much of life in our bed-rooms, that with a pure bed-room atmosphere—*pure and fresh, in short, as the outer atmosphere itself*, for here nothing less will suffice—there would, I believe, with reasonable care and attention otherwise, be *no* tubercle, and consequently *no* consumption whatever! I am of opinion that, with this due care and attention, consumption and scrofula—in other words, tubercle—are, reasonably speaking, just as preventible as broken limbs, burns, inflammation, in short, any casualty. But nothing short of this care and attention will suffice—nothing, indeed, short of the arrangement of our dwellings and our habits so as at least to realize the one indispensable requirement of an unadulterated and constantly renewed atmosphere. This so desirable, and, in truth, indispensable hygienic revolution being once consummated, it would free our hands of tubercle in all its protean aspects, and leave us at comparative liberty to deal with the remaining and, unhappily, all too numerous forms of organic and functional disease.

ART. XVI.—*A Comparative View of the Effect of some Remedies used in Epilepsy**. By JONATHAN OSBORNE, M. D., King's Professor of Materia Medica; Physician to Mercer's Hospital, &c., &c.

Τοῖσι εμφανίσι τὰ μὴ γινωσκόμενα τεκμαιρόμενος.—HERODOTUS, II. 33.

IN diseases obscure in their nature, and in which the treatment must, of necessity, be for the most part empirical, it is much to be regretted that medical records are still so defective. Various remedies are set forth by authors, one copying from another, but the evidence upon which their repute has been originally founded, or that by which it may still continue to be maintained, remains uncertain, and resembles more a general rumour than the sober and subdued voice of science. In the meantime the practitioner, in making his choice, has none but the most vague and often contradictory guides to follow. Hence, if a remedy at the first trial fails him, his confidence is at once shaken, he lays it aside, perhaps to substitute for it something far inferior, and which may have always proved ineffectual, but yet holds its ground from the weight attached to the

* Read at a meeting of the Association of the King and Queen's College of Physicians, May 7, 1856.

original recommender; thus, often resembling the giddy public in their choice of a physician, who, to use the words of Dr. Johnson, neither know the merits of him whom they select, nor the demerits of him whom they reject.

One mode of remedying this defect would be to construct, with respect to such diseases, tabular views of the treatment pursued at different times, and of the results obtained. The confidence to be placed in such tables would be regulated by the extent of the field of observation, the candour and freedom from bias, and the care and discrimination of the reporter. Then as the general results, the value of the remedies employed could be expressed in numbers exhibiting in the form of decimals the proportion of cases in which they had been found successful, and consequently, their real merit and importance. Thus, a success of 23 out of 100 cases in which a medicine was tried would be represented by the decimals, $\cdot 23$; a uniform success without exception by unity; and total failure by $\cdot 00$. Thus, the relative merit of different remedies used in the same disease would be exhibited at one view, and we should no longer be dependent on expressions which are so far from having a uniform meaning, that even the same individual may be often detected applying them without either accuracy or consistency.

In the *Encyclographie* of October, 1852, I found a review of a paper on epilepsy by Dr. Herpin, from which it appeared that he had made a statistical table with respect to that disease when treated by oxide of zinc and some other articles. I was strongly impressed by the value of his communication. He has performed, with regard to this remedy in particular, what I have endeavoured to perform, but with inferior opportunities, with regard to two others which do not appear to have come under his notice, and I think in the first instance it will be acceptable and instructive to place on record a short epitome of Dr. Herpin's paper.

The proportion of cases which he found to resist every kind of treatment adopted was only one-fourth of the entire number presented to his notice. The prognosis was always most unfavourable in proportion to the duration of the disease and the frequency of the fits. The remedy which proved itself superior to all others tried by him was the oxide of zinc. The other remedies tried were the ammoniuret of copper, the salts of valerianic acid, *Selinum palustre*, the broiled flesh of the mole (which has a high provincial reputation), wormwood, hyoscyamus, and ammonia. He has not even noticed digitalis or cantharides, the two remedies which occupy the most prominent position in my collection of cases. The oxide

of zinc was first introduced by Gaubius, who derived his knowledge of it from a charlatan. Of 42 cases treated by it, Herpin announces that 28 terminated in complete recovery, being a proportion of about 66 per cent. He found it to be perfectly innocuous. He gave it to the amount of 6 grains daily, which was sometimes followed by slight nausea or diarrhœa. Generally he began with small doses, and in the form of pills. It was best taken after meals, and he never despaired of its success or relinquished its use in any case till after a perseverance of two months. He employed the *Selinum palustre* in 10 cases. Of these, 4 were cured, i. e., 40 per cent. This plant, a native of the north of Europe, has a root endowed with purgative powers, so as to be compared with scammony by Boerhaave. Dr. Herpin's dose was about four drachms, sometimes increased to one ounce, if tolerated by the stomach. The ammoniuret of copper he gave in 12 cases, and succeeded in 4, being 33 per cent. With preparations of valerian he succeeded in 4 out of 11 cases, being 36 per cent.

I have constructed a Table of all the epileptic cases which came under my treatment in Mercer's and Sir Patrick Dun's Hospitals, and of which sufficient records were preserved, in order to give an accurate account of the results of the treatment. The number of them is 26. In it I made no selection, and it accordingly represents the entire of my experience of the disease in those establishments during the last twenty-seven years. I have not added to it any case occurring in private practice, not only on account of the greater certainty afforded by hospital discipline, but also because those cases were witnessed by classes of students in whose presence the facts were recorded. In those instances wherein it is stated that the disease was removed, that result was inferred when the fits did not recur during the patient's stay in the hospital, which was always prolonged as much as possible, in order to ascertain whether the improvement was only temporary or permanent.

The origin of the disease, although invariably sought for and recorded, yet in a great proportion remains undecided. The irritation of worms was evidently the cause in two cases, and these, when subjected to appropriate treatment, terminated in recovery. In some (and these the most intractable), frights at an early age, or sudden mental emotions, but, in the majority of females, impediments to the establishment of the menstrual function at the commencement of puberty, appeared to have occasioned the disease. No case has been taken into the Table in which the loss of consciousness was not complete. The length of the fits was subject to great variation; but in this

one particular, namely, total abolition of consciousness, they all agreed. To illustrate the different forms under which epileptic fits occur, I may mention two cases which have come under my observation in private. In one, a lady, unmarried, of nearly thirty years of age, was several times during each week, and very frequently when seated at dinner with the family, suddenly deprived of sight, of hearing, and of the knowledge of surrounding objects, but yet without any convulsive motion; and to the company present she appeared to be only in a state of momentary mental abstraction. On these occasions her friends never interfered, being well aware that any efforts on their part to prevent or shorten it had never had any effect. She has since been married, and lives abroad; and I am not informed as to her present state. When she became aware of the epileptic character of the affection, every precaution was used to conceal it, and to make light of it, even to her medical adviser. Another case was that of a gentleman of independent means, who during the last five or six years is seized, at irregular intervals, with fits of total insensibility, accompanied by a sudden closure of his mouth, and a smacking sound made by his lips and tongue, lasting for about half a minute, producing great astonishment in the bystanders, but causing himself no annoyance, as he seems scarcely to be aware of any interruption to the current of passing events. This state of things, however, has become a source of deep anxiety to his family, the fits of late having increased both in frequency and duration; and, on one occasion, when sitting at the head of his table with some friends, having suddenly dropped whatever was in his hand, he continued so long moving his mouth and tongue with his eyes fixed in a vacant stare, that concealment was impossible, although, on his recovery, by the desire of his friends, no one affected to have noticed it.

Three cases of catalepsy came under my observation, not included in the Table,—one produced by a dose of Indian hemp, the others presumed from mental agitation; all in young women, and all terminating favourably. This form of epilepsy must necessarily be of great rarity, from the rare conjunction of causes required to produce it. For, to maintain the fixed position in which the limbs continue according as they may happen to be placed, there must be an exact equilibrium of action between the extensor and flexor muscles. But as the latter are the most powerful, there must be such an amount of increased force imparted to the former as shall exactly compensate the latter, and no more; a state of things that can hardly ever be expected to take place.

In one case the insensibility, although complete, yet was not only unaccompanied by convulsions or fixedness of any kind, but allowed the patient to walk about the apartment in a state resembling somnambulism. In the great majority, however, the convulsions were such as have been frequently described, varying in intensity, and sometimes most violent, commencing with a scream, and a fall on the occiput; and then followed by powerful alternate contractions of all the flexor muscles, the closed hands striking the patient's face or breast, and sometimes caught within his teeth, suggesting the idea of demoniacal possession. The foaming at the mouth was observed in most, yet in some to so slight a degree as to prove it to be no sure diagnostic mark of the disease. It must also be observed, that it did not occur only in the severest fits, as should have been the case, if resulting from the convulsive motions of the mouth. Increased secretion from the salivary glands belongs to several affections of the nervous system besides this, as mania, tetanus, and hydrophobia.

The pathological state observed in two fatal cases which occurred was as follows:—In the first, that of a servant-man, aged 36, who died in a fit on the third day after his admission, there was an abscess at the surface of the right hemisphere of the brain, behind and above the temple; and adhesions of the skull, the dura mater, and brain in that part, so that they could not be separated without rupture. The abscess was of about the size of a small almond. It was filled with yellow pus, had thickened edges, apparently of old formation; and from it extended a softening of the medullary structure inwards and towards the centre, to the depth of above an inch. The ventricles contained more fluid than usual; the choroid was pale; the surface of the brain remarkably free from moisture. No other unhealthy appearance could be detected in any part of the body. His fits commenced six months before admission. In the intervals between the fits after admission, he completely recovered his sensibility, and made no complaint of pain in the head, but for some months previously his habits had been unusually reserved, so as to cause suspicion of insanity. The fits were as usual in epilepsy, except that the foaming at the mouth was less, and that the right arm was more convulsed than the left. The bowels resisted all means used to open them while he was in the hospital.

The second fatal case was one of commanding interest, as affording a distinct revelation of the dependence between the epileptic fit and disturbance of the circulation. The patient was a woman, fifty-five years of age, who had fits varying

from one in ten days to three in one day, and who had the first fit when stooping, about ten months before her admission to the hospital. The pulse at the wrist was 34, sometimes 24, with two pulsations of the jugular vein for each one of the arteries, the first of these twice as long as the second; the heart's motion irregular, both in rhythm and force, the long sound and impulse synchronous with the arterial pulsation. The duration of the fits was about four minutes; the convulsions confined to the face, preceded by a sense of buzzing in the head, and succeeded by a sound of bells; each fit attended with an almost total cessation of the heart's action, and followed by violent palpitations. Extremities cold; lips livid and congested.

The treatment of this case, which was the first in the Table, and occurred in 1829, was tentative and palliative, consisting at one time of leeches and depletions, and at another, of wine and cardiacs. A great diminution of frequency of the fits was obtained, and she was dismissed, but returned in two years afterwards, and she died suddenly in one of the fits.

On examination, no morbid appearance was observed in the head, except that there were about two ounces of transparent fluid in the ventricles, and pellucid fluid under the arachnoid, which, however, was free from opacity. In the heart, although the case occurred before the discoveries of modern pathology with regard to the muscular substance of that organ, yet enough is recorded to show it to have been at the bottom of the disease. The right cavities of the heart were distended to a rare and enormous extent, so that that side of the heart appeared distinct and as if separate from the left; while the valves were healthy, except those of the aorta, in which were some points of ossification, but not so as to impede their function. The lungs were healthy.

In almost all the cases, except those produced by worms, there was more or less permanent disturbance of the circulation, either from debility of the heart, or from excitement consequent on the establishment of the sexual functions, or from a state of nervous susceptibility, produced by shocks or mental emotions, and acting directly on that organ. In all the cases, without any exception, in which the patient could be examined, either immediately previously to, or during, or after the fit, it was evident that there was a high degree of disturbance in the action of the heart at that time, and yet that this bore no proportion to the severity of the convulsions, being often highest when they were lightest.

Some described the fit as preceded by a sense of filling of

the head; others felt as if it was emptied; others had a reeling; while in many the loss of sight was the only thing to be remembered before total insensibility came on. Dr. Reid has mentioned that he was able to stop the fit by pressing strongly under the epigastrium. I found that I could also shorten all the fits in which I made the experiment, by pressing the fingers steadily on the eye-balls.

To sleep after the fit was universal, except in the case of those slight fits already referred to, so that in our studies on the disease it appeared that it should be considered as part of the fit, and as constituting its appropriate termination. This is the more to be remarked, because the ordinary facility of sleeping usually remains unimpaired, and continues as usual. The fits do not occur when the patient is most alert and wakeful, but rather come on when the usual hour for sleep is approaching, as in the afternoon or evening, and not unfrequently during the night. It would appear also that what prohibits sleep has also the effect of prohibiting the accession of epileptic fits. Thus, in two cases not included in my Table, in which epileptics with frequent fits were attacked with fever while in hospital, and in which the fever was succeeded by a relapse in one, and a tedious convalescence in the other, presenting full opportunity for observing the fact, *the fits never came on during the fever, or during the progress towards recovery; but as soon as convalescence was completely established, they resumed their visits as usual.* Certain it is, that at one time, when under the influence of certain theoretical views, I tried opium in epilepsy in half-grain doses, frequently repeated, it appeared most decidedly to aggravate the disease; and I find in a report of certain military surgeons in France, that in epileptics the inhalation of chloroform was found, not to produce the ordinary state of anæsthesia, but, instead of it, an epileptic fit; and that it was in consequence used in their department as a test of malingerers who pretended to be epileptic.

The treatment adopted in the twenty-six cases of the Table was, in the first instance, directed to the removal of the exciting cause, whenever that could be ascertained; for example, in two cases which yielded to anthelmintics. When the action of the heart was decidedly and permanently enfeebled, as in the last of the fatal cases just mentioned, it was evident that depletions were inadmissible, except when required to meet a temporary or topical indication. From the certainty that epileptic fits may be produced in consequence of enfeebled circulation, and the probability that from the coexistence of insensibility and slowness of the pulse they may readily be

considered as apoplectic by a practitioner seeing them for the first time, we may indulge in many sad reflections on the treatment most frequently adopted without any discrimination in such cases.

Exclusive of those peculiar cases, and where no one function seemed at fault, the remedies were selected from those which appeared to have proved beneficial in other hands, even though their mode of action was as obscure as the disease itself. The chief of those was the nitrate of silver, along with sulphate of zinc, and some other articles of the same class which I used within the first twelve years up to 1842. I then fell into the practice of giving digitalis, from observing the tumultuous action of the heart accompanying the fits, and moreover induced by a remarkable statement made by Vogt^a, that patients under digitalis become capable of resisting narcotic influences; so that the same individual who otherwise could hardly take two glasses of wine, could, under its influence, take a bottle without being affected. Digitalis had been mentioned in Parkinson's Herbal among the multifarious remedies for epilepsy, for which, as for other most incurable diseases, the old receipt-books have always offered the greatest number of cures. The strongest statement, founded on a fact in its favour up to that time, was in a case published by Dr. Sharkey, formerly of this city; while, on the other hand, it had been unfavourably reported of by Dr. Currie^b and by Dr. Perceval^c. When I recommended the use of it, I had not the advantage of the valuable paper of Dr. Corrigan on the Use of Digitalis in this disease, published in 1845 in the Dublin Hospital Gazette^d, giving six cases in which it appeared to be successful; but as the dose which I gave was much less than that given by any of the physicians now named, the results I have obtained must be considered as proceeding from a different application of the same agent. My largest dose was two drachms of the infusion of the Pharmacopœia thrice in the day. This seldom, within ten days, produced intermission or irregularity of the pulse; and often, instead of retarding it, appeared at first to increase its frequency; thus lending a confirmation to the statement of Dr. Saunders, who said that in 2000 observations on it he always found slowness of the pulse preceded by increased quickness. This increased quickness, however, is no proof that it is acting the part of a stimulant.

^a "Pharmakodynamik," ii. 189.

^b Transactions of the Medical Society, vol. iv.

^c Edinburgh Medical and Surgical Journal, vol. ix.

^d May, 1845.

On the contrary, it would appear to arise from its direct sedative action on the heart, as we see the same increased rapidity of pulse often from debility in hemorrhages, in low fevers, and in the fluttering pulse of the dying. The neglect of this first action of digitalis, from the attention being exclusively directed to the slowness and irregularity of pulse which afterwards ensue, has led to the opinion that it is endowed with a peculiar faculty of reserving its action for a time, and then of oppressing the heart with the concentrated effect of all the former doses that may have been taken. This presumed accumulative action is so different from what takes place with other narcotics, the law of which is to lose rather than gain in effect by constancy of use, that probability alone would rather decide that the irregularity and sinking of the heart's action from digitalis is but a further effect of the continuance of the medicine, and not a sudden operation of what had previously been inert. The dose given by quacks, and originally derived from Parkinson's Herbal, was 4 oz. of the fresh leaves beat up and infused in a pint of boiling beer for eight hours. Of this, 4 oz. were given every third day, along with 15 grains of polypody root. As may readily be supposed, it caused violent and long-continued vomiting. Even the doses used by the physicians now named have appeared to me unadvisable from the hazard attending such, not allowing the medicine to be persevered in, so as to produce its peculiar and most beneficial effect with reference to this disease. Their dose has been a wine-glass full of the infusion, increased to 3 oz., every night. Now, according to the researches of the late Dr. Burton, of St. Thomas's Hospital^a, on the corresponding doses of different medicines, from actual trial, it appears that a grain of powdered digitalis has for its equivalent 80 minims of the tincture, and only 2 drachms of the infusion; so that my doses, although continued for many weeks without causing any serious failure in the action of the heart, yet were not so insignificant as many might suppose.

Among all the remedies proposed for epilepsy, however, I cannot find the name of any modern author who had used cantharides except Clara and Johnson, quoted by Merat and Delens, and therefore, some explanation of my reasons for trying it may be expected. Although the truth of the ancient adage cannot be denied, viz., *Melius est anceps remedium quam nullum*—yet some probability of success should be presented either from analogy or from testimony of others. My analogy was derived

^a London Medical Gazette, 1842.

in the first instance from a theory of sleep, a function with which I believe epilepsy to stand in the closest relation, which theory, after it had cost me more thought than I ever expended on any other single subject, I published in 1849 in the London Medical Gazette (now deceased). No one took any notice of it except Dr. Simmons of Bristol, the author of a most interesting work on Sleep, who had the kindness to express a flattering opinion of it; but with that exception, it appears to me that no one has ever read it, or been at the trouble of understanding it; hence, I consider it as not only dead, but actually buried. Nevertheless, having incidentally mentioned the subject, I cannot refrain from expressing my conviction that the doctrine therein stated will rise again, and at some time hence, be ushered before the world, with microscopical preparations and a code of new names derived from the Greek, and perhaps some book-worm, in endeavouring to strip the future discoverer of his plumage, may gratify his spleen by announcing that it was first brought forward in a paper never read, and long since forgotten, and overwhelmed in a mass of medical writings, *stratum super stratum*, in one of the back volumes of the London Medical Gazette.

The theory is this, that sleep is produced by turgescence of the choroid bodies, they being essentially erectile structures, in the lateral and third and fourth ventricles of the brain, compressing the origin of the spinal marrow and of the nerves proceeding from that region; whilst at the same time, by the occupation of so much of the cavity of the cranium, the quantity of blood circulating at the surface of the hemispheres is proportionately diminished, and thus a double impediment is offered to the perception of external objects, and communication with the external world is cut off during the portions of time required for nutrition and repair of the nervous centres.

This theory was supported by many arguments: first, that by reasoning *a priori* (as in Harvey's arguments for the circulation of the blood), it fully accounted for all the phenomena of sleep, which had never hitherto been explained in any other way. Second, that in a case in which a considerable portion of the skull had been taken away by the trephine, the brain was observed always to rise on going to sleep, and to sink on awaking. Third, that the structure of the choroid bodies and the looped vessels in it are only found in erectile tissues, or in parts adapted for great distention. Fourth, that after death the ventricles are not found marked with impressions or cavities corresponding to the choroid bodies, as would necessarily be the case if they occupied the same place during life as after

death, and that hence during life they must have constantly been changing their dimensions. Fifth, that the lining membrane of the ventricles is epithelial, and secretes a mucous rather than a serous fluid (Marcet), thus showing it to be intended for the motion of a body within it. Sixth, that the rising of the pulse which takes place (generally about 10 beats per second) at the moment of falling asleep shows that it is not merely a negation of wakefulness, much less a state resembling hybernation; but, on the contrary, a state liable to be prevented by debility, and often the best indication of returning strength. Seventh, that the order in which insensibility of the different organs comes on is exactly such as ought to be from the ventricles being the place to which pressure is first applied. Eighth, that in all the animals in which we observe the phenomena of sleep, both the position and firm structure of the tentorium are exactly suited to support the turgescence of the choroid bodies, in maintaining pressure at the place required to produce insensibility to all external objects. Ninth, that falling asleep is attended by a pleasurable sensation, such as might be produced by the filling of an erectile structure within the head, and that this is perceived most when the pulse rises, and just before total insensibility ensues. Tenth, that all the phenomena of profound sleep are witnessed in coma when the ventricles are distended by fluid, which state differs from sleep only in this, that the patient cannot be awakened. Eleventh, that the extreme rarity of adhesions or other obstructions within the ventricles corresponds to the rarity of cases in which sleep has become totally impossible. Twelfth, that cases have occurred remarkable for difficulty of obtaining natural or refreshing sleep, in which the choroid was found diseased^a. Thirteenth, that the very nature of the function imposes a difficulty, if not an impossibility, of exhibiting the presumed turgor of the choroid bodies by vivisection or post-mortem examination, as in either case the state of sleep of the animal must be broken up before the head can be opened and the parts exposed to the view of the anatomist.

Between sleep and the epileptic fit there are points of resemblance. In both there is a state of anæsthesia more or less complete; both are beyond the control of the will; and in both, convulsive motions occur, which in the experience of every one are frequent just on becoming insensible in sleep. The main difference, marking the one as a diseased and the other a

^a Detailed in the Paper.

healthy state, is the suddenness of the epileptic seizure, the greater amount of convulsive action, and the greater tumult of the heart; but their similarity is developed at the close of the epileptic fit, which almost uniformly terminates in a profound sleep, which cannot be distinguished from that of health.

Waiving, however, any further notice of this theory, which the reader is at liberty to entertain or to reject according as he thinks fit, in cantharides the specific effect on certain erectile tissues may well be suspected to be accompanied by a similar effect on other tissues of the same kind elsewhere, supposing such to exist. Epilepsy is mentioned by Vogt among the spasmodic diseases in which it has been used in Germany. There is a well-known combination of tincture of cantharides and compound tincture of bark, one part of the former and two of the latter; twelve drops to be taken, gradually increasing the dose till strangury is produced, which, as I have witnessed, has sometimes the effect of stopping the fits of whooping-cough as soon as strangury is produced, when it must be laid aside. Cantharides have also been commended in tetanus by German authors; and in Hungary and Poland are used with the utmost confidence by the inhabitants in hydrophobia, in which affection the blind temerity of our practice is only to be excused by the haste and confusion with which each case is met by practitioners necessarily ignorant of a disease so rare in this country; and it is to be much regretted that the line of research opened by Dr. Reid, of this city, in his able and original work, has never been adequately followed up with respect to this and other spinal diseases.

One of the first cases in which I tried cantharides was not cured, but yet this was well suited to evince their power over the disease, for under their use longer intervals were obtained than from any of several remedies tried. In this case the tincture was pushed to 80 drops thrice daily, which, although continued for some weeks on each occasion, yet caused no strangury or other inconvenience. Believing cantharides and digitalis to act on the two distinct portions of the circulating system most concerned in epilepsy, I was soon led to combine them, and with the effect (as it appeared to me) of both correcting the irregular action of the heart, and, at the same time, of producing a beneficial change in the capillary circulation belonging to the seat of the disease. Besides, digitalis was the most valuable of all the medicines I had ever used as direct emmenagogues in cases of amenorrhœa accompanied by palpitations, when given for about a week before the menstrual period, and its value is then much increased by the acetate of

ammonia. Hence the formula used in the many cases attended with derangement of this function was the following:—Infusion of digitalis, and water of acetate of ammonia, of each, two ounces; pennyroyal water, four ounces; mix. One ounce to be taken mid-day, evening, and night; and the tincture of cantharides to be added, commencing with five drops, and increasing by one drop each dose. When it appeared desirable to give digitalis in a lesser and cantharides in a greater proportion, then the following was used:—Infusion of digitalis, three ounces and a half; tincture of cantharides, half an ounce; mix. Forty minims to be given in milk thrice daily, and progressively increased.

In one of the cases, a middle-aged woman, with feeble circulation, in which digitalis was inadmissible, the tincture of cantharides was combined with decoction of senega and cardiac mixtures, and given till slight strangury took place. The fits ceased, and she was dismissed at her own desire. She was afterwards seen drunk in the street, and stated that about a week after leaving the hospital they had recurred. She being now in a state of great excitement, with five or six fits in the day, was placed under the combination of cantharides and digitalis. Under this treatment the fits ceased; she was again dismissed, and has not been heard of since.

In most of the cases the patient was subjected to a cold douche every morning and evening. The direction was to pour a stream of cold water on the occiput, the head being bent forward, for about twenty seconds; thus there is reason to believe that the contractile powers of the subjacent vessels within that portion of the head may be excited, and the free circulation of the blood through the sinuses of the brain promoted.

The conclusions to be derived from my Table of cases, to which the foregoing observations refer, is, that while Dr. Herpin's review of his treatment of epilepsy is favourable to the oxide of zinc, as showing a success of 66 per cent., the cases in my Table treated by digitalis or cantharides, either conjointly or separately, being in number twelve, present the result of removal of the fits in ten cases, that is, 83 per cent., a diminution of them in two, i. e. 16 per cent., and in no case did they fail in producing some abatement.

The other cases of my Table being those treated by all the other means used, except the above, and (excluding the worm cases) being in number twelve, show the fits removed in two, i. e. 16 per cent., and diminished in same number and proportion; while the number in which no benefit was derived was

eight, being a proportion of total failure amounting to 66 per cent.

The conclusion from the above, then, is manifestly in favour of the treatment by digitalis and cantharides in epilepsy, due regard, however, being had, in the first instance, to the primary indication of removing the exciting or predisposing causes of the disease, when these can be discovered.

ART. XVII.—*Contributions to Craniology*. By HUMPHRY MINCHIN, A. B., M. B. T. C. D., Licentiate and Fellow of the Royal College of Surgeons in Ireland; Medical Superintendent of the North Dublin Institution for Children, Glasnevin; Lecturer on Anatomy in the Dublin School of Medicine.

“Τῶν ἀνθρώπων αἱ κεφαλαὶ οὐδὲν ὁμοίως σφίσιν αὐταῖς, ὅνδὲ αἱ ραφαὶ τῆς κεφαλῆς παντῶν κατὰ ταῦτα πεφύκασιν.”—ΙΠΠΟΚΡΑΤΗΣ.

IN the following pages it is proposed to bring under the notice of the profession some circumstances connected with a certain abnormality in the development of the human cranial bones; an abnormality which has been found in several instances to be associated with a very peculiar configuration of the head, and which, in its relation to pathology as well as to physical ethnology, appears to present some features of interest.

The consideration of varieties and aberrations occurring in the structure of the several parts which compose the human frame, presents a wide field of interesting investigation to the anatomist and physiologist,—whether the tendency of such anomalous formations be to exert an influence upon development in respect of excess or deficiency of parts, or upon the mere bulk or volume, the general conformation, or the relation of the several parts, and their connexion one with another, or in whatever way a portion of the human structure may appear to fall short of its perfect model or type. To the student of comparative anatomy, also, many of these anomalies of structure in the human frame are not without interest, affording, as they do, in several instances, remarkable examples of the similarity which subsists between some special departure or deviation from the human type of organization, and a conformity to the model which, in a lower class of animals, is observed to be the usual normal structure. Into the general detail of this subject it is not my intention to enter in the present communication,