlet, explains him by the same assumption of two personali-

ties: (1) the one, that of a scientist and philosopher, who died in 1789: (2) the other that of a fanatical journalist, pamphleteer and demagogue.

Dr. Cabanès seems to believe that his mental peculiarities were very largely the result of his physical ill health. Many of his contemporaries, not only physicians but also men of business and of affairs, solved the problem by the diagnosis of simple lunacy. A few writers of recent date, men in sympathy with his ideas, claim that far from being an insane man, he was a political genius; but one must not take them too seriously, because they are living in a mental world so topsy-turvy and in a moral world so vacuous that they regard crime as being proof of moral independence, and clear thinking as evidence of lack of mind.

Lacroix and Wallis's theory of two personalities is figurative rather than a statement of scientific fact. His case was not one of double personality. There was no break in his personality, no sudden change in his character. His behavior changed, not because he changed, but because the stimuli acting on him changed. He began to be political while still practicing medicine and many of his peculiarities, especially his megalomania, are shown even in his medical writings. As always happens in true paranoia, there was a long prodromal period, and it took years for his insanity to come to its fruition.

I cannot altogether agree with Cabanès. Pruritus, no matter how severe or how continuous, cannot cause the clinical picture that Marat presents. It is possible, however, that the pruritus was only an external manifestation of some disorder of metabolism, which acted not only on the nerve endings in the skin, but also on the cerebral cortical cells. This, of course, is purely hypothetical; but the mystery of mental abnormality surely will be explained on physical grounds. Many writers speak of his head as being monstrous in comparison

with his height, which was less than five feet. He may have been hydrocephalic, or may have had some disorder of his pituitary gland leading to abnormal bony development, though his facial bones and hands do not indicate this (he was not acromegalic), and associated with it there may have been a congenital tendency to mental abnormality. He did not have the goodnatured temperament usually found accompanying disease of the pituitary body. The whole matter of the relation of the ductless glands to mental function is in a nebulous state; but the twentieth century may see proven that what one's attitude toward life is, how one explains the riddle of the universe, how one behaves, may depend in some degree on little glands that not so long ago were regarded as vestigial.

I have said there is not time to describe his political life and opinions. We must, however, pay some attention to them. He started his paper, *The Friend of the People*, at the beginning of the Revolution. He used it solely to abuse pretty nearly everyone, not only the king, the ministers and the nobles. He preached not revolution alone, which would have been entirely sane, but murder and general theft. He took a large part in arranging the proceedings of the mob of women who went to Versailles and brought the king to Paris. He urged the soldiers to murder the officers. Several times he was denounced, but always escaped by flight or hiding. In 1790 he was denounced, but the Cordeliers rescued him. Lafayette laid siege to his home, but he found asylum with an actress friend. In the same year, he proposed a law to the Assembly, that "eight hundred gibbets ought to be erected in the Tuileries to hang all traitors, beginning with the elder Mirabeau." It failed to pass. He hated the Gironde party. He was one of the organizers of the massacres in the prisons—a butchery which Robespierre continued under shadow of law. He boasted that a dictator was

needed and that Robespierre was the one fit man. He declared that it was necessary to guillotine 270,000 people in order to free France.

The gentlemen who regard him as a political genius, e.g., the sincere members of the Bolshevik party of to-day, not only in Russia but also in this country, are themselves mentally abnormal. He is not the only lunatic in history who has had a following during life and after death.

Let us sum up his life and see whether we have data enough to classify him. The test of a man's sanity is his behavior; behavior being the visible signs of mental reaction to stimuli. When it is in consonance with the time in which and the place where a man lives, his local environment, his racial and his family inheritance, and his formal education, he is sane. Of Marat's ancestral history we know nothing. We know, too, little of his parents to form a judgment as to whether they were wholly normal or not. They surely were not noticeably abnormal and his young life was passed happily. It is true that his father worked at many different things in at least three countries, and though this makes us think of the possibility of his lacking fixity of purpose, it does not prove it.

The time in which Marat lived determined the twist his mind was to take. Had he been living in America a generation ago he would have been an ardent, I will not say disciple, but rival of the leader of the Populists; to-day he would, if living in America, be a chief among the anarchists of the east side of New York, and probably would be making speeches before admiring audiences of gentle male and female feminists, with soft hands and softer heads, who think they are broadening their minds by listening to arguments in proof of the righteousness of murder, he meanwhile wondering how soon his real associates would get a chance to string his audience and all their relatives to nearby lampposts.

The French Revolution was brewing many years before it came to a head, and Marat lived in an atmosphere of moral unrest and intellectual turmoil. But environment, like all exciting causes, requires a favoring soil or it will not produce insanity. The soil is the protoplasm as it exists in germ cell and sperm cell at conception. Was the soil of Marat's personality, his protoplasm, favorable to the growth of mental disease? Undoubtedly, yes. He, as a youth, became saturated with the doctrines of Rousseau. Boys of other types react in other ways toward such doctrines, most of them merely negatively, not having understanding, while a few, those having real intellectual acumen, can see and have sympathy with the portion of truth mixed with Rousseau's emotional idealism. He had great, indeed, overwhelming ambition, mediocre intelligence, infinite conceit, was very emotional (like the murderer who weeps to see a fly killed), had no real sense of justice, was a worshipper of the god Gab, and was entirely selfish. He had a little undigested learning, but no power of reasoning. He lived in a wild time, when the crooks and the cranks led the imbeciles, of whom there are many in every country, to wholesale murder. Marat wanted to be a leader. He believed that he could rule the country if only enough people were killed. He was shrewd enough to know, that if he shouted long enough and loud enough that he was the people's friend, many would believe and follow him. His creed was simple—all that the rich own belongs to the poor because they stole it from the poor. His theory of government was equally simple. If you do not agree with me you are not a patriot; if you are not a patriot the proper punishment is death. Therefore we will kill everybody who disagrees with us, and then we will have the millennium, the brotherhood of man. So he justified himself, and as time went on his murder-lust increased. His creed, thus far, would be interpreted by many as indicating criminality,

not insanity; but this opinion is unjust to him.

An important and unquestionable symptom of mental disease was his delusion of persecution. From the time of publishing his "Chains of Slavery" till his death, he was the victim of this delusion. True, he had many real enemies in the Revolution who would gladly have killed him, but everyone, the English cabinet, philosophers, men of science, everybody, was, from his point of view, intriguing against him, preventing his success in medicine, stopping by conspiracy the sale of his scientific works, keeping him from political power, just because they envied him. Another symptom was his megalomania. Statecraft, which the wisest men of all the ages have been struggling to master, he comprehended intuitively, with an infallibility of judgment equal to that of a god. Lacking all power of reasoning, of examining the facts of any question, weighing them and then drawing conclusions, he imagined he was a political genius, and more, a saviour of the people.

He belongs then among the insane, and is an example of paranoia of the political type. He presents the cardinal symptoms of paranoia, intense egoism, delusions of persecution, and an angry grandiosity. He has a common secondary symptom, viz., unlimited verbosity, the matter of his speeches being always the same, the wickedness of his persecutors, his own virtue, wisdom, and unselfishness. He had the paranoiac's intensity of manner in speaking, and the tremendous verbal diarrhoea which deceives the common man, who, overwhelmed by the cataract of talk, goes home feeling that the orator must be a profound thinker because he talks so well.

His moral code was wrong, and yet like all paranoiacs he regarded himself as virtuous. It was not a hypocritical pose. His career was cut short by Charlotte Corday, but some of his sane contemporaries say he would have been locked up as a madman in

a short time had he not been killed. They were right, because his obsession of persecution was growing stronger and stronger every month in the latter part of his life.

The alternative would have been the guillotine, which his political enemies would not have hesitated to use when infuriated by some special act of violence.

GRAVES AT SEA

Here I shall detail an anecdote of value, as furnishing an insight into the character of the man, and as it prepares us for understanding that feature in his after-life for which he was justly distinguished—namely, his collectedness of mind and vigour of action in cases of difficulty and danger. He had embarked at Genoa, in a brig bound for Sicily. The captain and crew were Sicilians, and there were no passengers on board but himself and a poor Spaniard, who became his companion and messmate. Soon after quitting the land, they encountered a terrific gale from the north-east, with which the ill-found, ill-manned, and badly commanded vessel soon showed herself unable to contend. The sails were blown out of the bolt-ropes, the vessel was leaking, the pumps choked, and the crew, in despair, gave up the attempt to work the ship. At this juncture, Graves was lying on a couch in the cabin, suffering under a painful malady, when his fellow passenger entered and, in terror, announced to him, that the crew were about to forsake the vessel; that they were then in the very act of getting out the boat; and that he had heard them say, that the two passengers were to be left to their

fate. Springing from his couch, Graves flung on his cloak, and, looking through the cabin, found a heavy axe lying on the floor. This he seized, and, concealing it under his cloak, he gained the deck, and found that the captain and crew had nearly succeeded in getting the boat free from its lashings. He addressed the captain, declaring his opinion, that no boat could live in such a sea, and that the attempt to launch it was madness. He was answered by an execration, and told that it was a matter with which he had nothing to do, for that he and his companion should remain behind. "Then," exclaimed he, "if that be the case, let us all be drowned together. It is a pity to part good company." As he spoke, he struck the sides of the boat with his axe, and destroyed it irreparably. The captain drew his dagger, and would have rushed upon him, but quailed before the cool, erect, and armed man. He then virtually took command of the ship. He had the suckers of the pump withdrawn, and furnished by cutting from his own boots the leather necessary to repair the valves. The crew returned to their duties, the leak was gained on, and the vessel was saved.

WILLIAM STOKES (1854).

AN APPRECIATION OF HENRY BENCE JONES, M.D., F.R.S.
(1814-1873)

By JACOB ROSENBLOOM, M.D., Ph.D.

PITTSBURGH, PA.

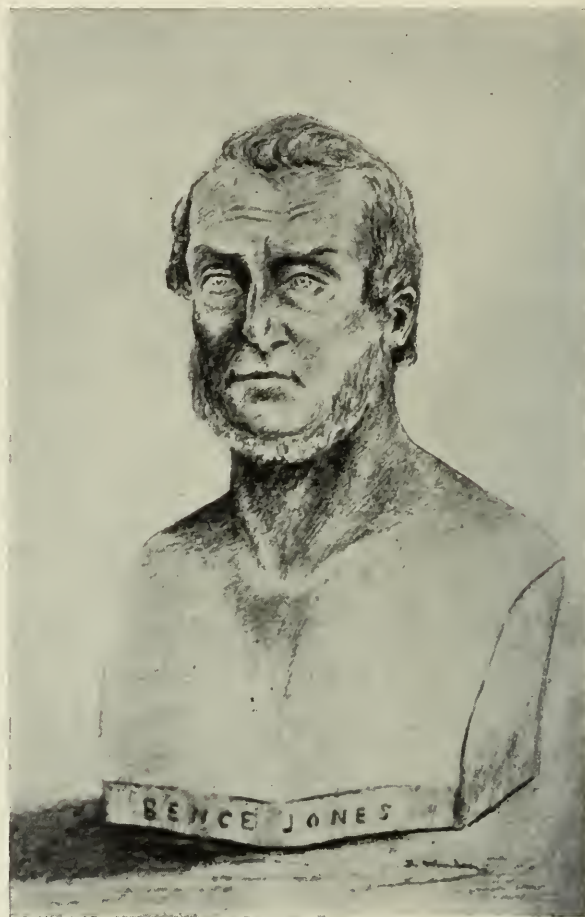
IT is now just forty-six years since Henry Bence Jones died, forty-six years in which wonderful progress has been made in that subject which was so dear to this man. He was one of the first men of our present era in medicine to value chemistry as an aid in the explanation and cure of disease.

He was born in England. William Bence Jones, the Irish agriculturist, was a brother. At twelve years of age he went to Harrow and at eighteen entered Trinity College, Cambridge. He graduated with the degree of B.A. in 1836, M.A. in 1842, M.B. in 1845, and M.D. in 1849.

On leaving Cambridge he studied medicine at St. George's Hospital in London, and chemistry with Thomas Graham at University College. In 1841 he went to Giessen and studied chemistry with Liebig, to whom he was always attached by bonds of friendship and respect because of Liebig's wonderful work. He became licentiate of the Royal College of Physicians in 1842, fellow in 1849 and was afterwards senior censor. In 1842 he married his cousin Lady Millicent Acheson, daughter of the second Earl of Gosford. In 1846 he became a fellow of the Royal Society and was from 1860 till almost the end of his life, secretary of the Royal Institution. In 1846 he was elected full physician to St. George's Hospital, resigning in 1862. He died at his home in Brook Street, Grosvenor Square, London.

Henry Bence Jones was an accomplished physician and acquired a large and remunerative practice. He was very well acquainted with the scientific men at home and abroad—a warm friend and admirer of Michael Faraday, whose life he wrote in two splendid volumes, and the physician and friend of Huxley. In Huxley's auto-

biography he states: "In April another good friend, Bence Jones, lent the invalid (Huxley) his home at Folkestone for three months." Darwin was also a friend and



Pencil sketch of HENRY BENCE JONES from the bust that stands in St. George's Hospital, London.

patient. In the "Life and Letters of Charles Darwin"¹ the following passage discussing Jones's diet treatment is found: "The year 1865 was again a time of much ill-health, but towards the close of the year he began to recover under the care of the late Dr. Bence Jones who dieted him

¹ "Life and Letters of Charles Darwin," vol. ii, 215.

severely and as he (Darwin) expressed it "half starved him to death."

Herbert Spencer was also a friend. In Spencer's "An Autobiography,"² he states: "Speaking of drugs, Bence Jones said that there is scarcely one which may not under different conditions produce opposite effects." Spencer also states that Bence Jones approved of the bed for invalids which he had invented.

Helmholtz³ had a great deal of respect for Bence Jones. In speaking of his trip to London, he says: "In the first place, I went to see Bence Jones, physician, physiologist, and chemist, hoping to get news of du Bois Reymond and of the chemist Hofman. But he had gone off to du Bois' wedding. In the evening I dined at seven with Dr. Bence Jones. Bence Jones is a charming man. Simple, harmless, cordial as a child and extraordinarily kind to me."

Bence Jones was also physician and friend of the celebrated chemist, A. W. Hofman. In the Hofman memorial lecture⁴ the following incident was narrated: "One day when Hofman was going his usual rounds in the general laboratory of the Royal College of Chemistry, a student standing not far from him poured a quantity of concentrated sulphuric acid into a thick glass bottle he was holding in his hand which contained a small quantity of water. The consequence was that the heat evolved caused it to crack and the bottom to fall out. Some of the acid splashed up from the floor into Hofman's eye. He had to be kept in a dark room for several weeks and during this time his old friend, Dr. Bence Jones, attended him."

Jones was also a friend of Benjamin C. Brodie, as is shown by the accompanying reproduction of an autograph of the late Sir Benjamin C. Brodie inscribed in his autobiography which is in my possession.

² Herbert Spencer: "An Autobiography," vol. ii, 106 and 174.

³ Koenigsberger: "Life of Helmholtz," 109.

⁴ Perkins: *Proc. Chem. Soc.*, Lond. 1893.

I have found an interesting story of consultations held in Bence Jones's time, in a recent book.⁵ The anecdote is told by Sir T. Clifford Albutt. "Many years ago in the days of my studentship at St. George's Hospital, a case came under my notice which I see as vividly as if the patient were still before me. A man of some thirty or thirty-four years, of vigorous frame and apparently of vigorous constitution, lay propped up in bed in extreme agony. He complained, when he could whisper to us, of intense retrosternal pain, never absent, indeed, but returning upon him in paroxysms. The pain radiated about the shoulder or shoulders, whether it extended lower down the arm I cannot remember. The respiration was restrained in dread. There were no physical signs to betray the presence of the disease within. What I vividly recall as if burnt into my mind, is the aspect of the man, bound on a rack in the presence of death, and yet, for the agony at the centre of his being unable to cry out. Consultations were held but to little purpose, save to certify that the case, if one of angina pectoris, was a strange one, because of its continuous if still paroxysmal character, and because of the fever with it. Bence Jones, whom no man exceeded in brilliancy

Dr Bence Jones.

from B C Brodie.

with his kind regards.

Oxford April 1865.

and rapidity of diagnosis, declared for acute aortitis. The patient died suddenly soon afterwards, and the necropsy justified Bence Jones's opinion. On the inner surface of the ascending aorta were groups of gray semi-translucent patches disfiguring the walls of

⁵ "The Sensory and Motor Disorders of the Heart," by Alexander Morison, 1914, 91.

the slack and dilated vessel; and let this be carefully noted—no other cause of death could be discovered. The heart and coronary vessels were healthy.”

As a physician it has been said that Bence Jones's chief characteristics were, “Scientific truth, accuracy, and a dislike to empiricism.”

During the last years of his life he suffered great bodily weakness and at times had a little irritability of manner no doubt due to his physical ailment. As a rule he was cheerful to the last and interested in the progress of the Royal Institute and of science. His bust stands in the Royal Institute and in St. George's Hospital, London.⁶

The catalogue of the Royal Society shows thirty-four scientific memoirs credited to Bence Jones. He was the first to describe the occurrence of xanthine in urine⁷; the priority of describing alkaloidal substances in animals is claimed by Dupré and Bence Jones.⁸ They described an alkaloid which

they separated from the solid and liquid tissues of animals and named it “animal quinoidine.” He was the first to describe that very interesting substance occurring in the urine, since known as the Bence Jones protein.⁹

Bence Jones's first scientific memoir was “On a cystic oxide calculus.”¹⁰ Besides these memoirs, he was the author of the following books: “Gravel, Calculus, and Gout; the Application of Liebig's Physiology to These Diseases,” 1842; “On Animal Electricity, Being an Abstract of the Discoveries of Emil Du-Bois Reymond,” 1852; “The Chemistry of Urine,” 1857; “Lectures on Animal Chemistry in Its Application to Stomach and Renal Diseases,” 1850; “Lectures on Some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics,” 1867; “Croonian Lectures on Matter and Force,” 1868; and “Life and Letters of Faraday,” two volumes, 1870.

⁸ *Proc. Roy. Soc., Lond.*, xv, 73; *Ztschr. f. Chem.*, 1866, 348.

⁹ *Proc. Roy. Soc., Lond.*, 1843, v, 673; “Animal Chemistry,” 1850, p. 108; *Trans. Roy. Soc., Lond.*, 1848, i, 55.

¹⁰ *Med.-Chir.Tr. Lond.* 1840.

⁶ *Obituaries: Ber. d. deut. pharm. Gesellsch.* 1873, vi, 1585; *J. Chem. Soc., Lond.*, 1874, xxvii, 1201.

⁷ *Quart. J. Chem. Soc., Lond.* xv, 78.



THE FINANCES OF FELIX PLATTER, PROFESSOR OF MEDICINE AT BALE¹

By CHARLES GREENE CUMSTON, M.D.²

GENEVA, SWITZERLAND

A BIT more than a century ago—to be exact, in the year 1814—the learned Pierre Bridel published the accounts of Felix Platter of income received from 1558 to 1612, that is to say, for the space of fifty-four years. As this document was published in the lay press (*Les Etrennes Helvétiques*, 1814), it occurred to me that it might not be devoid of interest to bring it before the medical profession.

These accounts were found among the papers of the Bâle professor, and are remarkable not merely for their detail, but because they enlighten us on the domestic economy of the epoch when they were computed. They show the income derived from the practice of a celebrated professor of medicine, the sums obtained from his botanical garden, likewise from his silk-worm industry (the first endeavor in this line made in the Canton of Bale), and even the price of canary birds.

I here transcribe *in extenso* the accounts. Let me just say that the Bâle pound of the epoch was worth 12 Bâle batzen. Now, a batzen possessed, at the time, the monetary value of twelve cents, therefore the Bâle pound was worth \$1.44. This having been explained, let us examine Platter's total income for fifty-four years, and up to within two years prior to his demise.

An estate of £120,020 was a formidable one for the epoch, as the purchasing value of money in those days was probably at least five times greater than at present.

Felix Platter was born at Bâle in 1536, studied medicine in his native town, and

¹ Communication made to the Medical Society of Geneva, May 7, 1919.

² Privat-docent of the History of Medicine at the University of Geneva; Vice-President of the Section of the History of Medicine of the Royal Society of Medicine of London, etc.

	Pounds	Solo	Der-niers
Private practice, citizens of Bale....	5,031	5	4
Practice among foreigners.....	23,057	17	10
Consultations outside the City of Bâle.....	15,050	2	9
Gifts and presents.....	2,030	9	3
Pensions as city physician.....	1,660		
From the Archbishop of Bâle.....	280		
From the Commander of Bucken...	80		
From my office of surveyor of the mint.....	371	13	11
Pension of professor.....	11,139	6	8
From my dissections.....	38	16	18
From my public lectures.....	97	12	
From my published books.....	971	13	8
For examinations for the Doctors of Medicine and Deanship.....	2,850	5	11
As rector of the University.....	339	3	4
From the Pro-Rectorate, etc.....	8	15	
From the Academic Convent.....	323	6	
From the deanery of St. Peter's....	14	5	
For showing my museum and garden	179	5	2
For my guardianships.....	260		
For my divers stewardships.....	2,166	11	6
Income from my country-seat.....	10,618	13	11
Sale of orange and lemon trees....	1,255	6	8
Sale of limes and lemons.....	27	11	10
Sale of rosemary.....	265	12	8
Sale of plants from my botanical garden.....	502	5	9
Rent of my house and other real estate.....	29,296	9	
Legacies.....	350		
My wife's dowry.....	625		
Inheritances.....	3,144	1	6
Boarders ³	4,626	1	4
The sale of divers objects.....	3,254	17	4
Small clothes of knitted silk.....	4		
Products of my silk-worms in 1595..	90		
Products of sale of silk-worms' eggs.	2	10	
Sale of two canaries.....	7	15	
Total ⁴ in Bâle pounds at 12 per batze pound.....	120,020	15	0

took the bonnet of doctor in that city at the age of twenty years, according to Dezimeris, twenty-one according to Bridel. I accept the latter age as more probable. After a stay at the then famous University of Montpellier, Platter traveled in France

³ The item "boarders" refers to sums received from students or young physicians who resided with the professor, as was customary in those days.

⁴ In United States money Platter's estate represented the no mean sum of \$172,828.00, an amount that few American physicians can boast of at the end of their careers.

and Germany and returned to Bâle in 1560.

He became professor of medicine at the Bâle University and a salaried physician to the city of Bâle (archiates), positions that he fulfilled with honor and *éclat* for half a century.

His reputation became world-wide, and drew a large number of students to the University of Bâle, Platter alone having created one hundred and sixty doctors. He was consulted by people of many countries, and he declined many brilliant offers at the German courts, preferring to remain in his native city. However, by correspondence, which was both extensive and

very lucrative, he became by his letters of consultation, physician to several princes of the houses of Saxony, Brandenburg, Lorraine, and Wurtemberg, also of Catherine, sister of Henry IV of France.

He was most useful to Bâle during the fearful epidemics of the plague which ravished the city in 1564 and 1610. He founded a museum of natural history, as well as the botanical garden of the university.

Honored by foreigners and highly respected by his fellow citizens, beloved by the poor, he succumbed in a dropsical state on July 28, 1614, at the age of seventy-eight years, Platter was six times rector of the University of Bâle.

DR. ROBERT LEVET

Robert Levett, or Levet (1701?–1782) was “an obscure practiser in physic amongst the lower people.” Boswell says, “such was Johnson’s predilection for him, and fanciful estimation of his moderate abilities, that I have heard him say he should not be satisfied, though attended by all the College of Physicians, unless he had Mr. Levett with him.” Levett is said to have picked up

his small knowledge of surgery while serving as a waiter in a café in Paris, much frequented by some French surgeons, who became interested in their English servitor and gave him the opportunity of learning something of their art. He was a hard drinking man and seems to have made a most disagreeable impression on all who met him save the lexicographer.

WILLIAM PAUL CRILLON BARTON, SURGEON UNITED STATES NAVY, A PIONEER IN AMERICAN NAVAL MEDICINE¹

(1786-1856)

By FRANK LESTER PLEADWELL, M.D.²

NEWPORT, R. I.

WHEN it was suggested as appropriate that the United States Navy should be represented in the list of authors contributing articles to the Anniversary Volume in honor of Sir William Osler's seventieth birthday, and I was requested to furnish the article, I immediately cast about for a suitable subject. There came to mind a small volume, discovered some years ago in an obscure corner of the library of the Naval Medical School, remarkably advanced in its thought for the times, entitled "A Treatise containing a Plan for the Internal Organization and Government of Marine Hospitals in the United States together with Observations on Military and Flying Hospitals and a Scheme for Amending and Systematizing the Medical Department of the Navy" by William P. C. Barton, M.D., Surgeon in the Navy of the United States. This was the second edition, published in Philadelphia in 1817.

It occurred to me, therefore, that a biographical study of the author of this volume might prove of historical interest in revealing the state of naval medicine at that early period in our service. There have appeared several excellent biographical sketches³ of naval medical officers distinguished for bravery in action and heroic self-sacrifice in the line of duty, but so far as my knowledge goes, no one has essayed

¹ Note. An unavoidable delay in receiving this paper prevented its inclusion in "Contributions to Medical and Biological Research Dedicated to Sir William Osler, Bart., M.D., F.R.S." It is published in the ANNALS OF MEDICAL HISTORY by arrangement with the author.

² Captain, Medical Corps, United States Navy.

to portray a character like that of Dr. Barton, less heroic perhaps, but one whose influence in the direction of medical reform and sanitary improvement in the early Navy was unquestioned. His book first appeared in 1814 and the mere fact of its having achieved a second edition three years later, is an indication of the estimation in which it was held. It contained a fund of information collected from various sources, both at home and abroad, and revealed an originality of thought and an independence of expression which stamped its author as far in advance of the times. A similar work by Dr. Edward Cutbush of the Navy had appeared in 1808, but this dealt with subjects in army administration as well as naval, and lacked the breadth and originality of view characteristic of Barton's book.

In the following biographical sketch I have endeavored to present the outstanding facts of Dr. Barton's career in the Navy, and particularly to reveal his work as a pioneer in the field of American naval medicine.

William Paul Crillon Barton was born in Philadelphia, November 17, 1786. He was the son of William Barton, Esq., member of the bar, and grandson of the Rev. Thomas

³ The following are noteworthy examples:

(1.) Gatewood, J. D., "The Private Journal of James Markham Ambler, M.D., Passed Assistant Surgeon, United States Navy, and Medical Officer of the Arctic Exploring Steamer 'Jeannette.'" *U. States Nav. M. Bull.*, Apr. 1917.

(2.) Gatewood, J. D., "William Longshaw, Jr., Assistant Surgeon, United States Navy, 1839-1865." A Biographical Sketch. *U. States Nav. M. Bull.*, Oct. 1913.

(3.) Elder, William, "Biography of Elisha Kent Kane." Philadelphia: Childs and Peterson, 1858.

Barton, an Episcopal clergyman, who came to America from Ireland, in 1751, under the patronage of the Penn family. The Barton family was of English descent, originally from Lancashire, but having obtained ex-

tenhouse, the daughter of a neighboring farmer and a sister of David Rittenhouse, the distinguished mathematician and astronomer, whose close friendship Barton enjoyed until his death. He accompanied the



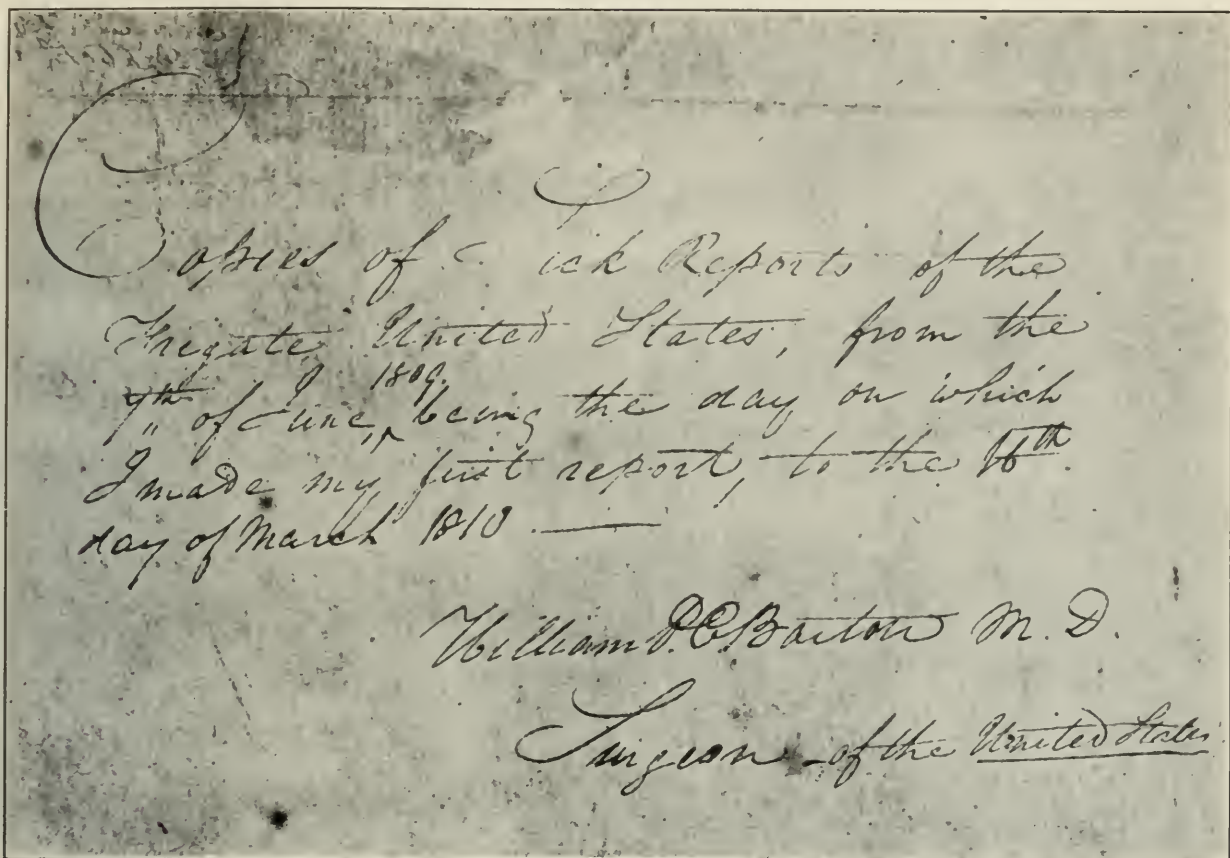
WILLIAM PAUL CRILLON BARTON, a pioneer in American naval medicine.

tensive grants of land in Ireland, settled there during the Commonwealth, or early in the reign of Charles II. The emigration of Thomas Barton took place when he was twenty-one, soon after his graduation from Trinity College, Dublin. He first opened a school at Norristown, Pennsylvania, but later became a tutor at the Philadelphia Academy. In 1753 he married Esther Rit-

tenhouse, the daughter of a neighboring farmer and a sister of David Rittenhouse, the distinguished mathematician and astronomer, whose close friendship Barton enjoyed until his death. He accompanied the expedition against Fort Duquesne in 1758 in the capacity of chaplain, and published a sermon dealing with the disastrous incidents of that affair. In 1759 he moved from York County to Lancaster, where as rector of St. James' he remained for nearly twenty years, dividing his time between the duties of his office and the pursuit of natural history. Notwithstanding his friendship with Wash-

ington and other distinguished officers of the Revolution, he remained a Royalist and, declining to take the oath of allegiance to the new cause, was compelled to leave his post, going to New York. From that city he intended to proceed to England, but illness

delphia merchant, and of their marriage several children were born, two of whom became distinguished surgeons, one the subject of this paper and the other John Rhea Barton, whose name is perpetuated as the originator of "Barton's bandage."



Inscription on the fly-leaf of the "Sick Reports" of the "United States" in Barton's handwriting.

prevented and he died there on May 25, 1780. His widow returned to Philadelphia, making her home with her nephew, Dr. Samuel Bard, at one time physician to Washington.

William Barton, the eldest of Thomas Barton's eight children, and the father of William P. C. Barton, was a lawyer by profession, a gentleman of substantial literary attainments, the author of the "Memoirs of Dr. David Rittenhouse," and the designer of the United States seal. He married Elizabeth, the daughter of John Rhea, a Phila-

Another distinguished son was Dr. Benjamin Smith Barton, professor of botany at the University of Pennsylvania, and also, in later years, the successor to Dr. Benjamin Rush as professor of the theory and practice of medicine in the University.

Thomas Pennant Barton, a son of Benjamin Smith Barton, was also a man of cultivated literary tastes and achievements. It is noteworthy that he gathered together one of the best collections of Shakespeareana in America. These, together with some ten thousand miscellaneous books of his library,

Sick Reports of the Frigate United States,
Stephen Decatur Esq. Commander.
William D. Barton, Surgeon. } Orange Island
Elizabethawa, Va.

Names of the Men.	Diseases
Cornelius Allen	Inflammation of the testes
Boatman (Stitt)	Ulcer on leg (nearly well)
John Waters	Fever (convalescent)
William J. Smith	Rheumatic pains
John Collins	Ulcer on leg
Thomas Shells	Dysentery (chronic)
Wm. Reynolds	Typhus fever
Wm. Kinley	Inflamed arm
Robert Russell	Cough and ulcer on leg
Wm. Reed	Piles
John Hill	Swelled hand
Francis Charles	Lux knee
John Goff	Contracted toes
Wm. Beach	Venereal
John Wall	
John Shepherd	
Thos. Harper	Stab
Wm. Haines	
John Seed	
James Finn	

Admitted on the sick list this morning, 3, viz.
James Darity, with itch - George Abbot, incised wound
of the foot, and John Hinton, with fistulous ulcer in rectum
(continued next page.)

First page of the "Sick Reports" of the U. S. frigate "United States." Barton was first stationed on this vessel when he entered the Navy.

were acquired after his death by the Boston Public Library, where they are known as the Barton Collection.

From the foregoing it will be seen that the subject of this sketch came of a family of students, and as a contemporaneous writer has stated: "His forebears were eminently qualified to infuse into his mind the rudiments of knowledge and the principles of virtue."

Dr. William P. C. Barton received his classical education at Princeton, graduating with distinction in 1805. Each member of his class assumed the name of some celebrated character, and Barton chose that of Count Paul Crillon, whose initials he retained throughout life. He began a study of medicine under the direction of his uncle, Dr. Benjamin Smith Barton, and received his degree in 1808. His inaugural thesis was entitled, "A Dissertation on the Chymical Properties and Exhilarating Effects of Nitrous Oxide Gas and its Application to Pneumattick Medicine." This was considered worthy of publication and for many years was accepted as a standard treatise on the subject. Soon after graduation he made a translation from the Latin of Jacobus Gregory's "Dissertation on the Influence of a Change of Climate in Curing Diseases."

After practicing medicine in Philadelphia for about a year during which time he became one of the surgeons to the Pennsylvania Hospital, he received an appointment as surgeon in the Navy, upon the recommendation of Dr. Benjamin Rush and Dr. Philip Syng Physick. He was for several years on active duty on the frigate "United States"; on the "Essex"; at the Navy Yard, Philadelphia; as surgeon to the Marines at Philadelphia; at the Naval Hospital, Philadelphia; on the "Brandywine"; at the Naval Hospital, Norfolk; at the Naval Asylum, Philadelphia; as chief of Bureau of Medicine and Surgery; at the Naval Hospital, Pensacola, and as president of the Board

of Medical Examiners at Philadelphia. He distinguished himself by his professional skill and his scholarly attainments, and particularly by his bold and fearless advocacy of necessary reforms in the medical department of the Navy and the improvement of the status of the naval surgeon. During his periods of shore duty he was not content to pass his time unemployed, but devoted himself with marked professional ardor to the publication of various works, some growing out of his naval experience, like that on "Marine Hospitals" mentioned above, and one entitled "Hints for Naval Officers Cruising in the West Indies," written in 1830, and others mainly on botany. In 1815 he was chosen professor of botany in the University of Pennsylvania succeeding his uncle, and in later years he was connected with Jefferson Medical College in a similar capacity. He was also a fellow of the College of Physicians, a member of the American Philosophical Society, president of the Linnæan Society, an honorary member and surgeon of the First City Troop, and upon the creation of the Bureau of Medicine and Surgery in the Navy Department, Dr. Barton was tendered and accepted the appointment of chief of this bureau. He was, therefore, the first chief of bureau, though not the first surgeon general of the Navy. This title was not created until 1869, and was first held by William Maxwell Wood. In fact Barton was much opposed to the adoption of the title surgeon general; and in 1838, when legislation designed to create it was pending before Congress, he addressed a pamphlet to the members of the committees on naval affairs of the Senate and the House of Representatives, entitled "A Polemical Remonstrance against the Project of Creating the New Office of Surgeon General in the Navy of the United States." This publication reveals that he was also a corresponding member of the Imperial and Royal Academy of Agricul-

ture of Florence; a member of the Linnæan Society of Stockholm and a lecturer on materia medica, botany, toxicology and naval therapeutics in the Therapeutic Institute of Philadelphia.

While chief of bureau he introduced many reforms, corrected numerous abuses and received for his services the warm recommendation and approval of the then Secretary of the Navy, the Hon. Abel P. Upshur. His attempts to improve conditions in the Medical Department, however, met with opposition and rendered him very unpopular with those whose interests or hopes were endangered by his efforts. He was not deterred, however, and in spite of resistance accomplished much in the direction of improvement of conditions in the Navy, both medical and non-medical in character. On March 20, 1844, after holding this office for eighteen months, he addressed a letter of resignation to the President praying for approval of his "earnest wish . . . to retire from the scene of unavailing efforts." He retained his naval commission, however, doing duty at Pensacola Hospital, but chiefly on the Medical Examining Board at Philadelphia, and at the time of his death in 1856, he had been for many years the senior surgeon in the Navy.

In September, 1814, Dr. Barton married Esther, daughter of Jonathan Dickinson Sergeant, Esq. (a member of the Philadelphia bar), and a granddaughter of Dr. David Rittenhouse.

Of his character, appearance, and personal attributes, I have been fortunate in securing a reflection from several sources. The portrait which appears on the second page of this article was taken from what appears to be an enlarged photograph now hanging in the office of the Surgeon General of the Navy. This came from the Naval Medical School some years ago, but I have not been able to determine anything of its prior history. It is said by one of his descendants

to whom the reproduction was shown to be a good likeness and represents his peculiar manner of dress, which even for the times was considered somewhat elaborate and eccentric. It is supposed to represent him as he looked about the time he was appointed chief of bureau. In a speech delivered in the House of Representatives, early in 1844, by the Hon. Alexander H. H. Stuart of Virginia, Barton was referred to, in connection with an investigation into the expenditures of the newly created Bureau of Medicine and Surgery, in terms which give us an idea of the impression made upon a contemporary by his manner and style of composition. Mr. Stuart stated:

"I, like others, have been somewhat prejudiced by the artificial and involved style of his report submitted to the House; a prejudice by no means diminished by his manner and style of dress, equally unnatural and eccentric. But when I knew him better and heard and saw the improvements which he had introduced into the Bureau, my prejudice vanished and I became satisfied he was a most capable and faithful officer."

The same speaker refers later to his "bold and manly spirit of independence, which induces him to shrink from no responsibility."

In the findings of his court-martial in 1818, a reference was made by the court to "the vehemence of his manner (which) imparted impressions his language and intentions would not warrant."

One of the most valuable comments on his manner and personal qualities appears in an address delivered before the Alumni Association of the Jefferson Medical College, on March 11, 1871, by Dr. Samuel D. Gross, professor of surgery in the college and president of the association. He refers to Dr. Barton in these terms:

"The instruction in materia medica, during the two Winters of my connection

with the College, was delivered by Dr. William P. C. Barton, brother of Dr. John Rhea Barton, the eminent surgeon, and a nephew of Dr. Benjamin Smith Barton, formerly a professor in the University of Pennsylvania. He was, in all respects, a remarkable man: highly educated, learned in his profession, a graceful lecturer, an able writer and one of the most accomplished botanists in America. He abounded in flashes of wit; and a vein of irony and sarcasm was perceptible in almost everything he did and said. He had a passionate love of music and played with consummate ability upon the flute and violin. Many of his acts were marked by the eccentricities of genius. His style of lecturing was conversational, plain, simple and didactic, without any attempt at oratory, and his success as a teacher was all that could have been desired. In his appearance he was a model of neatness and elegance. He seldom wore the same coat, vest, or cravat on two successive days. In his criticisms of contemporaneous writers he was often severe and even bitter, especially when he had occasion to speak of a certain writer on *materia medica*, with whom he had long been on terms of open hostility. He would then, often with a peculiarly disdainful curl of the upper lip, fly off into the keenest satire and invective, much to the amusement of his young auditors, all of whom, with few exceptions, were warmly attached to him. It was his invariable practice, too much neglected in most of our schools, every morning to ask the class some questions respecting the lecture of the previous day."

"During my first Summer in Philadelphia I was a member of Dr. Barton's botanical class, and usually attended him in his botanical excursions along the banks of the Schuylkill, visiting Bart-ram's Conservatories or rambling about

in the open field in search of specimens. In these excursions he was always in his happiest mood, skipping merrily, like a humming-bird, from flower to flower. He experienced as great delight in the discovery of a new plant as Audubon did at the sight of an undescribed bird, or John Hunter in the dissection of a strange animal. He was in fact a botanical enthusiast."

In attempting to find Dr. Barton's grave in Laurel Hill Cemetery, Philadelphia, I was fortunate in getting in touch with one of his lineal descendants. This gentleman I met later and obtained from him much additional information, of a character which could not have been secured elsewhere.

Through his kindness I have been able to read a biographical sketch of Dr. Barton which was compiled in 1879 by one of Dr. Barton's daughters. In this she refers to her father as possessing "many personal attractions and accomplishments. He retained, even to advanced years, a great love for music and great conversational powers. His character was a happy combination of qualities which attracted all and repelled none. Of great courage without any bravado, of affability without servility, of true warm-hearted benevolence, his qualities of heart and of mind were well calculated to secure lasting friends among the good and true."

I also learned from him that Barton had assembled in his lifetime a very remarkable collection of musical instruments, which he recalls seeing as a child in the home on Chestnut Street. It was here that Barton lived and had his office. The house is still standing, but in reconstruction it has been joined to another, which has been built over part of the plot, formerly the garden of the Barton home.

The facts recorded regarding Dr. Barton's career in the service were found to be few and meagre, particularly with reference to his service at sea, and the chief and most

valuable sources of information regarding him were found in "Officers' Letters," scattered throughout many volumes, covering the years 1809 to 1848, which are filed in the Navy Department Library. These, together with allusions made in his writings to various incidents of his life and work, have constituted the main sources from which the facts of this sketch have been drawn.

The records of the Navy Department show that Dr. Barton was appointed a surgeon on April 10, 1809, to take rank from June 28. His letter of appointment also contained orders to the frigate "United States." In a letter which was written from the Pennsylvania Hospital, and addressed to the Hon. Charles M. Goldsborough, Esq., secretary of the Navy, he accepted his appointment and requested a delay of six weeks before joining the "United States," explaining that the delay was necessary to enable him to complete his term of service at the hospital, which ran to July first. It is apparent from this letter that he felt a deep sense of obligation to fulfil what he considered an implied contract with the hospital authorities to remain until his period of service was completed, but his request was denied, for the "Sick Reports" of the "United States," show that he was already aboard that vessel on June 7, 1809. On June 10, 1809, Stephen Decatur, Jr., had joined the "United States" and hoisted his broad pennant as commodore for the first time, and then began the friendship with Decatur which lasted throughout life. Very little has been found respecting Barton's service on this vessel, which apparently continued only until about November 10, 1810, for soon after that date he is found on the "Essex."

Practically no medical records relating to the ships of this period are to be found in the Navy Department, but, by a mere chance, two thin volumes of the "Sick Reports" of the "United States," in Barton's own hand-

writing were found in the Library of the Naval Medical School, where they had been placed in 1905 by former Surgeon General Rixey, who had discovered them in a second-hand bookstore in New York.

In the early days of the Navy, although the regulations required the commander of a vessel to keep an official log, the government did not furnish the log book. It happened therefore that a book purchased by an officer for this purpose, was often regarded as personal property, and taken away by him when detached from the ship. It is not improbable that a similar custom existed with respect to medical records. This condition of affairs may account for the absence of medical records covering this period and also for the fortuitous discovery at this late day of the "Sick Reports" of the "United States." These reports ran from June 7, 1809, to November 10, 1810, and were entered in Barton's handwriting in two small note books. A reproduction of the first two pages, showing the opening entries, appears in the text of this article. As one scans the pages of these small books it is surprising to note how sparse is the information to be obtained regarding the movement of disease or important daily events. Only one entry is made giving the location of the ship, that occurring on the second page, where it is noted as "Crary Island, Elizabeth River, Vir." Unfortunately, no record of the other ports or places visited is found. The usual day's record shows the name of the disease, complaint or injury, rarely in a scientific nomenclature, which is set opposite the name of the patient, and an entry is made of admissions and discharges for the day. The progress of a patient is sometimes stated in a word or two, such as "improving," "better," or "worse," too often the latter, and deaths are not infrequent. The prevalence of "typhus fever" is noteworthy and by this, of course, is meant the typhoid fever of later days, although the

occasional sudden demise of a patient with "typhus fever" suggests typhus exanthematicus. In those days, as now, itch and venereal diseases occupied a conspicuous position in the sick returns, and the occasional appearance of midshipmen with the latter class of disease, with the added remarks, "reported to the commodore as rheumatism," denoted a kindly intention on the part of the surgeon to shield them from the stigma attaching to these affections.

On July 15, 1810, for the first time, Dr. Barton makes extended "Remarks," at the end of the day's record, as follows: "The dysentery and diarrhœa are now and have been for the last ten days the prevailing diseases on board the ship. Most of the patients on the sick list with other diseases are more or less afflicted with these complaints in a slight degree. Neither of these diseases, however, are of a very violent nature." This constitutes the only clinical observation of any moment which I could discover in a review of the seventeen months' record contained in these reports. It is also quite remarkable how seldom mention is made of the transfer of patients to hospital. However, considering the character of the so-called hospitals then available, it is perhaps not surprising that he preferred to retain the sick aboard ship. Later in his career he urged improvement of naval hospitals with characteristic vigor, and a critical reference in his book on "Marine Hospitals", published in 1814, with respect to the hospital at the Navy Yard, Philadelphia, was the basis of charges, made by a brother medical officer, which resulted in the court-martial of Barton. The court, however, perhaps realizing the justice of his criticism, ruled that the specification covering the alleged offense need not be answered or refuted, and thus virtually exonerated Barton of this specification of the charge. Some of the entries in the "Sick Reports" are very obscure in their clinical and pathological significance. For

instance, while there can be little question regarding the nature of the disease entered as "typhus," which caused the death of Wm. Rysela on July 6, 1809, since Barton has added "sick two months," what did James Williams, 1st, really succumb to on August 17, 1809, under the designation "nervous fever," when on the previous day he first appears as "very ill, typhus?"

Barton mentions in his work on hospitals that he checked several cases of sea-scurvy on the "United States" by the liberal administration of lime juice. He had much to say later, after his cruise abroad in the "Essex," of its virtues as an anti-scorbutic, and urged its adoption by our Navy, in an official report.

In the preface to the first edition of his work on "Marine Hospitals," Dr. Barton refers to his attempts to bring about correction of the abuses and irregularities then prevailing in the medical department, by reason of what he terms "loose administration." As his statement there fully reflects his attitude toward the problems confronting him on the frigate "United States," and his grave concern for the welfare of the sick, and the improvement of medical supplies, I cannot do better than quote it at length:

"Having entered the navy as a surgeon when very young, and having been ordered to one of the largest ships in it, with a complement of 430 men, stationed in a warm and variable climate—I soon found myself not a little embarrassed by the perplexities that I daily met with in my practice on board. The unhealthiness of the climate, operating upon a variety of different constitutions in an entirely new crew; the change of diet and mode of life; the necessary and unavoidable exposure of boats' crews to the fervid rays of a vertical sun, as well as to the damp and heavy dews of night, and at all times to the insalubrious exhalations of marsh

miasma—all combined to generate such perpetual sickness, that the frigate might almost have been called a hospital ship, the average number on the daily sick-list, of fevers and fluxes, being about 40. In this situation, on board of a ship just refitted, commissioned, and equipped, I found myself without half the comforts and necessaries for the sick that the hospital department should have been supplied with; yet this department had been reported as replenished with every requisite article for a cruise of two years, and together with the medicine chest, had cost the government fifteen hundred dollars. There were neither beds for the sick, sheets, pillows, pillow-cases, nor nightcaps—nor was there a sufficiency of wine, brandy, chocolate, or sugar; and that portion which the storeroom contained of these articles, was neither pure nor fit for sick men. The medicine chest was overloaded with the useful, and choked up with many useless and damaged articles. Such was the state of the medical department of this ship! Upon a representation of it however to her commander, Com. Decatur, he generously allowed me all the necessaries I stood in need of, and thus enabled me to administer those comforts to my patients, which they so much required. What would have been my situation, had the ship immediately proceeded to sea, for a cruise of eight or ten months, upon my joining her, and before I had an opportunity of examining into the condition of the medicine and store chests . . . which might have been the case, these having been reported as sufficiently furnished? What the consequence would have been must be obvious! The other ships were not better furnished than the one of which I am speaking—and I perpetually heard of complaints on this score.

“What was the cause of these abuses? The want of a regular board of medical

commissioners, whose peculiar province it should be, to order the proper proportions and quantities of medicine, comforts, and necessaries, for the publick ships, and who should have no interest, directly or indirectly, individually or collectively—in the furnishing of articles thus ordered.

“As I was at that time a perfect novice in the routine of ship duty, and having then but recently left the Pennsylvania Hospital, an institution in which order, system, and punctuality, render the practice of medicine a pleasure, I was overwhelmed with the difficulties I had to encounter in the performance of professional duties, where every species of inconvenience and disadvantage that can be imagined was opposed to the exertions of the surgeon. My feelings revolted from the idea of continuing in such a perplexing and distressing situation—and I became disgusted with the unavailing toil attendant upon ship-practice. I communicated my sentiments on this subject unreservedly to my lamented friend, the late captain Wm. Henry Allen, then first lieutenant of the ship. I ventured even at that early period of my naval service, to condemn the flagrant irregularities and abuses, that I could not but believe existed to a ruinous extent. In my conversations with him I often declared, that if such was always the deplorable condition of sick men on shipboard, I wished not longer to be their medical attendant; for my feelings were every moment in the day subjected to harassment and pain, from contemplating afflictions I was unable to relieve, for the mere want of comforts so easily procured on shore. He encouraged me, however, to persevere, and at the same time that he lamented with me the want of a superintending medical board, he tendered an offer of his assistance in making any arrangements compatible with the internal economy of the ship,

that I might deem calculated to meliorate the condition of the sick. I soon found that their situation was susceptible of much relief, even on ship-board—and I was not long concluding, that if proper steps were taken to furnish the ships with sick-necessaries of a proper kind, the practice of medicine and surgery in the navy could be rendered not only more beneficial to the sick, but less offensive to the humane feelings of the medical officer. I never lost sight of the opinion I had conceived, that the errors of the medical department of the navy might be easily corrected, and its abuses abolished.”

Surgeon Barton's relations with Commodore Decatur and with the first lieutenant of the “United States,” William Henry Allen,⁴ appeared to have been most cordial and harmonious. This is evidenced by the fact that Decatur, in 1813, applied to the Secretary of the Navy for Barton to be returned to the “United States,” and in 1817 he gave him a strong letter of recommendation to the then Secretary of the Navy, and both he and Captain David Porter of the “Essex” came to his aid in support of many of the reforms he had projected. Decatur in the letter of recommendation above-mentioned testified “to the great skill and attention and success with which he (Barton) practised during the above period.” (1809-1810) Late in 1810, however, Barton appears to have had some disagreement with certain officers on the “United States,” the nature of which is not revealed, but the resulting situation made it expedient for him to leave the ship. About this time the “Essex,” was preparing to sail for Europe, and since her surgeon, Dr. Stark, was on leave at some distant point inland and could not

⁴ This is the same Captain Allen who commanded the “Argus” in her encounter with the British Brig “Pelican,” August 14, 1813. The “Argus” had sunk twenty-two vessels off the British coast, but was defeated and captured by the “Pelican.” Allen died of his wounds at Mill-Prison Hospital, Plymouth, England.

return in time to reach the ship before sailing, with Decatur's approval, and as a convenience to Capt. Smith of the “Essex,” Barton left the “United States” and joined the “Essex.” It was during this cruise that he gathered much of the information regarding naval hospitals, and naval medical practice abroad, both in the navies of Great Britain and France, which appeared later in his writings. His observations covered a wide range of subjects, including the construction and arrangement of all the principal naval hospitals of England and France, their organization and administration; sanitary matters touching the naval services; methods of training medical officers; rations; character of supplies furnished ships, their construction, etc. He appears to have visited London from Cowes, Isle of Wight, where the ship was lying, and, while there, to have met the celebrated Dr. Lettsom through an introduction from Dr. Rush, and to have inspected several hospitals. He mentions the homeward bound voyage of the “Essex,” which lasted two months, and speaks of the efficacy of an effervescing mixture of lime juice and salt of tartar for seasickness. This he administered to two passengers on board with great success. Other than the above, surprisingly few details of this period of his career were to be found in available material.

On June 30, 1811, he addressed a letter to the Hon. Paul Hamilton, Secretary of the Navy, requesting relief from sea duty and assignment to the Navy Yard, Philadelphia. He mentioned that he had been on sea service without any intermission since April, 1809, and had just returned on the “Essex.” He asserted his willingness to act in concert with, or subordination to, Dr. Cutbush, the surgeon in charge at Philadelphia, and although a surgeon himself, was agreeable to service in a position, which ordinarily would be assigned to a surgeon's mate. His extreme anxiety to return to Philadelphia apparently arose from a desire to establish himself in

practice there, "the accomplishment of which is his dearest wish," to supplement his income, and help support his aged father and seven brothers and sisters. This he desired to do, moreover, while his uncle (Benjamin Smith Barton), who was in a precarious state of health, was still able to take him by the hand and introduce him into practice. He refers to his uncle as a man "the tenure of whose existence is fragile indeed . . . thus there is the brightest prospect of my professional success subject to the constant shadow of a very near cloud." His family is constantly in mind, and as the eldest son, his concern for their welfare is often reflected in his letters. The pay of a surgeon at this time, including the value of two rations, was sixty-two dollars per month, a sum wholly inadequate to the value of the service performed, and of course, not sufficient to enable him to contribute materially to the support of his family. He speaks further of the difficulty aboard ship of keeping himself abreast the times professionally. "The unsettled and wandering life on board ship not only deters the gratification of professional ambition, but absolutely generates an inanition of mind very inimical to solid improvement of any kind. The sea does not subject me to any corporeal malady, but really produces a spiritless inaction and mental debility which all the resolution I have been able to exert for better than two years has not afforded me the power to overcome." His appeal, however, appears to have fallen on deaf ears, for he was not detached from the "Essex," but did manage to get leave until September 1st. A letter dated July 11, 1811, written from Baltimore, addressed to the Secretary of the Navy, refers to a bottle of lime juice which he is sending him by Lieut. Ballard for trial "in the form of a lemonade, after allowing it to settle for a day or two." This is one of four dozen bottles which Barton brought back from England and he explains that his object in sending the lime juice is to enable the Secretary to

judge of the quality of juice used in the Royal Navy, which is the kind he wishes to recommend for our own. He also mentions his intention to submit a report on this subject. This letter indicates that he had been in Washington, and was on his way to Lancaster, but had been delayed in Baltimore on account of an attack of "summer complaint." On August 26, 1811, writing from Lancaster he requests two months' extension of leave, and to be assigned to duty at the Navy Yard, Philadelphia. In this letter he makes the first reference to his intention of writing at length upon his observations abroad and upon a plan for the better government of the Medical Department of the Navy, and puts this intention forth as a reason for the change of duty requested. He also states his desire to take courses of study in the Pennsylvania Hospital. A reference is made in this letter to Mr. Latrobe,⁵ whom he has asked to see the Secretary and support his request. But it is all to no avail, for a peremptory order from the Secretary, dated August 29th, is sent to him to return as soon as possible to his ship the "Essex," at Norfolk. Barton answered this letter from Lancaster on September 4th, and voiced his disappointment at not being accorded the leisure to complete his report, but states his intention of doing so at Norfolk. This letter reveals grave discontent at being continued on duty in the "Essex," a vessel "smaller than the one he first joined when he entered the service," where "his services gave the greatest satisfaction to Commodore Decatur and the officers generally." As respects the latter, with some of whom he had been in disagreement, he states that there has been a reconciliation and he desires his transfer from the smallest frigate in the Navy, back to the

⁵ Benjamin Henry Latrobe, 1764-1820. An English architect who settled in this country in 1796. He became identified with the Navy Department as an engineer, and designed the first Hall of Representatives at Washington.

"United States." He endeavors to reinforce his argument by adding that, "the present surgeon of the 'United States' was a surgeon of a cutter at the time I was in the station he now occupies." It is not unlikely that he received still another order from the Secretary to expedite his return to the "Essex," for Barton wrote from Philadelphia September 18, 1811, explaining the delay in his journey to Norfolk, as being due to a continuance of the affection which overtook him at Baltimore two months previously, and that he has written Captain Porter of the "Essex" to that effect. He encloses a physician's certificate in support of his statement.

A letter written October 25, 1811, from Norfolk, transmits to the Hon. Paul Hamilton, secretary of the Navy, a number of sheets containing a plan for the internal arrangement of marine hospitals. This evidently is a further development of his proposed report, which finally grew into the book he published in 1814. The term "marine" hospital as used frequently by him was equivalent to the naval hospital of the present day. At that early period a distinction such as prevails at present did not exist. There were, it is true, "Marine" hospitals for merchant seamen, available to the Navy, which became separated from the Navy by the Act of Feb. 26, 1811.

On November 2, 1811, Dr. Barton is back in Philadelphia, on leave, in order to attend the funeral of a brother. He appears to have travelled by water from Norfolk to New York, on this occasion, in the U. S. S. "Hornet," then under command of Captain James Lawrence, thence by stage to Philadelphia, leaving Norfolk October 26, and arriving in Philadelphia November 2, which for the times was quite rapid travelling. In the preface to his 1814 publication he refers to the trip on the "Hornet" and to his visit to Washington in July, 1811, when Mr. Hamilton called upon him to submit his ideas respecting the proper rules for administration

of the service hospitals, which the Secretary was required to submit to Congress at its next session. The Act of February 26, 1811, had separated the navy from the conjoint control of marine hospitals for merchant seamen and had authorized the establishment of distinct institutions for the navy, but nothing was done until 1832 toward furnishing these hospitals, except to rent temporary structures near the principal navy yards. From that date naval hospitals slowly arose at the principal stations. It was this report containing suggestions for the internal organization and government of hospitals, requested by the Secretary, which Barton refers to in the preface of his book, as having been written "during a tempestuous passage from Norfolk to New York, in the Hornet sloop of war, with the ever to be lamented captain Lawrence, under the disadvantages, too, of sea-sickness and acute mental affliction from the recent loss of a friend—a brother."

On November 18, 1811, Barton writes from Lancaster, where he had gone after his brother's funeral, renewing his request to be ordered back to the "United States," stating that his action had the approval of Commodore Decatur, and quoting from a letter received from Mr. Allen, first lieutenant, in substantiation of their desire to have him. This letter, which is addressed to the Secretary, also mentions the intention of the writer to leave Lancaster for Philadelphia on November 19th, on his way to Norfolk. His failure to return promptly to his post of duty called forth peremptory orders from the Secretary, dated November 23, and Barton replied from Philadelphia on November 27th, in effect, that he considers the Secretary's reprimand for not obeying orders as entirely unmerited, and he enters into a long explanation of the circumstances surrounding his transfer from the "United States" to the "Essex" in November, 1810. His delay at Philadelphia, he states, is due to information received

from Norfolk that the "Essex" is coming up the Delaware, and that he has remained there to await her arrival. There is a feeling of resentment plainly apparent in this letter to the Secretary which may have had its origin in the knowledge on the part of Barton that the Secretary had recently written Dr. Benjamin Smith Barton, his uncle, and referred to Barton as "too much indulged."

Still on the "Essex," then at Newport, Rhode Island, on December 26, 1811, Barton writes to Mr. Latrobe, who has agreed to intercede with the Secretary on his behalf in the matter of receiving a twelve months' furlough. He repeats his desire to enter into practice at Philadelphia, but adduces another reason for the furlough, which has not hitherto come to light, although it may have been a powerful influence, in addition to others, in urging him to the repeated efforts he has made to secure the desired duty. This reason, "very dear to my heart", has to do with his engagement to Miss Sergeant, who, he mentions, is a granddaughter of Dr. David Rittenhouse, and he asks Mr. Latrobe if she is not a connection of his. Barton encloses in this letter a communication from Captain Porter approving his request, which he asks Mr. Latrobe to present to the Secretary, when he makes the plea on his behalf.

A letter under the same date goes forward from Barton to the Secretary requesting the furlough of twelve months "in order to get married and also to assist in the support and education of his youngest brother." He suggests a Dr. Miller as his relief on the "Essex." But his efforts prove fruitless, for Captain Porter receives a letter from Mr. Hamilton which amounts to a denial of Barton's request. On January 18, 1812, he renews his application but reduces the length of the furlough acceptable to him, from twelve months to four or five months. On the 21st of January, not having had any reply to his previous letters he writes he will

take any length of furlough which will be agreeable to the Secretary. On January 22d he addresses the Secretary again requesting the return of the hospital plans forwarded October 25, 1811, and refers to additional work which he is doing in connection with them. On January 24th, he informs the Secretary that his father has requested him to resign, but states his unwillingness to do so, on account of a promise made to his uncle not to leave the service until after he has completed his book on Marine Hospitals and the Medical Department of the Navy. On February 13, 1812, not having had any reply to his letters of the 18th, 21st, and 24th of January, addressed to the Secretary, he sends him duplicates and also encloses a copy of Captain Porter's letter. As a possible relief for him on the "Essex" he suggests Dr. Daniel Hatfield of the "Nautilus". The next letter is dated March 8th, 1812, and in this he reports himself as ill in sick quarters at Newport, Rhode Island, with an "affection of the heart," and desires that a surgeon's mate be sent to the "Essex," as a substitute during his illness, and to relieve the surgeon of the "President" of the necessity of looking out for the sick on the "Essex" which he has done for two months. On March 20th, 1812, Captain David Porter of the "Essex" wrote him the following letter:

"It is with much pleasure I acknowledge the receipt of your highly gratifying letter of this date and it is the source of the most pleasing sensation to receive the testimony of the approbation of one whom my duty and inclination both prompt me to esteem for his strict attention to his profession and for his character as a gentleman. I cannot but regret the unpleasant circumstance that now renders your absence from duty necessary and offer you my best wishes for the speedy restoration of your health and assurances of the extreme pleasure it

would afford me to have you again attached to my command."

On March 21st, Commodore John Rodgers on the "President" granted Barton a furlough of five weeks for the benefit of his health, on the expiration of which he was desired to return to the vessel to which he was then attached. On April 3, 1812, Barton was ordered to the Navy Yard, Philadelphia, as assistant to Dr. Cutbush, and the next letter from him to the Secretary is dated at Washington April 4, 1812. In this letter he refers to certain "Rules and Regulations for the Government of Naval Hospitals," which apparently the Secretary had submitted to Barton for criticism. He addresses his reply through Mr. Goldsborough and expresses his unqualified approval of the "Rules." His duty at Philadelphia was not long undisturbed, for on June 22, 1812, he was ordered to the brig "Argus," with an intimation that after a short cruise he might expect to return to Philadelphia. His reply by letter dated June 24th, 1812, complaining of his treatment since being in the service and protesting against being assigned to a brig after service in a frigate, apparently had the desired effect, for there is no evidence that he went to the "Argus;" on the contrary, several letters from Dr. Cutbush to the Department during the succeeding months make references to Barton in connection with duties at the Navy Yard or vicinity. His official record, however, shows that on February 20, 1813, he was ordered to the "United States," but these orders were revoked for reasons which appear later.

On January 1, 1813, Lieutenant John B. Nicholson, who was with Decatur on the "United States," then at New York, had written to Barton as follows:

"The Commodore is in want of a Surgeon and has requested me to write you on the subject, and if you will go again in this ship *in that situation*, you will be

so good as to write me *immediately*, and he will then apply for you to the Department. Although so long silent, believe me, I have often thought of the many pleasant moments passed in your society, and I as well as my mess will be happy to call you by the endearing name of mess-mate and friend. To Spencer Sergeant will you give my respects, and believe me to be your friend."

What answer Dr. Barton made to this letter is not known, but subsequent correspondence from Decatur to him, makes it plain that he declined the appointment. On March 11, 1813, Commodore Decatur wrote him as follows:

"Enclosed is a letter which I have received from the Navy Department with instructions to forward it to you. I apprised the Secretary of the reasons which you had urged to me, to induce the recall of the order you were under for my ship. I stated to the Secretary, that if they struck his mind with the force they had mine, you would be gratified in your wishes, and some other gentleman substituted. Will you have the goodness to let me know your determination on the subject as soon as possible. Your friend and humble servant. Stephen Decatur."

The enclosure referred to in this letter was in all probability the Secretary's order, which reads as follows:

"Com. Decatur wants a Surgeon, and from his confidence in your abilities, he has asked that you might be ordered to his ship. Anxious as I am to give him a Surgeon acceptable to him, I have to direct that you will proceed to New York and place yourself under his command. W. Jones."

I have given this correspondence at some length since Barton's declination to sea duty in time of war subjected him to severe

criticism, openly expressed in later years, when he was chief of bureau, by his enemies, of whom he appeared always to have a liberal number, who were active at the time in attempting to legislate him out of office. In 1843 a proviso was attached to the Naval Appropriation Bill which provided that any appointee as chief of bureau, in order to be eligible, should have completed at least five years' service at sea. The effect of this, if passed, would have been to vacate the offices of two chiefs of bureau, of which Barton held one. In defense of his position and in answer to the criticism that he had refused service in time of war, Barton addressed a letter to the Hon. George Evans, of the Senate, in which he referred to his declination to go to the "United States" in the following terms:

"The only order he received during the war, was one to Commodore Decatur's ship. That officer was the embodiment of honor and heroism, and *that officer obtained a revocation of that very order*, under a full knowledge of all the circumstances of the then employment of the undersigned in Army duty, as well as Naval duty; and with a knowledge too of the state of his health, then improving but not reinstated. . . . If such a man as Decatur saw no wrong in the declination of the order to his own ship; if he undeviatingly bestowed his respect on the undersigned, from the first of his acquaintance with him until the day of his death, can any other man in the Navy be justified in an attempt to impugn the reputation of the undersigned on that ground?"

The reference to "Army duty" in this letter brings to light the fact that in 1812 and 1813 while on the Philadelphia station he had offered to perform the duties of surgeon to the different recruiting rendezvous of the Army District.

The District Orders of February 1, 1813 read:

"His (i.e. Barton's) certificate is necessary to pass a recruit and no other physician is to be called upon to visit and pass enlisted soldiers, except in circumstances which will not admit of delay."

In his work published in 1814, he refers to this service as follows:

"In the first year of the present war, I examined two thousand recruits in the city, and from the neighborhood of Philadelphia. Twelve hundred only of this number did I pass as able-bodied men; and of the rejected number, 800, more than two-thirds were refused on account of rupture."

On May 10, 1813, Dr. Cutbush having secured his own transfer to duty in Washington, Dr. Barton made application to succeed him at Philadelphia. It does not appear that this request was denied, and at any rate he appears to have remained near Philadelphia, carrying on his service duties, Army and Navy, pursuing his practice, and delivering his lectures as professor of botany at the University. In addition he did a prodigious amount of writing, and published several books. In a letter to the Secretary dated May 25, 1813, he voices his concern at the insufficient accommodations for the sick at the Navy Yard. He states that the small building appropriated to the reception of sick, calculated to accommodate eight patients, now has twenty-four sick sailors, and suggests the necessity of some temporary arrangement. Commodore Murray declined entering into any measure without instructions from the Secretary, but approved of Barton's writing to represent the matter and, as a result, the Secretary authorized the erection of a frame building. It was his strictures on the sick quarters at this yard, appearing in his book published the next

year, which Dr. Harris objected to as reflecting upon Dr. Cutbush and which led to Barton's court-martial in 1818. It is interesting to note just what Barton said in this connection, and to see how far his contemporaries bear him out with respect to the standards of sick accommodations available in the Navy at that time. He states:

"I have myself seen among a number of sick seamen with whom I was left in charge at the navy yard of this place (Philadelphia) where they were necessarily huddled into a miserable house, scarce large enough to accommodate the eighth part of their number—a spirit of impatience. . . . So wretched was the hovel and so destitute of every necessary comfort for sick persons, in charge of which I was left with thirty patients . . . that every man who gathered sufficient strength . . . absconded immediately."

On March 17, 1820, Commodore John Rodgers, then president of the Board of Navy Commissioners, addressing the Chairman of Naval Affairs of the Senate, represented the inexpediency of blending Navy and Marine (merchant) hospitals, in speaking of the temporary hospitals at Navy yards, stated as follows: "Cheerless and comfortless as they are, they are yet preferable to hospitals provided for seamen of the merchant marine." This comment on temporary hospitals, it will be noted, was made some seven years after Barton's statement.

A letter from Captain Chauncey, December 24, 1810, then in command of the Navy Yard, New York, to the Secretary of the Navy may be quoted as indicating the character of the sick quarters on that station:

"I conceive it to be my duty to avail myself of this opportunity to call your attention to the situation of the sick on this station, and the particular hardship upon officers who may contract disease in the

execution of their official duties, to be obliged to take lodgings at great expense, which frequently subjects them to pecuniary embarrassment, or to be placed in common with the sailors and marines in a large room that is neither wind nor water tight. To give you some faint idea of what is called the hospital on this station, imagine to yourself an old mill, situated upon the margin of a millpond where every high tide flows from twelve to fifteen inches upon the lower floor and there deposits a quantity of mud and sediment, and which has no other covering to protect the sick from the inclemency of the season, than a common clap-board outside without any lining or ceiling on the inside. If, Sir, you can figure to yourself such a place, you will have some idea of the situation of the men on this station."

It does not appear, therefore, that Dr. Barton in his statement of fact regarding the sick quarters at Philadelphia had represented a condition which was peculiar to any one place in the naval establishment of those days, but one more or less characteristic of several. Under date of September 20, 1816, there appears a letter in the files of the Navy Department from Dr. Barton, enclosing one from his father, both of which were addressed to James Monroe, then Secretary of State. These letters solicited a favorable recommendation of Dr. Barton to the notice of the Secretary of the Navy, the Hon. Benj. W. Crowninshield, or to his assistant, Mr. Homans. Whether as a result of this correspondence or not, is not certain, but on September 30, 1816, Dr. Barton was ordered to report to Commodore Murray at the Philadelphia Navy Yard for duty, presumably as surgeon to the Marines. On November 7, 1817, he attained his real goal, by being ordered to the Naval Hospital, superseding a junior, Dr. Thomas Harris, in that position. This supercession of Dr.

Harris created ill feeling on the latter's part, and led to the court-martial of Barton in January, 1818, on charges preferred against him by Harris. The circumstances preceding this action were rather complex, but somewhat as follows: In November, 1817, Dr. Barton's father had succumbed to his last illness at Lancaster, and after settling his father's affairs there, Barton had proceeded to Washington, armed with a letter of introduction from Richard Rush, Esq.,⁶ to President James Monroe. Barton duly presented his letter, made his call on the President and asked for a more extended interview, which was granted him on the evening of the same day. At this interview Barton pressed his claim for duty at the Naval Hospital at Philadelphia. With President Monroe favorably inclined toward him, and armed also with a letter from Decatur to the Secretary, recommending him "for any vacancy that may exist in the line of his profession," he approached Mr. Homans, acting in Mr. Crowninshield's absence, and his orders to the Hospital soon followed. In acting in the manner described, Dr. Harris considered that Dr. Barton had treated him unfairly, and he proceeded to bring charges, founded partly on this incident and partly on the statement in his book, derogatory, as he thought, to Dr. Cutbush, which has already been alluded to. While the charges against Barton were pending, he received a note from Commodore Alexander Murray, in command of the Philadelphia station, asking for his resignation, or, as an alternative, an order of arrest. Barton's reply, I think, is worth quoting:

"Sir: I have received your note of the 10th Dec. 1817, by Capt. Brown, in which you say 'Capt. Brown is empowered by me to offer you the alternative of resigning your commission as surgeon in the Navy of the United States or to hand you

⁶ Secretary of State under Monroe, later minister to Great Britain.

your arrest'; and in reply to it I have to say, that conscious of the strictest propriety in my conduct relative to the station of Hospital Surgeon of this place, I have not one minute's hesitation in rejecting the alternative proposed."

The court-martial which was convened at Philadelphia January 7, 1818, charged Barton with "conduct unbecoming an officer and a gentleman," with two specifications in support of the charge, the first of which related to a statement in Dr. Barton's book on "Marine Hospitals," previously mentioned, criticizing the condition of the hospital at Philadelphia, which Harris claimed tended falsely to degrade the character and reputation of Barton's predecessor there, Dr. Edward Cutbush, who at the time was surgeon in charge. The court ruled that no answer or refutation need be made to this specification of the charge. The second specification of the charge that Barton had, while surgeon to the Marines at the Navy Yard, Philadelphia, "insidiously solicited and procured Dr. Thomas Harris to be superseded and removed from his place at the Hospital, and obtained it for himself." It appears that Barton had "jocosely" remarked to Harris sometime prior to the time he was called away to attend his father's funeral, that he (Dr. Harris) had better look to his position at the hospital as he intended getting it for himself if he could, especially as his seniority entitled him to it. The court decided that the charge was sustained "to a certain extent only" and acquitted Dr. Barton of having uttered a wilful and deliberate falsehood. "The court deemed it derogatory, however, to the honor of the service, . . . this shuffling for particular places, presumed to be given according to seniority or merit and which should ever be left to flow from the spontaneous choice of the guardians of our interests and our rights," and sentenced the accused to be reprimanded by the Secretary of the Navy. The court also stated in the

letter of reprimand that they "were peculiarly struck with the number and weight of testimonials adduced in relation to your talents, your usefulness and heretofore honorable deportment."

This court-martial was unique in many respects, particularly in that President Monroe was summoned as a witness for the defense. On the back of the summons he stated that official business would prevent his appearance, but he submitted full answers to the interrogatories sent him, and these were favorable to Barton. On his trial Dr. Barton introduced a long forty-eight page letter of defense, which is a remarkable literary production, unfortunately much too long to include here, but I think his final peroration is worthy of presentation:

"I yet firmly believe the reality will sooner or later appear. There is an invincible strength and boldness in truth that rends whatever cloak dishonesty may put over it; and despite of every untoward effort to conceal it from view, it fearlessly shows its face! Well for the innocent that this is so and woe to the one who meddles with and disturbs the calm and consistent operation of honest policy! A short lived triumph may be his boon, but remorse must soon destroy it and in the fullest conviction I believe with the poet:

There surely is some guiding power
Which rightly suffers wrong,
Gives vice to bloom its little hour
But virtue late and long!"

The letter of introduction from Richard Rush to President James Monroe, which has been referred to above, contained sentiments of warm esteem and appreciation of Barton's professional standing. It refers to him as enjoying and in a very high degree deserving "the respect and esteem of all who have had the pleasure of his acquaintance. In speaking of his service in the Navy, Rush states that "he (Barton) exercises its duties

(i.e., duties of his calling) with equal credit to himself and advantage to the service . . . the opportunities of a long acquaintance enables me to certify, in the warmest terms to his permanent worth." In answering the interrogatories sent to him by the court, President Monroe referred to Dr. Barton as follows: "My own impression was also favorable to him proceeding from what Mr. Rush had said, from my great respect for some of his relations, distinguished for their literary attainments, and the interest I took in the welfare of his mother. My impression now is that the Doctor urged his claim in his observations to me with delicacy towards his opponent and modesty to himself."

Between the years 1814 to 1818, during his period of duty at Philadelphia, he completed and published two works on botany, one, the "Vegetable Materia Medica of the United States, or Medical Botany," containing a botanical, general, and medical history of medicinal plants indigenous to the United States, a two volume work, and the other the "Compendium Floræ Philadelphæ," containing a description of the indigenous and naturalized plants found within a circuit of ten miles of Philadelphia, also in two volumes. On October 17, 1814, he read a paper before the Linnæan Society, of which he was president, on *Holcus bicolor*, a plant used in Lancaster as a substitute for chocolate. In the year 1820, there appeared his "Memorial from the Professor of Botany in the University of Pennsylvania, to the Trustees of that Institution," praying for the removal of the professorship of botany from the faculty of natural science to the medical faculty, and urging that botany be added to the subjects requisite for the attainment of a medical degree.

These works reveal Barton as a scientist of great ability and are evidence of his zeal in rendering available a knowledge of the general and medical botany of the United States.

Barton's fellowship in the College of

Physicians lapsed for some reason in June, 1822, and, while there is little evidence to support this view, it is thought that this may have been the result of some local disagreement growing out of the movement to found another medical school at Philadelphia at about this time. As early as 1818, Barton had endeavored to obtain a charter for a new medical college, but this was strenuously opposed by friends of the University of Pennsylvania, and the efforts of Barton and his associates proved unsuccessful. Seven years later, however, the Jefferson Medical College was established.

At this time or a little later Barton appears to have been placed on half pay, and in 1823, there is evidence that he lost even this income from the government, for in a letter addressed to the Secretary of the Navy, dated April 26, 1823, he refers to being "cut off from pay by Act of Congress one year ago." In speaking of his circumstances in this letter, he refers to his writings as quite unremunerative, and of his salary as professor of botany as being only \$120.00 a year, "but even this has not been available for the present year as there was no class in botany." The letter finally leads up to a request to be allowed to remain in Philadelphia for financial reasons, and because of the state of his health, which is attested as unsatisfactory by three physicians whose certificates he encloses. On April 23, 1823, in spite of the foregoing he is ordered to proceed by water to Norfolk and join the "Congress." A letter follows, promptly written to President James Monroe, requesting the revocation of the orders, on account of an engagement he has entered into, to finish a book entitled, "A Flora of North America," which it develops is dedicated to Monroe. This book is to be illustrated by colored figures, drawn from nature by Barton, and colored by his wife. His orders to the "Congress" were revoked May 1st. On November 29, 1824, he writes to the Secretary offering free instruction in botany to any medical

officers who may be stationed in the vicinity of Philadelphia. On the back of this letter is a penciled approval by the Secretary, with directions that instructions be written to surgeon's mates in Philadelphia to avail themselves of the offer. On May 12, 1825, orders were issued to Dr. Barton, for duty at the "Navy Yard and Station, Philadelphia." These orders probably referred to his duty with the Board of Medical Examiners established there about this time, as correspondence between Barton and the Department now begins to appear, dealing almost exclusively with matters pertaining to this Board, and the letters extend over the succeeding four or five years. It was during this duty that Barton sought for and obtained substantial improvements in the methods of securing properly equipped medical officers for the naval service, and also, largely through his efforts, that certain professional qualifications were required for promotion. His interest in this subject is very well expressed in a letter dated March 11, 1831:

"Conceiving it of the utmost importance that a surgeon of the Navy should be a man of an exceptional character and habits and good education, either by the usual academic opportunities, or such other successful exertions, and conceiving also that his literary acquirements should be so respectable that he may not disparage, by comparison, the literary and scientific character of his country, when he shall come by conversation and professional intercourse with the enlightened medical officers of the English, French and Spanish navies and armies, to invite such comparisons, the Board determined that it was proper and would prove useful to meritorious individuals, and certainly beneficial to the service, to require of each candidate for promotion answers and documents asked for in the accompanying circular. (Certificates relating to moral

character, etc). Several have immediately complied in a manner not only altogether satisfactory but redounding to their credit in the eye of the Department, when their credentials, which will form a part of the records of the proceedings of this Board, shall come before you. It is presumed that those who cannot procure testimonials of correct habits and moral conduct do not deserve them, since the Board believes that common even-handed justice will oblige every conscientious surgeon to report truly the points of his assistant's behaviour on which he may be interrogated, especially as the requisition for such report is predicated on your instructions. The Board have consequently decided that with your approbation the course commenced will be pursued. The Board have directed a similar circular to be addressed to candidates for admission."

On May 4, 1829, orders were issued to Barton for sea duty in the Mediterranean Squadron, but they were revoked on May 18, for reasons which are not revealed. A letter written May 30, 1829, to the Hon. John Branch, secretary of the Navy, acknowledged the receipt of an order appointing him a member of a board of three medical officers required by a resolution of Congress to give separate opinions on the necessity or expediency of distilled spirits constituting a part of the ration allowed midshipmen and on September 16th he transmitted his report on this subject, with a statement in explanation of the long delay, saying he desired to hold his report in order to reflect upon his conclusions sufficiently, and to change them, if more mature consideration seemed to warrant. But he stated that his opinions as framed originally, were unchanged. The views he held on this subject are expressed in full in his book, "Hints for Medical Officers Cruising in the West Indies," published in 1830. Here

in a footnote he refers to the reports, and states in his matter of fact way that

"A more robust and vigorous state of health could scarce be found, than generally prevailed in the steerage . . . and yet these gentlemen are well deserving the remark, one and all, of most entire temperance; having drunk water only in their messes, during the whole cruise. . . . The point of temperance just noticed, shows how much good a medical officer may effect, by precept seconded by example. I instilled the importance of temperance—my pupils knew me to be their friend. They gratified me by acquiescence. They were healthy, happy and have been commended by the Department for their example. . . . If any medical man of the Navy would expect to be valued for any advice, relative to temperance, he must set the example by his own habits, of the precepts he would inculcate. If a medical officer shall drink brandy, with what face can he recommend other officers to discard it as pernicious? If any professional men are imperatively called on by every sense of duty and propriety, to practise temperance, it is the medical officers of the navy. So much do I despise this practice in medical men, especially of the navy, that I shudder when I see one take brandy and water. I do more, I fear and mistrust his professional efficiency and skill. I unhesitatingly declare, that I will ever strive by my vote and influence, to keep out of the corps any who may desire to enter it, whom I may have reason to believe addicted to so dangerous a license in his habits. And I also declare I will never give my vote, if I am on the board of examination, for the promotion of any assistant to the rank of surgeon, whom I know to forget, by habitual stimulation, what is due to the high trust reposed in him; and this I would do, let his talents

or qualifications be ever so good. For, how long would they be useful to himself or the service? Besides this consideration, his bad example is ten fold the more hurtful, by reason of his being a medical man. A brandy-drinking *physician!* I cannot conceive of such a thing—I will not admit it to be possible. I trust there are none in the navy. If there be, shame on them to smirch their calling. If, I repeat, there be any “bingo” or “blue-ruin” doctors in the navy, they should not be there.”

On December 27, 1829, he acknowledges receipt of a letter from the Secretary which directed him to hold himself in readiness for duty on the “Brandywine.” This vessel was fitting out for special service in the Gulf of Mexico, and on January 4, 1830, Barton reports for this duty to Commodore Isaac Chauncey at New York. He remained on the “Brandywine” until July 12, 1830, and then was on leave until September of that year. It is probable that he employed this interval in writing the “Hints for Naval Officers,” mentioned above, which was published in September, 1830. The vessel “Brandywine” proved to be a damp, hence a sickly ship and during the cruise she was exposed to all the malign influences attributed to a West Indian climate, from which, however, the personnel came home in much better condition than was usual in those days. In the “Appendix” to his “Hints” appears a letter dated March 10, 1830, written on the “Brandywine” (near Sandy Hook), addressed to the commanding officer, Captain Ballard, which makes it clear that Barton was fully aware of the difficulties of maintaining the health of a ship’s crew during a cruise in the West Indies in those days, and that he was keenly alive to many of the principles of hygiene which must be applied to safeguard health while there. His views regarding the non-contagiousness of yellow fever followed those of Rush, but he states

its causes as plural, “the sun, the dews and the rains.”

The ship had passed the winter in a Northern climate, a season characterized that year by great severity and unusual length. As a consequence, the whole crew was transferred from the receiving vessel with heavy colds. The following day presented a sick list of fifteen. In one week there were forty, and after the lapse of a few days more, the sick had mounted to fifty-eight. “With two or three exceptions, all of these were afflicted with the diseases arising from intense and continued cold; such as frosted hands, fingers, toes and feet, chilblains, pleurisies, pneumonic affections, etc. One midshipman and five men were sent to the naval hospital with scarlet fever for the indispensable benefits of fire and other comforts. . . . In view of this state of the crew and of the fact that the ship will be in the West Indies during the season most favorable to the fatal endemic disease of that region, I cannot withhold the opinion—that a disastrous result of the cruise will most probably attend its termination.” Barton therefore advised the continuance at sea as much as possible and the avoidance of Havana and other unhealthy ports. On July 7, 1830, the ship was back in Hampton Roads, having visited Santo Domingo, Havana, Vera Cruz, Tampico and Pensacola. During the cruise 488 sick had been admitted to the list, comprising various ailments, but including:

“A great proportion of cases of typhoid, pneumonia, scarlet fever, low fever of tertian and quartan types, diarrhoea and rheumatism, diseases generated by dampness. When this dampness became a heated moisture, as it soon did in the West Indies, the cases of fever were of extremely dangerous aspect, and the pneumonic and anginose affection general, and excessively distressing and difficult to manage. Sore throats running to ulcera-

tion, with dejected spirits and low state of the system, accompanied more or less, all the cases. I attribute the sickly condition of this ship . . . chiefly to an unpropitious winter . . . a foul hold and lower apartments, a bilged well, and perhaps some other causes not now necessary to be mentioned. . . . Had the 'Brandywine' continued two or three months longer in the West Indies, I have no doubt that the yellow fever would have made sad havoc amid her officers and crew. Such a damp, ill-ventilated and wet ship should not again be sent thither."

In spite of the insalubrious record of the ship in a previous cruise, during which she lost forty of her crew from disease, Barton reports only ten deaths, and of these only two died from "fever induced by the climate" which Barton alleged was not yellow fever, as the cases "wanted the gastric affection of that disease."

As there was considerable evidence of a foul hold, after arrival at Norfolk, and upon Barton's urgent representation, the ship was evacuated of personnel, and the hold broken out. This was found to be in an excessively foul condition. On the expiration of his cruise on the "Brandywine," on July 12, 1830, Dr. Barton was granted unlimited leave, but on September 2, 1830, he received orders to report to the Norfolk Hospital, and here he remained until December 1, 1831. Little is to be found reflective of his activities during this period. Soon after his arrival there he requests that a suitable boat and boat's crew be furnished the hospital, and there is correspondence with the Department relative to the rations of hospital patients, and their laundry. For a number of years subsequent to his Norfolk duty, Barton was president of the medical examining board at Philadelphia, in which position he introduced many reforms governing the examination requirements for candidates for admission, and

for promotion. In this work he always had the interests of the service at heart but he was by no means blind to the individual officer's rights and privileges.

On June 10, 1833, he writes to the Secretary of the Navy stating that a vessel had just arrived from Manila, on which is a Dr. Burroughs, who has a limited quantity of essential oil of camphor and oil of cajuput. This he states is the first importation of these medicines into America, and Barton being anxious that the Navy should benefit from an opportunity to test their reputed virtues, particularly the oil of camphor, said to be a sovereign remedy for cholera, recommends the purchase of a few bottles. The camphor is quoted at \$15.00 per bottle and the cajuput at \$22.00. The Secretary's pencil memoranda on the back of Barton's letter, approves the purchase of two bottles each of these medicaments, and suggests that their contents be split up into a number of smaller bottles for distribution to the service, the larger number to go to the hospitals at Norfolk and New York. We hear nothing, however, of results of the use of these remedies. In 1827 Barton published another book entitled, "Outlines of Lectures on Materia Medica and Botany delivered at the Jefferson Medical College, Philadelphia," and in 1833, the "Prodrome of a Work to aid Teaching of the Vegetable Materia Medica by the Natural Families of Plants in the Therapeutic Institute of Philadelphia." It was the latter to which he referred in a letter written in December, 1833, asking whether the Department would purchase this volume in a number sufficient to provide one for each surgeon and surgeon's mate in the service. The action of the Secretary on this request is not recorded. In March, 1836, there comes to light a letter to the Secretary which deals with an interesting incident, namely the duel of his son, Midshipman Charles Crillon Barton, with another midshipman, while serving in the eastern Mediterranean under Commodore

Jesse Duncan Elliott. Young Barton was badly wounded and remained in Smyrna for over a year under treatment and awaiting transportation home. He is under arrest for trial for duelling, and his father prays for his release, basing his appeal for this action largely on the unusual circumstances of the duel, and Commodore Elliott's treatment of young Barton, which he alleged was inhuman. Barton's letter is a most eloquent appeal, and is moreover instructive as showing his views on duelling, "That it is an evil," he states, "admits of no disputation."

On September 6, 1836, Dr. Barton declined an offer of duty as fleet surgeon of the Pacific under Commodore Ballard, alleging as reasons that he is the only support of his mother, now seventy-seven years of age, and of other members of his family, except his brother who is about to leave for Europe to be gone two years. His reluctance to accept orders to this station, may have been due also to the fact that he had made a cruise with Captain Ballard in the "Brandywine," and their relations then had not been altogether happy. He refers to this in a letter written to the Secretary of the Navy, from Pensacola, September 1, 1848, in which he seeks to justify himself for having acted independently of the commanding officer of the station in a matter which he considers was one concerned solely with the internal administration of the hospital, namely, the proper apparel of the slaves employed as attendants, who are "not only destitute of decent vestments but in absolute rags." His reference to Captain Ballard is as follows:

"My personal relations with them all (i.e. his commanding officers) with the single exception of Captain Ballard, were harmonious and kind, with an interchange of social courtesies. I have always believed and said that the medical officer who cannot get along harmoniously and

in common interest for the good of the sick, must look to himself, almost always, for the fault."

On December 28, 1836, he transmits to the Secretary a copy of the "Elements of Botany," by his uncle, the late Benjamin Smith Barton, which he has re-edited and to which he has added a biography of the author. He suggests that the book be added to the list of books for naval libraries of ships.

On February 8, 1837, he writes to Andrew Jackson, then President, urging the necessity of an increase in the surgeons' list. A similar communication was previously sent to the Secretary of the Navy and was signed by a number of the senior medical officers in the service. On June 3, 1837, he acknowledges the receipt of an order to convene the Medical Examining Board (Board of Naval Surgeons) of which he is president, adding the following comment:

"Important as I think and always have thought the duty of these examining boards, in reference to the respect and efficiency of the Navy, so far as these are involved in the education, skill, and unquestionable moral character and good habits of the medical officers who may be admitted, I shall use my strenuous efforts and my best judgment to execute faithfully and conscientiously the duty you have assigned me and to realize the virtual object of the law on which that duty is predicated."

In June, 1839, Barton was called upon by the Secretary of the Navy for his ideas on recruiting and the physical standards of recruits. This was a subject in which he was keenly interested, and in his work on "Marine Hospitals" he had written at length on the defects of the system of recruiting in vogue, and suggested many improvements. In his letter to the Secretary he invites attention to the fact that existing

regulations require a second examination of recruits by surgeons of the yards before the recruits can be receipted for by the commanding officer of the receiving vessel. The object desired is the exclusion of unfit subjects from the service. The recruiting surgeon ought to be a responsible examiner.

“If the medical recruiting service is to be revised and amended it ought to be thoroughly done, so that responsibility will be placed where the specific duty naturally places it, with the recruiting surgeon. I think the present received understanding of the nature and object of the second examination has a tendency to lead to laxity in either the recruiting surgeon or the second examiner, which must be prejudicial to the service, since a division of responsibility in any duty leads to such effect.”

On August 17, 1841, he acknowledges receipt of an order for duty at the Naval Asylum, Philadelphia, as attending surgeon. On August 19, 1841, he urges reforms in the uniform dress of medical officers, and requests permission for them to wear one and two epaulettes, enclosing engravings of Army uniforms and regulations for medical officers of the Army governing this subject. He refers also to the discrepancy in pay between medical officers and those of the line, and the difference existing between them as regards promotion.

“I now presume from length of service to prefer for my colleagues more especially, as I am free to confess that I have no desire myself for any distinction or embellishing dress of any kind, but recollect when I was young how I thought and felt on this point. I ask for others what I did not myself crave. I submit a plan for uniform and epaulettes which I trust you will find in good taste.”

Barton was not an advocate of the principle of selection in the promotion of officers,

and he inveighs against it vehemently. In doing so he does not deny that recommendation to preferment should be based upon merit also, but he insists on combining service with this as necessary.

“I cannot in this place silently pass over, without noticing the consequences of it—the violation of that principle which is the life of naval and military service—I mean that which enforces the observance of seniority in the advancement of officers of whatever grade. The infringement of this principle demands the united efforts of the officers of the navy to discountenance and abolish it. It is not only unjust in itself, but destructive of the honourable pride and comfort of officers, and eminently subversive of that harmony, order, and subordination, which constitute the very existence of a well-regulated navy. Merit and service should never be neglected or forgotten. When appointments are founded on injustice, or made under the influence of favour they must, in the nature of things, be no less destructive of the individual happiness of officers, than inimical to the contentment of the men.”

On September 1, 1841, he submits certain suggestions for the good of the service in relation to assistant surgeons, and states that lasting good must come to the medical officers from their adoption. He also recommends that the Surgeon General of the Army make similar suggestions to the Secretary of War. “If an old medical officer of the Navy thinks, nay, is confident he can benefit the Service in this way, perhaps it will not be deemed intrusive that he does so. How is the Department to get medical views?”

These suggestions may be summarized as follows:

1. Recommends that three years' sea service be required as a probationary

period preliminary to examination for promotion, instead of "at least two years," as at present in the regulations.

2. That assistant surgeons be required by circular from the Department to perform all the minor operations directed by the surgeon, as bleeding, cupping, etc., and the dispensing and compounding of prescriptions in their own person not by delegating any of these to a "loblolly boy", hospital attendant, dispensary steward or a man nurse. In short, not to delegate these things to anyone. They constitute the business of an assistant surgeon, and unless he executes them he positively has no business to do, becoming the fifth wheel to the coach. These officers inspire confidence in the men and officers, and he adds, "what is physic without confidence—a loaded gun without the spark to ignite."

3. Assistants ought not to be allowed to alternate the duty of prescribing with the surgeon, and ought only to prescribe in his absence.

4. A medical and surgical journal ought to be kept by them to be presented to the Board on their second examination. The Department might furnish an outline of the kind of journal. It would discipline medical thought and induce reading.

5. When a medical officer acts as surgeon he should still not delegate his business to irresponsibles.

Thus we see how Barton paved the way to many reforms, adopted one by one in subsequent years, until now most of them have become part and parcel of Naval practice.

On June 13, 1842, he writes and refers to his letter of the 19th of August, 1841, written in Washington, relative to epaulettes and uniform for medical officers, and directs the attention of the Secretary to this former letter, adding:

"The late Board, after their labors were over, feeling a deep interest in the conse-

quence and respectability of the Medical Corps and under the full belief that you would willingly receive any suggestions they might make, calculated in their convictions to promote this consequence and respectability, have predicated on my proposition and suggestion in reference to the subject mentioned, and requested me to forward the document.

"This I now do with an earnest hope that you will acquiesce in the reasonable request made for the Corps. There is no doubt that Medical Officers, the oldest equally with the youngest surgeons, feel acutely, and especially in ships' service, their nonentity in the pageant part of discipline, and it would be affectation to gloss over the fact that Commanders and others representing them take no pains to prevent cause for feeling its nonentity. The epaulette and epaulettes will, if allowed, go far to abate this grievance, though nothing but a positive accredited rank will wholly reject it. I am sure of this, strange as it may seem in the abstract view. It is consistent with military show to be so. To conclude I must repeat with emphasis what I stated in my communication of the 19th of August, that what is asked for is usage in the English Navy and other foreign navies, and is usage in the United States Army."

Section IX of his book on hospitals, 1814, dealt with the propriety of establishing the rank of navy surgeons. In this connection he states:

"It will be a matter of surprise to those who are ignorant of the fact, to learn: that at this late period of our naval establishment, the rank of a grade of officers confessedly among the most important of those who compose the navy, is not yet determined.

"The inconveniences and disadvantages of this omission are well known to the

medical and other officers of the service. I have sorely experienced them; and would venture to assert, that every surgeon in the navy has at some period or other of his service, also felt the effects of his indefinite standing as respects other officers of the Navy. . . .

"If it is ever expected that men of talents and education, who have spent much of their time in acquiring such knowledge of a difficult, a laborious, and, to most persons, a painful profession, as will enable them to serve their country with advantage, will enter and continue in the naval service: the rank of surgeons *must* be established. And this rank should be sufficiently respectable to give them a consequence among sea-officers, that they have not.

"For my part, I cannot but believe it essentially necessary for the welfare of the navy, that this establishment of rank be immediately made. The error is old enough, and sufficiently productive of bad consequences, to demand a quick and efficient reform. When this is the case, we shall not have surgeons who have just continued long enough in the service to be well acquainted with the nature of sea-duty, and to be of course the better prepared to benefit it by their experience, becoming disgusted with their unimportant situation, and leaving a service productive neither of emolument nor increasing respectability. I do hope therefore that this subject will claim the attention which it so eminently merits. Persuaded as I am that when naval surgeons are placed upon a more respectable footing than that they now hold, the expediency of the regulation will be manifest to all, I must strenuously urge the establishment of rank, as I have done the necessity for an augmentation of pay."

On September 2, 1842, Barton received

the unsolicited honor of being selected as the Chief of the Bureau of Medicine and Surgery, a newly created office in the Navy Department. The selection was made from among the sixty surgeons then in the Navy. His position now furnished him the desired opportunity for inaugurating the many reforms he had long advocated as necessary to correct abuses and irregularities in the medical department of the Navy. As early as 1814 he had written: "The same independence which caused me to hold up my hands against the abuses of the Medical Department of the Navy, emboldens me to expose them." He consistently followed this policy while chief of bureau, and as in earlier days his "independence in expressing his sentiments on points of duty, in the Navy," made not a few enemies for him, so in this position he found himself assailed "for correcting abuses of indubitable existence." Unfortunately, upon the assumption of this office, the letters which have formed such a satisfactory source of information cease almost entirely, and the only letters reflecting his work in the Bureau relate to a period subsequent to the retirement of the Hon. A. P. Upshur, as secretary of the Navy, with whom Barton was on most friendly terms. Not so however with his successor; and Barton's correspondence with the latter indicates strained relations, and a lack of harmonious cooperation, which may have had much to do with his relinquishment of the office of chief of bureau in April, 1844. In his efforts to prevent undue waste and carelessness in the expenditure of medical supplies, particularly with respect to liquors in the medical department aboard ship, he was led to issue a "liquor circular" designed to be pasted on the inside of the lid of medical liquor cases. This circular established the contents of the case as medical supplies, and required them to be restricted to the use for which they were intended, namely, the sick. There was evidence that liquor was "borrowed" from medical sup-

plies, and not always returned, and it was an abuse of this character which Barton aimed to correct. But the circular raised a storm from medical officers and others who considered their honesty impugned, and the whole subject had an airing in documents presented to Congress at the time the attempt was made to oust Barton from office. Barton's action, however, had the full support of the Secretary and of many officers in the service, who were aware of this abuse of liquor. One of the most flagrant examples of this abuse was alleged to have taken place in the Florida squadron, and Barton's strictures on this particular expenditure brought down on his head the bitter enmity of the squadron commander, Lieutenant McLaughlin.

A single copy of Barton's first report as Chief of Bureau dated December 1, 1842, was discovered in Washington, and it reveals his many difficulties, financial and others, in establishing the Bureau and in effecting the reforms he looked upon as necessary and essential to efficiency. Some of the details of this report show a shocking state of public morals regarding medical expenditures, and to the correction of these Barton addressed himself unflinchingly. I will refer only to one item as illustrative of the conditions prevailing at this time. Barton found that out of the appropriation for "medicines, surgical instruments, etc.," there had been expended at one institution "for 31 blue coats, with navy buttons and a silver star ornament; 31 blue cassimere pantaloons, and 31 blue cassimere vests with navy buttons," the sum of six hundred and sixty-five dollars and fifty-seven cents!

In this first report of a chief of bureau there is a recommendation which touched the efficiency of every medical officer in the service. It is, "That a small, compact medical and surgical library shall be authorized to be purchased for each vessel of war, in proportion to the size and capacity for the

accommodation of books in the surgeon's department, and also for hospitals and sick quarters at navy yards. . . . Extensive and costly libraries are furnished by the Government to the commanders of all ships in the Navy, often embracing a large proportion of mere general literature. Professional works, so important to medical officers should not be denied."

Among the "Executives" letters filed in the Navy Department Library I discovered one from the Secretary of the Navy to the President, dated February 5, 1844, which refers to charges preferred against Dr. Barton by Lieutenant John T. McLaughlin in the previous August. The exact nature of the charges does not appear, except to specify "gross official misconduct," but Barton apparently had made no reply to the Department's request for explanation, and Lieutenant McLaughlin preferred another charge against him in October, 1843, which was also referred to Dr. Barton, but this remained unanswered like the former. I have searched in vain for some more precise information covering these incidents, but have found nothing. It will be recalled that McLaughlin was the officer in charge of the Florida squadron in which Barton had alleged there was an undue expenditure of liquor from medical department supplies, and the conditions in that squadron in this respect were brought forward by Barton in defense of his celebrated "liquor circular." Two thousand and seventy-six dollars' worth of liquor were procured for the sick in a period of about eight months, the number of persons in this command being in the neighborhood of six hundred. Barton had asked, what had become of the liquor, did the sick consume it all, and was it necessary? This had aroused Lieutenant McLaughlin's ire, and it is not improbable that these charges were inspired by Barton's comments. In the Judge Advocate General's Office there is evidence of a Court of Inquiry on Lieutenant John T. McLaughlin dated

September 24, 1845, and thinking that a study of this record might throw some light on the allegations made by McLaughlin against Barton, or be in some way connected with them, I sought out the record, only to find it missing, and so this matter remains a mystery which I have been unable to unravel.

Dr. Barton's letter of resignation, which I include here, closes the chapter on this period of his career. It is dated March 20, 1844, addressed to the President, and shows his state of mind regarding his labors in the office he is about to leave:

"Without the slightest knowledge of the honor intended me by an appointment by you to this Bureau, or indeed without knowing of the existence of such an office, I received, early in September, 1842, an official notification that the Senate had confirmed the nomination you had made of my name as its Chief. Doubting the popularity of the office, if strictly organized and executed throughout its parts, the appointment was not grateful to me, yet though the acceptance of it was a severe pecuniary sacrifice which I was unable to bear, as well as an interruption of the peaceful performance of my public service at my home, and with my family of females (whom I was obliged to leave unprotected), still the sense of duty overpowered these conditions. I therefore entered on the new duties assigned me with a determination expressed to the secretary of the Navy, at the time of doing so, of retiring within a year. After nearly twelve months' arduous labor devoted with conscience and zeal, duly appreciated by the lamented Mr. Upshur,⁷ to devise and carry out a system of regulated requisitions and responsibilities in the Medical Department, I had determined, having become extremely ill, to send in my resignation last July. I was deterred from this act

at that time, and subsequently by the urgent advice against the measure of the late Secretary of State, just named, and yielding to his wish and influence as to that of a valued and tried friend who knew my cause and views for public good in the Bureau, I continued reluctantly to exercise my efforts to realize the system of retrenchment, reform and responsibility I had adopted and put in force, and he had approved, and which however consciously I believe they know to be necessary, seems to have met with difficulty, opposition and unpopularity. My earnest wish therefore has long been, and now is, to retire from the scene of unavailing efforts. This I requested to be conveyed to you by a third person in your confidence, some weeks ago. I have done my duty to you and my best for the good of the country. No man can do more. I beg therefore now to tender and I do hereby tender my resignation as Chief of the Bureau of Medicine and Surgery of the Navy Department to take effect on the first of April next, and hope while so doing you will not consider it improper but only just to myself to request that you will do me the favor by that date to have me returned on duty as a surgeon of the Navy Department of the Philadelphia station."

Barton was succeeded as chief of bureau by his former prosecutor before the court-martial in 1818, Surgeon Thomas Harris.

After this we have little information regarding his activities, but it is not unlikely that the wish expressed in the final paragraph of his letter of resignation was grati-

⁷ On the resignation of Daniel Webster in 1843, Mr. Upshur became Secretary of State. On February 28, 1844, in company with the President and his party he visited the U.S.S. "Princeton" on the Potomac, to witness the testing of a big gun. It exploded in the experiments and Secretary Upshur, together with several others of the party, was killed.

fied and that he went to Philadelphia. In February, 1848, he is ordered to hold himself in readiness for duty at the Naval Hospital at Pensacola, Florida. He remained here only a few months, being relieved by Dr. Hulse on September 1, 1848. Two letters from this hospital were discovered, in handwriting, alas, which is no longer as legible as it was in the earlier years of his life. One bears the date of July 18, 1848, and the other of September 1, 1848, the former addressed to a Mr. Innerrarity of Pensacola and the latter to the Hon. J. Y. Mason, secretary of the Navy. Both these letters discuss the question of clothing for the slaves employed in the hospital as attendants. Some of the owners of these slaves had neglected to furnish what Barton considered necessary, either in clothing or in a money equivalent with which the slaves might purchase clothing.

In 1852 he is again President of the Board of Examiners at Philadelphia, and apparently remained here until his death on February 29, 1856.

The North American and United States Gazette, Philadelphia, for March 1, 1856, contains his obituary notice, as having died on the morning of the 29th ultimo, and inviting relatives, friends and officers of the Navy, Army, and Marine Corps to attend his funeral at his late residence on Chestnut Street at 2 o'clock on the 2d instant. Under date of March 3d, the same paper prints an account of the funeral and the interment of the remains at Laurel Hill. A detachment of marines was detailed from the Navy Yard to fire over his grave. The *cortège* included representatives from the local military bodies, Army, Navy and Marine officers, and the Pennsylvania Cornet Band preceded the procession, performing music appropriate to the occasion. Dr. Barton's grave is on the hillside overlooking the Schuylkill and is marked by a simple headstone, inscribed with his name, the date of his birth and the date of his death.

APPENDIX

The appearance of Dr. Barton's work on "Marine Hospitals," in 1814, marked an epoch in the history of medicine in our service. This book disclosed a mind capable of appreciating the vital problems of naval hygiene, their significance in relation to the health and comfort of seamen, and an ability to apply constructive improvement in sanitary conditions, which few, if any, of his contemporaries possessed. His writings give evidence of extensive study of the literature of naval and military medicine. He makes specific references to the works of Blane, Lind, Clarke, Trotter, Turnbull and Larrey. Many of his suggestions for reform or improvement were looked upon as revolutionary, and as unnecessary innovations. It is only by perusing his two books on naval medicine that we can form an adequate idea of the extent of his activities in this field.

It was in February, 1814, that Dr. Barton's "Treatise on Marine Hospitals and the Medical Department of the Navy" appeared. The full title of the second edition of this book I have given earlier. The first edition did not contain the "Observations on Military and Flying Hospitals" which appears in the second edition. The first edition was dedicated:

*To the
Flag-Officers, Captains and Surgeons
in the
Navy of the United States:*

- A Navy*, rendered glorious by the brilliancy of its achievements and which has added lustre to the nation—giving dignity and importance to its character abroad:
- A Navy*, to the seamen of which, by their prowess and their victories—the skilful, the valorous and the hitherto unconquered naval sons of Great Britain, are forced to yield the palm of superiority:
- A Navy*, thus eminently distinguished even in infancy—and which has conquered its way to publick favour and estimation:
This attempt, to promote its interests is most respectfully dedicated by the Author.

Then follow a number of recommendatory letters from prominent medical men in Philadelphia, including Dorsey, Coxe, Chapman, James, Hartshorne, Hewson and Barton. The book is divided into two parts, one dealing with "A Plan for the Internal Organization and Government of Marine Hospitals in the United States" and the other with "A Scheme for Amending and Systematizing the Medical Department of the Navy of the United States, with a few Observations on the Expediency of Altering the present Ration; and Promoting the Better Ventilation and Warming of Ships, also some Strictures on the Practice of Frequently Wet Scrubbing the Decks in the Winter Season and the impropriety of Shipping men of the United States Vessels without a Strict and Conscientious Examination by a Surgeon or Surgeon's Mate, of their Efficiency as Able-Bodied Men."

Barton explains in the preface of the first edition that the idea of the book originated in a request made to him by the Secretary of the Navy in November, 1811, to submit his ideas "respecting the proper and systematic mode of conducting institutions of this nature (i.e., Marine Hospitals), as well as any suggestions for the internal organization of the household as might seem to me consistent with economy and truth." The finished book contained considerable additions and emendations. He speaks of the many opportunities he has had during his sea duty of observing irregularities in the medical department and the disastrous consequences attending them, and in the book he endeavors to point out the means of correction. He states that if the propositions and suggestions exhibited in the book be thought worthy of adoption and if they shall be found calculated to achieve the object they have in view, "I shall deem the five years I have devoted to the naval service, not passed in vain. . . . I have been long enough in the Navy to have its interests much at heart, even if I did not believe

(which I certainly do) that its existence is vitally important to our national prosperity and honour."

In the preface to the second edition he speaks of the fate of the book as somewhat remarkable:

"It was written by the request of a late Secretary of the Navy at a period when the youth of the Author (then but four and twenty) caused him to think of executing the task with diffidence. . . . The work however was flatteringly recommended. . . . Notwithstanding these unqualified testimonials in its favour . . . the work lingered for a short time on publick view, and was then forgotten. An ineffectual attempt was made in March, 1814, to bring it to the notice of the naval committee of Congress . . . to lay before its members a knowledge of the irregularities and abuses of the medical department, for the reform and correction of which the author had proposed what he believed a feasible scheme. It resulted however in an indirect reference . . . to the Secretary of the Navy. . . . It is plain from this exposition, that the author had but little reason to be satisfied with the present, or sanguine respecting the future reception of his work. Yet, though not insensible to the palsied touch which seemed to have reached it, candour compels him to acknowledge that he never despaired of its ultimate success. . . . The work has finally worked its way into notice and favour. It has been patronized both by the navy and war departments . . . and although but three years have elapsed . . . a new edition is called for. . . . For this estimation of its merit, the author takes this opportunity of rendering his thanks to those medical gentlemen, by whose passport it has at length gained admittance to the chamber of the great, after a chilling and tedious tarry at the portal, and many repulsive

frowns from one of the servants in waiting."

An idea of the scope of this work may be gathered from a mention of the subjects treated in it. The opening section contains observations on the necessity of establishing marine (naval) hospitals in the United States. Barton refers to the law which authorized the establishment of these institutions and to plans submitted to the Secretary of the Navy by the engineer, Mr. Latrobe. In adducing reasons why hospitals should be provided he remarks:

"Nothing causes seamen to discern alacrity, promptitude and faithfulness, in the performance of their severe and arduous duties . . . than a certainty of being attended humanely and ably by the superintendants of a medical department replete with every comfort and convenience for the sick and afflicted. . . . While on the other hand the neglects, irregularities or inability, of the medical officers, never fail to create discontentment and disgust. In the petition . . . made by the delegates of the English fleet at Spithead, in the ever memorable mutiny . . . in the year 1797 . . . one of the principal articles referred to the neglect of the sick on board the ships . . . it was deemed prudent and expedient to issue new orders from the office of sick and wounded seamen, respecting the medical department, the strict observance of which was required of the surgeons."

The second section presents a sketch of the marine hospitals of Europe, including the Royal Hospital for Seamen at Greenwich, the Chest at Chatham, the Royal Hospitals at Haslar, Plymouth, Deal, Yarmouth and Paignton and the Chelsea Hospital; the Forton Prison Hospital for French prisoners near Portsmouth and the medical departments at the Royal Navy Yards. He also describes the French naval hospitals at L'Orient and Cherbourg.

It will be recalled that Barton had just come from abroad in the "Essex" and the data for this section had been obtained on this cruise. He refers to having been at Cowes, Isle of Wight and at Barnpool (near Plymouth) during the time abroad, and seems to have visited St. Thomas', St. Bartholomew's, Guy's and St. George's Hospitals in London. His descriptions are full and painstaking, and it is not unlikely that they were based on personal observations, although he does not state how he obtained the information regarding these institutions. In Section III he deals with the principles which he considers should govern the administration of naval hospitals and it is here that he quotes Turnbull, an English naval surgeon, in support of the proposition that naval medical students should be instructed in anatomy, surgery, and clinical practice at the principal naval hospitals, thus constituting them "schools of naval surgery," with the object "that young men should enter the medical sea service . . . not mere tyros in their business but . . . well versed . . . in naval medicine and sea surgery; but intimately acquainted with the nature and treatment of those diseases which are incidental to a sea-faring life." He asserts that, "the general administration of marine hospitals should be of a military nature" and that "the salaries of the different officers should be as liberal as is consistent with a due regard to economy. . . . Medical officers particularly should be allowed such ample compensation, that they would have no inducement, nor be subjected to the necessity of resorting to private practice, in order to support themselves or their families. . . . All the officers of the institution should be furnished with houses or apartments within the limits of the hospitals." The succeeding sections of Part I of the book continue with questions concerning sites for hospitals, internal arrangements of hospitals, construction of bedsteads; dress; bedding; ventilation; warming;

diet; reception of patients; duties of officers; nurses; orderlies; rules for patients; and an account of the Pennsylvania Hospital. The second edition contains the "Observations on Military and Flying Hospitals."

Part II presents his scheme for improving the medical department of the Navy. He remarks that "Schemes proposed by an individual to the Secretary of the Navy, are not likely to be well received, unless they be seconded by officers high in rank and reputation. . . . With some of these . . . I have frequently conversed respecting the deplorable want of system that marks the medical department of the navy. It affords me the greatest satisfaction to say: that I ever found them willing to give all assistance in their power."

Commodores Decatur and Rodgers and Captain Porter are mentioned as affording him support in the past.

Barton then takes up in detail his ideas for reforming medical administration in the navy. In the light of his experience on the "United States" and "Essex" he recommends the introduction of a systematic plan for furnishing ships with medical stores, and the establishment of regulations which will make the surgeons responsible for the just expenditure of articles. He mentions the chief points that require correction or reform as being: "the introduction of the lemon acid, in abundant quantities, with free and liberal use in our ships; the present irregular mode of supplying ships and vessels of war with medicine and hospital stores; the laxity in the necessary checks to abuses that grow out of it; the faultiness of the regulations respecting the responsibility of the surgeon for the safe-keeping and proper appropriation of the articles entrusted to his charge, exclusively for the benefit of the sick; the alteration of the present ration, or at least the liquid part of it; the better ventilation and warming of our ships in the winter season; the practice of slushing down decks in winter;

and lastly the impropriety and pernicious consequences to the service, of the present plan of recruiting, in which men are shipped without a strict examination by a professional man." He summarizes his ideas of naval hygiene, as follows:

"With respect to the navy, which is my object at present, the regulations that are most to be depended on, for preserving and promoting the health of seamen, are such as have in view a diet of healthful quality, the personal cleanliness of the crews and the purity and free ventilation of the ships they inhabit."

In the section dealing with "the mode of furnishing the medicine and store chests" he recommends the adoption of a supply table, a model for which he exhibits in the text, with all the items specified, and suggests regulations for governing the storage and issue of medical supplies. The necessary blank forms for recording an account of the receipt and expenditure of medicine etc., are described in full.

Section VI refers to a singular practice then existing in the Navy, namely, the payment to the surgeon of a fee, usually five dollars, for every patient cured of venereal disease, this amount being charged against the accounts of the sufferers by the purser. Barton states with reference to this plan,

"It is true there is no established article of the navy laws to authorize the payment of such sums. But immemorial custom has given this regulation the importance and effect of a law."

He looks upon this practice as reprehensible and wishes it expunged from the navy altogether. He further alleges that

"Seamen sometimes, but more frequently landsmen and marines, do frequently conceal their complaints for fear of being obliged to pay the doctor for their cure. This happens till the

disease assumes a serious and not infrequently a dangerous aspect. They will purchase for a trifle, on shore, drugs enough to ruin them . . . or apply to the loblolly-boy . . . rather than make their complaint known to the surgeon. Can anything be more destructive to the health of the men, and of course to the good of the service, than a regulation that induces such conduct and such consequences?"

Barton lays down in succeeding sections exact rules governing the duties of surgeons' mates, and devotes a section to a discussion of the expediency of giving surgeons proper military rank. Rationing and diet for seamen is reviewed at length and Barton presents a revised ration "for promoting and preserving health and morals of the seamen in the U. S. naval service." The section devoted to the ventilation and warming of ships emphasizes well-known principles of hygiene governing these subjects and recommends the more extensive use of windsails. He insists upon dryness of lower decks and inveighs against wet scrubbing of them in winter weather, quoting Trotter in support of his contention. The two final sections of the book deal with Barton's ideas regarding the examination of recruits, a matter in which he seems to have been a pioneer in our service, and with plans for improving the health of the men and the comfort of the sick by locating the sick bay further aft, isolating it by partitions, ventilating it "by tubes from the gun or main deck," and furnishing well-slung cots, etc. Other points covered are the proper location of the paint room, to avoid lead poisoning; the selection of a place for laying ships up in ordinary, free from damp and marshy exhalations; the provision of bunting sashes for lower deck ports; providing boats' crews with breakfast before they are sent on shore for wood or water; exercising supervision over "bumboats" to

exclude spirituous liquors; preventing men from drinking river water, when ships are anchored in rivers; that "dancing and musick" be promoted and encouraged among the men; and finally, he closes with the statement: "The most willing cooperation of the commanders and other officers of ships, should always be afforded the surgeon, in any of his plans for meliorating the condition of the men and promoting the convalescence and cure of the sick." In the "Conclusion" he closes as follows: "I conceive that the country has a right to expect from every officer in the service, the result of his experience, if that can in any way lead to the interests of the nation. I therefore tender with unaffected diffidence, my mite towards the general weal." An "Appendix" contains a list of surgeons in the navy in the year 1814. The second edition of this book was dedicated to "Daniel Parker, Esq., Adjutant and Inspector-General of the Army of the United States," which apparently was meant to be a public acknowledgement of the patronage accorded the first edition of the book by the Army authorities, who purchased it in quantity. In fact, the Army appears to have purchased more copies than the Navy, if one can judge from the letters printed on the page succeeding the dedication in this edition.

The "Hints for Naval Officers Cruising in the West Indies" was written and published in 1830, immediately following Barton's duty on the "Brandywine." This small volume incorporates in book form two reports made to the Navy Department on "Ardent Spirits in the Ration of Midshipmen," which has been referred to previously, and a "Report on the Means of Preserving the Health of Seamen Previous to a Cruise." To these are added sections dealing with "Use of Tobacco; Clothing; Sleeping; Restriction in Water; Temperance in Drinking and Eating; Miscellaneous Observations; Immunity;" and a section dealing with the natural advantages of

Pensacola as a site for a permanent naval depot. An appendix contains several letters written while on the "Brandywine," touching mainly questions of hygiene. This work, while presenting valuable and interesting material, and necessarily reflecting a more mature experience in the service, does not possess as great a claim to commendatory notice as the preceding, and, moreover, it is

written in a somewhat labored literary style. In the *National Gazette*, Philadelphia, April 15, 1829, there appeared a notice of a treatise which was stated to be in course of preparation by the author of the "Hints," entitled "A History of the Navy of the United States." There is no evidence that this work ever reached the stage of completion.

ON THE DEATH OF DR. ROBERT LEVET

Condemn'd to Hope's delusive mine,
As on we toil from day to day,
By sudden blasts or slow decline,
Our social comforts drop away.

Well tried through many a varying year,
See Levet to the grave descend,
Officious, innocent, sincere,
Of every friendless name the friend.

Yet still he finds affection's eye,
Obscurely wise and coarsely kind;
Nor letter'd arrogance deny
Thy praise to merit unrefined.

When fainting nature call'd for aid,
And hovering death prepared the blow
His vigorous remedy display'd
The power of art without the show.

In misery's darkest cavern known,
His useful care was ever nigh,
Where hopeless Anguish pour'd his groan,
And lonely want retired to die.

No summons mock'd by chill delay,
No petty gain disdain'd by pride;
The modest wants of every day
The toil of every day supplied.

His virtues walk'd their narrow round,
Nor made a pause, nor left a void;
And sure the Eternal Master found
The single talent well employ'd.

The busy day, the peaceful night,
Unfelt, uncounted, glided by;
His frame was firm—his powers were bright,
Though now his eightieth year was nigh.

Then with no fiery, throbbing pain,
No cold gradations of decay,
Death broke at once the vital chain,
And forced his soul the nearest way.

SAMUEL JOHNSON (1709-1784).



EDITORIALS

A PHYSIOLOGICAL ROMANCE

There has recently been republished in the "Ideal Bibliothèque" the famous story by Edmond About, "*L'Homme à l'Oreille Cassée*," which will afford an evening's profitable amusement to the medical man who possesses a reading acquaintance with the French language. It especially deserves attention because of the almost forgotten fact that the idea upon which it is based, that animal organisms if desiccated could be preserved for some time and life restored to them by renewing their moisture, was at one time seriously advanced and maintained. At present we may class it with the theory of spontaneous generation and other exploded myths. The story relates the revivification of a French officer of Napoleon's Army, who had been nearly frozen to death, and in that condition given as a corpse to a German scientist, who proceeded to desiccate him. The supposed mummy is purchased by a young French traveller, brought to France, and there revived by some of his countrymen. His desiccation had been produced in 1813, under the first Napoleon, his restoration was accomplished in 1859 during the reign of Napoleon III. Many amusing episodes occur and are told with all of About's wit and inimitable style; but the great interest to the medical reader

lies in the extreme minutiae and the great grasp of scientific details which are shown in the recital of the physiological processes involved in the story. The only book comparable to it in the English language is the "*Frankenstein*" of Mary Wollstonecraft Shelley, but the crudities and lack of scientific comprehension of the latter stand out in glaring contrast with the story of the marvellous career of Colonel Fougas. It is a curious reflection how frequently a man of genius can write on a technical or scientific subject with a grasp which compels the admiration of the professional reader, even when the matter of his work is really pseudo-science and not the genuine article. Thus a Kipling can write of the machinery of a ship in a way that no real engineer could emulate, although it is a question whether Mr. Kipling has ever had any practical training in the engine room of a steamer. About writes of his hero as though he had himself spent many arduous years in the physiological laboratory. His book must have appealed strongly to the mind of the lay public at a time when everyone was speculating on the origin of life, and before Pasteur had definitely disproved the existence of any such thing as spontaneous generation.

FRANCIS R. PACKARD.

IER CONGRES DE L'HISTOIRE DE LA MÉDECINE

Le premier Congrès indépendant de l'Histoire de la Médecine et de la Pharmacie se tiendra à Anvers du 7 au 12 août

1920. Il coïncidera avec la Kermesse et les Fêtes de la 5^e Olympiade.

A la séance de la Société française d'

Histoire de la Médecine du 6 décembre 1919, M. le D^R TRICOT-ROYER, l'un des organisateurs de ce Congrès, a donné connaissance du programme ainsi établi provisoirement:

Samedi 7 août:

- A 18 heures: Séance d'installation du Congrès.
- A 20 heures: Réception des Congressistes à l'Hôtel de Ville. Cette réception comporte un raout agrémenté d'un concert de carillon.

Dimanche 8 août:

- A 9 heures: Séance.
- A 14 heures: Excursion sur l'Escaut avec commentaires sur les installations maritimes, par M. STRAUSS, échevin de la ville d'Anvers.

Lundi 9 août:

- A 9 heures: Séance.
- A 14 heures: Conférence-promenade dans l'église collégiale Saint-Jacques, par M. l'abbé GOETSCHALCKX, archéologue et historien.
- A 17 h. ½: Séance.

Mardi 10 août:

- A 9 heures: Séance.
- A 14 heures: Conférence-promenade à travers les salles du Musée des Beaux-arts, par M. Jacques EDAPPERS, homme de lettres.
- A 17 h. ½: Séance.

Mercredi 11 août:

- A 9 heures: Séance.
- A 14 heures: Conférence-promenade, par le D^R TRICOT-ROYER, à l'hôpital Sainte-Elisabeth fondé au début du XIII^e siècle.
- A 17 h. ½: Séance.

Jeudi 12 août:

- A 9 heures: Séance.
- A 14 heures: Conférence-promenade au musée Plantin, par Charles BERNARD, avocat.
- A 18 heures: Banquet et clôture du Congrès.

Les séances, au nombre de neuf, comprendront des communications sur les sujets suivants:

1. Études historiques sur l'Assistance publique en tous pays. Dans cet ordre d'idées, M. le Professeur JEANSELME parlera de l'Assistance publique à Byzance.
2. L'Iconographie médicale.
3. La médecine monastique et collégiale en Belgique.
4. Bibliographie de l'Histoire de la Médecine. A ce propos, M. FANIEN, directeur de la bibliothèque municipale de Nancy, étudiera la bibliographie des œuvres médicales qui ont pris naissance en Lorraine.
5. Le mobilier des apothicaires.
6. Epigraphie médicale; continuation de l'œuvre commencée par le regretté professeur BLANCHARD.

Les séances se termineront par des notices biographiques ou diverses contributions à l'Histoire de la Médecine; dans cet ordre d'idées, M. le D^R DORVEAUX étudiera *Pilâtre de Rozier, apothicaire*; puis *l'Histoire de l'eau de la reine de Hongrie*. M. WICKESHEIMER parlera de la *Sphygmographie médiévale* et des médecins belges qui ont étudié à l'Université de Strasbourg.

Les communications, tout ou partie, seront réunies en un volume qui constituera le *liber memorialis* du Congrès.

Des démarches seront faites pour obtenir les réductions d'usage sur les chemins de fer des réseaux français et belges.

Les Congressistes, en raison de l'emcombrement des hôtels, seront reçus, avec leur famille, chez les médecins d'Anvers participant au Congrès. Ils peuvent dès maintenant indiquer le nombre de lits et de chambres qu'ils désirent voir mettre à leur disposition, en s'adressant à M. le D^R TRICOT-ROYER, 106, avenue d'Italie, Anvers.

BIOGRAPHY OF SIR WILLIAM OSLER

Lady Osler has requested me to prepare a biography of her husband and I will be most grateful to anyone who chances to see this note, for any letters or personal reminiscences, or for information concerning others who may possibly supply letters.

Copies of all letters, no matter how brief,

are requested, and if dates are omitted it is hoped that they may be supplied if possible. If the originals are forwarded for copy they will be promptly returned.

HARVEY CUSHING, M.D.

Peter Bent Brigham Hospital,

Boston, Mass.



BOOK REVIEWS

BREVES APUNTES PARA LA HISTORIA DE LA MEDICINA; SUS PROGRESOS EN GUAYAQUIL. Por Gabriel Pino y Roca. Imp. y Papeleria Sucre, Guayaquil. 1915. pp. 74.

In our summer number of 1917 (p. 217), we called attention to the great advantage of having the separate medical histories of different countries, states, regions, counties and cities written by the individuals best qualified for the task and their publication as a matter of local pride. Dr. James J. Walsh's five volume "History of Medicine in New York," just published, is a fine example of what can be done in this regard, a monument of patient research. The little book with the above title is in the same class; its modest dimensions befit the occasion of its production, since which time, Guayaquil has loomed larger in medico-historical consideration by reason of the fact that it has become the starting point of the investigations of the endemic foci of yellow fever now in progress under General Gorgas and his associates of the Rockefeller Foundation.

The booklet was prepared for the first "Equatorial Medical Congress" (Congreso Médico Ecuatoriano), held at Guayaquil, October 9, 1915. The story begins with the arrival of Francisco Pizarro at Coaque, Peru, in December, 1530, the epidemic of verrugas which attacked his soldiers, the expedition of Alvarado in 1534, the experiences with paludism and the disease called *Modorra*, which may have been sleeping sickness or encephalitis lethargica; from the foundation of Guayaquil in 1537, the narrative proceeds, in straight, consecutive order, down to the year of Peruvian independence (1822). The history thus covers the colonial period; with the foundation of the Sociedad Medica de Guayas (1837), the

modern period begins. The story abounds in interesting data about the local diseases, the indigenous medical plants, the use of bezoar stones, the medicine of the Incas, the foundation, fortunes and vicissitudes of the first hospital and drug dispensary, and the major epidemics, of which smallpox and yellow fever, sometimes called *mal de Siam*, were most frequent. Important landmarks are the establishment by Philip II of the Protomedicate of Peru (1570), a tribunal governing all physicians, surgeons, pharmacists and herb gatherers from Panama to Vireynato, the Royal Ordinance of February 12, 1579, forbidding any physician, surgeon, pharmacist, barber or astrologer (*algebrista*) to follow his avocations without previous examination, and the reopening of the hospital by Friar Gaspar Montero in 1618. The paragraphs and sentences are commendably brief, and the whole narrative is readable.

The foresight of the late William Pepper, of the University of Pennsylvania, in his efforts to establish closer relations between the medical profession in North and South America has been justified by the great progress in that direction made in recent years. Many can recall the earnestness with which he threw himself into the work of organizing the first Pan-American Medical Congress. The labours of many research workers from the United States in South American countries have opened the eyes of many of us to the splendid work which is being or has been done by the native physicians of those countries in many branches of medical work. South America boasts many splendid medical colleges and hospitals, the staffs of which are contributing largely to medical progress.

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SCULPTURE AND PAINTING AS MODES OF ANATOMICAL ILLUSTRATION¹

By

FIELDING H. GARRISON, M.D. & EDWARD C. STREETER, M.D.



THE earliest known hand drawings in manuscript representing details of human anatomy, from the twelfth century down to the time of Leonardo da Vinci, are of the most rudimentary and diagrammatic character and, for several centuries, reveal nothing but servile adherence to tradition. Before the advent of Leonardo, the finest figurations of anatomical structure were by-products of the advancement of the plastic and graphic arts. The question, "Did anatomy do anything for art?" has been conclusively answered by the late Dr. Robert Fletcher, in two essays of unrivalled scholarship, *viz.*, "Human Proportion in Art and Anthropometry," (1883) and "Anatomy and Art" (1895). In Fletcher's view,

the concept "artistic anatomy" should be replaced by "artistic morphology," its true content being physiology and external pathology, rather than the science of musculature. Our problem is: Did art in the sense of sculpture and painting, do anything for anatomy? What such processes as free-hand drawing and engraving did for anatomy has already been exhaustively considered by Choulant himself.

Detailed investigation of this subject is of recent date. It has two aspects: (1) anatomical illustration without (didactic) intention; (2) anatomical illustration with intention. Most artistic productions bearing upon our subject fall into the former class.

From prehistoric time onward, early man seems to have concerned himself with delineation of the surface anatomy of the human body, particularly during the glacial periods, when increased cold confined him

¹ Supplementary section to Dr. Mortimer Frank's translation of Ludwig Choulant's *History of Anatomical Illustration* (University of Chicago Press). By permission of the publishers. Read at a meeting at the College of Physicians of Philadelphia (Historical Section), November 13, 1919.

to the caves. Representations of man and animal in the shape of carvings and statuettes in bone and ivory, sculptures in *alto riliero*, line engravings on stone and bone, and mural paintings in polychrome, abound in all the caves of the Old Stone Age (Palæolithic Period). Sculpture preceded engraving and painting. The earliest known representations of the human figure have been found in the deposits of the Middle Aurignacian Period (40,000-16,000 B. C.). In 1908, Szombathy discovered, deep in the loess, at Willendorf, on the left bank of the Danube, a limestone statuette of a woman, about four and one-half inches high, representing a nude female figure of massive proportions, known as the "Venus of Willendorf."² The gigantic breasts and buttocks (steatopygy) of the primitive woman are thrown into strong relief, the head is bowed over the breasts, so that the face is indistinguishable, the arms, ornamented with bracelets, are folded over the breasts, but the feet are missing. The hair is arranged in a cascade of curls, like the coiffure of later Egyptian and Grecian women. The physical habitus is distinctly negroid, that of Maupertuis' "Hottentot Venus", and probably the effect, as Osborn says, of eating large quantities of fat and marrow, in the sedentary life and confinement to caves incident to this glacial period. Other sculptures of the Crô-Magnon artists, such as the ivory "Venus of Brassempouy" and other statuettes fashioned out of the teeth of animals from Laugerie Basse and Mas d'Azil, the female figurines in soapstone and talc (one a figuration of pregnancy) from the Grimaldi caves near Mentone,³ the female statuettes of Sireuil and Trou Magrite, are described by Osborn as prototypes of

² For a photograph of this, see Szombathy: *Kor. Bl. d. deutsch. Gesellsch. f. Anthropol.*, Brnschw., 1909, xl, 87; or Osborn: "Men of the Old Stone Age." New York: 1916, 322.

³ S. Reinach: *L'Anthropologie*. Paris: 1898, ix 26-31, 2 pl.

modern cubist art. The posterior steatopygy is absent, but the gigantic breasts and haunches are blocked out in truly cubist fashion. At Laussel, M. Gaston Lalanne found four bas-reliefs of the human figure sculptured on limestone blocks. Of those the most remarkable are a nude female figure eighteen inches high, with large pendent mammæ and exaggerated haunches, holding a buffalo horn in the uplifted right hand; another female figure with the cowl or capuchin head-dress of Brassempouy; and



Female figurine from Willendorf (Middle Aurignacian Period).

a figure of a well-formed, vigorous man, minus head, feet and hands, apparently in act to bend a bow or hurl a spear.⁴ The latter, in sharp contrast with the female figure, is nowise corpulent, but suggests the straight flanks, narrow hips, and serviceable musculature of the athlete *par excellence*. Thus the passion for uncompromising realism in sculpture was already characteristic of Palæolithic man. The line engravings on schist and bone, representing horses, rein-

⁴ G. Lalanne: *L'Anthropologie*. 1912, xxiii, 129-149, 4 pl. Recently P. Schiefferdecker in *Arch. f. Anthropol.*, Braunschweig, 1916, n. s., xv, 214-229, gives a different interpretation of the last figure. He believes that the athletic man is not engaged in handling weapons but in protecting a woman from the aggressions of another man.

deer, bison, bears, rhinoceros, chamois, antelope, birds and plants, are also unmistakably lifelike, and the parietal decorations in polychrome, executed by Magdalenian man (1600 B. C.), and found on the walls of the caverns of the Dordogne and the Pyrenees, have the same startling realism. These mural paintings frequently convey all the semblance of "*le movement*," the ambition of modern artists. The fore and hind legs of galloping animals, such as those of running stags engraved on an antler from the cavern of Lorthet (Hautes Pyrénées), are exactly as we find them in our instantaneous photographs, an action unknown to all animal painters of recent times.⁵ The most striking of the rock paintings in red and black in the Spanish cave at Cogul (Lerida) represents a sacral dance of nine women around a phallic figure.⁶ The women have pendulous breasts, narrow waists, flaring haunches, knee-high bell-shaped skirts of recent fashionable type, and mantillas over the shoulders. The women depicted on the rock-shelter wall of the Alpera cave (Sierra Chinchilla)⁷ are steatopygous, with exposed breasts, flaring hips and bell-shaped skirts, strongly suggestive of the physical habitus and national costume of the Spanish *maja* or *gitana*. The same bell-shaped skirt is again found in the remarkable post-neolithic figurines excavated by Sir Arthur Evans in the palace at Knossos (Crete), representing the primordial Mother-Goddess and her votary. The breasts in these finely executed figures are again exposed and anatomically correct in execution. The anatomy of similar human figures on Cretan and Mycenæan seals and signets is far cruder in representation. The

⁵ See, S. Reinach, "Apollo." New York: 1907, 6-7.

⁶ H. Breuil and J. Cabré Aguila: *L'Anthropologie*. Paris: 1909, xx, 17.

⁷ H. Breuil, P. Serrano Gomez, and J. Cabré Aguila: *L'Anthropologie*, 1912, xxiii, 556. S. Reinach, *Apollo*, New York, 1907, 20.

Babylonian Mother-Goddesses, sculptured in *alto rilievo* (Yale Collections), are comely figurations of the nude, usually representing the act of suckling, vague in outline but of gracious charm. The Egyptian paintings are commonly executed in profile, and with sufficient clarity of outline. In the bas-relief of the temple at Sakkarah in upper Egypt (1500 B. C.), the fact that the harp-players are blind, while the singers are not, is wonderfully conveyed by a simple indication *en profil* (Höllander). Earlier Egyptian statuary, from the Sphinx to such figures as the "Scribe" and the basalt head in the Louvre, or the "Bronze Lady" in the Athens Museum, reveals remarkable, rugged skill in the representation of the human face and form, dwindling into mere academic elegance in the figures of the Middle and New Empires. All these figures, of whatever period, exhibit Lange's "law of frontality," i. e., they are always represented as gazing directly and rigidly forward, usually motionless, but even in walking, static, in that they rest stolidly on the soles of the feet.

Perhaps the earliest anatomical models constructed were the ancient Babylonian livers in baked clay, subdivided into squares and studded with prophetic inscriptions. Although these were used for purposes of divination (hepatoscopy), yet the nomenclature of the inscriptions and the configuration of the parts already implies considerable knowledge and study of didactic anatomy. The lobes, the gall-bladder, bile-duct, hepatic duct, the porta hepatis, processus pyramidalis and processus papillaris are all distinctly outlined, as Stieda has shown, and, these specimens, viewed merely as examples of anatomical illustration in three dimensions, are far superior to the five lobed livers of mediæval tradition, as given in the "Tabula Anatomicæ" of Vesalius. Similar models have been found on ancient Hittite sites in Asia Minor, and Stieda describes an ancient Etruscan liver in bronze from Piacenza (third century

B. C.) and another in alabaster from Volterra. All these models represent the sheep's liver.⁸ The lore of Babylonian hepatoscopy is considerable.

The figures of dancing girls, hewn out of solid rock, in the temples of India, Ceylon and the East Indies, are already splendid representations of the surface phenomena of muscular action.

The crown and flower of achievement in artistic representation of human surface-anatomy is that of Greek sculpture in the classic period. Here, as Fletcher says, "Art was far in advance of medicine. The noble works of Phidias and his contemporaries and successors were in existence long before the time when Hippocrates began the work of rescuing medicine from the priests and made his first imperfect sketch of anatomy."⁹ In the earlier period, sculptures in high and low relief, like those on the shields of Achilles (Homer) and Hercules (Hesiod), preceded the carving of statuary in wood and stone. Of these, such figurations as those from the temples at Selinunt (Palermo) and Gartzelza (Corfu) are grinning grotesques *en face*, suggesting the fantastic carvings of Japanese art. The earliest specimens of statuary such as the Artemis of Delos (620 B. C.) or the Hera of Samos (580 B. C.), were evolved from the crude wooden images of godhead (*ξόανα*), stiff, rigid columns, without separation of limbs or eyes, which apparently derived immediately from the aniconic idols of postneolithic man. Of these, the Niké of Delos (Athens), the Apollo of Tenea (Corinth) and the twin figures (Cleobis or Biton) of Delphi (sixth century, B. C.), while still serio-comic in facial expression, have considerable anatomic merit. As with Egyptian statuary, these are upright nude figures, again illustrating the Lange "law

⁸ L. Stieda: "Ueber die ältesten bildlichen Darstellungen der Leber," *Anat. Hefte*. Wiesbaden, 1900, xv, 673-720, 1 pl.

⁹ R. Fletcher: "Anatomy and Art." Washington: 1895, 9.

of frontality," gazing directly forward, singularly alike in pose, the attitude in both being exactly that of "attention" in our "school of the soldier." In the Apollo, the pectoralis major, deltoid, biceps and rectus abdominis muscles are thrown into relief, the musculature of the forearm, thigh, and calf of the leg is well modelled, as also the bony conformation of the wrist and ankle; the flanks, hips and prepatellar region are unmistakably masculine in character, suggesting already a keen, accurate vision for the surface anatomy of the body. Some observation of the workings of facial musculature is evidenced in the faint smile. The hair is worn long, falling in wavy cascades of curls, as in the coiffure of Aurignacian women. The musculature of the back and the gluteal, soleus and popliteal muscles, are well differentiated in the rear view. Hyrtl's dictum that grace and poise in statuary depend, in the last analysis, upon



APOLLO of Tenea. (Circa 600 B. C.)

the sculptor's exact or intuitive knowledge of underlying bony structure is already borne out in these figures. The bronze statues of Harmodius and Aristogeiton (Naples) by the Attic sculptor, Antenor (510 B. C.), representing two gigantic

figures in the attitude of combat, have the same anatomical merits, the muscles being thrown into sharp relief by the movement of the figures. The decorative figure paintings on vases of this period are mainly grotesques, suggesting Persian or other Asiatic affiliations.



Figure from the gable of the Aphaian Temple at Ægina.
(Fifth Century, B. C.)

Greek art in the time of the Persian wars (500–499 B. C.) was that of a period of transition. The temples erected to the gods were built of marble, instead of wood or limestone, the differential characters of sex and the external appearances of the joints and veins were better featured on the vases, and linear perspective was mastered by Cimon of Cleonæ (Pliny). Sculpture, however, lagged behind, and was still in the tentative, experimental stage, feeling its way toward perfection. Moulding in bronze was more highly specialized, as the reflection of the light, absorbed by translucent marble, required closer attention to surface details. The athletic bronze Apollo of Lord Strangford (British Museum) brings out the pectoral muscles, the ribs and the masculine character of the hips and lower extremities with great clarity. The special details of bronze statuary, in which the artists of Ægina excelled, in particular the armor, weapons, and hair, were made separately and fastened to the figure. Similar details in bronze and lead were also attached to the marble figures. The finest examples of figuration in marble in this period are those

which adorned the east and west gables of the Doric temple of Aphaia at Ægina, acquired by Ludwig I of Bavaria after their discovery in 1811, and restored by Thorwaldsen. Excavations made by Adolf Furtwängler go to show that this temple was erected after the battle of Salamis (480 B. C.), in which the Æginetæ bore away the palm for bravery. Of the thirteen figures on the western gable, ten remain; of the eleven larger statues on the eastern gable, only five. These decorations consist of a central figure (Athena) with symmetrical arrangements of warriors in combat on either side. The poses of these athletic figures afford the best opportunity for the exploitation of muscular anatomy. The kneeling Hercules, on the Eastern gable, for instance, in act to discharge an arrow from a bow, reveals remarkable empirical knowledge of the effect of bending the knee- and elbow-joints upon flexure and extension of the muscles of the extremities. The prostrate wounded warrior at the corner of the eastern gable, lying on his side in a semi-prone posture, displays the same tendency. The figures are all nude, not that warriors actually exposed the unprotected frame to the enemy in this way, but because nudity was the "festal costume" at the athletic games from 700 B. C. on. When we reflect that Greek sculptors acquired their knowledge of the surface-anatomy of the body, the effect of rest and motion upon its musculature and its underlying bony framework, not from dissection, but from empirical observation of athletes in action during games and military exercises, the achievement seems all the more wonderful.

In the period between the Persian Wars and the age of Pericles, Athenian sculpture, and architecture progressed by leaps and bounds, and the Attic drama attained its height. The temples of the gods, destroyed by the barbarians, were rebuilt in a spirit of piety and sincere gratitude. The temple of Zeus at Olympia, (completed 457 B. C.) and

the Siphnian and Athenian Treasuries at Delphi were erected in this period. The metopes of the Olympian temple, particularly the friezes representing the twelve labors of Hercules and the battle between the Centaurs and the Lapithae, were executed with great power and distinct realism



NIKÉ of Pæonios. (420 B. C.)

as to musculature and other details. In the compositions of the great sculptors of the period—Calamis, Myron, Phidias, Pæonios, Alcammenes, Polycleetus—greater artistic freedom was attained, particularly in the expression of momentary attitudes. Calamis, Myron and Polycleetus worked in bronze as well as in marble. The chryselephantine statues of Athena by the Athenian Phidias (born *circa* 500 B. C.) were celebrated in the writings of Pausanias and others, and the sculptures of the Parthenon—the metopes in *alto rilievo*, the friezes in *basso rilievo*, and many of the figures in the round on the pediments (now famed as the Elgin Marbles)—were either modelled by him or executed under his direction. Of these, the Moiræ, the Theseus, the Poseidon, are splendid examples of massive modelling from the half-draped and undraped nude. The character of his seated Zeus in the

temple of Olympia is sensed in the majestic head in the Carlsberg Glyptothek (Copenhagen). The “Marsyas” and “Discobolus” of Myron are remarkable for bold movement, and here the “law of frontality” is totally abolished. The “Aphrodite” of Myron was admired for its grace and beauty. The winged Olympian Niké by Pæonios (454 B. C.) is a splendid semi-draped nude. Polycleetus, the Peloponnesian rival of Phidias, whose “Amazon” (Vatican) and other statues introduced the new *motif* of resting the weight of the body on one foot, was only excelled by Phidias in grandeur and excelled him in finish. His “Doryophorus” (Naples Museum) was called the “Canon,” on account of its just rendering of human proportions. The wonderful power of first hand observation of anatomical structure possessed by the sculptors of the age of Polycleetus is evinced in a torso from the metopes of the friezes of the Argive Heraeum at Argos. This figure represents a nude warrior youth in violent contest with an Amazon. In the groin is a curious hernia-like protrusion, which, as Waldstein proved by dissection and by throwing a well-developed athlete into the same posture, is nothing less than the forcibly contracted pectineus muscle, not visible in repose, being hidden at the bottom of Scarpa’s triangle. This muscle, which was highly developed in Greek athletes, has escaped the attention of modern sculptors, as also a well defined line running from the groin to the ilium, which is found in all antique statues of the athletic prizemen.¹⁰

The pupils of Phidias, the gem engravers and the painters (Polygnotus) represent the last stages of the transition from the splendid dignity and repose (*ethos*) of the older masters, the static expression of physical power, to the newer *pathos*, which conveyed the impression of pain by muscular contraction of the body and face. The

¹⁰ Sir Charles Waldstein: “The Argive Heraeum.” Boston: 1902, 186, pl. 30 and 34.

older artists avoided the expression of active emotions,

For the gods approve

The depth and not the tumult of the soul.

Pathos, passion and movement were the newer ambitions of the Periclean and post-Periclean sculptors—Cephisodotus, Praxiteles, Scopos, and Lysippus, and particularly of the painters, Zeuxis, Parrhasius and Apelles. In the beautiful draped Irene of Cephisodotus (Munich), the influence of Phidias is still apparent. The Hermes, Kore and Cnidian Aphrodite of Praxiteles, the Apoxyomenos and Medicean Venus of Lysippus, the Milesian Venus in the Louvre have still immortal repose, suggesting physical dignity (*anima*) rather than passion and movement (*animus*). The heads of the Tegaeon temple (Athens) and the Heracles



DORYPHORUS of Polycleitus. (Fifth Century, B. C.)

(Florence) of Scopos express passion and suffering, while the Borghese warrior of Lysippus (Louvre) is thrown forward in a violent attitude of combat. The sculptures of the Alexandrian period (323–146 B. C.) were mainly character studies executed for the Roman conquerors. The Farnese Bull and the Laocoön (Vatican), both of the Rhodian School, are supreme

examples of the expression of pathos and emotion by means of violent muscular movement. The Samothracian Niké in the Louvre, the Niobe in the Uffizi (Florence) and the Demeter of Cnidos (British Museum) are majestic expressions of the draped female figure. The Dying Gladiator in the Capitoline Museum and the Dying Giant (Berlin) are the best known examples of the School of Pergamus. The sculptures of the newer Attic School, such as the Venus Genetrix and Felicitas of Arcesilaus, show greater elaboration of detail, but have little to say as modes of anatomic illustration, the actual Roman sculptures even less.

In the ancient Greek world, it was customary for those who had escaped some disaster or who were desirous of averting it to dedicate to a god an *ἀνάθημα* or votive offering, in token of gratitude or anticipation of favor. These *anathemata* were usually statues or images of objects, the latter sometimes graven upon a stele. In the temples of Æsculapius, these *ex voto* images were suspended by those who had recovered from illness or wounds through the cures rendered by the god during the rite of incubation or temple-sleep. In the Roman civilization, the cult remained the same, and was carried over into Latinized Christianity, even through the Middle Ages. The Roman votive offering was a *donarium* or oblation, such as the clothes of the shipwrecked person in Horace, suspended on a votive tablet to the god of the sea. The *ex voto* figurations in the medical cult represented all parts of the body—heads, eyes, ears, arms, legs, hands, feet, female breasts, male and female generative organs, the viscera or a torso of the chest or of the opened abdomen with the enclosed viscera.¹¹ Most of these objects are rough and faulty in execution, and of little moment as examples of anatomical illustration. The best are unquestionably those

¹¹ For a good account of these, with illustrations, see the section "Ex votos" in E. Holländer's "Plastik und Medizin," Stuttgart, 1912, 175–235.

representing coils of intestines. The oldest medical *ex voto* known is a stone object from Mycenæ (600 B. C.), in the Schliemann Collection at Athens, representing a coil of intestines, with a smooth base, provided with bored holes for suspension.¹² There are signs of strangulation, but the mesenteric or omental attachments are not represented. This three-dimensional figuration is superior, in sheer realism, to the pictures of the same objects in the "Fabrica" of Vesalius (1543). Many of these *ex voto* objects have been found in the Asclepieion at Athens. In the Hieron at Epidaurus, a marble votive tablet representing the ears of the Gaul Cutius was discovered. Votive eyes and breasts are most common among the temple objects. Hovorka describes two inscribed Lydian stelæ of 236 A. D. representing eyes, legs and breasts.¹³ Girard notes one hundred and ten votive eyes from the Asclepieion at Athens. The Berlin Museum possesses *ex votos* of Pentelican marble, from the Acropolis at Athens, representing eyes, a breast with nipple and a torso of the female pelvis, also a pair of breasts from Paros. A highly decorated Greek vessel in clay, in the Villa di Papa Giulio at Rome, has the form of the human astragalus.¹⁴

The cult of medical votive offerings existed also in ancient Etruria, and the most important objects excavated are from the Etruscan cities, notably Veii. Others come from Capua, Nemi, Città Lavinia, Terracina, the Isola San Bartolommeo in the Tiber, and the temple of Minerva medica in Rome. The city of Veii, the ancient enemy of Rome, was destroyed by Marcus Furius Camillus in 396 B. C. The cult of Æsculapius was introduced into Rome in 291 B. C. These dates fix the approximate period of the early Italian *ex votos* in baked reddish-brown terra cotta, sometimes painted

¹² Holländer: *op. cit.*, 211-212.

¹³ O. von Hovorka: *Wien. med. Wochenschr.*, 1913, lxiii, 958.

¹⁴ Holländer: *op. cit.*, 189.

red. These *donaria*, first described by Ludwig Stieda (1901)¹⁵ and Gustav Alexander (1905),¹⁶ represent all parts of the body. The most significant for our purpose are those representing the exposed viscera of the thorax, abdomen and female pelvis,



Coil of intestines *ex voto* from Mycenæ. (600 B. C.)

coils of intestines and other isolated organs and viscera. It is known that post-mortem sections and dissections of the human body were never made by the ancients, for theological reasons. The exposed *situs viscerum* in these votive objects represents such knowledge as was gained from the *Haruspicina*, or inspection of the entrails of domestic animals at the time of sacrificial slaughter. The representations are, therefore, rudimentary and sometimes inaccurate. The trachea is a definitely segmented tube, the lobes of the lungs were known, also the position of the heart between them; the stomach and coiled intestines were frequently well represented; the existence of the spleen, kidneys, bladder, uterus, vagina and external genitalia is clearly indicated, but the liver is represented as three-lobed and no trace of the *œsophagus* is found. The intestines are frequently delineated as a mere wriggling line in two dimensions, like the trail of a serpent, but of the so-called *budell*,

¹⁵ L. Stieda: "Anatomisches über alt-italische Weihgeschenke (*donaria*)."
Anat. Hefte. Wiesbaden, 1901, xvi, 1-83, 4 pl.

¹⁶ G. Alexander: "Zur Kenntnis der etruskischen Weihgeschenke."
Anat. Hefte. Wiesbaden, 1905-6, xxx, 155-198, 4 pl.

or coiled intestines in three dimensions, admirable specimens exist in the Museo nazionale and Museo dei Fermi at Rome. These are comparable with the isolated intestinal coils in Vesalius.¹⁷

Apart from the medical donaria, there are a number of ancient marble sculptures which, from their nature, we may assume to have been employed for medical instruction. That such specimens of anatomic illustration may have been conceived and executed with didactic intention may be inferred from a note in Pausanias concerning the bronze skeleton at Delphi, dedicated to Apollo by Hippocrates. Such skeletons were more often than not, *larvæ*, *i. e.*, images of dried skin and bone with the bones thrown into relief, as in the mediæval Dances of Death; but the miniature skeletons in bronze from Imola, described by Lovatelli (1895), are so exact in execution that there can be little doubt as to their probable usefulness in teaching anatomy. The marble skull in the British Museum (London), said to have come from the grotto of Tiberius at Capri, is thought by Treu¹⁸ to belong to a late period. The most remarkable of these sculptures, with presumable didactic intention, is an unusually well executed marble torso in the Vatican, representing the thorax, with clavicle, sternum and the twelve ribs.¹⁹ Nothing is known concerning the provenance of this fine torso, beyond the statement of Visconti (to Charcot) that it was found, with various inscriptions relating to medical slaves, in an evil quarter of Rome, near the Via Æstenensis.²⁰ The scientific accuracy of representation suggests didactic import. Helbig regards it as a donarium. Braun and Alexander believe that it was fashioned after

an anatomical preparation, in Charcot's phrase, *une sorte d'anatomie plastique à l'usage des médecins*. Stieda regards it as an ornament of a tomb.²¹ Visconti attributes it to the age of Augustus, but it may belong to a very late period, since similar figurations of the chest are still used as votive offerings in Tyrol and Southern Germany. Another marble torso in the Vatican, first described by Charcot and Dechambre,²² was excavated on the site of a villa which is said to have been the residence of the physician Antonius Musa. It represents the exposed thoracic and abdominal viscera. The heart lies vertically in the central plane of the thorax, as in Galen's description, and is therefore the heart of the lower apes. The left lung has two lobes, the right three, as in various apes, and representation of the stomach and intestines is faulty. As the anatomy of this *splanchnologie en marbre* is inferior to the anatomy of Galen, Charcot attributes it to an earlier period. Veit²³ describes an Etruscan *ex voto* from Veii, a female torso in baked clay, acquired from the effects of Count Vespignani, the director of the Papal excavations made at Veii under Pius IX. A spindle-shaped opening in the abdomen contains the exposed thoracic and abdominal viscera, the heart, lungs, three-lobed liver, stomach, intestines and bladder, in succession downwards, with spleen and kidneys on the side. This, Strieda states, is more complete than any other Etruscan *situs viscerum*. From the character of the coiffure of wavy hair, reaching to the shoulders, which was the fashion in the time of Julia Domna, wife of the Emperor Septimius Severus (193-211 A. D.), this *ex voto* has been attributed by the archæologist Bulle to the period of

¹⁷ Vesalius: "Fabrica," 1543, 361; 1555, 562.

¹⁸ Treu: "De ossium humanorum larvarumque apud antiquos imaginibus." Berlin, 1874.

¹⁹ Holländer: *op. cit.*, 187. Charcot and Dechambre, *Gaz. hebdomadaire de méd.* Paris: 1857, iv, 512-515.

²⁰ Charcot and Dechambre: *op. cit.*, 515.

²¹ G. Alexander: *op. cit.*, 191-192.

²² Charcot and Dechambre: *op. cit.*, 515-518; Alexander: *op. cit.*, 191-193.

²³ J. Veit: *Sitzungsb. d. phys. med. Soc. zu Erlangen.* (1904), 1905, xxxvi, 43-46.

Galen (131-200 A. D.).²⁴ Gustav Klein points out that this visceral representation corresponds closely with some of the blood-letting manikins of the Middle Ages and with the pictures in Mundinus.²⁵ It is within the bare range of possibility that these visceral representations in marble and baked clay may have been ultimately transferred to paper to become the origins of the earliest known anatomic illustrations in two dimensions, as seen in the hand drawings of the Middle Ages.

In this connection, an interesting question arises, namely, as to the provenance of the figurations of skeletal and visceral anatomy in the mediæval "Books of Hours."

In ancient Egypt and in the later Roman period, small skeletons in wood or metal were used as Epicurean *memento mori* devices at feasts, a reminder of the brevity of human life. Those engraved on the silver wine cups of the Boscoreale treasure in the Louvre (first century, A.D.), some of them representing the "shades" of departed philosophers, are unusually realistic in execution. But as Lessing (1769)²⁶ and latterly Parkes Weber²⁷ have shown, the skeleton was never used by the ancients to represent Death itself; these serio-comic figures were merely employed at banquets with the usual *carpe diem* intention. Among the ancient Greeks, Death was figured as Thanatos, a winged black-robed figure with a drawn sword, or associated with Hermes Psychopompos, the conductor of souls to Hades, with Hermes Psychostates, the weigher of souls, or with the winged sirens on vases and sarcophagi. On various clay oil-flasks (*lecythi*) in the British Museum and else-

where, Sleep (Hypnos) and Death (Thanatos) are represented as bearing away the body of Sarpedon to Lycia.²⁸ Dancing and tipsy skeletons abound, even on vases and wine-cups of the Mycenæan period. All have an unquestionable Epicurean significance. In the *Ars Moriendi* or the Holbein Dance of Death, similar skin and bone devices occur (the *Hautskelett* of the Germans), but these now signify Death as the mediæval King of Terrors. In the same period appeared the "*Horæ Canonicæ*" or "Books of Hours," which is illustrated not only with spectral skin-and-bone skeletons of the Holbein type, but also with corpses showing the dissected viscera. Now, even as the fearsome Holbein skeletons have no possible kinship with the amiable serio-comic skeletons of the Græco-Roman period, so it is fair to assume that the eviscerated figures in the "Books of Hours," had some other provenance than the marble and terra cotta donaria of antiquity. With anywhere from ten to seventeen centuries intervening, the gap in time seems too great for any bridge of tradition. The inevitable conclusion is, then, that the dissected figures in the "Books of Hours" were derived from contemporary anatomical drawings in manuscript.²⁹ The following reasons may be given for this inference. In the first place, artists and physicians who followed dissection became associated through the fact that (in Florence at least), the painters formed a sub-section of the Guild of Physicians and Apothecaries (Streeter),³⁰ whence it is reasonable to assume that the miniature painters of the "Books of Hours" were also acquainted with dissecting and dissect-

²⁴ Veit: *op. cit.*, 44-46.

²⁵ Veit: *op. cit.*, 44.

²⁶ Lessing: "Wie die Alten den Tod gebildet: eine Untersuchung." Berlin: 1769.

²⁷ F. Parkes Weber: "Aspects of Death and Correlated Aspects of Life in Art" [etc.] 3 ed. New York: Paul B. Hoeber, 1918, 27-40.

²⁸ "Iliad," xvi, 671-683. See F. Studnicka: "Die griechische Kunst an Kriegergräbern." Leipzig: 1915, pl. viii.

²⁹ W. M. de Voynich and F. H. Garrison: *ANNALS OF MEDICAL HISTORY*. New York, 1917-18, i, 225-230.

³⁰ E. C. Streeter: *Johns Hopkins Hosp. Bull.*, Baltimore: 1916, xxvii, 113-118.

ors. Again the traditional dissected figures of the "Books of Hours" are remarkably like those in the anatomical MSS. and in the earliest printed and illustrated books on anatomy, the so-called graphic incunabula; in both, the eviscerated corpses and the skeletal larvæ alike have sometimes, between their outstretched legs, quaint little jesters, with caps and bells. The inference is plain.

The thirteenth century was the age of cathedrals, stained glass windows, illuminated manuscripts and missals, and beautiful carving in stone. The work of the Romanesque architects and sculptors, deriving as it did, from Roman, Byzantine and Arabic traditions, was composite and decorative, but otherwise stiff, conventional and unreal. The flowering of Gothic Art in the thirteenth century was as spontaneous and natural as that of ancient Greece. This art was essentially realistic, in that it sought a direct reproduction of nature, as in the carved flowers and foliage of Reims Cathedral; the carved figures of angels, saints, prophets, Christ and the Virgin, which adorn the cathedrals; the *gisants* or recumbent male and female figures on the tombs of the nobility; or the painted and gilded statuettes and bas-reliefs in wood and ivory. These figures of the Gothic *imagiers*, such as the Amiens' Christ (*le beau Dieu d'Amiens*) or the Prophet of Reims, are all serene and beautiful. The pose is gracious and dignified, the skill in representing the contours of the human body underneath thin drapery is wonderful; the grotesques of Romanesque art crop out only in the gargoyles of Gothic Cathedrals; but the prejudices of the age forbade alike the figuration of the nude and the study of anatomy by dissection. The science of the *imagiers* was, therefore, a science of draped figures. This Gothic naturalism exerted a powerful influence upon Italy, in the Apulian school of sculptors and the Florentine school of painters. The pulpit of the Baptis-

tery at Pisa, carved by Niccolò Pisano in 1260, reveals the same wonderful skill in the representation of complex drapery, and introduces a new motif, the partly draped Christ upon the cross. Cimabue, the teacher of Giotto, worked in mosaic, after the Byzantine fashion. Giotto followed Niccolò Pisano and the Gothic glass painters of France, whose brilliant coloring is sensed in the paintings of the earlier Italians. Giotto, as Berenson points out, was the first great artist to realize the third dimension (depth and solidity) in painting by giving tactile values to retinal sensations. Even as the infant acquires its knowledge of depth and solidity by the sense of touch, so these early Florentines strove to get out of the two-dimensional flat-land of the Byzantine mosaics into that great field of figure painting in which the semblance of reality and movement is conveyed by "functional lines" and surfaces which are "life-communicating, life-confirming and life-enhancing" (Berenson). Tactile values, that is, the reverse of inexpressive "dead lines" and "dead surfaces," were to be translated into movement, and this realism was attained, in the end, by deliberate science, in particular mathematical and anatomical science. Gradually the Florentines underwent a drill in such disciplines as the chemistry of colors, the mathematics of composition, the geometry of perspective, the illusions of *chiaroscuro*, the mechanics of motion and the science of human anatomy. The principles of human proportion were closely studied by them. Practically all the early technical treatises on the science of perspective and the science of bodily proportion, except Dürer's, issued from Florence.

In Giotto are found the seeds of these several developments, among other things, the Florentine *flair* for anatomy—a vast abortive inquiry into the physical make-up of man. Once aroused, this interest was never to lapse or fall from the circle of living art, although it was seriously

hindered and crossed at various times by the Church, as, for example, by Savonarola and again in the period of the Catholic reaction. It should be noted that it was not Giotto's higher gifts that brought so many into communion with his artistic aims, but his compelling naturalism, his projection of reality into pictorial illusion. Gently with Giotto came the impulse to measure, to explore, to exploit the form, to the end of making more true to nature, more "express and admirable" the pictured world of life in movement. In close and incessant study of human kind, artists searched out all the experiential modes of expressing the inmost soul by the outward gesture, for this was their *métier*. And although the Trecentisti turned away the challenge of fact with rather soft answers, there abode in them at all times Giotto's love of verisimilitude. Reorganization of the study of nature then, was the issue of Giotto's teaching. The spirit of inquiry into nature incited human nature in its deepest essence to push on to the discovery of man. Artists felt that incitement in a special sense for the human form was their supreme decorative principle, in the shaping of which they would convey reality and utter fidelity to fact. It dawned upon the minor masters following Giotto, that Nature was the specific for Art's malady, that things of the mind which have not passed through the senses, are vain things and injurious. But this they knew only in part. They lightly accepted nature-study as inevitable, avoiding the duteous observances. The outcome of Giottesque schooling, however, was the final abandonment of "intuitional" drawing, the refinement of plastic modelling by shading and defining the separate surface planes and a firmer accentuation of the supporting skeletal system, in each carefully observed figure. Giotto's intimate assistant, Stefano (1301?-1350), called the "ape of nature," attained to such a pitch of realism in representing the branching veins

of the arms, that his pictures were studied by the barber surgeons about to do blood-letting. Buffalmacco, Daddi, Giotto (son of the "ape of nature") Orcagna, Giovanni da Milano, Antonio Veneziano and Ambrogio di Baldese, mark distinct stages in the movement toward Renaissance naturalistic forms. Still greater gains in the struggle for the mastery of form are recorded in the sculpture of this early period. Naturalistic treatment of the vital plastic problem, the cause hotly supported by Cennini in theory, and in practice by a majority of the Florentine workers in the serious figurative arts, found ready acceptance in Umbria, Lombardy, the Marches, even inhospitable Sienna.

A conscious search for form thenceforth characterized art on the Arno. The study of the human figure, objectified and separated from the dross of dogmatic mysteries, held most weighty claims upon artistic genius. Even as envisaged by artists of the Trecentist tradition, this study partook somewhat of that intensive quality and independent trend which is the peculiar, yet typical issue of the union of devouring eye and portraying hand. Now in Italy, eye and hand were rigorously trained for the perfect and final apprehension of form and action, three quarters of a century before the appearance of any printed work on descriptive anatomy or the mechanics of motion, which could be of slightest use to an artist. In the interval, the artists, impatient to master external myology, the skeleton, the joints, even "the risings of the nerves," did pioneer work by immediate independent preparations and dissections. These artful prosectors performed so well in the field of external myology, and went so deeply into studies of function of the skeleto-muscular system, that they aroused the ire of the professional anatomists. The fact that artists were herein forestalling the school anatomists appears, on a superficial view, to upset the Pausanian theory of art which

literally traces animation, proportion and detail in painting and sculpture to the progress of geometry, mechanics, arithmetic and anatomy.

In Florence, the circle of true instruction ran on to Antonio Veneziano, who taught Starnina, who in turn taught Masolino. Thus the last of the Giotteschi touched hands with the first Quattrocentisti. Art straightway became more curious and attentive to form, more accommodative and explicit in expression. The unclouded drawing of the nude figure in Masolino's "Baptism of Christ," in the Baptistery at Castiglione d'Olena, and Masaccio's epochal frescoes in the Carmine at Florence signalize the return to the Greek conception of form and, at the same time, a return to nature. Leonardo once remarked that Florentine art entered a decline after Giotto, "until Masaccio showed by his perfect works how those who take for their standard anyone but nature—the mistress of all masters—weary themselves in vain." Of Masaccio's frescoes in the Brancacci Chapel, Berenson says: "I never see them without the strongest stimulation of my tactile consciousness. I feel that I could touch every figure, that it would yield a definite resistance to my touch, that I should have to expend thus much effort to displace it, that I could walk around it." With such an ambition as this, with the keen desire to realize depth in space, to convey the illusion of mass underneath the external configuration of the body, with the passion to express the muscular basis of bodily action by surface indications, the Florentines took up dissection, as also the mathematics of perspective and proportion, as a necessary part of their training.

It should be noted here that the painters had early been incorporated in the great "Guild of Physicians and Apothecaries." "Being beholden for their supplies of pigments to the apothecaries and their agents in foreign lands," on their own petition they

had become enrolled members of that guild in 1303. This guild relationship endured for more than two and a half centuries, furnishing innumerable points of magnetic contact between Science and Art. The artist-members (known from 1349 on, as "The Company of Saint Luke") stood on a most familiar footing with the apothecaries "who buy, sell and deal in colors and other materials needed by artists" (*spetiarii, qui emunt, vendunt et operant colores et alia ad membrum pictorum memoratum*). Many a "discipulus" from the apothecary shops rose from color-grinding to eminence in the schools of painting. Masolino was not the first of these, nor Cosimo Roselli the last. These dusty back-shop prentices, who ground colors for the master apothecaries, were in daily contact with the medical partners of the shop (*medicos in apotheca*) whose consulting rooms adjoined. The artists, too, who came there perforce for pigments and other materials, found the shops alluring places in which to loiter and renew acquaintance with their fellow-guildsmen, the apothecaries and physicians. Thus through close guild and trade relationships, easy intimacies arose between men of the two callings. The physicians were not only the sponsors for the artists in the guild's multiform functions, but their natural patrons, protectors and collaborators. Hence, when the tide of realism in art rolled over north Italy, adherents of the two branches of the house of Saint Luke (painter and beloved physician) could have collaborated with brilliant effect upon Tuscan art and science. On the whole there was but little concerted action of this kind, and we are put to some trouble to explain the situation on the ground of any fundamental lack of accord. The earlier anatomizing artists, urged on by the grim requirements of formal technique, expected little, and derived little support from physicians, in working out their peculiar applications of anatomy to problems of form. Artists concentrated

their interests upon the skeletal and muscular systems. Professional school anatomists before Vesalius had failed to elaborate these systems in any detail whatsoever. Even Berengar confesses scant interest in matters of external myology, because of the difficulties in the way of prosection: "Note, reader, that I have made very little comment on the muscles of the body, and that I have concerned myself very sparingly with this system; mainly for the reason that, in the ordinary dissections made before the scholars in the schools, the majority of the muscles cannot be demonstrated. To expose these structures to view properly, extremely long and painstaking labor is required, as well as a suitably appointed room" (*ita locus accomodatus*). A place arranged just so! And yet the smallest mortuary-chamber, cubicle, or side-chapel in the charnel house sufficed the artist—a cellar or burial pit—it mattered not, when he went down to make essay of the "science of the sepulchre."

A large share in matters of scientific moment was taken by Paolo Ucello (1397–1475), whose zeal for the house of science had all but eaten him up. He typifies the adventurous temperament of the time. He lacked the largeness of intelligence, the God-like comprehension, the vast variety of attainments of men of the universal stamp like Brunelleschi, Ghiberti, Donatello, Orcagna, Luca della Robbia and Leon Baptista Alberti. His talent was expended in design, in genre, in geometric development of the laws governing perspective and foreshortening. His passion for literal delineation of the near and present, his inquisitive attitude toward exact science, he passed on to scores of unknown industrial craftsmen in Florence, whose unremembered labors enabled later painters to proceed from a basis of exact science to the far nobler pursuit of ideal beauty. Men of Ucello's following hewed close to the line; the Carrand Master, the artist of the "ten nude men" in the Stockholm collection,

the creators of those unattributed gems of naturalistic representation now gathered in Uffizi, the Louvre, London, Berlin, Vienna, Venice, Dresden and in private hands, flooded the bottega of Ucello's day with a tide, full and flowing, of chalk and wash drawings, pen and silverpoint. These studio sketches and cartoons reveal, to the least prickings of the paper, the full reach of Florentine technique in drawing the living model. They register most patently the crescent interest in anatomy.

Despite earlier hints of the existence of this *corporum intus curiositas* among workers in the plastic arts, the followers of Donatello were apparently the first to undertake the study of human anatomy, in the modern sense of a sustained systemized discipline for artists. That Donatello (1386–1466) himself assisted at an actual anatomy, at least from the spectator's bench, we need no better proof than his forceful rendering of such a scene in his "Anatomy of the Miser's Heart," one of his Paduan series of bronze tablets illustrating the miracles of Saint Anthony. The almost cruel naturalism and searching myologic detail in Donatello's sainted peasants proved a source of torment to lesser craftsmen, leading them along paths of purely objective inquiry to the dissecting room. His pupil Antonio Pollajuolo (1429–1498), pupil also of Ucello, was the virtual beginner of artistic anatomy in Italy. "He dissected many bodies to study the anatomy," says Vasari, "and was the first to investigate the actions of the muscles in this manner, that he might afterwards give them their due place and effect in his works." His drawings created a clear space for the new teaching. His engraving of the "Battle of the Ten Nude Men" electrified the town. His painted themes, in which Hercules generally takes the leading rôle, are anatomies of stressed movement, bizarre energy, unimaginably fierce and vengeful power. And the sources of all this sinewy exuberant phrasing of life

spring from immediate and prolonged manipulations of the dead. Pollajuolo had established altogether novel modes of approach to the intimacies of form, and could say with Browning: "The life in me abolished the death in things." This quickening impulse soon made itself felt in all the schools, pagan and pietistic, realistic and conventional, and crossed the Alps northward with Dürer on his return home.

Andrea del Castagno (1396?-1457) "lover of the difficulties of art" (*ammatore delle difficoltà dell' arte*) certainly helped to incorporate the teaching of Masaccio in respect to figure draughtmanship, and may have anatomized to attain that incisive point and apposite modelling which is so striking a characteristic in his work. Although he did not matriculate in the Guild of Physicians and Apothecaries until he was fifty-five, he became a lusty exponent of the new plastic conceptions furnished by proportional analysis and dissection. He is a strict uncompromising realist, bound to his model, in all narrowness, believing that to embellish, is to falsify. His interest in character, in ethnic type, is intense. Post-mortems by him would surely be expressed in terms of some new declension, for he engaged new appetencies for the task, viewing the thing thus from the ethnic angle.

Ucello, Castagno, Baldovinetti, whose great pupil was Verrocchio, together with Piero della Francesca, whose great pupil was Signorelli, brought in flowing wells of refreshment to Umbro-Florentine art, to join the racing tumult of waters set free by Pollajuolo, or to spread abroad in other directions. The Medici made a special point of encouraging Tuscan artists with scientific leanings. Thus, to impart a fillip to Verrocchio's more academic interest in human anatomy, was he commissioned to restore an antique statue of the flayed Marsyas, which glorified the gate of the Medici gardens—given the mutilated red-marble torso, by sheer "tour de force" to reconstruct the

missing parts. He did this with consummate skill, utilizing the white veins of stone as the proper superficial veins of the limbs. Verrocchio (1435-1488) was the first to make practical use of casts of the living body and écorché posture models for use in schools. These marvellous flayed figurines, exhibiting all the superficial muscles in action, accurately moulded in wax, terra cotta or plaster, carved from marble or cast in bronze, formed a fresh series of essays in artistic anatomy. Verrocchio's bronze écorchés certainly were calculated to excite the admiration, emulation and despair of his contemporaries, the same contemporaries who criticized the naturalism of the horse in his great Colleoni statue for its literal translation of the anatomy of the animal as seen dissected. In this sculptor, bronze worker, goldsmith, builder and painter, the "true-eye" expressed in his very name, meant analytical vision, the firm, poised, robust character of a born teacher. Small wonder that Leonardo lingered on in apprenticeship to this man for years after his admission to the guild, imbibing sound methods of science along with ideals of drawing, of modelling, of formal composition in line and plane.

The progress of naturalism was continuous and triumphant; under such champions of reality it was destined to spread far and wide over Italy and finally over western Europe, in the swift seasons of the diaspora of Florentine science. The new art, grounded on actuality, pleased the princes, and, at the same time, commended itself to the honest and honorable intelligence of the bourgeoisie. In Italy, the people, in wider commonality, had come to share the artist's passion for unadorned truth. There, the verities reigned, through popular choice. "The desire of seeming wise on matters of form, with which every man of us is born," was there recognized as the last treachery of the artistic hand and soul.

The old "*Ars et Mysterium*" in the canons

of paintings no longer obtained—at least, there was no longer the mysterious content in the teaching. “Beauty is measured and proportioned by geometrical accuracy.” This rule, repeated on all hands, doubtless led to trials of “presumptuous and paltry technical skill” (Ruskin’s wrathful characterization of this trend), yet it led straight on to the creation of immortal works, symbols of the highest connotation, most profound experiential expression, attained by man in his glad runs through the amazing universe.

Among those who ran the whole gamut of experience, endowed with the universal mind, mark Piero della Francesca, who became a great master in the exact sciences before he became one in the arts. “He understood all the most important properties of rectilinear bodies better than any other geometrician.” (Vasari). He wrote a treatise on perspective, for centuries accredited to a mythical Peter of Bruges. He trained in *proportioni et proportionalità*, the great Pacioli, companion in studies mathematical of Leonardo da Vinci. His studies of the undraped figure are splendidly realized effective and living portraits of the body. His frescoes at Arezzo set him apart as one of the foremost masters of figure expression. His treatment of the Resurrection theme at Borgo San Sepolcro proved for all time that “Nature could not invest herself in such shadowing passion of line without some instruction” (to adapt Iago’s vivid phrase). On the whole, considering Piero’s extant works and his known preoccupation with matters of pure science, the presumption of fact is that he anatomized. He was, in spirit, more scientific, and in his art, more narrowed and bound to nature, than any of the great Florentines with the exception of Leonardo. His Umbrian follower and spiritual heir, Luca Signorelli (1441–1523) exploited the nude in art with astonishing verve and abandon. Luca’s severe and sculptural design and modelling, as seen in

his “Education of Pan” (*circa* 1475), now in Berlin, changed, in the following thirty years, by some subtle increase in vehemence of execution, into an utterly different thing, or at least a modally different thing. His frescoes in the cathedral at Orvieto whirl the beholder into regions of Dantesque impressiveness and solemnity. These awful walls are charged with great, primal, fervid presences, executed on an heroic plane, the elder brothers of Michelangelo’s Sistine conceptions. Signorelli was a restless experimenter; his handling of vital plastic problems, without diminution of the sense for pictorial illusion, is instinct with a vigor and intensity which is almost satiric, sardonic. Luca even nerved himself to paint the body of his own dead son. That he painted for painters is readily seen.

Of Melozzo da Forlì (1438–1494), another pupil of Piero della Francesca, although much could be said, we will mention only his “Pesta-Pepe” or apothecary’s assistant braying in a mortar with the muscles of a Hercules—a panel which originally must have served as a druggist’s shop-sign. It is done in a vein too dashing to allow of comparison with that piece of neat quick fashioning of the outward form by his master Piero—the “Ercole” from Borgo San Sepolcro, now in Mrs. Gardner’s collection—yet the derivation is plain.

Other Umbrians, as Fiorenzo di Lorenzo together with his pupils Perugino and Pintoricchio, never quite succumbed to the spirit of Florentine science, although admitting its prepotency. They drew their Saint Sebastians with anatomic refinements which were borrowed, rather than the outcome of individual research. Raphael, too, misprized science while in Urbino and under the influence of these men, yet it is well to remember that his first teacher, Timoteo Viti, who had quitted the Bolognese studio of Francia in 1495, in that studio had seen much of the great anatomist Achillini, the life-long friend of Francia. Raphael had a genius for assimila-

lation and in his Florentine period (1504-1508) imitated Leonardo and Michelangelo, drinking deep of the Pierian spring. There is much to give color to the rumor, current at his death and credited throughout the two centuries following, that Raphael had imitated Leonardo and Michelangelo even to the point of preparing materials for a work on artistic anatomy.

Padua possessed much work of unique merit from the hands of early Florentine masters and was susceptible to their moulding influence. Giotto (1306) under the eye of exiled Dante, raised the standards of universal beauty in the frescoes of the Arena Chapel; Donatello labored at Padua from 1443 to 1453; Ucello was there also at some time in the same decade, and Fra Filippo Lippi worked there in 1434. Squarcione, head of the native school in which ancient Roman sculpture and the new Florentine models received equal attention, consciously adhered to the naturalistic mode. He and his scholars lived on terms of some intimacy with the physician, Michele Savonarola, in whose brother's house the school was maintained. Squarcione's school took on a tremendous significance through the genius of his chief pupil, and adopted son, Andrea Mantegna (1431-1506), the most influential artist in North Italy during the early Renaissance. Mantegna's earnest and intense search for reality is seen in the figures of the Eremitani frescoes. His study of the "Dead Christ" in the Brera Gallery is accepted as the extreme and sovereign instance of realism, the direct inspiration of Tintoretto when he painted his "Finding the Body of Saint Mark" (likewise in the Palazzo di Brera) and of Rembrandt's "Deyman Anatomie," in the Rijks Museum. Next to Mantegna, Cosimo Tura (1430?-1495), founder of the school of Ferrara, and Vincenzo Foppa, central master of the Lombard and Brescian region, strove to disseminate most widely the fruits of Paduan discipline.

In studying the early art of Venice, with the view of determining anatomical content and direction, one pauses over Vivarini's long-proportioned figures with exaggerated articulations, and Carlo Crivelli's (1440?- after 1493) scientific interest in tendons and muscular attachments. There is excellent matter in the London and Louvre sketch books of Jacopo Bellini, and in the work of his sons and their incomparable school-following; in Giorgione (1478-1519) and Titian (1477-1576), whose perennial devotion to the nude was expressed in many a gorgeous Venus, Danaë, Europa, Antiope. When Rubens was executing his Prado copy of the "Rape of Europa" he wrote that this Titian to him stood forth as the first picture in the world. To Titian's mind the Saint Sebastian panel, of the five-winged altar-piece for the Bishop of Pola, was preeminently the best delineation of the figure of which he was capable. The Rhenish follower of Titian, Jan van Calcar from the Duchy of Cleves, illustrated the "Fabrica" of Vesalius, fifty-two years after the first anatomical book-illustrations for Ketham's "Fasiculus" had been prepared by Mansueti of the school of Gentile Bellini. The versions of Venus by the mountaineer Palma Vecchio are rugged and healthy (Dresden and Cambridge) contrasted with the more ideal loveliness and greater refinement of Giorgione's (Dresden) and Cariani's (Hampton Court). Giorgione's most important follower was Sebastian del Piombo (*circa* 1485-1547) who became the loyal slave of Michelangelo in Rome about 1510. Del Piombo, far outstripped his fellow Venetians in zeal for anatomy, yet he was reined in by a certain laziness and disinclination to dissect.

Beyond the Alps, also, are multiplied examples in sculpture and painting of accidental modes of anatomic illustration; beginning with Burgundian and Languedoc sculpture, and Flemish and Rhenish painting. The "Adam and Eve" on the Ghent

altar by Jan Van Eyck (*circa* 1390–1441); the “Thief on the Cross” at Frankfurt, work of the Master of Flemalle (active, 1420–38); “The Descent from the Cross” by Roger Van der Weyden (1400–1464), now in the Escorial: these introduce a long series of masterpieces in the naturalistic Northern manner, which found expression later in such works as the “Neptune and Amphitrite” by Jan Gossart (1516) and the purely anatomical pen sketches of Peter Brueghel (1525–1569). In Germany, Albrecht Dürer painted the figure according to the strict canons of proportion which he himself laid down. His “Adam and Eve” in the Prado (1507) executed on his return from Italy, easily transcends the efforts of Lucas Cranach and other contemporaries, who repeatedly tried to parallel the performance. The school of Dürer deserves special study from the angle of the cult of science and because of the very close relations existing between members of that school and the mathematicians and physicians of Nuremberg, Augsburg and Strassburg. It should be mentioned too, that Cranach, in addition to his active school-directorship at Wittenberg, directed a prosperous drug shop there for many years. In Germany, as in Italy, art continually kided the heels of medicine. We may not stop to examine the complex of these relationships, interpenetrating and important as they are. Burgkmair, Shauffelein and Grien should be studied, with all their kin and kind. The “Hercules and Antæus” and the “Allegory of Music” by Hans Baldung Grien give the summation of Dürer’s mensural method of plotting the unveiled human figure. Perhaps the most acute and telling master-stroke of realism ever set within the limits of a narrow panel is the “Dead Christ” by Hans Holbein the Younger, painted in 1521, now in the Museum at Bâle.

To return to Florence,—it would seem first and last that the one fixed trysting-place for art and science lay in that region

round about the Arcispedale Santa Maria Novella, scene of the labors of Domenico Veneziano, Piero della Francesca, Andrea del Castagno, Alessio Baldovinetti and Ghirlandaio. In the “Lily Pharmacy,” hard by the hospital, was born Cosimo Roselli (1439–1507), sound craftsman, founder of a prolific school, which welcomed the teachings of the new anatomy. His ablest pupils were Piero di Cosimo (1462–1521) and Andrea del Sarto (1486–1531), keen students of anatomy, according to Vasari. A critic might interpolate thus: Vasari in his “Lives of the Painters” is prone to over-emphasize these interests, for he was a kinsman of Signorelli and a pupil of Michelangelo. But we can generally check his statements made in this vein by the direct evidence of drawings and other material remains left by the artist in question; in the case of Piero, the Uffizi drawing of a dead man’s head is sufficiently convincing. Andrea del Sarto, in turn, taught artistic anatomy in his own school, beyond cavil of doubt. It was from him that Pontormo learned, and Franciabigio, and Rosso Fiorentino, who furnished the bulk of the illustrations in the anatomy of Charles Estienne.³¹

Men of the central Italian tradition went serenely on, subtly recharging themselves with the primary inspiration of the supreme masters, Leonardo, Michelangelo and Raphael. This triumvirate had hastened the spread in widest commonality of that dominant idea of Leon Baptista Alberti, namely, that artists should study nature in a truly scientific spirit. What ardors and endurances for science, what trials in the fiery furnace, had these three not passed through—Leonardo in particular! Florentines well remembered how, in the year 1505, the city had gone down in entire submission before Leonardo’s divinely drawn cartoon for “The Battle of the Standard” and the competing cartoon by Michelangelo, “The Surprise, by

³¹ Published by Simon. Colindese, Paris: 1545.

the Pisans, of Florentine Soldiers Bathing in the Arno." "One of these cartoons was placed in the Medici Palace and one in the Pope's Hall; and while they could be seen there, they were the school of all the world," wrote Benvenuto Cellini. So decisive was the display, by these establishers of dissection, that there was no room thenceforth for faulty drawing of the nude figure in action. Many men in Florence, Milan, and Rome knew of Leonardo's favorite project to publish exhaustive researches in human and comparative anatomy—a project crushed under the Tarpeian weight of his materials, amassed in thirty-three years of intermittent dissection and gathered in one-hundred-and-twenty volumes of drawings and descriptive notes. Of his fifty dissections, the first series was performed in the Arcispedale Santa Maria Novella at Florence, next at Milan at the Ospedale Maggiore and Collegio dei Fisici with Della Torre, and finally (1514–15) at the Santo Spirito at Rome. There his work had been brusquely interrupted by command of the Pope, on complaint of a German, and he accepted the invitation of Francis I to live in France. It was during his second stay at Milan that he made notation in his MS.: "This winter of the year 1510 I hope to complete the whole of this anatomy." But we find him still dissecting four years later in his sixty-second year, in the winter of 1514–15, the winter on whose last December day Andreas Vesalius was brought into the world. Whether Vesalius saw or did not see the work of his great precursor, before the dispersal of these scientific treasures by Melzi's unblest son, remains a vexed question. Grant that Vesalius made use of even some small part of Leonardo's scheme, then may we say that the progress of science is not as faltering and discontinuous as on the surface it appears to be at this point in the history of anatomy; the influence of Leonardo upon practical anatomy is decisive; he steps into a place of intolerant central glory.

Less esoteric and secretive in this matter than Leonardo, Michelangelo wielded a tremendously direct influence upon the practice among artists of preparatory anatomies. Upon this question the young giant fell with world-shaking impact, creating a seismic disturbance over the whole field of art. He ruined his health in feverish dissections covering a period of sixteen years. Condivi, his pupil, says of him: "Desiring to learn from nature herself he set her up before him as the true example. There is no animal whose anatomy he did not desire to study, much more, that of man, so that those who have spent all their lives in that science, and who make a profession of it, hardly know so much of it as he." Condivi's closing comment is more than the mere personal puffery of extravagant admiration; it is true not only of Michelangelo but of numbers of others in and out of his immediate following. Listen to Vesalius. Having just spoken of an anatomy performed on a Florentine patrician, there comes this peevish outburst: "As for those painters and sculptors who flocked around me at my dissections, I have never allowed myself to get worked up about them to the point of feeling that I was less favored than these men, for all their superior airs."

Montorsoli may be regarded as most adept in the anatomy, in the group of Michelangelo's fellow-workers. In all probability it was he who executed the figures of the healing Saints Cosimo and Damian, flanking the Medicean tomb. His statues are essays in anatomy. At Genoa, at work on a great statue of the Admiral Andrea Doria, we find him consorting with members of the medical guild in the cloisters of Santa Maria delle Vigneis, and doing certain dissections there. From Rome, Sebastian del Piombo writes to Michelangelo: "I pray you remember to bring along some studies for me: faces, legs, body or arm, which I have wanted, as you are aware, for so long a time." This appeal illustrates Bode's

view: "Michelangelo's overpowering and extraordinary genius began to dominate plastic art before the sculptors had attained to full knowledge of the laws of the anatomy of the human body. Andrea Sansovino, already, in his later works is wholly dependent on Michelangelo, in particular the frescoes of the Sistine Chapel; and this is still more the case with Andrea's pupil, Jacobo Sansovino, and the rest of the Florentine sculptors of that period, scarcely one of whom was able to develop upon his own individual lines." Yet one of the neatest *écorché* figures in existence, a gem of consummate modelling of a dancing male figure, *excoriato a cuti*, has very recently been attributed to Jacobo Sansovino. It will bear comparison with the crouching *écorché* attributed, with little trace of reason, to Michelangelo. Another admirer of the great man, creator of the "Perseus," Benvenuto Cellini, always insisted in his writings that the essential thing in art was, "thoroughly to understand how to paint the nude." Cellini's diary also throws much light upon the points of contact between artists and physicians, for at Rome he was intimate with Berengar da Carpi (in whom he finds a commendable knowledge of design), and shared his Paris residence for eight years with the Florentine anatomist Guido Guidi (*Vidius*), one of the teachers of Vesalius, and a son-in-law of Ghirlandaio.

In deliberate rivalry with Michelangelo, strove Baccio Bandinelli, a pupil of Leonardo's friend the sculptor Rustici. When Sebastian del Piombo painted the huge portrait of Bandinelli he put in his hand an expressive symbol of the sculptor's art—a cartoon of two nudes of highly developed musculature done in red wash or chalk. Under Bandinelli and Jacobo Sansovino, studied Ammanati whose ineffectual strivings only served to show all workers in the round how vain was their effort to recapture the Titanic conceptions and execution of Michelangelo. "When for their nudity, Ban-

dinelli's 'Adam and Eve' were removed from the high altar in Florence and when the aged Ammanati sent his abject apology to the *Accademia del Disegno* expressing his *acerbissimo dolore e pentimento* for certain nude figures on Florentine fountains, and the custom of adding zinc drapery loin cloths became wide-spread—then the reaction against anatomy and the nude may be said to have set in."³²

There remains the flayed figure of Saint Bartholomew by Marco D'Agrate in the cathedral at Milan,³³ marking the summit of misplaced and tasteless brilliance in this direction, inspired by that analogous earlier work by Giovanni Battista da Sesto at the right hand of the portal of the Certosa Pavese. There remain, too, the assiduous labors on anatomic preparations and myologic models, of the two artists Alessandro Allori and Il Cigoli, the latter of whom unhinged his mind from too close application to dissections. As late as 1660, the French sculptor Pierre Puget³⁴ (who spent seven years in Genoa) wrote to his patron Louvois, "I am also meditating a group of Apollo flaying Marsyas, in order to represent a kind of anatomy, a thing highly appreciated among sculptors and painters." To turn again to painting: the Venetian colorists magically indicated the outline of the figure by varying gradations of tone. The figures in Giorgione's "Fête Champêtre" are color surfaces for the play of light. Tintoretto often lost the graphic pattern of the figure entirely, in a welter of chiaroscuro and confusing illumination. These crepuscular mysteries of light fortunately failed to sway other minds in the same degree. Correggio (1494-1534) showed the highest

³² Balcarres: "The Evolution of Italian Sculpture," London: 1909, chap. iv, *Anatomy and the Nude*, et passim.

³³ See "La Scultura nel Duomo di Milano." Milan: 1908, 193.

³⁴ See "Marsyas" by Puget, Metropolitan Museum, N. Y. Consult *Mus. Bull.*, xiv.

virtuosity in exquisite modelling of the human figure. His "Leda" (Berlin) is outlined in fluid, air-bathed tones; his "Io" (Vienna) and "Danæ" (Borghese) reveal extraordinary delicacy in melting gradations of form and color, bathed in sifting light and almost visibly flowing air. These creations, beloved of gods and men, are separated by diameters of the solar system from the parvenu nudes of Lucas Cranach.

Following the death of the great master, Michelangelo (1564), came the Mannerists who need not detain us, for they studied nature no longer; they studied, instead, the wilfulness and arbitrary choice of form in Michelangelo's later cartoons. From their vapid exhibitions of muscular anatomy misunderstood, pass to the eclectic school of the Carracci at Bologna, where a sound system of anatomy was taught by charts, models and dissections, preparatory to drawing from the nude. The sombre Ribera (1588-1656) painted the flayed St. Bartholomew many times with horrible truth and power. Indeed when his first "Martyrdom of St. Bartholomew" was exhibited to the Neapolitan crowd from the balcony of his father-in-law's house a riot ensued. Ribera handled this congenial theme with dark ferocious competence, easily excelling his masters, Ribalta and Agostino Carracci (Sutherland Gallery, "St. Bartholomew"). We have an etching, from his hand, of the same gruesome theme. Ribera's drawings bear witness to his deep interest in anatomy; he doubtless knew every line of Michelangelo's St. Bartholomew in the "Last Judgment," holding forth his skin in one hand, and grasping the knife, symbol of his martyrdom, in the other. Velasquez, the first to work in oil, painted the nude all too seldom (National Gallery, "Venus and Love") whereas Rubens (1577-1640) seldom missed an opportunity—his female nudes are literally legion, rampant in every collection in Europe.

Like the "Laocoön," the sculptures and

Sistine frescoes of Michelangelo represent the culmination of a period, the period of physiological and psychological anatomy, which was empirically studied and triumphantly mastered by the Greeks and acquired its scientific foundation in the anatomical drawings of Leonardo da Vinci. All that the plastic and graphic arts could convey of the sensation of reality, the emotional realization of volume, weight and movement by representation of the violently twisted musculature of the male body and the purposeful deformation of its parts, is rendered in these immortal works, something which no mere static photograph, say of wrestlers in violent conflict, could ever simulate. What is summarized by Michelangelo could only be sensed in a continuous motion picture of such actions, reeled off at slow tempo for physiological analysis. In Rubens, the rhythmic organization of tactile volumes and the rendering of the sensation of stress and movement, conveyed by the modification and deformation of volumes impinging upon one another, reached its highest development. In the long intervening period between Michelangelo and Rodin, between Rubens and Renoir, accurate representation of the nude was confined mainly to the soft rounded contours of the female body, *i.e.*, to surface anatomy. This preoccupation was due in part to the emancipation of art and artists from the early mediæval prejudice against the plastic representation of the body *in naturalibus*, so evident in Gothic art, and latterly to the ever-increasing exaltation of the fair sex in the successive periods. "The nude human figure," says Berenson, "is the only object which in perfection conveys to us values of touch and particularly of movement. Hence the painting of the nude is the supreme endeavour of the very greatest artists; and when successfully treated, the most life-communicating and life-enhancing in existence."³⁵ But the

³⁵ Berenson: "The Central Italian Painters of the Renaissance." New York: 1897, 77-78.

true vehicle for the surface representation of muscular anatomy and its underlying bony structures is the male body. In the female body, which is physically and physiologically an "adiabatic system" or storehouse of energy, not specially intended for violent motor activity, the musculature is usually flabby and little developed, except in athletics or strenuous occupations. Artistic representation of its suave contours is usually effected by accounting for the depositions of subcutaneous fat, which set in at puberty and usually go on increasing up to the change of life. Countless variations have been played upon this theme, the recital of which is part of the story of modern painting.

The history of modern painting, one of the greater glories of modern France, is briefly as follows: In the early part of the nineteenth century, a definite and determined reaction against the erotic pictures of Boucher, Fragonard and Greuze was ushered in by Vien and apotheosized by David. Austere, prudish, insipid themes from Greek and Roman history became the fashion. The classical tradition of the *méthode David* was continued by Ingres, a superlative draughtsman, whose pencil sketches make him, in Huneker's phrase, "the greatest master of pure line who ever lived." With the advent of Géricault and Delacroix, French art broke away from the stiff formal tradition, with its historical or literary subject matter. Géricault was almost the only artist in the nineteenth century who dissected, and he dissected even the viscera. With Géricault and Delacroix came two of the fundamental postulates of modern painting, viz., unrestricted freedom in the choice of subjects and the feeling that color rather than line is its true means of expressing form, volume, depth, light, air and motion. Emancipation from formal or literary subject matter was largely due to the Spanish artist Goya, who boldly took his themes from the varied life about him, painting almost every conceiv-

able subject, and, in his diabolical etchings, revived the intensely dark backgrounds of Rembrandt and Hals. From Goya stemmed Gustave Courbet, who was reviled all his life for his daring choice of unconventional subjects and who was one of the earliest of the great landscape painters of France. From the Spanish tendency came also the caricaturist Honoré Daumier, whose gloomy backgrounds again suggest Rembrandt and Goya, and whose nude studies of bathing and wrestling figures introduced a tendency of colossal importance in recent painting, namely, the rendering of mass in motion, of the sensations of tactile volume, contour, weight and muscular exertion by the sheer and rugged blocking out of dark tones against the light. It is the physiological anatomy of Michelangelo rendered in a new medium. Another product of the Goya tradition was Edouard Manet, who exhausted all the possibilities of unconventional subject matter ("after Manet, there was nothing new to paint"), who eliminated non-essentials to the point of elliptical portraiture of the face, but who, with all his feeling for surfaces, never achieved form, depth and volume in three dimensions. With Manet, came the great landscape painters of the Barbizon school and, inspired by the English Turner, the Impressionists, better termed the Luminists, who sought to represent sunlight, heat, wind and flowing water by means of color alone. The Impressionist movement culminated in Paul Cézanne, who strove to represent form, subjective solidity and movement itself by the juxtaposition of planes of color. As Berenson says, Cézanne gave tactile values even to the sky.³⁶ These new devices were, most of them, utilized in triumphant synthesis in the last paintings of the aged Paul Renoir, defined by a competent critic as "among the greatest paintings of all time." The summit having been attained, de-

³⁶ Berenson: "The Central Italian Painters of the Renaissance." New York: 1897, 101.

cadence at once set in. Cézanne and Whistler had been influenced by the Japanese. Matisse reverted to the flat two-dimensional art of Persia. Out of African negro sculpture and its angularities came Picasso and the Cubists, who discarded color in favor of block representation in two tones and volume in favor of multilateral vision, or the simultaneous presentation of many aspects of the same object ("Nude Descending a Staircase"). The Futurists, meanwhile, aspired to "empathy" or the identification of the spectator with a series of successive or simultaneous actions supposed to be represented in the picture ("Dynamism of an Auto"). This was the "cosmic tarantella," the chaotic Walt Whitman view of nature, which Berenson derides as the logical opposite of true art, the essence of which, from the time of the Greeks, has been selection. Finally, in the work of the Synchronists, all subject matter in the shape of recognizable objects was eliminated in favor of experiments in juxtaposition of primary colors, and the sterilizing process was complete. Viewed historically, Cubism and Synchronism are technical experiments toward the purification of painting as the art of conveying sensations of form, volume and movement by means of color alone.³⁷ In sculpture, Falguière followed the traditions of Canova and Houdon; Rodin revived the muscular anatomy of Michelangelo.

The effect of the purifying process upon anatomical representation in painting and sculpture was characteristic.

To a surprising science of anatomy, acquired by dissecting, the great Florentine artists added their own intuitions about the dynamics of painting. The success of Giotto, Masaccio, Michelangelo in conveying the physical sensation of solidity and of vio-

lently opposing forces was inherent in their genius, a matter of intuition alone. Their knowledge of anatomy was great, but only Leonardo had any physiological knowledge of the interplay of antagonistic muscles. To purify painting by the scientific study of color, to render the sensations of light, volume, solidity, weight and movement by the orchestration of color alone, was the ambition of all truly modern painters, from Daumier to Cézanne; and Cézanne, as Wright says, "halted at the gateway of great composition," because, like Gauguin, he took up painting too late in life. Under these conditions, representation of the nude became less a matter of anatomic knowledge and study than of color instrumentation and dynamics. The nudes of Daumier have actual mass, weight and solidity; like his caricatures they were "great pieces of rugged flesh which had all the appearance of having been chiselled out of a solid medium with a dull tool. . . . The drawing came afterward as a direct result of the tonal volumes." (Wright.) Manet's "Dejeuner sur l'Herbe," on the other hand, is only a two-dimensional affair of brilliant surfaces. One of the few modern female nudes in which musculature is apparent, it is none the less as flat as a pancake. In the nudes of Renoir, tangibility, bulging volume, the sensation of mass and weight, as in a living body, are achieved by means of color alone. Cézanne's rough croquis of nudes in motion look, many of them, like the drawings of a madman—an artist's experiments in the dynamics of vision. The sketches of Bakst are a wild carnival of *le mouvement* in two dimensions. And all these men had their forbears. Renoir derives from Correggio, Rubens, Boucher, and the rock-sculptures in the Indian grottoes; Daumier from Rembrandt and Goya; Rodin, in tendency and remarkable knowledge of anatomy, from Michelangelo; the block-representations of the Cubists from the figurines of the Cro-Magnon artists, from

³⁷ This argument has been derived, in the main from Willard Huntington Wright's "Modern Painting" (New York, 1915), which does for modern French painters what Berenson's volumes do for the Italian painters of the Renaissance.

negro sculpture, from Dürer's anthropometric diagrams. The study of the musculature of the back in Courbet's *Femme de Munich* is singularly like certain canvasses of Rubens. The reclining and semi-recumbent figures of Michelangelo, Correggio, Titian, Tintoretto and other Italians, a pose which for three centuries was a *motif* in books of anatomic illustration from Ber-



Women of Tahiti
BY PAUL GAUGUIN

engario da Carpi to Gautier d'Agoty, were repeated by Velasquez and resumed by Boucher, Fragonard, Goya (*Maja nuda*), Courbet and Renoir. Meanwhile, alongside of the conscious effort to purify painting by making it a matter of color dynamics alone, other tendencies sprang up. Gauguin, Degas, Rops, Toulouse-Lautrec studied the nude from curious angles, ethnic, social, latterly pathological; and here Fletcher's dictum that the true content of "artistic anatomy" is physiology and external pathology becomes singularly apposite. Gauguin's studies of Tahitian men and women are genuine contributions to ethnology, like Greek statuary, Holbein's English faces, Lucas Cranach's slant-eyed Wittenberg maidens, Rubens' negro, Raeburn's Scots, Goya's Spaniards, Defregger's Tyrolese, Zorn's Swedes, Alfred Stevens' Belgians, Reinhold Begas' Prussian girls, Sargent's Nilotic woman,

Sichel's Miss Fai, or Zuloaga's Marcelle Souty. The predilection of Correggio, Andrea della Robbia, Andrea del Sarto and Rubens for naked bambini has afforded solace to scores of modern German artists, notably in Moritz von Schwindt's cartoons for frescoes in the Royal Palace at Munich. Rodin's "La Belle Heaulmière" reproduces all the horrors of Villon's ballade, and the jaded ugliness of prostitutes has been vulgarized by Rops, Forain, Louis Legrand and Toulouse-Lautrec. Dürer's "Four Naked Women" and Rembrandt's nude engendered, in fact, a whole school of modern pictures, in which the female body is seen as deformed and ruined by advancing age, maternity, change of life, grinding toil, vice or prostitution. Degas, who shut himself up all his life to paint ballet girls, race horses and milliners, achieved the culmination of this tendency in his pictures of ugly women bathing in tubs. Personally in his "benevolent malice" and reconciliation to the boredom of life, he was the artistic counterpart of the novelist Huysmans, of the catlike temperament, described by Arthur Symons as "courteous, perfectly polite, almost amiable, but all nerves, ready to shoot out his claws at the least word."

"Perhaps it is only a stupid book that some one has mentioned, or a stupid woman; as he speaks, the book looms up before one, becomes almost monstrous in its dullness, a masterpiece and a miracle of imbecility; the unimportant little woman grows into a slow horror before your eyes. It is always the unpleasant aspect of things that he seizes, but the intensity of his revolt from that unpleasantness brings a touch of the sublime into the very expression of his disgust. . . . He speaks with an accent as of pained surprise, an amused look of contempt, so profound, that it becomes almost pity, for human imbecility."

Such have been the tendencies of recent

painting of the nude, the apotheosis of the ugly and the disagreeable, running strangely parallel with the substitution of the photograph and the dissected cadaver in place of hand-drawings for the teaching of anatomy. Our thesis, however, is to the effect that genuine anatomic illustration arose not in didactic hand-drawings made by physicians, but without didactic intention, in the sculptures and figure paintings of the great Florentines, in immortal beauty comparable only with the statuary of the Greeks and the Gothic *imagiers*.

In the words of Berenson:³⁸

“What brought about this change? In the first place, the Serpent, that restless energy which never allows man to abide long in any Eden, the awakening of the scientific spirit. Then the fact that, by a blessed accident, much, if not most, of this awakened energy was at first turned not to science but to art. The result thereof was Naturalism, which I have defined elsewhere as science using art as the object of its studies, and as its vehicle of expression. Now science, devoting itself, as it earnestly did at the beginning of the fifteenth century, to the study of the shapes of things, did not take long to discover that objective reality was not

³⁸ Berenson: “The Central Italian Painters of the Renaissance.” New York: 1907.

on the side of the art then practised. And, thanks to the existence at that moment of a man not less endowed with force to react against tradition, than with power to see—a power, I believe, unparalleled before or since—thanks to this one man, Donatello, art in an instant wrenched itself free from its immediate past, threw to the winds its whole mediæval stock of images, and turned with ardour and zeal to the reproduction of things as research was discovering them to be. . . .

“Created by Donatello and Masaccio, and sanctioned by the Humanists, the new canon of the human figure, the new cast of features, expressing, because the figure arts, properly used, could not express anything else, power, manliness, and stateliness, presented to the ruling classes of that time the type of human being most likely to win the day in the combat of human forces. It needed no more than this to assure the triumph of the new over the old way of seeing and depicting. And as the ideals of effectiveness have not changed since the fifteenth century, the types presented by Renaissance art, despite the ephemeral veerings of mere fashion and sentiment, still embody our choice, and will continue to do so, at least as long as European civilisation keeps the essentially Hellenic character it has had ever since the Renaissance.”



THE QUINTESSENCE IN RABELAIS

By DOUGLASS W. MONTGOMERY, M.D.

SAN FRANCISCO, CAL.

IN Rabelais' day, and for long before, and, also, for a very considerable time after, all terrestrial matter was held to be composed of four elements, earth, air, fire and water. As regards the universe, a fifth element, spiritual in its nature, was assumed, which was called the *quinte* or fifth essence. This quintessence was supposed to be the ethereal substance of which the stars were composed. The domain of this *quinta essencia* was gradually extended so that it was thought to permeate all things, and, therefore, it bore a remote resemblance to the luminiferous ether of the modern physicists. This essence, or essential part or soul of things became an object for investigation by the alchemists, who imagined that by clearing away the gross body of the elements they could arrive at the spiritual core or substance.

With its original meaning either neglected or forgotten, and the word now only employed to indicate either extreme or ridiculous refinement, it is difficult for us to appreciate the preponderating influence the idea it once represented had in science and philosophy. The subject is mentioned several times by Rabelais, and always in his mocking manner.

Quintessence is mentioned at the very beginning of the first book, as, instead of giving his own name, Rabelais styles himself Master Alcofribas Nasier, Abstractor of the Quintessence, and he again alludes to himself as M. Abstractor, on whom Panurge calls for aid in the great storm at sea.¹ Again, in the exquisite bargaining between Panurge and Dindenault in the matter of sheep, Dindenault in enumerating the excellencies of his sheep, says that the

quintessentials, meaning the alchemists, extracted from their urine the finest salt-peter in the world.²

Later in the fifth book, Pantagruel and his companion skirt along on the edge of the whirlwind, and finally land in the kingdom of Quintessence or Entelechy, and enjoy an entertaining visit with the queen of that country, who has a wonderful organ.³ By playing a tune upon it all sorts of diseases were cured, and even the dead brought back to life. The pipes of the organ were of cassia, the sounding board of guaicum, the stops of rhubarb, the pedals of turbith and the keyboard of scammony. Scammony itself is a most entertaining drug, and it is only right and proper, seeing what its root can do, that its flower should be a morning-glory. Those who were diseased received a great deal of attention in this august court; and were introduced with much ceremony by a corps of officials, chief among whom were abstractors and spodisators. Abstractors we are already acquainted with, spodisators were also a kind of alchemists; they were those who calcined or reduced to ashes metallic substances. For them Rabelais seems to have had a special contempt, as he called Quaresmeprenant a *calineur de cendres*, a calciner of ashes,⁴ a useless doer of things. This reminds us that chemistry in the olden times was not what it is to-day. Chemical substances were then divided into three classes:

1. The mercuries were those substances which on being heated deposited themselves again, and could therefore be recovered.

2. The sulphurs were those which burnt,

² Rabelais: "Pantagruel," Book IV, Chap. VII.

³ Rabelais: "Pantagruel," Book V, Chap. XIX.

⁴ Rabelais: "Pantagruel," Book IV, Chap. XXIX.

¹ Rabelais: "Pantagruel," Book IV, Chap. XX.

leaving no residue or recoverable substance whatever.

3. The third class consisted of substances which were reduced to an ash or were calcined. Any white powder left after calcining was called a chalk, or, in French, *un chaux*.

As before mentioned, these substances, together with everything else terrestrial, were supposed to be composed of the four elements, earth, air, fire and water, but, as before mentioned, the fifth element, the quintessence, was beginning to seriously agitate the mind of philosophers and chemists. The invention of the alembic, and the production with it of alcohol, which was supposed to be a spirit, gave a reasonably good ground both for speculation and investigation along this line.

THE ALEMBIC

The alembic, or still, was introduced into Spain by the Arabian physicians, and into France by Arnaud de Villeneuve (1240-1311), a Catalonian who was said to have cured Pope Innocent V (1225-1276) of the plague (*peste*). This instrument is one of those epoch-making inventions, so self-evidently beneficent, and so universally applicable, as to excite no more wonder or admiration than the rising sun, or the action of any of the other great phenomena of nature. Previous to the introduction of the alembic many of the volatile oils and essences had been gathered from plants by an ingenious but wasteful process. The plants were heated under a net-work of linen threads. The volatile oils ascending were caught as droplets on the threads, and so secured.⁵ The alembic changed all this, and enabled many volatile substances to be obtained which up to then had entirely escaped. Chief among them was alcohol, that essence or spirits of wine, the holy fluid, so like the blood, wherein was thought to reside the soul of man and which,

⁵ Rabelais: "Pantagruel," *Entretiens Dermatologiques* par R. Saboureaud, 1913, p. 431.

it was assumed, was daily transmuted before one's very eyes into the blood of Christ.

Rabelais mentions the alembic in a humorous way, showing, what is well known, that it was a commonly employed instrument in his day. He compares Doctor Piedebois' big red nose to the beak of an alembic, and the comparison fits, both in shape and color. The good doctor's nose was bulbous below, expanding out in this direction like the body or cucurbit of a still, while the dorsum of the nose, ascending from this, became more slender and curved gracefully upwards toward the glabella like the beak or worm of the limbec. Furthermore the ambergris on the copper of a still, giving tints running from coppery red through green and iridescent blue, would correspond charmingly with the high colors of a nose lovingly tinted by long continued vinous indulgence, as that of the amiable physician of Angers above mentioned.⁶

According to Professor John Maxson Stillman, who has written an interesting paper touching on this subject, the alchemists had achieved a sort of fractional distillation by, in some instances, employing the direct heat of a fire, or the indirect heat of a water bath, or the gentler heat of the sun, or the mild heat generated by a fermenting dung hill.⁷

On the discovery of the retort or still, it was in the natural course of events that the alchemists would, by its means, begin to fabricate new medicines, and Professor Stillman has given an account of the profound effect this began to have on medical practice in the beginning of the sixteenth century.

The profession was then dominated by the men of the schools, who were wedded to tradition, and to the works of Hippoc-

⁶ Rabelais: "Pantagruel," Book II, Chap. I.

⁷ John Maxson Stillman: "Chemistry in Medicine in the Fifteenth Century," *Scient. Month.*, February 1918, p. 167.

rates and Galen, which constituted their Bible. The works of these two men were thought to contain everything necessary for the cure or care of the body, as the Bible and the works of the Holy Fathers contained everything necessary for the cure or care of the soul. These physicians, proud of their position and proud of their learning, would not soil their hands either with operations, dissections, or chemical investigations. All operations were performed by surgeons under the supervision of a physician; all dissections were made on the lower animals by servants under the direction of the professor; and as for the alchemists, they were people with dirty hands, of common dress, with vulgar manners, and devoid of learning. Rabelais in one situation classes them among trades.⁸

Moreover, as the alchemists did not belong to any great institution, such as the Church or the medical schools, to give them prestige, they constituted people of no consideration, and any remedies introduced by them must necessarily be flippant, trivial and quackish. But the men who do things get a masterful command of events, which the men who only learn things can never obtain. Paracelsus, the chemist-physician, won a name for himself in his own day, and later Ambroise Paré, the surgeon, achieved a similar distinction in his class. It was a long time, however, before the scholastic physician was displaced. He finally was laughed out of an untenable position by the dramatist, Molière.

The employment of the alembic in practical pharmacy may be regarded as initiating modern scientific medicine, and as Professor Stillman has shown, one of the first books, possibly the first, on the subject, was "The Book of the Art of Distilling Simples," by Hieronymus Brunschwyck, a native and surgeon of the imperial free City of Strassburg, printed in the year fifteen hundred.

⁸ Rabelais: "Gargantua," Chap. XXIV.

Affairs did not move so rapidly in those days as they do at present, but twenty-six years after the appearance of Brunschwyck's book, that very energetic and eccentric chemist-physician, Paracelsus, began his attack upon the conventional medicine of the faculties at the University of Berne. And eight years after the beginning of Paracelsus' iconoclastic career we find Rabelais, a doctor of medicine, entitling himself an Abstractor of the Quintessence, and therefore adhering, although jokingly, to the chemist-physicians. It is true that he did this jokingly, but it was a sign of the times and an indication of the drift of circumstances.

Another question arises in relation to the pseudonym of Rabelais, and one directly in line with the present discussion. Had the syllables *alco* in the word *Alcofribas* any reference to the word *alcohol*, which in the sixteenth century was coming into use throughout Western Europe as a name for the quintessence or spirit of wine?

This word alcohol had had an adventurous course. In Arabic it meant *Al kob'l*, the powder, and referred more particularly to the very fine black powders employed to blacken the edges of the eyelids of women. One can get some appreciation of how fine these powders should be in order not to act very disagreeably, when one considers what care is exercised at the present time in grinding up the powders incorporated in salves to be used in the eye—for instance, in the preparation of the yellow oxide of mercury salve so much employed by oculists. In the Middle Ages, when the means of obtaining a finely divided substance, either by trituration or by precipitation, were not so good as at present, it is no wonder that the word *Al kob'l* came to mean—extreme and subtile fineness.

But, in describing the spirits—and there were supposed to be an infinite variety of them—the philosophers of the period, as, for instance, Scaliger (1484-1558) and

Fernelius (1497-1558), heaped up the epithets, saying that they were bodies most subtle, most fine, most mobile, most swift, most ethereal, and that they shared in the quintessence.⁹ It therefore transpired that this new word, *Al kob'l*, meaning in its native land a fine powder, suffered a change in transference so as to be applied to what was considered one of the finest of the quintessences, the spirit of wine.

⁹ John G. Curtis: "Harvey's Views on the Use of the Circulation of the Blood," 1915, page 117.

Could it have been that Rabelais, the abstractor of the "Quintessence," who had such an affection for words, took the opportunity afforded by his anagram to incorporate in it the first two syllables of the new word alcohol?

After many an adventure both together and apart we find that in this year of our Lord, 1918, the science of chemistry and the art of medicine are more tightly linked together than ever Brunschwycck, Paracelsus or Rabelais could have imagined.

MALARIAL HÆMATURIA WITH CHEYNE-STOKES RESPIRATION

PHILISCUS, who lived by the Wall, took to bed on the first day of acute fever; he sweated; towards night was uneasy. On the second day all the symptoms were exacerbated; late in the evening had a proper stool from a small clyster; the night quiet. On the third day, early in the morning and until noon, he appeared to be free from fever; towards evening, acute fever, with sweating, thirst, tongue parched; passed black urine; night uncomfortable, no sleep; he was delirious on all subjects. On the fourth, all the symptoms exacerbated, urine black; night more comfortable, urine of a better color. On the fifth, about mid-day had a slight trickling of pure blood from the nose; urine varied in character, having

floating in it round bodies, resembling semen, and scattered, but which did not fall to the bottom; a suppository having been applied, some scanty flatulent matters were passed; night uncomfortable; little sleep, talking incoherently; extremities altogether cold, and could not be warmed; urine black; slept a little towards day; loss of speech, cold sweats; extremities livid; about the middle of the sixth day he dies. The respiration throughout, like that of a person recollecting himself, was rare, and large, and spleen was swelled upon in a round tumor, the sweats cold throughout, the paroxysms on the even days.

HIPPOCRATES: "Epidemics," Book I, 13, Case 1.

THOMAS PHAER

By JOHN RUHRÄH, M. D.

BALTIMORE, MD.

THESE are probably but few widely read physicians who are not familiar with the name of Thomas Phaer, the father of English pediatrics and the author of "The Book of Chyldren." But here one imagines the familiarity ceases. There are a few, doubtless, who have seen the old, fat black-letter volume in the Library of the Office of the Surgeon General, where it lies in a stately glass case bound up with "The Regiment of Life," "A Goodly Bryefe Treatise of the Pestylence with the Causes, Signs and Cure of Same," and "Declaration of the Veynes of Man's Body, and to what Dyseases and Infirmities the Opening of Every One of Them Doe Serve." Or perchance, in some other fortunate library the treasure may have passed under the eye. Surely the author of the first English book on pediatrics, whatever its merits, deserves some recognition by the profession, but a casual search does not reveal a single biography of him in the usual medical sources. Not that he is not in the medical biographies, he is, but there are no worthy accounts of him or his works. With curiosity aroused, the Boston Public Library at hand on a vacation day, and remembering Oscar Wilde's dictum that the only way to get rid of a temptation is to yield to it, the rest was easy. In passing, one must say a word in praise of the Boston Public Library, a wonderful store of books, a scholarly atmosphere, and helpful librarians who do not resent having the books used.

What are the sources of our information? First of all, perhaps, a monograph by a German doctor of philosophy, Eduard J. W. Brenner, one of the "Wurzbürger Beiträge zur Englischen Litteratur Geschichte" entitled "Thomas Phaer, mit besonderer

Berücksichtigung seiner Aeneis übersetzung (1558)," Heidelberg, 1913. With Teuton thoroughness he has collected a five page bibliography containing all the references to Phaer in literature and certain books that throw a light on the time in which he lived. Then there is a note in the "Dictionary of National Biography," by Sir Sydney Lee and a somewhat fuller account in Sir Anthony Wood's "Athenae Oxoniensis," in Fuller's "Worthies" and in Hazlitt's "Bibliographical Collections." Reference is also made to him in Phillip's "History of Cilgeran" (pages 98-102), George Owen's "History of Pembrokeshire" and Fenton's "Tour in Pembrokeshire." Phaer is noticed in some of the other studies such as John Aiken's "General Biography" and John Friend's "The History of Physic."

Phaer came into the world in an interesting period. The year before he was born Henry the Eighth had ascended the English throne and had appointed Richard Pynson the first royal printer; in this year Calvin was born and Erasmus published his "Encomium Moriae." The date of Phaer's birth is somewhat doubtfully given as 1510, the son of Thomas Phaer of Norwich and Clara Godier, his wife. Sir Sydney Lee states that Phaer's family was Flemish in origin, but on what ground is not clear. His mother belonged to an influential family of Herfordshire and her father was a knight of the City of London. Certain incidents happened during his early years, things which must have influenced his life considerably. Learning was confined to the schools and the learned; Latin was the scholar's tongue; the bonds that held the books had not been broken. Luther translated the Bible into German in 1521;

a few years later, 1525, Tyndale's new Testament was printed in English; 1535 saw Olivetan's Bible in French and Coverdale's first complete English translation of the Bible; Matthew's English Bible was printed in 1537, and the "Great" Bible in 1539. The scholastic shackles were being broken and it was Phaer's great work, if such an adjective can be applied to so small a performance, to help in the breaking. He is better known as a translator, a man of letters, than as either lawyer or physician.

Phaer was sent to Oxford and then to Lincoln's Inn. Wood says "that as a lawyer he attained to a considerable knowledge in the municipal laws." In any event, he wrote two law books, the first of which, "Natura Brevium, newly corrected in Englishe with diuers addicions of statutes, book cases, plees . . .," was published by Robert Redman in 1535 and was followed by a book issued by Edward Whitchurch, in 1543, "New Boke of the Presidentes in maner of a Register wherein is comprehended the very trades of making all manner evidence and instruments of Practyse, right commodious and necessary for every man to knowe." These endeavours to popularize legal methods led to his appointment as a solicitor in the court of the Welsh marches and he settled at a house in Kilgerran Forest in Pembrokeshire. He gives his title as "Solicitor to Queen Mary, justice of the peace and *custos rotulorum* for the county of Pembroke."¹

He began the study of medicine before 1539 for on February 6, 1558-1559, when he was made M. B. and given leave to practice at Oxford, he stated that he had practiced twenty years and experimented about poisons and their antidotes. On March 21 of the same year he received his doctor's degree. In 1544, he wrote a commendatory poem for Peter Betham's "Precepts of Warre."

¹ (See also his will below.)

Chyfest is peace, but yf by extremetye
Thou be enforced to fyght for thyne owne,
Learne here the science and actes of Chyvaldrye,
Pollicies, and privities to many men unknowen;
Whereby thyne enemye may be over throwen;
In such a necessitie shalt thou never finde
Such an other treasure: kepe it wel in minde.

In this same year, Whitchurch published "The Regiment of Life," alluded to above. The earliest edition in the Bodleian has the date of 1546. This was a translation from the French of the "Regimen Sanitatis Salerni." This had already been translated into English by an Austin friar, Thomas Paynell, in 1528, who stated, "This boke techyng al people to governe them in helthe is translated out of the Latyne tonge in to Englyshe." This book went through a number of editions and Phaer must have been familiar with it. Phaer's translation went through many editions, the second in 1553 was put out by John Kingston and Henry Sutton in some copies and by William How and Abraham Veale in others. Other editions are dated 1560, 1565 (?), 1567, 1570 (?), and 1596. In 1772 the "Treatise of the Plague" was reprinted by a physician (W. T.) and some extracts from it were used by Henry Holland in an appendix to "Spiritual preservatives against the Pestilence," 1603, and in Salomon's "Pesthouse," by J. D., 1630. This Henry Holland was a son of a physician, Philemon Holland, and was as an assiduous translator as ever existed, who also did the "Regimen Sanitatis Salerni" into English.

Phaer contributed to the *Mirror for Magistrates*; a publication of the verse much in vogue in those days. The part containing Phaer's poem was edited by Baldwin, and in the introduction to the reprint in 1815, edited by John Haslewood, Warton is quoted as follows:

"Baldwyne and Farrer perhaps deterred by the greatness of the attempt did not attend to the series prescribed by Sackville, but inviting some other to

their assistance, among which are Churchyard and Phayer, chose such lives from the newly published Chronicles of Fabryan and Hall, as seemed to display the most offending catastrophies, and which very probably were pointed out by Sackville."

The Farrer mentioned was his friend George, whom he instructed in his will to write his epitaph, good evidence, were any needed, of his scholarly associates.

The 1610 edition by Richard Nicolls boasts of a striking motto on the title page, "By peace plenty, by wisdom peace," which might well serve us in the present day. Anent the *Mirror*, it may not be out of place to state that there is in the Barton Library in the Boston Public Library, a copy of the Haslewood edition that belonged to Robert Southey. On the flyleaf is the following note in his own handwriting:

"A gentleman in the commission of the peace (not far from London) saw the book advertised & taking it for granted that the *Mirror for Magistrates* must be something like Burn's 'Justice,' sent for it accordingly, paying the full price at which it was published, which was ten guineas. When he discovered his mistake he wished to return it, but the bookseller refused to take it back; the unfortunate purchaser therefore thought it better to part with the book for anything he could get, than keep what was to him altogether worthless & was moreover a provoking remembrance whenever he set eyes upon it. This is the copy. I bought it at Bohne's for 3/3 in boards & Bohne told me its history which is as curious as anything in Mr. Haslewood's prolegomena. R. S."

Phaer, as we shall see presently, ranked high as a poet and man of letters in his day. A few stanzas of his poem on Owen Glendower will suffice to show his style, which was that of his period.

58. How Owen Glendouer seduced by false prophecies took upon him to be Prince of Wales, and was by Henry Prince of England chased to the Mountaynes, where hee miserably died for lack of food. A. D. 1401.²

THOMAS PHAER.

1

I pray thee, Baldwine, sith thou doest entende
To shewe the fall of such as climbe to hie,
Remember mee, whose miserable end
May teach a man his visious life to flye,
Oh fortune, fortune, out on thee, I crye:
My lively corpse thou hast made leane and slender,
For lack of foode, whose name was Owen Glendour.

2

A Welshman borne, and of the Troyan bloud,
But ill brought up, whereby full well I finde,
That neyther byrth nor linage make us good,
Though it be true a cat will after kinde:
Flesh gendreth fleshe, but not the soul or minde,
They gender not, but fouly do degender,
When men to vice from vertue them surrender.

3

Each thing by nature tendeth to the same
Whereof it came, and is disposed like:
Downe sinkes the moulde, up mounts the flame,
With horne the hart, with hoofe the horse does strike,
The wolf doth spoile, the suttle foxe doth pike,
And to conclude, no fishe, fleshe, foule or plant,
Of their true dame the property doth want.

4

But as for men, sith severally they haue
A minde, whose manners are by learning made,
Good bringing up all only doth them saue
In honest actes, which with their parents fade:
So that true gentry standeth in the trade
Of vertuous life, not in the fleshely line:
For bloud is brute, but gentry is devine.

.

31

And so Prince Henry chased mee, that loe,
I found no place wherein I might abide:
For as the dogges pursue the seely doe,
The brache behinde, the hounds on every side,
So traste they me among the mountaynes wide:
Whereby I found I was the hartles hare,
But not the beast Colprophet did declare.

² From the *Mirror for Magistrates*, vol. ii, part iii.

32

And at the last: like as the little roach,
Must eyther be eate, or leape vpon the shore
When as the hungry pickerell doth approach,
And there finde death which it escapt before:
So double death assaulted me so sore,
That eyther I must vnto mine enmy yeelede,
Or starue for hunger in the barrayn feelde.

33

Here shame and payne a while were at a strife,
Payne bade mee yeelede, shame bade me rather fast:
The one bad spare, the other bid spend my life,
But shame (shame haue it) overcame at last:
Then hunger gnew, that doth the stone wall brast,
And made me eat both grauel, durt and mud,
And last of all my dung, my flesh, and bloud.

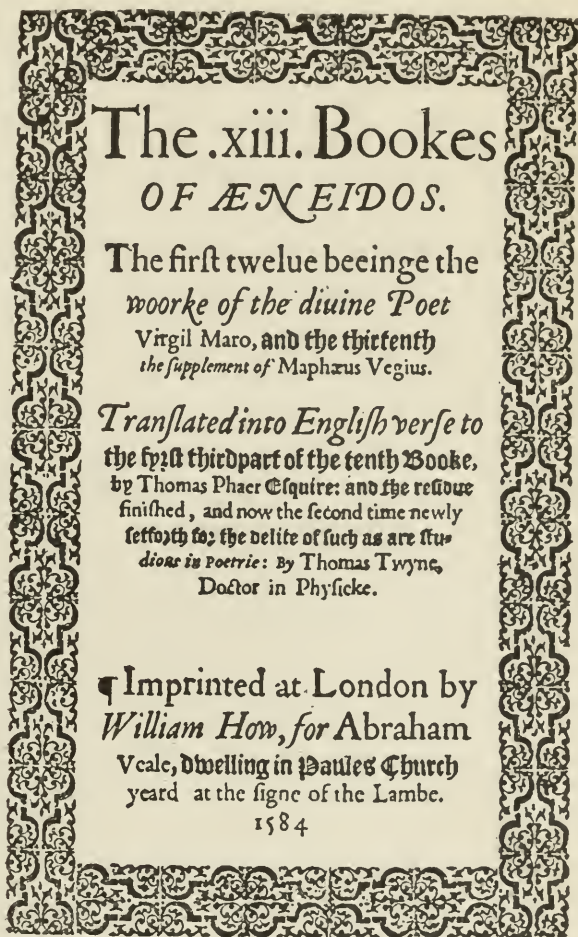
34

This was mine end too horrible to heare,
Yet good enough for a life that was so ill,
Whereby O Baldwine, warne all men to heare
Theyr youth such loue, to bring them up in skill,
Bid princes fly colprophets lying byll,
And not presume to climb about theyr states:
For they bee faultes that foyle men not their fates.

Warton, who is not looked upon as particularly reliable, stated that he had seen an old ballad called "Gads-hill by Faire." In the registers of the Stationers Company in 1558-59 there is an entry of a ballad entitled "On the Robbery at Gaddes-hill" After Phaer's death Thomas Purford, in 1566 was licensed to publish "Certen Verses of Cupydo, by M. Fayre." This is not known to be in existence. The spelling of the name varies. In his will it is Phaer, but it also appears as Phayer, Phayre, Phaier, Fayre, Faire, Ffaer, and Ffer.

Phaer's chief idea seems to have been the popularization of learning and having in mind, the thought later expressed by Sir Philip Sidney in his "Apology for Poetry," "that no philosophers precepts can sooner make you an honest man than the reading of Virgill," he applied himself earnestly to the task of translating into English verse the *Æneid*. This he began in the month of May, 1555, and the first book was completed on the twenty-fifth of the same month. He worked rapidly and averaged a

book in about twenty days. The first seven books were put out by John Kingston, in 1558 in quarto form. When he finished the fifth book, May 4, 1556, he made a note that he had escaped some accident, "post periculum eius karmardini." By April 3, 1560, he had finished the ninth book. Then he injured his right hand in some way and had



Title page of Phaer's translation of the *Æneid* published in 1584. The work also contained three books translated by Thomas Twine

to use his left. This accident is referred to in the beginning of Chaloner's Epitaph:

Phaeyrus erat longis noster dignissimus annis
Indignia periit noster at ille nece.
Nam domini culter, quis vitet fata? Cruorum
Houserat, hacc lapsus culpa proterva fuit.

Warton says that the day before his death he translated verse 467 and those following

the tenth book and full of dark forebodings sent it to Wightman:

Stat sua cuique dies, breve et inreparabile tempus
Omnibus est vitae: sed famam extendere factis, hoc
virtutes opus.³

Nec potuit supplere moriens.

Hoc fuit insomnum eius novissimum.

Thomas Phaer olim tuus nunc dei.

He died at Kilgerran in August, 1560. In 1562, Rowland Hall printed for Nicholas England the quarto edition of "The Nyne fyrst bookes of the Eneidos of Virgil converted into English vearse by Tho. Phaer, doctour of physike, with so muche of tenthe booke as since his death (1560) coulde be founde in unperfit papers at his house in Kigaran Forest in Pembroke-shire." Thomas Twine finished the work and it appeared in 1584. Twine was also a doctor, a Canterbury man, who practiced at Lewes.

Sir Sidney Lee says "Phaer's translation is in fourteen-syllable rhyming ballad metre, is often spirited and fairly faithful." Phaer was the first Englishman to attempt a complete translation of Virgil and it is in this that his fame rests. Gawin Douglas (1553) was the earliest translator and the Earl of Surrey did two books which appeared in 1557. Phaer's own estimate of his translation is modest enough and as the writer in the *Retrospective Review* says: "If he was sincere, it must be concluded, that he possessed more poetical taste than genius."

In his concluding address to his readers, Phaer says:

"You may therefore accept these translations as things roughly begun, rather than polished, and where you shall understand a fault, I desire you, with silence, patiently pass it, and, upon knowledge given to me, I shall in the next setting forth endeavour to reform it."

³ Ech mans day stands prefixt, time short and swift
with ceaseless bretch
Is lotted all mankind, but by their deeds their fame
to stretch,
That privilege vertue gives.

Before reading some of the opinions of others try a sample of the translation. One needs a sixteenth-century mind to properly enjoy the long metre which has a halting effect. The following appears in the sixth book of the *Æneid*, line 228:

Nor nothing lesse this whyle, the Troians al in
solempne gyse
Did wayte Misenus corps, and gave to him their
last out cries.
Furst, cut in culpons great and fat of sappe with
pytche among
A stately pile they bylde, with tymber trees, and
cipers strong
(That dead mens treasour is) his gorgeous arms also
they set,
Some brought water warme, and caudrons boyling
out they set.
The body colde they washe, and preciose ointments
on they powre.
Lamenting loude is made, than close his lynmes in
bed on floore
The couch with weeping teares, and purple weedes
on him they throw:
His robes, his harness bright, and enseignes al that
men may know.
In mourning sort, some heave on shulders hie the
mighty beere,
(A doleful service sad) as children do their father
deere,
Behind them holding brondes, than flame vprising,
broad doth spreede
And oyles and dainties cast, and frankynsens the
fier doth feede.
When falne his cynders were, and longer blase did
not endure;
His reliques and remain of dust with wynes they
washyd pure.
Then Chorney his bones in brasen coffyn bright did
close.
And sprincling water pure, about his mates thre
tymes he goes,
And dropps of sacryd dewe with Olyue palmes on
them did shake
And Compas blest them all, and sentence last he
sadly spake.

His translation of the shooting of the dove is better.

Then Mnestus, his bow to draw, forth with strength
stood out;
And stretching hand aloft, his heart and eye did
level right;

Yet could not he, (good man), for all his art, the
 culver smite
 But hit the hempen cord; and of the knot the
 bounds he brast,
 Whereby the bird was bound, and by her foot did
 hang at the mast;
 She took the wind forthwith, and to the clouds full,
 fast she flew.
 And even at that time, as he his bow and dart di-
 recting drew,
 Eursion, and for his brothers help, in heaven, he
 cried:
 The bird he saw was loose; and sporting her in skies
 he spied:
 Yet marking well with eyes and stedfast hand, in
 clouds above,
 He quickly brake her play with sudden stroke, and
 slew the dove,
 That trembling down she fell, and in the stars her
 life she left,
 And dead she came to the ground, and in her body
 brought the shaft.

The following in his rendition of the de-
 scription of the bay, into which Æneas and
 his companions were driven, on the coast of
 Africa:

Far in the shore there lieth an isle, and there beside
 a bay,
 Where, from the channels deep, the haven goeth in
 and out alway:
 On either side, the reaches righ, to heaven up climb
 to grow,
 And under them the still sea lieth, for there no
 breath can blow;
 But green wood like a garland grows, and hides
 them all with shade,
 And in the midst a pleasant cave there stands, of
 nature made,
 Where sit the nymphs, among the springs, in seats
 of moss and stone
 When ships are in no cables need, nor anchors need
 they none.

The critics living in any age rarely appre-
 ciate it at its own worth. Names like
 Thomas Moore and Nash meant little to
 the sixteenth-century reviewers, while As-
 cham, Puttenham and others long since for-
 gotten, came in for their meed of praise.
 Phaer won much applause for his transla-
 tion. Brenner has collected a great many
 examples; a few of the more interesting will

serve. In 1566, Studley (1545-1590) in a
 preface to a translation of Seneca's "Aga-
 memnon" wrote:

May Heywood this alone get prayse
 And Phaer be cleane forgott
 Whose verse and style doth far surmount
 And gotten hath the lot.

Thomas Churchyard (1520-1604) in a
 preface to Skelton's works, 1568, wrote:

And Phaer did hit the picke
 In things he did translate.

Thomas Chaloner, in 1579, in his epitaph
 uses the following words:

Ansus erat carmen vertere Virgillii
 Caetera quis nescit? Nunc Anglum se maro factum
 Miratur, ciues plaudite, Phayre vale.

Arthur Hall lamented that his efforts
 were inferior to Phaer's "Virgilian English"
 when he dedicated his (Hall's) translation
 of Homer to Lord Cecil (1581). Nash
 derided Stanihurst's translation in compar-
 ing it to Phaer's. In his preface to Greene's
 "Menaphon" (1589) he says "Mr. Phaer
 likewise is not to be forgot, in regard of his
 famous Virgil, whose heavenly verse, had it
 not been blemished by his hautie thoghts,
 England might have long insulted in his
 wit and corrigat qui potest have been sub-
 scribed to his works." Puttenham, in his
 "English Poesie" commends Phaer highly,
 "learned and well corrected."

AN EPITAPHE OF MAISTER THOMAS PHAYRE

The hawtie verse that Maro wrote,
 made Rome to wonder muche,
 And mervayle none; for why? The style
 and waightynes was suche,
 That all men judged Parnassus mount
 had cleft himself in tawyne.
 And brought forth one that seemd to drop
 from out Minervae's brayne.
 But wonder more may Bryttayne great,
 when Phayre dyd florysh late,
 And barrayne tong with swete accord
 reduced to such estate,
 That Virgil's verse had greater grace,
 in forrayne foote obtaynde,
 Than in his own, who, whilst he lyved,
 eche other poet staynde.

The noble H. Hawarde once,
 that raught eternal fame,
 With mighty style did bryng apeece
 of Virgils worke in frame.
 And Grimaold gave the lyke attempt,
 and Douglas won the ball,
 For famous wyt in Scottysh ryme,
 had made an end of all.
 But all these same did Phayre excell,
 I dare presume to wryte,
 As much as doth Apolloe's beames
 the dymmest starre in lyght.
 The envious fates (O pytie great!)
 had great dysdayne to see,
 That us amongst there should remayne
 so fine a wyt as he:
 And in the mydst of all his toyle,
 dyd force hym hence to wende,
 And leave a Worke unperfyt so,
 that never more shall ende.

The preceding extraordinary expression of praise is found in "Eglogs, Epytaphes and Sonnettes. Newly written by Barnabe Googe 1563, 15 Marche. Imprynted at London by Thomas Colwell, for Raffe Newbery, dwelling in Flete Strete, a little above the Conduit, in the late shop of Thomas Bartlet." Googe's book is exceedingly rare, but the epitaph is reprinted in the *Retrospective Review*⁴ and also by Brenner.

In 1605 Sylvester's translation of du Bartas appeared and the following sonnet by R. N., who evidently was Richard Nicolls, an editor of the *Mirror for Magistrates*:

Had golden Homer and great Maro kept
 In envious silence their admired measures,
 A thousand worthies' worthy deeds had slept,
 They reft of praise, and we of learned pleasures.
 But O! what with incomparable treasures
 Had the world wanted, had this modern glory,
 Divine Du Bartas, hid his heavenly ceasures,
 Singing the mighty world's immortal story?
 O then how deeply is our isle beholding
 To Chapman, and to Phaer, but yet much more
 To thee Sylvester, for thus unfolding
 These holy wonders, hid from us before.
 Those works profound are yet profane; but thine
 Grave, learned, deep, delightful and divine.

⁴ *Retrospect. Rev.*, 1822, v, p. 345.

In the seventeenth century, the critics were not so kind. Thomas Fuller, in his "History of the Worthies of England,"⁵ had the temerity to use the word dulness in reference to Phaer's translation. Atwood, in 1674, complained of the metre. Aikin, in his "Biographical Memoirs of Medicine in Great Britain from the Revival of Literature to the Time of Harvey,"⁶ cited Pitz, who praised him and Fuller, just mentioned.

Brenner devotes eighty-three pages to Phaer, mostly critical notes on the *Æneid* and he reprints the sixth book as an example of his style. He is a ruthless critic, but he admits that Phaer did give an understandable version which he says "succeeded quantitatively and may we not say that it did not succeed qualitatively. (*Es ist ihm quantitativ gelungen, und qualitativ dürfen wir nicht sagen, es sei ihm misslungen.*) He made possible for those of his time one of the great epics of world literature. No genius, not original, scarcely with talent, the stream of living literature has rightly flowed away from him as with other types and average manifestations (*typen und durchschnitt Erscheinungen*) without carrying along anything lasting. After all what he wrote made him a great place. Literary history accords him a safe place in the translations of the 16th century."

In George Owen's "Description of Pembrokeshire,"⁷ we find the record that "Thomas Phaer doctor of phisicke a man honored for his learneinge, commended for his government (self control) and beloved for his pleasant naturall conceptes, he chose Pembrokeshire for his earthlye place, where he lived worshipfully, and ended his daies to the grieffe of all

⁵ Fuller, Thomas: "History of the Worthies of England," London: 1662.

⁶ Aikin: "Biographical Memoirs of Medicine in Great Britain from the Revival of Literature to the Time of Harvey," London: 1870, p. 77.

⁷ "Description of Pembrokeshire," 1603. Edited by Henry Owen, 1892, 239.

good men, at the fforest of Kilgurrán being his chosen seate, he translated the Eneidos of Virgill, a worke of now worthely commended, though commended of most, sheweinge the author his great skill, learninge and aptnes of nature."

Thomas Fuller, D.D., wrote the "History of the Worthies of England" which was published in 1662. A reprint by P. Austin Nuttall, London, 1870,⁸ contains the following reference to Phaer:

"Thomas Phaier in Wales; and bred (I believe) first in Oxford, then in London; a general scholar, and well versed in common law, wherein he wrote a book 'De Natura Brevium' (of the Nature of Writs). Strange that he would come after justice FitzHerbert, who formerly had written on the same subject. But probably Phaier's book (having never *seen* any who have *seen it*) treateth of writs in the Courts of Marches (where to Wales was then subjected, and) where legal proceedings may be somewhat different from ours in England. But the study of the law did not fadge well with him, which caused him to change his copy, and proceed doctor in physic. Now (though he made none) he, out of French did translate many useful books. 1. 'Of the Pestilence, and the Cure thereof,' 2. 'Of the Grief of Children.' 3. 'Of the Nature of Simples.' 4. 'The Regiment of Naturall Life.' He had also his diversion, some excursion into poetry, and translated Virgil's Æneid, *magna gravitate* (saith my author; *Pits, aetat, decima sexta, anno 1550*) which our modern wits will render, *with great dullness*, and avouch, that he, instead of a Latin Virgil, has presented us with an English Ennius—such the rudeness of the verse. But who knoweth not that English poetry is improved fifty in the hundred in this last century of years? He died and

was buried in London, about the year of our Lord, 1550."

Another little bit of biographic importance is found in Richard Fenton's "Historical Tour through Pembrokeshire."⁹ In his ninth journey under the caption "Iter IX," among the other notable things that head the chapter is the name "Doctor Phaer."

"I have already remarked that physicians from other countries, from a very early period, were in the habit of making their *debut* in this, where being successful, they generally formed connections which naturalized them, as it were, to their new residence, as was the case with Doctor Phaer, who came young into Pembrokeshire, became enamoured of, and ended his days at, Forest adjourning Cilgerran, on the banks of the Teivy; a place still well wooded with thriving young timber, the remote descendants of growth in Phaer's time, well meriting the name it bore. In this favourite retirement, by way of relaxing from the labours of his profession he courted the Muses, and translated several books of Virgil's Eneid, which, in conjunction with Twyne, he gave to the public. He was the son of Thomas Phaer, of Norwich, Esq. by Clara, daughter of Sir William Goodyear, Knight, of the City of London; and married Anne, daughter of Thomas Walter, Alderman of Carmarthen, by whom he left two daughters, coheireses, the one married to the above Rhys Vaughan, the other to an Advena like himself, of the name of Revell, to whose share Forest fell, for in 1579 he occurs as Sheriff of Pembrokeshire by that designation."

"George Owen, in his enumeration 'of divers famous and learned men that have lived or been born in the countie of Pembroke in former tymes, whos workes are

⁸ Vol. iii, 496.

⁹ Fenton, Richard: "Historical Tour Through Pembrokeshire," London: 1811, 505.

left and be extant to posteritie,' thus sums up the character of this disciple of Galen and of the nine, being his contemporary, his intimate friend, and his neighbor." (The quotation from Owen is given above.)

The Reverend James Phillips in his "History of Pembrokeshire," London, 1909, certainly did not think Phaer worthy of mention, so as he is passing it is high time that he again be brought to mind.

Curiously enough, a copy of Phaer's will has come down to us and is to be found in "The Shakespeare Society's papers," London, 1849, where it was reprinted by Peter Cunningham, Esq., under the title of "The Will of Thomas Phaer, the poet and translator from Virgil."¹⁰

"In the name of Gode amen, The XIIth daye of the moneth of August, the yere of O' Lorde God, a thousand five hundred and syxtee, and the yere of the reigne of O' sou'raigne lady Elizabeth, by the grace of God Quene of Eynglond, Fraunce and Eyrland, defender of the faith, etc., the seconde, I, Thomas Phaer, of Kilgerran, in the Dioc of Sainte Davids, being of whole mynd and good and prfecte remembraunce, lawde and praise be vnto allmightie Gode, make and ordeiyne this my presente testament concernyng herein my laste Will, in man'r and forme followinge, that is to say: First, I commande my soul vnto Allmightie God, my maker and redemer; and my body to be buried in the p'ishe Church of Kilgerran, wth a stone vpon my grave, in the man' of a marble stone, with suche Scripture thereupon, graven in brasse, as shall be devised by my frynd Mr. George fferers: Item, I doe give and bequeth vnto Graffyth af Ey-

non, my sonne in lawe, the somme of twentie pounds, vpon condicion that he do make vnto my doughter Elyno^r, his wiffe, a good, sure, and sufficient estate in the lawe of an in all that his two tenements and lands, wth the appurtenances, called place ygoedtree, sett and liyng in the parrish of llanvi Langhell penbedow, and place trebberveth, sett and liyng in the parrish of Maynordevie, to have to and holde to her for and during the terme of her naturall life, this condicion of my saide sonne in lawe truly p'rformed, than I wolle that the said XX^{li} be paied vnto hym within one yere nexte after my decease by my executrix' hereafter named: Item, I give and bequeth vnto my syrūte, Rees Tucker, V^{li}; Item, I wolle that my wiffe doe paye V^{li} where she doth know, by appointmente betwene her and me: Item, I doe giue and bequeath unto Anne, my wiffe, my whole lease vpon the demesne of Kilgerran, to haue and to holde to her during her life naturall; and yf yt shall happen my saide wiffe to deceasse before the yeres of my saide lease be expired, as God yt forbid, then I will that my saide lease, of an vpon the premisses, doe wholly remaine unto Mary, my doughter; and yf yt shall happen my saide doughter, Mary, to deceas, as God yt defend, befo^r the yeres comprised in the saide lease be expired, then I wolle that the saide lease, of an vpon the prmisses in man' aforesaide, shall wholly revert vnto Elizabeth, my doughter, to have and to holde to her, to her executos and assignes, untell the yeres thereof be fully past, expired and gone. And further, yf my wiffe at any time after my decease be disposed to marie, that then I wolle, and my veary herness desyre and to request is to my wiffe, that she doe procure hym whome she doth dispose to marie to gyve sufficient bands to vse of my saide children; that he shall not alienat nor

¹⁰ Extracted from the Registry of the Prerogative Court of Canterbury. The original is not extant. There is a contemporary copy on foolscap and the copy in the registry.

surrender the saide lease, nor shall not doe any faete or acte that may be an occasion of forfeiture thereof; and finally, that he shall not doe, nor suffer to be donne, any thing or things that maye or shalbe preiudiciall or hurtfull to my saide children in the hauinge, enjoyenge, and possessing of the saide lease, of and vpon the premises in the manner as is before expressed in this my presente testament: all the rest of my goods and cattells, leases and farmes, moveables and unmoveables, I doe wholly giue and bequeth vnto Anne, my wiffe, whome I do make my sole and full executrix by this my present testamente.

Witnesses:

John Bradshaw, the younger, Esquire
Rees Gyn, gent.

Morgan ap Re, gent.
etc. etc.

Cunningham goes on to state that Anna married again a certain John Ryvel and both the daughters were married.

Of his medical works the most important in his day was "The Regiment of Lyfe" in ours, the "Booke of Children." The former as has already been stated, is a translation of the "Regimen Sanitatis Salerni," which is too well known to need any comment here. Phaer's translation made this work available for English reading people.

The book on plague begins:

"Here beginneth a godly briefe treatise of the Pestilence, with the Causes, Signes and Cures of the same, composed and newly recognized by Thomas Phayer, studious in philosophy and physike to the ayde, comferte, and utilitie of the poore."

Then follows: "To the good Reader a Preface of the Authour." This is too long to quote in full, but the opening statement is good reading.

"After that God almighty father and creatour of all things, had by his vn-

searchable prouidēce ordayned mankinde, to eternall felicitie, and ioy at the beginning, hee thought it not inough to have created him of nothing, a body most excellent perfect and pure both in members and sences, aboue all other his creatures here in earth: but also of his inestimable goodnesse, endewed him with diuers and sundry giftes of grace, as Wit, vnderstanding, minde and reason wherby he might not onely (as neere as is possible approche vnto him in the knowledge of his heavenly maiesty) as concerning soule, but as well imagyne, searche and finde out, by all manner wayes, aydes, comforts and remedies, wherby also the body might bee saued and defended, againste all assautes of any thing that should anoy it: so bounteous and plentiful are his giftes implanted in our nature, that of all creatures wee might haue beene the happieste. But after that sin had entred into the world and by sinne death (as Saynt Paule sayth) our corrupt lyuinges haue made vs more corrupt, so that now the life which wee leade here, is not onely very pleasaunt vnto the most of men, and if it bee to some, yet it is vncertaine, mutable, and short, but to many other, it is exceedinge greeuous, sorowfull, and tedious, subject to diseases, infortunes, and calamities innumerable, which for the moste part do encrease daily, euer the iust vengeance of god falling vpon vs for our great abhominacions, and without doubtte will euer more endure, vnles we do repent and liue in his commaundements. And to pass ouer all the whole swarmes of so many, both olde and new diseases, wherwith the body of man (alas for our sinnes) is continually tormented and vexed, to speake bothing of these common and familiar infirmities, as lepries, agues, cankers, pockes, goutes, palseies, dropsies, rumes, pthisikes, and other out of number, which as if they had conspired to

fight against phisitions, canne scantlye be appeased with any cure of medicine, what payne or punnishmente canne there be imagined to put vs in remembraunce of our owne wickednes, cause vs to detest our abhominable lyuinges, and to call for mercy with lamentable heartes more then this onely plage and scourge of god commonly called the pestilence?

He proceeds to give an account of the pestilence and "the four rootes or causes." He is a pious fellow and "the first roote and superior cause" is the will of God. This old idea of disease being the will of God has been and ever will be the stumbling block of medical progress. As long as we sit idly by and blame God in place of living in the open, draining the swamps, killing mosquitoes and the like we shall have with us disease in plenty.

"The second roote of the pestilence doth depende of the heavenly constellations." So he blames Saturn and Mars, the evil planets, and gives no less an authority than Marsilius Ficinus, "a man of excellant knowl-edge an no less learning." Saturn being cold causes "reumes, of the lepry called Elephan-cia and diseases comming of his heat, bring-eth forth fevers, pestilencial spitting of blood, water under the midriff and the pleuresy." . . .

"A provident physicion among many other things ought to consider the entring of the sun into Aires . . . [which] pass-eth all the entring of the sunne into any other sign.

"The thirde roote or cause beeinge inferiour, is the stinche and filthy savors that corrupt the air.

"The fourth roote is, the abuse of things not natural, that is to wit, of meate, and drinke, of slepe and watching, of labour and ease, of fulness and emptynes, of the passions, of the minde, and of the immoderate use of lichery, for the excess of all these things be almost the

chiefe occasion of all sutch diseases as raygne among us now adays."

After considering all these things he goes on to divide his treatise into two parts: "The first is of the manner to preserve a man from pestilence onely by dyet, in sutch things without the which, one cannot long be alive in health. The second treateth of ye cure of the said disease by the way of holsome medicine." Phaer was a believer in the digestion-wait-on-appetite-and-health on-both theory. "But good wine savoury and clere and good meates taken, with an appetite are cause of health and preserva-tion from pestilence."

"To mutch slepe engendereth many humours in the body specially if it bee in the day time, and it dulleth the memory, and maketh a man unlusty and apt to receive the pestilence. Therefore created Almighty God the night, wherein we should rest, and the day for to kepe us waking, that we fall not in to sinne and sloth. Surely to slepe on the day time is exceeding hurtfull, for when the sunne ryseth, he openeth the poores of the body and spirites from within, to the outward parties, which provoketh a man to watching and exercise of workes. And contrarywise when the sunne goeth downe, all thinges are closed and coreted, which naturally produce a man to rest.

"Moderate exercise of labour is very necessary to the preservation of health, according to every mans age, custome, complexion, strength and sutch other, so it be done in the morning and at even, and in a place of good aire, and not infected with corruption."

Phaer gives wise counsel on the bodily habits and was evidently familiar with the effect of emotion upon resistance.

"Ye must beware of all thinges that should make you pensive, heavy, thought-full, angry or melancholyke, for all sutch

things are inoghe to infecte a man alone."

Prescriptions are given for pills against the pestilence, "drinckes," "a very good preservative, for the common people ready at all times and of small cost," and "another singular remedy preservative for riche men and delycate of complexion." The sixteenth-century recipes need not be given; one laughs at them, perhaps, but the present day medical writings contain as much that will be regarded as very strange a hundred years hence.

The chapter on how to know when a man is infected is full of interest. He gives as the first sign the swelling under the arm or under the neck, or green, black or evil colored sores on other parts.

"The second sign is, if yee feele a great pricking and shooting in your body, specially in any of the three cleansinge places, that is to say, the necke, the arme holes, and the flankes.

"The third signe is when you fele an outragious heat within you.

"The fourth signe is great vapours and fumes arise out of the body, when a man is in a Bath, and would fain sweat, but cannot.

"The fifth signe is if the pacient can not drawe his breath easily."

The other signs are the pain in the head, drowsiness, disturbance of vision, pain in the mouth or bitter taste, vomiting, heaviness and weakness of the body and limbs. Taken all in all, a good clinical picture.

He has many remedies and advises bleeding twice and various other things common at the time. He gives the sound advice: "wherein if you are doubtful, take ye counsel of some good experte physicion."

Various external applications are advised; a curious one is as follows:

"Or take a cocke and pull the fethers of, about his fundament, and put a little salt

in it, and set the fundament upon ye said botch, keeping him on a good whyle stopping many times his byll, that his breth may be retayned and let him blow again. And if the cocke dye it shal be good to take another yong cocke, and splitte it quick asunder, and lay it on the botch."

He closes his little tract with a chapter on the care of carbuncles and the pestilence called anthrax, winding up:

"I could declare many othere remedies but I set them that have been often proved, and that be most easy, for to get at neede, desiring all them that shall use these my simple labours, to accept my good wil unto the best, and to pray to God almighty for his grace, unto whom onely be all laude, glory, and honor, world without end. Amen."

The next treatise is "A declaration of the Veyns in mans body, and to what diseases and infirmytyes the opening of every one of them do serve."

"It is not unknowen to any which have seen anathomies, howe there be in a mans body two kyndes of Veines, general and special." There follows a short account of the veins of the arms, the technique of bleeding and the uses of opening the special veins. The extreme special action of opening some of these as given by Phaer suggests the selective action of bacteria. A recent account tells of a streptococcus which would always cause an inflammation of the left facial nerve. Bearing this in mind, read the following and only quotation:

"The two veines in the middle Toe, are good against the Scrophules, and diseases of the face, spots, rednes, and pimples, watring of the eyes, cankeres and knobbes, & against the stopping of the floures. The veine on the left ioynt in the great Toe, is good against Ophthalmia of the eies, spotted of the face and the legges, ytch, and vlcers of the euyll com-

plexion, and purgeth superfluities of the matryce. Thus much I haue declared of the vtilitie of veines."

Phaer's most important contribution from a medical standpoint is his little book on the diseases of children. He recognized the importance of pediatrics, not as a speciality, as that was to come centuries later, but as an especialty, as it were, as a branch of medical learning almost, if not altogether, neglected. The knowledge that it was possible to prevent and cure disease in early life, and the authorship of the first book in English on the subject, whatever its merits, are sufficient to win him the title of the father of English pediatrics.

Among other things he considers the subject of milk; one or two lines may be quoted:

"And Phaurinus the Phylosopher (as written Aulus Gelyus) affirmethe that if the lambes be nourished with the milke of goates, they shall have course wolle, like the heare of goates; and if kyddes in lyke manner sucke upon the shepe, the heare of them shal be soft like wolle."

This old idea concerning the food carried over in the German proverb: *Mann ist was er isst* (Man is what he eats) runs through all the early writings and some later ones as well. An interesting quotation on this subject is from Thomas Muffet's (1553-1604) book on "Health Improvement" (1584).

"Nay (which is more) no man can justify dout, that a child's mind is answerable to his nurses milk and manners; for what made Jupiter and Aegystus so lecherous, but that they were chiefly fed with goats milk? What made Romulus and Polyphemus so cruel but that they were nursed by she-wolves? What made Pelius (Tyrus and Neptunes son) so brutish but that he was nursed by an unhappy mare. Is it any marvel also, that Giles, the Abbot (as the Saint-Register

writeth) continued so long the love of a solitary life in woods and deserts, when three years together he suckt a doe? What made Dr. Cajus in his last sickness so peevisch and so full of frets at Cambridge, when he suckt one woman (Whom I spare the name) froward of conditions and of bad diet; and contrariwise so quiet and well when he suckt another of a contrary disposition.

The importance of maternal nursing and the choice of a wet nurse are two important things which Phaer treats in a most commendable manner. The nail test for milk is that of Soranus of Ephesus and it may be that Soranus got it from some one else.

"Which if it may be done, it shalbee most commendable and holsome, if not ye must be wel advysed in taking of a nource, not of ill complexion & of worse manners: but sutch as shall be sober, honest and chaste, well fourmed, amyable and chearefull, so that shee may accustome the infante unto mirthe, no dronkard, vicious nor sluttishe, for sutch corrupteth the nature of the childe.

"But an honest womā, (sutch as had a mā child laste afore) is beste not within two moneths after her deliverance, nor aprochyng nere unto her time agayne. These things ought to bee considered of every wise person, y wil set their children out to nurce. Moreover, it is good to loke upō the milke, and to see whether it be thicke and grosse, or to muche thinne & watrie, blackishe or blewe, or enclinyng to rednesse or yelowe, for all such are unnatural & evil. Likewise when ye taste it in your mouthe, if it be eyther bitter, salt, or soure, ye may well perceive it is unholosome.

"That milk is good, that is white and swete, and when ye droppe it on your nail, and do move your finger, neyther felteth abroad at every stering, nor will hang fast upon your nayle, when ye

turne it downwarde, but that which is between both is best."

His work includes a large number of different conditions and he refers to a number of authorities. Forty diseases are noted, together with the remedies to be used. The last includes "apostume of the brayne, Terrible dreams, the falling evil, palsy, canker of the mouth, streightnesse of winde, colike and rumbling in the guttes, stopping of the belly" and concludes with some remarks about oogle eyes. It will not be necessary here to give many illustrations of his style. Here is one of his therapeutic suggestions.

REMEDYES FOR SCALLES

"If ye see the scalles like the shelles of oyster, black and drie, cleaving upon the skinne, one within an other, ye may make a fomentacion of hot and moyste herbs, as Fenugreke, Holy hocke, Beares breech, Lineseed, and such other, sodden all or some of them in the broth of Netes feete, and so to bathe the sores, and after that applye a soft plaister of the same herbs, with Goose grease or butter, usinge this stil, till ye see the scab remooved, and then wash it with thy juyce of Horehound, Smallach, and Bekonie, sodden together in wyne, and after the washing put upon it powder of Myrre, Aloes, and Frankencense, or hold his head over a chafyng disshe of coles, wherin ye shall put Frankencense and Saunders in powder."

The soundness of this is apparent. First the scales were softened by poultices and ointment, then they were washed with *wynne*, (Oh saints and sinners of Westerville!) with astringents; the antiseptic action of the dilute alcohol was, of course, effective just as today, or rather yesterday, we used a twenty-five per cent to fifty per cent alcohol lotion, no longer available for

tender skinned infants, as the worthies referred to in the above parenthesis have insisted on the addition of noxious and oft-times irritating agents. Local applications of aloes and frankincense have passed and myrrh has almost passed with them, and when it does an effective, pleasant remedy for the condition in question leaves us. The use of fumigations with frankincense and saunders is a thing of the past, but it was only yesterday that calomel was used in this manner.

One other quotation may be given:

OF CONSUMPTION OR LEANES

"When a childe consumeth or waxeth leane wout any cause apparent, ther is a bath commeded of authoures, to wash the childe many times, and is made thus. Take y head and fete of a wether, seth thē y bones fal a sūder, use to bath y childe in this licour, and after anoint him with this ointment folowing. Take butter without salt, oile of roses and of Violets, of ech an ounce, the fat of raw porke, half an ounce, waxe a quartern of an oūce make an ointmēt, wher the child must be rubbed every day twise, this with good feding shal encrease his strength by the grace of God."

Phaer cannot be rated as a great physician. He apparently did no original work himself; what he did chiefly was to make available the work of others. He sought to get rid of some of the mystery and secrecy of medicine and in a measure he succeeded. That he wrote the first book on children in the English language will always be remembered, doubtless long after his literary achievements have been entirely forgotten. Certainly those interested in medical history will see that his name is kept in the list of the notables of English medicine.

STATEMENTS OF MEDICAL INTEREST FROM THE LIFE OF BENVENUTO CELLINI¹

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NEW YORK, N. Y.

THAT Benvenuto Cellini was a paranoiac is agreed upon by all who have read his autobiography with some understanding of mental conditions. This life contains, besides the details that show him to be a paranoiac, many statements of medical interest.

Cellini was born in 1500 and died in 1571. His autobiography ended with the year 1564, so he lived for seven years after its termination. During this time he suffered from many illnesses, especially the gout.

It will be recalled that the years covered in Cellini's autobiography, compose the period of the renaissance, the revival of learning and the reformation. Medical practice was hand in hand with superstition, quakery and herb doctoring.² This aspect of medicine can be readily noted from Cellini's memoirs. His statements of medical interest we will now consider.

"Inasmuch as the bad air of Pisa had given me a touch of fever, I went with the fever hanging still about me, in my master's company, back to Florence.

There my father received him most affectionately, and lovingly prayed him,

¹ All statements in this paper are taken from the "Life of Benvenuto Cellini," newly translated into English by John Addington Symonds, New York, Charles Scribner Sons, 1918. Cellini's autobiography, which circulated in manuscript, was first printed in 1730. There are six old editions of the book as follows:

(1) Antonio Cocchi's edition was printed at Naples in 1730, with the imprint Colonia; (2) G. Palamede Carpani's was printed in three volumes at Milan, Società Tipografica de Classici Italiani, in 1806; (3) Francesco Tassi's appeared at Florence, Guglielmo Piatti, in three volumes in 1829; (4) Giuseppe Molini's appeared at Florence, Tipografica all'Insegna di Dante, in two volumes, in 1832. This edi-

unknown to me, not to insist on taking me back again to Pisa. I was ill about two months, during which time my father had me kindly treated and cured always repeating that it seemed to him a thousand years till I got well again, in order that he might hear me play a little. But when he talked to me of music, with his fingers on my pulse, seeing he had some acquaintance with medicine and Latin learning, he felt it change so much if he approached that topic that he was often dismayed and left my side in tears."³

This is a very nice description of the effect of emotion on the pulse and the presence of a long continued fever, thought to be due to the bad air. It is quite possible that the fever was typhoid on account of the bad sanitation of Pisa (bad air).

Talking thus and walking onwards, we found ourselves at the gate of San Piero Gattolini without noticing that we had got there; whereupon I said: "Friend Tasso, this is God's doing that we have reached this gate without noticing that we were there; and now that I am here, it seems to me that I have finished half

tion was preceded by a duodecimo text published by Molini on December 30, 1830, simultaneously with Tassi's; [When Molini compared Tassi's text with the Laurentian MS, he saw that there was room for a third edition (that of 1832), more exact than either]. (5) B. Bianchi's appeared at Florence, Le Monnier, one volume, in 1852; (6) that of Eugenio Camerini, Milian, Sonzogno, in 1886, is a popular reprint, with an introduction and some additional notes.

² For a very interesting discussion of this period see Garrison's "History of Medicine," 2nd edition. Philadelphia: 1917, pp. 178, 231.

³ *Loc. cit.*, p. 18.

the journey." And so, being of one accord, we pursued our way together, saying, "Oh what will our old folks say this evening?"⁴

This statement which occurs following a discussion of Cellini's desire to go to Rome with a friend shows very nicely the subconscious Freudian mechanism that guided Cellini and his friend to the gate to undertake the trip which they did and he then continues to describe the journey to Rome.

"While I was pushing forward on Salamanaca's vase, I had only one little boy as help, whom I had taken on the entreaty of friends, and half against my own will, to be my workman. He was about fourteen years of age, bore the name of Paulino, and was the son to a Roman burgess, who lived upon the income of his property. Paulino was the best-mannered, the most honest, and the most beautiful boy I have ever seen in my whole life. His modest ways and actions, together with his superlative beauty and his devotion to myself, bred in me as great an affection for him as a man's breast can hold. This passionate love led me oftentimes to delight the lad with music; for I observed that his marvellous features, which by complexion wore a tone of modest melancholy, brightened up, when I took my cornet, broke into a smile so lovely and so sweet, that I do not marvel at the silly stories which the Greeks have written about the deities of heaven. Indeed, if my boy had lived in those times, he would probably have turned their heads still more."⁵

One can see from the above that Cellini had a marked homosexual component to his nature. Possibly here is the key to his development of paranoia, since Freud has pointed out that the paranoiac develops on the basis of a marked homosexual complex.

⁴ *Loc. cit.*, p. 21.

⁵ *Loc. cit.*, p. 36.

There is also reason to believe that he was not free from the darker lusts which deformed Florentine society in that epoch as has been stated by Symonds. To this charge of course he loudly protests his innocence. But his precipitate flight after the affair of Cencio⁶ is suspicious. So is the language used by Bandinelli in his altercation with Cellini.⁷ It must also be added that he was imprisoned in 1556 on a charge of unnatural vice.⁸

"As I have said above, the plague had broken out in Rome; but though I must return a little way upon my steps, I shall not therefore abandon the main path of my history. There arrived in Rome a surgeon of the renown, who was called Maestro Giacomo da Carpi.⁹ This able man, in the course of his practice, undertook the most desperate cases of the so-called French disease. In Rome this kind of illness is very partial to priests, and especially to the richest of them. When therefore, Maestro Giacomo had made his talents known, he professed to work miracles in the treatment of such cases by means of certain fumigations; but he only undertook a cure after stipulating his fees, which he reckoned not by tens, but by hundreds of crowns. He was a great connoisseur in the arts of design. Chancing to pass one day before my shop, he saw a lot of drawings which I had laid upon the counter, and among them were several designs for little vases in a capricious style, which I had sketched for my

⁶ Lib. ii, chap. lxi.

⁷ Lib. ii, chap. lxx.

⁸ See Mabellini (*Delle Rime di B. C.*, pp. 106, 129) on this point.

⁹ Giacomo Berengario da Carpi was, in fact, a great physician, surgeon, and student of anatomy. He is said to have been the first to use mercury in the cure of syphilis, a disease which was devastating Italy after the year 1495. He amassed a large fortune, which, when he died at Ferrara about 1530, he bequeathed to the duke there.

amusement. These vases were in quite a different fashion from any which had been seen up to that date. He was anxious that I should finish one or two of them for him in silver, and this I did with the fullest satisfaction, seeing they exactly suited my own fancy. The clever surgeon paid me very well, and yet the honour which the vases brought me was worth a hundred times as much; for the best craftsmen in the goldsmith's trade declared they had never seen anything more beautiful or better executed.¹⁰

"No sooner had I finished them than he showed them to the Pope; and the next day following he betook himself away from Rome. He was a man of much learning, who used to discourse wonderfully about medicine. The Pope would fain have had him in his service, but he replied that he would not take service with anybody in the world and whoso had need of him might come and seek him out. He was a person of great sagacity, and did wisely to get out of Rome; for not many months afterwards, all the patients he had treated grew so ill that they were a hundred times worse off than before he came. He certainly would have been murdered if he had stopped. He showed my little vases to several persons of quality; and amongst others, to the most excellent Duke of Ferrara, and pretended he got them from a great lord in Rome, by telling this nobleman that if he wanted to be cured he must give him those two vases; and, the lord, had answered that they were antique, and besought him to ask for anything which might be convenient for him to give, provided only he would leave him those; but, according to his own account, Maestro Giacomo made as though he would not undertake the cure, and so he got them.

"The plague went dragging on for many months, but I had as yet managed to

¹⁰ *Loc. cit.*, p. 47.

keep it at bay; for though several of my comrades were dead, I survived in health and freedom. Now it chanced that an intimate comrade of mine brought home to supper a Bolognese prostitute named Faustina. She was a very fine woman, but about thirty years of age; and she had with her a little serving girl of thirteen or fourteen. Faustina belonging to my friend, I would not have touched her for all the gold in the world; and though she declared she was madly in love with me, I remained steadfast to my loyalty. But after they had gone to bed I stole away the little serving-girl, who was quite a fresh maid, and woe unto her if her mistress had known it. The result was that I enjoyed a very pleasant night, far more to my satisfaction than if I had passed it with Faustina. I rose upon the hour of breaking fast, and felt tired, for I had traveled many miles that night, and was wanting to take food, when a crushing headache seized me; several boils appeared on my left arm together with a carbuncle which showed itself just beyond the palm of the left hand where it joins the wrist. Everybody in the house was in a panic; and my friend, the cow and the calf, all fled. Left alone there with my poor little prentice, who refused to abandon me, I felt stifled at the heart, and made up mind for certain that I was a dead man.¹¹

"Just then the father of the lad went by, who was a physician to the Cardinal Iacoacci, and lived as a member of that prelate's household. The boy called out: 'come, father, and see Benvenuto: he is in bed with some trifling indisposition.' Without thinking what my complaint might be, the doctor came up at once, and when he had felt my pulse, he saw and felt what was contrary to his own wishes. Turning around to his son, he said: 'O traitor of a child, you ruined me;

¹¹ *Loc. cit.*, p. 49.

how can I venture now into the Cardinal's presence?' His son made answer: 'why, father, this man my master is worth far more than all the cardinals in Rome.' Then the doctor turned to me and said: 'Since I am here, I will consent to treat you. But of one thing only I warn you, that if you have enjoyed a woman you are doomed.' To this I replied: 'I did so this very night.' He answered: 'With whom, and to what extent?' I said: 'Last night, and with a girl in her earliest maturity.' Upon perceiving that he had spoken foolishly, he made haste to add: 'Well considering the sores are so new, and have not yet begun to stink, and that the remedies will be taken in time, you need not be too much afraid, for I have good hopes of curing you.' When he had prescribed for me and gone away, a very dear friend of mine called Giovanni Rigogli came in, who fell to commiserating my great suffering and also my desertion by my comrade, and said: 'Be of good cheer, my Benvenuto, for I will never leave your side until I see you restored to health.' I told him not to come too close, since it was all over with me. Only I besought him to be so kind as to take a considerable quantity of crowns which were lying in a little box near my bed, and when God had thought fit to remove me from this world, to send them to my poor father, writing pleasantly to him, in the way I too had done, so far as that appalling season of the plague had permitted. My beloved friend declared that he had no intentions of leaving me, and that come what might, in life or death, he knew very well what was his duty toward a friend.

"And so we went on by the help of God: and the admirable remedies which I had used began to work a great improvement, and I soon came well out of that dreadful sickness.

"The sore was still open, with a plug of lint inside it and a plaster above."

Between the years 1500-1568 the ravages of the plague were severe in Germany, Italy, and France. Cellini gives a very good description of the fear the people had in regard to the plague and details some of the symptoms present.

"Thus acquaintance sprang up between me and Luigi Pulci; and so, after the lapse of many years, he came, in the miserable plight which I have mentioned,¹² to make himself known to me in Rome, beseeching me for God's sake to help him. Moved to compassion by his great talents, by the love of my fatherland, and by my own natural tenderness of heart, I took him into my house, and had him medically treated in such a wise that, being but a youth, he soon regained his health."¹³

"Messer Giovanni showed signs too evident of loving him in a dishonourable way; for we had begun to notice that Luigi had new suits of silk and velvet every morning, and it was known that he had abandoned himself altogether to bad courses."¹⁴

The above quotations show the recognition of syphilis in a very severe form and also the presence of homosexual practises among some of the artists.

"Attracted by this dispute, a neighbor put her head out, from whom I learned that my father and all the people in the house had died of the plague."¹⁵

That this epidemic was very fatal, is shown by the fact that between May and November, 1527, about 40,000 persons died of the plague in Florence.

¹² *Loc. cit.*, p. 59.

¹³ "Was thoroughly tainted with a very foul disease."

¹⁴ *Loc. cit.*, p. 61.

¹⁵ *Loc. cit.*, p. 81.

“Amongst them was an eminent philosopher, who spoke in my favour: ‘From the fine physiognomy and bodily symmetry which I observe in this young man, I predict that he will accomplish what he says, and think that he will even go beyond it.’”¹⁶

This shows that even at the time of Cellini’s memoirs some so-called philosophers considered the relation of the features and body symmetry as indications of ability or lack of ability in certain lines of initiative.

“I was still working in the shop of Raffaello del Moro. This worthy man had a very beautiful young daughter, with regards to whom he had designs on me and I, partly becoming aware of his intentions, was very willing; but, while indulging in such desires, I made no show of them, on the contrary I was so discreet in my behaviour that I made him wonder. It so happened that the poor girl was attacked by a disorder in her right hand, which ate into two bones belonging to the little finger and the next. Owing to her father’s carelessness she had been treated by an ignorant quack-doctor, who had predicted that the poor child would be crippled in the whole of her right arm, even if nothing worse should happen.

“When I noticed the dismay of her father, I begged him not to believe all that this ignorant doctor had said. He replied that he had no acquaintance with physicians or with surgeons, and entreated me if I knew of any one, to bring him to the house. I sent at once for a certain Maestro Giacomo of Perugia,¹⁷ a man of great skill in surgery, who examined the poor girl. She was dreadfully frightened, though, having gained some

inkling of the quack’s predictions; whereas, my intelligent doctor declared that she would suffer nothing of consequence, and would be very well able to use her right hand; also that though the two last fingers must remain somewhat weaker than the others, this would be of no inconvenience at all to her. So he began his treatment; and after a few days, when he was going to extract a portion of the diseased bones, her father called for me, and begged me to be present at the operation. Maestro Giacomo was using some coarse steel instrument; and when I observed that he was making little way and at the same time was inflicting severe pain on the patient, I begged him to stop and wait a quarter of an hour for me. I ran into the shop, and made a little scalping-iron of steel, extremely thin and curved; it cut like a razor. On my return, the surgeon used it, and began to work with so gentle a hand that she felt no pain, and in a short while the operation was over. In consequence of this service, and for other reasons, the worthy man conceived for me as much love, or more, as he had for two male children; and in the meanwhile he attended to the cure of his beautiful daughter.”¹⁸

This no doubt refers to a case of osteomyelitis or a fracture with sequestra. The lack of knowledge displayed by the quack is very apparent from this description of his prognosis.

“According, we turned and went back to my brother, whom I had at once conveyed into the house. The doctors who were called in consultation, treated him with medicaments, but could not decide to amputate the leg, which might perhaps have saved him.”¹⁹

geon under several popes until the year 1556, when he died at Rome aged seventy-five.

¹⁸ *Loc. cit.*, p. 93.

¹⁹ *Loc. cit.*, p. 99.

¹⁶ *Loc. cit.*, p. 90.

¹⁷ Giacomo Rastelli was a native of Rimini, but was popularly known as of Perugia, since he resided for a long while in that city. He was a famous sur-

This refers to a bullet wound received above the knee of the right leg, by Benvenuto's brother, and the lack of the doctors to decide upon an amputation which, as Benvenuto rightly says, may have saved his brother.

"It happened, as was natural at the age of twenty-nine, that I had taken into my service a girl of great beauty and grace, whom I used as a model in my art, and who was also complaisant of her personal favors to me. Such being the case, I occupied an apartment far away from my workmen's rooms, as well as from the shop; and this communicated by a little dark passage with the maid's bedroom. I used frequently to pass the night with her; and though I sleep lightly as ever yet did man upon this earth, yet, after indulgence in sexual pleasures, my slumber is sometimes very deep and heavy."²⁰

A very nice illustration of an old saying that often sexual intercourse is a very efficient sleep producer.

"Now, while the Pope was staying at Bologna, I had suffered from an attack of inflammation in the eyes, so painful that I scarce could go on living for the torment; and this was the chief reason why I had not carried out my work. The trouble was so serious that I expected for certain to be left without my eyesight; and I had reckoned up the sum on which I could subsist, if I were blind for life.

"I am convinced that the only cause of this great trouble which has happened to me is the Cardinal Salviati; for he sent to me immediately after your Holiness's departure and I presented myself; he called my work a stew of onions, and told me that he would send me to complete it in a galley; and such was the effect upon me of his knavish words, that in my passion I felt my face inflame, and so

²⁰ *Loc. cit.*, p. 104.

intolerable a heat attacked my eyes that I could not find my way home. Two days afterward, cataracts fell on both my eyes; I quite lost my sight, and after your Holiness's departure I have been unable to work at all."²¹

The Pope then tells Benvenuto to treat himself in the following way.

"Take Flower-de-luces, stalk, blossom, root, together; then decoct them over a slack fire; and with the liquid bathe your eyes several times a day; you will most certainly be cured of that weakness; but see that you purge first, and then go forward with the lotion."

It would seem that this blindness was hysterical and the Pope's treatment by washing the eyes and purging sounds like the treatment that might be recommended by some today.

"It was true indeed that I had got the sickness; but I believed I caught it from that fine young servant girl whom I was keeping when my house was robbed. The French disease, for it was that, remained in me more than four months dormant before it showed itself, and then it broke out over my whole body at one instant. It was not like what one commonly observes, but covered my flesh with certain blisters, of the size of a six-pences, and rose-coloured. The doctors would not call it the French disease, albeit I told them why I thought it was that. I went on treating myself according to their methods, but derived no benefit. At last, then, I resolved on taking the wood,²² against the advice of the first physicians in Rome: and I took it with the most scrupulous discipline and the rules of abstinence that could be thought of; and after a few days, I perceived in me a great amendment. The result was

²¹ *Loc. cit.*, p. 114.

²² Guaiacum.

that at the end of fifty days I was cured and as sound as a fish in the water.

"Some time afterwards I sought to mend my shattered health, and with this view I took myself to shooting when the winter came in. That amusement, however, led me to expose myself to the wind and the water, and to staying out in marshlands; so that after a few days I felt a hundred times more ill than I had been before. I put myself once more under the doctors' orders, and attended to their directions, but grew always worse. When the fever fell upon me, I resolved on having recourse again to the wood; but the doctors forbade it, saying that if I took it with the fever on me, I should not have a week to live. However, I made up my mind to disobey their orders, observed the same diet as I had formerly adopted, and after drinking the decoction four days, was wholly rid of the fever. My health improved enormously; and while I was following this cure, I went on working at the models of the chalice. I may add that, during the time of that strict abstinence, I produced finer things and of more exquisite invention than at any other period of my life. After fifty days my health was re-established, and I continued with the utmost care to keep it and confirm it. When at last I ventured to relax my rigid diet I found myself as wholly free from those infirmities as though I had been born again."²³

Another epidemic of the sixteenth century was syphilis. It was less malignant than in the former century and this was due to the introduction of new remedies that were an improvement upon the mild vegetable concoctions of the previous centuries. Mercury by fumigation or inunction and guaiacum administered internally were the most popular. The discovery of America brought in

²³ *Loc. cit.*, p. 116.

guaiacum (introduced in 1508-1517) and Cellini here gives a description of the value of it in the treatment of his case of syphilis and also shows that the Roman physicians did not approve of this new treatment.

"The necromancer appealed for my support, entreating me to stand firm by him, and to have assafetida flung upon the coals; so I turned to Vencenzio Romoli and told him to make the fumigation at once. While uttering these words I looked at Agnolo Caddi, whose eyes were starting from their sockets in his terror and who was more than half dead, and said to him; 'Agnolo, in time and place like this we must not yield to fright, but do the utmost to bestir ourselves; therefore, up at once, and fling a handful of that assafetida upon the fire.' Agnolo, at the moment when he was moved to do this, let fly such a volley from his breech, that it was far more effectual than the assafetida."²⁴

This gives an idea of the superstition of the time in describing this experience with a necromancer who was calling on the denizens of hell and Cellini describes the terrible effect this had upon the audience. The plight of Agnolo shows nicely the effect of the emotions on the sphincter.

"When I returned to bed, I felt so agitated that I could not sleep again. My mind was made up to let blood as soon as day broke. However, I asked advice of Messer Gaddi, and he referred me to a wretched doctor fellow he employed, who asked me if I had been frightened. Now just consider what a judicious doctor this was, after I had narrated an occurrence of that gravity, to ask me such a question! He was an empty fribbler, who kept perpetually laughing about nothing at all. Simpering and sniggering, then, he bade me drink a good cup of Greek wine,

²⁴ *Loc. cit.*, p. 128.

keep my spirits up, and not be frightened. Messer Giovanni, however, said: 'Master, a man of bronze or marble might be frightened in such circumstances. How much more one of flesh and blood!' The quack responded: 'Monsignor, we are not all made after the same pattern; this fellow is no man of bronze or marble, but of pure iron.' Then he gave one of his meaningless laughs, and putting his fingers on my wrist, said: 'Feel here; this is not a man's pulse, but a lion's or a dragon's.' At this, I, whose blood was thumping in my veins probably far beyond anything which that fool of a doctor had learned from his Hippocrates or Galen, knew at once how serious was my situation; yet, wishing not to add to my uneasiness and to the harm I had already taken, I made show of being in good spirits.²⁵

"Four days had passed when I was attacked with a violent fever attended by extreme cold; and taking to my bed, I made up my mind that I was sure to die. I had the first doctors of Rome called in, among whom was Francesco da Norcia,²⁶ a physician of great age, and of the best repute in Rome. I told them what I believed to be the cause of my illness, and said that I had wished to let blood, but that I had been advised against it; and if it was not too late, I begged them to bleed me now. Maestro Francesco answered that it would not be well for me to let blood then, but if I had done so before, I should have escaped without mischief; at present they would have to treat the case with other remedies. So they began to doctor me as energetically as they were able, while I grew daily worse and worse so rapidly that after eight days the physicians despaired of my life, and said that I might be indulged in any whim I had to

make me comfortable. Maestro Francesco added: 'As long as there is breath in him, call me at all hours; for no one can divine what Nature is able to work in a young man of this kind; moreover, if he should lose consciousness, administer these five remedies one after the other, and send for me, for I will come at any hour of the night: I would rather save him than any of the cardinals in Rome.'²⁷

"More than three long hours passed, and yet I did not regain consciousness. Felice having used all the remedies prescribed by Maestro Francesco, and seeing that I did not come to, ran posthaste to the physician's door, and knocked so loudly that he woke him up, and made him rise, and begged him with tears to come to the house, for he thought that I was dead. Whereto Maestro Francesco, who was a very choleric man, replied: 'My son, of what use do you think I should be if I came? If he is dead, I am more sorry than you are. Do you imagine that if I were to come with my medicines I could blow breath up through his guts and bring him back to life for you?' But when he saw that the poor young fellow was going away weeping, he called him back and gave him an oil with which to anoint my pulses and my heart, telling him to pinch my little fingers and toes very tightly, and to send at once to call him if I should revive. Felice took his way, and did as Maestro Francesco had ordered. It was almost bright day when, thinking they would have to abandon hope, they gave orders to have my shroud made and to wash me. Suddenly I regained consciousness, and called out to Felice to drive away the old man on the moment who kept tormenting me. He wanted to send for Maestro Francesco, but I told him not to do so, but to come close up to me because the old man was afraid of him and went away at once. So

²⁵ *Loc. cit.*, p. 161.

²⁶ Francesco Fusconi, physician to the Popes Adrian VI, Clements VII, and Paul III.

²⁷ *Loc. cit.*, p. 163.

Felice drew near to the bed; I touched him and it seemed to me that the infuriated old man withdrew; so I prayed him not to leave me for a second.

“When Maestro Francesco appeared, he said it was his dearest wish to save my life, and that he had never in all his days seen greater force in a young man than I had.

“Then he sat down to write, and prescribed for me perfumes, lotions, unctions, plasters, and a heap of other precious things. Meanwhile, I came to life again by means of more than twenty leeches applied to my buttocks, but with my body bored through, bound, and ground to a powder. Many of my friends crowded in to behold the miracle of the resuscitated dead man, and among them people of the first importance.²⁸

“My sickness had been of such a very serious nature that it seemed impossible for me to fling it off. That worthy man, Maestro Francesco da Norcia, redoubled his efforts and brought me every day fresh remedies, trying to restore strength to my miserable unstrung frame. Yet all these endeavors were apparently insufficient to overcome the obstinacy of my malady, so that the physicians were in despair and at their wits’ end what to do. I was tormented by thirst, but had abstained from drinking for many days according to the doctors’ orders. Felice, who thought he had done wonders in restoring me, never left my side. The old man ceased to give so much annoyance, yet sometimes he appeared to me in dreams.²⁹

“When Maestro Francesco appeared and saw my great improvement, and the servant girl in tears, and the prentice running to and fro, and Felice laughing, all this disturbance made him think that something extraordinary must have happened, which had been the cause of my amendment.

²⁸ *Loc. cit.*, p. 165.

²⁹ *Loc. cit.*, p. 168.

Just then the other doctor, Bernardino, put in his appearance, who at the beginning of my illness had refused to bleed me. Maestro Francesco, that most able man, exclaimed, ‘Oh, power of Nature! She knows what she requires, and the physicians know nothing.’ That simpleton, Maestro Bernardino, made answer saying: ‘If he had drunk another bottle he would have been cured upon the spot.’ Maestro Francesco de Norcia, a man of age and authority, said: ‘That would have been a terrible misfortune, and would to God that it may fall on you!’ Afterwards he turned to me and asked if I could have drunk more water. I answered: ‘No, because I had entirely quenched my thirst.’ Then he turned to Maestro Bernardino, and said, ‘Look you how Nature has taken precisely what she wanted, neither more nor less. In like manner she was asking for what she wanted when the poor young man asked you to bleed him. If you knew his recovery depended upon his drinking two flasks of water, why did you not say so before? You might then have boasted of his cure.’ At these words the wretched quack sulkily departed, and never showed his face again.³⁰

“Maestro Francesco then gave orders that I should be removed from my room and carried to one of the hills there are in Rome. Cardinal Cornaro, when he heard of my improvement, had me transported to a place of his on Monte Cavallo. That very evening I was taken with great precautions in a chair, well wrapped up and protected from the cold. No sooner had I reached the place than I began to vomit, during which there came from my stomach a hairy worm about a quarter of a cubit in length: the hairs were long, and the worm was very ugly, speckled of divers colours, green, black, and red. They kept it and showed it to the doctor, who said he had never seen anything of the sort before,

³⁰ *Loc. cit.*, p. 169.

and afterwards remarked to Felice: 'Now take care of your Benvenuto, for he is cured. Do not permit him any irregularities; for though he has escaped this time, another disorder now would be the death of him. You see his malady has been so grave, that if we brought him the extreme unction, we might not have been in time. Now I know that with a little patience and time he will live to execute more of his fine works.' Then he turned to me and said: 'My Benvenuto, be prudent, commit no excesses, and when you are quite recovered, I beg you to make me a madonna with your own hand, and I will always pay devotion to it for your sake.' This I promised to do, and then asked him whether it would be safe for me to travel as far as Florence. He advised me to wait until I was stronger, and till we could observe how Nature worked in me."³¹

This description of a fever with delirium and the methods of treatment are of interest. Cellini against the orders of his physicians drank a great deal of water, after which he began to sweat and fell into a deep sleep and started from that time to improve. This experience prompted the doctors to engage in the argument described. The exact nature of the worm vomited by Cellini is difficult to understand. It is possible that he did vomit one of the intestinal parasites that often get up into the stomach.

"This bad turn had been done me by Giorgetto Vassellario of Arezzo, the painter; perchance in recompense for many benefits conferred on him. I had harboured him in Rome and provided for his costs, while he had turned my whole house upside down; for the man was subject to a species of dry scab, which he was always in the habit of scratching with his hands. It happened, then, that

³¹ *Loc. cit.*, p. 170.

sleeping in the same bed as an excellent workman, named Manno, who was in my service, when he meant to scratch himself, he tore the skin from one of Manno's legs with his filthy claws, the nails of which he never used to cut. The said Manno left my service, and was resolutely bent on killing him. I made the quarrel up, and afterwards got Giorgio into Cardinal de Medici's household, and continually helped him."³²

This no doubt refers to an eczema or to a form of chronic scabies.

"Trusting to my boots, which came high up the leg, I put one foot forward; it sank into the oozy ground; and so although I got the goose, the boot of my right leg was full of water. I lifted my foot and let the water run out; then, when I had mounted, we made haste for Rome. The cold, however, was very great, and I felt my leg freeze, so that I said to Felice: 'We must do something to help this leg, for I don't know how to bear it longer.' The good Felice, without a word, leapt from his horse, and gathering some thistles and bits of stick began to build a fire. I meanwhile was waiting, and put my hands among the breast-feathers of the geese, and felt them very warm. So I told him not to make the fire, but filled my boot with the feathers of the goose, and was immediately so much comforted that I regained vitality."³³

A nice example of the application of heat to relieve pain.

"When we reached Lyons I was already ill, and my lad Ascanio had taken a quartan fever. Ascanio was troubled by his quartan, and I by a slow fever which I found it was quite impossible to throw off. I had, moreover, got my stomach out of order to such an extent, that for the

³² *Loc. cit.*, p. 171.

³³ *Loc. cit.*, p. 175.

space of four months, as I verily believe, I hardly ate one whole loaf of bread in the week; and great was my longing to reach Italy, being desirous to die there rather than in France."³⁴

It is possible that this fever of Ascanio is one of the malarial fevers and that Benvenuto's is syphilitic.

"The castellan was subject to a certain sickness, which came upon him every year and deprived him of his wits. The sign of its approach was that he kept continually talking or rather jabbering, to no purpose. These humors took a different shape every year, one time he thought he was an oil-jar, another time he thought he was a frog, and hopped about as frogs do; another he thought he was dead and then they had to bury him; not a year passed but he got some hypochondriac notions into his head. At this season he imagined he was a bat, and when he went abroad to take the air, he used to scream like the bats in a high thin tone; and then he would flap his hands and body as though he were about to fly. The doctors when they saw the fit was coming on him, and his old servants gave him all the distraction they could think of; and since they had noticed that he derived much pleasure from my conversation, they were always fetching me to keep him company.

"At times the poor man detained me for four or five stricken hours without ever letting me cease talking. He used to keep me at his table, eating opposite to him and never stopped chatting and making me chat; but during those discourses I contrived to make a good meal. He, poor man, could neither eat nor sleep; so that at last he wore me out. I was at the end of my strength; and some times when I looked at him I noticed that his eye-balls were rolling in a fright-

ful manner, one looking one way and the other in another.

"He took it into his head to ask me whether I had ever had a fancy to fly. I answered that it had always been my ambition to do those things which offer the greatest difficulties to men, and that I had done them; as to flying, the God of Nature had gifted me with a body well suited for running and leaping far beyond the common average, and that with the talents I possessed for manual art I felt sure I had the courage to try flying. He then inquired what methods I should use; to which I answered that taking into consideration all flying creatures, and wishing to imitate by art what they derived from nature, none was so apt a model as the bat. No sooner had the poor man heard the name bat, which recalled the humour he was suffering under, than he cried out at the top of his voice: 'He says true—he says true; the bat's the thing—the bat's the thing!' Then he turned to me and said: 'Benvenuto, if one gave you the opportunity, should you have the heart to fly?' I said that if he would set me at liberty, I felt quite up to flying down to Prati; after making myself a pair of wings out of waxed linen. Thereupon he replied: 'I too should be prepared to take the flight; but since the Pope has bidden me guard you as though you were his own eyes, and I know you a clever devil who would certainly escape, I shall now have you locked up with a hundred keys, in order to prevent you slipping through my fingers.' I then began to implore him, and remind him that I might have fled, but that on account of the word which I had given him I would never have betrayed his trust: therefore I begged him for the love of God and by the kindness he had always shown me, not to add greater evils to the misery of my present situation. While I was pouring out these entreaties; he gave

³⁴ *Loc. cit.*, p. 198.

strict orders to have me bound and taken and locked up in prison. On seeing that it could not be helped, I told him before all his servants: 'Lock me well up and keep good watch on me; for I shall certainly contrive to escape.' So they took and confined me with the utmost care."³⁵

No doubt the castellan was the subject of circular insanity. The discussion of aviation is of some interest since it happened almost four centuries ago.

"I was quite exhausted, and had, moreover, flayed the inside of my hands, which bled freely. This compelled me to rest awhile, and I bathed my hands in my own urine."³⁶

In those times it was not uncommon to use urine and feces as medicants.

"I was aware of the wound in my head before I knew my leg was broken; for I put my hands up, and withdrew them covered with blood. Then I searched the spot well, and judged and ascertained that I had sustained no injury of consequence there; but when I wanted to stand up, I discovered that my right leg was broken three inches above the heel. Not even this dismayed me: I drew forth my poniard with its scabbard; the latter had a metal point ending in a large ball, which had caused the fracture of my leg; for the bone, coming into violent contact with the ball, and not being able to bend, had snapped at that point. I threw the sheath away, and with the poinard cut a piece of the linen which I had left. Then I bound my leg up as well as I could, and crawled on all fours with the poniard in my hand toward the city gate."³⁷

A nice description of a fracture with the method of production.

³⁵ *Loc. cit.*, p. 215.

³⁶ *Loc. cit.*, p. 220.

³⁷ *Loc. cit.*, p. 221.

"'Most reverend Monsignor, your friend Benvenuto is down there; he has escaped from the castle, and is crawling on all fours, streaming with blood: to all appearances he has broken his leg, and we don't know whither he is going.' The cardinal exclaimed at once: 'Run and carry him upon your back into my room here.' When I arrived, he told me to be under no apprehension, and sent for the first physicians of Rome to take my case in hand. Among them was Maestro Jacomo of Perugia, a most excellent and able surgeon. He set the bones with dexterity, then bound the limb up, and bled me with his own hand. It happened that my veins were swollen far beyond their usual size, and he, too, wished to make a pretty wide incision; accordingly, the blood sprang forth so copiously, and spurted with such force into his face, that he had to abandon the operation. He regarded this as a very bad omen, and could hardly be prevailed upon to undertake my cure. Indeed he often expressed a wish to leave me, remembering that he ran no little risk of punishment for having treated my case, or rather for having proceeded to the end with it."³⁸

The superstition of the surgeon is well shown here, and the common procedure of bleeding.

"I was greatly troubled, however, by one particular annoyance: my nails had grown so long that I could not touch my body without wounding it; I could not dress myself but what they turned inside or out, to my great torment. Moreover, my teeth began to perish in my mouth. I became aware of this because the dead teeth being pushed out by the living ones, my gums were gradually perforated, and the points of the roots pierced through the tops of their cases. When I was aware of this, I used to pull one out, as though

³⁸ *Loc. cit.*, p. 223.

it were a weapon from a scabbard, without any pain or loss of blood. Very many of them did I lose in this way."³⁹

These troubles developed at the time that Cellini was imprisoned and suffering great hardships. At his age the description of the dead teeth being pushed out by the living ones seems improbable.

"Messer Durante of Brescia, whom I have previously mentioned, engaged the soldier (formerly druggist of Prato) to administer some deadly liquor in my food; the poison was to work slowly, producing its effects at the end of four or five months. They resolved on mixing pounded diamond with my victuals. Now the diamond is not a poison in any true sense of the word, but its incomparable hardness enables it, unlike the ordinary stones, to retain very acute angles. When every other stone is pounded, that acute sharpness of the edge is lost; the fragments becoming blunt, and rounded. The diamond alone preserves its trenchant qualities; wherefore, if it chanced to enter the stomach together with the food, the stomach motion needful to digestion brings it into contact with the coats of the stomach and bowels, where it sticks, and by the action of fresh food forcing it farther inwards, after some time perforates the organs. This eventually causes death. Any other sort of stone or glass mingled with the food had not the power to attach itself, but passes onward with the victuals."⁴⁰

This describes a very common procedure of the time for producing death criminally.

"Then turning to Messer Alberto, who was man of great gravity and talent, I began: 'This is a copy from a little silver

goblet of such and such a weight, which I made at such and such a time for that charlatan Maestro Jacopo, the surgeon from Carpi. He came to Rome and spent six months there, during which he had bedaubed some scores of noblemen and unfortunate gentlefolk with his dirty salves, extracting many thousands of ducats from their pockets.

"At that time I made for him this vase and one of a different pattern. He paid me very badly; and at the present moment in Rome all the miserable people who used his ointment are crippled and in a deplorable state of health. It is indeed great glory for me that my works are held in such high repute among you wealthy lords; but I can assure you that during these many years past, I have been progressing in my art with all my might, and I think that this vase I am taking with me into France is far more worthy of cardinals and kings than that piece belonging to your little quack doctor."⁴¹

Another fling at the quack doctor who treated him for syphilis.

"My workpeople at this time, who were pretty numerous, included both sculptors and goldsmiths. They belonged to several nations, Italian, French and German; For I took the best I could find, and changed them often, retaining only those who knew their business well. These select craftsmen I worked to the bone with perpetual labor. They wanted to rival me; but I had a better constitution. Consequently, in their inability to bear up against such a continuous strain, they took to eating and drinking copiously; some of the Germans in particular, who were more skilled than their comrades, and wanted to march apace with me, sank under these excesses, and perished."⁴²

³⁹ *Loc. cit.*, p. 239.

⁴⁰ *Loc. cit.*, p. 248.

⁴¹ *Loc. cit.*, p. 276.

⁴² *Loc. cit.*, p. 292.

It seems from this that Cellini had a very strong constitution and also that he recognized that an excess of drinking and eating was apt to shorten one's life.

"Far back in my autobiography I ought to have recorded the friendship which I won with the most cultivated, most affectionate, and most companionable man of worth I ever knew in this world. He was Messer Guido Guidi, an able physician and doctor of medicine, and a nobleman of Florence. The infinite trouble brought upon me by my evil fortune caused me to omit the mention of him at an earlier date; and though my remembrance may be but a trifle, I deemed it sufficient to keep him always in my heart. Yet, finding that the drama of my life requires his presence, I shall introduce him here at the moment of my greatest trials, in order that, as he was then my comfort and support, I may now recall to memory the good he did me.

"Well, then Messer Guido came to Paris; and not long after making his acquaintance, I took him to my castle, and assigned him his own suite of apartments. We enjoyed our lives together in that place for several years. Then the Bishop of Pavia, that is to say, Monsignore de Rossi, brother of the Count of San Secondo, also arrived. This gentleman I removed from his hotel and took him to my own castle, assigning him in like manner to his suite of apartments, where he sojourned many months with serving men and horses. On another occasion I lodged Messer Luigi Alamanni and his sons for some months. It was indeed God's grace to me that I should thus, in my poor station, be able to render services to men of great position and acquirements.

"But to return to Messer Guido. We enjoyed our mutual friendship during all the years I stayed in Paris, and often did we exult together on being able to ad-

vance in art and knowledge at the cost of so great and admirable a prince, our patron, each in his own branch of industry. I can indeed, and with a good conscience, affirm that all I am, whatever of good and beautiful I have produced, all this must be ascribed to that extraordinary monarch. So, when, I will resume the thread of my discourse concerning him and the great things I wrought for him.⁴³

"I had a tennis court in my castle, from which I drew considerable profit. The building also contained some little dwellings inhabited by different sorts of men, among them was a printer of books of much excellence in his own trade. Nearly the whole of his premises lay inside the castle, and he was the man who printed Messer Guido's first book on medicine."⁴⁴

This Guido Guidi was a son of Giuliano Guidi and Costanza, a daughter of Domenico Ghirlandajo. François I, sent for him some time before 1542, appointed him his own physician, and professor of medicine in the Royal College. He returned to Florence in 1548 and died in 1569. He is sometimes called Vidius. He organized the medical faculty of the College of France. His books were illustrated with some of the earliest surgical illustrations.⁴⁵

"If I did not confess in some of these episodes I acted wrongly, the world might think I was not telling the truth about

⁴³ *Loc. cit.*, p. 303.

⁴⁴ *Chirurgia e Graeco in Latinum Conversa*, Vido Vido Florentino interprete, etc. Excudebat Petrus Galterius Luteciae Parisiorum, prid. Cal. Mai, 1554.

⁴⁵ The pictures are to be found, according to Garrison, in: Guidi, "Chirurgia e greco in latinum conversa." Paris, 1554; Guidi, "Ars Medicinalis," vol. iii. Venice, 1611; Guidi, "Opera Omnia." Frankfurt, 1668; Gesner, "De chirurgia scriptores optimi." Zurich, 1555; Omout, "Collection de chirurgieus grecs" (MS. latin, 6866). Bibliothèque nationale. Département des Manuscrits.

those things in which I say I acted rightly. Therefore I admit it was a mistake to inflict so singular a vengeance upon Pagolo Micceri. In truth, had I believed him to be so utterly feeble, I should not have conceived the notion of branding him with such infamy as I am going to relate.

“Not satisfied with having made him take a vicious drab to wife, I completed my revenge by inviting her to sit to me as a model, and dealing with her thus.

“I gave her thirty sous a day, paid in advance, and a good meal, and obliged her to pose before me naked. Then I made her serve my pleasure, out of spite against her husband, jeering at them both the while. Furthermore, I kept her for hours together in a position, greatly to her discomfort. This gave her as much annoyance as it gave me pleasure; for she was beautifully made, and brought me much credit as a model. At last, noticing that I did not treat her with the same consideration as before her marriage, she began to grumble and talk big in her French way about her husband who was now serving the Prior of Capia, a brother of Piero Strozzi. On the first occasion when she did this, the mere mention of the fellow roused me to intolerable fury; still I bore it greatly against the grain, as well as I was able reflecting that I could hardly find so suitable a subject for my art as she was. So I reasoned thus in my own mind: ‘I am now taking two different kinds of revenge. In the first place, she is married; and what I am doing to her husband is something far more serious than what he did to me, when she was only a girl of loose life. If then I wreck my spite so fully upon him, while upon her I inflict the discomfort of posing in such a strange attitude for such a length of time—which besides the pleasure I derive, brings me both profit and credit through my art—what more can I desire?’ While I was turning over these calculations, the

wretch redoubled her insulting speeches, always prating big about her husband, till she goaded me beyond the bounds of reason. Yielding myself up to a blind rage, I seized her by the hair and dragged her up and down my room, beating and kicking her till I was tired. There was no one who could come to her assistance. When I had well pounded her she swore she would never visit me again. Then for the first time I perceived that I had acted very wrongly; for I was losing a grand model, who brought me honour through my art. Moreover, when I saw her body all torn and bruised and swollen, I reflected that, even if I persuaded her to return, I should have to put her under medical treatment for at least a fortnight before I could make use of her.

“Well, to return to Caterina. I sent my old serving woman, named Ruberta, who had a most kindly disposition, to help her dress. She brought food and drink to the miserable baggage; and after rubbing a little bacon fat into her worst wounds, they ate what was left of the meat together. When she had finished dressing, she went off blaspheming and cursing all Italians in the King’s service; and so returned with tears and murmurs to her home.

“Assuredly, upon the first occasion, I felt I had done very wrong, and Ruberta rebuked me after this fashion: ‘You are a cruel monster to maltreat such a handsome girl so brutally.’ When I excused my conduct by narrating all the tricks which she and her mother had played off upon me under my own roof, Ruberta scoldingly replied that that was nothing—that was only French manners, and she was sure there was not a husband in France without his horns. When I heard this argument, I laughed aloud, and then told Ruberta to go and see how Caterina was, since I should like to employ her again while finishing the work that I had

on hand. The old woman took me sharply up, saying that I had no *savoir vivre*: 'Only wait until the daybreak and she will come herself: whereas, if you send to ask after her or visit her, she will give herself airs and keep away.'

"On the following morning Caterina came to our door, and knocked so violently, that, being below, I ran to see whether it was a madman or some member of the household. When I opened, the creature laughed and fell upon my neck, embracing and kissing me, and asked me if I was still angry with her. I said, 'No!' Then she added: 'Let me have something good to break my fast on.' So I supplied her well with food and partook of it at the same table in a sign of reconciliation. Afterwards I began to model from her during which occurred some amorous diversions and at last, just at the same hour as on the previous day, she irritated me to such a pitch that I gave her the same drubbing. So we went several days, repeating the old round like clockwork. There was little or no variation in the incidents."⁴⁶

It would seem that Cellini had a very marked sadistic component in his nature. The masochism of Caterina is well described.

"Wanting then to finish off my Fontainebleau, which was already cast in bronze, as well as to execute the two victories which were going to fill the angles above the lunette of the door, I engaged a poor girl of the age of about fifteen. She was beautiful and of a brunette complexion. Being somewhat savage in her ways and spare of speech, quick in movement, with a look of sullenness about her eyes; I named her 'Scorzona'; her real name was Jeanne. With her for a model, I gave perfect finish to the two Victories.

⁴⁶ *Loc. cit.*, p. 319.

"Now this girl was a clean maid, and I got her with child. She gave birth to a daughter on the seventh of June, at thirteen hours of the day, and in 1554, when I had exactly reached the age of forty-four. I named the infant 'Costanza,' and M. Guido Guidi, the King's physician, and my most intimate friend, as I have previously related, held her at the font. He was the only godfather; for it is customary in France to have one godfather and two godmothers. One of the latter was Madame Maddalena, wife to M. Luigi Alamanni, a gentleman of Florence, an accomplished poet. The other was the wife of M. Ricciardo del Bene, our Florentine burger, and a great merchant in Paris; she was herself a French lady of distinguished family. This was the first child I have ever had, so far as I remember. I settled money enough upon the girl for dowry to satisfy an aunt of hers, under whose tutelage I placed her, and from that time forwards I had nothing more to do with her."⁴⁷

Another example of Cellini's sex life—no desire for the mother after the birth of a child.

"It so happened on one of those mornings, while I was getting some little chisels into trim to work on Narcissus, that a very fine splinter of steel flew into my right eye, and embedded itself so deeply in the pupil that it could not be extracted. I thought for certain I must lose the sight of that eye. After some days I sent for Maestro Raffaello de Pilli, the surgeon, who obtained a couple of live pigeons and placing me upon my back across a table, took the birds and opened a large vein they have beneath the wing, so that the blood gushed out into my eye. I felt immediately relieved and in the space of two days the splinter came away,

⁴⁷ *Loc. cit.*, p. 324.

and I remained with eyesight greatly improved. Against the feast of S. Lucia,⁴⁸ which came round in three days, I made a golden eye out of a French crown, and had it presented at her shrine by one of my six nieces, daughters of my sister Liperata; the girl was ten years of age, and in her company I returned thanks to God and S. Lucia."⁴⁹

A very unusual method to take a foreign body out of the eye! This incident shows the extreme superstition of Cellini.

"But so it happened that the Duke fell ill of a serious malady, remaining forty-eight hours without passing water. Finding that the remedies of his physicians availed nothing, it is probable that he betook himself to God, and therefore decreed the discharge of all debts to his servants. I too was paid on this occasion, yet I never obtained what still stood out upon my Perseus."⁵⁰

No doubt a case of uremia or retention of urine due to organic obstruction.

"During my promenade through the market, I met Giovan Battista Santini, and he and I were taken back to supper by the priest. As I have already related above, we supped at the early hour of twenty, because I made it known that I meant to return to Trespiano. Accordingly they made all ready; the wife of Sbietta went bustling about in the company of one Cecchino Buti, their knave of all work. After the salads had been mixed and we were preparing to sit down to the table, the evil priest, with a certain nasty sort of grin, exclaimed: 'I must beg you to excuse me, for I cannot sup with

you; the reason is that some business of importance has occurred which I must transact for my brother Sbietta.' In his absence I am obliged to act for him. We all begged him to stay, but could not alter his determination; so he departed and we began our supper. After we had eaten the salads on some common platters, and they were preparing to serve the boiled meat, each guest received a porringer for himself. Santini, who was seated opposite me at the table, exclaimed: 'Do you notice that the crockery they give you is different from the rest? Did you ever see anything handsomer?' I answered that I had not noticed it. He also prayed me to invite Sbietta's wife to sit down with us; for she and that Cecchino Buti kept running hither and thither in the most extraordinary fuss and hurry. At last I induced the woman to join us; when she began to remonstrate: 'You do not like my victuals, since you can eat so little.' I answered by praising the supper over and over again, saying that I had never eaten better or with heartier appetite. Finally, I told her that I had eaten quite enough. I could not imagine why she urged me so persistently to eat. After supper was over, and it was past the hour of twenty-one, I became anxious to return to Trespiano, in order that I might recommence my work next morning in the Loggia. Accordingly I bade farewell to all the company, and having thanked our hostess, took my leave.

"I had not gone three miles before I felt as though my stomach was on fire, and suffered such pain that it seemed a thousand years till I arrived at Trespiano. However, it pleased God that I reached it after nightfall with great toil and immediately proceeded to my farm, where I went to bed. During the night I got no sleep, and was constantly disturbed by motions of my bowels. When the day broke feeling an intense heat in the

⁴⁸ Saint Lucy is the patroness of the eyes. In Italian art she is generally represented holding her own eyes upon a plate.

⁴⁹ *Loc. cit.*, p. 379.

⁵⁰ *Loc. cit.*, p. 417.

rectum, I looked eagerly to see what this might mean, and found the cloth covered with blood. Then in a moment I conceived that I had eaten something poisonous, and racked my brains to think what it could possibly have been. It came back to my memory how Sbietta's wife had set before me plates and porringers, and saucers different from the others, and how that evil priest, Sbietta's brother after giving himself pains to do me honour, had refused to sup with us. Furthermore, I remembered what the priest had said about Sbietta's doing such a fine stroke of business by the sale of his farm to an old man for life who could not be expected to survive a year.

"Giovanni Sardella had reported these words to me. All things considered, I made my mind up that they must have administered a dose of sublimate in the sauce, which was very well made and pleasant to taste, inasmuch as sublimate produces all the symptoms I was suffering from. Now it was my custom to take but little sauce or seasoning with my meat, excepting salt; and yet I had eaten two moderate mouthfuls of that sauce because it was so tasteful. On further thinking, I recollected how often that wife of Sbietta had teased me in a hundred ways to partake more freely of that sauce. On these accounts I felt absolutely certain that they had given me sublimate in that very dish"⁵¹

"All this while I stayed with sorry cheer in bed, and was attended by that most excellent man and physician, Maestro Francesco da Montevarchi. Together with him Maestro Raffaello de Pilli undertook the surgical part of my case forasmuch as the sublimate had so corroded the intestines that I was unable to retain my motions. When Maestro Francesco saw that the poison had exerted

all its strength, being indeed insufficient in quantity to overcome my vigorous constitution, he said one day: 'Benvenuto, return thanks to God, for you have won the battle. Have no anxiety, since I mean to cure you in spite of the rogues who sought to work your ruin.' Maestro Raffaello then put in: 'This will be one of the finest and most difficult cures which was ever heard of; for I can tell you Benvenuto, that you swallowed a good mouthful of sublimate.' Thereupon Maestro Francesco took him up and said: 'It may possibly have been some sort of a venomous caterpillar.' I replied: 'I know for certain what sort of poison it was and who gave it to me'; upon which we were all silent. They attended me more than six full months, and I remained more than a whole year before I could enjoy my life and vigor."⁵²

"Now when I came to the poison, I remarked that if I had ever proved an acceptable servant in the sight of his most illustrious Excellency, he ought not to punish Sbietta or those who administered the poison, but rather to confer upon them some great benefit, inasmuch as the poison was not enough to kill me, but exactly sufficed to cleanse me of a mortal viscosity from which I suffered in my stomach and intestines. 'The poison,' quoth I, 'worked so well that whereas, before I took it, I had but perhaps three or four years to live, I verily now believe that it has helped me more than twenty years by bettering my constitution. For this mercy I return thanks to God with greater heartiness than ever; and this proves a proverb I have sometimes heard spoken is true, which runs as follows:

God send us evil that may work us good."⁵³

This citation gives a very excellent

⁵¹ *Loc. cit.*, p. 433.

⁵² *Loc. cit.*, p. 435.

⁵³ *Loc. cit.* p. 438.

description of an attempted criminal poisoning with mercury or arsenic, it is possible that the poison did have a good effect on Cellini's case of syphilis.⁵⁴

The following sonnet gives the artist's philosophy of living. In it the paranoiac tendencies, indicated in previous excerpts, are traceable:

This tale of my sore-troubled life I write,
To thank the God of nature, who conveyed
My soul to me, and with such care hath stayed
That divers noble deeds I've brought to light.
'Twas He subdued my cruel fortune's spite.
Life, glory, virtue, measureless, hath made
Such grace, worth, beauty be through me displayed
That few can rival, none surpass me quite.
Only it grieves me when I understand
What precious time in vanity I've spent—
The wind it beareth man's frail thoughts away.
Yet, since remorse avails not, I'm content,
As erst I came, WELCOME to go one day,
Here in the flower of this fair Tuscan land.

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⁵⁴While this paper was in press I received from Sir D'Arcy Power a reprint of his paper, "The

Medical Experiences of Benvenuto Cellini," *Quart. M. J.*, 1898, vi, p. 199.

DANIEL TURNER AND THE FIRST DEGREE OF DOCTOR OF
MEDICINE CONFERRED IN THE ENGLISH COLONIES OF
NORTH AMERICA BY YALE COLLEGE IN 1723

By JOHN E. LANE, M.D.

NEW HAVEN, CONN.

FOR a century the name of Daniel Turner has hardly been mentioned, and the two or three writers who in that time have concerned themselves with him and his career are agreed in briefly dismissing him with the statements that he "had some celebrity in his day," that "his medical attainments were small" and that the many volumes which he published were soon forgotten. One biographer adds that "his cases were not stated in the most delicate terms; nor was politeness amongst his excellencies."

To the few who, by reason of their interest in the early history of Yale College, of medicine in the United States, or of dermatology and syphilology, are still acquainted with him, Turner is known as the recipient of the first degree¹ of doctor of medicine given in the English Colonies of North America. This degree, an honorary one, was bestowed upon him by Yale College in 1723,² following a request for it accompanied by a gift of books, which he sent to the college authorities at the end of the preceding year. Turner is also known as the author of several medical works of which the most important are: "Syphilis, a Practical Dissertation on the Venereal Disease," and

¹Toner says that perhaps the claim may be made that Capt. John Cranston received the first medical degree conferred in the United States. In 1663 he was licensed by the General Court of Rhode Island "to administer physicke and practice chirurgery . . . and is by this Court styled doctor of physick and chirurgery by the authority of the General Assembly of this Colony."

²Toner, quoted by Handerson, gives the date of Turner's degree of M.D. from Yale as 1720. This is incorrect as the Yale records show it to be 1723.

"De Morbis Cutaneis, a Treatise of Diseases Incident to the Skin." But his chief title to present fame is the cerate which he invented and designated as "that excellent medication which I call my Ceratum de Lapide Caliminari." Turner's cerate was included in the United States Pharmacopœia as recently as 1850 and is still retained in the National Formulary.

I had for some time been acquainted with the facts just stated. A few months ago my curiosity being aroused by the statement of an old biographer that he had been unable to discover where Turner obtained his medical degree, I began to wonder why he had become interested in Yale College and why he was so desirous of a medical degree from a young and obscure institution, which had no medical school connected with it—for Yale at that time had just reached the not very mature age of twenty-one. This paper is a result of the search for answers to these questions.

Turner was born in London in 1667 and there he started his medical career as a member of the Barber-Surgeon Company. In 1695 he published his first work, the "Apologia Chyrurgica." At this time, although the condition of the surgeons was improving, they still occupied a much lower and less respected position than did the physicians, and were still closely connected with the barbers, though much against their will and in spite of many attempts to break the bonds which joined them.

In 1462, in the reign of Edward IV, the large Guild of Barbers became the Company of Barbers and later, in 1492, under Henry VII, they obtained a special charter. In

1540, under Henry VIII, the small and exclusive Guild of Surgeons was united to the large Company of Barbers forming the United Barber-Surgeon Company. From the very time of this incorporation the surgeons seem to have been greatly incensed at being so closely identified with the barbers, and for over two hundred years kept making unsuccessful attempts to rid themselves of them. The surgeons finally threw off the yoke which bound them to the barbers in 1745, under George II, this having been accomplished largely through the influence of Mr. Ranby, then sergeant surgeon to the king. From this time the surgeons were known as the Masters, Governors and Commonalty of the Art and the Science of Surgery of London until they were finally rechartered by George III in 1800 as the present Royal College of Surgeons of London.

The separation of the barbers and surgeons took place five years after Turner's death. During his medical life, with an increasing practice and reputation he was undoubtedly greatly irritated by the fact of his forced attachment to the barbers and by the failure of the attempts of the surgeons to free themselves. He must have at last made up his mind that even if it were impossible for the surgeons to separate themselves as a body from the Barber-Surgeon Company, he would at least see if he could not detach himself from the Company and improve his position by becoming a physician. It is easy to imagine that he had many long and serious meditations on the subject and probably also conversations and conferences with influential friends among the physicians. It is quite likely, too, that he finally received some sort of assurance that, if he were to disassociate himself from the Company, he might have the opportunity given him to realize his ambitions. At any rate he decided to leave his associates, and on August 16, 1711, was disfranchised by the Barber-Surgeon Company on

the payment of a fine of fifty pounds. His withdrawal was nicely timed, for he had to wait only three months before he was allowed to appear before the Royal College of Physicians of London for examination for a license as a physician.³ On December 22, 1711, he was admitted to this body as a licentiate, and a year later, December 12, 1712, was given an *imprimatur* by them for his "De Morbis Cutaneis." That he was duly grateful for the honor is evidenced by his dedication of that book, which follows:

The Epistle Dedicatory to

The Most Hon^d. Dr. William Dawes

The much Hon^d. { Dr. John Bateman
Dr. Thomas Gill
Dr. William Gould
Dr. George Colebrook

President and Censors, for the Time being, of the
Royal College of Physicians in London.

Most and much honoured,

When after the customary examination at the Censor's Board, You were pleased to think me qualify'd for that weighty Province of Medicinal Prescription, and honour'd me with the College Diploma for a Licentiate's Privilege; having lately quitted the Hurry of Business in a Branch of the same profession, I had Time to look over some scattered Memoirs which I had taken of certain remarkable Occurrences, and to reduce them into some little Order, which when I had digested and fitted the best I could for the Press, I had no need to deliberate where I should present them, since by Duty, as well as Interest, they were entirely Yours.

It was my Duty to offer (I cannot say my first Fruits from the Press, having been often there before, but) the first I publish'd since I came among You, by which I might convince You (whatever may be the Fate of the Performance) that You have given that Privilege to no idle, and I hope, no useless Person.

It was my Interest to sue for Your Protection, which being granted, and the said Performance honour'd with your *Imprimatur*, its Access may be the easier to the Men of Art, who will find, as the

³ Dexter's statement that Turner was a Fellow of the Royal College of Physicians, and Oviatt's that he was a Fellow of the Royal Society are, I think, incorrect. He was a Licentiate of the College of Physicians, but had no connection with the Royal Society, as far as I can ascertain.

Author has not been ashamed to venture it abroad,
 so neither have you the learned President, nor Ye
 the learned Censors of our renowned College, dis-
 dain'd to countenance its passage; Be that however
 as it will, yet is He still the same, I mean

(Most honour'd President,
 and much honour'd Censors)

Your very much obliged
 And very humble Servant

DANIEL TURNER

Although this is a customary ending of letters of that day, Turner had good cause for being "very much obliged" in more than the formal sense, for his admission as licentiate of the college had not been quite regular.

In the eighteenth century the Royal College of Physicians of London was a rather "close and contentious" corporation. With almost no exceptions the fellows were graduates of Oxford or of Cambridge and members of the Church of England, as dissenters were not admitted to those universities. For this reason a large number of physicians took their medical training and medical degrees (perhaps it would be more nearly correct to say *or* their medical degrees) elsewhere, in Scotland or on the continent, where the universities were less particular about the religious opinions of their students. These physicians with foreign degrees were examined by the fellows of the Royal College of Physicians, and after giving evidence of their qualifications for practice, were admitted as licentiates of the college, without which license they could not legally practice in London.

But Turner had no medical degree from any university at home or abroad, and I suspect that his admission to the College without it had been the cause of many unpleasant comments aimed at him and at the College. Personal and pointed remarks were not infrequent among physicians of that day, and Turner in his controversies did not escape them, in spite of his public and printed advice to a brother surgeon who had censured him, that "it behoves us, at all

times and in all places, to be very tender of each other's reputation."

Turner had numerous controversies with his colleagues into the details of which it is impossible to enter here. The most celebrated one is, however, so well described by Hamilton that I will quote it:

"Early in the eighteenth century a treatise on diseases of the skin had been published by Doctor Daniel Turner, the twelfth chapter of which contained a long and laboured dissertation on those congenital marks impressed upon the human body, as was believed, by the force of maternal imagination acting, during the period of gestation, upon the unborn fœtus. In order to expose the fallacy of Turner's doctrine, and shew the popular notion respecting these moles and blemishes to be founded in error, and repungent to reason, Doctor James Augustus Blondel anonymously published a work in which he demonstrated the absurdity of the doctrine, and its untenableness upon anything like scientific principles. Notwithstanding Blondel's withholding his name, Turner discovered him to be the author, and, regarding the publication as a direct attack upon himself and the doctrine contained in his book, felt called upon to defend what he had advanced, which he did in an appendix to his treatise on gleans in 1728, in which he brought forward additional facts. To this Blondel replied in 1729, in a work in which he humourously exposed anew the fallacy of Doctor Turner's and the popular opinion. This occasioned the publication of a more serious reply from Turner, who still maintained his original opinion, and supported it by farther cases adduced from Schenkus, Horstius and other retailers of prodigies: notwithstanding which, the good sense and sound reasoning of his antagonist prevailed, and the absurd doctrine of the

mysterious power of the maternal mind became at length confined to superannuated practitioners, and superstitious nurses: although the fourth edition of Turner's work, with a fierce looking portrait of the author, appearing in 1731, still retained the twelfth chapter without alteration."

I cannot refrain from quoting a little of the evidence upon which Turner supported his theory, from the chapter entitled: "Of Spots and Marks of a diverse Resemblance imprest upon the Skin of the Fœtus, by the Force of the Mother's Fancy: With Some Things premis'd of the Strange and almost incredible Power of Imagination, more especially in Pregnant Women."

"And St. Jerome in his Lectures upon *Gen.* takes notice that the same *Hippocrates* did once deliver a Noble Woman, like to suffer as an Adulteress; for that the Husband and she being white, her child was born of the Ethiopian Complexion, which the sage old Man imputed readily to a Picture he had observed hanging in her Chamber, exactly resembling the Infant, and which he found she had been often very intently viewing."

"*Cælius Rhod.* related how *Fabius Quintil.* freed a Woman after like Manner from Suspicion, who had brought forth a little Negro, only from her often taking Delight in viewing the Picture of an *Ethiop* in her apartment."

Blondel's answer to these stories is,

"Those judges were Charitable Peace makers; yet I hope, when they had a fit opportunity they said to the Women, *Go, and sin no more.*"

"*Schenkius* tells of a Woman very big, who among other Discourse with her Neighbors, mention being made of her great Belly, she told them that she reckoned about the time of the Epiphany or Festival of the three Kings; upon which

the good Women wishing she might bring forth three Kings, she merrily answer'd, with all her Heart; and accordingly at the Time she bore three Sons, one of them an *Ethiopian*, or of a black Colour, as usually one of those Kings are painted."

To this Blondel replies, "This Story is very proper to be added to the Voyages of Captain Lemuel Gulliver, a Gentleman reported to be of such a Sincerity, that he was never caught in a lie."

The knowledge that Turner had been made a licentiate without a medical degree spread beyond England to France, and even there the College was taunted with the fact. In a note on Turner in his celebrated work on syphilis, Jean Astruc, the syphilographer, and physician to Louis XV, made the following statement. (The italics are mine.)

"1717. Daniel Turner, an Englishman, applied himself to surgery in his youth, and practiced in London in 1695, when he published his *Chirurgical Apology*. But afterwards he thought proper to apply himself to physic, and therefore he offered himself a Candidate to the College of Physicians at London in 1712, who after examining him with regard to his qualifications, made him a licentiate. For there are two ranks of physicians belonging to the College at London, some being called Fellows, and others Licentiates. No physician can be a Fellow who has not had a doctor's degree in the English Universities of Oxford or Cambridge. All the rest who had their degrees in the universities of Scotland or Ireland, are only admitted as Licentiates by the College, if they find them qualified upon examination. Nay, which I am more surprised at, it is suspected that *they have admitted some as Licentiates, who have not had any Doctor's degree at all.* He published the following treatise in 1717, *Syphilis*. A practical dissertation on the venereal disease, etc."

Perhaps raillery of this sort led Turner to decide that a medical degree might be an advantageous addition to his medical equipment. At any rate he decided that he could use one in his business and looked around for the means of procuring it. But why did he not secure one nearer home? At that time medical degrees were easily purchased at very moderate rates from some of the Scotch universities. In 1718 Turner had published a book, entitled "The Modern Quack," in which he showed up quacks and quackery of various sorts. The dedication to Dr. John Bateman, president of the Royal College of Physicians contains the following statement:

"There are two others of the same metall'd Fronts, who have, I have been informed, by some Means or other (I must leave your honourable board to enquire what) procured a University Seal, I think from *Scotland*, with which, the better to cloak their Knavery, they Vaunt and Strut, as if the M.D. would screen them from your Displeasure, and justify their pretensions, which are so trivally founded, that whenever it shall please you to send forth your Citation, or convene them, you will find them entirely ignorant of the *Fundamenta Medicinæ*." He then requests the board to "vacate their surreptitious Diplomas, inflicting condign Punishment upon the several Offenders."

It is easy to realize that, after having made this rather plain protest, Turner felt that a degree from a Scotch university might be a rather undesirable acquisition; this circumstance sufficiently explains why he did not want one. His reason for desiring a Yale degree are, however, not yet evident.

Yale College was founded in 1701. Turner became a licentiate of the Royal College of Physicians in 1711. The year after, during the session of 1712-1713, the General Court of Connecticut appointed Jeremiah Dum-

mer agent for Connecticut in London. Dummer had served Massachusetts in the same capacity for some years and was well known in London. He had previously been interested in the development of the young college, and by this appointment "his zeal for the prosperity of our Collegiate School was quickened and letters from him to John Pierpont in the following winter and spring give evidence that he was exerting himself vigorously to obtain gifts, especially books, for the institution."

Just how or when Turner and Dummer met we do not know. Turner may have heard that Dummer and Yale were in a receptive mood for gifts, or Dummer may have learned that Turner was in a receptive mood for a medical degree and each may have felt that this mood might be advantageous to the other. At all events they met, and very likely had many pleasant conferences together discussing the various needs of struggling colleges and problems of education. It is even possible that they touched on the shameful practice of selling medical diplomas that was carried on by some of the Scotch universities and dwelt on the advantages of medical degrees from institutions whose reputation had not been thus sullied. Dummer may have pointed out that an honorary degree conferred in a dignified manner would carry more distinction than the usual degree acquired in the usual way.

After settling these details they may have protracted their discussions over the problems of reorganization and reconstruction, which even at that early date claimed the attention of friends of the college as they have in more recent times. For just then all were concerned with the question of the validity of Presbyterian ordination and the claims of apostolic succession, which were disturbing the conscience of the then president, the Reverend Mr. Cutler, with the result that on October 17, 1722, it was "voted, that the Trustees, in faithfulness to

the trust reposed in them, do excuse the Rev. Mr. Cutler from all further service as Rector of Yale College"; and it was provided that all future rectors should before their appointment was complete, declare to the Trustees "their assent to the Confession of Faith owned and consented to . . . at Saybrook, September 9, 1708, and shall particularly give satisfaction to them of the soundness of their faith in opposition to Arminian and prelatial corruptions or any other of dangerous consequence to the purity and peace of our churches."

This weighty problem, combined with the difficulty of selecting a president to succeed the Reverend Mr. Cutler who should combine the other necessary qualifications with the proper religious views, may well have given them much anxiety as to the future of the college.

But whatever the topics of conversation may have been, the conferences bore fruit in the following letter, which was found in the Yale University Library and which has not been previously published.

Viris vere literatis, Præsidi ac Collegio Academiæ Yalensis, de Colonia Connecticuti, in Provincia Novæ Angliæ, Prosperitatem atque Salutem Dat Dicitque Daniel Turner, e Collegio Regali Medicorum Londinensium Permissus, sive Licentiatum.

Domini Eruditissimi

Accepi nuper literas ab Amico vestro, et a vobis certe optime merenti, Domini Ieremia Dummer, in quibus dedit mihi narrationem Academiæ vestræ, Annis non multum ab hinc præteritis, a Domino Yale fundatæ. Gaudeo sane audire bonas literas ac liberales Artes et Scientias florescere inter vos, ubi sæculo fere præterlapso latuere, vel potius Eorundem loco Scabebant Inertia rudis et Ignorantia. Sed conquestus est mihi vir Bonus de Infantili adhuc Statu librarii vestri, et cum Aliquibus aliis, tam medicinæ, quam Philosophiæ naturalis, Professoribus, ut opera nostra eodem Contribueremus, blande rogabat: qua causa ut Rempubicam literariam, ubi-ubi stabilitam, quantum in me est, illustrarem, Mitto Vobis, viri per plurimum colendi, Libros aliquos a me jamdudum editos, una cum Systemate Artis Chirurgicæ, in duobus voluminibus, jam jam a Prælo tradito: præter Quos Musæolum orbavi meum Libri præ cæteris pretiosissimi, et

nullibi ut scio nunc habendi, Cowperi nempe Nostri Magnam Anatomiam, ut vestrum illo adornarem: Accipite quæso ut Testimonium meæ erga universitatem vestram Amicitia, et credite Donatorem semper esse ad potestatem suam, viri præclarissimi,
Sincerum vobis Amicum,

D. TURNER

Postscriptum.

Si Dominationes vestræ me dignum judicatis Doctoratus Gradus Academiæ Yalensis, et Diploma mihi transmitti curatis, accipiam non tantum ut signum Gratiitudinis Vestræ, sed existimam honorem, æque ac si ab alia Universitate, tametsi Majoris Notæ, fuerit elargitum.

valete Viri Doctissimi vigeatque
Academia vestra

Londini, Sept. 24, 1722.

Ex Musæo in Quadra
Davoniensi extra Portam
Episcopalem vico vulgo dicto
Bishopsgate without.

(Translation of the Letter given above.)

To the truly cultured gentlemen, the President and College of the Academy of Yale in the colony of Connecticut in the province of New England, Daniel Turner, licentiate of the Royal College of Physicians of London, gives greeting.

Most learned Sirs:

I have recently received a letter from your friend, who deserves exceeding well of you, Mr. Jeremiah Dummer, in which he gave me an account of your academy, founded not many years ago by Mr. Yale. I am indeed glad to hear that good literature and the liberal arts and sciences are flourishing amongst you where for almost the lapse of a century they have lain hidden, or rather in their place have reigned crude indifference and ignorance. But the good gentleman complained to me of the still infantile state of your library and along with some other professors of medicine and also of natural philosophy, persuasively urged me to contribute my help to this object: therefore in order, as far as in me lies, to adorn the Republic of Letters wherever established, I am sending to you, most honoured sirs, some books long since published by myself, along with the System of the Art of Surgery in two volumes, just off the press: in addition to these I have robbed my own library of a book very valuable beyond all others and now, as I know, not procurable elsewhere, the Great Anatomy of our Cowper, that with it I might adorn yours. Receive them I beg of you as a testimony of my friendship for your university and believe the

donor to be ever, as far as lies in his power, most illustrious sirs,

Your sincere friend,
D. TURNER

Postscript.

If your worships consider me worthy of the doctoral degree of Yale Academy and have the diploma sent to me, I shall receive it not only as a sign of your gratitude, but I shall consider it an honour as much as though it had been conferred by another university, though of greater note.

Farewell most learned sirs and
may your academy flourish.

London, Sept. 24, 1722.

At the Museum in
Devonshire Square outside the
Episcopal gate in the district
commonly called
Bishopsgate without.

This letter was transmitted by Dummer together with a portrait of Turner and the information that the books were to follow. Dummer wrote again on September 10, 1723, seconding Turner's request for a degree, not having heard that the decision to grant it had been made.

Your last letter of July 1⁴ I have now before me. The Gentleman whose picture you received from me⁴ with a Latin Letter is Doctor Turner, a very Learned Physician and worthy Gentleman, who has made a handsome benefaction of books to your Colledge which I gave a particular account of to Col^o Saltonstall; I can have ten guineas of a Bookseller for one of the books, and the rest are his own Learned Works. You shall have them all as soon as I can make up a parcel, having many more in view which I Soon hope to gather in: If you send this

⁴ The portrait of Turner reproduced in this article is probably the one which Dummer refers to as "the picture you received from me." It was found in the Yale University Library pasted into Turner's book, "A Remarkable Case in Surgery." Bromley gives the following list of portraits of Turner:

Description	Designer	Engraver
Act 67, 1734.mez	ad vivum	Faber
Oval frame.a proof	Faber
Oval frame.fol	J. Richardson	G. Vertue
Prefixed to his "Syphilis"		
1732.8vo	G. Vertue
Different.8vo	G. Vertue

Gentleman a Diploma for a Doctorate, you will do yourselves great honour.

The authorities of Yale College received the letter, the portrait and the books, and were evidently favorably impressed by them, for they granted Turner's request and at the following commencement, on



DANIEL TURNER, M.D. (HONORARY), Yale, 1723.

(From a copperplate engraving in the Yale University Library.)

September 11, 1723, the honorary degree of doctor of medicine was conferred upon him by the Reverend Mr. Timothy Woodbridge, of Hartford (Harvard, 1675), rector, *pro tempore*.

The bestowal of this degree evidently caused some amusement in America among those who scoffed at institutions of the higher learning, for, according to Toner,

the circumstance that the degree was prefaced by a donation led some wag to interpret the M. D. as *multum donavit*. Scoffers of our time have remarked that there might be less cause for disappointment if the gifts were invariably transmitted before the honorary degree is bestowed. And there have been rumors that some believe that it would not have been a bad plan to follow the implied suggestion of the wag and to adopt a degree, more appropriate than that of doctor of laws, for those who "give much."

A manuscript in the Yale University Library entitled "An account of some books received from Great Britain from Dr. Turner" is reproduced here. There are thirty-two volumes in the list; some may have been given after the degree was received.

The diploma was transmitted through Dummer and received with gratitude by Turner as the following extract from a letter of February 25, 1725, from Dummer to Timothy Woodbridge shows:

Rev^d & Dear S^r:

I have your's before me of Septem^r last, which is very obliging as all your letters are. The Diploma for D^r Turner as also the letter that came with it I delivered: and tho you are so modest as to make an apology for the bad Latin, I think they were drawn up in a true Roman diction, & both for language & sentiments exceed anything I ever yet saw from My Own Alma Mater. (Dummer was graduated from Harvard in 1699.) I must at the same time observe that the Diploma is sent in a fine hand, & so handsomely ornamented with flourishes, that I was very much pleased to see it. As religion & polite learning have bin travelling westward ever since their first appearance in the World I hope they wont rest 'till they have fixt their chief Residence in Our part of the World. You have inclos'd D^r Turner's answer to your's by which you'l see he Continues his friendship to your Colledge, & I believe (from his great Modesty) will do more than he promises. . . .

Unfortunately Turner's letter here referred to has been lost, but another letter from Dummer to Woodbridge of March 25, 1725, gives some interesting information:

The Winter, that is now past, has interrupted our epistolatory commerce, Or otherwise you had receiv'd good Dr. Turner's letter sooner. I took what pains I could with the Censors of the Colledge of Physicians to honour & ratify your Diploma, but my labour prov'd in vain for this onely reason that of late all the little Operatours in medicine about this City have for small sums obtain'd degrees at Glasgow, which has so enrag'd the Eminent practisers, that they have resolv'd to discourage every thing of that kind, & show no Countenance but to Graduates at Oxford & Cambridge.

This explains why Turner wanted a degree from Yale instead of buying one at home at a low price from a University of "greater note." He thought that possibly with Dummer's influence, he might secure the recognition of the honorary degree by the College of Physicians, which he knew would not recognize a Scotch degree. In case the degree were recognized, he undoubtedly hoped that in some way he might attain admittance as a fellow.

In his writings he had always signed himself "of the College of Physicians in London," omitting "licentiate," and he never was to obtain the pleasure of signing himself "fellow"; but from the time of the reception of this degree he took sufficient pride in it to use it and was thereafter "Daniel Turner, M.D., of the College of Physicians in London."

With this honorary degree of doctor of medicine, acquired in a dignified manner, so different from that employed by those who had secured "surreptitious diplomas" from Scotch universities, it is perhaps almost to be regretted that the Royal College of Physicians "resolv'd to discourage every thing of that kind" and that Turner did not achieve the desired honor. Had he been admitted on the strength of that diploma, his biographer might not have failed to discover from what university Turner received his degree. Then, too, had the degree been recognized, it might have added to Yale's early renown in England and perhaps the reaction of so marked a distinction as the recognition of its

medical degree might have stimulated Yale College to establish a Medical Institution long before the advent of Nathan Smith. But we cannot estimate the retarding influence of this refusal of the Royal College of Physicians on the development of medicine at Yale and in America.

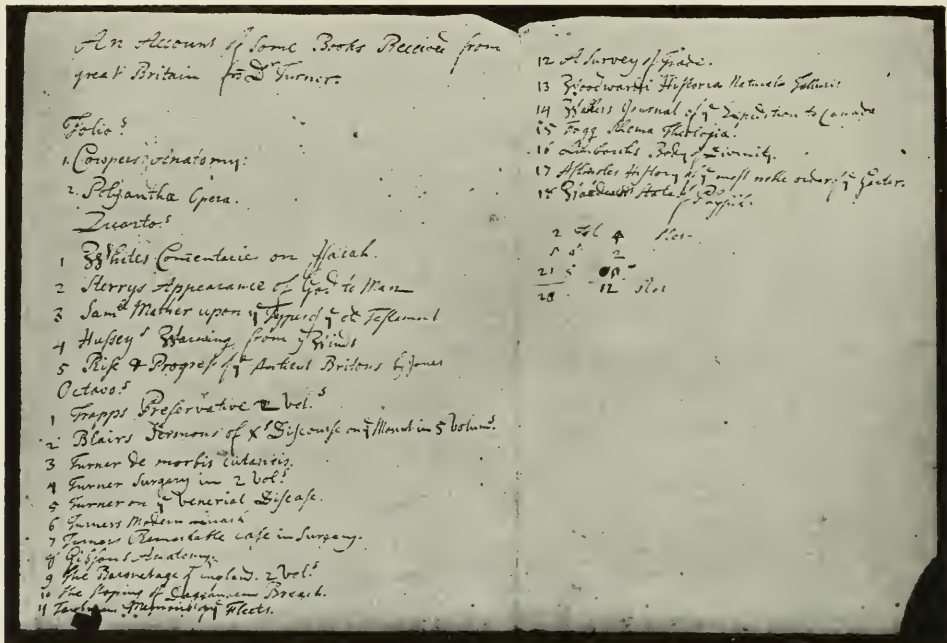
If there be no reason for changing the estimate that previous writers have made

Nigh unto this place lye the bodyly remains of
Daniel Turner, M. D.

late of the College of Physicians of London,
who departed this life on the 13th day of March, 1740,
And in the 74th year of his age.

One thing only is lacking to this inscription. The second line should read,

Daniel Turner, M. D., (Honorary), Yale, 1723.



An account of some books received from Great Britain from Dr. Turner. Author and exact date unknown.

(From the MS. in the Yale University Library.)

of Turner's place in the history of medicine, we must give him credit for being resourceful and fairly successful in attaining, in spite of difficulties, many of the medical honors he sought. Though we cannot agree with Dummer that Yale did herself great honor by conferring this degree, we must remember that Yale was young and poor, that the college authorities probably had no information about Turner except Dummer's letter, and that at other times and in other places donations and good recommendations have been of assistance in acquiring honors.

Turner died at his home in Devonshire Square, Bishopsgate, and was buried at Walton-at-Stone, with this memorial:

If, for the benefit of universities about to confer honorary degrees, a moral is needed to adorn this tale, a suitable one might be,

Timeo Danaos, et dona ferentes.⁵

⁵ I take pleasure in acknowledging my indebtedness and in expressing my thanks to Mr. Franklin B. Dexter for his search for Turner's letter, to which he had previously referred in his "Biographical Sketches of Yale College"; to Professor Clarence W. Mendell for deciphering and translating it; to the Yale University Library for permission to publish it and the list of books presented by Turner; and to the members of the Library Staff, through whose assistance I was enabled to identify the books mentioned in the list and to find such of them as still remain in the library.

LIST OF THE BOOKS GIVEN TO YALE COLLEGE BY TURNER

With the exceptions indicated, the books are still in the Yale University Library; (x) indicates that the copy of this work in the library is not the one received from Turner, but acquired from some other source; (xx) indicates that there is no copy of this work in the library. In parentheses are noted various editions of the works described. The titles of the books are first given in the wording of the description in the manuscript found in the library. The complete description of the book follows.

FOLIOS

1. Cowpers Anatomy.

Cowper, William: *The anatomy of humane bodies*, Oxford, 1698. (x) (This book, while not one of Turner's gift, has an interesting history. It was bought in London by S. W. Johnson, LL.D., who sold it to Dr. Charles Tomlinson of Stratfield, whose son, Dr. Tomlinson, left it to Dr. Levi Ives, of New Haven, who gave it to Dr. Francis Bacon, of New Haven, who left it to the Yale University Library.)

2. Polyantha Opera.

Nani Mirabelli, Domenico: *Polyanthea novissima*, etc., ed. Langius, Francoforti ad Mœnum, 1617. (Title page missing.)

QUARTOS

1. Whites Cōmentaries on Isaiah.

White, Samuel: *A commentary on the prophet Isaiah*, etc., London, 1709.

2. Sterrys Appearance of God to Man.

S[terry], P.: *The appearance of God to man*, etc., London, 1710.

3. Saml Mather upon ye types of ye Old Testament.

Mather, Samuel: *The figures or types of the Old Testament*, etc., London, 1705. (x)

4. Husseys Warning from ye Winds.

Hussey, Joseph: *A warning from the winds*, etc., London, 1704.

5. Rise & Progress of ye Antient Britons by Jones.

Jones, Thomas: *The rise and progress of the most honorable and loyal Society of Antient Britons*, etc., London, 1717.

OCTAVOS

1. Trapps Preservative, 2 vols

Trapp, Joseph: *A Preservative against Unsettled notions and want of principles in religion*, etc., 2 vol., London, 1722.

2. Blairs Sermons of ye Discourse on ye Mount in 5 Volumes.

Blair, James: *Our Saviour's Divine Sermon on the Mount*, etc., 5 vol., London, 1722-1723.

3. Turner De Morbis cutaneis.

Turner, Daniel: *De morbis cutaneis*. A treatise on diseases incident to the skin, London, (1714; 2 ed., 1723; 3 ed., 1726), 4 ed., 1731, (x); (5 ed., 1736).

4. Turner Surgery in 2 Vols.

Turner, Daniel: *The Art of Surgery*, etc., 2 vol., London, 1722; (2 ed., 1725; 3 ed., 1729; 4 ed., 1732; 5 ed., 1736; 6 ed. 1741).

5. Turner on ye Venereal Disease.

Turner, Daniel: *Syphilis*. A practical dissertation on the venereal disease, London, (1717); 2 ed., 1724 (x); (3 ed., date?; 4 ed., 1732; 5 ed., 1737).

6. Turners Modern Quack.

[Turner, Daniel] *By a London Physician: The modern quack or the physical impostor detected*, London, 1718.

7. Turners Remarkable case in Surgery.

Turner, Daniel: *A remarkable case in surgery*, London, 1709. (Back cover missing. Typographical errors corrected in Turner's handwriting. Portrait of Turner by J. Richardson, engraved by G. Vertue, pasted in opposite the title page. This is probably the portrait sent by Jeremiah Dummer to Timothy Woodbridge mentioned in Dummer's letter.)

8. Gibsons Anatomy.

Gibson, Thomas: *The anatomy of humane bodies epitomized*, London, 6 ed., 1703 (xx).

9. The Baronetage of England, 2 vols.

Collins, Arthur: *The Baronetage of England*, etc., 2 vol., London, 1720, (xx).

10. The Stopping of Daggenham Breach.

Perry, Capt. John: An account of the stopping of Daggendam breach, London, 1721.

11. Traubmans Memoirs of ye Fleets.

Traubman, Nathaniel: Memoirs of the British fleets and squadrons in the Mediterranean, anno 1708 and 1709, London, 1710. (Pages 1-20 missing.)

12. A Survey of Trade.

[Wood, William] A survey of trade, etc., London, 1718.

13. Woodwardi Historia Naturalis Telluris.

Woodward, John: Naturalis historia telluris, London, 1714.

14. Walkers Journal of ye Expedition to Canada.

Walker, Sir Hovenden: A journal or full

account of the late expedition to Canada, etc., London, 1720 (x).

15. Fogg Schema Theologia.

Fogg, Laurence: Theologiæ speculativæ schema, etc., London, 1712.

16. Limborchs Body of Divinity.

Limborch, Philippus van: A complete system or body of divinity . . . written originally in Latin by P. L., Trans. by W. Jones, London (date?); 2 ed., 1713 (xx).

17. Ashmoles History of ye most noble order of ye Garter.

Ashmole, Elias: The history of the most noble order of the Garter, London, 1715.

18. Woodwards State of Physick.

Woodward, John: The state of physick and of diseases, London, 1718.

TURNER'S WORKS

The following is a list of Turner's writings that I have been able to trace:

1. Apologia chyrgica. A vindication of the noble art of chyrgery. London: 1695.

2. A remarkable case in surgery. London: 1709.

3. De morbis cutaneis. A treatise on diseases incident to the skin. London: 1714; 2 ed., 1723; 3 ed., 1726; 4 ed., 1731; 5 ed., 1736. Translated into French by M. XXX (Boyer de Prebandier), 2 vol., 1743. Translated into German, as: Abhandlung von den Krankheiten der Haut, etc., 1766.

4. Syphilis. A practical dissertation on the venereal disease. London: 1717; 2 ed., 1724; 3 ed. (date?); 4 ed., 1732; 5 ed., 1737. Translated into French by P. Lassus as: Dissertation pratique sur les maladies veneriennes, 2 vol., 1767. Translated into German, 1754.

5. The modern quack or the physical impostor detected. London: 1718.

6. The art of surgery, 2 vol. London: 1722; 2 ed., 1725; 3 ed., 1729; 4 ed., 1732; 5 ed., 1736; 6 ed., 1741-2.

7. Remarks upon Dr. Willoughby's translation of Monsieur Chicoyneau's method

of cure. London: 1724. Published with Syphilis, 2 ed.

8. On the force of the mother's imagination on the fœtus in utero. London: 1726.

9. A discourse concerning fevers. London: 1727; 2 ed., 1732; 3 ed., 1739.

10. An answer to a pamphlet on the powers of imagination in pregnant women. London: 1729.

11. The force of the mother's imagination upon the fœtus in utero still further considered, by way of reply to Dr. Blondel's work. London: 1729.

12. A discourse concerning gleans. London: 1729.

13. De morbo gallico. A treatise published about 200 years past. Republished by D. T. London: 1730. (This is Ulrich von Hutten's work.)

14. A letter to a little doctor in Scarbrough Square. London: 1731.

15. The ancient physician's legacy impartially surveyed. London: 1733. (The ancient physician's legacy is a work by Thomas Dover.)

16. The drop and pill of Mr. Ward considered. London: (date?); 2 ed., 1735.

17. [Luisinus, A] Aphrodisiacus. A summary of the ancient writers on the venereal disease. London: 1736.

18. Syphilis. The second part. London: 1739.

19. T. D. [Dr. Turner?] The present state of chyrurgery. London: 1703.

20. The cases of insects voided by the urinary passages. (Wadd says this work was sent to the Royal Society. I have been unable to locate it.)

21. Remarks, taken on dissecting the body of A. M., a maid of about 30 years of age, who died of an ascites, the 1st of August, 1689. (No. 207, *Phil. Trans.*, 1693, 15. The *Phil. Trans. Roy. Soc.*, Lond. Abridged, iii, 606, London, 1809.)

22. An account of an uncommon case of dropsy within the tunics of the uterus. *Ibid.*, 607.

23. On the bite of a mad-dog. *Ibid.*, 608.

MISCELLANEOUS NOTES

TURNER AND THE BARBER-SURGEONS. Young gives the following note taken from the records of the Barber-Surgeon's Company.

"16th August, 1711. Mr. Daniell Turner intending to become a 'Collegiate Physician' applied for his discharge from the Freedom and Livery of the Company, which was granted to him for fifty pounds, and that sum he at once paid down."

WADD'S REMARKS ON TURNER. In his "Nugæ Canoræ," Wadd gives the following imaginary epitaph with the added notes:

XI

Dr. TURNER

Good Dr. Turner is deprived of breath,
And turn'd into another world by death;
'Twas a good *turn* for some, that gave him birth;
And having had his *turn*, he's *turn'd* to earth.

Turner is a name celebrated in the annals of Medicine, Turner's Herbal being one of

the earliest books in the English language. Then there was dirty old Daniel, whose *Cerate* is used to this hour; and many others. . . . (The first reference is to William Turner, whose "Herbal" was published in English in 1548.)

THE CONTROVERSY BETWEEN TURNER AND BLONDEL. Blondel's reply to Turner's defense of his twelfth chapter is worth reading. He begins by saying:

"Who should not think that I have attacked the Gentleman, and that he is obliged to write in his own Vindication? Whereas neither his Name, nor his works were in the least mentioned in my Treatise.

"I own, I had read that *famous XIIth* Chapter, but finding nothing more in it, than a bare *Repetition* of several Stories taken with an *implicit Faith*, and without any *Choice*, from other Authors, I thought it unreasonable, unjust, and contrary to the Laws of War, to single Dr. *Turner* in a Croud of *Talemongers*, and to fire upon him separately from others.

"If my Moderation has been taken as a Slight, I beg the Gentleman's Pardon, upon Promise to make him Amends, and to take more Notice of him for the Time to come."

He keeps his promise and for a hundred and forty-three pages he "takes notice" of Turner and his tales, and when he is done, his wit and sarcasm combined with "experience, reason and anatomy," have completely demolished both Turner and his fiction, "Fiction, not of the Gentleman's Contrivance, but of some Authors, whom he has *blindly*, and without any Examination, thought fit to copy, in open Defiance and Contempt of NULLIUS IN VERBA (words under a *certain* picture)."

REFERENCES

1. Astruc, John, A Treatise of Venereal Diseases in Nine Books. Translated from the last edition printed at Paris. London: 1754.

2. Blondel, James Augustus, *The Power of the Mother's Imagination over the Fœtus Examined*. In answer to Dr. Daniel Turner's book entitled "A defence of the XIIth chapter of a treatise, 'De morbis cutaneis.'" London: 1729.

3. Bromley, Henry, *A Catalogue of Engraved British Portraits*. London: 1793, p. 295.

4. Colonial Society of Massachusetts, *Publications of the 1904*, vi, passim.

5. Dexter, F. B., *Biographical Sketches of Yale College*, First series, 1885, passim.

6. Fox, R. Hingston, Dr. John Fothergill and His Friends. *Chapters in eighteenth century life*. London: 1919, passim.

7. Garrison, F. H., *An Introduction to the History of Medicine*, 2 ed., 1917, passim.

8. Hamilton, William, *The History of Medicine, Surgery and Anatomy*, etc. London: 1831, II, p. 255.

9. Handerson, H. E., note in his translation of Baas, J. H., *Outlines of the history of medicine*, 1889, p. 801.

10. Moore, Norman, Art. on Turner in *Dictionary of National Biography*.

11. Munk, W., *Roll of the Royal College of Physicians*, 2 ed., 1878, II, pp. 35-36.

12. *National Formulary*. 4 ed., 1916, p. 244.

13. Oviatt, E., *The Beginnings of Yale*. 1916, p. 422.

14. Sibley, J. L., *Biographical Sketches of Graduates of Harvard*. 1881, II, pp. 464 ff.

15. Toner, J. M., *Contributions to the Annals of Medicine and Medical Education in the United States before and during the War of Independence*, 1874, pp. 66, 70.

16. Turner, Daniel (Various publications), passim.

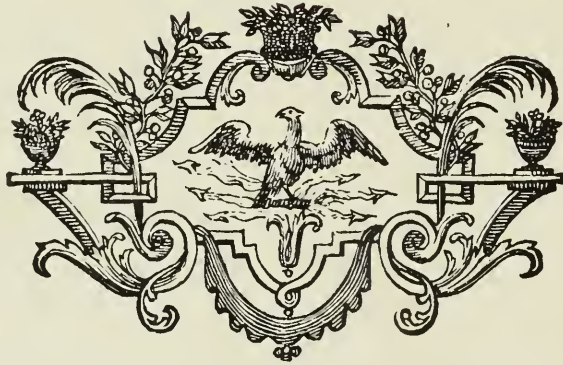
17. *United States Dispensatory*. 19 ed., 1907, p. 1319.

18. Wadd, William, *Nugæ Chirurgicæ; or a Biographical Miscellany Illustrative of a Collection of Professional Portraits*. London: 1824, p. 154.

19. [Wadd, William], *Nugæ Canoræ; or Epitaphian Mementos*. In *Stone-cutters Verse of the Medici Family of Modern Times by Unus Quorum*. London: 1827, p. 20.

20. Welch, W. H., *The relation of the Yale to Medicine*, *Yale M. J.*, New Haven, 1901, viii, p. 127.

21. Young, Sidney, *The Annals of the Barber-Surgeons of London*. London: 1890, p. 349.



Printer's device of G. Cavalier appearing in "De morbis venereis libri sex" by Johanne Astruc, 1738.

A NEGLECTED NAME: DR. ISAAC SENTER

By WILLIAM ABBATT

TARRYTOWN, N. Y.

IN 1876 the late Dr. J. M. Toner published his valuable book, "The Medical Men of the Revolution," in which he records six hundred physicians of that era. Of many, he could give but scanty particulars, and among them is the subject of our sketch, Isaac Senter, M.D., of Rhode Island. In 1912 Dr. Howard A. Kelly published his large "Cyclopedia of American Medical Biography" but he does not mention Dr. Senter at all. In Dr. Usher Parsons' "Rhode Island Physicians" we find something about Dr. Senter. The record is but meagre of one who, but for his early death, would doubtless have reached high rank in his profession and secured ample recognition in biography. Four years ago I had hoped to compile such a one, but failed, although investigating every known source with the utmost possible care, and corresponding with many persons. Such as it was, I published it in connection with a new edition of his "Journal of a Secret Expedition against Quebec, under the Command of the Hon. Benedict Arnold, Esq., in September, 1775." This journal as noted by Mr. Codman in his "Arnold's Expedition to Quebec" is one of the most valuable accounts of that daring and unfortunate expedition, which, but for the adverse combination of unparalleled bad weather, bad maps and lateness of the season, would have resulted in the capture of Quebec and hence of all Canada—of which Quebec was the key. It is a page of history of the most fascinating kind, but to which too little attention has been given, when its many graphic incidents, and the immense possibilities which were involved in the scheme so nearly successful are considered. A month earlier start, and the terms had been escaped, Quebec captured,

Canada overrun and ours to-day, and the War of 1812 unfought—on land at any rate.

One of this "Band of Heroes," as John J. Henry, one of their number, has justly called them, was Isaac Senter, born in Londonderry, N. H., in 1753. I have not been able to ascertain the exact date nor the names of his parents. The surname is so unusual that I suspect it to be a corruption of the French *Sentier*; if so the ancestry may be French-Canadian. He left his native state for Rhode Island at an early age, and began the study of medicine with Dr. Thomas Moffat, a Scotch practitioner of repute, in Newport; but in 1775 joined the Rhode Island troops then part of Washington's force besieging Boston, and in September was appointed surgeon to Arnold's command, setting out for Quebec on September 13. There must have been manifest ability in a young man of but twenty-two, to have secured so important an appointment in a Brigade of twelve hundred men, led by well-known officers, all of them his seniors in years, and also in experience, for Morgan had been with Braddock, Thayer with Rogers' Rangers, Dearborn and Febiger at Bunker Hill, and so on.

Three assistants were given him, Greene, Barr and Jackson, as he notes on the first page of his MS. journal; but the hardships of the march soon told on Greene, whom they left behind, sick with dysentery, at the hamlet then called Fort Western, now the capital of Maine. From that time on, our young doctor's journal is full of records of the same disease, with notes of starvation diet alternating: "Oct. 27, our bill of fare last night and this morning was the jaw-bone of a swine, destitute of any covering. This we boiled in a quantity of water, that

with a little thickening of flour constituted our sumptuous repast."

By November 1, shaving soap, pomatum even pieces of leather, were used for food; and from September 25, when the march through the wilderness actually began, to November 2, when Arnold, who had reached Sartigan, the first village in Canada, sent back supplies, nearly eighty men out of the twelve hundred died from hardship and starvation.

Quebec reached at last, and the siege began, the doctor records, from November 14 on, a succession of cases of "peri-pneumonias, anginas, etc." and on the sixteenth, his first surgical case, the amputation—with fatal result—of the leg of a soldier struck by a cannon-ball. On the thirty-first of December the historic but unsuccessful attack on Quebec occurred, and our doctor's journal contains the entry of a wound which entailed as consequence a matter of more importance than any other treated by any surgeon during the whole of our Revolution. The doctor writes: "Daylight had scarce made its appearance ere Colonel Arnold was brought in, supported by two soldiers. He was wounded in one leg by a piece of a musket-ball. It had probably come into contact with a stone, or the like, which had cleft off nigh a third of it, ere it entered the leg. The other two-thirds entered the outer side of the leg about mid-way and in an oblique curve passed between the tibia and fibula, and lodged in the gastrocnemius¹ muscle at the rise of the tendon Achilles, whereupon examination I easily discovered and extracted it."

The unknown soldier who fired that shot—and possibly did not even know it had hit—saved Quebec; for had Arnold not been thereby disabled, all his subsequent history proves he would have carried the barrier at Sault au Matelot which was assigned to his detachment, and that done, the city would have been captured.

¹Gastrocnemius.

So much depends on the unforeseen event, as well as on the personal equation. Truly it may be said of the attack on Quebec, as General Sherman said of Bull Run: "It was one of the best planned but worst executed of all battles."

After the failure, the Americans settled down to an all-winter siege. The Canadian climate bore hard on our men. Snow six feet deep was followed by pneumonia, pleurisy and that most dreaded of all scourges—the smallpox. Our young doctor continued in charge of the hospital (which was part of the nunnery of the Recollets, and is still standing) until May 6, 1776, when a British fleet relieved Quebec, the besieged were transformed into attackers, and the Americans were forced to retreat, as the doctor records, "in the most irregular helter-skelter manner, leaving everything except what we had on us." At Sorel, about forty miles below Montreal, our men made a stand, but an enemy they dreaded more than they did the British—smallpox—was among them. Hardly had our doctor been ordered by General John Thomas, then in command, to open a hospital in Montreal, for the sufferers, when the General himself was attacked, and died of it. The Congressional Committee—Franklin, Carroll and Samuel Chase—had arrived, but were doubtless glad to get away safely. Our troops followed them on June 9, down Lake Champlain to Albany. The doctor thus sums up his experiences: "Thus ended an expedition of nine months' continuance, the ill-success of which in any other cause would have induced us to renounce the principles. A hetero-general concatenation of the most peculiar and unparalleled rebuffs and sufferings that are perhaps to be found in the annals of any nation [endured with] so much magnanimity, intrepidity, etc., urged by the powerful motive of the liberty of our country.

'Tis not in mortals to command success,
But we've done more—we've deserved it."

After the return home of Arnold's force, Dr. Senter left the army and resumed private practice in Cranston, R. I. In 1778 he married "Betsy" Arnold, daughter of Captain Rhodes Arnold of Cranston. In the same year he was elected a representative to the General Assembly. Probably a good military record was then as now a decided help in politics. Of his public services we know nothing further than that he served until 1780, when he removed to Newport, which was to be his home for the rest of his life. His professional reputation must have grown rapidly, for the same year he was appointed surgeon and physician-general of the state, and afterward an honorary member of the Medical Societies of Massachusetts, Edinburgh and London. He contributed papers to the medical journals, and his "Remarks on Phthisis Pulmonalis" were printed in the *Transactions of the Philadelphia College of Physicians*, in 1795. In 1787 Brown University conferred the degree of M. D. upon him, as did Yale in 1792 and Harvard in 1793. He was a trustee of Brown from 1789 to 1799, a member also of the Massachusetts Historical and the American Philosophical Societies. His army

experience secured him the election as second president of the Rhode Island Society of the Cincinnati, and he held the office for years.

His journal—probably the first notes—is owned by the Rhode Island Historical Society, and a copy, somewhat fuller, by Mr. Charles A. Munn, of New York.

In person, Dr. Senter is described as tall, of a firm, dignified and even stately bearing, but of genial and popular manner. In Channing's "Recollections of Newport" we read: "Dr. Senter exerted a sort of enchantment when summoned to a sickbed. If the case demanded only simples, his smile proved more potent than his prescription." His only known portrait, owned by his great-granddaughter, Mrs. John Carter Brown, of Providence, is too much cracked to give an adequate idea of his undoubtedly handsome person. He died in the prime of life, at Newport, December 20, 1799, leaving his widow with six children, of whom Horace and Edward became physicians, but died young. His daughters, Eliza and Sarah Ann, married, and there are a number of descendants, among them General Butler D. Price, Philadelphia, and Mr. William Butler Duncan, New York.



ON A LATIN TRANSLATION OF THE COMPLETE WORKS OF
GALEN BY ANDREA LAGUNA, M.D., THE SPANIARD,
STRASSBURG, 1604¹

WITH NOTES, DEDICATIONS, A LIFE OF GALEN, AND INDEX

By PROFESSOR D. FRASER HARRIS, M.D., D.Sc.²

HALIFAX, N. S.

THIS obviously old volume, I examined for the first time in August, 1912, in the collection of books bequeathed to the Halifax Medical College by the late Dr. Cogswell of Halifax. It was at that time in its original binding which was excessively frail. The "boards" were massive, not of wood but of compressed paper. If there was ever any lettering or tooling on the leather, it had long ago disappeared.

The book itself is complete from title-page to colophon; nothing has been lost from the book proper; some one's book-plate has been removed from one of the boards. On the title-page is written in an old hand: "E libris Jac: Atkinson, Chirurgi, Eboraci," and at the right-hand upper corner, "C. Cogswell 1850." Dr. Cogswell who endowed the medical library was born in 1813 and died in 1892.

The page measures $12\frac{1}{4}$ by 8 inches; it is an unusually large duodecimo. There are 646 pages, each with two columns to a page, 1292 columns altogether. This is exclusive of pages devoted to the notes and the very full index. There are copious marginal notes on all the pages. There is a remarkable paucity of illustrations; the frontispiece consists of a rather elaborate group of figures of "classical" design. It is evidently a woodcut. The central figure, a head in a wreathed Roman helmet, bears on the base of the bust the words: "Scientia immutabilis." The colophon is arabesque.

¹In the Library of the Faculty of Medicine, Dalhousie University, Halifax, N. S.

²Dalhousie University, Halifax, N. S.

The plate on the last page is a device somewhat similar to the frontispiece but simpler in detail.

The only illustrations in the body of the work are two skeletons and a skull, all anatomically incorrect.

The following is the sense of a portion of the title-page: "An epitome of the Works of Galen of Pergamos arranged in four parts . . . by Doctor Andrew Lacuna of Segovia. Equitem Auratum . . . with annotations and explanations . . . and a very full index of words and subjects with all the errors of the former editions corrected. Argentorati, Sumptibus Lazari Zetzneri Bibliopolæ. M. D. C. IV."

Lacuna is described as Secobiensis, that is of Segovia, Secobia being the Latin name for a city and province of Spain. This was in Roman times and in the Middle Ages a place of some importance.

Argentoratum was the Latin name for Strassburg.

Clearly one of the first things to do was to find out what the British Museum had to say about the editions of Galen by Laguna. I accordingly wrote to the late Mr. Fortescue, keeper of the printed books. His reply was: "We have not the edition of Galen edited and translated by Laguna, Strassburg, 1604, but we have four editions of Laguna's Galen dated 1548, 1553, 1571, and 1643. André Laguna or Lacuna was a Spaniard by birth (born 1499, died 1560) who travelled during the greater part of his life, publishing medical works in many countries. He was a doctor of some note in his own day, but I am afraid that his

works have little or no value at the present time."

The last sentence is in answer to an enquiry of mine as to whether the book had any money value at an open book auction.

The biographical dictionaries have tantalizingly little information about this Lacuna or Laguna whose name does not occur, for instance, in the index to the *Encyclopedia Britannica* (ninth edition). Lacuna is mentioned in the article on Galen as an early editor of Galen. Vincent's *Biographical Dictionary* merely says of him: "Laguna or Andrea Lacuna," "Conde de Laguna" b. 1499, d. 1560. In 1535 he is said to have published a work "Anatomicus Methodus."

The book begins with a long dedicatory epistle by "Andreas Lacuna, Doctor of Medicine and Knight of Saint Peter" to his patron the most illustrious and most learned "Francisco a Bovadilla et Mendoza, Cauriensi Episcopo," a most vigilant Senator of the Holy Roman Church.

The Order of Knights of Saint Peter was instituted at Rome in 1520.

As to "Cauriensi," one can but make the suggestion that it is an adjectival form from Cauria, possibly the original name of Cavaillon, a town in France, near Avignon which possesses Roman remains and a Cathedral. Lacuna's friend may have been the bishop of this Cauria.

The dedication ends—"Venetiis ex ædibus illustrissimi Joannis Furtadi a Mendoza in hac insigni Republica Cæsarei oratoris circumspetissimi XV Calend: Maias MDLVIII." (At Venice at the house of the most illustrious John Furtadi of Mendoza, the most diplomatic ambassador to this great republic, 18th of May 1548.)

The next feature of the old volume is a Latin poem "ad Lacunam," consisting of eleven lines, probably written for Lacuna by some friend signing himself "Pyrrhus."

This first book or section contains the

"De usu partium humani corporis," one of Galen's best known writings.

The section called Commentaries "de placitis Hippocratis et Platonis" is dedicated by Lacuna to his literary patron, The most illustrious and most generous "Ferdinando cognomento a Mendoza." It ends with the words: "Vale, Venetiis, XII Calend: Aprilis," but no year is given.

Book II is dedicated to the reigning Pope himself—The most holy "Paul III, Pontifex Maximus." This dedication, a very lengthy epistle, is dated at the house of John Furtadi of Mendoza, 4th of the Ides of April, 1548.

Following on this dedication, but in larger type, is a Latin poem to the most reverend Father in Christ, Nicholas Vinceius Episcopo Balneoregiensi."

Balneoregis is undoubtedly Bagnères in the Hautes Pyrénées, a popular watering-place both now and in Roman times. This book contains the "De Sanitate tuenda," and deals also with the pulse, food, and breathing. In column 440 there is a figure or diagram in the form of a circle divided into several sectors.

The next dedication is to the most illustrious and most reverend "Petro Pacheco, Gienensi Episcopo, and most vigilant Senator of the Holy Roman Church." The date is again 1548. Gien is an ancient town in the Department of Loiret on the Loire, 38 miles southeast of Orleans.

The section so dedicated treats of drugs; the subsection "De Theriaca" is thus dedicated—"Illustri admodum atque ornatisimo viro ario Gonzalo Comiti Pugni in Rostro."

The theriaca was a highly complicated mixture containing more than one hundred ingredients specially compounded in the first instance for the Emperor Marcus Aurelius to whom, as is well known, Galen was physician. Amongst other things, it contained an unusual ingredient, dried vipers.

The section dealing with weights and

measures is dedicated to "The most distinguished Caspar de Lahoz Canonicum Se-cobiensem, in the highest degree a culti-vator of good literature." At the close of the dedication, Lacuna asks the Canon of Segovia to greet their common friends—"D. Berrocalem Scriptorem Apostolicum" as also "D. Falconaeum a Guevarra."

This epistle is dated at Venice, the 3rd of the Ides of April, 1548.

The next portion of the volume is the life of Galen himself which occupies rather more than four pages; it is written by Hieronymus Gemuseus and edited by La-cuna.

This portion is dedicated to "The most illustrious and most wise, Joannes Aquile-rius, physician to the Pope, a great lover of Literature." At Venice, 4th of the Nones of April, 1548.

The volume closes with annotations or notes by Lacuna dedicated to "The most illustrious and most wise, Didaco Furtado à Mendozza, the very vigilant ambassador to Paul III, Pontifex Maximus."

This is dated at Venice from the house of Joannes Furtadi à Mendozza "apud Venetos Cæsarei oratoris splendidissimi," 10th of the Calends of December, 1548.

Immediately below this, in a note "ad lectorem," are mentioned two physicians, Victor Trincavellius and Augustinus Ricci.

The copious notes in this great work would be more accurately described as quo-tations from other editors of Galen inserted to show what has been considered the meaning of the passages to which the notes refer. The original Greek is frequently re-ferred to.

Subjoined is a list of some of these schol-ars quoted from, who were either editors of Galen or authorities on ancient medicine:

Ludovicus Bellisarius
 Johannes Caius (1510-1572)
 Gulielmus Copus (1471-1532)
 Janus Cornarius (1500-1558)
 Hermanus Crusenius

Desiderius Erasmus of Rotterdam (1467-1536)

Guinterius of Andernach (1487-1584)

Theodoricus Gerardus

Leonardus Jachinus

Nicolaus Leonicens (1428-1524)

Thomas Linacre (1460-1524)

Nicolaus Levachins

Junius Paulus

Martinus Gregorius

Josephus Tectador

These were all Renaissance scholars; some of the names are familiar to us, others very much the reverse.

Erasmus is perhaps the name best known in lay circles, and in these certainly he is not thought of as an authority on matters medical. If one, however, reads only his "Encomium Artis Medicæ," it will be seen how thoroughly conversant he was with the medical views of his time. It is note-worthy that throughout the essay he writes of "our profession." Here also he throws out the interesting suggestion that swamps ought to be drained in order to rid certain districts of malaria.

Linacre, physician to Henry VIII and founder of the College of Physicians, is too well known in medical circles to need more than mention. It ought to be remembered that in his own time he was considered as much a scholar, critic, and grammarian as a physician.

Caius (John Keye or Key) is gratefully remembered as the man who remodelled Gonville Hall at Cambridge (making it the pre-eminently Medical College it has been ever since), and who introduced into his own land the study of practical anatomy by dissection of the human cadaver.

Guinterius or Gunther was a Swiss by birth. At Paris he taught anatomy to Vesalius.

Cornarius, whose German name was Hagenbuth, was one of the earliest editors.

Leonicens, who was born at Lonigo in 1428, became Professor of Mathematics and

of Moral Philosophy at the University of Ferrara. He was a Doctor of Medicine of Padua.

Leonicenus was the second earliest editor of Galen, some of whose writings he translated. He translated also the "Aphorisms of Hippocrates," and was one of the first to apply what is now called literary criticism to the writings of classical medical authors.

Of Lacuna's friend, Victor Trincavellius, something is known. He was born at Venice in 1490 and studied both at Bologna and at Padua. At the latter University, where he graduated Doctor of Medicine, he became Professor of Medicine and Philosophy. Trincavellius was the first Italian to teach Hippocrates from the Greek text. He was held in such esteem as to be given a public funeral in 1563.

Something also is known of John of Aquila, a town in the Apennines, the capital of a province of that name. John of Aquila was a noted Neapolitan physician in the fifteenth century, and, for a time, Professor of Medicine at Pisa. His contemporaries referred to him as a "Second Æsculapius." Lacuna speaks of him as a man who loved good literature. He was physician to Paul III.

Lastly, Pope Paul III, pope from 1534 to 1549, was apparently a friend and patron of Lacuna. As Cardinal he was known as Alessandro Farnese. He was born of a noble family in 1468. This pope is described as an important patron of learning, a man well versed in the science of his day, but with a weakness for astrology. He favoured the Jesuits. This was the pope who issued the bill against King Henry VIII and who finally excommunicated him. Copernicus dedicated his great book to him.

No fewer than four members of the family of Mendoza appear to have been friends or acquaintances of Lacuna.

Lacuna seems to have lived for a time in the house in Venice of one "Johannes Fur-

tado à Mendoza" whom he calls "ambassador to the Republic"; one dedication is to a "Bishop Francisco à Bovadilla" and Mendoza; another is to his literary patron Ferdinando of Mendoza, while a third is to Didaco Furtado of Mendoza, the ambassador from Spain to Pope Paul III.

This family—the name of which is more usually spelled with one z or c—one of the oldest of the noble families of Spain, has produced several distinguished men—diplomats, ecclesiastics, soldiers, and poets. One of the Mendozas was ambassador from Spain to the Court of Queen Elizabeth of England.

It appears that in 1538 a "Diego Furtado à Mendoza" was appointed to represent Charles V at Venice. But Diego was a member of the Council of Trent which sat from 1545 to 1563 from whose deliberations he was recalled to represent Spain at the Vatican. Now it would seem that in 1548 the Spanish ambassador at Venice was Diego of Mendoza; yet Lacuna speaks of John of Mendoza as filling that office. The explanation that seems fittest to account for two different persons occupying one and the same position is that when Diego was absent either at Trent or at Rome, another member of his family (John) was appointed as his deputy. By 1554 Diego of Mendoza had been recalled to Spain where he wrote his well-known "Guerra de Granada." The novel "Lazarillo de Tormes" is by some attributed to him when a youth at the University of Salamanca.

In order to understand why new editions of the works of Galen were called for as late as 1604 and 1643, it will be necessary to give a short historical sketch of the progress of medical learning in Spain.

We should certainly not now dream of going to Spain for medical research, but at one time Spain played more than an indirect part in the development of medical science.

In the early Middle Ages, when the study of medicine did not exist or was languishing in the monasteries elsewhere in Europe, and before the earliest Italian university had been founded, the science and art of medicine and surgery were cultivated by the Moors in Spain. By 900 A. D. there was at Cordova, we are told, a great civilization like that at Byzantium; and at the University there astronomy, geography, chemistry, and natural history were all studied with ardour and success. This state of things was at its height in the ninth and tenth centuries. The Khalif Abd-er-Rahman III was a great patron of science at Cordova, and he reigned nearly fifty years, dying in 961 A. D.

A little later Avenzoar (Ibn Zohr) made many discoveries important in their day in medicine and surgery; and Ibn Bezlar, the botanist, travelled widely in the East collecting medicinal herbs on which he wrote an exhaustive treatise, one of the earliest pharmacopœias since classical times. We are told that at Cordova "Every branch of science was seriously studied, and medicine received more and greater editions by the discoveries of the doctors and surgeons of Andalusia than it had gained during all the centuries that had elapsed since the days of Galen. Albucasis was a notable surgeon of the eleventh century, and some of his operations coincided with the present practice." Arnold of Villanova (b. 1235) was the most enlightened Spanish doctor of the thirteenth century. He discovered nitric acid. The first school of medicine in Italy, the earliest of its universities in fact, that at Salernum was of no consequence until the eleventh century, so that between the fall of the Roman Empire and the eleventh century, the lamp of medical enlightenment was kept burning, at times very brightly, by the hands of Jews and Arabs in the Iberian peninsula. The flame, however, was arabesque, only the lamp-holder was Spanish.

But with the final expulsion of the Moors from Spain in 1610, there went out the light of medical and of almost all other learning. Intellectual darkness covered the land. As late as 1771 the University of Salamanca publicly refused to allow its professors to teach the discoveries of Newton. One hundred and fifty years after Harvey had demonstrated the circulation of the blood, this cardinal fact of physiology was still denied in the Spanish schools of medicine. Townsend, travelling in Spain in 1792, found students of anatomy, but not one dissecting. Dissection never had been the feature of the Spanish as it had of the Italian Schools for the Koran forbade the touching of a dead body, and the Church regarded it as a form of sacrilege. John of Vigo (b. 1460) was far less a Spanish than an Italian physician; he was latterly physician to Pope Julius II.

An eminent anatomist made his appearance in the sixteenth century in the person of Andreas Vesalius at the courts of Charles V. and Philip II. The "Father of Modern Anatomy" had just resigned his chair at Padua and retired to Spain to put himself under the patronage of the Emperor. But his researches were by this time at an end; he complains that in Madrid he could not so much as get hold of a dry skull, far less make any dissections.

It is interesting, however, to reflect that the first great Renaissance anatomist spent the latter part of his life in Spain, where, though adding nothing to his previous contributions to anatomical data, he practiced the art of surgery, for we know that he trepanned successfully the skull of the future Philip II for some obscure mental condition.

One of the chief contributions to physiological anatomy made by Vesalius was the doubt he cast on the porosity of the interventricular septum. This so-called "doctrine of the heart" was due to Galen, and had never before been questioned. Vesalius

did, however, question it, but with great caution, partly because the Church had sanctioned Galen's anatomy, and partly because in medical circles it was intellectual high treason to make out Galen to have been in error.

Once the porosity of the septum of the heart is disproved, the transit of the blood from the right to the left side of the heart by way of the lungs, so-called pulmonary circulation, becomes an anatomical necessity. The existence of this pulmonary circulation was, curiously enough, first formally stated by a Spanish monk, Michael Servetus, in a theological treatise "Christianismi Restitutio," a work published in 1553 but read in manuscript some years before (1546). A copy of this book is perhaps one of the rarest of books. Its unitarian teaching so displeased Calvin that he had Servetus arrested at Vienne and brought to Geneva for trial where he was condemned to be burned alive. This sentence was carried out on October 27, 1553. Around the stake the whole edition of the "Restitutio," 1000 volumes, was to have perished. Only three copies are known to have escaped; one is in Paris, one is in Vienna, and an imperfect copy is in Edinburgh. Now it is rather interesting that at the very time (1548) that the Spaniard Servetus was confuting Galen, a contemporary and fellow countryman, Lacuna, should have been preparing a sumptuous edition of all the works of this very man. The edition we are studying, that of 1604, was the second brought out after Lacuna's death, and it was published not in Spain but at Strassburg. It seems we have evidence that there was a demand for the works of Galen in Spain quite as late as 1604, for another edition of Lacuna's Galen came out as late as 1643.

It is certain that by 1643 Galen's anatomy and system of medicine were distinctly on the wane everywhere else in Europe; and by 1657, the year of Harvey's death, the "new learning" in anatomy and physi-

ology had been adopted in practically all the schools of medicine on the continent of Europe except those of Spain. There, things were very different; in 1600 the priest-directed University of Salamanca actually persuaded the weak Philip III to pass a law requiring that no systems of medicine more recent than those of Hippocrates, Galen, and Avicenna should be studied. This edict may have called forth the edition of Galen before us. It is noteworthy in this connection that the Bishop Franciscus a Bovadilla and Mendoza, to whom the work before us was dedicated by Lacuna, was himself Principal of the University of Salamanca. In truth, the revival of medical and other scientific learning never really affected Spain where there was no decay of science, because there had never been any flourishing of it. Philip II detested science, and gave his whole energies to matters military and ecclesiastical.

The Spanish mind is not an enquiring one, facts have no romance for it; science is beneath its notice because some of it is known to be useful and some of it appears to be useless. There is a large element of mental inertia in the Spaniard; as late as the time of Philip III, Spanish medical treatment still consisted of nothing but purging and bleeding.

While Italian, French, German, Dutch, and English names are attached by the score to structures in human and comparative anatomy, those of Spaniards in eponymous use are conspicuously few. The ligament of Gimbernat is almost the only structure of this kind which can be mentioned. Don Antonio de Gimbernat was Professor at Barcelona from 1762 to 1774.

Few and ineffective have been the efforts to foster medical study in Spain; medical societies have been founded in Madrid and in Seville, and there is a college of surgeons at Cadiz; but it is only within the last twenty years, and in consequence of work begun by the Italian microscopist,

Golgi of Pavia, that anything has been contributed from a Spanish laboratory. Ramon-y-Cajal of the University of Madrid and his co-workers have, however, greatly extended our knowledge of the finer structure of the central nervous system as a result of their researches.

In conclusion, I think we may say that the Medical Library of Dalhousie University is fortunate in possessing a volume if not of great monetary value, yet of considerable interest to the medical historian,—nothing less than a complete edition of the writings of Galen in Latin, with a life of that truly great man, which was the work

of a learned Spanish doctor of medicine, a native of old Segovia, whose acquaintances included some of the most eminent Spaniards and Italians in the Church at the middle of the sixteenth century, such as the Ambassador from Charles V. to the Republic of Venice, the Bishop "Cauriensis," the Bishop of Gien, the Bishop of Bagnères, the Canon of Segovia, the Spanish Ambassador to the Pope, the physician to the Pope, and Pope Paul III himself.

The edition before us (1604) is the fourth of the series of five editions of Lacuna's Galen; it is the third posthumous one, and it is *not* in the British Museum.

CONCLUSIONS FROM THE DECAPITATED FROG

BUT while experience bids us believe that a frog, with head and heart excised, for example, loses nothing or very little of its natural powers, it is a fact that its (or any other animal's) torpid and quiet muscles can be stimulated to new contractions and spasms even after the power of the will has declined and become nullified. Some admit an intrinsic motion to the nerve

fluid, which even after its entire connection with the brain, the powerhouse of the animal's vital spirits, has been cut off, exists adequate for motions of this kind and still active at the time. This certainly cannot be pronounced immaterial: it exists as a material phenomenon.

JOHANN BOHN. "Circulus anatomico-physiologicus" (1686).

"The prime qualifications of a physician may be summed up in the words of Capax, Perspicax, Sagax, Efficax. Capax—there must be room to receive, and arrange, and keep knowledge; Perspicax—senses and perceptions, keen, accurate, and immediate, to bring in materials from all sensible things; Sagax—a central power of knowing what is what, and what it is worth, of choosing and rejecting, of judging; and finally, Efficax—the will and the way—the power to turn all the other three—capacity, perspicacity, sagacity, to account, in the performance of the thing in hand, and thus rendering back to the outer world, in a new and useful form, what you had received from it. These are the intellectual qualities which make up the physician, without any one of which he would be mancus, and would not deserve the name of a complete artsman, any more than proteïne would be itself if any one of its four elements were missing."—Dr. John Brown on Medical Education.



EDITORIALS

A GROUP OF BOOKS DEALING WITH THE HISTORY OF MEDICINE IN ENGLAND

THE medical profession comes in such close contact with the ordinary life of most people that it is not surprising that many books should have been written dealing with what might be termed the unscientific or personal aspects of the physician's life. In England, during the first half of the nineteenth century, there were published a number of books of this kind, chiefly anecdotal in character and curiously alike in their general aspect.

In 1824 William Wade published a book entitled "Nugæ Chirurgicæ; or a Biographical Miscellany Illustrative of a Collection of Professional Portraits," in the preface to which he punningly states that its compilation has led him to a familiarity with the "Medici" family which he could have acquired in no other way.

The following year "Professional Anecdotes, or Ana of Medical Literature" a compilation in three small volumes of anecdotes bearing on professional men and matters was published anonymously, and achieved great popularity.

In 1827, William Macmichael published "The Gold-headed Cane," which has won for itself a lasting popularity not only because of its intrinsic worth but because of the fascinating manner in which the tale is told.

A few years later, in 1830, Macmichael,

in conjunction with several others, published a little book entitled, "Lives of British Physicians," in which the careers of some of the most eminent members of the profession were recorded.

These books are followed by Millingen's "Curiosities of Medical Experience," Cordy Jeffreason's "Book about Doctors" and others of a similar character, so that from an anecdotal point of view the history of the British medical profession was quite completely covered from the time of Linacre to the middle of the nineteenth century.

Most of these books include the same characters in their sketches and repeat the same stories. The French were not behind the English in their publications relating to the lives of physicians, but their books are generally more serious in tone and more strictly biographical or historical in their character. The American medical profession has sadly lacked this accession to its literature. There exist many biographies of American physicians and a goodly number of autobiographies, but so far no collection of anecdotes or light professional history has appeared. How interesting a collection of stories, memorable acts, or sayings of our medical forbears would be! The material exists in great quantity, but no Macmichael has yet arisen to put it into literary form. Formal biographies of physicians, with some

striking examples are generally of little interest and value. The life of Pasteur by Radot is a model showing the vivid interest which may be excited by the simple recital of the achievements of a great man of science. The recently published biography of Beaumont is one of the few really first class medical biographies so far published in this country. The rest are generally dull reading and, not only that, but unworthy representations of the life of the man they desire to memorialize. As to autobiographies of physicians, possibly the less said the better. Marion Sims' account of his own career stands almost alone for the American profession, and the French since Ambroise Paré's "Apology" possesses no better. The English are as badly off in this respect.

The one classic work on American medical biography and history is that of old James Thacher. To it every one interested in the history of American medicine in its early years must turn, and in its pages will be found practically all the facts regarding Rush, Shippen, Bard, Warren and the other worthies of the Colonial and Revolutionary period with which we are acquainted.

The early history of the profession in this country has been by no means exhausted, and while there is yet time no efforts should be spared to search out every possible source

of original information and gather every fact bearing upon it. In the archives of some of the older hospitals, institutions and medical societies of this country there must lie hidden a mine of information which if diligently explored would produce great results. In the majority of instances such records are easily accessible and would well repay the search. Let us try and stimulate efforts in this direction in the hope that we may learn things heretofore hidden and convey to the rising generation of medical men at least some idea of the great personalities who laid the foundation of medical education and achievement in this country. Every young man in the profession in Edinburgh can recall the history of that great school and speak with pride of the Munros, Fergusson, Syme, and Simpson. The young English doctors can tell you much of what Cheselden, Pott, the Hunters, Cooper, and a hundred others accomplished in London; but the young American, alas, knows but little of the past glories of his profession in his native land.

One of the most important functions for those in this country who are interested in the history of medicine is to arouse and maintain the interest of the American medical student in the traditions of his profession.

DR. GEORGES CLEMENCEAU

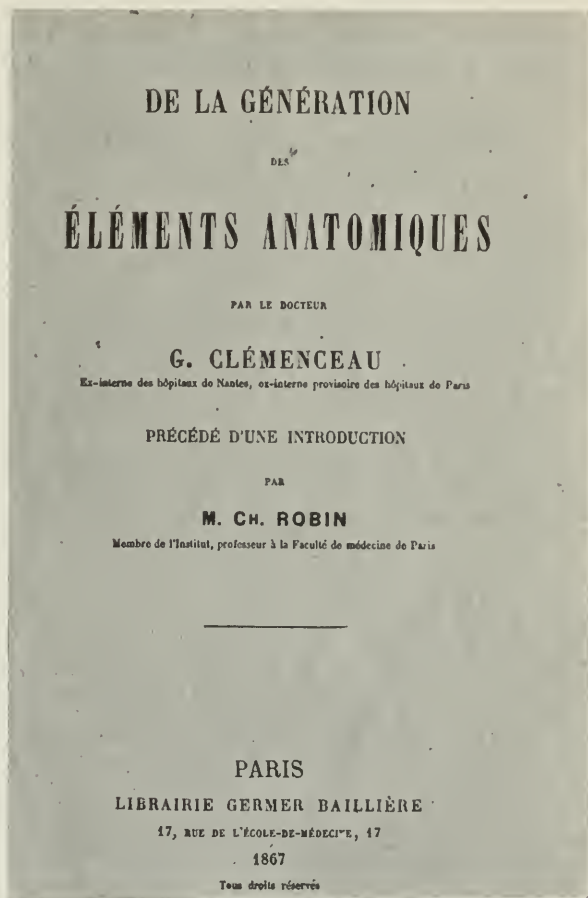
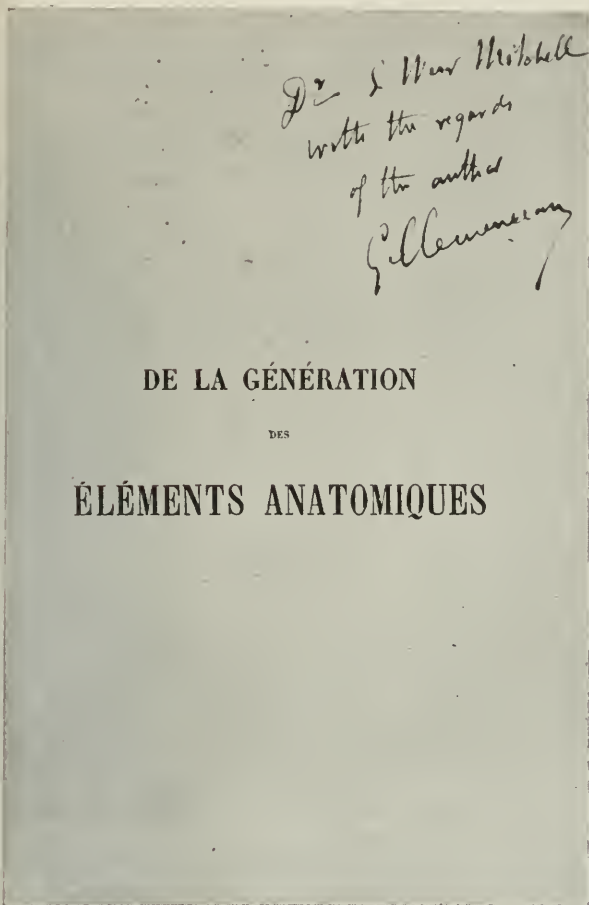
The Library of the College of Physicians of Philadelphia contains an almost complete set of the theses of the graduates in medicine of the University of Paris. Some time ago the writer sought among them for the graduation thesis of Dr. Georges Clemenceau, and was rewarded by finding a copy, published at Paris in 1867, and bearing on the flyleaf an inscription to S. Weir Mitchell from the author, a photostatic copy of which, and of the title-page, are herewith presented.

The future French Premier graduated in medicine in 1865, and shortly after sailed for the United States, where he settled in New York, opening an office in that city and eking out a livelihood by teaching French in a school for girls at Stamford, Connecticut.

The emigrant premier came of a long line of doctors, being the seventh doctor in lineal succession in as many generations of Clemenceaus. His father was an ardent Republican and had undergone a period of exile in

1851 because of his opposition to the coup d'état, and the young doctor when a medical student, had been imprisoned for a short time because of his participation in a republican demonstration of the students.

Sanbornton, New Hampshire, a pupil of the school in which he taught. They were divorced after twenty years of married life. With the downfall of the Empire Clemenceau returned to France. It is interesting to



Flyleaf with autograph and title page of a thesis by Dr. Georges Clemenceau.

It was natural, therefore, that he should seek freedom from political oppression in this country. His thesis was published while he was living in New York and it is probable that some copies were sent to him which he gave to prominent members of the profession in the hope of attracting their attention and thereby gaining some professional aid in his career. The thesis itself shows evidence of great industry and scientific research, but, of course, the progress of embryology has relegated the views propounded in it to the limbo of forgotten things.

Clemenceau married a Miss Plummer, of

speculate whether if the overthrow had not occurred Clemenceau might not have succeeded in building up a New York practice and remained with us instead of returning to save the world in the Great War.

FRANCIS R. PACKARD.

EDITORIAL NOTE

The portrait of the late Dr. Jacobi, which appeared in Volume II, Number 2 of the ANNALS OF MEDICAL HISTORY was unfortunately published without giving credit to Mrs. Doris U. Jaeger, the photographer who made it.



A NOTE ON THE HISTORY OF VARIOLATION

Prior to the publication of Jenner's great work (1798), preventive inoculation against the smallpox by means of human virus, a practice introduced into Europe by Timoni (1713), Pilarini (1716) and Lady Mary Wortley Montagu (1718-21), had a long series of ups and downs in the old world and the new.

Thousands of persons were inoculated, even troops in the Continental Army; but vaccination was soon recognized as a safer

Napoleonic era. The best, and best known, are his first attempts, "L'Enfant du Carnaval" (1792), "La Folie Espagnole" (1799), and "Mon Oncle Thomas" (1799). In the last named, there are remarkably realistic scenes, showing the arrogance of the aristocracy and the police officials toward the poor during the pre-Revolutionary period. The selection subjoined describes a revolting act of cruelty perpetrated upon a child by his step-father, a police-sergeant:



procedure than variolation, since the inoculated subjects in the latter case became smallpox carriers, through the sores. The frequency of the practice in France is evidenced in the following passage from the novel "Mon Oncle Thomas" (1799) by C. A. G. Pigault-Lebrun (1753-1835), the prolific romancer of the Directory period. The novels of Pigault-Lebrun are valuable documents of life and manners in the transition period between the years preceding the French Revolution and the

L'inoculation commençait à être en vogue, et M. Carabin, chirurgien-major des guets à pied et à cheval, grand praticien, à ce qu'il croyait et partisan zélé des nouveautés, M. Carabin s'était jeté à corps perdu dans le système en faveur. Il n'osait prendre son virus aux Enfants-trouvés ni à la Pitié, parce qu'il y avait là des petites véroles confluentes qui pouvaient empoisonner les inoculés. Il fallait, pour propager la méthode, un germe bourgeois aussi pur et aussi bénin que peut l'être du virus. Sur un mot que lui entendit prononcer Riboulard, il prit mon petit oncle par la main, et, sous le prétexte d'une promenade, il le conduisit à la Pitié. O tendre mère! ton cœur

ne te disait point: Va donc, suis donc; les jours de Thomas sont compromis!

Arrivés à la maladrerie, Riboulard déshabille mon oncle, ce qui n'était pas difficile; il le roule et le frotte dans les lits de cinq ou six de ces petits malheureux.

Thomas, de retour, conta tout à sa mère, et sa mère, dans un accès de rage impossible à décrire, assomma Riboulard de trois coups de fer à repasser. Il tomba, elle le crut mort, et, pour s'assurer de ce qui en était, elle courut chercher M. Carabin, qui lui promit de tirer de là mon coquin de grandpère. En effet, il le saigna, le trépana, et n'exigea pour son salaire que la permission de garnir proprement quelques sétons du produit des pustules de mon oncle, lesquelles étaient d'une beauté ravissante. Tant il est vrai de dire que ce que Dieu garde est bien gardé!

Riboulard, qui n'était bon qu'à faire endiabler les autres, guérit enfin au grand mécontentement de ma grand'mère et de mon oncle Thomas, qui s'étaient flattés de l'enterrer. Il regretta amère-

ment douze francs au moins que lui eût valu le virus sans l'aventure du trépan, et il jura de s'en dédommager d'un autre côté.

Mon Oncle Thomas, Ch. I.

A colored caricature belonging to the Jennerian period (*circa* 1802), represents the turkey as a rival of the cow in the production of vaccine. A grocer's boy holds up a large turkey from which the dishevelled scaramouch of a doctor extracts the virus on a lancet. The legend reads "La Dindonnade, ou La Rivale de la Vaccine." The plate is without author or date, but reference is made underneath the inscription to an article in the (inaccessible) *Journal des sciences et des arts*, No. 129, "en datte du 15 Floréal An 9" (May 5, 1802).

F. H. GARRISON.

THE LEGAL CONTROL OF THE SALE OF NOSTRUMS AND POISONS IN FRANCE DURING THE EIGHTEENTH CENTURY

Let it not be thought that there was no legislation for the control of nostrums or the sale of poisons two centuries and more ago. In France the government maintained a sharp eye over quacks and their remedies, and also legislated on the substances to be used by confectioners and others in the making of all sorts of sweets and pastry. I shall here give literal translations of portions of the following decrees, edicts and police regulations relating to the above, as they are of considerable interest and, since they are in the domain of the jurist, are less known to medical historians:

1. *Edict of Aug. 31, 1682, for the punishment of different crimes, such as Soothsayers, Magicians, Sorcerers, Poisoners, and which controls those who can sell dangerous drugs.*

2. *The Decree of the Council of State of March 17, 1731, concerning the Discipline and the Police of the three Corps of Medicine.*

3. *The Decree of the Council of State of Oct. 25, 1728, Interdicting All Sorts of Persons to Distribute Remedies without Having Obtained New (renewed) Permission from His Majesty.*

4. *The Regulation of the Lieutenant-General of Police of July 10, 1742, Concerning Spice Merchants, . . . Apothecaries and Others Who Sell Drugs.*

5. *The Police Ordonnance of Oct. 10, 1742, Concerning the Compositions Which Enter in Desserts.*

I will first transcribe in English the nine articles composing the Decree of March 17, 1731.

“*Art. I.* In the future no patent (licence) shall be sent or delivered by the First Physician (of the King) for the distribution of private remedies until these have been examined by the Commission and after due deliberation signed

by all those belonging to it: And for still, greater security in the use of the said remedies, the diseases and circumstances to which they shall be judged applicable, shall be specified in the said patents and grants.

“*Art. II.* The said patents and grants cannot be accorded but for this time and space of three years, passed which time, those who have been favored must return them in order to have them renewed and they will not be delivered excepting on a certificate given by the physicians and surgeons of the place where the said remedies have been employed, stating the good effects they have produced: And in case some of the said patents or grants have been given for an unlimited time, they shall only be valid for the said time of three years, counting from the date of their issue, under the penalty of nullity, one thousand pounds fine to be applied to the Hospitals of the place, even of exemplary punishment for those who shall have, the said time having passed, continued to distribute their remedies without having renewed their patents in the form prescribed above.

“*Art. III.* Wills His Majesty that the minutes of the said patents and grants, as well as the register which shall be kept, remain in the hands of the First Physician (of the king), so that recourse to them may be had in case of need.

“*Art. IV.* And in order to avoid any deceit on the public on the part of the distributors of the said remedies which shall have been examined and approved, His Majesty commands that the original of the handbills shall be in conformity with the tenor of the patents which authorize them and the visa of the first physician, or some one appointed by him

to this effect, under the penalty of five hundred pounds fine.

“*Art. V.* His Majesty commands that his first Physician shall be bound to send two printed copies of each patent or grant, to the deans of the Faculties or Aggregations of Medicine, who shall take care to inform him exactly as to the success and ill consequences of the said remedies.

“*Art. VI.* His Majesty likewise commands that when epidemic diseases arise or extraordinary cases so far unknown, either of a medical or surgical nature, in the City of Paris, a notification of them shall be sent to the Commission by the physicians or surgeons attending the patients, who shall be invited, if judged necessary, to come and give details of the said disease or said extraordinary cases before the said Commission, to which physicians and surgeons of the Provinces shall be likewise bound in the same circumstances to send an account and which will be addressed to the first Physician and shall also indicate the manner in which the patients shall have been treated and all shall be put upon the register, in which mention shall be made of the progress and outcome of the said disease or said extraordinary cases.

“*Art. VII.* His Majesty very expressly enjoins all Corps of the Faculties of Medicine and Aggregations of the Kingdom, as well as all the Lieutenants of the first Surgeon, to denounce to the said Commission all distributors and pedlars of remedies who do not possess a patent delivered by the First physician in the form hereabove described.

“*Art. VIII.* And in order to forestall all kinds of litigation and lawsuit between the three professions of physicians, surgeons and apothecaries in respect to the various business and policies of the said professions, His Majesty commands that the said Commission after having seen

the Statutes and Rules, shall give its opinion on the difficulties arisen or to arise concerning the exercise, discipline and limitations of the said professions, in order that the said opinion having been examined and reported, these circumstances shall be provided for by His Majesty.

“*Art. IX.* His Majesty forbids all governors and magistrates of cities in the Provinces to allow persons without quality, such as operators and others, to distribute and sell any remedies which have not been approved by the Commission and when they do not possess patents or grants in the form above mentioned.

The Commission referred to in the Decree of March 17, 1731, was composed of the First Physician and Surgeon to the King and members of the various corporations of physicians, surgeons and apothecaries who were selected according to their fitness for the examination of the various nostrums—of which there were legion—submitted to them. Human nature has always been the same and the public has always been in the habit of going out of its way for the purpose of being gulled by ignorant pretenders of the sure cure of all ills. The eighteenth century was no exception to the rule. The French pound of the eighteenth century had a purchasing value which was about three or four times as great as that of the franc before the recent war.

The Royal Decree of July 31, 1682, is interesting in many ways, but of its eleven articles, I shall transcribe only three as they alone directly concern the subject of the present communication.

¹ “*Art. VI.* Shall be included among poisons, not only those which can cause a prompt and violent death, but also

¹ The writer is glad to be able to offer a photographic reproduction of one of these handbills—now of extreme rarity—referred to in the decree

those which by progressively changing the health cause disease, be the said poisons simples, naturals or made by the hand of the artisan, and in consequence forbids all persons on the penalty of death, even physicians, apothecaries and surgeons on the penalty of corporal punishment, to possess and keep such



PAR PERMISSION DU PARLEMENT
de Provence.

*Les vertus du Baume du Pape Innocent XI. débité par moy
Philippe Borsary Operateur Italien, etabi dans la Ville d'Aix.*

IL est très souverain pour les maux d'Estomac, il en faut boire demi cuillerée le matin, & aller dormir.

Il est souverain pour les douleurs de Flanc, dureté de Ratte, Froideur, Scia-rique, Nerfs recitez, en frotant froid la partie malade, & mettre dessus un linge ben cabud. Il est bon pour la retention d'Urine, ardeur de Verge, il faut en boire une cuillerée le matin, & se promener pendant un quart d'heure.

On s'en sert pour les Playes des Jambes, en mettant dessus un linge trempé dans le Baume, il mange les chairs pourries, fait modifier les chairs, & guerit les Playes.

Il est très bon pour les vers des enfans, leur en faisant boire une demi cuillerée.

Pour les Fievres tierces, quartes, vous prendrés une cuillerée au commencement de la fievre, & vous metrés au lit bien couvert; il détruit la fievre, en la desséchant par les sueurs.

Pour les Coupures & Blessures, prenez du linge trempé dans le Baume, & le mettez sur la coupure, plus vieux il est meilleur il est, & il faut tenir la folle bien droite & bien bouchée. Et le sieur Borsary traite toute sorte de maladie, & arrache les dents dans la dernière perfection.

Handbill referring to a balsam offered by Philippe Borsary,
a bone-setter practising at Aix.

poisons, simple or prepared, which always retain their poisonous qualities and not entering into the composition of ordinary things, can only serve to harm and are from their nature pernicious and lethal.

“Art. VII. In respect to arsenic, regale, orpiment and sublimate, although they are dangerous poisons in all their

issued by the Parliament of Provence and contained in his private collection. It refers to a balsam offered by one Philippe Borsary, a bone-setter or perhaps a lithotomist, practising at Aix, the ancient capital of Provence. Aix is the natal city of Tournefort, Vanloo, the painter, Adanson and a number of other distinguished men of science and arts.

substance, yet as they enter into and are employed in several necessary compounds, we wish in order to prevent in the future the too great facility that has been enjoyed until now to make abuse of them, that only merchants living in cities can sell them and they alone may deliver them to physicians, apothecaries, surgeons . . . who shall, when receiving them, inscribe on a register kept by the merchant, their names, qualifications and address, as well as the quantity that they have taken of the said minerals . . . under the penalty of three thousand pounds fine or even corporal punishment if they fail (to comply with the law).

“Art. IX. We very expressly forbid all persons no matter what may be their profession or condition, excepting to approved physicians and in their residence, to professors of chemistry and to master apothecaries, to have any laboratories or to work at any preparation of drugs or distillations, under the pretext of making chemical remedies, experiments . . . unless having previously obtained from us by letters of the great Seal the permission to have the said laboratories. . . .”

The above decree was undoubtedly the outcome of the famous poison case which drove all Paris crazy and ended in the arrest and hanging of the too famous Marquise de Brinvilliers and her several accomplices, although the case was tried several years before, in 1676.

The decree of the Council of the King under date of Oct. 25, 1728, need not detain us, as it merely again forbids anyone to sell or distribute nostrums unless he has renewed his patents or grants after the expiration of three years as formulated in the later decree of March 17, 1731. It is interesting, however, from the fact that it contains the names of those composing the commission appointed to examine the

patents, etc. They were: Dodart, first physician to the King; Helvetius, first physician to the Queen; Geoffroy, dean of the Faculty of Medicine of Paris; Sylva and Vernage, both celebrated physicians in their day. Then as surgeons, the great names of Maréchal and La Peryonic appear coupled with the no lesser names of Petit and Malaval. Bolduc and Geoffroy were the two apothecaries appointed. But the decree also states that the surgeons named are only to examine such topical applications or other preparations pertaining to the art of surgery. All other nostrums are to be dealt with by the above-named physicians and apothecaries only.

The police regulation of July 10, 1742, deals with the sale of certain oils, particularly oil of poppy, but the Police Ordinance of Oct. 10, 1742, is otherwise interesting as it deals directly with questions that our supposedly up-to-date health boards are expected to look after. It refers to the manufacture and composition of sweets, pastry, etc. and I will translate it *in extenso*.

“Upon what has been represented to us by the King’s procurator, that some confectioners, officers of households, even eating-house keepers and others, who from their status or profession use sugar for the purpose of representing flowers, fruits, leaves, birds and all sorts of animal figures, even terraces, to adorn their desserts, employ for giving them a natural color and for coloring their pastilles, fruits glacés, all kinds of coloring matter, even substances detrimental and dangerous for the health, such as gamboge, blue cinders, azure blue, preparations of copper, ashes or lime of lead, such as masticot, minium or what is called vermilion

(silver gilt) and even orpiment; substances that are employed by painters, but which are dangerous and very detrimental to the health; instead of using the juices of plants and harmless substances used for tinctures, such as cochineal, saffron, dyer’s-weed, cucuma, sunflower, indigo and others from which nothing need be feared; although these kinds of desserts thus colored are used for decoration rather than for eating, nevertheless they are often consumed and are given especially to children; that it has come to his hearing that various accidents have already occurred and he thought himself obliged to warn us, in order that he may be confirmed in his rights (to act) by us.

“Upon which we, admitting the speech for the crown of the King’s Procurator and having heard the Guards of the Merchant Apothecaries, grocers and grocer-confectioners, order very express prohibition and interdiction to all merchant confectioners, pastry-dealers, eating-house keepers, even officers of households and all others, to use in their dough, sugar paste, pastilles and *dragées*, *fruits glacés*, preserves, dry jams, frosted marchpanes (a kind of cake) and other things, either for desserts, or for sale to the public; gamboge all copper preparations . . . all of which are dangerous and more or less detrimental to the health; on the penalty of confiscation of all merchandise . . . and two hundred pounds fine for each infraction, etc. . . .”

The above decrees require no comment but they show that the physicians of yore were wide-awake and fully aware of the evils of impure or adulterated foods and food-stuffs.

CHARLES GREENE CUMSTON.



BOOK REVIEWS

DR. JOHN RADCLIFFE, A SKETCH OF HIS LIFE, WITH AN ACCOUNT OF HIS FELLOWS AND FOUNDATIONS. By J. B. Nias, M.D., M.R.C.P., Radcliffe Travelling Fellows, 1882-5. Oxford, at the Clarendon Press, 1918. 8vo, pp. 124. Illustrated.

As Dr. Nias states in the preface, there exists no adequate biography of one who was not only the most eminent physician of his time in England but also one of the most generous benefactors of the University and city of Oxford whose posthumous fame has been besmirched by many stories chiefly apocryphal, exhibiting him as a man of rough manners, and a ready but coarse, rough wit.

Shortly after the death of Radcliffe, William Pittis, a hack writer, wrote his biography, full of anecdotes illustrating his lack of manners toward his patients, and not in any way informing the reader of the methods of practice which led to his unquestioned fame as a consultant, nor illuminating as to the high motives which induced him to give such liberal endowments, of a then original character, to his Alma Mater and to the city of Oxford.

From his life by Pittis, Dr. Macmichael compiled the sketch of Radcliffe's life, which he wrote for the "Lives of British Physicians" (1830), and from it he also wrote the biographical details concerning Radcliffe for "The Gold-headed Cane." It is from Macmichael that subsequent generations have gleaned their ideas as to Radcliffe, many of which will be revised after a perusal of Dr. Nias' most interesting book. In addition to giving a delightful sketch of Radcliffe himself, correcting some of the inaccuracies of Pittis and Macmichael, and bringing forward new facts about the first

owner of "The Gold-headed Cane," Dr. Nias gives short accounts of all the various holders of the Radcliffe fellowships, and describes fully the various Radcliffe Foundations, and the circumstances of their establishment. The work has evidently been a labor of love, and the result is an invaluable addition to the history of English medicine. It is accompanied by a number of excellent and appropriate illustrations, including a very striking reproduction of the great physician's portrait by Sir Godfrey Kneller.

Dr. Nias, with too much modesty, terms his book a "collection of notes." To us it seems to practically supply the "adequate life" of Radcliffe.

FRANCIS R. PACKARD.

RAMBLING RECOLLECTIONS, AN AUTOBIOGRAPHY. By A. D. Rockwell, M. D.; Paul B. Hoeber, New York, 1920. Octavo, pp. 332. Illustrated.

It has been said that every man's life contains at least one good story. If this be true a man who has surpassed the Biblical three score and ten by a decade should by all the rules of probability be able to relate more than one interesting reminiscence. The eighty years through which Dr. Rockwell has lived have witnessed more revolutionary changes in the social, political, and even physical life of man than any similar epoch in the world's history, and their review by a man whose life has been passed in the full current of the stream ought to possess much of interest, and his book does. Of all autobiographies we think what the curate said of his egg, that it was good in spots, is more or less true. No man's life can be made interesting throughout its

entirety to any general body of readers, and the author of his own biography almost of necessity does not appreciate just what part of his life will interest the reader, but writes especially of that part of his career upon which he himself dwells with chief concern. It is natural that a man of eighty should delight to revert to the days of his early youth and also to those events in his life in which he seemed to succeed in what was his aim. Also he naturally wishes to embalm in his pages certain family matters which can possess but slight, if any, interest to those outside of his immediate circle, and the memories of friends of whom the general reader has never heard. Dr. Rockwell's book is not free from these faults but they are not more exaggerated than is usual with autobiographies, and it contains much that is of the greatest interest to all.

Graduating from Bellevue Hospital Medical College in the Spring of 1864 Dr. Rockwell entered the army as an assistant surgeon, with the rank of first lieutenant, in the Sixth Ohio Volunteer Cavalry, and at once began active service with the Army of the Potomac. The chapters in which he relates his army experiences are among the best in the book and give one the most vivid pictures of the life of an army surgeon in the Civil War. Within a few months Rockwell had not only received but had merited his promotion to the rank of major, and until the end of the conflict he was in the field without intermission. Upon its close he began the practice of his profession in New York City, and shortly afterwards became interested in the medical application of electricity, which was to be his greatest interest throughout the remainder of his active career. Attempts at the use of electricity as a therapeutic agent date back to the earliest studies of its properties. Unfortunately until recent years such use as electricity was put to was based on such scanty knowledge of its laws that it remained largely in the hands of charlatans.

It may not be generally known that Marat, one of the most sinister figures of the French Revolution, was not as Carlyle depicts him "a horseleech" but a physician, and that he attempted to achieve fame and practice by the use of electricity as a remedy. In medicine as in politics he was a quack, claiming to cure all ills by the mysterious agency. When Benjamin Franklin was in the heyday of his popularity in Paris, Marat attempted to get profit from the ægis of his fame as the renowned investigator of electrical phenomena. But the American philosopher was too canny and refused to permit any association between Marat and himself.

Rockwell's interest in the subject of electricity was first excited by the success achieved by an irregular practitioner, a man named William Miller, and he candidly relates how he shared an office with this person and began his work in connection with him. It is not much to be wondered at that when he tried to interest men like Austin Hunt, senior, and Willard Parker he was rebuffed, and that it was many years before he received recognition from the leaders of the profession in New York. In this connection his relations with Dr. George M. Beard are described in a most interesting manner. Beard's originality and marked characteristics are well described and the story of their conjoint labors on their book upon the medical uses of electricity is well told. Little by little Dr. Rockwell rose in the esteem of the profession and in after years had but little complaint to offer as to the attitude of his fellow practitioners toward him.

His account of his work on electrocution when that method of execution was proposed as a substitute for hanging in the state of New York is well worth reading. At that time the subject was new and its novelty excited much morbid curiosity as well as legitimate interest. Its subsequent adoption by many other states has suffi-

ciently proven that electrocution has the advantages claimed for it over the time-honored older method.

The concluding chapters of the book are chiefly occupied with personal reminiscences of distinguished persons with whom Dr. Rockwell came in contact either professionally or socially. In a truly beautiful little epilogue Dr. Rockwell bids his readers a gentle farewell and we feel sure that all of them will return their good wishes for a long continuance of the tranquil enjoyment of the old age into which he cheerfully admits he has lapsed.

FRANCIS R. PACKARD.

LA MÉDECINE DANS NOTRE THÉÂTRE COMIQUE,
DEPUIS SES ORIGINES JUSQU'AU XVI SIÈCLE.
By Dr. M. Boutarel, Paris, 1918.

This is a most readable and delightful book on a quite original subject. M. Boutarel has undertaken to show us the light in which the physician appeared to his contemporaries during the period from the twelfth to the sixteenth century, by means of a study of the various plays of the time in which he figures as a character.

Theatrical representations have in all times been a means by which the historian can come into close touch with popular life and thought, largely because, even though caricaturing them, the theatre presents an epitome of the ordinary events of daily life. The life of all classes of people in Elisabethan times can not be better studied than in the plays of the dramatists of the period. The plays from which M. Boutarel draws his information are much more crude than those of the years immediately following the point at which he concludes his study, but they were the equivalents in their day of the more scholarly and elaborate presentations of later times. In these old mysteries, moralities, farces and "sotties," lay the germs of the French drama, and, dealing as they did with the commonplace affairs of every day, the doctor is a

frequent figure in them, and as in more modern times we see him treated sometimes with respect, at others with ridicule.

Boutarel gives a very interesting summary of the "morality" composed by Nicolas de la Chesnaye, physician to Louis XII, entitled, "La nef de sante, avec le Gouvernail du Corps humain et la Condamnacion des Banquets, a la louange de diepte et sobriete, et le traictic des Passions de l'ame." This "morality" was designed to inculcate a lesson in hygiene in a pleasant popular form, just as other moralities such as the English morality "Everyman" taught moral truths in an alluring manner. Dinner, Supper, and Banquet agree to dine together with Good Company, Dainty Appetite, I-Drink-to-You, and other friends. But Banquet has an evil scheme in his mind. The guests are attacked by a number of terrible diseases, Apoplexy, Epilepsy, Pleurisy, Jaundice, Gravel, etc. Some of the convives die, others are rendered very ill. Those who escape go to Dame Experience and complain of what has happened. She orders the arrest, by her aids, Diet, Sobriety and Pillule, of Banquet, Dinner, and Supper, accused of conspiracy to kill those who had enjoyed their hospitality. Their trial is conducted by Hippocrates, Galen, Avicenna and Averroes. The defendants are found guilty. Banquet is sentenced to be hung, Supper is put in irons, and is forbidden to approach within six leagues (hours) of Dinner.

This delightful bit of satire, a "skit," as we would now call it, is largely quoted by Boutarel and is full of fun and good sense. Just why epilepsy and pleurisy should be placed in the category of diseases due to disordered digestion it is hard to fathom. The other diseases which figure in the piece are all to the point.

Boutarel gives extracts from a number of satirical monologues of the early fifteenth century in which the extravagant claims of quacks and charlatans are held up to ridicule in a most amusing fashion, and then

gives some very curious descriptions from the old farces of various diseases such as epilepsy, dropsy, gout, and insanity. The means of diagnosis employed by the doctors who figure on the stage are generally limited to an ocular examination of the urine in the familiar round glass vessel, and to feeling the pulse. He recalls the variations of the pulse as enumerated and classified by Galen to indicate the importance attached by medieval physicians, slavish followers of Galen, to this phenomenon. The therapeutic measures which were employed according to the dramatists were quite varied, including purgation, clysters or enemata, bleeding, and many varieties of herbs and minerals—especially precious stones—and gymnastic exercises.

Dr. Boutarel concludes his book with a brief resume of physiologic topics as discussed or presented on the medieval stage. This shows a total lack of decency on the part of authors, actors, and spectators which is astonishing only to those who have but a superficial acquaintance with the manners and customs of the period. Throughout the author makes frequent allusion to the well-known writings of Dr. Witkowski dealing largely with the pornographic aspects of the subject, an aspect which is unfortunately very predominant in all medieval matters, but which Boutarel has refrained from enlarging upon. We heartily commend this interesting, though somewhat fragmentary, study to our readers.

FRANCIS R. PACKARD

THE DON QUIXOTE OF PSYCHIATRY. By Victor Robinson. Historico-Medical Press, New York.

This is a curious, not to say remarkable book, in more aspects than one. It is the biography of a man who is, or was at the time it was written, yet alive, and its subject is one whose life in its sum total has been marked from a worldly point of view by failure more than by success, quite in

accordance with that of the Spaniard whom Victor Robinson has chosen as his hero's prototype. To very few of his profession is the name of Shobal Vail Clevenger known; and the tableau of his achievements as herein depicted, though it may introduce him to the readers of this book, will not render his fame of an enduring nature. Clevenger was one of the many members of his profession who had to work hard for his education and only secured his degree when he was thirty years old, after having passed the early years of his manhood in a desperate struggle to secure the needful funds for his medical education. Most of his active professional life was passed in Chicago, and it was at the Cook County Insane Asylum, to which he had been appointed pathologist, that Clevenger first came into public notice when he published an "Appeal to Physicians" in the *Chicago Inter-Ocean*, in which he laid bare the outrageous mismanagement of the institution, and the appalling maltreatment of the patients in it, under the ring-rule of the Chicago politicians. In 1893 Clevenger was appointed by the notorious Altgeld superintendent of the Illinois Eastern Asylum for the Insane at Kankakee, and here again his indignation at the disgraceful mismanagement of affairs led to earnest efforts on his part for their amelioration, efforts which resulted in his dismissal within six months after assuming office. These two praiseworthy attempts at the betterment of conditions of the helpless insane constitute the chief claims of Clevenger to be regarded as a Don Quixote. During the rest of his professional life he wrote many articles for medical journals and several books, but none have made any very profound impression. In fact, of all his voluminous writings but two may be regarded as noteworthy and neither of them were on medical subjects. In 1874 he published a "Treatise on Government Surveying," which was long a standard text-book on the subject,

and in 1884 he published in the *American Naturalist* an essay on the "Disadvantages of the Upright Position" in which he explained the absence of valves in certain veins, such as the *venæ cavæ*, portal and hemorrhoidal, by the fact that man had changed during the process of evolution from a quadruped to an upright animal. Other disadvantages of the upright position were also alluded to in their bearing on the development of inguinal hernia, and in their relation to obstetrics. Clevenger's enthusiasm for natural history led him into friendship with a number of eminent scientists such as Cope, Leidy, and Wilder, but resulted in no further material addition to scientific knowledge.

The pages of the book under review have been utilized to express the personal views of its author on many persons and things in a manner which is at times most distasteful. Whenever Clevenger is brought in contact with some distinguished medical man, Dr. Robinson proceeds to sketch the

character of the newcomer, and in many instances the characterization is flavored by unpleasant personalities. Speaking of a certain medical journal published in North Carolina, he refers to its editor by name and says "it was almost as worthless a periodical then as it is today." On the other hand but few will agree with his eulogy of Altgeld and his exculpation of the wretched anarchists who were responsible for the Haymarket tragedy in Chicago. Throughout the book all proper names are printed in capitals, a peculiarity which does not appeal to us.

Dr. Robinson's book will be read with interest by the yet living contemporaries of many of those mentioned in it, and we may add, in some cases, with considerable indignation. If it had been somewhat less strongly tinged by the personality of its author it would be invaluable for the biographic glimpses it affords of many medical worthies of the past generation.

FRANCIS R. PACKARD

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