To all our most exquisite means of scrutiny, the ovum, as it proceeds from the parent, presents nothing to indicate the course of its future development; and yet we speedily can discern in it the traces of the new being, and recognise the successive appearance of each new member and organ—in due time and form and proportion—until the body is built up and completed, after the pattern of the parent. We can perceive nothing in the ovum of man to distinguish it from that of a quadruped, although their final destination is so different. We are constrained, therefore, to admit some pre-existent condition, to us inscrutable, which determines the specific direction in which the forces, acting in development, although probably supplied from without, must operate within the organism. And the marvel reaches its height when we reflect, that not the character of the species merely, but the individual likeness of the parent—aye, of both parents—displays itself in the offspring; and not alone in bodily feature, but often also in intellectual and moral peculiarities.

Then, not alone in regulated form and proportion, do the parts appear, but all fitting harmoniously the one to the other, and each in its appointed time. The periods of incubation and gestation, different but determinate in each species; the regulated time of consolidation and completion of the bones of the skeleton; of the eruption and succession of the teeth; the periods of maturity and decline of the whole body and of particular organs; and a host of examples supplied by the history of the lower members of the creation, serve to illustrate that conspicuous law of subordination to time in the phenomena of the organic world, which Mr. Paget has aptly designated as the "chronometry of life."

Now, while we can in many cases discern the purpose of these adaptations of form, proportion, and time, and perceive how they, as it were, fit in with, although not apparently produced by, the outward circumstances in which the organism is placed; and while we must reverse the infinite wisdom by which they are harmoniously brought about, we are still utterly at a loss to explain them by reference to efficient causes. In some of the lowest tribes of animals, it is true, the results are affected more or less by physical influences, but these influences operate upon internal conditions, existing independently. In the human body, even, you may cramp the growth of a Chinese foot or flatten a Carib skull, but this is suppression or distortion, not formation.

The growth of a finger or a tooth may be traced, and various steps in the process explained; but the acquirement by these and other parts, and indeed by the entire body, of their characteristic form and proportion, is still an inscrutable, at least an unpenetrated, mystery. Unpenetrated, I mean, as regards the physical or efficient causes of the phenomena; for the purpose or final cause is often patent; and hence we see that teleological explanation holds, and doubtless must continue to hold, a large place in physiology.

But, finally, shall we, on that account, censure as rash or stigmatise as impious all attempts to go farther? Shall we presumptuously set limits to the scope of those inquiring faculties which God has conferred on man, or prejudice, and reject by anticipation, conclusions to which their rational and reverential exercise may lead? Assuredly not. Let

us not, therefore, with narrow views of the scheme of providence, worthy of a darker age, join in blindly denouncing the genial effort of one of the foremost men of science in our time, to refer mutations of organic form and the origin of species to natural causes of known operation. Faint as some may deem the prospect of success of Mr. Darwin's great attempt, let none condemn its tendency. Should it ever be shown that the wonderful adaptation and harmonious working, so conspicuous in the living creation, have been brought about by the operation of great natural causes, originally ordained by the Author of the Universe, and acting through countless ages of time, surely such an issue could but tend to enlighten and exalt our conceptions of creative wisdom.

Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

ST. MARY'S HOSPITAL.

PRACTICAL REMARKS ON THE PATHOLOGY AND TREATMENT OF SKIN-DISEASES.

By C. HANDFIELD JONES, M.B., F.R.S., Physician to the Hospital.

[Continued from page 684 of last volume.]

Purpura (continued). Ph. D., aged 62, was admitted June 12th. She had been ill two months; slightly at first, but worse for four days. She had an eruption, chiefly on the right lower limb, of purpuric spots and largish patches, at first attended with swelling. The limb felt cold to her. The spots were preceded by pain. She was much on her legs. The urine had been very high coloured and scanty, but was now more free and clear. Her appetite was fairly good. Tongue clean; bowels open; pulse jerking, compressible. She had not been without potatoes. She was ordered to take ten grains of tannin, two minims of hydrochloric acid, and six minims of chloric ether in an ounce of water four times a day; and to have occasionally a pill containing half a grain of podophyllin and two grains of extract of henbane.

June 16th. There was great improvement. The patches were nearly gone. She complained of itching in some parts, and of dead aching up the leg. The medicine was continued, and glycerine lotion was prescribed.

June 23rd. The legs were nearly well, and she felt better in herself. She was ordered to continue the treatment, and to have a drachm of cod-liver oil three times a day.

July 1st. There was no return of the eruption. She was weakly, but felt much stronger after taking the oil. The oil was continued, and quinine and iron were prescribed.

Fragility of the capillaries being regarded as at least one of the essential changes in purpura, tannin would appear to be a very appropriate remedy, as there is reason to believe that it acts especially on this part of the vascular system, imparting to the homogeneous membranes more firmness and power of resistance. The good effect of gallic acid in the so-called chylous urine disease is an instance of this action.

Papular Eruptions. These constitute another well-marked group, comprising the affections named strophulus, lichen, and prurigo. The former two are identical; strophulus being merely children's lichen. Prurigo is evidently closely allied to lichen. The same may be said of them as of various other cutaneous eruptions—

"Facies non omnibus una,
Nec diversa tamen, qualis debet esse sororum."

The distinction turns on the greater amount of inflammation in lichen; the conical papular elevations being red, and covered with thin scales; while in prurigo they are broader, paler, and very often capped with a black scab of dried bloody exudation. The sensations in lichen are of heat, smarting, tingling, and itching; in prurigo, they are compared to insects crawling over the surface and stinging, or to the skin being pierced with hot needles, while the itching in severe cases is maddening. The subjects of severe lichen, according to my experience, are often of sthenic habit, and in good health; while this is less true of those of prurigo. Both disorders are much aggravated by warmth; the suffering is generally much intensified at night. Lichen occurs most in the warm weather, while prurigo is much less influenced by season. On the whole, however, there can scarcely remain any doubt that the pathology of these eruptions is identical, and that the differences we have noted are of no essential moment.

The causes recognised as producing lichen are, an elevated temperature, local irritation, depressing or exhausting passions, unwholesome diet, abuse of alcoholic stimulants. Strophulus is mostly dependent on dental or intestinal irritation. The causes of prurigo are much the same as those of lichen, except that temperature is of less influence, and poverty and bad hygiene of more. "Quant à la cause spéciale," says Cazenave, "elle est fort obscure"; and the same is surely true of its congener.

Before proceeding further, I must make mention of a common cutaneous affection which seems to have a real relation to the papular eruption, and whose study will, I think, aid us materially in comprehending the latter. I allude to urticaria. This disorder is characterised by its whity, wheal-like elevations, surrounded by bright red areas, lasting from a few minutes to a few hours, and then losing their central pallor, which blends with the declining redness, but can sometimes be made to return by scratching. There is severe pruritus and formication. Sometimes, as in urticaria evanida, there is no surrounding redness; and sometimes, as in urticaria conferta, the inflammation is very considerable. Cazenave states that, in some persons of very high cutaneous irritability, the least pressure produces large patches of urticaria; and Dr. Gull has specially described this state, under the title of urticaria factitia.

The causes of urticaria are utterly manifold and various. It is produced by heat, by cold, by honey, cucumbers, mushrooms, oatmeal, rice-milk, almonds, copaliba, Seltzer water, etc. Shellfish have long had a bad name for this disorder; but we quite agree in Cazenave's remark, that it is by no means proved that there is anything absolutely unwholesome in the suspected food, since, among several persons who partake of it, it often happens that one only is affected. It seems thus certain that it is no special poison or *materies morbi* which gives rise to the phenomena of urticaria, but that any substance which happens, owing to some peculiar idiosyncrasy, to act as an irritant on the alimentary canal, may have this effect, provided at the same time the cutis, its nerves, or its muscles, possess an unusual degree of excitability. The simple experiment of producing marked gooseflesh on the anterior surface of the trunk by flapping a wet towel on the posterior illustrates the production of cutaneous

contraction by a reflected stimulus. Rheumatic and malarious poisons may occasion urticaria; quinine in the latter case curing the eruption, together with the fever. Other and more obscure conditions may also act as causes, as the disorder sometimes attacks children in the night who had gone to bed in perfect health, and wake screaming, covered with the eruption. In a case lately mentioned in the JOURNAL, urticaria was produced by the application of leeches to the os uteri. The phenomena of urticaria seem to me of very high interest with respect to the doctrines of nerve pathology. There are, (1) nerve-disorder, manifested in the dysæsthesia, the itching; (2) contraction of the cutaneous muscular fibre, evidenced by the pale elevated wheals; (3) inflammation more or less extensive of the skin, terminating sometimes with desquamation. In the case of urticaria *ab ingestis*, these phenomena are clearly due to reflected irritation from the alimentary canal. In febrile and other forms of urticaria, including malarious, the cutaneous nerves are probably directly irritated by some poisonous agent in the blood, or their nutrition in some way is disordered. It appears thus that an irritation may cause either a dysæsthesia, a muscular spasm, or an inflammation, according as it affects sensory, motor, or trophic nerves.

The treatment of urticaria consists in the removal of exciting causes, and in the use of means which promote a more healthy nutrition of the skin. Bloodletting, vomiting, and purgation may be necessary in the acute stage; in the chronic, acid drinks, alkaline and vapour baths. Arsenic I have found useful in this period.

The transition from urticaria to the papulous affections is made very easy by the hybrid disorder, lichen urticatus. Cazenave describes this as appearing suddenly, attended with a burning pruritus, and soon disappearing, to return again shortly. Its papules are largish, prominent, inflamed, grouped together, and resemble the stings of nettles. The affection prevails in the warm weather, and attacks or is aggravated at night. By its sudden invasion and its fugacious character, it resembles urticaria; by its general appearance, it belongs to lichen. I have no doubt that there is much variety in this affection; that some instances partake more decidedly of the characters of one, and some of those of the other type. Arsenic and the tan-bath I have found useful remedies. The indication appears to be to give more tone and steadiness to the nervous system.

Romberg speaks very decidedly of the nervous character of prurigo, which he views as a mere hyperæsthesia of the cutaneous nerves; the eruption being the consequence, and not the cause, of the itching. He says: "During the painful restlessness which precedes, and at the time of the occurrence of the itching, no change whatever could be observed in the skin. If the itching increases, the surface becomes red, its temperature rises, and little nodules make their appearance. These disappear on the decline of the attack; but continue, and become torn and bloody, if the patient cannot keep from scratching. . . . The nodules can scarcely be considered as an idiopathic exanthema; but they arise in consequence of the hyperæsthesia, in the same way as disturbances of the secretions and the like occur in other hyperæsthesia." Von Bärensprung, on the other hand, believes the itching in prurigo to result from morbid alterations in the papillary corpuscles of the skin, and combats the view of its being a primary neurosis. He affirms that, if the papules are opened, they are found to contain distended sebaceous follicles.

The following circumstances seem to me to show the correctness of the view that the papular eruptions are intimately connected with nerve-disorder; that the eruption is, in fact, more dependent on the dysæsthesia, than this is on the eruption. 1. Decided inflammation of the skin produced by irritants, or as occurring in erysi-

pelas, is not attended with anything like the severe itching of lichen or prurigo; yet, in such cases, the papillary structure must be involved. 2. There is certainly an affection marked by considerable cutaneous dysæsthesia (stinging and itching), in which there are no, or but few, papules, and no inflammation. 3. The very marked influence of warmth and of the night in aggravating these eruptions is quite accordant with the genius of nerve-disorder, and, *per contra*, unlike that of true inflammation. 4. One form—lichen tropicus—is produced by conditions eminently exciting, and yet exhaustive of nervous power. 5. The relation of these eruptions to urticaria, which is evidently a neurosis. 6. The absence of inflammatory phenomena in prurigo, and their very limited amount in even severe lichen.

The harsh dry state of the skin in most cases of lichen and prurigo contrasts strongly with its condition in various affections marked by great general debility, such as the malarial and influenzal. In the latter, patients break out into copious sweats on any exertion, or often without any; in the former, the affected surfaces remain dry even in vapour-baths. If we join to these facts our common observation of the effects of exercise in producing perspiration, we shall see, I think, that there is a real connexion between the general state and that of the skin in each case. Now it has never, that I know, been clearly shown why we do perspire when we take exercise, why a bout of rowing or cricketing should make "the toil-drops fall from the brow like rain". It is popularly said that the blood is determined to the surface; but the question is *how*. We can understand, on the principle *ubi stimulus, ibi fluxus*, that the blood might be determined to the working muscles; but why to the skin covering them? and why especially to the skin of the forehead, where there are no working muscles. It should surely rather be determined away from the last mentioned part, if activity of the adjacent organ was what induced its afflux to the secreting surface. I believe, in this case, we have a pure example of the effect of consumption of nerve-force. The muscular activity absorbs so much, that the vaso-motor nerves of the skin generally are left in a *minus* state; and consequently increased afflux of blood takes place. The same cause explains, at least in part, the increased cardiac action, which ensues just as it does when the vagi nerves are divided. Now, if the nervous system be in an excited and over active condition in the popular disorders, as we have had some reason to conclude, we can understand why sweating should be absent. We also see why sweating so readily occurs in the disorders which bear the stamp of debility.

[To be continued.]

A SCIENTIFIC VIEW OF COAL BEDS. "A coal bed," says the Rev. Hugh Macmillan, "is in fact a *hortus siccus* of extinct cryptogamic vegetation, bringing before the imagination a vista of the ancient world, with which no arrangement of landscape or combination of scenery can now be compared; and, gazing upon its dusky contents, our minds are baffled in aiming to comprehend the bulk of original material, the seasons of successive growth, and the immeasurable years or ages which passed while decay, and maceration, and chemical changes prepared the fallen vegetable for fuel. If the specimens of plants thus strangely preserved teach us one truth more than another, it is this, that size and development are terms of no meaning when applied to a low or a high type of organisation. The cryptogamia of the old world, the earliest planting in the new soil, are in bulk, as well as in elegance and beauty of form, unrivalled by the finest specimens of the modern forest. The little and the great, the recent and the extinct, were equally the objects of nature's care, and were all modelled with a skill and finish which left nothing to be added."

[In accordance with what we believe to be a general wish in the profession, we have arranged, with the consent of the authors, to issue the addresses delivered at the annual meeting of the Association, by Drs. Burrows, Walshe, Sharpey, and Mr. Paget, in the form of a pamphlet. Our readers can be supplied with copies on remitting nine postage-stamps for each copy to Mr. Honeyman, at the office of the BRITISH MEDICAL JOURNAL, 37, Great Queen Street, W.C.]

British Medical Journal.

SATURDAY, AUGUST 16TH, 1862.

TARTUFFE AT HIS WORK.

THE meeting of the British Medical Association ended as it began. Not only did large and attentive audiences listen to the papers of Dr. Handfield Jones, Dr. Brown-Séquard, Professor Bennett, Mr. Bowman, etc., but the proceedings were followed to the very last by numbers which would have been accounted great in the most successful meetings of previous years. The comprehensive, profound, and stately address of Dr. Sharpey formed an appropriate conclusion and crown of that trilogy, in which Irish point and brilliancy, English elegance and high practical sagacity, and Scottish circumspection and grasp of thought, combined to rear a fitting and memorable trophy of the present state of medical science in the British Isles. We heard no whisper of discontent from one of the hundreds of associates who had repaired from all quarters of the country to grace this commemoration of the thirtieth anniversary of the Association. "All went merry as a marriage bell," till the general harmony was broken, on the very eve of adjournment, by the croaking of an old disturber of the peace.

What ails our Tartuffe of the medical press? Has he eaten sour grapes, or partaken too freely of the good things daily set forth in the refreshment room at the College of Physicians? Does he suffer from an indigestion, a nightmare, a mind ill at ease, or the stings of a troubled conscience, reminding him of former unpleasant deeds by him committed? Of course we do not pretend to fathom the depths, or to trace the secret workings of that kind of mind which creates much needless torment to itself; but it is our duty to hold up to professional scorn the tissue of misstatements which has flowed from a pen steeped in gall and bitterness. Let us see how an unbridled conscience can laugh at truth when its commercial interests require the easy sacrifice.