

deduce the facts and arguments by which it is controverted. It is rejected by nearly all the leading pathologists of the present day. The treatment proposed by Dr. Meigs, by itself considered, is unobjectionable. In all cases it will be found to give relief, the position of the body on the right side, with the head and trunk slightly elevated, being that best adapted to facilitate the circulation. To suppose, however, that, in cases of actual cyanosis, we can thus cure the disease is to imagine an impossibility. We have only to consult the records of morbid anatomy to be convinced that cyanosis is generally the result of such abnormal conditions of the heart or great bloodvessels as are altogether irremediable. It is true, Dr. Meigs would lead us to view the most frequent of these abnormal conditions as the result of the persistent patulous condition of the foramen, and that, to prevent their occurrence, it is only necessary to cause, as soon after birth as possible, by the mode he has indicated, the valve of Botalli so to apply itself over the foramen as to close the direct communication between the two auricles. But, to show the impossibility of this being the case, we have only to refer again to the facts revealed by morbid anatomy; these, indeed, would lead us to infer that the persistent open condition of the foramen ovale, in place of being the primary condition, is rather the result of the impediment which, in so large a number of cases, is presented to the free passage of the blood through the pulmonary artery in consequence of the abnormal condition of the latter vessel.

We would direct those of our readers who may be desirous of examining more fully the facts and observations bearing upon the pathology of cyanosis, to the very able paper by Dr. Moreton Stillé, to be found in this journal, 1844; to Dr. Chever's communication in the *London Medical and Physical Journal*, for March, 1847; to an essay by Dr. Craigie in the *Edinburgh Medical and Physical Journal*, for October, 1843; and to the second volume of the *Pathological Anatomy* of Professor Rokitsansky.

D. F. C.

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ART. XXIV.—*The Sunburnt Appearance of the Skin as an early Diagnostic Symptom of Supra-Renal Capsule Disease.* By ISAAC E. TAYLOR, M. D., Physician to Bellevue Hospital, New York. With Coloured Illustrations. Reprinted from the *New York Journal of Medicine*. 8vo. pp. 21: New York, 1856.

Our entire ignorance of the physiological value of the supra-renal capsules—of the functions they perform in the animal economy during the state of health, has caused their diseased conditions to be, in a great measure, if not completely, overlooked in the investigations that have been so industriously made into the immediate causes of morbid phenomena. Recent observations have, however, given to the pathological states of these bodies an importance, which, by directing the attention of the inquiring physician to a more careful study of their lesions, and to the phenomena by which they are accompanied, may lead to a knowledge of their functions, the morbid causes to which they are subject, the part which disturbance or arrest of their normal action plays in the production of disease in other parts, and perchance to the means of prophylaxis, or of cure in cases in which they are liable to become diseased, or are actually the seat of disease.

The attention of the medical profession was first directed by Dr. Thomas Addison, of London, to a form of anæmia attended with a peculiar discoloration of the skin, and of so serious a character as to have proved fatal in every instance reported, and attended, in all the cases in which a post-mortem examination was made, by lesions varying in character and extent, of the supra-renal capsules. The observations of Dr. Addison were published in May, 1855. Others, confirmatory of these, were presented by Dr. Jonathan Hutchinson, in the *Medical Times and Gazette*, of London, 1855 and 1856; and we find, in *L'Union Médicale*, August 7, 1856, that the general accuracy of these observations has been recognized by M. Trousseau, of Paris.

In the work before us we have an able and most interesting monograph on this subject, in which the description of the morbid phenomena referred to, and the general conclusions in reference to their pathological value and bearing, are based upon a number of cases carefully studied throughout their course.

The discoloration of the skin, which is a leading and characteristic feature of the class of cases in question, is described by Dr. Addison, as pervading the entire surface of the body, but commonly most strongly marked on the face, neck, superior extremities, penis, scrotum, and in the flexures of the axilla, and around the navel. He represents it as of a dingy or smoky appearance, or of various tints or shades of deep amber or chocolate-brown; in one instance, the skin was so universally, and so deeply coloured that it might have been mistaken for that of a mulatto. In the very early period of the disorder, and when the supra-renal capsules are less extensively diseased, according to Dr. Addison, the discoloration may, doubtless, be so slight and equivocal as to render the source of the anæmic condition uncertain. Every tinge of yellow, or mere sallowness, throws, he adds, a still greater doubt over the true nature of the case—the more decided the discoloration partakes of the peculiar dingy or dark appearance, the stronger should be our impression of the capsular origin of the disorder. Dr. Hutchinson employs the term *bronze* to indicate the discoloration of the skin, Dr. Taylor believes that this will only apply to the more advanced cases; in the early stages of the disease, he has not been able to recognize its adaptation, and, even in the advanced cases, the analogy to the colour of the mulatto, or rather of a West Indian, seems to him more correct and just.

Dr. Taylor remarks, that on examining the cases of Dr. Addison, it appears the discoloration of the skin had existed for a length of time, and, in some, it was not recognized till after death, and that they were not, therefore, seen in the early stage of the discoloration and disease, and Dr. T. believes it will be shown that the dingy, smoky, or deep amber, or chestnut brown, or mulatto appearance of the discoloration, becomes quite characteristic when the disease is of a chronic character.

In the histories of the cases given by Dr. T., he desires particularly to call attention to the discoloration of the skin, and the pigment on the lips, as he believes, in the early, and, in two cases, in the incipient stage of the disease.

The first of Dr. T.'s cases was that of a male, 22 years old; labourer; born in Ireland; single; a moderate drinker; his mother died of phthisis; other members of his family healthy. Had cough and spitting of blood three years previously; not troubled with cough much since. Has had enlargement and suppuration of lymphatic glands of neck. Had, shortly before admittance into hospital, an attack of intermittent fever. He died in the course of the sixth week after his admission, in a state of coma.

"The appearance of this patient, as to his physical constitution, presented a tuberculous diathesis; there was some emaciation. The expression of face dull, listless, and rather stupid; he answered questions slowly, hesitatingly, and would draw out his words; his mind was feeble. The expression of eye was sickly, carthy, wanting the natural hue and expression. The conjunctiva oculi et palpebræ was pearly, anæmic, and contrasted markedly with the colour of his face. The discoloration, when first noticed, was of a light sunburnt appearance, of a *dirty* shade of yellow; and extended across the centre of the forehead and no higher, being a perfect line of demarkation, to the natural colour of the skin. The whole of the scalp was free. The sunburnt discoloration extended down the temples, along the side of the cheeks on both sides, around the lower portion of the ear, and then to the back of the neck, and engaged the whole neck as low as the half of it. The ears were free, and all the lower part of the scalp. In truth, he was a perfect representation of a man who had been exposed to the sun with his hat on, divested of the cravat, and with collar turned over, with only that part that could be exposed discoloured. The shade and appearance of this colour could not be better marked; the posterior part of the neck, and the lateral sides of the cheeks and forehead were the darkest, as though it had been of a longer duration. The spots where the glands of the neck had supplicated, remained free. Every week the appear-

ance of the discoloration became of a more deep and sunburnt character. The upper and lower lips had, when first noticed, several small, darkish-red spots; three or four on each lip. These spots were on the outer edge of the lips, and became gradually darker. They appeared very different from the lips in ordinary anemia or cachectic state, and induced me to feel a stronger conviction in the opinion I entertained of the nature of the disease. The back of the hands also presented the same appearance, which extended to the wrist; the inside was free. There was no albumen in the urine, though he had died in a state of coma, indicating the nervous system was strongly affected. The result of the autopsy verified the diagnosis. Both of the supra-renal capsules were found in a state of tuberculous degeneration. The left more so than the right. The left was much larger than natural, being of the size of half a large hen's egg. On cutting through the capsule, there was but a few lines of thickness of the cortical structure; it contained a solid and semifluid mass of a yellow colour. The whole medullary structure was gone. The right capsule was not so large, and two-thirds of the capsule consisted of concrete tuberculous matter, the rest being semifluid. Under the microscope, nothing was developed but what would appertain to tuberculous degeneration, as broken up cells, fatty matter, and granular particles. There was no original trace of the natural organ. The left capsule weighed four drachms."

The second case was in a male, 42 years old; married; born in England; a moderate drinker. Had no hereditary disease, nor any disturbance of health until about six months previous to his admission into the hospital, when he had what he termed 'sunstroke;' since then he complained of weakness and dizziness of head. Died in forty-one days after admission, in a state of coma.

"This case is one of the most interesting of this form of disease, having chronic disease of the kidney when he came into the hospital, which, in the course of a few weeks, terminated his existence. The post-mortem revealed a fatty degeneration of that organ to the eye and by the microscope. The discoloration of the skin commenced between two and three weeks previous to his death, taking its rise on the centre of the forehead, as if he had been exposed to the sun, and was in marked contrast at this early period, to his clear, white, and anæmic skin, particularly so, as he was quite bald. The pigment gradually extended itself from the forehead, on both sides of the face, down the cheeks to the side of the neck, avoiding the ears, to the posterior part of the neck. The lips at the juncture of the mucous membrane and the skin, began also to exhibit the light reddish line. In three weeks it had become like a perfect recent sunburnt colour, showing the rapidity with which it may manifest itself, its extent and locality. After death it faded in its colour so much that in twenty-four hours there was left but a light dirty yellowish, though quite characteristic, discoloration. From the investigation of the urine, with its light specific gravity, and the slight proportion of albumen, it was not expected he would survive long, and the kidney affection was the chief, if not the sole cause of his death. But it was exceedingly gratifying to perceive the pigment manifest itself, thus rendering strong the probability that the supra-renal capsules were beginning to be involved in disease which would hasten on his dissolution. This opinion was corroborated by the autopsy.

"Under the microscope nothing definite was discovered to throw further light on the subject, although corpuscles, irregular cells, small portions of anaphous matter, and some oil granules were also found, and there was but a trace of healthy tissue left, while the whole of the medullary structure was gone."

These two cases are the only ones in which Dr. T. has been enabled to verify the diagnosis by post-mortem examinations. The histories of two other cases remaining in the hospital are given, in which the peculiar discoloration of the skin is well marked. The foregoing are, however, sufficient to convey to our readers a tolerably correct idea—so far as mere description can impart it—of its characteristics. The coloured lithographic illustrations, drawn from ambrotype likenesses of the four patients, picture it in the clearest manner.

Dr. T. remarks that his representations of the discoloration of the skin in these cases, differ somewhat from those given by Dr. Addison. This difference,

he adds, is still more apparent, when it is considered that he had the opportunity of observing the pigment deposit itself, in the second case, whilst under treatment for renal disease, and of noticing its commencement on the forehead, with a clear and distinctly marked line, and on the lips, and in another case which has only existed five weeks, and noticed by him one week before he came into the hospital, and in the first case, for three or four months previous to his admission, and in still another case; all of which presented the same sunburnt appearance, commencing from a light shade of tanning, and progressing to a darker hue. In the first case described, Dr. T. observes, the discoloration could not have occurred from the effects of the sun, as the patient had not been exposed to the sun for three or four months, and had not noticed the change of his skin till his attention was called to it, and from the length of time he was in the hospital, if that had been the cause, it should have become paler. Again: in the second case we were enabled to justify the opinion that the discoloration pointed to both capsules as the seat of the disease—for in all the kidney affections Dr. T. has seen, he never noticed this discoloration of the skin, showing that the capsules had become involved before death.

In the representations of Dr. Addison, there is no line of separation visible on the forehead; in his cases the pigment embraces the whole of the scalp and ears. This was not the case in the patient at the New York Hospital, in which the line of demarcation was very evident, and also the pigment on the lips, although the whole body is tinged of a mulatto colour. The general history of the cases corresponds with those of Dr. Addison, except the appearance of the skin, and the emaciated condition of all the patients, except one. Dr. Addison's plates represent a dirty brown or mulatto or West Indian colour, and all his cases have the scalp discolored except one, which appears to have been free, or not continued to the face by the lithographer, as the whole face is not given.

Referring to Dr. Hutchinson's comparison of the discoloration to that of a bronzed statue from which the gloss has been rubbed off, Dr. T. thinks that if this appearance of the skin were to be considered as that peculiar to the disease throughout its course, it would cause it to be overlooked in its early stage.

"From the cases reported by Dr. Addison and others, and my own, it will be remarked," says Dr. T., "that this affection may spring up whilst another disease is progressing, and that it may, and generally does exist as a disease by itself, that the disease, judging from the number of cases that have come under my observation in the course of two months' service in the hospital, cannot be very rare; that it must have existed in many cases which have never been recognized; that the discoloration may take place in rather a rapid manner, when the disease may be of an acute character, and that the discoloration may be gradual in its appearance, and become extensive when the disease is of a chronic character, and exist for, it may be, years, owing to the peculiar diathesis of the patient, whether of the tuberculous, or cancerous, or fibrous, as nearly allied to the rheumatic; that it requires a longer time for the development of the pigment when it becomes of the mulatto or West Indian hue, and more universal, while in the early stage it is like a person who is sunburnt; that the result of all the cases have proceeded to a fatal issue."

Including those of Dr. T., thirty-seven cases have been recorded; of these, eighteen were subjected to a post-mortem examination. In fourteen examinations, both supra-renal capsules were diseased, and in four, only one. In no instance, therefore, examined up to this period, in which the peculiar discoloration of the skin alluded to has been present was disease of the capsules absent. Dr. T. remarks that "not a single case has been noticed where these bodies were diseased, and the discoloration of the skin did not exist also." This we believe does not, however, correspond with the experience of Dr. Addison, who speaks of cases of individuals, who had presented no symptoms of anæmia or discoloration, dying of acute and chronic diseases, in whom decided lesions of the supra-renal capsules were detected.

From the morbid anatomy of the cases recorded, it appears that the supra-renal capsules undergo the same process of disease from an inflammatory action, through its regular changes, suppuration, and induration, and also

through the various organic changes incident to lymphatic and other glands, such as tubercle, cancer, cystic degeneration, and, as supposed by one or two authors lately, having a form of degeneration peculiar to themselves. From the evidence before us of eighteen post-mortem examinations, there have been more instances of tuberculous degeneration than of any other, and, as a general rule, Dr. T. is inclined to believe that when not of an acute nature, this result will characterize, most frequently, that form of degeneration, as this form of cachexia prevails more extensively than any other, except the cancerous, for the history, progress, and termination of the disease, show a cachectic condition and not anæmic, as described by Dr. Addison. On account of their vascularity, hemorrhage not unfrequently occurs. But it is rare to see a case in the inflammatory state, according to Rokitsansky, as, in consequence of inflammation they become adherent to the kidneys.

"Respecting the diagnosis of the discoloration of the skin under consideration, there might be some difficulty," says Dr. T., "in arriving at a correct decision in the instances of persons who have been sunburnt. But in cases of this nature, the ears and the hair have undergone some change—which does not, in this disease, exist, in its early stages—as we have seen in all the instances I have recorded, and as many medical gentlemen have also observed, where the sunburnt appearance from nature exists. The general health is good, and the nervous system is not impaired; the lips free from the pigment which all the patients in this affection have. If the pigment on the face does not extend, or grow much darker, though otherwise having the characteristic marks, it is possible that only one of the capsules may be affected, and thus it may remain in this form for a great length of time, and the disease may be prolonged even to two or more years.

"In *pityriasis versicolor* the patches are smaller, not as diffused; show themselves on the breast, shoulders, partly on the neck, and existing sometimes slightly on the face—not unlike the freckles or discoloration in females during gestation—itches at times, and has also, sometimes, a slight furfuraceous scale; and, lastly, the presence of a microscopic fungus, similar in structure to the parasite of *tenia favosa*, and to other mycodermatous growths, of which discovery has been made by Eichstadt, and where this is sought for and found no doubt could exist; the history of the case must here be taken into consideration. Another source of difficulty might seem to be the dirty, sallow appearance of the skin in miasmatic, and in various forms of malignant cachectic disease, but to the early stage there can be no comparison; and, in the advanced stage, the colour is so marked that it would not admit of error."

In one of the cases reported by Dr. T., a microscopic examination of the skin was made by Dr. J. C. Dalton, Jr., from which it appears that the colouring matter was deposited in a granular form, and could not be distinguished from that of the mulatto, and it is believed that the colour of the mulatto is dependent upon a special arrangement in the organization of a certain tissue of the skin, that pigment-cells of a dark colour are secreted in the form of fine granular matter, instead of being uniformly diffused through the tissues.

That some connection exists between the discoloration of the skin in question and disease of the supra-renal capsules, would appear to be an inevitable conclusion from the fact that, in every instance in which a post-mortem examination has been made, the two have been found coincident. But, whether such a conclusion shall become finally established by the result of a more extended series of observations it is difficult to say. It is possible that the discoloration of the skin may be an effect of the accompanying lesions of the supra-renal capsules, but still it is far from being improbable, that the first may be shown by further researches to be a phenomenon merely coincident or of simultaneous occurrence with the latter, without being actually produced by them. We owe much, in whatever way this question may be finally settled, to Dr. Addison, for having directed the attention of the profession to the fact of the invariable coincidence of a peculiar discoloration of the skin with disease of the supra-renal capsule, and to Dr. Taylor for his valuable contribution on the same subject, especially for his very clear delineation of the characteristics of

that discoloration on its first occurrence, as "an early diagnostic symptom of disease of the capsules."

An important question presents itself: Does the invariable coincidence of a special change in the colour of the skin with lesions of the supra-renal capsules, afford us any clue to an acquaintance with the functions performed by the latter?

At the present day, observes Dr. T., the function of these organs is not recognized, nor has any light been thrown on their physiology. Kölliker, who has given more attention to them than any other physiologist of the present day, believes, it is true, that their *cortical* and *medullary* substance are *functionally* distinct; that while the former may provisionally be placed with the so termed "blood vascular organs," and a relation to secretion assigned to it, while the medullary portion, on account of its extremely abundant supply of nerves, must be regarded as an apparatus appertaining to the nervous system, in which the cellular elements and the nervous plexus either exert the same reciprocal action as they do in the gray substance, or stand in the relation as yet wholly unascertained towards each other. Leydig joins with Bergman in believing that these capsules are closely related to the ganglia of the sympathetic nerves, as the pituitary body are to the brain.

"In connection," Dr. T. goes on to say, "with the present subject of the pigment which we notice existing on the skin of patients labouring under disease of the capsules, and the great impression made on the nervous system, as we perceive through the marked impairment of the physical constitution, the weakness and feebleness of the powers of the body, the general lassitude that exists, the feeble and slow action of mind, the stupid manner and expression of thought, the unearthly and sickly aspect of the eye, the mode of death, either by exhaustion, as in cases of advanced anæmia, or through the cerebro-spinal axis, or by coma, we are disposed to entertain the belief or opinion, that if the suggestion of Professor Kölliker be true "that the cortical and medullary substances are physiologically distinct," it may or will, in the course of time, cast much light on the subject, and aid in solving the principal feature of the case, why and how this pigment is deposited, and its relation to the supra-renal capsules. Now, if, as we perceive in this disease, the nervous system is so much involved, the body and mind both impaired and depressed, when the affection has existed for a few months, and the medullary substance is considered as being nearly allied in its function and relation to the nervous tissue, I would suggest this part as being physiologically distinct from the cortical, and to be the '*fons et origo*' of this depressed and impaired state of the nervous system. On the other hand, as the cortical substance is believed to belong to the 'blood vascular organs,' may this not be the '*fons et origo*' of the pigment we see so distinctly evident on the skin? It seems to give colour to the appearance of a tendency to an elucidation of the difficulties involved in the relation the discoloration bears to the disease of the supra-renal capsules. But we leave this point for further investigation, though the idea may be entertained, as the physiology of the organs is considered not yet determined, and their function, according to the latest authority on the subject, unknown. From the facts, therefore, lately presented to our attention by Dr. Addison, and which have in so many instances thus far been verified, that there appears to be a relation or connection between the discoloration of the skin and the capsules, the thought presents itself to my mind, whether it may not be possible that a still further application of the subject in the discoloration of the skin, which we see in gestation, on the face, hands, around the nipple, the abdominal line, navel, vulva, etc. etc., may not have some connection with these bodies, though of a temporary nature; I think the suggestion has some bearing, when we come to reflect on the connection or relation pregnancy has with the kidneys, producing in them a temporary congestion, and to such an extent that albumen may be deposited in the urine, and produce convulsions, as is sometimes the case. Now, this temporary congestion of the kidney during gestation, may exist as early as the first week, and, therefore, proceed not from mechanical pressure on the principal arterial and venous vessels, as is generally supposed. An instance of this nature has lately come under my obser-

vation, where the skin had continued to be deprived of its natural function for two months, and albumen was discovered to exist, though the lady was only advanced two months and one week, and, while under treatment, in the course of two weeks ceased to exist, and still continues free from it. If, therefore, the kidneys become congested during gestation, even in its very early stage, may it not be possible, from the contiguity of the supra-renal capsules, they may become involved, or may they not, themselves, become slightly affected, as we perceive other organs do in this state; sufficiently so to allow the discoloration incident to pregnancy, to exhibit itself? It seems to me there is a feasibility in the suggestion that may admit of further illustration from the remarks we have made; and from the investigations of Meckel on the mammalia, and his observations on the human subject, and the case of Otto and others, showing the relation they both bear to the genital and uterine organs; but the further, and, as I conceive, the more valuable suggestions of Külliker, respecting the physiological action of the two portions of these bodies being distinct, and which we are disposed to think may, in future, tend much to explain the reason how this pigment is deposited, and its connection to the supra-renal capsules. Now, if this should prove to be the reason why this discoloration exists, and in gestation also, may it not explain the reason why the nervous system is affected when albumen is discovered in the urine, and that instead, as some have believed, and which I have not yet been disposed to be fully convinced of, that instead of urea being the cause of the convulsions, it may be possible that the medullary part of the supra-renal capsule is involved?"

We consider the publication of Dr. Taylor as one of deep interest—furnishing a valuable addition to our stock of pathological knowledge. He has, unfortunately, clothed his observations in a style often so clumsy and obscure, as to render it, occasionally, difficult to arrive at his true meaning.

D. F. C.

ART. XXV.—*Essays on the Physiology of the Nervous System, with an Appendix on Hydrophobia.* By BENJAMIN HASKELL, M. D., of Rockport, Mass. 8vo. pp. 88. Gloucester, Mass., 1856.

WHAT is life? Is it the mere result of organization; a power generated by the arrangement of molecules, of a certain chemical constitution, in a particular form and manner? Or does it exist prior to and independent of the organism which is created, developed, sustained, and governed by it? For the solution of this question, we in vain interrogate the physiologist; he has been unable, as yet, with all his multiplied and varied experiments, and his most profound researches, to throw upon it the slightest amount of light. Nor has he been any more successful in his attempts to elucidate the nature of nerve-force, of which so much use has been made, of late years, in accounting for the phenomena of life, as they occur, whether in the normal condition, or in a state of disease. Is this force identical with the living power or principle, or is it simply the agent through which that power or principle builds up organic structures, prompts, directs, and controls their actions, and thus produces all the functions of the living system? Who among us can give a satisfactory reply?

That the nerves perform a prominent and important office in the animal economy is indisputable; but in regard to what that office is, and how executed, we as yet know but little, if anything. We may theorize, and attempt to support our theories by a long array of apparent facts deduced from experiments and observations, but still we have in candour to confess that our actual knowledge in relation to the subject is limited and uncertain.

The doctrine now generally acknowledged by physiologists as the one based upon the most conclusive evidence is, that all mental affections, all active vital phenomena, are inherent in and dependent on the specific vital endowment of nerves.