

passed a second probe down the vein into the right ventricle. Then, while the probes remained as I had placed them, I exposed the heart by removing a portion of the anterior wall of the thorax, as in my previous experiments. Both ventricles were very much distended with blood; they were acting vigorously, but evidently labouring against the obstacle which the probes caused to their free action. A thermometer introduced into the left ventricle, stood at $102\frac{1}{2}^{\circ}$; another introduced into the right, stood at $103\frac{1}{4}^{\circ}$. After the lapse of a few minutes, the thermometers in both ventricles began to fall. The temperature of the room during the experiment was somewhat under 60° .

One word with regard to the use of chloroform in these experiments. Its employment appears to me to cancel one great objection to such proceedings. The severe shock and disturbance which such extensive mutilations must otherwise necessarily produce will always, I think, tend to invalidate, to a greater or less extent, the conclusion. Vivisections without chloroform are always more or less objectionable, and especially those on the circulation, for it is not possible to inflict pain without disturbing it; but under its influence the animal is passive and insensible, and the severest measures produce no apparent effect.

But the use of chloroform may be objected to in these experiments on other grounds, inasmuch as it has been shown,* that when animals are fully under its influence their temperature falls, and this effect has been supposed to be due to its direct action on the blood, which in some instances has been observed to become darkened.† I have anticipated this objection, and in answer to it I will simply state at present that, from numerous experiments, I have ascertained that the depression of temperature consequent upon the employment of chloroform is not an immediate effect, but only ensues after a considerable interval, varying of course with the dose, but always exceeding that during which its action was kept up in any of my experiments.‡ In none of these experiments was chloroform observed to produce the slightest effect upon the character of the blood. Moreover, if any error were due to chloroform in these experiments it must be on the right side; for chloroform must chiefly act, whether directly or indirectly in this respect, by diminishing the changes which the blood naturally undergoes in the lungs.

In truth, this last observation may be more widely extended. All errors connected with any disorder or disturbance of the circulation and respiration which these experiments involve must be on the right side. The rise in the blood's temperature, which is consequent upon the changes effected in it at the lungs, must of course vary as the conditions of the pulmonary circulation are fulfilled, and decline in proportion as those changes are diminished or in any way interrupted. For instance, the accidental puncture of the left pleura in exposing the heart, which occurred in some of the experiments, by preventing the full and complete expansion of the lung, could only act in this manner by diminishing to a corresponding extent the increase of temperature with which the blood returned to the left ventricle. In proof and illustration of this I refer again to a previous experiment (No. 2).

It is right to mention that these experiments have not been performed very many times. I have repeated them only to satisfy myself and those who witnessed them of their accuracy.

Now, if these experiments be true, will they not assist us to reconcile the apparently discordant results of those which have been previously referred to? Whilst the first, second, and third show that, so long as the natural pulmonary circulation continues, the blood returns from the lungs to the left side of the heart warmer than when it was sent there from the right side, the fourth, fifth, sixth, and latter portion of the second, illustrate and confirm the statement, that in proportion as those changes are impeded or arrested, so will their natural result be correspondingly diminished or altogether destroyed.

The experiments of Bernard, Liebig, and others of a like kind, bear testimony to the same effect. Viewed in this light therefore, they do not contradict, but rather confirm, the fact

* By Dumeril and Demarquay. Comptes Rendus, 1848, vol. xxvi. p. 171.

† Dr. Jackson examined the body of a woman who had been killed by chloroform. The blood had lost the power of coagulating, and of becoming red by exposure to the oxygen of the air.—Comptes Rendus, Feb. 25, 1856.

See also Chassaing, THE LANCET, Feb. 21, 1857.

M Gruby, on the contrary, concludes from certain experiments that the vapour of chloroform, so far from changing arterial into venous blood, increases the intensity of the red colour of arterial blood, and changes also dark blood in the veins to bright blood.—Comptes Rendus, 1848, vol. xxvi. p. 175.

Dr. Snow, London Medical Gazette, 1851.

Certainly neither of these contradictory effects can be regarded as simply due to the ordinary action of chloroform.

‡ See also the Experiments of Dumeril and Demarquay, op. cit.

which I have endeavoured to establish. They assist to prove that the relation between the change which occurs in the blood at the lungs and the elevation of its temperature is one of cause and effect.*

(To be continued.)

ON THE
CONSTITUTIONAL ORIGIN
AND THE
CONSTITUTIONAL TREATMENT OF CANCER.

BY WEEDEN COOKE, Esq., M.R.C.S.,
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THE subject of my communication is one that has been the philosopher's stone of medical men of all ages; the battleground between the regular practitioner and the empiric; the shuttlecock of nostrums and theories as opposed and outrageous as they have proved useless or hurtful; the nidus in and on which mystery, superstition, charlatanry, and all kinds of deceit have battened, to the unfortunate delay of those yearnings after the truth which now most happily distinguish the hard-working and hard-thinking medical explorers of the present time. Miracles are not wrought now, although the great public still hankers after them in matters medical, and swallows greedily any boldly-put-forth tinsel imitations, whilst the calm progressive results of inductive thought, of reason guided by experience and knowledge, fail to secure the attention they deserve. Persistence, however, in the path of duty will, I am persuaded, ultimately and at no distant period obtain a mastery over even this disease. In order to arrive at this supreme good, I am emboldened to assert that we must go back to the times of Hippocrates and Celsus, and learn from them that no operation, whether by knife or caustic, will eradicate the disease; that we must admit at the outset the truth of the axiom of Euclid—"The whole is equal to its parts;" or as the principle is still better expressed, "omnis major continet in se minus;" ere we can go to work at all scientifically or rationally to investigate this malady.

Six years ago, by my appointment to the Cancer Hospital, I was enabled to devote myself to the especial study of this disease. At the onset I found myself impressed with the established scholastic rule, that the scalpel was the remedy for cancer, and that, if that were inadmissible, the patient must be left alone, or at the most be propitiated by sedatives. Some years of observation, upon upwards of a thousand cases, have passed over, and the conviction has been gradually forced upon me that the local manifestation of the malady deserves only a secondary consideration in the treatment: the whole system being at fault, remedies must be directed to the larger point of attack. Although of late years Velpeau and our own surgical schools have urged the necessity for local eradication, this teaching differed much from the instructions of the previous generation of surgeons, and the names of Sir Astley Cooper, Monroe, Carmichael, Abernethy, and Samuel Cooper, may be quoted in favour of a constitutional treatment. "He who looks at this disease in the light merely of a local affection," says Sir A. Cooper, "takes but a narrow view of it." That indefatigable pathologist, Dr. Carswell, also proclaims cancer a constitutional disease; whilst abroad, Scarpa, Cruveilhier, Boyer, Broca, Lebert, and a host of German writers, corroborate this opinion, and all who believe in a special cancer-cell must of necessity adhere to the same.

Beyond and apart from all speculative and theoretical opinions, there are certain undoubted facts, which those who are seeking after truth only cannot but accept as proofs of the systemic origin of the disease.

There is, 1st, the almost invariable return of the disease after extirpation at an earlier or later period.

2nd. An hereditary disposition is shown in a certain number of patients.

3rd. The evolution of the disease at a time when important changes are occurring in the circulatory system.

* So that it is not saying too much to affirm, that in any given instance we can determine by the means we adopt whether the blood on the left or on the right side of the heart shall be warmer.

4th. The undoubted effect of depressing moral agents in originating the malady.

And, lastly, the evidence of numerous deposits of cancerous matter in many parts of the body, as seen during life, but more frequently found in the viscera after death.

In illustration of the first proposition—the return after operation—it appears that 128 persons have presented themselves at the Cancer Hospital who had been operated on, and the average duration of their freedom from any external sign of the disease was eighteen months. Some prominent cases have come under my care, the particulars of which must be omitted for want of space. Mayo operated on 100 cases, and considered that five only had been permanently benefited; Boyer admits of four cures only in the same number; and Macfarlane, who had operated on 118 persons, could not point to a single radical cure.

The second proposition—i. e., hereditary taint, must of course, if proved, go far to establish the constitutional origin. Velpeau says one in three have this predisposition; at the Cancer Hospital it has only been noted in one in six; and, by Lebert, in one in twelve cases. This forms at least a link in the chain of evidence.

Third proposition: Cancer, in its various forms, is seen at the commencement and at the end of our allotted days; but in the great bulk of cases from forty-five to fifty is the usual period of its development. According to a calculation made by myself in upwards of 1000 cases, the average age is forty-three years and a quarter. This climacteric period of life is obnoxious to the most remarkable changes in both sexes. Many instances of these changes in man are recorded by Sir H. Hallford; and the physiological reasons for them are amply ventilated by Dr. Roget. But whilst the male is not exempted from alterations of structure and impairments of function at the turning point of life, it is the female who especially suffers at this period, from the cessation of that menstrual flow which was wont to assist so much in carrying off the effete matters of the system. This extra source of deterioration of the vital fluid accounts for the wide difference in the number of the two sexes afflicted with this malady. At the Cancer Hospital, the female patients are as six to one male. If the disease were a local one, why so constantly select this particular period of life for its manifestation? Some, believing in the constitutional origin, insist upon a local exciting cause to set up the action; but this even is scarcely supported by facts, inasmuch as one in seven only of the 1000 patients referred to knew of or suspected any direct violence to the part affected.

The effect of depressing moral agents has been noted by most authors, but rejected by some. Sir A. Cooper says, "Three-fourths of these cases arise from grief and anxiety of mind;" and my experience confirms this opinion. Material alterations in the blood are brought about under these circumstances. Atrophy of the red corpuscles, and increase of the colourless globules, may be observed; and thus the creative power of the blood is deteriorated, and the tissues which this ill-elaborated fluid forms show that defective organization which is seen in cancer. Whether the defect be a process of exudation or of impaired nutrition is a speculation difficult of solution, but I am inclined to the idea of deranged nutrition or degeneration of the tissues similar to the fatty degeneration now so fully recognised.

Finally, the distribution of the disease through the various structures of the body, together with another piece of evidence—viz., the impossibility of conveying cancer by inoculation, would seem to prove, by an accumulation of facts, the affirmative of the proposition that cancer is from within, that it has its origin from the centre, and that consequently any measures directed to the periphery only must of necessity be unphilosophical and ineffectual.

The constitutional origin of cancer being established, it becomes necessary to apply to this principle the actual test of practical experience founded on the observation of the course which Nature pursues when left to herself, and of the course and termination of the disease when Art endeavours to relieve it; and to prove, not the necessity for abstaining altogether from the scalpel and the caustic, but that the blood and bones and muscles, and all that goes to make up the animal frame, require to be azotized, to be built up, to be so invigorated by physical, but perhaps almost no less by moral agencies, that it shall be impossible for this defective growth to go on. The whole being thus cared for, its part or parts (the local manifestation of the disease) may be usefully attacked. There are means to be referred to presently of assisting in the production of atrophy of the tumour from without, and there are cases in which hæmorrhage or excessive purulent discharge are so

weakening the patient, that it becomes necessary, either by the knife or caustic, but far preferably by the former, under the blessed influence of chloroform, to remove this source of decay.

In a very large number of cases there is a period when the cancerous tumour ceases to increase, begins to diminish, and gradually to waste away; so that the prolongation of life is not in any way affected by the patient having been subject to this malady. This spontaneous cure of the disease has been noticed by Velpeau, as well as by Sir A. Cooper and other authors, and several cases of cure by atrophy could be recited from amongst the patients at the Cancer Hospital. If the *vis medicatrix nature* is sufficient even in a few cases to check the disease, may we not fairly expect that some of the means which we possess so abundantly for encouraging a healthful condition of the solids and fluids of the body shall be effective in the assistance of the vital powers to stop the further growth of the fungus. All medicines or dietaries of a lowering description I utterly repudiate, and even the iodide of potassium, which Velpeau says cured three cases of cancer, I have little inclination to employ, unless in combination with iron or some other tonic to counteract its depressing tendency. All the soporifics should be objected to, as adding to the dyscrasia, and when, from the entreaties of patients, it becomes necessary to have recourse to them, all hope of remedy must be put aside. Arsenic has formed the basis of most of the secret remedies which at regular intervals sweep over society, exciting all the superstitious reverence which more or less lurks in every breast, and has brought for a short period great grist to the magician's pouch; but, according to my experience, its usefulness, either internally or externally, does not compare to other more certain and less dangerous tonics and escharotics. Of all the medicaments which experience or theory has shown to influence this disease, iron in its various forms is capable of effecting the largest amount of benefit. In order to obtain this good in various constitutions, it is necessary to vary the form of its administration, and then to alternate this tonic with others. The mineral acids are most valuable, either alone or in combination with other drugs. A mixture of lemon-juice and sarsaparilla is, for delicate people, a most excellent appetizer. Bark in the form of the compound tincture is largely used with the greatest benefit at the Cancer Hospital, and cod-liver oil, as an adjuvant to other remedies, is serviceable.

Diet and moral management are of the utmost moment in the conduct of these cases. It would be impossible to lay down dietetic rules applicable to every case, since each person has his peculiarities, and must be managed in accordance with them; but it will be well to say that the system requires to be amply nourished and somewhat stimulated; that good meat, good beer, and a fair supply of good vegetables,—putting aside the nonsense of sloppy soups, and leuco-phlegmatic fish, to waste the appetite and distend the stomach,—are the grand indications as far as the important matter of diet is concerned, and wine may be taken according to advice. The treatment of the mind is not less important, and if we could eradicate the idea of the incurability of cancer, we should do much towards its cure. Hope would assist our efforts at restoration more perhaps than any physical agent. The diversion of the mind from the contemplation of the malady by the influence of genial society, by the cultivation of literature and science, and by change of scene in travel, have tended to the production of that atrophy of the disease, which is in fact its cure.

A few words yet remain to be said respecting the local treatment of cancerous tumours. It appears from the statistics at the Cancer Hospital, that 128 persons have presented themselves, who had been operated on previous to coming to the hospital, and that the average lapse of time before the return of the disease in these cases was eighteen months. From this it may be assumed with tolerable justice that operations do not generally cure the disease. There are, however, some cases in which removal of the local malady is desirable as tending to prolong life or remove unsightliness. One instance is that of the advanced hæmorrhagic stage of cancer which has already been referred to, and the other condition is where epithelial cancer attacks any exposed part, such as the lips, face, or extremities. The method of removal in either of these cases should be by the knife, under the influence of chloroform, for as to the revival of the treatment by caustics, now that we have the invaluable assistance of chloroform, I cannot imagine how such a necessarily prolonged and painful procedure can be recommended by the profession or tolerated by any patient who has the power to select the least of these two evils. *The knife can do, without pain, in as many minutes, all that the caustic can do, with pain, in as many days.* These two agents,

however, in the local treatment of cancer are of infinitely less importance than those which assist in the induction of that atrophy of the tumour which Nature brings about in many cases, from mere *proprio motu*, and which Art may assist in promoting in many more. Of all the detergent remedies, lead in its various Pharmacopoeial forms is the most efficacious. The liquor plumbi, alone or diluted; the lead cerate, and the soap cerate, which contains lead; the iodide of lead ointment, and the lead plaster, with or without adhesive plaster, are all, at different stages of the disease, most invaluable adjuvants to the general constitutional treatment. It would be tiresome to enter into details of special applications for particular parts of the system, such as the chlorate of potash and hydrochloric acid lotion, and carrot poultice, to the ulcerated or sloughing breast; the borax lotion, and the application of the nitric acid or sulphate of copper to the tongue, &c. These are matters which practice teaches, and which may sometimes, perhaps, be varied with advantage, according to the taste or fancy of the surgeon, provided that the great principle be at all times kept in view, namely, that local treatment, in cancer, whether by the knife or caustic, or detergent applications, is and must be second in importance to the general upholding and revivifying of the constitutional powers.

Upper Berkeley-street, April, 1857.

CONTRIBUTIONS
TO THE
PHYSIOLOGY, PATHOLOGY, AND TREATMENT
OF
SPERMATORRHOEA.

BY MARRIS WILSON, M. D.

PART V.

IMPOTENCY.—The asthenia which occurs as one of the ultimate consequences of different forms of spermatorrhœa has been separated from the mass of symptoms composing that malady, and erected into a distinct disease. In accordance with this arrangement, it has been described, by writers on the subject, under the name "Impotency," without any reference to the independent organs whence it derives its origin.

The condition really intended to be understood by this term is one in which the physical powers have diminished to an extent that renders impregnation of the female impossible. It therefore expresses only the ultimate symptom of the progressive failure in power of the affected organs; or, in other words, the consequences of exhausting diseases among the distinct portions of the generative apparatus. This incomprehensive application of the word has arisen from the want of a system of classification such as I have endeavoured to supply in the former portion of my work. Being thus used to denote an incapability in the power of impregnating, resulting from debilitated states of the collective organs of generation, it becomes a mere generalization; whereas the object of employing it should be that of particularizing certain distinct forms of disease. Now if the employment of this word be confined to a definite meaning, to the exclusion of a more general one, it may serve to represent the incapacity for impregnation, apart from its signification as a general result of depressed local generative action. We shall thus have a definition of conditions which may be classed as primary independent diseases, and include those states in which actual power may or may not be lost, but nevertheless presenting circumstances that render the patient afflicted with them as completely incapable of exercising the function of impregnation, as asthenia of the individual or collective organs. It is in this particular sense that I have employed the term to define certain distinct local and general affections; the first class depending on constitutional disarrangements,—the second, on defective and diseased organization.

The constitutional causes arise from peculiar irritable states of the brain and nerves, which by developing an excessive irritation in the cerebellum and spinal column, produce, through the medium of the sympathetic system of nerves, an immediate arrest of the functional power of the generative organs, or accomplish the same end, by the opposite effect of debili-

tating the vital force of the system generally. Many circumstances have a share, under particular conditions, in producing an irregular determination of excitement to the cerebellum and spinal column. As this portion of the nervous system appears to be the special centre of the animal propensities, it is not surprising that the most animal amongst them, if I may be allowed the expression, should be one of the earliest affected. Thus it will be easily understood that stimulation of the cerebellum becomes a promoter of generative activity.

The first diseased condition which it is expedient to inquire into, is one displaying itself in a simple excitement of the brain beyond that point where the irritation exists as a mere stimulant to healthy function. This state, resulting as it usually does from common causes, is induced by any circumstance which overtakes the physical power of the body, as from long travelling, or violent and unwonted exercise; and it not unfrequently arises from long-continued and close application to study and business, whereby the mental activity absorbs, as it were, too large a proportion of the nervous sensibility which is required to be diffused generally through the system, for the purpose of effectively carrying on of the functions of its different organs. The consequence of this state is to diminish the power of the generative system by concentrating in another direction the nervous influence which ought to be supplied to it. These conditions, although very evanescent, are, however, of sufficiently frequent occurrence to allow it to take its stand as a distinct disease.

The treatment proper to be adopted is of the simplest kind, consisting of some gentle opening medicine, conjoined with rest and a redirection of the mind if possible to some less engrossing pursuit. In most instances two or three aperient doses will be found amply sufficient for relieving all the uncomfortable symptoms.

As the stage of excitement increases, the evidences of excess become more apparent, and assume a permanency in marked contrast with the evanescence of the former disease. This more active malady will be chiefly distinguished by a symptom affecting the character of the emissions, and the quality of the stimulation which accompanies them. The amount of irritability pervading the system and the generative apparatus is largely increased, and the agitation of the nervous system becomes extreme; hence it happens that emission constantly takes place before the act of intromission has been effectually accomplished. It is very obvious in a case of this kind that, though the incapability of impregnating is just as absolute, it depends on causes totally in opposition to those of asthenia. The exhaustion liable to follow from the long persistence of the symptoms which constitute this phase of the disease naturally demands the greatest attention, both on the part of the patient and medical practitioner. To overcome the effects of the exhaustion will be our principal aim, but even that must be pursued with a due regard to the origin of the inflammatory symptoms. The first step requisite in the treatment is to endeavour to calm down the nervous excitation, and for this purpose hyoscyamus and camphor appear most serviceable. The next is to diminish as much as possible the inflammatory tendency by gentle antiphlogistic means; but, above all things, it is at the same time necessary to preserve the strength of the patient by a well-regulated full diet. Happily this kind of attack readily succumbs under the influence of a proper management.

It occasionally happens in persons of very high nervous irritability that the venereal excitement develops in the brain so intense a commotion as to bring on an epileptic seizure. Fortunately such attacks are rare; but nevertheless they do happen, and, as their frequent repetition would prove very injurious to the patient, the possibility of their occurrence under favourable circumstances must be taken into consideration. The mere probability of their return is not, however, a sufficient motive for discontinuing venereal indulgence wholly, but merely as a reason why forbearance from excess should be practised. It is apparent that if an attack of this kind happens before the completion of the venereal orgasm, impregnation will be arrested. As it is not possible to anticipate when a seizure is likely to take place, unless we may have had the opportunity of learning by experience the premonitory symptoms in the individual cases, little can be done beyond a general attention to the health. The chief precaution to be observed is to ascertain whether the disease arises from excess or, as in various instances, from deficiency of nervous power, and to direct our treatment accordingly.

When, however, irritation is induced to a greater extent than happens in the forms described above, either directly, or by the transference of inflammatory action from a neighbouring organ, there will be developed a series of active symptoms,