frequency of the destruction of the membrana tympani. Some doubt therefore may attach to that part of the heading of the case, having reference to the adhesion of the margins of the aperture to the inner wall of the tympanic cavity. The note made on the 8th of November, has been copied verbatim from my case-book; and I leave it to my readers to put what interpretation they like on the appearances there described. My own reading of them, as interpreted by subsequent experience, I have stated in the heading, and will illustrate by another case, in which all doubt on this point is done away with. The existence of the aperture probably dates ten years back, and was caused by the severe attack of acute tympanitis, from which this patient suffered at that period. The history of that attack would lead one to believe that similar mischief must have happened to the membrana tympani of the left ear, though from the narrowness of its meatus, I was never able to verify this. The repetition of the gatherings in the left meatus arose probably from the smallness of the aperture for the outlet of the pus, and it might have been prevented had an opening been made by the lancet in the first instance. The absence of tinnitus in this case affords some support to the opinion of Mr. Wilde, that this symptom "seldom or never co-exists with an open tympanic membrane". This statement of Mr. Wilde does not altogether accord with my experience; and some of the cases which I shall shortly report in this JOURNAL will show that there are many exceptions to the rule laid down by that distinguished surgeon.

CASE IV. *Partial destruction of the Membrana Tympani of the Right Ear, with adhesion of the Margins of the Aperture to the Lining Membrane of the Tympanum; Great Opacity of the Membrana Tympani of the Left Ear, which was drawn inwards.* George Noble first came under my care on June 22nd, 1848, for an ulceration of the cornea; and, observing that he was hard of hearing, I examined his ears. A large quantity of wax was found blocking up each meatus, and was removed by syringing. After the operation, the hearing was somewhat improved, the watch being heard at a distance of one inch, while before it was only heard on contact. Both auditory passages were very large, and portions of cuticle were partly detached from them, as well as from the membrana tympani of each ear. The right membrane had an aperture in it anterior to the malleus, the margins of which had coalesced with the lining membrane of the tympanic cavity, thus drawing it inwards. The left membrana tympani was entire, but very opaque in the centre, and also drawn inwards. He said that when he held his nose, and *inspired* strongly, he became quite deaf; but on *expiring*, under similar conditions, he heard better. No air ever escaped with a hissing noise from the right meatus when he did this, so that the adhesion of the margins of the aperture in the membrana tympani to the lining of the tympanum, would appear to be complete.

History. He stated that he had been more or less deaf since twelve years of age, and this deafness he attributed to a severe blow he received on the back of his head. He did not recollect having ever suffered from earache; but he occasionally had had a foetid discharge from the ears, and tinnitus. He was "subject to colds in the head", when he always heard worse, and it was on these occasions that he experienced the tinnitus. At times he had sudden explosions in the ears, with temporary improvement to his hearing.

Nearly two years after these notes were taken, this patient again came under my care for one of these attacks of catarrhal deafness, brought on by sitting in a draught; and I was enabled once more to verify the accuracy of my previous examination relative to the condition of the membrana tympani of his right ear.

[To be continued.]

2, New Burlington Street.

ON ACCIDENTS INVOLVING INJURY TO THE TEETH.

By J. C. CLENDON, Esq., Dental Surgeon, and Lecturer on Dental Surgery at the Westminster Hospital.

THE incisor teeth, from their prominent position and anatomical arrangement, are constantly liable to injury; a blow which on the cheek would fall harmless, or at the most inflict a slight bruise, would on the mouth be quite sufficient to loosen the teeth, or altogether dislocate them. A fall from a horse or from an open carriage; in the street, the mouth striking against the kerb-stone; in the house, against some article of furniture; a blow from the fist, a stick, or from a cricket-ball;—these, as far as my experience goes, are the most frequent causes of the injury in question: and to these must be added a proportion of the casualties so frequently occurring in railway travelling. When a collision takes place on a line of railway, or when from any cause the speed is suddenly checked, the passengers, losing their equilibrium, are thrown together, and their foreheads come into violent contact. If, however, the shock be felt chiefly in one direction, the forehead of the passenger thrown forward will probably strike the mouth of the one opposite, and loosen or entirely knock out the front teeth. In the newspaper reports, injuries of this nature are generally comprised in the list of bruises and contusions; the sufferers are unwilling to parade their loss of teeth, and perhaps are too thankful to escape so easily. But, apart from the experience of medical men, the demands for compensation made on the Accident Insurance Companies by the comparatively few who are insured are sufficient to prove the frequency of the occurrence of such accidents; and as such cases always come under the care of the surgeon, rather than the dentist, in the first instance, a few remarks on their treatment may prove useful.

Of late years, the opinion has generally prevailed that serious injuries to the teeth are irremediable; that, when they have been displaced or loosened to a considerable extent by violence, the attempt to retain them in their respective positions is futile; and that, from their supply of blood being entirely cut off by the severance of the proper dental vessels, although from the deep cylindrical form of their sockets they might be retained for a time, they would soon die, and become sources of irritation, suffering, and injury to the surrounding structures. This opinion being supported by the highest authority on such subjects, the practice has been at once to remove them.

Such, I must confess, were my own opinions and practice for many years, until cases came under my observation, in which very extensive injuries had been repaired without surgical aid, and under what would be considered unfavourable circumstances, and the teeth retained for a period of twenty, thirty, and even forty years. As the details of such cases produce a more decided and lasting impression than the bare enunciation of opinions, I will relate some of the most remarkable, furnished me by patients whose characters and position in life I consider a sufficient guarantee for their veracity.

CASE I. A gentleman, about 48 years of age, consulted me as to the propriety of removing two loose central incisors, and replacing them with artificial teeth. As all the neighbouring teeth were sound and firm, and the gums healthy, I concluded the two teeth had been loosened by accident, rather than by disease. This, he said, was the case, but not recently; the accident to them had occurred nearly twenty years ago. At that period he was acting as supercargo on board a ship he had chartered, and trading on the coast of South America. War then existing between neighbouring states, a suspicious looking vessel was seen approaching, and, thinking she might possibly be a privateer, the ship's course was altered to avoid her. At that moment my informant was standing on the after-deck, when the mainsail suddenly flew over, and the boom, striking him in the face, laid him senseless on the deck. There being no medical man on board, and the captain fearing the consequences might prove serious, lay to, and sent a

boat for the surgeon of the approaching ship. This officer promptly attended; he desired him to be placed in bed, and strictly watched; and after some general directions—his duty admitting of no longer stay—he took his leave, expressing his fears of a fatal termination. After remaining two days perfectly quiet and insensible, he became delirious, and was held in bed with the greatest difficulty, until, worn out by his struggles, he fell exhausted into a sound and apparently natural sleep. On awaking, some hours afterwards, he inquired of his servant, “how he came to be in bed with his clothes on”; and then, for the first time, became aware of the accident that had befallen him. Feeling quite well, he got out of bed, without assistance, to wash himself; and on looking in the glass, found he had a deep wound across the face, his lip much swollen, and the two front upper teeth “so loose, he could easily have pulled them out with his finger”. The wound in the face healed up, the teeth in time became firm, and until the recent loosening of the same teeth, he had never from that time until the present—a period of twenty years—felt an unfavourable symptom. Such was the account he gave me; I have related it in nearly his own words, as it appears to me to involve points of interest to the surgeon other than those which bear immediately on my subject. His teeth generally were of the healthy, yellowish shade, indicative of strength and durability, and, I may also add, of the rheumatic or gouty diathesis; while the two that were loosened had become of a deep orange colour; and, as they were retained *in situ* by a covering of gum only—the sockets being entirely absorbed—there was no question about the then propriety of removing them. On examining them after extraction, I found the roots diminished by absorption to half the average length, while their diameter was nearly doubled by the uniform deposit of ossific matter—*cementum*, the osseo-dentine of Owen; and to the presence of this, the third substance in the structure of teeth, I attribute the retention and nutrition of the teeth for so many years.

CASE II. A lady, the widow of an officer in the army, requested my aid in supplying a vacancy caused by the recent loss of teeth injured and displaced twenty-five years previously. At that period she was thrown from a gig, while passing through a village, and fell on her face, her chin and the base of the lower jaw striking on a door-step. The blow was so violent as not only to displace her upper front teeth, but also to crush some of the molars, portions of which, with fractured alveolar processes, made their way through the integument underneath the base of the jaw. The front teeth being “too tender to touch”, were allowed to become firm, as best they might, in their altered positions; and thus they had remained, deformed but useful, until recently, when the sockets became absorbed, and the teeth loosened, and fell out.

CASE III. I removed the remains of two teeth—the right upper lateral incisor and canine—for an elderly gentleman officially connected with the Court of Bankruptcy. When a young man, the teeth in question had been dislocated by a fall from his horse while hunting, the incisor being driven up in the direction of the nostril, until the lower border of the enamel only was visible; the canine was forced outward, and projected from the line of the dental arch to the extent of one half of the tooth's diameter. In the course of a few weeks they had both become fast in their new positions; and although their irregularity caused some degree of deformity, they gave rise to no inconvenience, but remained firm and useful for the space of forty years.

CASE IV. A young gentleman, now one of our most distinguished dental practitioners, requested me a few years since to remove from his mouth an irregular lower incisor. Owing to the contraction of the arch, the teeth were too crowded to admit between them the blades of the smallest forceps then in use, without risk of disturbing the neighbouring teeth; while the tooth to be extracted being so nearly surrounded, could only be moved in one, the upward direction. Notwithstanding I was on my guard to prevent it, the accident I feared did actually happen, and I had

the annoyance of seeing two teeth quitting their sockets at the same instant. Forcing back the second tooth with my thumb, I held it securely in its place while the removal of the intended tooth was effected. My young friend had a handsome face, and the loss of the second tooth would have occasioned some disfigurement, and proved a constant source of mortification to both of us; its retention was, therefore, most anxiously desired. By abstinence from solid food, and allowing it perfect rest for a week or ten days, the tooth became firm, and so continues, maintaining its natural colour up to the present time. One other advantage resulted from the above accident, which, although foreign to the present subject, I may be allowed to mention. I was led to form an instrument suitable for removing crowded teeth, whereby a similar misfortune might be avoided in future. It consists of two blades of very different forms—the one broad enough to embrace the free surface of the tooth; the other narrow, a mere bar, not more than a line in thickness, slightly clawed at its extremity. This bar dips down between crowded teeth without the risk, unless it be allowed to slip from its hold, of disturbing the adjoining teeth. Two instruments on the above plan, with the relative positions of the broad and narrow blades reversed, I have used ever since, and find them fully to answer the purpose intended.

A careful consideration of the foregoing and similar, although perhaps less well authenticated instances which came under my notice of the self-preservation of teeth after severe accidents, led me to doubt the soundness of the views I had before entertained, and to resolve on the adoption of a more conservative mode of treatment thenceforward. Opportunities for testing its value soon presented themselves; with what results, the two following cases will shew.

CASE V. Susan Davis was admitted into the Westminster Hospital, in February 1851, under the care of Mr. Holt. The patient, an intelligent little girl, about 12 years of age, in running at full speed, to escape from some mischievous boys, fell and struck her mouth with great violence against the lower rail of an open fence. As the accident involved injury to organs whose treatment is more especially within my department of surgery, Mr. Holt requested me to take charge of the case. On examining the mouth, I found that the alveolar portion of the superior maxillary bones, including the four incisor teeth, had been fractured through just below the nasal fossæ, and driven into the mouth, and attached by the gum only, while the extremities of the roots projected through the processes, and were thus exposed to view. The mouth being, in all probability, open at the time of falling, the upper lip had escaped injury. Owing to the obstruction offered by the fragments of bone, there was much difficulty, and I had to use considerable force in restoring the mass to its original position; and when this was effected, the teeth still remained to be adjusted. They were considerably elongated or forced downward from their proper line in the dental arch; and from the upper part of the alveoli being crushed or obliterated, my attempts to force them back into their original position were ineffectual: I had, therefore, no alternative but to leave them as they were. To secure them in their respective places, a metal cap was proposed; but it is quite evident a contrivance of this sort to be of service must be accurately fitted. But with very loose teeth, it is impossible to take a correct model, and the wax would be liable to drag them out altogether. Ligatures, to attach the teeth to each other and to the neighbouring firm teeth, were also suggested; but these I consider at all times worse than useless. To be effectual, they must be firmly tied; but the tighter they are pulled, the more liable they are, from the tapering form of the root, to slip up and irritate the gum, and thus lead to an evil it is our chief object to avoid. The plan I adopted was to fix the lower jaw with bandages, in the manner usual for fractures of that bone, and in this way to cause the antagonist teeth to press firmly against each other. With careful watching on the part of the nurse, to prevent relaxation of the bandages, or the intro-

direction of food requiring mastication, and by supporting the patient in the mean time with nourishing diet in a fluid form, in the course of two or three weeks, I had the satisfaction of finding the bone united, and the teeth become firm, and at the end of the month she left the hospital. After the lapse of two years, I had again an opportunity of examining the mouth, and found the teeth still firm and of their natural colour. The gums and sockets of the right central and lateral incisors were also healthy; but owing to the neglect of the tooth-brush, the use of which had been strictly enjoined, a considerable quantity of tartar had been allowed to collect on the other two teeth; and this had led, as it invariably does, to a corresponding absorption of the gum and socket. If this deposit were allowed to re-collect and increase, the loss of the two teeth at no distant period would be inevitable—a loss not necessarily from the accident, as the condition of the other teeth fully shew, although in a measure arising out of it.

CASE VI. A young gentleman studying at a military academy was sent to me by one of the resident surgeons, his upper and lower front teeth having been loosened by a blow on the mouth with a stick while playing at "hockey". One tooth, an upper incisor, had been quite knocked out, and not found until the next day. When he came to me, he had himself replaced this tooth, and begged so hard to be allowed to retain it, that, although I had not the most distant idea he would be able to do so, I consented, upon the understanding it was to be removed immediately if it caused pain or irritation. I recommended his going at once into hospital, total abstinence from solid food, and allowing the jaw perfect rest—directions which were most strictly carried out. When he came to me again at the end of a month or five weeks to report progress, the loosened teeth had become firm, and the one dislocated still remained in its place, projecting slightly from the pressure of a lower prominent tooth, but tolerably firm, and the gum covering it healthy. Whether it be retained for a lengthened period yet remains to be proved; but from its appearance after the time that elapsed, I was led to think it by no means impossible.

TREATMENT. In the treatment of such cases, attention should be at once directed to the state of the stomach and intestinal canal, the gums sympathising with and being immediately influenced by their condition. Great care should also be taken to prevent, if possible, and if not, to subdue excessive inflammation; to some extent it is unavoidable, and may be necessary to promote reunion of the fractured portions of bone; but if it proceed too far, abscess will form, the gums ulcerate, and the teeth, deprived of all nutriment, if they be not removed, will of themselves fall out. This state is always preceded by a sense of heat, fullness, and throbbing of the gums, and should be prevented locally by the frequent use of warm water held in the mouth, and by the application from time to time of two or three leeches to the gums. As soon as union has taken place, and the teeth have become tolerably firm, the gums should be stimulated by the use of a soft tooth-brush, night and morning, and the mouth rinsed several times during the day with a solution of common salt, alum, or borax, in tepid water; or with a decoction of bark, rhatany, or catechu; but perhaps a preparation called Eau de Botot,* much used in France, and deserving to be better known in this country, would be found to be the most efficacious as well as agreeable remedy.

It may possibly be urged by some practitioners, that the treatment I recommend involves too great an amount of time, care, and watchfulness, to attain so trivial an end as the retention of a loosened tooth, the success of which is after all doubtful; that it would be better at once to relieve the patient of its presence, allow the gum to heal, and fill the vacant space with an artificial tooth. The extraction of the tooth is undoubtedly a much less troublesome proceeding than its retention under the circumstances described. But the question is, if the case were fairly put,

what would be the patient's decision? for, although it is true that, in the present advanced state of the dental art, an artificial tooth, if carefully fitted, might almost defy scrutiny, and prove an excellent substitute for one already lost, it would be ridiculous to suppose it *could* be as useful as one of our own firm teeth, displaced or irregular as the latter might be.

The teeth are generally supposed to derive their nourishment from the pulp filling the dental cavity. This substance—in common parlance, the "nerve"—is made up of blood-vessels, cellular tissue, and nerve filaments, the blood being supplied by a branch from the dental artery, and passing into the canal by a very minute foramen at the extremity of the root. But this supposition is true to a limited extent only, and under ordinary circumstances for a comparatively short period of the tooth's existence. That this supply could be continued in most of the cases above related is quite impossible, and I doubt it also in any case where the tooth has been loosened by violence to a considerable extent; the vessel is so minute and so placed, that when torn through, I think it extremely improbable reunion can take place. At all events, we are quite sure when *cementum* is deposited, as it frequently is, around the extremity of the root, often burying the whole of the root or roots within it, no vessel conveying red blood can possibly enter the canal, and yet the vitality and health of the tooth may be retained until old age. On the other hand, my attention has more than once been called to cases where the patient having suffered from some severe form of fever, or from an attack of erysipelas in the head and face, has complained on recovery of the looseness of all the teeth on one side of the jaw, which previously to the attack were firm and healthy. In the course of a few days these have either dropped from their sockets or been removed in succession, quite dead, by the patient with finger and thumb, their removal being unaccompanied by the loss of a single drop of blood.

By what means, then, or by what agency, is a tooth retained firm in its socket and healthy in colour for many years when the proper dental vessels have been cut off? I believe it to be entirely through the medium of its periosteum, or, as it is sometimes called, the *peridental* membrane, although I prefer the former as, in some conditions of the tooth, the more correct, as it certainly is the better understood term. The importance of this membrane in the dental economy has not been sufficiently dwelt upon, and in many instances has been entirely overlooked. Originally an emanation from the gum, forming the outer layer (or layers) of the sac enclosing the rudimentary tooth, loosely enveloping the crown at the period of eruption, firmly attached to its neck at the terminal line of the enamel, and closely investing the root, it enters the foramen and lines the wall of the pulp cavity. From the inner vascular surface of this membrane, or in its meshes, the osseous matter (*cementum*) is deposited. This substance, more nearly allied to true bone both structurally and chemically than to any other tissue, is generally to be found deposited on the surface of the root after a certain period of life, but not necessarily as the result of injury or disease; it commences at the neck of the tooth, gradually increases in thickness as it approaches the extremity of the root, sometimes enveloping it sparsely, at others to an inordinate extent. In a specimen now before me, its diameter exceeds by five times the bulk of the original isolated roots, which can still be easily traced as they lie embedded within it. This *cementum* is too close and compact in its structure, and the canals which traverse it are far too minute to allow of red blood permeating its substance, but not to prevent the transmission of the more fluid portion of the *liquor sanguinis*, originally conveyed to the tubuli of the ivory through the lining membrane of the pulp cavity, for the future sustenance of the tooth.

In its natural and healthy condition, the periosteum is a fibrous, semi-pellucid membrane, firmly adherent everywhere to the surface of the root, without any appearance of red blood circulating within it; it is, however, exceedingly liable to inflammation, and then becomes highly injected

* Prepared for me by Mr. Stone, chemist, 235, Oxford Street.

and so much thickened in substance, as sensibly to raise the tooth from the socket and render it painful to bite on, or even to touch. Indeed, to its great vascularity, I believe the success of Mr. Hunter's well known experiment—the insertion of a living tooth in the comb of a cock—was mainly attributable; and I should not be surprised if his favourite project of substituting a healthy tooth for one diseased were found to be something more than the amusing conceit it is generally considered, *could* a tooth be met with of a form and size adapted to fit the recently emptied socket.

Besides those I have enumerated, the periosteum exercises other and important influences on the tooth in its formation, duration, and also when diseased, in its removal; but a physiological research into its functions is foreign to my present purpose, my object being briefly to show how and by what agency I believe the tooth to be maintained and its health preserved, when from natural causes or from accident the supply of nourishment through the medium of its proper dental vessels is entirely cut off.

Albemarle Street, January 16th.

PERISCOPIC REVIEW.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

REPORT ON THE PROGRESS OF MATERIA MEDICA AND THERAPEUTICS.

By EDWARD BALLARD, M.D., Lecturer on the Practice of Medicine, and on Materia Medica and Therapeutics, at the School of Medicine adjoining St. George's Hospital.

The early reports on Materia Medica and Therapeutics will be in a great degree retrospective, in order that some very important inquiries, made during the last two years, into the action of some medicines in extensive use, may be placed before the readers of this JOURNAL. But, having passed over these, it is believed that every month will furnish the materials for its consecutive report; and that the pages devoted to this subject will be filled with the most recent information.

The principal object which the author of the Reports on Materia Medica and Therapeutics, commenced in the present number, will have in view, is the selection, chiefly from the British and foreign periodical medical literature, of such articles as will bear analysis and condensation on the one hand, and, on the other, have an evident and direct bearing upon the practice of our art. Believing that the administration of medicines, and the use of other remedial agencies, can only stand on a scientific and satisfactory basis when their passage through the economy and their operation on the organs and functions of the body are known, those papers which treat of the action of medicines will be particularly selected; while, at the same time, an early opportunity will be seized to place before the readers of the JOURNAL the welcome announcement of additions to our store of remedies, with the grounds on which they are proposed for adoption. The special application of remedies for the cure of individual forms of disease will also find a place in these reports; but, as it is well known that special therapeutical recommendations are often put forward hastily, and the most difficult of all questions in medical science decided on the limited experience derived from a small number of even ill-conceived and imperfect observations, the writer will feel himself quite at liberty to select only those which appear to him either to exhibit such an amount and character of experimental evidence as commends them to our adoption, to present strong *prima facie* practical evidence of their value, to follow as corollaries almost from admitted and evident physiological facts, or which come before the profession as the result of the prolonged observation of men who, enjoying great opportunities of acquiring practical knowledge, have a claim that even their *therapeutical impressions* should be regarded with respect.

IODIDE OF POTASSIUM AS A REMEDY FOR AFFECTIONS CAUSED BY LEAD AND MERCURY.

We offer no apology for presenting an analysis of a paper by M. MELSSENS, which, appearing as long ago as 1849 in the *Annales de Chimie et de Phys.*, and translated by Dr. BUDG for

the *British and Foreign Medico-Chirurgical Review*, has not only thrown great light upon the mode of action of an important medicine, but has given us greater precision and confidence in its use. M. Melsens seems to shew by his experiments that iodide of potassium is not only a safe, certain, and radical cure for the common forms of saturnine and mercurial poisoning, but an equally sure preventive of the injurious effects so frequently produced by emanations from lead and mercury.

In tracing the road which the different iodides follow in the body, all that M. Melsens has been able to establish is that they differ strikingly in this respect. It appears to result from many experiments, that the iodide of potassium does not tend indifferently to every part of the body, but that marked difference occurs in the quantity found in different organs. Thus, blood from the heart and blood from the liver do not appear to contain similar quantities of the iodide; differences appreciable by the eye are discernible not only between the heart and the liver, but also between the lungs, spleen, kidneys, brain, eye, and tongue; iodides are found in the liver when they are absolutely wanting in the liquid of the gall-bladder; the mucus (serum?) which bathes the intestinal canal, the pleura, etc., contain compounds of iodine, but the matters found in the intestine itself contain ordinarily none beyond the first half of the gut. The following are the propositions and topics treated at full in M. Melsens' paper.

1. The principle of the treatment by iodide of potassium is to render soluble any metallic compounds which have become fixed in the living body, and to facilitate their elimination by uniting them with a substance more readily cast out of the system.

2. Iodide of potassium is harmless in the dose of from thirty to ninety-two grains a day for an adult. Dr. Melsens took, in the course of two months, about 2315 grains of the salt without any evil results. [I may mention that I quite agree with the translator of this paper that the doses generally given in this country are too small to admit of the full virtue of the drug being brought into play in every case. I believe that there is a very unfounded timidity on the part of the majority of practitioners not only about the dose in which this salt is administered, but as respects the duration of its use. For its good effects to be produced in many cases, especially in chronic rheumatism, it is often essential that its use should be continued in full doses for many weeks or months; and that this can be done without injury and with the most beneficial influence on the general health, as well as on the local disorder, my own experience fully establishes. E. B.]

3. The kidneys are the principal outlet of the iodide of potassium. It is even with extreme difficulty that this salt can be made to pass through the bowels into the stools. M. Melsens examined his own fecal matter four days in succession, while taking 92 grains daily of iodide of potassium, and on two occasions only were slight traces discovered. Wishing to ascertain in what manner the iodide would be eliminated when associated with an active purgative, he took, after using an enema, 926 grains of sulphate of soda and 61 grains of iodide of potassium. The saline residue of three copious stools thus produced contained but a very small quantity of iodine, whereas the urine was much loaded with it.

4. Every mercurial compound which can possibly occur in the living economy, even metallic mercury itself, is soluble in iodide of potassium; the presence of the organic substances of the body does not hinder these reactions. Mercury absorbed and retained by the body probably forms within it insoluble compounds, either with the organic or inorganic materials of the body or with both conjoined. M. Melsens enumerates as the principal combinations which might occur: 1. Combinations of corrosive sublimate, whether in its simple state or as modified by the animal substances of the economy, viz.: a. With albumen; b. Albumen and the materials of the brain; c. Gelatine; d. The nitrogenous extractive matter of the blood, of muscle, of the urine, etc.; e. Albumen, fibrin, muscular fibre, gelatine, whether in the natural state or modified by digestion; f. Matters of the bile. 2. Mercurial soaps. 3. Phosphates of mercury. 4. Mercury in the metallic state (?) All these compounds are soluble in alkaline or neutral pure iodide of potassium dissolved in one of the liquids of the body.

5. The rapidity with which iodide of potassium traverses the system is very great. Is it not probable that double or triple compounds with the metallic iodides which it is so easy to form in the laboratory may be carried off with it? M. Melsens took 679 grains of iodide of potassium in eight days; and, after ceasing to take it, tested his urine every time he voided it, with starch, an acid, and chlorine, and on the second day after