cient gratitude has been evinced by the profession, for the time and labour generously and disinterestedly afforded by the many distinguished men, who originated and have conducted the affairs of this society.

The distribution of patronage, always a very delicate matter, rarely fails to elicit charges of jobbing and favoritism, however conscientious and careful the patrons may be. It was not, therefore, to be expected that the managers of the Sydenham Society should escape scatheless of such insinuations; but these insinuations were groundless. In more than one instance, we know that the Council have experienced considerable difficulty in obtaining the services of competent editors; but we have never heard it so much as hinted that, in any case, exception could be taken to the fitness of those that have been entrusted with editorial duties.

After all, the main question is, How far does the Society merit the support of the profession? Does it elevate the literary character of its members, encourage a taste for sound literature, and diffuse valuable works? If so, it is deserving of all encouragement. British medical literature boasts of some very distinguished names; and the writings of Sydenham, Harvey, and Hewson, are of world-wide reputation. But we much doubt whether this reputation has been more than traditional with the large mass of our profession. Yet, it would be difficult to point out any works better calculated to train and improve the minds of medical men. We think, therefore, that a great boon has been conferred on the profession by the new editions of these works, which have appeared and have been distributed under the auspices of the Sydenham Society.

The works of Paulus Ægineta and of Hippocrates, edited by Dr. Adams, constitute important additions to our medical literature. The very valuable work of Rokitsansky, in all probability, would never have been available to the majority of professional students, but for the Sydenham Society. Nor is the list wanting in works of a direct practical character.

We trust that for many years to come this Society will continue to enrich our literature, and elevate the character of our profession by the issue of works of lasting value. We shall be glad if any of our readers, whose attention has not hitherto been called to this Society, should by these remarks be induced to join its ranks.

ORIGINAL COMMUNICATIONS.

ON THE ACTIVE PROPERTIES OF HEMLOCK.

By CHARLES COGSWELL, M.D.

THE perusal of Dr. Osborne's paper *On the State Poison of the Athenians, used in the case of Socrates*, of which a copious abstract is given in the ASSOCIATION JOURNAL of the 10th of June, has reminded me of a passage in Valerius Maximus, which, so far as I am aware, has not yet been introduced into the discussion; although, in my estimation, it affords a more complete vindication of the truth of the account of the symptoms given by Plato, than any other I have seen quoted from the ancient writings. The subject is not merely one of historical interest, but particularly addresses itself to the attention of the members of the medical profession, who are practically concerned to know the real properties of a powerful drug which is recognised by the Pharmacopœias, and which occurs not unfrequently in their prescriptions; otherwise, there might be reason to apologize for so soon again bringing it prominently forward.

The practice of keeping a state poison, as is well known, was not confined to the Athenians. The Roman author whom I have mentioned speaks of it as existing among the Massilienses (the ancient people of Marseilles) and in the island of Ceos. The Massilienses were a colony of Ionians, who fled to Gaul to avoid the tyranny of the Persians; so that in all probability the institution had been borrowed from their countrymen in Asia Minor. According to Valerius Maximus, they had a poison prepared from hemlock (*venenum cicuta temperatum*) which was presented to any one who could

show sufficient reasons before the council of Six Hundred for wishing to die.

"This custom of the Massilienses" (he continues), "I conceive not to have had its origin in Gaul, but to have been imported from Greece, having met with it in the island of Ceos, at the time of my visit to Iulis, in company with Sextus Pompeius. For it then happened that a lady of the highest rank, but far advanced in years, having explained to the citizens her wish to terminate her existence, thought the event would be rendered more illustrious by being honoured with the presence of Pompey. And he, so highly distinguished, not less for his humanity than for the possession of every other virtue, was unable to refuse her entreaties. He went to see her, and endeavoured, by arguments which flowed from his lips in the richest stream of eloquence, to divert her from her design, but without success. Reclining on her couch, which seemed to have been arranged with more than usual care, the lady, now past ninety years of age, and graced with the utmost purity both of mind and person, raised herself on her elbow and thus addressed him: 'To thee, O Sextus Pompeius, may the gods render thanks; not the gods I am seeking, but those I am leaving; because thou hast neither disdained to desire me to live, nor to be the spectator of my death. But having always seen the face of future decked in smiles, I cannot bear to incur the risk of witnessing her frowns by prolonging my existence; I therefore exchange the short remainder of my days for a happy end, leaving on earth two daughters and a flock of seven grandchildren.' Then, after exhorting her relatives to dwell in harmony together, and distributing her patrimony among them, assigning the domestic instruments of sacrifice to her eldest daughter, she seized the cup in which the poison had been prepared (in quo venenum temperatum erat) with a steady right hand. Pouring out a libation to Mercury, and invoking his offices to conduct her to the happier abode in the infernal regions, she eagerly drank the fatal potion. And signifying in words what parts of her body were successively (subinde) being seized with rigor; when it was now approaching the viscera and the heart, she requested her daughter to perform the last duty of closing her eyes. Our eyes, on the contrary, though confounded at the unwonted spectacle, were sent away suffused in tears." (*Ex. Mem.*, lib. ii, cap. vi.)

Here we are clearly given to understand that the writer was an actual eye-witness of the scene which he describes. Being a soldier, and not a physician, he is not very particular in giving the medical details; but we are able to gather with a sufficient degree of confidence from the narrative, that the leading symptom was paralysis, commencing at the lower extremities, and gradually encroaching on the trunk until it reached the thoracic organs, which was the signal of death. At this stage, the parting injunction to close the eyes indicates that the lady still retained the possession of her mental faculties; while the fact of her expecting the eyes to remain open, denotes that this was an ordinary sequel of death from the poison. There are obvious grounds also for the inference that catharsis was not anticipated. On the whole, the case, so far as we are furnished with the particulars, bears a strong resemblance to that of the Athenian philosopher; and not only this, but the absence of any note of surprise on the part of the narrator, supports the presumption that the symptoms were of a kind with which the public in those days were familiarly acquainted. Still, unfortunately, the real nature of the poison, that is, whether it consisted of hemlock alone or was compounded with some other ingredient, such as opium, is left in doubt by the peculiar form of the expression "*venenum cicuta temperatum*."

Ælian informs us that the old men of Ceos, who could not feel satisfied in their consciences that they were able to be of any further use to the state, were required to present themselves at a festive board, or at some solemn sacrifice, crowned with garlands, and drink a cup of *κνώειον*. One of his commentators, referring elsewhere to the *κνώειον*, says it was so called because it grew in a place called *Ακόνει*, near Heraclea, in Pontus; and he directs us for his authority

to the third book of Athenæus. There is some confusion here, however, almost as a matter of course. Athenæus has been mentioning, *apropos* of antidotes, that Clearchus, the tyrant of Heraclea, was wont to amuse himself by putting his subjects to death. Some he would despatch by honest butchery, others by giving them κώνειον; but as soon as the second mode of gratifying the royal taste was noised abroad, everybody took the precaution before leaving home to fortify himself with a dose of rue (πύργον), in consequence which no evil effects resulted to those "πῶντας τὸν ἀκόνιτον" —to those who drank the *aconite*. (*Deipnos*, ed. 1657, p. 85.) It is evident that he uses the word κώνειον in the general sense of a 'poison'.

Dr. Osborne endeavours to prove that Dr. Christison is wrong in considering the symptoms attributed to hemlock in the account of the death of Socrates, as irreconcilable with the effects of any poison now known. But that opinion was expressed in 1836, and must have been founded on the data which existed up to that time. It will be seen, on consulting a later publication, that for some years past he has adopted the same view as that now so ably maintained in the *Dublin Journal*; and this change of opinion appears to have taken place subsequently to the occurrence, in 1845, of Dr. Hughes Bennett's remarkable case of poisoning with the fresh leaves of the *Conium maculatum*, in which the symptoms bore a near resemblance to those said to have been produced by the ancient κώνειον or cicuta. Thus, in the edition of the *Edinburgh Dispensatory*, published in 1842, Dr. Christison observes, under the head of *Conium*, "the accounts given by Nicander and Plato of its action as a poison, do not tally well with what is now known of its effects;" but in the next edition, or that of 1848, he says, "the action of this plant as a poison corresponds closely with the description given by Nicander and Plato of the κώνειον, or state poison of the Greeks." We may, therefore, now consider so much of the difficulty connected with the properties of hemlock as finally disposed of, seeing that two such authorities have arrived at the same conviction as to the identity of the ancient and modern poison, independently of one another.

Since the reintroduction of hemlock into practice in the last century by Baron Störck, a variety of accidental circumstances have conspired to create perplexity with regard to its physiological and medicinal properties; such as the uncertain identification of the plant in some of the recorded cases of poisoning; the changes in the composition of the juice wrought by difference of season; the discordant and often faulty processes employed in making its official preparations; and the fact of the strength of the extract being impaired more or less rapidly by age and exposure to the air. The encomiums bestowed upon it by Störck have also been deemed too extravagant; and the consequence is, that according to the usual course of reaction, the remedy has fallen comparatively into, perhaps, unmerited neglect. Making a fair allowance, however, for the sources of discrepancy just mentioned, and supposing it probable that he was mistaken in his diagnosis when he states that hemlock is a cure for cancer, I am not sure that his results fail to harmonize substantially with those of more recent inquiries. He gives a formula for preparing the extract, very similar to those now directed by the College, as follows:—

Rx Herbæ recentis cicutæ q. s.

"Exprimatur succus, isque recens lentissimo igne in vase terreo (sepius agitando ne amburatur) coquatur ad spissi extracti consistentiam; hoc extractum s. q. pulveris foliorum cicutæ in massam pilularum subigatur; ex qua fiant pilulæ granorum duorum." (*Libellus de cicuta. Editio altera*, 1761.)

His practice was to commence with one of the pills night and morning; on the third or fourth day he added another pill; on the eighth day he administered two pills thrice a day; and so he went on gradually increasing the quantity until it reached a drachm or a drachm and a half daily. All this time the case was carefully watched, and the remedy stopped in the event of any adverse indications making their appearance. Fomentations of the leaves were

also applied externally in suitable cases. In reply to his critics, he said he made no pretence of meeting with invariable success; he was satisfied, if, out of a hundred cases given over by other practitioners, he could succeed in relieving or curing one; but, nevertheless, his proportion of favourable results was much greater than this. (*Libellus secundus*.)

Owing to the conflicting statements of authors, doubts at present exist as to whether or not hemlock is possessed of deobstruent properties. Störck alleges, aphoristically, in two of his corollaries, that it has no such property; that it disturbs none of the functions, secretions, or excretions; that it acts insensibly, and neither excites purging nor vomiting; diuresis nor perspiration. In like manner, we are also told by Dr. Christison, that "the deobstruent virtues of hemlock are now almost universally discredited;" and "its diuretic virtues are too unimportant to be available in practice." The rule, therefore, seems to be that the extract of hemlock has no tendency to relax the bowels. And yet even the experience of Störck himself may be cited, to prove that the rule is not without an occasional exception. Thus, in the seventh case of his first monograph, which was that of a lady taking three of the pills night and morning, he mentions that the medicine induced daily two or three liquid evacuations beyond what was customary. Judging from my own opportunities of observation, I should feel inclined to adopt both the rule and the exception; for although in general there has been no action on the bowels, still, in a few instances, where they were usually regular, and even rather sensitive, the patients have found that the extract had a laxative effect upon them. Again, Dr. Osborne states in unqualified terms that the fresh juice is cathartic; so that the following is probably the correct conclusion to be drawn from the whole of the evidence. The natural juice of hemlock is cathartic; but during the progress of inspissation to form the extract, it undergoes some undefined change of composition which deprives it of any marked possession of that property, although, in some constitutions, it still retains the power of increasing the action of the bowels. Armed with the knowledge of this difference in the effects of the fresh juice, and the extract which Dr. Osborne himself admits, we may return to assail the still remaining objection to the perfect identity of the Greek poison with the *conium maculatum*; viz., that the former does not appear to be cathartic, by suggesting that it was probably preserved in the concentrated state, and diluted as occasion required. This not very unreasonable supposition removes the necessity of imagining that just so much opium was used as merely to confine the bowels; while it would argue a refinement of science as well as cruelty to have managed deliberately to adjust the amount of opium so as not to affect the brain, and leave a criminal conscious of the horrors of his situation under the characteristic influence of hemlock. But the question might be discussed hypothetically to any length, without being brought to a satisfactory conclusion; and can only be settled, if at all, by a further appeal to facts.

There is another highly interesting subject connected with the physiological action of hemlock, to which I shall now proceed. Dr. Christison has inferred, from his experiments with conia on some of the mammalia, that it exhausts the energy of the spinal cord and voluntary muscles, but leaves the heart's action unimpaired. He states, moreover, that when applied locally, it acts as an irritant; agreeably to which I have also found, as recorded elsewhere (*Lancet*, 1852), that it excites the contraction of the voluntary muscles and the bowels. In one of Dr. Christison's experiments, when two grains of conia, neutralised with thirty drops of weak hydrochloric acid, were injected into the femoral vein of a young dog, "the animal died before there was time to note the interval". But Mr. Blake, who opposes the doctrine of the sympathetic action of poisons, denies the accuracy of this observation, and insists that a sufficient time always elapses between the application of a poison and its effects, to allow of its completing the round of the circulation.

Some experiments which I performed in 1850, with Dr. Glover, may assist in clearing up this difficulty. Conia given to frogs by the mouth, or inserted beneath the skin of the leg, produced (besides speedy local paralysis in the latter instance) general flaccidity and prostration, terminating in the total abolition of consciousness in from twenty minutes to an hour. The heart, however, continued to beat for three or four hours afterwards. A little of the poison was next applied to the outer surface of the ventricle. Immediately the heart began to contract and extend itself longitudinally with more vigour than before; but, in the course of a minute, the ventricle grew paler, exhibited furrows and prominences on its surface, and beat very slowly. In other experiments, an aperture was made at the apex of the ventricle (an operation which does not much interfere with the heart's action in these animals), and a small quantity of conia was thrown into the cavity through a glass tube. The ventricle instantly contracted to its utmost limit, and refused any longer to receive the blood from the auricles, which continued to beat as before. Usually, it stopped altogether, but once it renewed its pulsations in a quarter of an hour, and continued them for several minutes. And it is worthy of particular mention, that the same phenomena occurred, whether the organ remained *in situ*, or was separated from its attachments, and laid on the table—a remark which also applies to the bowels, which contract under the stimulus of conia and other irritants, whether in or out of the body.

With these facts before us, I think there can be no difficulty in admitting the perfect accuracy of the above observation with respect to the rapidity of death in the dog—an animal to which an interruption of the heart's action would be immediately fatal. The poison acted neither directly nor indirectly through the medium of the nerves; but, in its character as a local stimulant, roused the independent irritability of the muscular structure of the heart, producing an abnormal state of contraction, and preventing it from carrying on the circulation. Such appears to be the true explanation of a fact which, with more of the like nature, has occasioned no slight perplexity to physiologists engaged in investigating the theory of the action of medicines. How far it is calculated to answer the purpose of the *experimentum crucis* which the author of the *Treatise on Poisons* considers necessary to decide between the doctrines of sympathy and absorption, this is not the proper place to inquire; but I may be permitted to observe, that, as their respective advocates derive their conclusions from a variety of unconnected sources, it is not easy to imagine any single experiment which is capable of meeting the whole of the arguments on either side.

Having begun with a quotation, I may appropriately finish with another: "Nil tamen quod temerarium foret audebo; sed omnia et in brutis et in me experiar, antequam ea homini ægrotanti præbuero."—(Störck.)

Bernard Street, Russell Square, June 1853.

PATHOLOGY AND TREATMENT OF CHRONIC INDURATION OF THE MAMMA.

By JOHN BIRKETT, F.R.C.S. Eng., and Assistant-Surgeon to Guy's Hospital.

[Read before the Harveian Society of London.]

THE morbid condition of the mammary gland, to which I am about to direct the attention of the Harveian Society this evening, has been almost entirely overlooked by writers upon the pathology of the breast. The nearest approach to anything of the kind is at the termination of a paper by M. J. A. Giraldès, entitled "*Quelques Considérations sur l'Anatomie Chirurgicale de la Région Mammaire*". (*Mém. de la Soc. de Chir. de Paris*, tome ii., pp. 205 to 207). Professor Syme also gives a short notice of the disease in his "*Principles of Surgery*".

Anatomy of a Healthy Mamma. If the healthy mam-

mary gland of a woman, who has not recently suckled, be examined, it exhibits to the unassisted eye a remarkably opaque white homogenous surface where cut. With very attentive examination, and by allowing the light to fall upon a section at certain angles, the surface appears undulating, and minute irregularities are perceptible. To the touch, it is unyielding and tough; and, occasionally, small irregularities are recognizable. In such a gland, which may be regarded as the type of the normal condition of the organ when in a *passive* condition, the terminal cæci, the secreting portion of the gland, are with very great difficulty detected by microscopic investigation. The object, however prepared, exhibits nothing but a fibre tissue; the fibres being chiefly of the filamentous and double outlined varieties.

Still there is a peculiar aspect about the tissues which at once strikes a practised observer, and which offers a remarkable contrast with the ordinary uniting or areolar tissue of other parts. There appear to be spaces or lacunæ between the fibres, in which a few scattered epithelium cells may be here and there discovered. After the examination of a very large number of mammary glands, at all periods of life and at very different intervals during pregnancy and lactation, as well as after the cessation of this function, I have no hesitation in stating that this organ, when in a *perfectly quiescent and unexcited condition*, exhibits in the slightest degree that is possible the essentials of a secreting organ. The only permanent structures appear to be the excretory ducts. The secreting portion undergoes a remarkable state of atrophy.

Anatomy of a Diseased Mamma. Under morbid action, however, and probably as the result of that remarkable sympathy existing between the several portions of the generative organs and their functions, great changes take place.

It is to the consideration of these phenomena that the following observations will be devoted.

The subject may be divided into;

- I. GENERAL INDURATION OF THE MAMMARY GLAND.
- II. LOBULAR INDURATION.

The morbid condition of the tissues composing the gland is identical in both these varieties, the only difference being that in the first form *all* the lobes constituting the breast are affected, whilst, in the second, one, two, three or more lobes are alone involved in the morbid action.

A breast thus diseased, when cut, exhibits to the unassisted eye a pinkish tint, its texture is close, but it does not appear of the same homogenous surface throughout. The section is sometimes smooth, but, in many cases, it is almost granular. To the touch, it is hard, quite incompressible, and with difficulty torn. Very often minute vesicular bodies are dispersed throughout the gland, or even small cysts may be discovered in several parts of it. These contain a serous fluid in one instance; and in another, a little mucoid, greasy material.

When examined with the assistance of the microscope, the fibre-element of the organ does not exhibit any appreciable change. I mean to imply by "fibre-element" the areolar or uniting tissue. The secreting portion of the gland-tissue, on the contrary, offers most striking deviations from a healthy condition. The acini, which are remarkably distinct and rigid, clearly exhibit, when torn up, the cæcal terminations of the ducts, closely packed together and opaque. Dilute acetic acid, being added to the preparation, often renders the observation of the object more satisfactory. These cæcal terminations of the ducts are crowded with epithelial cells, and they appear to be filled almost, if we may so say, to bursting point. Such, then, may be the morbid state of the gland-tissue of the entire breast, or of one or more of its lobes. The abnormal condition seems to depend upon an excited action in the terminal cæci, inducing an excessive production of epithelium which does not escape by the ducts. I have never been able to satisfy myself, from ocular demonstration, of the existence of any disease in the areolar tissue, but I think that further observation may prove that there is.