2. Obverse as in preceding.

Reverse. An altar, upon which rests an open book. In front, upon an oval panel, a bust of Æsculapius, with serpent-encircled staff. In another panel, at right, an urn. Beneath, to right: M. Furst Fec. Exergue: A(nno). MDCCCVIII.

Bronze, gilt bronze. 41 mm. 27.

Unknown to all writers upon medals. Still rarer than the preceding. It is in the Lee Collection and my own.

I have endeavored, but thus far in vain, to ascertain the history of these medals, and have been aided in my inquiries by Dr. Wm. Pepper, of Philadelphia, through whom I have received letters from Hon. A. Loudon Snowden, long Superintendent of the U. S. Mint, and Mr. R. A. McClure, in charge of the Mint Cabinet. Col. Snowden has written, under date of March 21, 1889: "The Dr. Rush medal is not in the Mint Cabinet, and its history is obscure," and again upon the 27th, "I have taken considerable trouble to seek information from several sources, but thus far without any particular success." Mr. McClure, like Col. Snowden, was aware of the existence of but the first of the medals described above, and this he had seen at Mr. Alexander Biddle's. He reports: "Mr. Biddle did not succeed in finding any information or clue to the occasion of the striking of the Rush medal. I went to the Ridgway and Philadelphia Libraries, and the rooms of the Historical and Philosophical Societies, and looked over the file of two daily papers of 1808, the year in which the medal was struck, and found nothing." Messrs. Bailey, Banks & Biddle, prominent medallic artists of Philadelphia, have also been unable to furnish me with the slightest information. From this will be perceived the extreme rarity of the medals, and the fact that though both of them were struck at the Mint, the very existence of one of the two had passed from the knowledge of the Mint authorities. Of the first of them, there are said to be known two specimens in silver. It was remarked several years ago,²⁵ before the revival of an interest in medical numismatics, that these would be cheap at \$20 each. They would probably now bring very much more than this sum, and it is to be hoped that they have been secured for permanent preservation by medical institutions, though as to this I am as yet uncertain.

The portrait bust of Dr. Rush upon the medals was undoubtedly from sittings for the purpose, since they were executed five years before his death. It will therefore be of service, in connection with the familiar painting by Sully, in giving his exact features for the monument undertaken by the Association, when at last its construction shall be commenced.

In conclusion, a brief quotation from the "Elegiac Poem on the Death of Dr. Rush," may not seem out of place:

"Unchecked by ridicule, unawed by rules,
Fallacious dogmas, and the pride of schools;
With all the ardor of aspiring youth,
From fair experiment, the test of truth,
Deep searching Rush ingenious reasonings drew,
Bold to defend, and potent to subdue!
Determined truth by every mean to try,
Where others dared not gaze, 'twas his to fly;
He rescued truth from mad opinion's maze,
And caught from Science her inspiring rays;
Beamed o'er the healing art a radiant light,
Like orient phosphor o'er the mists of night."²⁶

How appropriate beyond the intention of its writer, who was but lamenting his decease, is the following, to Rush's supreme anticipation of the discovery and application of artificially induced anæsthesia to midwifery!

"Thy light, bright Science, to this sphere confined,
Was far too little for his mighty mind!
Which soared beyond this world, and broke away
From darkened nature to a world of day."²⁷

(The above paper was read before the Section of Obstetrics and the Diseases of Women, and by vote of the Section was referred to the Association itself, with the recommendation that it be read in general session also, as containing matter of interest to all practitioners of medicine.)

MODERN SANITARY CONDITIONS.

Read, by invitation, before the Section of State Medicine at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY GEORGE E. WARING, JR.,
OF NEWPORT, R. I.

Early in 1855, moved by the most distressing condition of the sick and wounded in the hospitals of the Crimean army, Lord Panmure commissioned Dr. Sutherland, Dr. Gavin and Mr. Rawlinson to proceed to the Bosphorus and to the Crimea, and to take instant measures for the improvement of the sanitary state of those sadly crowded buildings.

Mr. Rawlinson, a man of sound sense, great practical skill, and a genius for direct and positive action, and then in the prime of life, was quick to apply to the appalling conditions with which he was confronted those well-trained abilities which had already marked him, and which still mark him, as one of the great lights of Sanitary Engineering.

The order was issued on the 19th of February. In less than three weeks the work at Scutari was already progressing and within a month a marked effect was obvious.

Kinglake says: "Then came on a change which, if only it had been preceded by mummery instead of ventilation and drainage and pure water supply, would have easily passed for a miracle. Down went the rate of mortality. Having already gone down from the terrible February rate of 42 per cent. to 31, it descended in the next fortnight to 14; in the next twenty days to 10;

²⁵ American Journal of Numismatics, 1885, p. 70.

²⁶ Loc. cit., Philadelphia, 1813, p. 15.

²⁷ Ibid., p. 31.

in the next to 5; in the next to 4; and finally, in the next twenty days, ending on the 30th of June, 1855, to scarcely more than 2."¹

This result was achieved by physical changes effected by intelligent engineering.

Dr. Billings, in his work for the Tenth Census of the United States, estimates the death-rate of the whole country at about 18 per 1000. It cannot be questioned that a proper regulation of the universal conditions of human life throughout the whole country would reduce this rate to 12 per 1000; saving every year, on the basis of the present population, not fewer than 365,000 lives which are now sacrificed to neglected filth, with its attendant contamination of the soil on which we live, of the air we breathe, of the food we eat, and of the water we drink.

Disregarding for the moment the enormous loss of power and loss of heart, and the manifold suffering incident to the sickness these deaths imply, we are confronted with the stupendous and disgraceful fact that in these prosperous and intelligent United States, of which we boast as the home of the highest modern civilization, one thousand human beings are stricken to death every day, cruelly, needlessly, wickedly—solely because of the lack of that which it needs only intelligent direction to secure. We thus wantonly destroy every three years more lives than were sacrificed, directly and indirectly, by both North and South during the War of the Rebellion. The sum now paid for pensions during three years, if intelligently administered, would cover the improvements required to prevent these deaths.

The epidemic of yellow fever in 1878 aroused the active sympathies of the Nation, and even frightened Congress into an unwonted momentary activity in behalf of the life and health of the people. The deaths from that epidemic did not amount to more than 18,000. The lives wantonly sacrificed to preventable disease amount to that number every eighteen days.

The whole country now stands aghast at the fearful sacrifice of life caused by the bursting of the dam above Johnstown. Estimates of the actual loss are necessarily vague, but it is entirely safe to say that thrice each month, thirty-six times each year, as many persons die lingering and painful deaths, caused by a universal neglect on the part of the whole people that is no less culpable than was the neglect of those charged with the construction and care of the disastrous dam.

We stand, one and all, we and our wives and children, subject to an ever-present and entirely avoidable danger of a sort that every man, woman and child in every enlightened country has a just right to be protected against.

Such protection it is quite within the power of the people themselves to secure, but the people themselves must secure it. All that we can do is to point out the way and to emphasize the necessity. The huge task is one whose doing can be compassed only by the force of an aroused public opinion; our task, hardly less huge, it must be to awaken and vivify that opinion.

What is to be done relates chiefly to the complete removal of the organic wastes of life before the beginning of putrefaction, and the ultimate disposal of these wastes, by methods now understood, in such a way as to reduce them to their elements without such contamination of earth, water or air as now reacts so fatally on the population. The process would be simple. Its seriousness arises only from the wide and universal dissemination of points needing attention, and from the enormous aggregate of cases to be treated. The adequate sanitary improvement would involve drainage and garbage removal, water supply, and some improvement of ventilation. By drainage, we mean, in this connection, the removal of filth in sufficient currents of water, and this is by far the most important thing to be done. Accumulations of filth not susceptible of removal in water must be removed in other ways or destroyed. While it is obviously necessary to bring water from a distance for the supply of those who live in large towns, village communities may safely rely on well-water, if only the water of the ground be protected against contamination, as it would be by the complete removal and proper disposal of organic wastes. So also, with the prevention of putrefaction in and about habitations, the need for costly artificial ventilation will be greatly reduced. The freedom with which air passes not only through the imperfections of our buildings, but through the very walls of our houses, is shown to suffice for the favoring of health and longevity, by the great number of aged and robust persons habitually living in an atmosphere that would seem intolerable to one accustomed to better conditions. It is not to be understood that the most complete ventilation is not desirable, only that if all waste matters be properly removed and disposed of, and if the water supply be made pure, a reduction of the death-rate to 12 per 1000 might fairly be expected, even without such ventilation as any sanitarian would think desirable.

The foregoing announcement is based on no untried theory. We know by experience that under wholesome conditions of life a general death-rate of 12 to 1000 can be reached in towns, and that a lower rate is possible in the country. We know that where organic refuse, including that which is voided from our persons, is completely removed without the possibility of fouling the surface or the interior spaces of the soil, without the possibility of contaminating our supplies

¹ The exact figures are 42.7, 31.5, 14.4, 10.7, 5.2, 4.3, 2.2. The average rate in military hospitals in England was 2.9.

of water and food, and without the possibility of sending the gaseous products of its putrefaction into the atmosphere that we breathe, the conditions requisite for the maintenance of the zymotic diseases are substantially annihilated, and a great cause of *malaise*, debility and suffering is averted. If the improvement includes, as it often will in an incidental way, the correction of hygrometric conditions tending to the production of malaria, the relief will be greatly magnified.

It may, therefore, safely be asserted, in the light of what we know of improvements that have been effected by simple changes of physical conditions, that a proper application of the sanitary arts of the engineer would of itself suffice to save to us the thousand daily lives now thrown away, and to multiply greatly the happiness and efficiency of myriads whose sickness, though not mortal, is grievously painful and incapacitating.

It is, of course, not to be understood that even the zymotic diseases, which are chiefly referred to in this paper, are to be withdrawn from the domain of the physician and entrusted to the unaided efforts of the engineer. The great advance in sanitary achievement in the past fifteen years has taken place not in the field, but in the laboratory; it is in your profession, not in ours, that the great wonders have been wrought.

It has long been considered that the rough measures of the drain builder and the water purveyor were effective in warding off much disease and death, but the knowledge under which our results have been achieved has been very largely of an empirical character. It was only when the biologist entered the arena that real knowledge of the subject began, and although the biologist is yet only at the portals of the vast temple of knowledge to which he has so lately found the key, he has gone far enough to indicate quite clearly the reasons for the success of sanitary engineering, and even to justify a conviction that he has, dimly perhaps, but surely, indicated a new way of escape from much of our existing physical suffering and death.

How many of our diseases are caused by the invasion of specific organisms we are far from knowing. We do know that some of them are so caused, and the study of the life history of pathogenic microbes has already indicated more than a possibility, not only that their invasion may be prevented by suitable measures, but also that after the invasion of our bodies they may be, by measures yet to be defined, rendered powerless to perform their appointed work of injury or destruction. It would indeed almost seem that the elixir, not perhaps of life but of health, will yet be shown to lie in the death potion of the microscopic invaders of our blood and tissues. Until this is definitely shown, and probably still more after it has been shown, your profession and ours must

work hand in hand to stay the tide of destruction by which the community is not only menaced, but to which it is actually subject, and from which it is constantly suffering.

You need not now be detained for a discussion of the processes by which the great end in view may be accomplished. These are tolerably well known and are to become better known day by day. What is necessary is that you and not only you, but all of your professional brethren, and not only they, but all who are subject to their professional ministrations and to their influence shall be made to know and to feel that this great calamity is upon us and has been upon us in constantly decreasing degree for all time, and that it lies within our power to hasten its decrease in the future until the conditions of life of this whole people shall have been made what they might be and should be.

The whole purpose of this paper is to impress upon you the commanding need for action—an action that shall bring modern sanitary conditions into conformity with modern civilization.

THE INFLUENCE OF MEDICAL JOURNALS ON THE MARCH OF SCIENCE.

Read before the American Medical Editors' Association at Newport.

BY T. D. CROTHERS, M.D.,
OF HARTFORD, CONN.

In January, 1889, there were published in this country and Canada, 142 journals which claimed to represent the science and art of medicine.

The influence these journals have on the march of medical science opens up a field of unusual interest.

The profession are every year depending more and more on medical journals for contemporaneous history, criticism, and guidance, and every year these journals are giving more accurate records of the movements of science, of the rise and fall of theories, of the evolutions and revolutions that follow along the line of medical scientific discovery.

The time has come when accurate conceptions and misconceptions of truth must seek a hearing through the press. Books are too slow, pamphlets are not read, the medical journals must present and defend the facts and theories continuously and persistently. Any theory supported in books alone has little chance of attracting attention. No matter how absurd the theory may be, if it has an organ in the press, it will be heard. Hence, to-day, in the list of 142 journals we can trace a history of the empiric stage of science; we can see the superstition and credulity and the quackery which gathers about the birth of all truth; we can see the psychological growth and conflict of truth and error, and realize that all these journals of all degrees and kinds are un-