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**YEAR-BOOK**

OF

**M E D I C I N E, S U R G E R Y,**

AND THEIR

**ALLIED SCIENCES,**

FOR

**1 8 6 4.**

EDITED BY

**MR. JAMES HINTON, DR. HANDFIELD JONES,  
MR. WINDSOR, DR. MEABURN BRIGHT,  
AND  
DR. HILTON FAGGE,**

FOR

**THE NEW SYDENHAM SOCIETY.**

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# CONTENTS.

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## I.—REPORT ON PHYSIOLOGY.

By JAMES HINTON, M.R.C.S.

	PAGE
I. Cells, Elementary Organisms, and Blood . . . . .	1
II. Forces concerned in Vital Phenomena . . . . .	4
III. Circulation . . . . .	7
IV. Respiration . . . . .	14
V. Functions of the Skin . . . . .	18
VI. Digestion and Secretion . . . . .	18
VII. Muscular System . . . . .	23
VIII. Metamorphosis of Matter . . . . .	24
IX. Nervous System . . . . .	28

---

## II.—REPORT ON PRACTICAL MEDICINE AND PATHOLOGY.

By C. HANDFIELD JONES, M.B. Cantab., F.R.S.

General System . . . . .	33
Nervous System . . . . .	66
Psychiatrik . . . . .	101
Muscular System . . . . .	110
Circulatory System . . . . .	111
Respiratory System . . . . .	128
Digestive System . . . . .	147
Secretory System . . . . .	154
Cutaneous System . . . . .	172
Subjects of General Interest . . . . .	186

---

## III.—REPORT ON SURGERY.

By THOMAS WINDSOR.

Operative Surgery . . . . .	194
Materia Chirurgica and the Medical Treatment of Surgical Cases . . . . .	203
Plastic Surgery . . . . .	204
Wounds . . . . .	206
Burns and Scalds . . . . .	208
Gunshot Wounds . . . . .	209
Suppuration . . . . .	215
Erysipelas . . . . .	217

	PAGE
Hospital Gangrene . . . . .	217
Pyæmia . . . . .	226
Septicæmia . . . . .	227
Tetanus . . . . .	232
Malignant Pustule . . . . .	234
Venereal Diseases . . . . .	235
Gonorrhœa . . . . .	237
Syphilis . . . . .	238
Elephantiasis . . . . .	251
Anthrax . . . . .	251
Muscles; Tendons . . . . .	254
Nerves . . . . .	255
Arteries . . . . .	259
Aneurism . . . . .	261
Veins . . . . .	267
Tumours . . . . .	268
Malignant Tumours . . . . .	272
Bones . . . . .	276
Spine . . . . .	280
Fractures . . . . .	280
Joints . . . . .	282
Dislocations . . . . .	287
Excisions . . . . .	288
Amputation . . . . .	292

## SPECIAL SURGERY.

Head . . . . .	296
Jaws . . . . .	299
Eye . . . . .	301
Eyelid . . . . .	304
Exophthalmus . . . . .	305
Iris . . . . .	307
Lens . . . . .	308
Retina . . . . .	310
Amaurosis . . . . .	312
Ear . . . . .	314
Mouth . . . . .	318
Pharynx . . . . .	319
Palate . . . . .	319
Nares . . . . .	325
Parotid . . . . .	325
Larynx and Trachea . . . . .	326
Mamma . . . . .	327
Abdomen . . . . .	328
Intestinal Obstruction . . . . .	331
Hernia . . . . .	331
Rectum . . . . .	339
Genito-Urinary Organs . . . . .	341
Bladder . . . . .	343
Urethra . . . . .	345
Stone . . . . .	347
Extremities . . . . .	351

## IV.—REPORT ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

By JOHN MEABURN BRIGHT, M.D.

	PAGE
Literature . . . . .	353
Midwifery . . . . .	353
Diseases of Women . . . . .	354
Diseases of Children . . . . .	354

### MIDWIFERY.

Statistics, &c. . . . .	354
General Anatomy and Physiology . . . . .	356
Pregnancy . . . . .	361
Unusual Locality of Pregnancy . . . . .	364
Anteversion of the Gravid Uterus . . . . .	368
Retroversion of the Gravid Womb . . . . .	368
Abortion . . . . .	369
Mechanism of Delivery . . . . .	371
Abnormal Conditions of the Pelvis (impeding Delivery) . . . . .	372
Abnormal Conditions of the Uterus . . . . .	376
Plural Births . . . . .	377
Abnormal Presentations . . . . .	378
Diseases, &c., of the Child impeding Delivery . . . . .	380
Placenta Prævia . . . . .	380
Rupture of the Uterus . . . . .	381
Laceration of the Perinæum . . . . .	382

### *Operations in Midwifery.*

Induction of Premature Labour . . . . .	382
Turning . . . . .	383
The Forceps . . . . .	384
Craniotomy . . . . .	385
Cephalotripsy . . . . .	387
Cæsarean Section . . . . .	388
Transfusion . . . . .	389

### DISEASES OF WOMEN.

Physiology, &c. . . . .	390
Affections of the Os and Cervix Uteri . . . . .	391
Amenorrhœa . . . . .	392
Dysmenorrhœa . . . . .	393
Flexions and Versions of the Uterus . . . . .	393
Diseases of the Uterus.—Fibrous Tumours of the Uterus . . . . .	394
Carcinoma . . . . .	400
Pelvic Hæmatocele . . . . .	402
Polypus of the Uterus . . . . .	405
Diseases of the Ovaries . . . . .	407
Ovariectomy . . . . .	410

### DISEASES OF CHILDREN.

Circulation . . . . .	414
Diseases of Respiration . . . . .	415

## V.—REPORT ON TOXICOLOGY AND MATERIA MEDICA.

By C. HILTON FAGGE, M.D.

	PAGE
General Therapeutics . . . . .	417
British Pharmacopœia . . . . .	420
Inorganic Substances . . . . .	421
Organic Substances . . . . .	432
Organic Chemical Products . . . . .	451

---

## VI.—REPORT ON FORENSIC MEDICINE.

By C. HILTON FAGGE, M.D.

Blood-stains . . . . .	456
Wounds and Injuries . . . . .	456
Suffocation . . . . .	458
Cold . . . . .	458
Burns . . . . .	459
Pregnancy . . . . .	459
Abortion . . . . .	460
Delivery . . . . .	460
Infanticide . . . . .	460
Disease . . . . .	465
Insanity . . . . .	465

---

## VII.—REPORT ON PUBLIC HEALTH.

By Dr. C. HILTON FAGGE, M.D.

Literature . . . . .	466
Vaccination . . . . .	466
Hospitals . . . . .	467
Malaria . . . . .	467
Ventilation . . . . .	468
Water . . . . .	469
Food . . . . .	470
Medicine . . . . .	471
Occupations . . . . .	471
Deaf-Mutism . . . . .	479

---

INDEX . . . . .	481
-----------------	-----

# REPORT ON PHYSIOLOGY.

BY

JAMES HINTON, M.R.C.S.,

AURAL SURGEON AND LECTURER ON AURAL SURGERY TO GUY'S HOSPITAL.

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## I. CELLS, ELEMENTARY ORGANISMS, AND BLOOD.

W. PREYER ("On Amœboid Blood-corpuscles," 'Virchow's Archiv,' vol. 36, p. 417) affirms, from observations on the red blood-corpuscles of frogs and salamanders, that in the normal condition those of the latter (if not of both) possess a membrane which encloses the nucleus and the proper substance of the corpuscle. This latter consists of dissolved colouring matter (hæmato-crystallin) and of a colourless matter (protoplasma), which, both in connection with the colouring matter and apart from it, exhibits under certain conditions a contractility like that which is observed in many of the lower organisms. Hæckel ('Radiolarien,' Leipsic, 1862, pp. 105-6) affirms that the blood-corpuscles of many invertebrates put forth processes precisely like the pseudopoda of the Amœba, and by means of these absorb into their substance coloured particles from the surrounding fluid. This observation Preyer confirms, and states further that the colourless blood-corpuscles and lymph-cells of Batrachia behave in precisely the same way; and that they, as well as the blood-corpuscles of the Invertebrata, are membraneless masses of protoplasma, most of which contain one or more plainly visible nuclei. Pigment-containing cells are in some cases formed by the same amœba-like process; contractile masses of protoplasma taking up and enclosing within themselves free particles of colouring matter. This Preyer has seen in effusions of blood artificially caused in the lymph-sac of the frog or salamander. Thus, too, Preyer believes, are formed the blood-corpuscles-containing cells which have given rise to so much discussion. He has seen the red corpuscles of the blood of Batrachia cast-off fragments, which retain their colour; sometimes this takes place to such an extent as to leave the nucleus surrounded merely by a narrow ring. The cast-off portions are embraced and taken up by contractile colourless cells, in which the small particles reunite into larger masses. He has frequently seen the form, size, and number of the contained "blood-corpuscles" vary when watched during a short period, and finds no difficulty in believing that the same processes of division and reunion of the coloured corpuscles,

which take place externally to the cells, occur also within them. In the amœba-like processes which the blood-corpuscles put forth a rhythmical change may often be observed from a varicose to a smooth outline, and *vice versâ*. In stagnant blood these changes may continue under favorable circumstances for an hour. The changes thus observed in the extravasated blood-cells of the frog are similar to those which Beale has obtained by warmth, and Kölliker by the addition of a dilute solution of urea, but the latter take place much more quickly. Preyer ascribes the gradual disappearance of the corpuscle under the urea solution to the effect of the water. Crystals of urea, best applied by suffering a drop of the solution to evaporate and then placing the blood on the same spot, induced only rapid transformations and the throwing off of separated portions.

In frogs engaged in the act of coitus and in breeding salamanders Preyer has also observed a "spontaneous" division of the blood-corpuscles. In this case the enclosing membrane becomes clearly visible by the separation from it of the contents at the point of division. The protoplasm and nucleus alike assume the form of a figure of 8, and by degrees the two portions become quite distinct. Preyer, however, has never seen them entirely separated or separable. Probably in the vessels of the animal they are borne apart in the course of the circulation. This multiplication of the batrachian blood-corpuscles at certain periods differs from that first observed by Remak in the blood of the embryos of mammals and birds, as well as reptiles, in this respect—in the mammalian embryo the nucleus appears first to divide, and carries with it the division of the rest of the cell; in the adult batrachian the protoplasm seems to undergo the first change, and the nucleus is involved with it.

*Osmosis of Albumen.*—A. Schmidt observes that albumen in its ordinary state is almost completely non-diffusible, and that previous to its entrance into the cells of the living organism it undergoes a change which renders it diffusible—akin to that which it suffers during digestion, in being converted into the peptones. It becomes, in fact, *globulin*—the fibrinoplastic substance of Schmidt—and as such undergoes exosmosis freely in presence of the intercellular fluids which are rich in the fibrinogenic substance. This was proved by the endosmometer, through which the serum of the blood rapidly produced coagulation in (*e.g.*) pericardial fluid. Schmidt, however, would not affirm that the exosmosis of globulin is more free into fibrinogenic fluids than into water, although in the former case its coagulating power is much greater, because in the latter case the fibrinoplastic substance rapidly loses its power by exposure to the air. The fibrinogenic substance, on the other hand, does not undergo osmosis; an alkaline solution of it placed in an endosmometer in water does not diffuse into the latter, nor when thus placed in contact with globulin does any coagulation take place in the latter, as would happen if the fibrinogenic substance diffused.

According to Graham's researches, globulin, on account of its diffusibility, must be reckoned among the crystalline group, though it has not yet been, and probably never will be, isolated in a crystalline form. It crystallizes, however, in union with the colouring matter of the blood, as is shown by the fibrinoplastic power of hæmato-crystallin.

*Cause of the change of colour in the Blood.*—To determine whether the

change of colour in the blood by means of oxygen,  $\text{CO}_2$ , and other reagents, was due to a chemical action, or to the altered form of the blood-corpuscles, Schmidt first added 7 to 10 volumes of water to the blood and then filtered it. By this means the corpuscles were entirely removed in a decolourised state from the blood of the horse and dog, the hæmatin remaining in solution. In the blood of the ox this separation was not effected by filtering. The hæmatin thus isolated is no longer altered in colour by O, but it is darkened by  $\text{CO}_2$ . Weak acids and alkalies also darken it, but neutral salts, alcohol, and ether, have no effect on the colour. Further, Schmidt found, by adding the decolourised corpuscles to the diluted blood that the influence of O upon the colour was precisely in proportion to their quantity, and that the change appeared greater by reflected than by transmitted light. To observe the relations of the pigment when present in its normal amount, he concentrated the diluted and filtered blood again to its original quantity. The appearance of the fluid was like that of blood in which the globules have been rendered invisible by alcohol or ether. O rendered it somewhat brighter, but the effect was exceedingly slight, and was not perceptible in thin layers of the fluid. The darkening effect of  $\text{CO}_2$  was very marked. In this solution the blood-pigment exhibited its natural dark colour; in the blood it is rendered brighter by the presence of the solid elements. Thus it appears that the changes of colour wrought in the blood by O and  $\text{CO}_2$  are partly chemical and partly physical; that is, are due partly to an action on the hæmatin, partly to an action on the cell-wall.  $\text{CO}_2$  acts chiefly chemically, O chiefly physically. Acids and alkalies act chemically, neutral salts act physically, as also do ether and alcohol, the former by dissolving the corpuscles, the latter by causing them to swell and the pigment to escape.

On the *Crystallization of the Blood*, Schmidt remarks that the resistance of the blood-corpuscles to the action of oxygen is much less than is usually supposed. By pouring blood into glass flasks with flat bottoms and narrow necks, so as to form very thin layers without incurring too rapid a desiccation, he found that in the course of 15 or 18 hours the globules of dog's blood were decolourised, and after 36 hours they had entirely disappeared. The same changes took place in horse and ox blood in  $2\frac{1}{2}$  to 3 days. That this effect is due to oxidation is proved by the fact that it is brought about much more rapidly by ozone. Alternating  $\text{CO}_2$  with the O does not accelerate the changes, as Harless thought. In respect to the blood of the dog, the horse, and the ox, there is a strict parallelism between the solubility of the corpuscles by oxygen and the tendency to crystallization; both processes take place most readily in the dog, least readily in the ox. In crystallization of the blood two steps are necessary—first, the separation of the hæmato-globulin from the cells and its solution in the serum; and secondly, its precipitation thence, by a diminution of the solvent fluid. The latter may be effected either by evaporation or by the addition of anhydrous salts, especially the sulphate of soda. Alcohol and ether produce both effects. The globules disappear entirely under their influence, but, after the addition of alcohol, concentrated solutions of albumen, sugar, or neutral salts, render them visible again as pale, colourless discs. This is not the case after the addition of ether. Alcohol caused crystallization in dog's blood only, not in that

of the horse or ox. Blood-crystals being easily soluble in dilute acids or alkalis, the alkali of the blood tends to hold them in solution, and hence, neutralizing this alkali by  $\text{CO}_2$ , or by acetic, sulphuric, or hydrochloric acid, facilitates their deposition. It is in this way only that the addition of  $\text{CO}_2$  acts in producing crystallization; a further deposit always ensues on evaporation. A partial oxidation prepares the blood for crystallization by separating the hæmato-globulin from the corpuscles, but carried further it altogether prevents it. Both effects are rapidly produced by ozone—as by shaking the blood with a few drops of ozonized turpentine. When the blood thus shaken loses its dark-red colour and transparency, and becomes greenish and turbid or exhibits white flakes, the period of crystallization is past. The most favorable time is when the hæmato-globulin is dissolved out of the cells, but the latter are still distinguishable.

Schmidt observed also that if the corpuscles of horse's blood were allowed to subside, and then, the serum being carefully drawn off, were shaken with so much ozonized turpentine, that the corpuscles were dissolved in one or two hours, the blood formed a jelly-like coagulum. Allowing this to contract, by separating it carefully from the walls of the vessel, a fluid containing crystallizable hæmato-globulin is pressed out. The clot contains no corpuscles—only flakes which exhibit a remarkably fine granular structure. Thus, by an active oxidation of the corpuscles, these are not only dissolved, but a process is set on foot which has a certain resemblance to the coagulation of fibrin. Unozonized turpentine does not produce a like effect.

Schmidt is of opinion that the crystallization of the blood by means of an electric current, as discovered by Rollet, is due to an oxidizing process effected by the ozone which the current produces from the O contained in the blood. ('Virchow's Archiv,' B. 29, 1864, p. 1.)

*On the cause of the red colour in Inflammation.*—MM. Estor and St. Pierre communicate the following results:—In acute inflammation the venous blood is evidently more red than that of the healthy side. It contains, constantly, a larger proportion of oxygen, in the proportion of 1.5 or 2.5 to 1. It also affords more carbonic acid. The authors ascribe the red colour to the effect of the greater amount of O in brightening the venous blood of an inflamed part. ('Arch. gén. de Méd.,' May, 1864, p. 653.)

## II. FORCES CONCERNED IN VITAL PHENOMENA.

Dr. J. Lemaire, to test the presence of microphytes and microzoa in the air, condensed the vapour of the atmosphere by freezing, and examined the changes which took place in the liquid thus obtained. He carried out his experiments at 3 places—(1) near some fishponds at Sologne, a district where marsh fever prevails; (2) at the Jardin des Plantes in Paris; (3) at Romainville, 300 feet above the level of the Seine, and a very healthy district. In each case the water thus obtained contained, besides grains of starch and dust, spores and small semi-transparent bodies of various shapes. These, however, were very numerous at Sologne, comparatively very few at Romainville, at the Jardin des Plantes they were numerous again. In the course of 24 hours vegetable filaments, vibrios, bacteria, spirilla, and monads, began to take the place of these bodies, and the water became more or less putrid.



These organisms multiplied for a few days, and then gradually disappeared; the animalculæ first becoming motionless. In 15 days at Sologne and in 3 days at Romainville only a few monads were discoverable. The vegetable substances disappeared first, and then the animalculæ, in the order of their smallness. Dr. Lemaire observes that the organic germs were most numerous where fever prevailed. His experiments lead to the conclusion that organic matters are not dangerous except in so far as they contain microphytes and microzoa. At a subsequent sitting he showed that vegetable or animal germs, or both, are given off into the air in great numbers from fermenting and putrefying substances. ('Comptes Rend.,' vol. 59, p. 317.)

*Effects of Light upon Vegetable Life.*—F. V. Jodin, in studying the effects of light upon vegetable principles, finds that in many of these, such as turpentine and tannin, but especially in chlorophyll, light effects a rapid oxidation, while in the dark they remain unaltered.

Thus, it appears that, apart from "life," the effect of light is precisely inverse to that which it produces under the influence of the living tissues. And not only so, but the life of the plant also, apart from light, exhibits itself only in phenomena of combustion, the plant becoming etiolated. The two forces together give an inverse result to that of either alone. ('Comptes Rendus,' vol. 59, p. 858.)

Boussingault discusses the same subject ('Comptes Rendus,' vol. 58, p. 917). Seeds (maize) growing in darkness undergo the following changes:

	Weight.	Starch and Dextrine.	Glucose and Sugar.	Oil.	Cellulose.	Azotized matter.	Mineral matter.	Undetermined matter.
	grm.	grm.	grm.	grm.	grm.	grm.	grm.	grm.
Seed . .	8·6	6·4	—	0·5	0·5	0·9	0·2	0·2
Plant . .	4·5	0·7	0·9	0·2	1·3	0·9	0·2	0·4
Difference	—4·1	—5·7	+0·9	—0·3	+0·8	...	...	+0·2

The process is essentially the same as that of the development of the egg, both being attended with loss of weight and, so far at least as the eggs of turtles are concerned, with a development of heat. The seed, however, requires water from without, as well as air and warmth; the egg contains its own supply. The life of a plant growing in darkness answers to that of an animal unprovided with special organs of respiration. And the analogy is rendered more complete through the production by the plant (peas, beans, clover) of an azotized substance, asparagine, which is a product of combustion, and answers to urea. This substance is also formed in the light so long as the combustive process exceeds the deoxidation, but it disappears when the latter is most active, as just before the period of flowering.

*Effect of Heat locally applied on Development.*—C. Dareste, in pursuance of his investigations on the artificial production of monstrosities, states that in the egg of the fowl the area vasculosa, which is normally of a circular shape, and equally divided by the embryo, becomes oval and is unequally divided if the heat by which the hatching is effected is applied at a single point of the shell, this point not corresponding with its highest portion, where the embryo is situated. In machines in which heated air is used, and also in those in which the heat, though applied at a single point, is directed to the part occupied by the germinal vesicle, no

malformation occurs. In natural incubation M. Daresté observes the warmth is applied directly from above. He found that heat applied to single points of eggs which had been coated with wax caused the wax to melt in circular and not in irregular forms. The abnormal development, therefore, is not due to unequal conduction. ('Comptes Rend.,' vol. 59.)

*Physiological effects of Oxygen.*—Demarquay's and Leconte's experiments with oxygen were made first on animals. Dogs could be made to breathe large quantities with no other effect than increased liveliness and appetite. When large wounds were made in the axillæ of the animals there was observed a considerable injection of the vessels of the wound, with the secretion of a clear serous fluid, and on continuing the inhalation of the gas numerous small petechiæ or ecchymoses formed. The injection of O into the veins has similar effects. If the injection were made into the vena portæ, or into the vena cava below the liver, a considerable quantity of O could be introduced into the blood without ill effects. Two litres—nearly 2 quarts—did not cause death. No alteration ensued in the colour of the blood, the spleen alone assumed a scarlet hue; all the veins of the abdomen were turgid, as if the mass of the blood had been increased by the injection. In respect to the changes in the organism from the respiration of O, it was found, from experiments on rabbits—(1) That these animals can live from 14 to 17 hours in pure oxygen. (2) That when death occurred the muscular system was unusually engorged with blood, and had assumed a peculiarly rosy tint. (3) That the ordinary difference in colour between arterial and venous blood, contrary to the opinion of Broughton, was perfectly well marked. (4) That, contrary to Beddoes' statement, no organ, however vascular, was inflamed or gangrenous.

In the human subject, when O was applied to old or recent wounds it excited only a feeling of slight tickling or burning; in healthy wounds the pus became less in quantity and thicker, and the granulations appeared smaller and gray in colour. But after repeated applications they again became red and turgid, and active inflammation ensued, with increased suppuration. Injection of O into cavities with a mucous or serous lining produced the same sensations; in one case a hydrocele was cured by it. Various sick and healthy persons inspired O for several weeks to the extent of 15 to 30 quarts a day, without injury. A little feeling of warmth in the throat or in the chest, and sometimes a slight degree of confusion or headache, are the sensations first excited; the pulse becomes more powerful, and in many cases slower; often there ensues on prolonged use a feeling of improved health and increased appetite. These good effects, however, did not occur in persons exhausted by prolonged diseases, and in their case after some days effects similar to those produced by O on wounds became perceptible. The direct effect of O on the congested or inflamed tissues surrounding wounds or ulcers is very marked; the redness is rapidly removed, as also is frequently the red ring which surrounds eczema. The indications for the employment of O in disease are chiefly anæmia, whether in surgical cases or in cachectic conditions, such as syphilis, diabetes, cancer; the contra-indications are—(1) fever, with the exception of certain special diatheses, as croup, *e. g.*; (2) deep-seated abscesses, or lesions of internal organs, (3); diseases of the heart

or great vessels ; (4) a nervous condition not caused by anæmia. ('Comptes Rendus,' 1864, I, p. 196.)

### III. CIRCULATION.

*Influence of the gaseous contents of the Blood on the activity of the Heart.*—L. Thiry's experiments lead him to the conclusion that blood which is wanting in oxygen influences the heart through irritation of the vagi. This is in opposition to Franke's view, that CO<sub>2</sub> in the blood is a powerful stimulant to the motor nerves of the heart. If in a rabbit, whose heart is exposed, the access of air to the lungs is cut off, the left cavities may be seen to fill with dark-red blood, without any alteration taking place in its action ; a few seconds later, that is at the time when the unaerated blood reaches the capillaries, including those of the medulla oblongata and the origin of the vagi, the heart begins suddenly to beat more slowly, and after a few contractions either stands still in the diastole or pulsates only at long intervals. Up to this time no symptoms of dyspnoea are exhibited ; they occur first during the quiescence of the heart. At last general convulsions set in, and the heart, which hitherto had dilated only gradually and to a moderate amount (probably through relaxation), is now suddenly greatly distended. These phenomena occur in the course of about 10 seconds. If artificial respiration is now established the heart again begins to pulsate, but not immediately ; only after it has been filled with bright-red blood, and this has been driven further by its isolated contractile movements, does it begin, often quite suddenly, again to beat with a frequency and force nearly equal to that which it possessed at first. It follows that the action of the heart is stopped and renewed, not by the influence of the blood upon the heart itself, but by its effect upon the crigin of the vagus. If artificial respiration is not used the heart begins again to beat after some time, evidently from exhaustion of the excited vagus. The contractions, however, are very weak ; they continue a short time after death.

If the vagi are divided these effects do not take place. In spite of the interruption of respiration the heart continues to beat for some time with its former frequency ; its action gradually grows slower, but does not cease until after death. The convulsions do not affect its rhythm. If the vagi are divided when the heart is at a standstill it begins again to beat. That the effects described are due, not to the presence of CO<sub>2</sub> in the blood, but to absence of O, is proved by the fact that they occur in the same way if instead of stopping the respiration hydrogen or other neutral gas is breathed. The arterial pressure is first increased by interruption of the respiration, the heart's action, though retarded, being very powerful ; afterwards it sinks. ('Henle und Pfeufer's Zeitsch.,' 1864, vol. 21, p. 17.)

*The Pulse.*—J. L. Marey has carried further his attempts to give a more satisfactory physical basis to the doctrine of the circulation. He employed for this end three modes of proceeding:—1st. To measure the pressure within the various cavities of the heart, he introduced into them elastic bladders, protected by perforated metallic cases ; these bladders were filled with air, and communicated by elastic tubes with a corresponding bladder the movements of which were traced by means of a lever

upon a slip of paper moved by clockwork. 2nd. A modified and very delicate registering sphygmograph was employed to delineate the movements of the pulse. 3rd. A series of elastic tubes was constructed to represent the arterial system, proceeding from a central vessel provided with valves to represent the (left side of the) heart. Through these tubes currents of fluid were passed by means of an elastic bottle compressed at regular intervals by the hand, so producing the chief physical conditions of the circulation of the blood. Every explanation given was put to the test upon these tubes.

Among the numerous results arrived at are the following. Taking the entire cycle of the heart's action at one second, the contraction of the auricle precedes that of the ventricle by two tenths of a second; it lasts one tenth, that of the ventricles lasts four tenths. The *impulse* is due to the heart assuming a globular form. Each of the changes which occur within the heart leaves its distinct mark upon the figure delineated—the depletion and repletion of the ventricle, the systole of the auricle, and the closure of the auriculo-ventricular and of the sigmoid valves. Owing to the retractility of the lungs, the heart is subject to a “negative pressure” during inspiration. In measuring the variations of pressure within the cavities by means of a mercurial manometer, Marey found that in the right auricle the pressure was negative during almost the whole period; in some rare cases, owing to the presence of a large quantity of blood, the pressure was positive throughout. In the right ventricle the pressure is negative only at its upper part, and at the commencement of the diastole. In the left auricle there is more constantly a short negative period. The minimum pressure is in the right auricle from  $-2$  to  $33$  millimetres ( $-1$  to  $16$  lines), in the right ventricle from  $-16$  to  $+20$  millimetres (from  $-8$  to  $+10$  lines), generally it is  $+5$  lines. The *force* exerted by the various cavities was in one case—

For the right auricle	. . . . .	2.5 mm. (1.2 lines).
„ left auricle (by calculation)	. . . . .	2 „ (1 „).
„ right ventricle	. . . . .	25 „ (1 inch).
„ left ventricle	. . . . .	128 „ (5.14 „).

The experiments were made on horses, and a correction made for the increased temperature within the cavities of the heart.

With regard to the sounds of the heart, the first is due chiefly to the sudden tension of the auriculo-ventricular valves, reinforced by the muscular bruit. The second is due wholly to the sigmoid valves. They are perfectly reproduced by the valves of the artificial system.

The pulse depends neither on dilatation nor motion of the artery, nor on the impulse of the blood, but on a change in the arterial tension simply. This tension diminishes from the heart to the capillaries; it varies with the amount of the contraction of the latter, and is inverse to the rapidity of the circulation. On comparing the lines given by the left ventricle and the aorta, it appears that the ventricle contracts about one tenth of a second before it opens the sigmoid valves; this interval is spent in closing the mitral. The pressure in the aorta is generally a little less than in the ventricle.

The variations in the rate of the pulse are determined chiefly by the

variations in the arterial tension. The heart acts more or less quickly according to the "weight" it has to overcome. What favours the circulation in the capillaries quickens, what hinders it retards, the heart's beat. This is proved by the sphygmograph, which demonstrates the co-existence of low arterial tension with rapid pulse, and *vice versâ*. Most of the causes which influence the heart's action affect first the capillaries. Rapidity of pulse is due, not to increased force, but diminished resistance, and is a sign, not of force, but of weakness. Food, however, and severe muscular exertion, such as may hinder the free passage of the blood, increase at once the rate of the pulse and the arterial tension. The force of the pulse is not a measure of the heart's power nor of the constitution, but of conditions of the arteries only. It depends, first, on the volume of the artery, and, secondly, inversely on the tension. The finger detects in the pulse, not the extent, but only the speed of the movements.

Dicrotism of the pulse is due to oscillation of the blood through its acquired velocity; in the artificial system of tubes it was absent when air was used, present in a certain degree with water, and to much greater extent with mercury. It arises from retardation at the capillaries, and varies with the length of the artery; hence it is more marked in the distal arteries than in the aorta. It is determined by rapidity and quick ceasing of the impulse; hence it is most in the young and in diseases like typhoid, in which the elasticity is increased, the contractility which neutralizes part of it being lost. It is increased also by diminution of arterial tension, as in bleeding, and is in proportion to the smallness of the amount of blood propagated by the heart.

The influence of the respiration on the line traced by the pulse is capable of giving valuable information. In the normal condition this influence is small. Expiration elevates and inspiration lowers somewhat the general outline which indicates the average arterial tension, owing to the varying pressure on the thoracic aorta; but the effect of respiration on the abdominal aorta is precisely the inverse, that vessel being compressed during inspiration when the thoracic aorta is expanded. These two influences nearly neutralize each other. But every hindrance to the passage of air into the lungs increases the thoracic influences, and produces *elevation of the outline during expiration, and its descent during inspiration*. This effect is observed during respiration through a single nostril. Every hindrance to the enlargement of the abdomen, on the other hand, produces the inverse effect—the ascent of the outline at the moment of inspiration, and its descent during expiration. Keeping the mouth open and breathing very freely suffices to give predominance to the abdominal influences. A prolonged inspiration in some subjects will temporarily stop the heart's action. The line given under these circumstances resembles that produced when the pneumogastrics are galvanized. Marey ascribes the result to an excitation of the pneumogastrics by the extreme dilatation of the lungs.

In respect to the capillary circulation, Marey is of opinion that there is only one force which moves the blood—pressure; and only one variant of the motion—the *size* of the capillaries, which is regulated by their contractility. This varies continually with the weight of blood to which the capillaries are exposed, being greater for each organ in a depending

than in an elevated position. It is increased also by cold and diminished by heat; and on this fact depends the maintenance of a uniform temperature, the cooling of the blood in the extremities and on the surface of the body being thus favoured by heat and diminished by cold. In the application of his experiments to the elucidation of disease Marey traces the phenomena of fever to relaxation of the capillaries, analogous to a universal section of the sympathetic, the arterial tension being diminished, except in the *eruptive* fevers, in which it is increased. Thus, the eruptive fevers seem to differ from other febrile states, the heart in them being primarily excited. The main phenomena of algidity are due to capillary contraction. If the pulse is more rapid in vomiting, and in cholera and hæmorrhage, this is because of the *effort* in the first case, and in the latter diseases the loss of fluid diminishes the arterial tension in spite of the state of vascular contraction. If all the vessels had opposing sets of vaso-motor nerves (as the glands have), the phenomena of fever and rigor might be referred to the action or paralysis of one or other order; but seeing it is not so, the *action* is exhibited by the state of contraction, and the relaxation is an exhaustion consequent on it. Inflammation also is a result of vascular relaxation; it tends towards the surface of the body, because the vessels which are subject to the least compression most easily yield. Union by first intention depends chiefly upon sufficient *pressure*, which prevents the relaxation of the vessels. The subsidence of the inflammatory state is to be ascribed to the vessels acquiring *by custom* a greater contractility, which enables them to regain their normal calibre in spite of conditions which tend to their relaxation.

Senile degeneration of the arteries leaves its trace upon the pulse, more or less, in by far the greater number of persons past 50.

In aneurism the enfeeblement and retardation of the pulse are due to the elasticity of the sac alone, and not to the presence of coagula. The phenomena are the same upon the artificial system. The presence of solid fibrine within the sac reveals itself, by means of the sphygmograph, in the form of the pulse, which is less modified in proportion as the contents of the tumour are solid. For the diagnosis between aneurisms and solid pulsating tumours this instrument may also be employed. The tumour being pressed upon, if it be solid the curve of the pulsation is increased, if an aneurism the curve is diminished.

The *bruit de souffle* is in all cases due to a very diminished arterial tension; it is produced by the passage of a stream of fluid from a smaller to a larger space under a slight resistance, so that it acquires a high velocity, and throws the surrounding structures into vibration together with itself. A narrow jet of liquid issuing freely into a glass tube produces no bruit, but if it passes through a layer of fluid a decided bruit is produced, in which the tube participates. Every kind of bruit can be produced on an elastic tube by varying pressure. Anæmia causes bruits to be more easily produced, by the capillary relaxation it induces, rendering the flow of blood more free, and so diminishing arterial tension. Fever, violent exercise, and, as witnessed in one case, poisoning by opium, produce bruits in this way.

In fine, the various lesions, valvular and other, of the heart, and certain general diseases—among which are emphysema, rheumatism, jaundice,

lead colic—give by the sphygmograph characteristic traces which aid materially in their diagnosis. But it should always be remembered that the form and other qualities of the pulse—which can be really estimated only by an instrument of this kind—exhibit simply the influence of certain physical conditions which may be common to many morbid states, and are not themselves pathognomonic of diseases. ('The Medical Physiology of the Circulation, based upon the Physical Study of the Movements of the Heart and of the Pulse.' Paris, 1863.)

Dr. Koschlakoff has pursued this subject further. On testing the sphygmograph used by Marey by means of a manometer, the lever was found to exhibit certain movements due to acquired velocity, but these do not materially affect its results. In the artificial system of tubes a pump moved by a weight, which could be rapidly graduated to any amount, was substituted for pressure by the hand, and valves precisely corresponding in form to those of the aorta were introduced. Respecting the cause of dicrotism of the pulse, he is somewhat at variance with Marey. Agreeing with him that it requires a rapid systole (*i. e.* a considerable force in proportion to the amount of blood propelled), he denies that it is dependent on the arterial tension. It varies with the capillary resistance and with the force of the heart. Increase of the resistance (the heart-force remaining the same) destroys dicrotism; even tying the sphygmograph firmly on the limb may have this effect. In experiments on the dead body the œdema produced by the artificial circulation sufficed to render the pulse non-dicrotic; incisions restored that character. On the other hand, increase in the heart's force (the resistance and amount of fluid being the same) makes the pulse dicrotic. In heart disease the double stroke is marked when the hindrance to the circulation is not well compensated. Koschlakoff denies that lesions of the heart afford special forms of pulse-line. Even in advanced disease this is often not different from that of health. This, however, is not necessarily opposed to Marey's statement, who affirms rather that, when heart disease is otherwise indicated, the pulse-line may give evidence of its nature. ('Virchow's Arch.,' v. 29, 1864.)

Dr. Landois also ('Reichert's Archiv,' 1, 1864, p. 77) affirms that dicrotism—or rather polycrotism—is the normal form of the pulse-curve, adducing in proof the fact that the dicrotism is more marked, and ensues at shorter intervals, in proportion to the nearness of the artery to the heart, *i. e.* to the valves of the aorta, to the reflection of the blood from which the phenomenon is due. He reproduced the same effect by the use of elastic tubes, through which a stream of water circulated, cut off at intervals by a metal compress. Also by the use of the less elastic intestine of the rabbit the successive waves in opposite directions were rendered visible to the eye, as they were also by attaching to the elastic tube a portion of glass pipe into which a loose thread was introduced. Further, the upward limb of the curve given by the sphygmograph presents successive elevations when the interval between the opening and closing of the valve is of a certain duration (half a second, *e. g.*), an effect due to the elasticity of the tubes. In the ordinary action of the heart the closure of the aortic valves ensues too rapidly upon their opening to give this form, but in dilatation and hypertrophy of the left ventricle, as

also in defect of the valves, and especially in Bright's disease, it is frequently present.

Dr. O. Neumann also describes a new hæmodynamometer ('Wunderlich's Archiv für Heilkunde,' 1864, p. 403), by means of which he also arrives at the conclusion that the secondary (diastolic) pulse-wave is a normal phenomenon, due to the recoil of the blood upon the aortic valves. The contraction of the vessels takes place in two strokes, between which the diastolic wave occurs. The duration of the expansion of the artery is to that of its contraction not nearly as 100 to 106, but at most as 1 to 3.

*Differences between the right and left Cavities of the Heart.*—G. Colen ('Comptes Rend.,' 2, 1864, p. 957) gives the following as the results of his experiments:—(1) The impulsive force of the left ventricle is only a fourth that of the right. In a horse of average size the force of the right side was from 230 to 240 lb., of the left from 56 to 60 lb. (2) During violent exertions the force of the right ventricle increases at the most only by one half, that of the left may rise to double or even treble. (3) The quantity of blood received and ejected by each moiety of the heart in the same time are not equal. The left auricle, which is the larger, does not propel its whole contents; part remains within it, part re-enters the veins. On the right side there is no sensible reflux. (4) The right ventricle also does not transmit the whole of its contents during expiration; the balance is restored during inspiration. (5) The pressure of blood in the pulmonary system is, on an average, one fifth of that in the aortic; it may rise during exertion to one half. The rapidity of the circulation is six times less on the right side than on the left, and is subject to great fluctuations.

*On the share of the Blood-vessels, especially of the Capillaries, in New Formations* (C. O. Weber).—The relation of the vessels to new formations is twofold—on the one hand new vessels grow out from the old, on the other the cell-elements of the vessels play an essential part in the development of the new structures. A gradual transformation of capillaries into small arteries and veins, and of the latter into larger ones, is more frequent than a strict formation of new vessels. The capillaries are not merely enlarged, but all the elements which normally constitute arteries and veins are formed from the surrounding tissues. In a case of fibrous tumour of the uterus Weber found in the adhesions which connected it with the abdominal walls new vessels of the size of a goose-quill, which communicated with the epigastric and mesenteric arteries, and with the vena portæ. They are present in fibroid tumours in parts otherwise very poor in vessels. Their development takes place on two types—that of *cell formation*, in which nuclei are arranged in a row, passing outwards from a capillary, and form a small "street," which afterwards becomes pervious to the blood; and that of *granulation-shoots*, which consist in the formation of solid outgrowths of nuclei, thickly heaped together, which become hollow and communicate with the vessels. In congenital nævi the new vessels are due sometimes merely to extension and thickening, but sometimes they arise by means of loop- or grape-formed outgrowths from the vessels. The cells of the connective tissue may come, though seldom, into direct connection with the vessels, become expanded, and pervious to blood. Most frequently there is first formed on the



outer side of a vessel an accumulation of nuclei; this increases in length, and becomes hollow. From such an outgrowth grape-like clusters of vessels may arise by a repetition of the same process; or it may form a loop either by the springing up of an internal partition, or by bending on itself and ending in a kind of streak of protoplasm, which rejoins the vessel and forms a path for the multiplying nuclei; or, finally, there may grow from one vessel to another two narrow canals sparingly supplied with alternating nuclei, which seem to depend on a gradual projecting outwards of the new nuclei which arise from the division of the nuclei of the vessels. In cavernous tumours the strict formation of new vessels is rare.

In inflammation of serous membranes, together with the conical outgrowths which afterwards become hollow, there are formed also thick cylinders, consisting of oblong cells, at first solid, then pervious, just as in granulations. Similarly formed new vessels are met with in inflamed synovial membranes and in tubercular and other forms of meningitis. The granulations which appear on mucous membranes in chronic catarrh, often in the form of polypoid excrescences (especially on the conjunctiva, the lining of the urinary and sexual organs, and in the *mammellonnée* condition of the stomach), depend upon the formation of new vessels in the form of *granulation-shoots*, which push before them the exuberant epithelium.

In the substance of organs, also, inflammation, especially chronic, is accompanied by new growths of vessels. In tissues originally non-vascular, as the cornea, these have an essentially reparative character, protecting it from purulent disintegration. The new vessels formed in inflammation of the lens proceed directly from the retinal vessels, on the type of the *granulation-shoots*. There are formed also in the eye new vessels from those of the iris and ciliary processes, which, growing over the anterior and posterior surfaces of the capsule, occasion a vascularity of them which has been rightly described as periphakitis. The vascularization of cartilage in inflamed joints takes place from without on the same type; but vessels are formed also by expansions of the meshes of connective tissue which occupy the interspaces of the cartilage. In respect to the vascular tissues, the formation of new vessels is well shown in the caries of bone. By enlargement of the cavities in which the bone-cells lie imbedded there arise larger spaces, which afterwards unite and are converted into lobulated and expanding canaliculi. These are entirely filled with granulations, the vessels of which, richly furnished with nuclei, put forth knobs or buds, at first solid, afterwards filled with blood. Similar processes occur in inflamed muscles and glands; but the formation of vessels takes place less freely in acute inflammation, the rapid production of cells exerting a kind of counter-pressure, which restrains it. In hetero-plastic tumours new vessels are formed in a similar way; in some cases of very soft sarcoma the type which Weber calls that of *vascular cell-formation* obtains.

In a tumour of the breast Wagner observed in the cells which surrounded the new-formed vessels, instead of nuclei, pale-red corpuscles—1 or more, up to 5—which were indistinguishable from blood-corpuscles. It seemed as though the nucleus had changed into a blood-globule, and

by division had given rise to more. He is therefore disposed to adopt Billroth's view, that there may be a development of blood-globules in cells, and an emptying of the same into the vessels.

The part which the walls of the vessels take in the production of new formations is a very extended one. The nuclei of the vessels, especially of the capillaries, form an important source of new elements in them all, inasmuch as they first enlarge, and then, by repeated division, procreate a brood of fresh nuclei. These latter surround themselves with protoplasm and with a membrane, and assume various forms and sizes, according to the character of the new formation. This process may be traced in all inflamed tissues, most readily in bones, where the capillary nuclei increase, so that the capillaries are entirely covered with spindle-formed nuclei, and become like granulation-vessels. If these nuclei go on merely to the formation of connective tissue there arise spongy granulations, which, in certain non-suppurative joint affections, grow out from the bones, and by their tension cause great pain. If these nuclei in part turn to pus there is the common form of purulent caries. The case is similar in inflammation of other parts. This production of nuclei is sometimes so abundant in the brain and spinal cord as to simulate sarcoma. It is a great element in the formation of tubercle. The small granules of tubercular meningitis arise from the growth of the nuclei of the small vessels, as also do the tubercles of mucous and serous membranes and of joints. In the lungs and kidneys the nuclei of the connective tissue and the epithelium also contribute to the formation of tubercle. The characteristic forms of many tumours, alike benign and malignant, is due to their origin from the nuclei of the vessels.

In regard to the retrograde metamorphosis of vessels, the nuclei alike in softening, in inflammation, and in rapidly growing tumours, tend to become fatty. Hence the tendency to bleeding in sarcoma. In healing, also, the vessels become obliterated, partly from pressure, partly from diminished afflux. Thus scars have fewer vessels, and the same is the case with the internal "scars" of inflammation. The framework of a cancer is like a scar-tissue; the obliterated vessels resemble connective tissue. ('Virchow's Arch,' vol. 29, 1864, p. 84.)

#### IV. RESPIRATION.

*Change produced in the Blood by Oxygen.*—Prof. Stokes has made an important contribution to the theory of respiration. His attention having been called to Hoppe's paper on the spectrum given by a dilute solution of blood, he sought to ascertain whether he could imitate the change of colour of arterial into that of venous blood, on the supposition that it arises from reduction. The most suitable reducing agent was found to be a solution of protosulphate of iron in tartaric acid, rendered alkaline by ammonia or carbonate of soda, but other alkaline solutions had the same effect. From his experiments he found that the colouring matter of blood, like indigo, is capable of existing in two states of oxidation, distinguishable by a difference of colour and a fundamental difference of action on the spectrum. It may be made to pass from the more to the less oxidized state by the action of suitable reducing agents, and recovers its oxygen

by absorption from the air. The name hæmatin being appropriated to the product of the decomposition of the colouring matter, Prof. Stokes proposes to call the unaltered substance *cruorine*, and terms its two forms *scarlet cruorine* and *purple cruorine* respectively. The change of colour from arterial to venous blood, as far as it goes, is in the direction of the change from scarlet to purple cruorine; and since scarlet cruorine, even in the cold, is capable of reduction by substances present in the blood, and the action of reducing agents upon it is greatly assisted by warmth, we have every reason to believe that *a portion* of the cruorine present in venous blood exists in the state of purple cruorine, and is reoxidized in passing through the lungs. Carbonic acid acts on the blood as if it were a reducing agent. The change of colour produced by it is not a strict effect of its presence, but is a consequence of the removal of oxygen. (Magnus removed as much as 10 or 12 per cent. by volume of O from arterialized blood by shaking it with CO<sub>2</sub>.) There is this difference between CO<sub>2</sub> and the *real* reducing agents—that the former no longer acts on a dilute and comparatively pure solution of cruorine, while the latter act just as before. The brightened colour of the blood on the addition of salts and the darkening on the addition of water are due, not to altered *form* of the corpuscles, but to altered refractive power, leading to an increased or diminished reflection of light at their surface. Connecting his observations with A. Schmidt's statements respecting the presence of ozone in the blood ('Ueber Ozon im Blute,' Dorpat, 1862), Stokes observes that there is no proof of ozone, properly so called, being contained in blood, for all attempts to obtain from it an oxidizing gas have failed. But Schmidt has entirely proved the presence in the blood of a substance capable of producing certain oxidizing effects, and this substance is connected with the colouring matter. In cruorine we have a substance admitting of easy oxidation and reduction; and connecting this with Schmidt's results, we may infer that scarlet cruorine is not merely a greedy absorber and a carrier of oxygen, but also an oxidizing agent, and that it is by its means that the substances which enter the blood from the food, setting aside those which are either assimilated or excreted by the kidneys, are reduced to the ultimate forms of CO<sub>2</sub> and water, as if they had been burnt in O. An experiment made by Stokes offers a remarkable parallel to the physiological process. When an alkaline tartaric solution of the protoxide of tin is added in moderate quantity to a solution of scarlet cruorine the latter is presently reduced. If the solution is now shaken with air the cruorine is almost instantly oxidized, as is shown by the colour of the solution and its spectrum by transmitted light. On standing for a little time, a couple of minutes or so, the cruorine is again reduced, and the solution may be made to go through these changes a great number of times, though, of course, not indefinitely, as the tin in time becomes completely oxidized. It thus appears that purple cruorine absorbs *free* oxygen with much greater avidity than the tin solution, notwithstanding that the oxidized cruorine is itself reduced by the tin salt. Thus, probably, the purple cruorine of the veins is oxidized during the time, brief though it may be, during which it is exposed to the air in the lungs, while the substances derived from the food may have little disposition to combine with free O. As the scarlet cruorine is gradually reduced, oxidizing thereby a

portion of the tin salt, so part of the scarlet cruorine is gradually reduced in the course of the circulation, oxidizing a portion of the substances derived from the food or of the tissues. The purplish colour now assumed by the solution illustrates the tinge of venous blood, and a fresh shake represents a fresh passage through the lungs. ("On the Reduction and Oxidation of the Colouring Matter of the Blood," 'Proc. Roy. Soc.,' 1864, p. 355.)

*Relation of the movements of Respiration to the Vagus Nerve.*—Dr. Rosenthal comes to the following conclusions:—(1) All the muscles of inspiration may be reflexly excited by the vagus alike to an increased number of contractions or to a state of tetanic spasm. (2) The intensity and duration of this tetanus may vary within wide limits—the more intense it is the sooner it passes, and conversely. (3) All the muscles of inspiration are not excited with equal ease, but they stand in the following order, which is the same as that given by Traube for spontaneously increasing dyspnœa, viz., diaphragm, internal intercostals, intercartilaginei, levatores costarum breves, scaleni, serratus posticus. (4) The more any members of this scale are already in action through previously existing causes of dyspnœa the more easily are they reflexly influenced through the vagus. (5) It seldom happens that an entirely inactive muscle of this scale is brought into action by irritation of the vagus; if it be so the action is weak and brief. (6) If the demand for breath be entirely put aside, so that all the movements of respiration cease, they cannot be brought on again by irritation of the vagus. (7) The muscles of expiration cannot be reflexly excited through the vagus; on the contrary, their existing rhythmical contractions are relaxed during the irritation. (8) After section of both vagi the normal respiratory movements may be restored by artificial irritation of the central portions, but by stronger irritation all the phenomena may be produced which occur when one vagus is irritated, the other being left untouched. The final results are thus summed up:—The action of the medulla oblongata is determined only by the oxygen of the blood. The excitement of the vagi cannot increase this action; it only effects a change in the muscular motions brought into play, in consequence of which the respiratory motions become more rapid, but also weaker:—The extreme limit of this influence is a continued contraction, the intensity and duration of which are determined by the amount of the irritation. ('The Movements of Respiration, and their relation to the Vagus Nerve,' Berlin, 1862; and 'Vierteljahrsch. für der prakt. Heilk.,' B. 3, p. 108.)

*Interchange of Gases in the Lungs.*—Dr. N. Grehaut has studied the phenomena of respiration by causing measured quantities of hydrogen to be inhaled, and examining the gases expired. By this means the volume of air contained in the lungs can be ascertained, since by repeated respirations a complete intermixture of this air and the hydrogen is effected, and an analysis of the mixture enables us to calculate the total. The volume of the lungs, as thus deduced, after expiration, in men between 17 and 35, varies from 1·19 to 3·22 litres (1 to 2·8 quarts).

When a pint of air is inspired, about a third is returned to the atmosphere with two thirds of vitiated air, and two thirds of pure air are distributed uniformly through the bronchi. Dividing the volume of air

introduced into the lungs by the number which measures their capacity, gives the "coefficient of ventilation." This is proportional to the depth of the inspiration; it increases or diminishes as the volume of the lungs diminishes or increases, if the respiration remains constant. Gases mixed with the air inspired penetrate, like it, to the extremities of the bronchi. The volume of an ordinary inspiration, the respiration preserving its ordinary rhythm, is a little more than half a litre (about 1 pint). The expired air, at a temperature of  $20^{\circ}$  ( $36^{\circ}$  Fahr.), is saturated with vapour at  $35^{\circ}$  ( $63^{\circ}$  Fahr.). The weight of water exhaled in 24 hours amounts, both by experiment and by calculation, to 557 grammes (18 oz.); but from this must be deducted the vapour contained in the air inspired. ("Physical Researches on Respiration;" 'Journ. de l'Anat. et Phys.,' 1864, No. 5, p. 523.)

*Pulmonary Lesions produced by section of the Pneumogastric Nerves.*—R. Roddaert has traced the various changes observed in the lungs after section of the pneumogastrics to their causes, and finds that they are attributable to interference with the functions of distinct organs, and to a great extent secondary rather than direct. His conclusions are—(1) In mammalia section of the pneumogastrics in the cervical region produces upon the respiratory apparatus diverse effects, of which some are referable to paralysis of the inferior laryngeal nerves, others to paralysis of the pulmonary branches. (2) To these two classes of effects correspond two classes of pulmonary lesions; the inflammatory phenomena observed in some species of animals, in certain conditions, are due to the penetration of foreign bodies into the air-passages, consequent on paralysis of the larynx; the emphysema, the hyperæmia, and their consequences, are due to the amplitude and the rarity of the inspirations, consequent on paralysis of the pulmonary branches. (3) As a secondary cause of the former series of changes, must be mentioned paralysis of the œsophagus; as secondary causes of the second series of lesions, the modification of the heart's action and the coagula formed in the divisions of the pulmonary artery. (4) Section of one pneumogastric has no influence on the anatomical state of the lungs, or causes only insignificant lesions, because it does not give rise to these physiological disturbances. (5) Section of the 10th pair in birds is not followed by pulmonary changes, because, of the two causes mentioned, the first is absent, and the second exerts its influence over organs differently constituted, on which it does not produce the same effects. ('Journ. de la Phys.,' Nos. 19 and 20.)

*Cause of the Respiratory Murmur.*—Dr. Boudet ('Gaz. Hebdom.,' 10, 49—52, 1863) narrates experiments, chiefly on horses, made with a view of determining the cause of the normal respiratory murmur. His conclusions are that the sound arises from a sonorous wave occasioned by the passage of air from a narrow passage into a wider one. It divides itself into two elements—one arising from the various narrowings of the larynx and palate; the other, arising at the points of opening of the smallest bronchial tubes into the cells (vesicular murmur); the expiratory murmur is due solely to the resonance of the laryngeal sound, and to the passage of the air from the smaller to the larger bronchi. That the murmur cannot be due, as Skoda thought, to the friction of the air, is shown by the entire disappearance of the vesicular murmur after section of the

pneumogastrics ; the effect of which operation is to cause the air to enter the lungs much more abundantly and forcibly. ('Schmidt's Jahrb.,' 122, 1864, p. 27.)

#### V. FUNCTIONS OF THE SKIN.

Villemin's conclusions, drawn from two prolonged series of experiments upon cutaneous absorption, by means of simple and mineral baths, are the following:—The fact of the absorption of water is put beyond doubt by exact determinations of weight, which show that after a tepid bath of from 30 to 45 minutes the weight of the body for the most part remains stationary ; in about a third of the cases it undergoes a slight diminution, generally much less than that which occurs during the same time in the air. Absolute increase of weight after a bath is still more rare and slight. Chemical analysis shows that in a tepid bath the cutaneous exhalation still continues. The absorption of water does not seem to be affected either by the composition or by the density of the liquid employed. It varies chiefly with the physiological conditions. The absorption of iodide of potassium is demonstrated by the analysis of the urine when as much as 1500 grains have been dissolved in the bath ; with 450 grains no iodine is found in the urine. After a simple bath the urine, even though previously acid, generally becomes alkaline ; after an alkaline bath it mostly retains an acid reaction. After a simple or mineral bath the density of the urine is almost always diminished. ('New Experimental Researches on Cutaneous Absorption ;' 'Archiv. gén. de Méd.,' May, 1864, p. 513.)

#### VI. DIGESTION AND SECRETION.

*The intestinal Mucous Membrane.*—D. W. Dönitz has re-examined the structure of the mucous membrane of the intestinal canal, with the view of casting further light upon the mode in which the absorption of fat takes place in the villi. His results are chiefly negative ; they tend to show that—(1) The epithelial cells of the intestinal mucous membrane are closed on all sides by a membrane, and are for the most part regular six-sided prisms, which contain about their centre a nucleus with nuclear corpuscles. (2) The so-called basal seam is a secretion of the cells, not always present, and its decomposition is indicated by a transverse striation. This striation has been sometimes taken for pores, sometimes for rods. (3) The epithelium is separated from the parenchyma of the villi by a vitreous membrane exhibiting no pores (the limiting lamella). (4) The smooth muscular fibres run parallel to the long axis of the villi. Transverse or oblique fibres do not exist. (5) Nor are there any anastomosing connective-tissue-corpuscles. (6) Large fat-globules are formed in the parenchyma and cells of the villi only by means of mechanical force, and arise from particles of fat, which are extremely fine, so that they are not singly visible. These particles penetrate the parenchyma to the central space in some unknown manner, but not through pre-existing paths. (7) An independent wall of the central chyle-vessel, though on other grounds probable, cannot be demonstrated. ('Reichert und Du Bois Reymond's Archiv,' 1864, Nos. 3 and 4.)

*New albuminoid substance in Milk.*—MM. Millon and Commaille, after removing from milk the casein by acetic acid and the albumen by heat, find that there is precipitated by a solution of nitrate of mercury a proteine compound of distinct properties, for which they propose the name of lacto-proteine. Its composition is  $C_{36}, H_{31}, N_5, O_{18}$ , which corresponds to an oxide of proteine united with ammonia. Cow's milk contains of it, on an average, about 15 grains per pint; woman's about 20 grains. The authors state that in the quantitative separation of albuminoid bodies, washing with water, alcohol, and ether, successively, presents great advantages. ('Comptes Rend.,' vol. 59, p. 303.)

*Digestion of albuminoid substances by the Pancreas.*—L. Corvisart reports some experiments made with the pancreas of a healthy man who died after a fall, having been chloroformed. Three hours before death he had drunk 200 grammes (about  $6\frac{1}{2}$  oz.) of milk. The weather was very cold. An infusion of the pancreas was made in 13 oz. of cold water. Some of this was divided into 3 portions, of which one was rendered alkaline and a second acid, the third remaining neutral. All the 3 fluids, when digested at a temperature of  $104^\circ$  Fahr. with various foods, exhibited similar results, freely dissolving fibrin and albumen. A portion of raw fibrin was digested in half an hour, and entirely dissolved in an hour. The whole infusion sufficed to digest albumen equivalent to 6 eggs and more than double that quantity of fibrin; altogether an amount equal to half the rations of a French cavalry soldier. ("On an Active and Misunderstood Function of the Pancreas in Man;" 'Bull. de l'Acad. Imp. de Méd.,' 29, No. 16, p. 687.)

*Functions of the Portal Vein.* (Dr. Oré, Bordeaux, 1861; 'Journ. de l'Anat. et Phys.,' 1864, No. 5, p. 556.).—Though published in 1861, the new results at which Dr. Oré has arrived have not before been reported. M. Robin prefixes to his analysis a brief account of the liver, as consisting of two distinct portions, a larger glycogenic and a smaller biliary organ, the constituents of which lie side by side without communicating. The ducts and gall-bladder are proportioned, not to the size of the liver as a whole, but to that of the proper biliary organ, to which they bear about the same relation as *e.g.* the ureters and bladder bear to the kidneys. Dr. Oré's views are opposed to those usually entertained hitherto, and supported by M. Simon's experiments on pigeons, which represent the portal vein as the source of the biliary secretion. He found that in dogs and rabbits, when the circulation in the portal vein was suddenly interrupted, death followed within an hour; when, however, the vein was carefully exposed, and a thread passed round it without being tied, the vein became gradually obliterated, and the animals recovered perfectly. In a dog thus treated and killed on the 20th day the liver was found considerably diminished in volume, and of a very marked pale-yellow colour. The portal vein was converted into a hard, whitish, fibrous cord. The gall-bladder was gorged with bile, which had also passed freely into the intestines. In another case, after occlusion of the vein for 34 days, the liver contained sugar. Numerous other experiments gave similar results. Dr. Oré's conclusions are—(1) The portal vein may be obliterated without danger to life, and then the albuminose and glucose which it normally absorbs find entrance into the system by

other channels. (2) In spite of the obliteration, and although no other vessel replaces it, the biliary secretion continues. This secretion, therefore, like all the others, draws its material from the arterial blood. (3) The secretion of sugar persists in spite of complete portal obliteration; this substance is, therefore, as C. Bernard holds, a proper secretion of the liver, and completely independent of the food. (4) Experiment shows that the hepatic sugar proceeds from albuminoid substances; during abstinence, therefore, it is formed at the expense of the albuminous substances of the blood. (5) Since the secretion continues in spite of obliteration of the portal vein, are we not led to conclude that in this case it is the blood of the hepatic artery which furnishes to the liver the materials of this secretion? (6) Lastly, the decoloration, the atrophy, and the changes in the textures of the liver which supervene on obliteration of the portal vein, seem to prove that it is the principal nutritive vessel of the liver, while the artery serves almost exclusively for its secretions.

Pathology confirms Dr. Oré's views in respect to the secretion of bile. In not one of 34 cases of obliteration of the portal vein in man, collected by M. Gintrac, of Bordeaux, in 1856, was the biliary secretion interrupted.

*Effect of Alkalies on the secretion of Bile.*—H. Nasse observed in dogs that the carbonate of soda greatly diminished the secretion of bile. A dog of about 25 pounds' weight with a biliary fistula received twice a day  $1\frac{1}{2}$  pound of potatoes, a diet on which he did not lose weight. The bile was scantier than on a meat diet; on 2 days 113 and 101.6 grms. (4 and 3.6 oz.) were secreted. There were then added to the food for 3 days 4 gm. (61.7 grains) crystals [= 22.6 grains anhydrous] of carbonate of soda, and the secretion of bile was only 54.5, 46.1, and 35.8 gm. (from 1.8 to 1.2 oz.). The diminution continued for 3 days after the soda was discontinued, and it reappeared when the soda was again administered. In a previous experiment it was noticed that the diminution affected the solid portions of the bile, and especially the biliary salts, more than the water. Nasse also found, after taking 8 gm. (123 grains) of carbonate of soda that the following night's urine was very rich in hippuric acid. ('Arch. für Wissenschaftliche Heilkunde,' 6, p. 508.)

*Constituents of Bile.*—T. Antisell reports ('Amer. Journ. of Med. Sciences,' Jan., 1864, p. 91) some examinations of the bile made by means of dialysis. The distended gall-bladders of patients who had died from chronic diarrhoea were suspended consecutively in alcohol (81 per cent.), ether, chloroform, and coal oil, for periods of from 24 to 48 hours. By this means all the component principles of the supernatant bile are separated except epithelium, granular and mucous corpuscles. Admitting that the bile is taken from diseased persons, he observes that his object is rather to show what is actually found in human bile rather than to describe the characters of the normal fluid. His conclusions are—(1) The organized matters of the bile are derived from the hepatic cells—chiefly its inner granular matter—and from the epithelium lining the bile-duct. (2) The fats of the bile are the fats of the bile-cell, and have suffered no alteration except their escape from inside the cell. (3) The bile contains two distinct colouring matters—the yellow and the brown—both of cellular



origin, and the latter only in a state of decay. (4) The yellow colouring matter is an organized body—a cell containing cloudy granular contents, which furnish fatty matter by decomposition; the fatty acids being the margaric and glycocholic associated with cholesterine and soda. These yellow corpuscles are the yellow corpuscles of the bile-cell. (5) The brown colouring matter is an albuminous substance undergoing decomposition, and is probably the remains of the wall of the hepatic cell whose contents constitute the *yellow* colouring matter. It is this brown matter which by treatment with  $\text{NO}_5$  yields the play of colours used as a test for bile. (6) The bile contains both the *materials* removed from the portal blood and the *anatomical structures* by which the removal was effected; the latter in a stage of retrogressive metamorphosis. (7) The bile is an excretion—a depuration of the liver directly, of the blood remotely.

*Biliary Acids in Icterus.*—H. Huppert ('Arch. der Heilk.,' 5, p. 236, 1864) and E. Bischoff ('Henle und Pfeufer's Zeitsch.,' 21, p. 125, 1864) have endeavoured to determine experimentally the course of the bile-acids in icterus, and agree in the result that only a small portion of them is excreted by the kidneys, the greater part being, as in health, decomposed in the blood. Huppert injected from 25 to 50 grains of the glycocholate of soda into the jugular vein of the dog and the rabbit, and on drawing blood in from 5 to 9 hours (after the temperature and pulse had recovered from the consequent depression) discovered in it scarcely a trace of the acid, while the urine secreted during the same time did not contain 2 grains. In other cases which gave similar results, the secretion of the liver was examined at the same time by means of an hepatic fistula: after the injection of the glycocholate of soda there was a slight increase in its secretion by the liver, but this increase did not last more than an hour nor did the quantity exceed a fourth or a sixth of the amount injected. By the liver and the kidney together not more than a third or a fourth of the injected acid was excreted, though none remained in the blood. That it had been decomposed rather than exuded into the tissues may be inferred from the fact that in jaundice, in spite of the continued absorption and the scanty excretion, the pulse maintains a considerable frequency. Bischoff could not detect any biliary acids in the blood, muscle, brain, or cerebro-spinal fluid, of a man who died jaundiced from cancer. On examining the urine in jaundice, Bischoff found in one case 5 grains of choloidic acid per diem, and in another  $\frac{3}{4}$  gr. Lossen found  $1\frac{1}{2}$  gr. The largest of these quantities is less than  $\frac{1}{3\frac{1}{4}}$ th part of the probable daily secretion as estimated by Bischoff and Voit, and Ranke. In health the fæces contain of biliary acids at least 8 grammes (123 grains) less than the amount secreted; which quantity, therefore, is burnt in the blood. And since there is no reason to suppose their oxidation diminished in jaundice, their presence in the urine being simply the result of their absence from the fæces, it is probable that the formation of them in that disease is not less than in health.

*Hippuric Acid in Urine.*—Mattschersky administered kinic, cinnamic, and benzoic acid to dogs, and found that, except in one instance with benzoic acid, hippuric acid was excreted in their urine, although it normally contains none. ('Virchow's Archiv,' 1863, 2, p. 538.)

*Influence of Reflex Action on Secretion.*—(Cl. Bernard, 'Journ. de l'Anat. et Phys.,' 1864, p. 507.)—Reflex actions are of two kinds—producing on the one hand the contraction, on the other the relaxation, of a muscle. Examples of the latter are arrest of the heart in the state of diastole by irritation of the skin, and the stoppage of the respiration by excitation of the superior laryngeal nerve, as shown by Rosenthal. (This latter fact explains what M. Bernard had found long ago, that when the throat of an animal is compressed its respiration ceases, even although an opening is made in the trachea.) These paralysing reflex actions seem to explain the mechanism, heretofore obscure, of reflex secretion. By stimulating the lingual nerve, as by vinegar on the tongue, secretion is excited, through the chorda tympani, in the submaxillary gland, the circulation in it becoming, at the same time, much more abundant, and the venous scarce distinguishable, either in appearance or in amount of O, from the arterial blood. There is here a paralysis of the vessels of the gland effected by a paralysing influence exerted on the sympathetic nerve, which normally keeps the vessels in a state of tonic contraction. If all the nerves of the gland are destroyed, a continuous state of secretion sets in (after 2 or 3 days, to allow of the degeneration of the nervous filaments contained in the substance of the gland), the gland at the same time diminishing in size, and undergoing considerable changes in its structure; at the end of 5 or 6 weeks, in a dog of average strength, the secretion entirely ceases; then the gland gradually recovers its normal state, the nerves being regenerated. Further demonstration that the phenomena are due to the suppression of the nerve is given by poisoning the gland with curare, which acts only on the motor nerves. By injecting a few drops into the supplying artery, and opening the vein to allow its escape and avert any general effect from the poison, a state of continuous secretion is excited, due to the paralysis of the vessels. The effect may be several times repeated. Injections of water or of irritating fluids have no influence on the secretion.

*As a contribution to the study of Impaired Digestion,* Dr. O. Schultze reports 2 cases in which the products of fermentation were found in the vomited matter in cases of ulceration of the stomach from poisoning by dilute sulphuric acid. The first case was a maid-servant, æt. 20, who ultimately died of inanition, with contraction of the pylorus and hyperæmia of the mucous membrane, no large quantity of mucus being present. The vomit presented, besides starch-corpuscles, blood-globules, and epitheleum-cells, numerous yeast and other sporules; no sarcina. On analysis there were found dextrin, grape sugar, and a small quantity of alcohol, with a smell of fusel oil, removed by charcoal. Acetic acid was present, and traces of the volatile fatty acids, but neither butyric nor formic acid. Lactic acid existed in considerable quantity, and probably succinic acid and glycerine. The patient took nothing but coffee in the morning, bouillon with rice at noon, and gruel at night; no alcohol. In another case there were sarcina, yeast-cells and vibrios in the vomit, and on distillation alcohol and acetic and butyric acid were given off. Schultze remarks that the volatile fatty acids are, in all probability, derived, not from the fat, but from the starch of the food, since all the intermediate stages, dextrin, sugar, and alcohol, are present, and the

neutral fats are very stable bodies. The  $\text{CO}_2$  present also was in pretty exact relation with the amount of these volatile acids. More alcohol was present in the case in which butyric acid was absent. ('Reichert und Du B. Reymond's Arch.,' No. 4, 1864, p. 491.)

#### VII. MUSCULAR SYSTEM.

*Chemical conditions of the fatigue of Muscles.*—Ranke has carried further his investigations on this point, made by injecting into the muscles of the frog various products of muscular action (see 'Year-Book,' 1863). In his former experiments he found that the muscular juice and lactic acid suspended by their presence the muscular power, which was restored by washing them away by a solution of common salt. He now states that it is to kreatin and lactic acid that the muscular juice owes its effect. Hippuric acid has no influence, or scarcely any, upon the peripheral muscles, but it transiently suspends the action of the heart, as Ranke thinks by its local action, showing a special relation of that substance to the cardiac muscular fibre. All the other substances experimented with had the same effect upon the heart as upon the other muscles. Glycocholate of soda and the salts of potash act somewhat differently from kreatin and lactic acid, and much more powerfully. Their effect is like that of  $\text{CO}_2$ , and is rather *paralysing* than *fatiguing*. They rapidly produce a change in the structure of the muscle, while the effect of the fatigue-inducing substances ceases on their removal. Kreatinine acts like the last-named substances (paralysing) but much less powerfully. Of all the salts or products of decomposition normally met with in the organism, that Ranke has examined, two only have no effect on the tissues. These are uric acid and grape sugar. The former is ineffective, probably on account of its slight solubility, but the latter is so even in a concentrated form. Sugar acts precisely like a 7 per cent. solution of chloride of sodium, and in many cases is even more suitable for use as an indifferent fluid.

The excitability of the nervous trunks is increased (as in natural fatigue) by the properly fatigue-producing substances, viz., lactic acid and kreatin. Carbonic acid and the soda salts of the bile acids diminish or destroy it. Kreatinin, uric acid, urate of soda, urea, hippuric acid, and the salts of potash, have no effect on the peripheral nerves. Ranke's attention was especially drawn to the action of the urea. This substance leaves unaffected the irritability and the power of the muscles, the respiration and the action of the heart, but annihilates the spontaneous and reflex actions. Its influence, therefore, seems to be exerted upon the organ of the will and upon the centre of control for the reflex excitability. By dividing the nervous centres at various parts Ranke came to the conclusion that the part of the brain on which urea acts is situated between the middle of the cerebrum and the middle of the corpora quadrigemina, to which region Setschenow assigns the "controlling organ of reflex excitability" discovered by him (see 'Year-Book,' 1863). This centre is excited by urea in such a way that a paralysis of the entire peripheral reflex apparatus is induced, lasting even after removal of the brain and section of the cord. At the same time the cord and nerves are excitable

by direct irritation. Besides urea, hippuric acid, glycocholate of soda, and the salts of potash, suspend the reflex function. The two latter alone paralyse the reflex mechanism; but hippuric acid, though it leaves its energy unimpaired, puts to rest any previously existing excitement. Ranke remarks that in tracing the effects of various fluids upon the different tissues by the method he has adopted, it is shown that the effects of the same fluid differ for different cells—may be stimulating for one, depressing for another, or, as in the case of kreatin and lactic acid, may increase action in smaller quantities and diminish it in larger. It is shown also that substances hitherto regarded merely as excreta exert a powerful influence in the economy; the particles of the muscular tissue, immediately after their own activity, may become by their decay the excitors or controllers of succeeding action. ('Reichert und Du B. Reymond's Archiv,' No. 3, 1864.)

*Changes in Muscle during action.*—Dr. Sarokow states that in the frog kreatinin is present in muscles with an alkaline as well as in those with an acid reaction though to a greater extent in the latter. The quantity of kreatin in the muscles when at rest is almost twice that of the kreatinin. During exertion the kreatin is converted into kreatinin. There is also an absolute increase of kreatin. ('Virchow's Archiv,' B. 2, 1863, p. 544.)

C. Neubauer, on the other hand, from experiments on the flesh of the ox, pig, calf, and sheep, arrives at the conclusion that no kreatinin is naturally contained in the juice of muscle, but that when it is found there it results entirely from the conversion of kreatin by taking up water. In fact, when kreatin is exposed in a closed glass tube containing water for 2 or 3 days to the temperature of a water bath, the fluid becomes alkaline, and very little kreatin is deposited on crystallizing. The mother-liquor treated with chloride of zinc gives beautiful crystals of that salt in its combination with kreatinin. Of kreatin Neubauer found in beef .230 per cent., in pork .171, in veal .182, and in mutton, .184. ('Schmidt's Jahrb.,' 1864, vol. 1, p. 274.)

#### VIII. METAMORPHOSIS OF MATTER.

*On the influence of the consumption of a large amount of Fluid on Obesity.*—M. Daucel ('Comptes. Rend.,' vol. 58, 1864, p. 1149), in investigating how to reduce extreme obesity, remarked that the absence of fat and fat-forming elements from the food did not produce emaciation if much liquid was taken. He was thus led to think that water and watery substances favoured obesity. Some facts he has observed in the feeding of animals confirm this view. A lean cavalry horse was made the subject of the following experiment by M. Decroix. Its rations were diminished by 3 lbs. of oats, without change in the amount of straw and hay. Water was kept constantly accessible, and about 1 lb. of bran was mingled with it daily. In 27 days the horse had gained nearly 38 lbs. in weight, in spite of the change of 3 lbs. of oats for one of bran. In the same regiment there was a very fat mare, which sweated much on moderate exertion, and, like fat men, had unusually liquid evacuations. It drank much, nearly 60 quarts a day. The quantity of liquid was reduced to 15

quarts, and the mare soon lost its obesity, and became vigorous and active.

*Relation of Food and Excretion.*—Pettenkofer and Voit have given a further extension to their researches on nutrition, using the same dog on which their former experiments were made. Having lived on mixed diet for more than 3 months, he was fed for 25 days on 48.4 oz. of pure flesh; the 1st, 5th, 9th, 13th, and 18th days were passed in the respiration apparatus. After the second day an equilibrium was maintained between the nitrogen consumed in the flesh and that excreted in the urine and fæces. In 10 consecutive days the dog excreted an average of 1674 grs. urea, which, according to Voit's former experiments, represents all the nitrogen of the urine. The total solid content of the urine was 2360 grs., of which 253 were salts; thus, there existed in it, besides the urea, 433 grs. of organic substance, which consisted of 149 grs. carbon, 38 grs. hydrogen, and 248 grs. oxygen. On one day the dog produced, further, 171 grs. dried fæces, consisting of 77 grs. C, 11 grs. H, 11 grs. N, 23 grs. O, and 51 grs. salts. To these excreta the respiration has to be added.

On the other hand, the dog consumed daily in the flesh 1364 grs. C, 2362 grs. H, 891 grs. N, 16,883 grs. O, and 282 grs. salts. He consumed also 7395 grs. O from the air.

From these data results the following equation:

	Consumption.	Excretion.
Carbon . . . . .	187.8	180.0 grammes.
Hydrogen . . . . .	152.5	157.3 „
Nitrogen . . . . .	51.0	51.1 „
Oxygen . . . . .	1566.4	1599.7 „
Salts . . . . .	19.5	19.7 „
Total . . . . .	1977.2	2011.8 „

Difference, 34.6 grammes, or 536.3 grains.

This difference, amounting to less than 1 per cent., resolves itself almost entirely into a loss of water; that is, of hydrogen and oxygen, in the proportion of 4.8 H to 33.4 O.

A further proof of the accuracy of the method was given by the fact that the direct determination of the inspired O agreed within 20 grains with that given by the calculation of ingesta and excreta.

According to these results, the dog accomplished its entire metamorphosis of matter within 24 hours exclusively from the food consumed; and, with the exception of a very small quantity of water, no constituents of its body were employed in it. Only on a flesh diet is it possible (in the dog) to establish a condition in which the sum of the elements of the effete parts of the body (solid and liquid) is equal to the sum of the elements of its food (flesh and oxygen), the other elements of the body which have a different composition from the food taking no part in the metamorphosis.

To account for the deficiency of 3.8 grammes (59 grains) of carbon in the excreta as compared with the ingesta, Pettenkofer and Voit think it probable that a small formation of fat takes place from the flesh (78 grains a day). If all the nitrogen of flesh is subtracted in the form of urea,

the elements which remain give nearly the formula of fat, and if 4.5 per cent. of the carbon, with a proportionate amount of the oxygen, are excreted as  $\text{CO}_2$ , a body with the composition of fat remains. No nitrogen, these new researches also prove, is absorbed from the air or given off into it. ('Ann. d. Chem. u. Pharm.,' Suppl., Band. 2, p. 361.)

*Formation of Fat from Casein.*—As confirmatory of this latter view, Ch. Blondeau has given proof, which seems satisfactory, of the conversion of casein into fat in the case of Roquefort cheese. During 2 months in which it was kept in a cellar the proportion of casein diminished from 85.4 to 42.3 per cent., and that of the fat increased from 1.8 to 32.3. The fat was submitted to every test; it consisted of 16.8 margarin and 1.5 olein. The change is accompanied by the growth of a penicillium, without which it does not take place. On analysing the growth its composition in respect to carbon and nitrogen is such as to correspond with a complementary formation of margarin from the caseine, viz. C 61.5, N 22.6, H 7.5. Or supposing that from the casein ( $\text{C}_{48}$ ,  $\text{H}_{36}$ ,  $\text{N}_6$ ,  $\text{O}_6$ ) the penicillium takes all the N, and as much hydrogen as would suffice to form ammonia, there remains the formula  $\text{C}_{48}$ ,  $\text{H}_{18}$ ,  $\text{O}_6$ , which comes near to that of fat. ('Ann. de Chem. et Phys.,' Feb., 1864, p. 208.)

*On the influence of Glauber's Salt on the Metamorphosis of Matter.*—J. Seegen starts from the position of Pettenkofer and Voit, that all the nitrogen consumed is excreted in the fæces and the urine; *i. e.* that if the animal remains of the same weight all the nitrogen which enters the circulation reappears in the urine. Hence, conversely, while the food remains the same an inference may be drawn from the amount of nitrogen in the urine respecting the metamorphosis in the organism, and the effect of any added substance securely determined. By feeding dogs on a uniform diet, and carefully determining the loss or gain of weight and the nitrogen contents of the urine and fæces, Seegen comes to the conclusion—(1) That Glauber's salt has scarcely any influence on the absorption of the food. (2) That during the use of Glauber's salt the decomposition of the nitrogenous elements of the tissues is essentially retarded, or the body becomes richer in nitrogenous substance. (3) That the waste of fat is increased. The animal may either gain or lose in total weight. The dose employed was from 15 to 45 grains daily. Seegen believes that the similar effect which he has obtained from the Karlsbad water is due to the Glauber's salt, which is its chief ingredient. ('Virchow's Archiv,' 29, p. 558.)

*Changes in the Composition of the Blood induced by Inanition.*—Dr. P. L. Panum, from experiments on dogs, concludes that no essential or considerable change occurs during inanition, either in the proportion of the blood to the body generally or in the proportion of the fibrin and corpuscles to each other (in this opposing Bidder and Schmidt). The total quantity, however, diminishes. Even when water is allowed *ad libitum* the normal proportions of the chief blood-constituents is maintained. It thus appears that the materials destined for the nutrition of the tissue, as well as oxygen and the resulting carbonic acid and urea, only transiently form constituents of the blood. Accordingly, with deficient supply of food the formation of the tissues is soon arrested, for the mass of the solid constituents of the blood do not, to any extent at

least, undergo alteration, showing that the requisite material is not derived from them. The blood, considered as a whole, therefore, is not properly the material of nutrition, but is only a means of transport between the absorbent surface of the intestines and the tissues. It follows also that neither the fibrin nor the corpuscles is the material from which the tissues are directly nourished; but probably the solid, especially the albuminous, constituents of the serum, which diminish to a certain extent in starvation, are the immediate source of supply. ('Virchow's Arch.,' 29, p. 241.)

*Assimilation of Isomorphous Substances.*—Roussin has made experiments on hens and pregnant rabbits, to determine whether isomorphous substances can act as substitutes for each other in the body—whether substances which externally to the organism replace each other without essential alteration of the crystalline form possess a like value in animal nutrition. With the food of the hens were mixed the carbonates of baryta, strontia, magnesia, iron, zinc, lead, copper, cobalt, and of both the oxides of manganese, hydrated clay, and the oxide of antimony. Of these, all the monoxides passed into the egg-shell; the sesquioxides (the clay, iron, and manganese) and the oxide of antimony did not. Thus, the expectations of the experimenters were fulfilled. Each metal gave special physical characters to the shell.

Since the iodide, bromide, and fluoride, are isomorphous with the chloride of sodium, of which the egg contains much, Roussin anticipated that the former would take the place of the latter, which he found to be the case, and to so great an extent as to indicate that the egg was the chief channel for their excretion. In one egg as much as 8 grains of the iodide was found. The iodide and bromide, especially the latter, caused the shell to be very thin, or even altogether wanting, although the hens had free access to lime. This effect was least marked on the strongest and largest feeders. The chickens differed in no respect from ordinary ones.

The following is one of Roussin's experiments with the arseniates (isomorphous with the phosphates). A female rabbit took daily with its food .75 gr. of an arseniate. In 7 days it was sick, but after a pause of 12 days it bore the salt well for a long time. After a month it gave birth to 5 young, which it suckled. In the bones of these arsenic was found on the 25th, 43rd, and 60th day; scarcely any in the muscles. They had been either suckled or fed on food containing arsenic. After the second month they were fed with increasing doses of arsenic, which reached in one case as much as 1.5 gr. daily. During the 3 months the experiment lasted they were perfectly healthy. The bones then contained an increased quantity of arsenic, which was also present in the urine, mixed with triple phosphates; the muscles still showed scarcely any. The surviving rabbit of the brood (4 having been killed) was now deprived of arsenic, and became for some weeks much emaciated. After 3 months arsenic could be detected only in 600 gr. of bone, whereas in those last killed it was discoverable in 75 gr. The muscles contained none. In the mother rabbit traces were found after being 5 months without it. ('Receuil de Mém. de Méd. milit.,' 3 ser., 9, p. 136; and 'Schmidt's Jahrb.,' 1864, vol. 121, p. 5.)

*Functions of the Epiglottis.*—Dr. Schiff shows by experiments on dogs

that even in swallowing liquids the epiglottis is not touched by them; and also that its complete removal does not interfere in any way with the perfect protection of the glottis during swallowing; this being, as is well known, effected by its closure by its own muscles, and by its being drawn up behind and beneath the base of the tongue. The epiglottis does, however, serve to protect the air-passages, viz., against the trickling into them of the small quantity of fluid which remains in the mouth after drinking. This liquid, by collecting in the *sinus pyriformes* by the side of the epiglottis, and stimulating their sensibility, gives rise naturally to a supplementary act of swallowing. Dogs in which the epiglottis was removed coughed after drinking, unless they were induced to perform this supplementary act of swallowing by licking the cup, &c. In persons, therefore, who drink in such a way that the fluid falls by its own gravity into the mouth the absence of the epiglottis would lead to choking, and this probably explains the contradictory results which have been met with. This view of its function is confirmed by the special development of the epiglottis in animals in which fluids naturally enter the mouth without suction—as in the whale, the otter, and the young of the Monotremata, which latter do not suck, the mother by her own muscles squeezing the milk into their mouths. ('Moleschott's Untersuchungen,' vol. 9, p. 321.)

#### IX. NERVOUS SYSTEM.

*The Functions of the various portions of the Nervous Centres* in the vertebrata have been newly investigated by Pietro Renzi, who has published the results obtained in fishes, reptiles, and birds, in the 'Ann. Univers.,' 185—187, 1863-4. In the fish (salmon) are found—(1) the olfactory lobes; (2) the central lobes; (3) the optic lobes, within which are the optic commissure and the 4 corpora quadrigemina; (4) the cerebellum; and (5) the ganglia inferiora. In respect to the general properties of the brain, Renzi's results agree with those of Flourens—the cerebral lobes, optic laminae, and the fibres of the cerebellum, are neither sensitive nor excitory; the internal ganglia of the optic lobes are in a high degree excitory, violent convulsions ensuing when they are wounded. One point is added, that when the cerebellum is injured convulsive motions of the eyeball follow. Fishes deprived of the cerebral lobes retain their sensational perceptions and their instinctive activity; they avoid painful impressions, struggle when removed from the water, and avoid a blow directed towards their eyes; but they seem to have no apprehension of danger, nor of the means of seeking food, nor do they make any spontaneous movements. In a word, the cerebral lobes are the seat of intelligence, and this alone.

The *laminae opticae* are the centres of vision, each for the opposite eye. The *ganglia interna* are the central terminations of the motor cerebro-spinal nerves, and are excitors of muscular contraction, any irritation of them producing active muscular twitchings. After extensive injury of both or either of them there results a general muscular relaxation; extreme prostration and death soon follow. These ganglia are connected with the same and not with the opposite side of the body.



The ganglia inferiora cannot be experimented upon separately from them, and have, most probably, the same function. The corpora quadrigemina are not excitory, but further results were not attainable. The cerebellum—(1) is the co-ordinator of voluntary movements; when it is destroyed, the animal moves irregularly and often rotates. (2) It has a connection with the sight, continued convulsions of the eye of the same side following its injury. General prostration results least from destruction of the cerebral lobes, more from that of the cerebellum, still more from that of the laminae opticae; it is very great after destruction of the ganglia interna, and instantaneous death with convulsions follows that of the medulla oblongata.

Renzi's experiments on reptiles were made solely on *Rana esculenta*. The brain consists of—(1) the 2 cerebral lobes. (2) The thalami optici. (3) The optic lobes, two smooth, round, hollow eminences, on which the optic nerve spreads out into two roots. The portion surrounding the cavity is termed the lamina optica. (4) The cerebellum, a simple transverse medullary strip. (5) The medulla oblongata. The brain proper, the superior layers of the laminae opticae, and the cerebellum, are neither sensitive nor excitory. The deeper portions of the thalami as well as the optic lobes are excitory, the latter in a high degree. Moderate or powerful contractions ensue upon a second wound of these two parts, according as those which preceded have been violent or slight. The deep parts of the optic lobes are sensitive as well as excitory, as also are the upper and posterior fibres of the medulla oblongata. The cerebral lobes are the seat of intelligence, but Renzi denies Flourens' statement that their removal destroys the sense-perceptions. If one cerebral lobe alone is removed intelligence remains, even if somewhat weakened, and the sensibility, spontaneous motion, and instinctive activity, suffer no disturbance. But the *intellectual perception* is lost in respect to the eye of the opposite side. That is, when the right side of the cerebrum is removed in a frog, and the right eye is rendered blind by evacuation of its fluids, the animal remains quiet, it exhibits no fear on being approached, threatening motions made towards its left eye do not disturb it; it seems, as Flourens thought, to be blind. But if an object is placed in front of it, and it is excited to movement, it avoids the obstruction, moves away from it, creeps under it, or passes around it, in a way that proves that the left eye still has perception. When successive layers of the cerebrum are removed from above downwards, or from before backwards, no considerable diminution of intelligence ensues until a large portion has been lost, and it ceases entirely only when not the least fragment remains attached to the crura. But division of the crura is the same as total destruction of the lobes. The thalamus opticus has strictly no relation to sight, which is unaffected by its section unless the optic tract or the crus of the cerebrum is involved; but its section induces a transient rotatory movement towards the uninjured side, or alternately towards each side, if both are divided. If deeply pierced with a fine needle general convulsions ensue. The thalami are the organs of intellectual or spontaneous movement; being the point at which the excitor fibres of the spinal cord come into relation with those of the cerebrum. The

optic lobes, on the other hand, are the centres for the instinctive movements. Destruction of the cerebellum produces no effect beyond a certain weakness, soon recovered from. Probably, therefore, the so-called cerebellum in the frog does not answer to that organ in other animals. By removing all the portions above the medulla oblongata, and separating it from the spinal cord, the following results were arrived at:—(1) The medulla oblongata is the seat of the sense of touch and of pain. (2) It is the source of the instinctive motions—those, *e. g.*, which result from sensations and from the need of breathing. (3) It is the seat of the instinctive demands or instincts, such as respiration, rejection of noxious gases, withdrawal from irritation. In respect to Flourens' punctum vitale, Renzi found that a transverse section of the medulla behind the point of the calamus did not affect either respiration, sight, or intelligence; a section precisely at that point stopped the respiration and caused sudden death; a section above it only caused a cessation of the psychological functions.

(3) In respect to birds, of which a great variety were employed for experiment, the excitability and sensibility are, in general, the same as in the previous classes. Renzi agrees with Bouillad, Longet, and Lussana, against Flourens, that when the hemispheres are removed the instincts and sense-perceptions remain with the movements determined by these, and only intelligence is wanting. When only one hemisphere is removed intelligence and instinctive action remain, but there is exhibited a certain degree of torpidity; the bird is more disposed to sleep, is more quiet, and less ready to take alarm. It does not lose sense-perception on the opposite side, as Flourens held, but only the intellectual apprehension connected with it. Partial removal of both hemispheres confirm Flourens' statement that some intellectual activity remains as long as any of the cerebral structure is intact, and that the separate mental powers have not separate localities, but disappear together. Division of the fibres connecting the hemispheres and medulla oblongata has the same effect as their total extirpation. The thalami optici and optic lobes are centres for sight in the crossed direction and also for motion; the former for the voluntary, the latter for the instinctive, motions. The cerebellum is the co-ordinator of muscular movements, but it performs this function through an action directed, not to the muscles, but to the senses. *The cerebellum is the seat of sensuous attention.* A finch in which the anterior portion of the cerebellum was injured soon recovered from the consequent lesions of motion, and seated itself upon its perch. In this position threatening motions made before its eye, though wide open, did not affect it, until it was aroused by tapping on the cage. Then it fluttered unsteadily, as being frightened when similar movements were made, but relapsed when left at rest. On this view of the functions of the cerebellum Renzi thinks the part ascribed to it in the sexual function is explained. The medulla oblongata is a centre for sight and smell, as well as for feeling and hearing. Section at the apex of the calamus, even when not complete, causes sudden death, as also does a section made from  $\frac{1}{2}$  to  $\frac{3}{4}$  of a line in front of it, but here the section must be complete. ('Schmidt's Jahrb.,' 1864, No. 11, p. 151.)

Dr. Baudelot, as the result of experiments on the brain in fishes, says—"If we compare the functions of the corresponding parts of encephalon in mammalia and in fishes, we find—(1) That in mammalia ablation of the hemispheres always induces loss of intelligence and of will; in fishes it is followed by no appreciable effect. (2) In mammalia destruction of the cerebellum destroys the power of co-ordination of voluntary movements; in fishes it does not affect this power, or in a very slight degree. (3) After ablation of the arch of the optic lobes in fishes vision is abolished, as it is in mammalia after removal of the corpora quadrigemina. (4) In fishes lesions of the base of the optic lobes and of the medulla oblongata induce disorders of movement entirely analogous to those which are produced in mammalia by lesions of the optic thalami, of the cerebral peduncles, and of the middle peduncles of the cerebellum." ('Journ. de l'Anat. et Phys.,' No. 1, 1864, p. 110.)

*Structure and Functions of the Cerebellum.*—In reference to the structure of the cerebellum, Dr. Luys ('Journ. de l'Anat. et de la Phys.,' 1864, Nos. 3 and 5, pp. 225 and 450) states that all the white fibres of that organ first converge towards the gray matter of the corpus rhomboidale, which is in respect to them what the optic thalamus is in respect to the cerebral fibres. These white fibres emerge as distinct fibrillæ from the cortical gray matter, and appear to be constituted by the union of successive prolongations from nerve-cells of diverse characters. The efferent fibres constitute the 3 peduncles, and are all crossed in their distribution. The inferior peduncles pass to the olivary bodies, and thence to mingle with the spinal fibres; the superior peduncles pass to two masses of gray matter placed in the middle line, answering in all respects to the olivary bodies ("superior olivary bodies"), and from thence radiate in all directions, chiefly in three bundles, which all intermingle with the ascending spinal fibres. The three peduncles together give origin to a continuous plexiform network of gray substance, extending from the pons to the corpus striatum. The cells constituting this network are of a peculiar yellowish colour, some of them especially charged with pigment, those of the locus niger, *e. g.*, which form a part of the peripheral expansion of the superior peduncles. This gray matter is the instrument through which the influence of the cerebellum is distributed, and it is united intimately and exclusively with the system of the anterior spinal fibres, with the primitive fibrils of which they gradually come into contact. Then the cerebellar fibre becomes, as it were, unbound, the axis cylinder is unravelled, the sheath is prolonged in filaments, at the extremities of which there appear small characteristic cells, and it thus blends itself with the anterior spinal fibre (itself become thin), and these two separate nervous elements become strictly combined. Thus they proceed together till they come into contact with the large cells of the gray matter of the corpus striatum. The walls of these cells are covered with a series of small yellowish cellules, which are the distal expansion of the peduncular fibres of the cerebellum. These furnish anatomical proof of the propagation of the action of the cerebellum to the large cells of the corpus striatum.

Dr. Luys holds that the cerebellum is the generator of a special nervous force, incessantly produced by its cortical substance, and distributed to the motor regions of the cord. Thus he accounts for the various derangements of motion which ensue upon destruction or division of its fibres. The cerebellar influx keeps the elements of the spinal cord, as it were, continually charged. The influence of the cerebellum also, transmitted through the corpus striatum to the hemispheres, may be the source of the consciousness of muscular power—of the sense of ability to act. And pathology (cases of physical excitement with congestion of the cerebellum, reported by Calmeil, and of extreme pusillanimity with degeneration or non-development of that organ, reported by Andral and others) seems to indicate that the vigour of the mental character is greatly determined by the functional activity of the cerebellum.

*The Retina, as analysed by the Stereoscope.*—J. Towne reports experiments designed to show that many phenomena of vision ascribed to mental agency are really due to structure, and prove identity of sensation in corresponding parts of the two retinae. The experiments relating to colour, by Meyer, Dove, Brücke, Helmholtz, and others, consist in simultaneously presenting different colours to the two eyes, regarding each retina as a whole. Mr. Towne's method is to present the different colours to corresponding *halves* of the retinae. A stereoscopic test for the retina is applied by means of slides so adapted as to separate the great tracts of the retina, thus allowing the condition of each part to be critically observed. Not only does identity of action and of sensation exist between corresponding *tracts* of the two retinae, it exists also between very minute portions. The theory of identical points, however, would seem to require that the images referred to corresponding parts of the retinae should perfectly agree, which is not always the case. With reference to this point, it is shown that images differing considerably in magnitude, if their colours are identical, will blend and appear as one; while, on the other hand, images identical in form and submitted to identical parts of the retina will, the colours being disharmonious, appear double and distorted. In monocular vision there is nothing analogous to this; the two halves of each retina being entirely distinct. ('Guy's Hospital Reports,' 1862, 33, 34.)

*Development of Heat by Nervous Action.*—Valentin has made experiments, using the sacral plexus of the frog, to determine afresh the question whether the activity of a nerve or nervous centre raises its temperature, which Helmholtz's experiments left doubtful. By the use of a very delicate thermo-magnetic instrument he established that electrical or mechanical irritation of the spinal cord raised the temperature both of the cord and the nervous trunks. The heat rose for some minutes after the irritation, and was increased by repetitions of it. In a medium experiment it rose  $0.78^{\circ}$  C. ( $1.4^{\circ}$  F.). There is no doubt that a nerve-action, determined, not only by means of electrical, but also by means of mechanical irritation of the spinal cord, has for its effect a demonstrable elevation of temperature in the sacral plexus and the sacral nerves. The temperature continues to increase by radiation, and its exact amount cannot yet be determined. ('Virchow's Arch.,' v. 28, p. 49.)

REPORT  
ON  
PRACTICAL MEDICINE AND PATHOLOGY.

BY  
C. HANDFIELD JONES, M.B. CANTAB., F.R.S.,  
PHYSICIAN TO ST. MARY'S HOSPITAL.

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GENERAL SYSTEM.

WEBER.—*On the Trophic Nerves and their influence on Inflammation.*  
Med. Times and Gaz., Oct. 1.

Referring to Samuel's experiments (for a notice of which v. 'Year Book,' 1862, p. 118) which went to show that not paralysis, but considerable irritation of nerves, would produce inflammation, Weber states that Dr. Tobias, a pupil of Virchow's, at first showed that the method which had been employed by Samuel was a faulty one. One drawback to it appeared to be that croton-oil had been used for irritating the nerves of rabbits, and this substance was now shown to lead to those extensive suppurative changes which had been observed by Samuel even if the nerves themselves were not at all touched by it. By this, however, only part of the problem had been solved, and Weber therefore repeated the whole of Samuel's experiments, but without in any case observing the appearances described by him. Moreover, his mode of experimentation proved to be too injurious to the animals. If nerves (Prof. Weber argues) are for ten minutes acted upon by a powerful electric current, and no arrangements are made for insulating the current and preventing its radiation to the neighbouring tissues, the experiment loses its value; nor can we be astonished that there should be more or less diffuse inflammation if nerves are tied to pieces of bone and afterwards touched with croton oil. But such inflammation is neither confined to the ramifications of the nerves thus treated, nor is it so constant that any sound deductions could be made from its occurrence. Weber therefore thought it advisable to employ a safer and more exact method of examining this question. To excite the nerves for a somewhat longer space of time, he used partly threads loosely placed round them, or metal rings or fine needles, and partly the continuous galvanic current, the nerves being enveloped with a fine conducting wire of copper and platinum. The results of such excita-

tion of the nerves were—contraction of the blood-vessels, decrease of temperature lasting for a longer or shorter time, and occasionally venous hyperæmia, but never any symptoms of inflammation. It seemed strange that Samuel had not at all experimented on the sympathetic nerve, although Claude Bernard had more than ten years ago shown it to possess a peculiar influence upon the blood-vessels. Weber has also experimented on this question, and confirmed, amongst others, the results arrived at by Donders and Snellen, who had found that after the section of the sympathetic and consequent dilatation of blood-vessels, the inflammation excited in the ears of rabbits was more intense, and had a much more rapid course. He observed that if rabbits' ears were injured, or setons drawn through them, the wounds healed much more quickly after the section of the sympathetic fibres than if the nerves were still acting. Long continued excitation of the nerves had no influence on the inflammatory action. He also remarked that after the section of the cervical sympathetic the dilated vessels might be caused to contract again by cold or electricity, or to be further expanded by heat. This can only be explained by assuming either an independent irritability of the muscular fibres of the blood-vessels, or the existence of an independent ganglionic system. The assertion of Schiff that there was a special set of nerves having the function of expanding the blood-vessels is contradicted by Weber. It would therefore appear that the influence of nerves upon inflammation is nothing else but the influence exercised by them upon the blood-vessels, and that inflammation cannot directly be caused either by paralysis or irritation of nerves. Indirectly, however, these latter have a considerable influence upon the nutrition of the parts, and the course of inflammation in the tissues, as upon them depends the amount of blood contained in the vessel, since by irritation of the vaso motor nerves anæmia and defective nutrition, and by paralysis of the same, hyperæmia, a more rapid metamorphosis of matter, greater inflammatory action, and a more rapid course of the inflammation are caused.

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TURNER, W., M.B.—*On the textual changes which occur in Inflammation of serous membranes.* Edin. Med. Journ., April, 1864.

Turner says, "To carry out successfully an inquiry into the nature of the inflammatory process in a serous membrane, the attention of the pathologist should not be confined to the examination of the lymph coating its free surface, or to the mingled liquid and solid products lying in the serous cavity, but the membrane itself should be carefully inspected, not only at its free surface, but for some distance into its substance. This may be efficiently done by making sections through its entire thickness, and carrying the knife (Valentine's) even into the subserous connective tissue. If a portion of the subjacent healthy texture is thus included along with the diseased in the section, the observer is enabled to make in the same preparation and from the same locality a comparison of the healthy tissue with that in which the characteristic inflammatory changes have taken place." After citing Neuman's, Cohnheim's, and Rindfleisch's observations; Turner expresses his opinion that the part which the epithelium plays in the production

of the cells of the inflammatory lymph is comparatively unimportant, and that it is the sub-epithelial connective tissue we are more especially to look to as the seat of their formation. When sections through the inflamed costal pleura were examined before the addition of acetic acid and glycerine, a confused mass of new-formed cells mingled with the proper fibres of the sub-epithelial connective tissue in apparently inextricable confusion was seen. But after the addition of the above reagents had caused the white fibrous element of the tissue to disappear, the arrangement and relations of the new-formed cells could be followed, especially in those parts of the section where the elastic fibres were at a minimum. The new-formed cells were small, pale, and rounded, with faintly granular contents, and closely corresponded in their characters to those existing in the inflammatory lymph coating the free surface of the membrane. In those parts of the sections which lay immediately beneath this free surface, the cells were crowded together in great numbers, and formed closely-packed rows, or clustered masses. But somewhat deeper they were not so densely set, and here, therefore, their mode of arrangement could be more satisfactorily studied. In many places they were so disposed as to form a network, more or less close, which possessed greater or lesser degrees of irregularity in the size and form of its meshes. For the most part the cells were arranged in rows, though here and there they lost the linear disposition and formed small clusters. The cells succeeding each other in any given row were either actually or almost in contact, though occasionally intervals of somewhat greater extent existed between them. These cell networks evidently did not lie free in the interstices of the texture, but were enclosed by an investing membrane, which appeared to constitute a tubular system possessing numerous anastomoses, though here and there the tubes gradually terminated in long-pointed processes. Cells containing tubular networks presenting modifications of the plan just described, could be followed through the greater part of the thickness of the inflamed costal pleura, though in some places the numerous yellow elastic fibres prevented the arrangement from being so closely traced. The constancy of these arrangements shows that these cells containing tubular networks are not mere accidental occurrences in inflammation of the pleura, but are evidently due to something in the anatomical configuration of the part which determines that the new cells produced in the course of the inflammatory process should arrange themselves in such a manner. Turner indicates the stellate and anastomosing nucleated corpuscles of the connective tissue as the essential seat of the new cell-growth, and as therefore determining its arrangement. If this texture be examined in the early periods of the inflammatory process, the single nucleus of the connective tissue-corpuscle may be seen to be constricted in the middle as if dividing, or to have divided into two or a greater number. The corpuscles themselves are enlarged and swollen and contain two or more small, pale, faintly granular, cell-like bodies, corresponding in appearance to the cells which constitute so essential a constituent of the inflammatory lymph. With the further continuance of the inflammation the corpuscles swell out more, and become more distorted in shape; their anastomoses become larger and more distinct;

the new cells formed in their interior are greatly multiplied, and instead of being collected merely in clusters at the spots which correspond to the original bodies or central parts of the corpuscles, they extend in rows along the interior of the dilated anastomosing processes. At a still later period the proliferation of the nuclei has increased to such an extent, and the new cells formed are so numerous, that the part seems to be altogether composed of these new productions, and all trace of their mode of origin is lost. In the inflamed peritoneum the results of observation were similar. Turner states in conclusion, that the general result arrived at from these and most other recent researches on the inflammatory process is that an explanation of its phenomena is not to be looked for by referring them to actions of the extreme vessels, but to a disturbance of the forces which naturally exist in the extra-vascular portions of the inflamed part. (Goodsir.)

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SMOLER, M.—*On the duration of some acute diseases, their lethality, and complications.* Wien. Zeitschr. 18, 3, p. 151, 1862. Schmidt's Jahrb., vol. 121, p. 233.

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SMITH, E.—Lancet, April 2.

In the dietetic treatment of cases of undue spareness of habit, when the object is to increase the bulk of the body, Smith recommends—(1) quietude and mental repose; (2) where there is excitability of the system and general frequency of pulse, prolongation of the hours of sleep, and restraining of bodily exertion; (3) where the vital functions are not actively performed, the assimilation of food must be promoted by increased bodily activity, and the use of highly nitrogenized food; (4) to supply any deficiency of heat of body by abundant clothing, by the direct application of heat to the skin, through the medium of air or water, and if necessary by lessening the action of the skin by inunction or by saline solutions; (5) to increase the activity of the digestive process if necessary by food highly nitrogenized, by exertion, and by the inspiration of pure air; (6) to supply an increased quantity of fatty as well as nitrogenized foods in combination. Milk in small quantities should be cooked and given at each meal, and in daily quantities of a pint and a half to 3 pints. Whenever milk is disliked as an article of food, it may be readily taken if given in small quantities when hot, made into puddings, or prepared with chocolate, coffee, or other foods; (7) alcohols (and particularly good and somewhat new ale) are most powerful agents when given in quantities of ale of half a pint to a pint and a half daily. Rum taken with milk is the most powerful restorative and promoter of assimilation and alimentation that we possess. He records a case in which the emaciation was extreme, the limbs cold, with numerous patches of livid discoloration and blisters of the skin. The pulse was very feeble, thready, and not above 50 per minute; the respiratory movements exceedingly feeble, and the chest very flat. The appetite was so reduced, that for many weeks she had not taken more than 2 oz. of bread or biscuit, 2 oz. of milk, and  $\frac{3}{4}$  of an ounce of cooked meat daily. The only cause of the disorder seemed to be the occurrence of measles 10 months previously, since which time she had



been in feeble health. By means of a daily hot bath, and hot oil inunction, wrapping in cotton wool, and diligent feeding at short intervals, she was gradually restored.

SMITH, E., M.D.—*On Obesity*. Lancet, May 14, 21.

Smith distinguishes apparent obesity from prominence of the abdomen from the real state. His conclusions are as follows:—(1) In a medical point of view, we must consider in every case whether the bulk and weight of the body are appreciably in excess of the natural standard of health. If the person for reasons of his own seeks to reduce his size below this, he must be responsible for the results. (2) An accurate estimate must also be made of the degree of vigour of system, including the power of heart, and the functions of digestion and assimilation; also of the condition under which the patient lives, and the capability which he has for making exertion, in order to determine what amount of deficiency of food, elimination of fluid, and exercise can be tolerated consistently with good health. (3) When the plan of treatment has been arranged, it must be carried out slowly and steadily for a number of weeks or months, without being departed from in any instance. (4) The state of the health and of the bodily vigour, must be watched from time to time; and as the bulk of the body diminishes, the supply of food must be increased. (5) When the desired bulk has been attained, it will not be possible to maintain an exactly uniform weight over long periods; but a dietary must be then devised, which shall suffice to maintain health and weight under the conditions in which the patient lives. (6) When the complaint is only of an enlarged abdomen, it will not be necessary, neither will it be safe, to lessen materially the amount of food supplied; but attention to the evacuations, to digestion, to the reduction of starchy food, to the avoidance of fish, and to elimination by the skin, will produce the desired results. (7) When with bulk of body there is looseness of the tissues, it is essential that the strength be supported by abundant nitrogenized food, and by a small quantity of wine, at the same time that the elimination of fluid is maintained by active exertion, and the use of the hot-air bath followed by the cold douche. (8) When with obesity there is a vigorous system, deficiency in the supply of food, and increase in bodily exertion may be appropriately enforced. Butcher's meat should supply a large proportion of the nutriment, whilst farinaceous food should be much restricted. Brown bread should be given with a view to maintain a free action of the bowels; and gluten bread with its excess of nitrogen and deficiency of starch, when toasted, may supply its place or be added to it. Only so much milk, sugar, and fats should be given as may complete the quantity of carbon required. Fish is far less suitable than butcher's meat; and if wine must be taken, it should contain as little alcohol as possible. Beer and spirits should be avoided. The exact amount of these different kinds of food must be determined by the requirements of each individual case, but two schemes may be mentioned, one of which (A) shall supply  $7\frac{1}{2}$  oz., and the other (B) 5 oz. of carbon. (A) Butcher's meat without bone, raw, 12 oz.; bread, 6 oz.; sugar  $1\frac{1}{2}$  oz.; butter, 1 oz.; vegetables, 4 oz.; milk, 5 fl. oz. (B) Butcher's meat without bone, raw, 10 oz.;

bread 3 oz. ; gluten bread, 3 oz. ; green vegetables, 2 oz. ; sugar, 1 oz. In each case 3 meals should be eaten daily, and meat at each meal. The amount of exercise which may be taken daily when the corpulence is not extreme, is 3 hours at 2 miles per hour, and 2 or 3 hours at 3 miles per hour, or the latter may be supplanted by 2 hours' rough trotting on horseback. The amount of sleep should not exceed 6 or 7 hours daily, as long as the health will tolerate it, and the patient should not take a mid-day nap. Smith bases the following statements on his inquiries into the effect of exactly measured degrees of exertion. These show, that taking the lying posture as the minimum and as the unit of comparison, walking at the rate of 1 mile per hour is 1·9 ; at 2 miles, 2·76 ; at 3 miles, 3·22 ; and at 4 miles, 5. The effect of cantering on horseback with a rough horse is 3·16 ; and of trotting, 4 ; of moderate rowing, 3·33 ; and of moderate swimming, 4·33. The numbers will represent both the relative effect upon the body in the consumption of fatty and fat-forming matters in any given time, and the greater number of hours during which a given gentle exercise must be continued to render the effect equal to the severer exercise. For example, one hour's walking at the rate of 4 miles per hour, would cause as large a consumption of fat as nearly 3 hours' walking at 1 mile per hour ; and 1 hour on the treadwheel is equal to 4 hours' gentle walking. Hence we have almost as powerful an agent in exertion as in fasting ; but in employing it we must proceed by slow degrees, and maintain the exertion, keeping always well without the limit of failure of the heart's action and general exhaustion. It is curious to know how much fat is consumed by different modes of exertion per hour. Thus 1 hour of lying still when asleep at night, consumes 0·31 oz. of fat ; 1 hour of lying awake in the day time, 0·46 oz. ; 1 hour of standing, 0·55 oz. ; 1 hour of walking at the rate of 2 miles per hour, 1·1 oz. ; ditto, at the rate of 3 miles per hour, 1·6 oz. ; 1 hour of working at the treadwheel (if continuous) 2·75 oz. Hence 1 lb. of the fat of the body in the absence of food, would be consumed by less than 6 hours' labour at the treadwheel, by 10 hours' walking at 3 miles per hour, and by 14½ hours of walking at 2 miles per hour. If we further estimate that 10 oz. of carbon are required by the body daily with only moderate exertion, and that by the food we supply only 5 oz., there will be a consumption of 8 oz. of the fat, or other carbon-yielding material stored up in the body daily, besides the much larger amount of fluid which would be emitted at the same time. A loss of 6 lbs. in weight may thus take place in a single day.

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RADCLIFFE, C. B., M.D.—*A few words concerning Bantingism.* Med. Tim. and Gaz., Aug. 20.

Radcliffe says the diet in Bantingism is essentially the same as that prescribed in training for the ring or for the boat-race. The chief peculiarity in each case, is to allow a large amount of lean meat. It may be expected that Bantingism cannot be carried beyond a certain point with advantage. In training, this is certainly the case, for after a certain time, within 4 months at the longest, the person in training gets rapidly out of condition. Nor is it otherwise with Bantingism, at

any rate, Radcliffe says he has met with several persons who after trying the system for awhile with no disadvantage, have thus got out of condition in an unmistakable manner, some of them becoming very gouty, and all of them experiencing a decided failure in strength and spirits. Radcliffe thinks that the procedure in question while it nourishes the muscles may starve the nerves, and thus induce a corresponding want of nervous energy. Radcliffe believes that the farinaceous, saccharine, and oily articles of food are, in proper proportion, not to be dispensed with without risk, inasmuch as they are the most suitable fuel for keeping up the heat of the human body at the proper point. He is of opinion that certain persons may incline to the type of vegetable feeders rather than to the type of animal feeders; and that these persons may find the nitrogenized part of their food better in the albumen, fibrine, and caseine of vegetables, than in those of animals.

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DOWN, J. L. H., M.D.—*On Polysarcia and its treatment.* Clin. Lectures and Reports of the London Hospital, 1864, p. 97.

Down reports the following case:—E. C—, imbecile, admitted Nov., 1858, æt. 21, 4 ft. 4 in. high, weight 196 lbs., enormously stout, had been delicate and thin up to æt. 7. In Jan., 1862, she weighed 210 lbs., suffered from dyspnœa, and was almost always asleep, and her habits were very dirty. At this date she continued a mixed diet, restricted in amount, and took Pot. Iod. gr. iiss *ter die* for six months. No diminution of bulk ensued, but there was no increase, though this had been going on continuously for the previous 12 years. The diet remaining the same, she took Liq. Potassæ ℞—xxx *ter die* over a period of 7 months. Under this treatment her health became deteriorated, anæmia appeared, and her weight remained about 210 lbs., sometimes a few pounds more, sometimes as many less. On leaving off the alkali she weighed 206 lbs., and then took Extr. Fuci Vesiculosi 30 grains *ter die* for 10 weeks, when she weighed 203 lbs. Her general health improved; the drug caused diuresis. She was now placed on a purely meat diet, without medicine, which was continued from April 30th to Aug. 29th, when she weighed 175 lbs. On the same diet, but taking Extr. Fuci Vesiculosi, the loss of weight was somewhat more rapid. Subsequently, on the same diet being continued up to April 7th, 1864, her weight decreased to 133 lbs.; no dyspepsia or other injurious effects resulted, but on the contrary, she was able to run and walk, and made a good convalescence from an attack of scarlet fever.

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J. HUTCHINSON.—*Clinical report of five cases of true Leprosy.* Clinical Lectures and Reports of the London Hospital, 1864, p. 19.

Hutchinson sums up his remarks on these cases with the following observations:—That leprosy is far too specific and peculiar in its symptoms to allow of our supposing it due to the influence of general poverty; that the cases in which Europeans are attacked all indicate the power of endemic influences; that of these food is the one which has most of probability as to its being the true cause; and lastly, as the disease is only met with near the sea, we may plausibly guess that it is in some way connected with a fish diet.

ASCHÉ, H.—*Recent contributions to our knowledge of Glanders as occurring in Man.* Schmidt's Jahrb., vol. 121, p. 241.

V. WAHL, E.—*On the Purulent Diathesis and Septic Infection.* Petersb. Med. Ztschr., v, p. 321, 1863. Schmidt's Jahrb., vol. 123, p. 42.

Wahl understands by the term purulent diathesis every disturbance of the general system, which is brought about by a local suppuration of long duration conjoined with fever, and which is characterised by great depression of the general nutrition, and by a diminished resistance of the tissues to local or general irritants. Septic infection he defines as the general disorder, which is induced by the absorption of putrid matter from a wound, or an inflammatory focus, and announces itself by the affection of the sensorium, the violent continuous fever, the implication of the intestinal canal, and a rapid course of a certain cyclical type. When there is a disproportion between the supplies to and the evacuations from the body, a slight, often a mere mechanical, impulse is sufficient to transform the purulent diathesis into the metastatic dyscrasia. The metastases (metastatic abscesses.—Ed.) are in no way characteristic of the febrile forms of self-infection, they form only complications of the general disorder, which gives them their stamp, and they originate certainly for the most part from purely local causes. So also in septic infection the metastases are only accidental phenomena, but they present for the most part the character of a saniating gangrenous inflammation. The author relates 20 cases, from which it appears that not only exhausting suppurations, but also other processes seriously impairing the life of the blood, as the typhous miasm, may produce the essential condition of weakness; and further, that also a moderate amount of fever which does not cause exhaustion, gives rise to the secondary disorders. The cases show further that there are mixed forms of the two conditions described above, in which metastatic abscesses occur conjoined with all the signs of septic infection. The relative frequency of metastatic abscesses in the liver is very remarkable; the author believes the cause to be a peculiar predisposition of this organ induced by brandy-drinking. The commencement of such abscesses is not always announced by rigors, sometimes on the contrary it is marked by intense septic fever. As already remarked, septic infection ordinarily runs its course without metastatic abscesses; this may be specially observed in the progressive subcutaneous sanious suppurations of the areolar tissue, termed by Pirogoff acute purulent œdema. These arise often after apparently unimportant injuries, a contusion or a small punctured wound, and often also with the signs of a pseudo-erysipelas, mostly affecting the arms and legs; they destroy the areolar tissue and skin with extraordinary rapidity, and cause death either in the few first days (the 5th to the 11th), or at a later period by exhaustion after the septic symptoms have disappeared. Wahl ascribes the occurrence of these disorders rather to epidemic influences than to hospital atmosphere. No treatment of any avail has yet been discovered; camphor, acids, and the sulphites proposed by Polli are inefficacious. Early incisions can be of no use as the diseased parts are not under the fasciæ; at a later period, however, incisions should

be made, drainage tubes introduced, and solutions of chlorine injected. In doubtful cases where there is a difficulty of distinguishing between septic processes and limited necrosis with reactive inflammatory swelling, Wahl believes the temperature may afford a guide. In ordinary traumatic fever it increases rapidly and usually reaches its highest figure,  $102^{\circ}$ — $104^{\circ}$ , on the first or second day, afterwards declining rapidly. In progressive saniation the temperature continues to rise till the fourth day, and remains at  $102^{\circ}$ — $104^{\circ}$ , while the accompanying septic fever becomes at the same time continuous. Among the above group of pyæmic disorders Wahl includes the cases of furuncle and pseudo-erysipelas occurring in the face, and running a febrile, rapidly fatal course. The cause of these he believes to be a thrombus produced by any cause in a vein, which subsequently breaks up and by mingling with the blood induces the septic phenomena.

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MURCHISON.—*On the isolation of Infectious Diseases.* Med. Tim. and Gaz., Feb. 20th.

Murchison says the objections urged against fever hospitals and fever wards are two, viz.—(1) That the concentration of the poison increases the mortality amongst the patients themselves; and (2) that the concentration of the poison increases the danger to the attendants. The validity of these objections, which are too often made without reflecting on what would be the alternative if all cases of infectious fever were admitted into general hospitals may be tested by comparing the results of the treatment of typhus in the London Fever Hospital with those in six of the principal general hospitals of the metropolis in the year 1862. During the first 6 months of 1862, 1107 cases of true typhus were under treatment in the London Fever Hospital, of which number 232 died, or the mortality was 20·95 per cent. In the same period 343 cases of typhus were under treatment in six of the general hospitals of London, of which number 80 died, or 23·32 per cent. It may be added that nothing contributes more to a fatal termination in typhus than advanced age, and that the proportion of aged typhus patients is much larger in the London Fever Hospital than in the other hospitals of London, because a large proportion of them are the aged and decayed inmates of the metropolitan workhouses, and also that a much larger proportion of them are moribund and beyond all hope at the time of admission; 56 of the 232 cases mentioned above dying within 48 hours of their arrival at the hospital. But leaving these elements out of the calculation, inasmuch as we do not possess the actual figures on the other side, the bare fact remains that the rate of mortality from typhus was greater in the general hospitals than in the hospital specially devoted to fever. The result, however, is insignificant in comparison to what follows. The 1080 (1107 — 27) cases admitted into the Fever Hospital communicated the disease to 27 persons, of whom 8 died. In other words, only 1 person took the fever for every 40 admitted, and only one died for every 135. But the 272 cases admitted into the 6 general hospitals communicated the disease to 71 persons, of whom 21 died; or 1 person caught the fever for every 3·8 cases admitted, and 1 life was lost for every 12·9 cases admitted. Murchison admits that it is

not a common occurrence for typhus to spread in so many of the general hospitals at one time, but this circumstance was due entirely to the unusual prevalence of typhus in all parts of the metropolis. He says it would not be difficult to cite many instances of an older date, where typhus has spread in general hospitals even to a greater extent than that indicated above; while since the comparison was made, the admission of 2 or 3 patients suffering from typhus into 3 general hospitals of London has been followed by an alarming and fatal spread of the disease. Moreover, he proceeds, the time selected was far from being the most favorable to the London Fever Hospital, the rate of mortality being considerably above the average, and a large number of the nurses being unseasoned owing to the great reduction which had taken place in the hospital staff during the previous period of small prevalence of fever. During the 14 years immediately preceding the date of the comparison, 3680 cases of typhus were treated in the Fever Hospital, but the disease was communicated to only 53 persons (nurses and patients) of whom 14 died. In other words, only 1 person caught the fever for every 70 under treatment, and only 1 died for every 263 under treatment. Moreover, many of the persons who caught fever in the hospital were patients admitted with other diseases, and who were formerly treated in the same wards with the typhus patients; many in fact caught typhus in consequence of the principle of isolation not being sufficiently carried out. Since June, 1862, the typhus- and scarlet-fever patients have been isolated from the other patients, and from one another, and the result has been, that only 2 or 3 have contracted either of these diseases in the hospital since the change was made. Murchison concludes that on the plan of isolation, provided there be ample ventilation, cases of infectious fever can be treated with equal advantage to themselves, and with far less danger to the attendants, in proportion to the number of cases treated.

*Report of the Vienna Hospital for 1860, '61, '62.* Schmidt's Jahrb., vol. 123, p. 238.

GERHARD and LAMB.—*Epidemic of Spotted Fever occurring in the vicinity of Philadelphia in the year 1863.* Amer. Journ. of Med. Sci., July, 1863; Brit. and For. Med.-Chir. Rev., Jan., 1864.

The symptoms exhibited were sudden chill and intense headache, and pain in the back, followed by fever; the patient became dull and heavy, either not answering at all or only when loudly spoken to. In some cases there was delirium, but in the majority the cerebral disturbance tended rather towards stupor or coma. In fatal cases there was always coma a few hours before death. There was often vomiting at the commencement but no epigastric tenderness. There was constipation and disgust of food; the urine was perfectly healthy; the degree of fever varied; the pulse was frequent not strong, and frequently diminished in strength and rapidity; the heat of the skin was comparatively moderate. In some instances the patient exhaled a peculiar odour. The eruption consisted of spots varying in size from a pin's point to ecchymoses an inch or two in breadth. Each spot was of dull-red or purple colour, varying in shade; the lighter spots became somewhat lighter

on strong pressure, but the darker were not modified in any way; they were evidently due to effusion of blood in the true skin. They were in no degree elevated, and were scattered pretty equally throughout the body, being perhaps a little more abundant in the extremities than in the trunk. They usually appeared at the end of 24 hours, sometimes earlier, and in some cases were perceptible after death, although not very visible during life. The duration of the spots was very variable; in some cases they lasted a week or two, disappearing in the same way as the dark colour of a bruise. The complexion was dull and slightly yellow, but there was no jaundice. The eyes were moderately injected in some instances, but rather in the veins than in the arteries. In one case an eye was destroyed by suppuration. There were no glandular enlargements. No age was exempted, but the larger proportion of patients were between 15 and 20 years of age. More females than males were attacked. In one case examined after death there was congestion of the brain and an effusion of serum at its base and in the ventricles. The lungs were slightly congested posteriorly; the right side of the heart contained very dark fluid blood, with a very small and flaccid coagulum. There were ecchymoses under the serous layer of the pericardium and under the serous covering of the stomach, and there was an ecchymosis a quarter of an inch broad in one of the glands of Peyer. The fever appears to have originated in the army in Virginia, before it reached Pennsylvania; but it does not seem to have spread by contagion. There was no positive evidence of its having been transmitted from the sick to the healthy; whilst in many cases in Connecticut where it also prevailed it attacked persons who had not been in the neighbourhood of the sick. With regard to its mortality a number of the patients died in from 12 to 24 hours, and the largest number in the course of the second day. If the patient lived over 48 or 50 hours there was a fair chance of recovery, although fatal cases were met with after the lapse of several days. No critical days were noticed. Some convalesced after 2 or 3 days, others after a week or two, and in one instance recovery was protracted for many weeks. The most important remedies were stimulants.

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WALEs, P. S., M.D.—*Notice of the Spotted Fever as it occurred at Newport, Rhode Island, in the first 4 months of 1863, with a history of the disease, its symptoms and treatment.* Amer. Journ. of Med. Sci., Jan., 1864.

Wales concludes from his review of former epidemic fevers that spotted fever has prevailed at various times both in Europe and America, under titles expressive of some of its numerous local complications or forms, and thus giving rise to errors in the recognition of the nature of the various epidemics leading to the separation of diseases essentially the same. He thinks there is no reasonable doubt that the typhoid pneumonia which has prevailed from the earliest period of our history at various times is identical with spotted fever. Four varieties of the disease are described by Dr. Page; (1) that which principally attacks the brain; (2) the spurious peripneumonic form characterised by pain in the chest, and oppression of breathing, with cough and

expectoration of viscid, dirty-brown matter, and in some of the most malignant cases blood completely dissolved; (3) when the disease was directed to the stomach and bowels, producing cholera morbus or colic; (4) when the extremities suffered powerfully with coldness, numbness, and pains. In all these different varieties one common type was observed as their basis, though veiled by the various modifications; and the same treatment was mainly successful. The advent of the disorder is marked in different cases by an exceeding variety of symptoms; scarce two cases resemble each other. Patients are sometimes suddenly arrested in their employment by intense headache and delirium; but more commonly the disease begins with shifting pains in the extremities and joints, headache often of the most atrocious character, nausea, or vomiting, along with a chill, which last, however, soon subsides, and the characteristic delirium and dulness set in. The delirium varies in intensity, occasionally furiously maniacal, generally moderate and quiet; there is extreme restlessness and jactitation. The sensibility of the whole surface is sometimes so unwontedly increased that the patient cannot even bear to have his hair touched. There is generally remarkable prostration of strength, and the limbs seem paralysed, and are numb, and in some cases even insensible; there is deafness, dimness of sight, or even complete loss of vision. A few have convulsions or opisthotonos. The tongue is moist, yellowish, or brownish, never like the red, chapped, beef-like tongue of typhoid. The pulse small, even, thready; sometimes extinct in very malignant cases, irregular or intermitting; skin cold, and occasionally of a deadly pallor, and like polished marble; eyes glassy, and the pupils irregular in their action, sometimes contracted, then suddenly dilated. When reaction takes place, the pulse becomes feebler, skin warmer, and then there is marked uneasiness, the patient tossing himself about in every direction with delirium; these symptoms remaining 3 days, the patient may be restored to convalescence, or the disease may advance into stupor, and come to a fatal termination. The intestines appeared in general to be exempt from the effects of the disease. The bladder gives sometimes great annoyance, and hæmaturia is encountered from the very beginning. Profuse perspiration took place in one case possessing a peculiar mawkish smell. A prominent symptom in one case was inability to swallow. One of the most peculiar marks of the disease is the *eruption*, which may occur in all stages of the disease, from the first to the tenth day. The spots assume the form of small round ecchymoses of various sizes, from that of a pin's head to that of a split pea, of a light-red colour, like the bites of fleas. As the case advanced the splotches increased in size and coalesced, forming larger ones, or, properly, patches, and in bad cases assuming a livid or purplish colour. Again the form was that of reddish streaks, as if caused by striking the parts with a bundle of twigs. In all cases the eruption was even with the skin, and appeared first upon the extremities, generally the upper, and then over the face and trunk. The duration of the spots varied, sometimes disappearing in 2 or 3 days, at others holding on for a couple of weeks, and then gradually disappearing as convalescence set in; or becoming larger and deeper on approaching death; and when this event happened they re-



sembled bruises, were very distinctly marked, and those previously quite light or almost imperceptible were readily observed. The disease does not appear to be contagious, depressing circumstances favour its invasion. In some cases death ensues in 5 or 6 hours, in others life is protracted for 3 or 4 weeks. The greatest number die on the third and fourth days. No class, sex, or age, is exempt; but it does not appear to be accurately made out, whether one is more liable than another. The mortality varies very much, amounting sometimes to more than 50 per cent., in others only to 3.3 or 2.5 per cent. There are no characteristic anatomical lesions, but simply such as result from an altered integrity of the blood marked by a disposition to escape from its vessels. Passive congestions, subserous effusions of blood, occasionally inflammation were met with in the viscera. Other diseases, including measles, rheumatism, and typhus, are often complicated with this fever. When the brain is involved the prognosis is worse than when the other viscera are affected. All debilitating treatment seems to be injurious. Blisters have proved very serviceable. Opium, arsenic, and stimulants seem to have been the most useful remedies. Dr. Miner says that all those patients whose symptoms were promptly met with opium invariably recovered.

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GAIRDNER, W. T.—*Facts and conclusions as to the use of Alcoholic Stimulants in Typhus Fever.* Lancet, March 12.

Gairdner affirms that all the old pupils of Dr. Alison will recollect his constant and anxious instruction to the effect that in typhus fever, as well as in other diseases of a typhoid character, stimulants were always to be administered from an early period, without waiting for symptoms of debility, or for any other special indication, except the ascertained nature and tendencies of the disease. His practice, in fact, was essentially a routine, though not nearly so extreme or unqualified as that of Dr. Todd. Gairdner endeavours to show in his paper—1st. That it is possible to reduce the mortality of typhus fever, while withholding a large proportion of the amount of alcoholic stimulants usually given. 2ndly. That this diminution of mortality may take place at all ages, but is most marked amongst the young. 3rdly. That while at all ages the administration of stimulants ought to be very strictly guarded as likely to prove injurious when in excess, it is demonstrable that young and temperate persons may be advantageously treated—*i. e.* treated with a diminished mortality—without one drop of wine or spirits being given from beginning to end of the fever, except in the rarest casualties. 4thly. That the principle of giving stimulants *as a matter of routine* in typhus—*i. e.* at a certain stage of the disease, with but little regard to individual peculiarities—ought to be at once abandoned. 5thly. That an approximation can be made to a more correct doctrine on the subject, though further researches are still required. 6thly. That there is reason to think that in most hospitals as well as in private practice, a very large needless expenditure is incurred through neglect of these facts, a secondary but not unimportant consideration. The aggregate mortality of 595 cases occurring in regular succession (with the omission of a few) between November,

1862, and December, 1863, was 71, or within a fraction of 12 per cent. It is remarkable that for about 2 months the mortality rose to 19 per cent., and this increase in the severity of the disorder was observed all over the fever wards. The mortality was, as usual, much greater among the adult and aged patients than among the young. Taking the age of 15 or 16 as the boundary line, it will be observed that among 406 cases above that age 70 died, or about 17.2 per cent.; while of the 189 cases below that age only 1 died, a child aged 6 years, admitted only to die. In the Glasgow Fever Hospital during two years 1861, 1862, the mortality among 1289 cases of all ages was 17.69 per cent., or 3.4 per cent. in the young, and 24.1 per cent. in adults. The mortality in King's College Hospital, London, under Dr. Todd, is estimated at 25 per cent., and for the young alone at 17 per cent. Dr. Murchison's estimate of the average mortality of typhus fever in hospitals at various places, including Glasgow, is not less than 18 per cent. Now, with reference to the diminished amount of stimulation he has lately employed, Dr. Gairdner states that between August 3rd and December 7th, 1863, there were treated 135 males and 134 females affected with typhus fever, being a total of 269 cases treated to a termination in his wards. Of these cases 27 died, being at the rate of 10 per cent. During the whole course of the treatment the 269 cases consumed 633 oz. of port wine and 666 oz. of whisky, or at the rate of about  $2\frac{1}{4}$  oz. of wine and  $2\frac{1}{2}$  oz. of spirits on an average to each patient as the allowance for his entire period of residence, which on an average was  $20\frac{1}{2}$  days. On the other hand, in the Glasgow Fever Hospital during the years 1861 and 1862 taken together there were 1837 cases under treatment, although only 1694 of these were treated to a termination during the period assigned, and only 1289 were typhus. There were consumed in the two years 62,754 oz. of wine, 8440 of whiskey, and 2611 oz. of brandy. Adding the two last sums together and dividing by the number of patients, we find that each patient consumed on an average more than 34 oz. of wine and 6 oz. of spirit. But as much the largest proportion of this quantity was probably given to the 1289 cases of typhus, it is probable that the real average quantity consumed by the typhus cases may have been not less than 40 oz. of wine and 7 oz. of spirits, which would be nearly 16 times as much wine and three times as much spirit as was given to the cases in the series above referred to. With this much larger consumption of alcoholic stimulants the mortality of typhus was no less than  $17\frac{1}{2}$  per cent., while under the lesser amount of stimulants it was only 10 per cent. Gairdner proceeds to state that he has long been convinced by carefully watched experience of individual cases, that in persons of immature age, and of temperate habits, stimulants should very rarely be administered, except in minute and experimental doses, rather as tonics than as stimulants in the proper sense of the term; and possibly in some very extreme cases of collapse in more considerable quantities; but not even then with any approach to intoxicating doses. In typhus fever Gairdner is now well assured that this view is well founded, for he records the fact, that the treatment which gave only 1 fatal case in 189 young persons was a treatment from which stimulants were practically excluded, the only patient who had a little wine being

a child with cancrum orsis, with great debility of the stomach, long after the fever had run its course. Looking at the results of this practice beside some of those formerly indicated, and especially looking to the rise in the rate of mortality amongst the young in typhus fever, in proportion as there seems reason to believe that the practice has leaned to routine of stimulation, Gairdner confesses he is strongly persuaded that *to the young in typhus, and very probably in most other fevers, stimulants are not less than actively poisonous and destructive* unless administered with the most extreme caution, and in the most special critical circumstances. Had my 189 cases of young persons died at the rate even of those in the Glasgow Fever Hospital in 1861 and 1862, the deaths instead of 1, would have been 6 or 7,; at the rate of the London Fever Hospital the mortality would have been nearly 12; while in the hands of Dr. Todd, under a routine of such extreme stimulation as is indicated in his book on acute diseases, it seems probable that instead of 1 death in the 189 cases, there must have been no fewer than 30 to 35. Gairdner adds, that he deprecates the excessive use of stimulants, not on account of their tendency to excite the circulation, but because so given they do not support the strength, but rather poison the system, by loading the blood with material which is inconvertible into blood or tissue, and which arrests or interferes with the vital changes necessary to preserve the balance of waste and supply. He is no advocate of depletion or starvation, on the contrary, the whole aim of his practice in fevers tends to supporting the strength.

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SPANTON, D.—*Cases of Typhoid and Typhus fever, especially with reference to the condition of the urine.*—Med. T. and Gaz., 1864, May 7, 28; June 18.

Spanton records the details of 6 cases, 3 of which were typhoid and 2 typhus, and gives in tables the figures denoting the 24 hours' amount of urine, the sp. gr., the solids in 1000 grains, the solids in 24 hours, the urea in 1000 grains, and the urea in 24 hours at various periods of the diseases. He also notices the presence of albumen, the acidity, and the colour. The following conclusions, he says, may be derived from the examination of the urine in the cases related. The water is diminished in amount, and this diminution is most marked during the first week. It varied in each of the cases considerably, depending in some degree on the amount of diarrhoea present. The reaction of the urine in every case was acid. The sp. gr. was high in every case, the highest being 1028. In typhus there was throughout a lower sp. gr. than in the cases of typhoid. During convalescence the sp. gr. lowers. Dr. Parkes says this occurs before there is any marked increase in the quantity of water. The urea in every case during the active stage of the fever was much increased. In case 1, the greatest increase was during the second week, in case 2 during the first week. It seems as if the largest amount of urea was present relatively and absolutely, while the fever was most severe (whenever that might be) differing, of course, in different cases, so that no definite rule as to days can be fixed with regard to it. Simon and other authors affirm that the urea is diminished in amount, but numerous others state the contrary, and there can be

little doubt that the increase is considerable. The largest amount in one day in the cases of typhoid was 581 grains, which formed more than three fourths of the whole solid matter in the urine. The chlorides in case 5 were altogether absent, and in a patient of Dr. Thompson's they were almost so. A. Vogel, Parkes, and others, attribute this diminution to the spare diet, and to the passing off of the chloride in some cases by the bowels and skin. Howitz has advocated the same view, and states that, apart from pneumonia, febrile conditions have no influence on the chloride of sodium. This statement can hardly be strictly correct, for we find the chlorides absent sometimes in cases of rheumatism without any pneumonia. The spare diet cannot be urged as an argument in case 1, nor can sweating, for the patient took large quantities of nitrogenous food, and had at the same time a hot, dry skin; moreover, there was very little diarrhoea. Dr. Parkes seems to think that the chlorides may be retained in the system as in pneumonia. The uric acid was increased in every case, being thrown down abundantly when acid was added to the urine. The amount was not determined. The sulphates in one case were diminished. It is usual, according to Dr. Parkes, to find them increased. There was in all the cases an increase in the amount of pigment, probably from an increase of normal pigment, as no evidence of any other was obtained. The urates were found largely increased at the time of convalescence in 3 cases, in case 2 before that period. Albumen was present in 2 of the 4 cases of typhoid, and in both the cases of typhus. It occurred in one third of Dr. Parkes' cases. In no case could any casts be found, although the urine was several times carefully examined for them. In a patient of Dr. Thompson's, there were abundant granular and fibrinous casts, but it is probable that the kidney lesion had existed previously. Albumen seems to be far more common and more abundant when present in typhus fever. Its presence appears to be owing to some congestion of the kidneys from the existence of some poison in the blood; but whether any peculiar condition of kidney is produced seems uncertain. Most probably not, or we should not find the evidences of kidney lesion so transitory in their character.

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GULL records ('Med. Tim. and Gaz.,' Aug. 20th) a case of continued fever, which in the early stage appeared to be typhoid, and in the later typhus. When the patient first came into hospital he had little or no doubt that it was a well-marked case of typhoid. His appearance, his history, the rash, the relaxation of the bowels, the tenderness in the right iliac region—all pointed in that direction. In order to be sure, Gull marked the spots, and a few days after found they had disappeared, and instead of a fresh crop of typhoid spots, the skin had a general mottled appearance all over the trunk exactly resembling the typhus rash. On the right cheek was a bright roseate patch while the left was very pale, an indication according to previous experience of mischief in the ileum. There were yellow-ochrey motions, low muttering delirium, enlargement of the spleen. At the post-mortem a small ulcer was found on one arytenoid cartilage, there were marks of recent peritonitis, a perforation was found in the intestine, and the

condition of the intestinal glands was such as to indicate that the patient had suffered with typhoid fever about 4 or 5 weeks. In some of the solitary glands the typhoid deposit appeared to be of a more recent date than that in the rest, which led Dr. Gull to suggest that he might have had a double typhoid. At the same time he observed that it was an interesting case, for not even the post-mortem had made it appear so satisfactory as he anticipated, and if the patient has died of the primary attack of typhoid it has occurred at an unusually late period of the disease. On inquiry being made it appeared that he lived in an ill-drained locality, but no case of typhus fever had occurred in his family nor among his friends. Typhus however was present in the ward where he lay in the hospital. The probability therefore is, that he was approaching towards recovery from typhoid when he caught typhus and died of it. Dr. Wilks mentioned on the occasion a case of typhoid with characteristic spots and intestinal lesion in which shortly before death the eruption resembled typhus. The reporter observes that from his observation at the various metropolitan hospitals it is sometimes impossible in the early stage of continued fever to say whether it is typhus or typhoid; for the eruption in the commencement of typhus may so closely resemble in all its characteristics that of typhoid, and unless it is borne in mind that it is the manner of development of the spots, and not their appearance to the eye, which establishes the diagnosis between the two fevers, a mistake is not unlikely to be made. Dr. Peacock mentions a case in which the eruption when first seen bore an exact resemblance to the usual appearance of typhoid spots, and it was only by watching the case that the true character of the rash was made apparent. The case turned out to be typhus. Moreover there may be no eruption. This is especially so in children, and in mild cases in adults, or the spots of typhus may be few and discrete, or the eruption of typhoid may be so copious that it is impossible to tell whether there are any new spots, or lastly, as above mentioned, the skin may put on a mottled appearance just before death like that of typhus.

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RUSSELL, J. B., M.D.—*Analysis of 300 cases of Typhus.* Glasgow Med. Jour., July, 1864.

From Nov. 24, 1863, to April 13, 1864, there were admitted into the fever wards of the Town Hospital, Glasgow, 323 cases of typhus, and 4 of enteric fever. The circumstances under which these cases arose were over-crowding, personal and general filthiness, and poverty. Privation however was not a characteristic of these patients. In the great majority of cases, one would have pronounced them persons in the enjoyment of health, and well nourished. In not above 10 per cent. were there evident signs of starvation, or even of deficient nutrition. Over-crowding and want of cleanliness were, however, marked features of these cases. The average numbers given as sleeping in one apartment, varied from 5 to 15. Occupation did not seem to exercise any influence in predisposing to typhus, excepting in so far as by its nature it subjected the patient for longer or shorter periods to the influence of the poison. Thus the trade of shoemaking furnished quite a remarkable

proportion of the adult male patients, exactly 20 per cent. Contagion was evident or probable in all cases. The invasion of the disease was usually well marked by severe constitutional symptoms, as shivering, frontal headache, vertigo, nausea, vomiting, great lassitude, and mental depression. In some cases it supervened gradually. In some cases the rigors returned during the progress of illness; in more they were followed by other symptoms of nervous irritation; as universal soreness, muscular and cutaneous hyperæsthesia, so that the slightest touch produced a wince, and any effort to move gave great pain, and caused the patient to cry out. Such cases proved very severe and protracted. In a number of well-marked cases pain or soreness at the nape of the neck formed the most prominent and distressing symptom at the very outset of their illness, and caused the patients to carry their heads much in the same way as those who suffer from caries of the atlas or axis. The eruption presented usually nothing remarkable; in some children it appeared only as a muddiness of skin; in some patients it resembled very much that of enteric fever, except that it was never noted to appear in successive crops. In 52 cases where special note was made with regard to abdominal symptoms, there were 40 in whom some form or other of pain and tenderness was present in that region; and the proportion over all the cases was not much short of this. Usually the tenderness was general, but sometimes local, and in that case commonly substernal, and apparently hepatic. The hepatic tenderness was frequently very great, and most intense over the insertion of the right rectus. When well marked, there was usually a tendency to looseness, with yellow stools, and the symptoms were relieved by purges of calomel and rhubarb. The blood dyscrasia was one of the most important phenomena. The blood seems to have been very deficient in fibrine, and in one fatal case, where repeated hæmorrhage occurred from a small bruised wound on the shoulder, it was compared to port wine, and showed no disposition to coagulate. Effusions beneath the ocular conjunctiva were frequent. Sometimes the hæmorrhagic tendency manifested itself also in other parts, where its situation gave rise to dangerous or fatal complications. In the muscles it formed large ecchymoses among the disrupted and disintegrated fibres, or in the cellular tissue between the layers. Or the ecchymosis might be subperitoneal, giving an appearance to the peritoneum similar to that of the blotched skin. The bronchial membrane and the lungs might be similarly affected, and severe bronchitis, or pneumonia might ensue. The brain was the seat of effusion—in one case on the surface, producing death, with symptoms of cerebral irritation and compression; in another, into one of the ventricles, but slightly. Stagnation of the blood in the cutaneous capillaries produced various shades of lividity, amounting sometimes to deep cyanosis. In severe cases there was permanent staining of the cuticle, or effusion into and beneath the skin, forming large irregular purple blotches, attended in some instances with a great tendency to gangrene under the very slightest pressure. In 3 cases there was much bleeding from gums and lips. In 4 fatal cases urea was detected in the blood. In 1 case where the heart was very flabby, its muscular fibres were found under

the microscope to be fatty. The cerebral symptoms were very various. A most violent case resembling acute mania began on the 6th day and proved fatal on the 10th. The urine was albuminous on admission, and on the day before his death it contained blood and bloody tube-casts. It is worthy of remark, and illustrative of the fact that there is often a family resemblance in cases which have originated from one contagious focus, that two brothers were affected with a remarkable form of busy delirium. The general course of the disorder is that of a rise, acme, and decline, but frequently also the rise is not equable, the acme is out of proportion severe in its phenomena, compared with each previous day. There would seem to be a deadly close between the strength of the disease and the strength of the patient's system. The circulation is most commonly affected. There is intense livor over every part of the body; the countenance looks purple and puffed; the eruption becomes ecchymosed in large blotches. The mind may be quite clear, and there may be a sense of depression and a fear of coming harm; or there may be delirium restless and violent, or more commonly low and muttering. The pulse is thready, almost imperceptible, and very rapid, 120-170. There may be involuntary evacuations. The paroxysm may be marked by no other lesion than that of the circulation, but it may also be marked, especially if there is any preceding pulmonary complication, by sudden engorgement of the lungs with copious effusion into the lesser bronchi. To pregnant females this paroxysm before crisis would seem to be the most dangerous time. Eight patients in this condition were admitted and 2 of these aborted, both at this critical period, one with a fatal issue. The fatal case was in the 5th, the other in the 3rd month. The day of crisis was noted in 142 cases, and from the 11th to the 16th were the favorite days, the 14th being the most usual. Crisis appeared to occur earlier in the young than in the aged. Of the various complications arising in the course of the disease, the most formidable and fatal was convulsions. There were 5 cases, of which 3 died. In 3 of these cases convulsions were the result of preceding acute or chronic disease of kidneys. In a case of maniacal delirium ending fatally there was acute nephritis; and whenever the urine was observed in any well-marked case, especially with livor and petechiæ, albumen was to some extent present, but this probably arose rather from the state of the blood than from actual renal disease, which causes the more serious symptoms. Sequelæ were serious when they occurred, but they were not frequent. The majority of them might be classified as different manifestations of a tendency to low suppurative inflammation, often in or about glandular structures. When the parotid and submaxillary glands are attacked, the swelling may in a few hours spread up the cheek, and assume more of a pure erysipelatous appearance with an accompanying blush, sometimes invading the entire scalp, and ending in the formation of abscess and recovery, or death through exhaustion or with symptoms of meningitis. Other sequelæ were ecthyma, laryngitis, croup, sloughing of the pudenda, and gangrene of the toes. The wards in which the patients were lodged were airy, roomy, and well lighted. The treatment consisted in an emetic at first, followed by a dose of calomel and rhubarb. No tympanitis or prostration was in any case observed to result from either; bu

generally a diminution of the frequency of the pulse, a calmness and clearness of intellect, and a diminished lividity and greater coolness of the head and face. On the morning after admission the patient was put upon a mixture of one of the mineral acids combined with nitre, or with more stimulant diuretics, as nitrous ether and spirits of juniper. The ingredients were varied to suit the peculiarities of each case. Nitro-muriatic acid and nitre were given to cases with marked hepatic tenderness and seemed most useful of all. If the blood dyscrasia was severe, with an hæmorrhagic tendency and other typhoid symptoms, muriatic or sulphuric acid was substituted. The addition of a little antimonial or ipecacuanha wine was enough to check bronchitis. Where the bronchitis became severe and the lungs engorged with mucus, or where congestion or pneumonia were present, nothing was found so serviceable as turpentine in doses of  $\text{mxxv}—\text{xx}$  2 *dis horis*, with diuretics or with ether. In convulsions the vicarious as well as the derivant action of the bowels by repeated purging with croton-oil seemed the most hopeful procedure. Graves' combination of tartar emetic and opium in many cases soothed most violent delirium, and indeed acted like a charm. Cases in which there had been great hepatic tenderness were most liable to subsequent torpor of this organ. Bed-sores very seldom occurred, thanks to good nursing and the use of the chloroform-and-gutta-percha solution. The per centage of death from typhus was in all cases 11·2, in adults 16, in cases under 15 years of age 3·8. The per centage of cases successfully treated without stimulants was in all cases 61·3, in adults 40·7, in patients under 15 years 83·3. The ages of those treated without stimulants to a successful issue ranged as high as 60 years. The average consumption of the 120 who received stimulants, was during their (average rather over 3 weeks) residence 46 $\frac{1}{3}$  oz. of wine and 18 oz. whiskey. With regard to the great question of the day in the treatment of fever how far alcoholic stimulants are necessary, these figures alone would prove that with a mortality under the average, it is possible to treat over a half of all cases without a drop, and very nearly a half even of those above the age of 15; while those below it as a rule require none at all. In the children, however, treated by Russell, the mortality was high though stimulation was not resorted to, but a review of the fatal cases shows that the event was owing not to pure typhus, but to complications or sequelæ, which were in their very nature hopeless. There were 4 cases of enteric fever, one of whom a female, 3 months pregnant, aborted, but after a severe struggle recovered.

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LEVICK, J. J., M.D.—*Miasmatic Typhoid Fever*. Amer. Quarterly Journ. of Med. Sciences, April, 1864.

After remarking that there is no doubt that specific poisons may co-exist in the system at the same time, Levick notices the opinion of various writers that there is a special antagonism between the typhoid fever and the miasmatic (malarious) fever-poisons. He assents to Murchison's opinion that the facts recorded by these writers, so far from proving an antagonism, rather suggest a similarity of origin of the two fevers, and says he is not sure that they do not prove that the one may act as the



determining cause of the other. Be this as it may Levick feels very confident that the two poisons are often co-operating in the same individual, just as we may have cases of miasmatic fever associated with pneumonia, with dysentery, and with other diseases. After having been accustomed for many years to treat the ordinary form of typhoid fever, his attention was arrested in the early part of last year by the occurrence of a series of cases which, while presenting the ordinary phenomena of typhoid fever, had superadded to these many of the symptoms of well-marked miasmatic remittent fever. These cases were characterised by the suddenness of the attack, by the intense pain in the head and back of the neck, by the regular periodical remission and exacerbation of the fever, and by its amenability to quina. That these were cases of typhoid fever was shown by the fact that in every instance, even in the mildest, was found the characteristic eruption. That there was disease of Peyer's glands was inferable from the fact that diarrhoea was present in every case, or was readily produced by small doses of cathartic medicine. In some of these cases the attack was gradual, a sort of imperfectly developed stage existing for a week or longer; the patient able to move about but with a little diarrhoea; pretty well in the morning, but with severe headache and some fever every evening, with restless uncomfortable nights. In other instances the attack began suddenly with a chilliness and intense splitting pain in the head unlike the headache of typhoid fever, which is dull and heavy. A slight cough with the usual bronchitic râles was noticed in nearly all the cases referred to. The paroxysmal character was strongly developed in all, a marked exacerbation occurring in the evening, the fever passing off towards morning, and the apyrexia ushered in with as profuse sweating as is witnessed in the most decided cases of malarious fever. This exacerbation and remission bear no resemblance to the partial subsidence which occurs in ordinary typhoid fever. Severe headache, described as splitting, battering, was one of the most constant and distressing symptoms, though generally associated with it were intense pains in the back of the neck, and the muscles between the shoulders, and in some instances universal achings. The tongue was generally yellowish-white, and never became dry and brown. The pulse was rarely above 90, was soft, and not alarmingly feeble. There was no great tympanitis. The mental condition of these patients was unlike that of ordinary typhoid fever, they had no dulness or hebetude, and no well-marked delirium. The administration of quina seemed to arrest the malarious element of the fever, but to leave the enteric-fever element unaffected, so that the case then proceeded in the usual way of typhoid. Later in 1862 Levick had under his charge 27 cases of fever of a much severer kind, some presenting the symptoms of pernicious congestive remittent, and some strongly-marked typhous symptoms. Towards the close of his paper Levick remarks "there can be no doubt that there exists at the present time in Pennsylvania and its vicinity a strongly developed miasmatic influence. It shows itself not merely in its familiar garb of inter- and re-mittent fevers, but attaches itself to almost every other disease, if not lending its full livery, at least casting its mantle upon them.

ROGER.—*On the slight form of Scarlatina and Scarlatinal Dropsy.*  
Edin. Med. Journ., Aug.; Journ. de Méd. and de Chir. pratiq.

There have been lately in the Hôpital des Enfants Malades a great many cases of what Roger calls "scarlatinettes." They were cases of scarlatina extremely slight, so fugacious, that the characters of scarlatina passed unobserved. Nevertheless, the disease of which the external manifestations were so slight was still present, and if the patients, apparently in good health, and recovered from a seemingly trivial eruption, were exposed to cold, hæmaturia or dropsy, sometimes fatal, made their appearance. In one case an impression of fear appeared to play the part of exposure to cold, and produced anasarca in a girl *æt.* 4, who her parents declared had escaped from the scarlatina her sister had had, but who really had had the disease so slightly that even maternal solicitude had not detected its existence. After enumerating the distinctions which M. Almeras points out between scarlatina and various imitative exanthemata. Roger proceeds to caution that as the points of resemblance between them are numerous, and as in times of epidemic it is very difficult to distinguish them, it is prudent when any doubt exists to act as if the disease were scarlatina, and to make children keep to their bedroom for at least 14 days if they have presented any trace of an equivocal eruption. These little characterised forms merit serious attention, because they are as much, if not more likely than the others, to be followed by one of the most formidable accidents of scarlatina—dropsy with albuminuria. Roger does not admit that anasarca may occur during the whole period of desquamation; he thinks that the patients who have been attacked with it at a later period than that indicated above (3 weeks), had a chronic Bright's disease connected with a persistent scarlatinal albuminuria, or an acute Bright's disease independent of scarlatina, which is not very rare among children. Among the precursors of anasarca vomiting should be noted. If between the 10th and 20th days of scarlatina a child becomes a little feverish and vomits, we may apprehend anasarca; the latter generally appears the next or the following day, and is characterised by a deceitful appearance of stoutness. In half the cases the dropsy remains external, in the other half you have internal effusions. So long as there is only abdominal dropsy matters are not very serious, but it is different when serum accumulates in the pleura, for as the effusion is generally double, and the pulmonary substance is infiltrated extreme embarrassment of breathing is the result. To this dropsy œdema of the glottis is sometimes added, for which it is necessary to perform tracheotomy. But of all effusions the most dangerous is the encephalic, which may assume the comatose, the paralytic, or the convulsive form. With regard to the effusions which occur under these circumstances Roger says that, though the prognosis is very grave, the patients who manifest them recover in the proportion of one third. The curative treatment will vary according to the form of dropsy. If it is febrile, active, if the tissues affected are of a rosy colour, if the skin be hot, sanguineous emissions are indicated. This is still more the case if there is œdema of the lungs. Bleeding then gives manifest relief; bleeding from the arm is preferable to leeches or cupping, which may produce erythema or erysipelas. If there are cerebral symptoms we may apply leeches to the mastoid pro-

cesses, and blisters to the thighs or nape of the neck; then we administer hydragogues, and give nitre in doses of 30 to 120 grains in 24 hours.

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DOWN, J. L.—*On the treatment of Scarlet Fever by sesquicarbonate of ammonia.* Clin. Lect. and reports of London Hospital, 1864, p. 159.

In the space of 5 weeks, 192 persons out of a population of 440 at the Idiot's Asylum were attacked. There were 65 cases of the simple, 78 of the anginose, and 49 of the malignant variety. The treatment adopted in every case was the administration of 5 grains of sesquicarbonate of ammonia in ℥j of water *4tis horis*. The diet was milk and beef-tea, while wine was liberally given in all cases in which great depression was manifested. Nine of the 10 deaths occurred among the idiots. No pain was caused by the ammonia even when the throat was ulcerated. Fourteen of the malignant cases occurred among the 45 officers and servants, but there was only one death, and this was in the case of an ailing man with a crippled heart. Dropsy with albuminuria occurred as a sequela in 12 instances.

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GIBSON, W.—*Experience and treatment of Diphtheria in Campbelton and neighbourhood.* Glasgow Med. J., Jan. 1864.

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BRIDGER, J.—*Diphtheria with notes of post-mortem appearances in 24 cases.* Brit. Med. Journ., Oct. 22.

Since April, 1862, upward of 3000 cases have fallen under Bridger's care; very many of them relapses. He describes particularly a certain condition of the auriculo-ventricular valves of the heart, seen in every case where an examination was allowed, whether complicated with any other disease or not, and, as he thinks, not previously made known. It is a roughened, reddened appearance of the valves, as if by interstitial deposit, situated midway between the insertion around the ventricular opening, and its attachment to the cordae tendineæ; one or both valves being affected, more or less, according to the severity of the case and the time elapsing between the symptoms of heart-affection and death. The symptoms denoting this affection of the heart may come on early or late, generally late, several cases having occurred where, to all appearances, the patient has been well. It is ushered in, and may be diagnosed by the following symptoms:—an anxious countenance; hurried respiration; a rapid pulse from 120 to 170; tenderness over the precordial region; scarcely any pain, excepting on pressure. In 4 cases there was a slight murmur at the apex of the heart; in 2 of these it subsided in a week; in 1 remained permanent for some months, and 1 case is now under treatment. The duration of the urgent symptoms varies from 3 to 7 days. The heart affection has occurred in at least 100 cases, and in some it came on so severely, that the symptoms were more like collapse, with cold clammy perspirations, and required the immediate administration of diffusible stimulants very frequently repeated.

ROTH, Fr.—*Statistics of acute Rheumatism.* Würzb. Med. Ztschr. vol. 4, p. 277, 1863; Schmidt's Jahrb., vol. 122, p. 187.

Roth observed 79 cases at Würzburg in the 3 years from 1857 to 1860, forming 1.5 per cent. of all the cases of internal disease treated there during this period. The months in which the disease was most prevalent were April, May, and October, while the reverse was the case in January and July. Taking the separate years, however, the months did not show the same order as regards frequency of the disease, and the total number occurring in different years was very various, being 34, 25, and 20. Roth is therefore inclined to believe in the epidemic prevalence of the disorder. Three of the 79 patients died, 2 of pleuropneumonia. Complications existed in one third of all the cases. Cardiac were the most frequent, and next pulmonary. Among the 15 cardiac there were 5 of pericarditis, 6 of endocarditis, and 4 of endopericarditis. In the matter of treatment there is little to be noted except that lemon-juice appeared quickly to diminish the pains.

LAW, R.—*On the treatment of Acute Rheumatism.* Dublin Quart. Journ. of Med. Sci., May, 1864.

Law affirms that he has given a fair trial to every other method of treating the disease, viz., the alkaline treatment, the citric acid, the free exhibition of opium, the treatment with colchicum alone, and that with bark and the hydriodate of potash, and none has approached the plan he advocated nearly 20 years ago, in the shortness of time it has required to effect a cure, nor has any been more certain in its results. Law's plan consists in bleeding once, very rarely twice, and in the exhibition of colchicum. The V. S. almost never exceeds  $\text{ʒviii}$ , and the dose of colchicum is about gr. j, of the acetous extract 3 or 4 times daily. He has generally observed, that when the pericardium or endocardium is about to be affected, there is, in general, previously, an excited action of the organ, in which case he adds digitalis either to the mixture or pill. If pericarditis or endocarditis actually occurs, he combines calomel with colchicum, opium, and digitalis.

ROBERTON, J.—Brit. Med. Jour., June 18.

Roberton advises in the treatment of acute rheumatism a dose of calomel and opium, followed by free purgation with colchicum and salines, and after this the administration of powdered cinchona bark with quinine, about 60 grains of the former, and gr. iss of the latter being given every third hour. Lemon-juice with water may be taken freely as a beverage, and the joints are to be wrapped up in dry cotton wool. In cases where there is much pain, opium may have to be given every night. He prescribes all moist applications. When the patient has been seen early and treated in the above manner, Roberton has not known during 30 years the heart to be affected in a single instance.

HERBERT DAVIES, M.D.—*On the treatment of Rheumatic Fever in its acute stage, exclusively by free blistering.* Clin. Lect. and Reports of London Hospital, 1864, p. 293.

Davies believes in the existence in this disease of a *materies* intensely acid in its nature, and highly irritating to the synovial and fibrous

tissues. Regarding it as probable that the virus localised itself for a time in the inflamed joints, and that the intensity of the local inflammations was a measure to some extent of the amount of poison collected by a species of affinity in the parts attacked. Davies determined to attempt the local elimination of the materies morbi, wherever any external manifestations of its presence existed. He ordered blisters varying in width, but of considerable size, according to the locality, to be applied around each limb, and in close proximity to the parts inflamed, and he hoped to relieve the affected joints partly on the principle of derivation, but *mainly* and really by affording through the serous discharge from the blistered surface a ready means of exit for the animal poison. Armlets, wristlets, thighlets, leglets, or even fingerlets were applied near to, but not upon, *every joint inflamed*, at the very *height* of the inflammatory stage when the local pains were the most severe, and the constitutional disturbance the greatest. The success of the plan depends entirely on the blisters being well applied and allowed to remain until they have thoroughly acted. There is no fear of strangury supervening. Linseed poultices subsequently applied, are highly serviceable in promoting a sufficient flow of serum. The effect of the blister is to reduce the pulse in force and frequency, and to render the urine alkaline, or neutral, while the heart is exempted from inflammatory mischief. In no case where the heart was sound at the time of admission, did any organic lesion subsequently develop itself; and in two cases in which soft but distinct mitral murmur was audible, when the patient came under treatment every trace of the sound rapidly disappeared as soon as free and abundant serous discharge had been established. Tables are given of various particulars in 13 cases.

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SUTTON, M.D.—*Clinical remarks on cases of obscure forms of Rheumatic Fever.* Med. Tim. and Gaz., July 2.

Sutton relates a case in which the pericarditis preceded the usual rheumatic symptoms by 5 days, and the indications of acute rheumatism were so slight and of such short duration, that they might have been easily overlooked. There was in fact no pain, swelling, or tenderness on pressure in any joint. Chomel, Graves, and other observers have noticed the existence of acute rheumatism without any arthritic symptoms. Considering these facts, Dr. Sutton asked, is it not probable that we often overlook cases of acute rheumatism, because we only inquire after the leading symptoms of the disease? He mentioned that he remembered seeing a young girl who was supposed to have caught cold from sitting in a draught, while she was perspiring. She felt chilly; next day complained of languor, headache, nausea; skin did not feel hot to the hand but very moist, in the night sweated very much, the perspiration smelled faint, she ached all over. The heart was carefully examined, but nothing particular was observed, excepting that the visible impulse was unusually well marked, and the first sound just above the nipple appeared prolonged. In 3 or 4 days all these symptoms had subsided, leaving her simply weak. Six months afterwards, Sutton had occasion to examine her chest again, when he heard a systolic murmur over the apex of the heart, which was conducted towards the angle of the

left scapula ; no bruit was heard over the base. No history of any illness subsequent to the one described. The question is, was that so-called "cold" not a case of rheumatic fever? Was there not latent pericarditis, endocarditis, or both? The subsequent discovery that there was an imperfect mitral closure, was presumptive evidence in favour of its being so. However, the great interest attached to such cases is not whether there was pericarditis, and in consequence an adherent pericardium, but what is of far more importance, was this pericarditis of rheumatic origin? How would it be likely to affect the future prospects of the patient? On this subject, the statistical labours of Dr. Barclay tend to show that when a person has had rheumatic fever and pericarditis, they are liable to suffer with endocarditis, even though the usual symptoms of rheumatism should not again show themselves. Dr. Sutton urges, that wherever there is fibrous or fibro-serous tissue, there is a seat for rheumatic inflammation. Thus it may attack the sheath of a sensitive nerve, producing severe neuralgia, or it may so impair the functions of a motor nerve that the parts supplied by it are paralysed. He records a case from the hospital experience of Dr. Gull, of paralysis of the left side of the face, which was associated at first with sour perspirations, flying pains, and languor, and after 3 weeks, with well-marked rheumatic symptoms, while the paralysis gradually diminished. The cause of the disorder was exposure to cold and wet. Dr. Sutton concluded by saying, that he found great assistance in diagnosing such obscure cases, from taking into consideration the temperament of the patient. Persons of the nervous and nervo-sanguine temperament, are the most liable to this disease; those of the bilious the least so. We must form our diagnosis of the diathesis from the bodily conformation and functional disturbances, and not conclude that a person has not the rheumatic diathesis because he has never had actual rheumatism. For the supervention of the disease depends on the diathesis being developed into a disease by accidental causes. Now as to the relation of these causes to the attack. A large number of the patients have an hereditary history of rheumatic fever, but a still larger deny that there is any rheumatic affection in the family. In making this inquiry, it should not be forgotten that the law of hereditament appears to be, that parents transmit a tendency, not to a given *disease*, but to degeneration of a given class of *tissues*. Probably the parents have never had the disease, but one or both of them have suffered from impaired nutrition, and in consequence degeneration of certain tissues; the offspring may have the mucous, the vascular, or the fibroid diathesis, depending on which of the great class of tissues of the embryo this tendency to degeneration has been inflicted. For example, in a case of phthisis, there may be no family history of consumption, but there may be a history that the patient's father followed a certain occupation which tended to deteriorate his bodily vigour, or that his habits were such as gave rise to imperfect functional activity, or disordered nutrition of the lungs. In a case of gout, there was often no hereditary history of that disease, but frequently of abuse of alcohol in the patient's father. In acute rheumatism, similar inquiry generally shows either that one or both parents have had rheumatic fever, or a sister disease, such as rheumatic gout, or that the father has drunk hard; or lastly, it is not uncommon to hear that the parents

were remarkably healthy, and lived to a good old age, and their parents before them; that the patient never had a day's illness until his present attack, but that he himself had been very intemperate. Here further inquiry leads to the discovery that the parent or parents had a florid complexion and also other signs that show the arthritic diathesis, although they had not had actual rheumatism. Here the diathesis is transmitted, the tendency to degeneration of the vascular or fibrous tissues is aggravated by the excessive use of alcohol, and the actual acute rheumatism is brought to life by the accidental occurrence of sleeping in a damp bed, or other such cause. Sutton remarked that Dr. Laycock had especially called attention to such principles as the above.

RENARD.—*On the treatment of Tendinous Rheumatism by the external employment of Sulphur.* L'Union Médicale, April 21st, 1863. Brit. and For. Med.-Chir. Rev., Jan., 1864.

Renard, who was himself the patient, suffered from this complaint after an attack of acute rheumatism, for which he was copiously bled. The parts affected were the tendons of the hamstring muscles, and no improvement resulted after a long course of diaphoretics, camphor, terebinthinate, and other liniments, and the administration of the solanaceæ. After dusting the inside of his stockings with common sulphur, he was speedily relieved. Under the influence of the contact of the flowers of brimstone the skin became hotter, slightly excited, and more disposed to sweating; and as soon as this effect was produced, the relief of the pain seemed to be immediately marked.

FULLER, H. W., M.D.—*Clinical lecture on Sciatica.* Lancet, April 16.

Fuller illustrates by cases the different character of sciatica according as it is of rheumatic or neuralgic origin. Alkalies, pot. iod., and guaiacum, are efficient in the former, quinine, iron, and aconite in the latter. He relates one case in which gr. xv of Dover's powder *o. n.*, with guaiacum and sulphur *bis die*, produced no good effect, but which was immediately cured by the subcutaneous injection of morphia gr.  $\frac{1}{2}$ . Such a result is exceptional, the injection requiring to be repeated twice or thrice in most instances. Fuller remarks that in this as in other instances the successful issue of the treatment depends upon its adaptation to the exigencies of the case. In sciatica, referable to local mischief, or to gout, rheumatism, or other distempered conditions of the blood, the use of morphia or other sedatives can only be palliative not curative. The cause of irritation must be got rid of by appropriate remedies before sedatives can prove effectual. But when the disease consists essentially of irritation of the nerve, and is independent of local disease and of general systemic derangement, the result of the administration of sedatives is most satisfactory. On the other hand blisters, issues, and other local irritants and derivatives which are often employed in these cases under the mistaken idea of the pain being referable to local inflammation, are useless, nay, positively mischievous.

NICHOLSON, E. (Madras Quart. Journ., July, 1863), states that in intermittent fever there is a great increase in the water, the urea, and the chloride of sodium of the urine. During the cold and hot stages the

urea is nearly doubled, and the chloride of sodium quintupled. The increase of urea is common to all febrile diseases. The points in which Nicholson lays most stress are the disappearance of uric acid during the whole of the fever day, and the diminution during the same period of the phosphoric acid to *one eighth* of its normal amount. He adds, "proceeding as phosphoric acid does from the metamorphosis of nervous tissue, does not its diminution in the urine of ague show that the disease is characterised by a depression amounting nearly to paralysis of some parts of the nervous system?"

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BIDWELL.—*The Tongue in Malarious Disease.* Brit. Med. Journ., April 23, 1864.

In the condition of the tongue referred to the under surface appears to have trespassed upon the upper, the papillæ of the latter being supplanted by the transverse rugæ of the former. The sides are thickened and rounded, the normal well defined edge being obliterated, and the line of demarcation moved to nearer the mesial line. This appearance of the sides may be associated with any and every possible appearance of the remaining papillary surface. When it exists it is a sure indication that quinine is requisite, but this remedy need not be continued until this state of the tongue disappears.

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TURNER, A. P., M.D.—*Observations of 100 cases of Intermittent Fever in which the Sulphate of Cinchonia was used as a substitute for Quinia.* Amer. Journ. of Med. Sciences, April, 1864.

Turner concludes that an extensive use of both substances justifies the statement that in slightly larger doses cinchonia is equal as an antiperiodic to quinia; so much so, that in private practice where either can be procured, he orders the former with as much assurance of success as if the latter were used. It is more soluble, tends less to derange the gastric functions, begets less of the malaise, the cephalic symptoms are less violent and enduring, and it is not followed by any special unpleasant effect more than is observed to ensue after use of quinia, and it may be administered in all cases and under all circumstances where this substance is indicated.

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MELLER, C. J.—*On the Fever of East Central Africa.* Lancet, Oct. 22, Nov. 5, 1864.

A valuable paper for reference.

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HARE.—*On the treatment of Malarious Fever.* Med. Tim. and Gaz., Nov. 5, 12, 19, 26, Dec. 3, 10, 17, 24.

The author claims to have clearly ascertained that all the Calcutta fevers are malarious, and are all curable by quinine, the disease being checked in 24 hours, and finally removed in 48. He gives gr. xxx at the commencement of the treatment, and gr. xx at intervals of not less than 3 hours, until cinchonism is produced. He claims to have treated 6982 fever patients, with only 4 deaths in every 845 cases. In a trial made in one of the Calcutta hospitals 292 cases were treated on a regular plan of giving quinine solely, with the result of only 2 deaths. In cases where there is much irritability of stomach, Hare acknowledges the good



effect of giving calomel in full (gr. xx) doses; this subdues the vomiting, and enables the stomach to retain the quinine. With respect to diet he does not offer or prescribe food for a young soldier just attacked with fever for the first day or two; but if a patient is sent to him who has had fever for a week or more, he regards him as starving, though he may have no appetite, and may even loathe food, and persistently makes him swallow small quantities of soup, arrowroot, and milk, and if he has been a spirit-drinker, or even a free liver, he gives him wine or spirit. What he desires to impress on his readers is, that malarious fever is not an inflammatory disease, but the direct contrary, and requires no depletion by bleeding or purgatives, and that the congestion of the liver, &c., which appear in fever, and the morbid secretions thence arising, are best cured by early and large doses of quinine, under the use of which the congestions disperse, and with them the morbid secretions. Also that we can support the strength of the patient without danger by proper food and nourishment. Compare with this a pamphlet by Dr. Macpherson.

MACKAY, A. E., M.D.—*On Erysipelas*. Edin. Med. Journ., Feb., 1864.

Mackay recognises this disease as essentially contagious, but further as a diathesis, certain persons being so prone to it, that it becomes in them a peculiarity of constitution. For a period of about 9 months, when Mackay had the medical charge of H.M.S. Marlborough, cruising in the Mediterranean, a succession of cases of erysipelas occurred on board. The intervals between these were so filled up with cases of erythema, and latterly with cases of a somewhat peculiar form of cynanche, that the chain of disease was kept tolerably complete throughout. The whole of the ship was most carefully examined, but no local source of disease could be detected. Mackay refers the frequency of the seizures to marked proclivity to the disease on the part of some of those affected, certain atmospheric conditions, and contagion.

CHARCOT, J. M.—*On the influence of Saturnine Poisoning on the development of Gout*. Gaz. Hebd., 10, 27, 1863. Schmidt's Jahrb., vol. 121, p. 171.

Charcot confirms Garrod's observations. He gives a case at some length in which gouty disorder with local deposits of urates was very marked without there being any hereditary predisposition, or anything in the mode of life to produce it except the occurrence of repeated attacks of lead colic. He states that of 20 patients who came under his notice for the results of inveterate lead-poisoning 7 had previously suffered from attacks of gout. In 3 of these the serum was examined for uric acid, but none was detected.

MARKHAM, W. O., M.D.—*The uses of Bloodletting in Disease*. Brit. Med. Journ., Apr. 2nd, 9th, 16th, 23rd, 30th, May 7th.

LANCEREAUX.—*Syphilitic lesions of Internal Viscera*. Brit. Med. Journ., April 23rd, 1864; Gaz. d. Hôp., March 17th, 1864.

Lancereaux says the lesions produced in the viscera by syphilis present in general sufficiently well-defined characters to allow of their cause being specified. They may be grouped under the following forms:—(1) Inter-

stitial inflammation; (2) Gummata or tumours; (3) Cicatrices. Those organs, such as the liver and testis, which abound in parenchyma, are most liable to the first named of these forms. New elements (nuclei, cells, and fibres of connective tissue), are developed in the meshes of the organ, producing enlargement and ultimately contraction and atrophy. When this takes place the surface of the above-named glands presents furrows and depressions of greater or less depth, giving a characteristic appearance to the organ. In the liver we find lobular cirrhosis, *i. e.* *cirrhose à gros grains* as M. Lancereaux calls it—a state very different from the granular induration of drunkards, or *cirrhose à petits grains*. The inflammatory form is less distinct in the other viscera, as the brain, kidneys, lungs, and heart, and is also more difficult of recognition—that is when one organ alone is apparently affected. In these organs it manifests the characters of cerebral induration or softening, of interstitial nephritis, or of chronic pneumonia or carditis. The second form of visceral syphilis is characterised by the presence of tumours varying in size from a pea to a haricot bean, and generally termed gummata. They may be firm or soft in consistence, and of a gray, whitish, or yellowish colour, according to their age, and to the relative proportions of their histological elements. They are ordinarily surrounded by a dense grayish vascular fibrous tissue, very resistant to the finger; this forms a kind of cyst, from which they may sometimes be enucleated, and its presence is often a sufficient guide in distinguishing these tumours from tubercle, cancer, and most other non-syphilitic new formations. Gummata in their early stage are constituted of the embryonic elements of connective tissue. Having arrived at a more or less complete degree of development, they undergo a retrograde or fatty change. They may be spontaneously absorbed. This termination is doubtless favorable; but traces of the presence of the tumours may be left in the form of cystoid membranes (in the brain), fibrous bands, or cicatrices (in the liver). In some cases the tumours undergo calcareous transformation. Syphilitic gummata are readily distinguished from cancer, and from fibrous or fibro-plastic tumours, by the small amount or absence of vascularity, and by their situation; but they are very easily confounded with tuberculous or scrofulous deposits, vascular atheromata, and deposits arising from glanders or farcy. Their nature, however, may be determined by a consideration of the characters already described, and by a careful consideration of all the organs, and of the liver in particular. The formation of cicatrices is in reality only one of the modes of termination of the preceding forms of syphilitic lesion. It is characterised by the presence on the surface of the organs of one or more furrows, or more or less deep depressions; and by fibrous bands in the interior. Of these lesions, the first—furrows and depressions—are distinguished from the atrophy consecutive on obliteration of the vessels by the presence of a fibrous cyst at the depressed part, and by their having no relation, as regards situation, to the distribution of the vessels. From cicatrices left after wounds they are distinguished by the absence of the colouring matter of the blood. The fibrous bands in the interior of organs are distinguished from absorbed and cicatrized purulent deposits by their numbers as well as by the absence of purulent detritus in the neighbourhood. In the vascular glands hypertrophy sometimes occurs,

with or without alteration of the elements of the organ. In 24 cases Lancereaux found hypertrophy of the spleen in 10, of the mesenteric glands in 10, of the thyroid body in 4, and of the suprarenal capsules in 2. In some cases he has found hypertrophy of the follicles at the base of the tongue, and of the pharynx and tonsils. This lesion of the glands is generally accompanied by modifications in the blood and by cachexia. Fatty, amyloid, lardaceous or fatty degeneration of organs, especially of the liver or kidneys, were found in several cases, but Lancereaux is not disposed to regard them, like the lesions already described, as the direct results of the syphilitic infection. From his examination of individual organs, Lancereaux has arrived at the following results. In the liver he found interstitial hepatitis or cirrhosis in 3 cases; gummata without cicatrices in 1; cicatrices without tumours in 7; cicatrices of the surface of the liver with gummata in the substance of the organs in 9. In most of the cases the liver had also become adherent to the diaphragm or to the neighbouring viscera; but perihepatitis was never found independently of the other appearances described. In the kidneys, among 24 cases, there was interstitial nephritis in 3, the same with waxy degeneration in 2, small tumours disseminated through the renal parenchyma in 1, cicatrices on the surface with atrophy in 2. The testes were affected in 3 cases. In 1 there were gummatous masses in both testicles, producing enlargement; the proper glandular tissue had entirely disappeared. In another there were gummatous deposits in one testicle, and interstitial orchitis in the other; and in the third there was periorchitis. In some other cases atrophy of the testicles appeared to be the result of syphilis. Similar changes were also found in the ovaries. In the brain old gummatous tumours having partly undergone fatty transformation were found in 2 cases. In 1 case a cyst-like membrane with numerous partitions occupied the greater part of the right anterior lobe. Cicatrices on the surface of one of the convolutions, and a cicatricial fibrous band between the gray and the white substances were present in one case. In one instance there was amyloid degeneration of the pia mater and softening of the pons Varolii. The lungs presented in 2 cases chronic pneumonia, and deep cavities with smooth regular walls; gummatous deposits in 3 cases; and superficial cicatrices in 1. There were narrowing and dilatation of the bronchi in 2 instances; cicatrices and ulcerations of the pharynx (larynx?) in several, and ulceration of the bronchi in 1 case. The heart presented in 2 cases gummatous tumours disseminated among a fibrous tissue, together with alteration or disappearance of most of the muscular structure of the organ. In 1 case there was simple myocarditis; and in 2 lardaceous degeneration. In several instances rapid or sudden death had arisen from the cardiac lesion. The functional disturbances produced by syphilitic lesions of internal organs have no specific character. Each organ manifests its lesion by disturbance of its proper functions; and hence the symptoms proper to these affections vary not only with the organ affected, but with the seat and extent of the morbid change. The elements of diagnosis must therefore be sought for in the presence or previous existence of the internal manifestations of syphilis, and in the antecedents of the patient. It is well in any case to take into consideration the age and other etiological circumstances; to examine most carefully

the liver, which is most frequently affected; and to note the state of the kidneys, the presence of syphilitic disease in which often produces albumen in the urine. The simultaneous disease of several viscera is worthy of attentive consideration; but the special foundation for diagnosis is, together with the period (tertiary) at which the symptoms appear, and the peculiar progress of the numerous manifestations of visceral syphilis, the special cachexia by which these are almost always accompanied. In general the prognosis of syphilitic disease of the viscera is to be regarded as serious in proportion to the importance of the organ or organs affected. Specific treatment, consisting of mercury and iodide of potassium, has often been found by M. Lancereaux, when used in proper circumstances, to remove rapidly serious symptoms, even when threatening a speedy fatal termination. This treatment is useful for syphilitic inflammation and tumours, but has no effect on cicatrices. It must not be forgotten that the prolonged use of these remedial agents is demanded. In this way we may best obviate the tendency to a recurrence of the disease.

CHARRIER.—*On Hereditary Syphilis.* Arch. Gén., Sept. 1862; Schmidt's Jahrb., vol. 124, p. 180.

Charrier's conclusions are as follows. (1) If a child is born syphilitic, or becomes so in the course of the first year without direct infection, it is absolutely certain that the mother is or was syphilitic. (2) A syphilitic father, in whatever period of the disease he may be, never communicates syphilis by procreation to his child unless the mother is infected. (3) The hereditary communication of syphilis by the male parent is not yet proved; the mother must be the subject of the disease if the child is born syphilitic.

MAROWSKI, L.—*On the social relations of Syphilis.* Deutsche Klinik, 5, 6, 8-10, 12, 1863. Schmidt's Jahrb., vol. 121, p. 309.

The author's experience leads him to the following conclusions:—(1) Either father or mother who have suffered from general syphilis may beget completely healthy children, even when their malady is not completely cured, and relapses subsequently occur. (2) It is nevertheless very probable that the children of such parents receive a certain morbid predisposition, *e. g.* to scrofulosis, hydrocephalus, pulmonary phthisis. (3) When both parents have suffered from general syphilis the probability is considerably diminished that their children will be quite healthy, though the possibility of it cannot be denied. (4) There is no ground for interdicting the legal marriage of persons who have suffered from syphilis, though the public should be made acquainted with the possible consequences of such a step, and measures should be indicated which may serve to protect their children from inheriting the disorder. (5) Mercurial treatment during pregnancy has not always any injurious influence on the development of the embryo, nor does it even when fully carried out necessarily induce either miscarriage or premature labour, the occurrence of which is rather to be ascribed to the syphilitic dyscrasia. (6) The milk of a mother who has had syphilis and has been restored by mercurial treatment is not necessarily injurious to children, it is therefore better that a child affected with hereditary syphilis should be suckled or artificially fed by its mother than by a healthy nurse. The author offers an hypothesis to the effect

that syphilis is transmitted to the children only by those parents who have some, though perhaps insignificant syphilitic affection of the testes or ovaries.

JACKSCH.—*Syphilis of internal organs*. Prag. Med. Wochnschr., 1-7, 1864. Schmidt's Jahrb., vol. 122, p. 298.

Jacksch lays down the following as the characteristics of syphilitic organic lesions:—(1) They exist in the absence of the causes which usually give rise to such conditions. (2) They exist in combination with other morbid phenomena which are looked upon as specific. (3) They appear at a determinate period of the general disease. (4) They exhibit in their form, course, and duration the specific character. (5) There is an analogy between them and other morbid phenomena belonging to the same diathesis. (6) Antisyphilitic treatment acts beneficially upon them, while all other is ineffectual. (7) The material alterations, and the symptoms dependent upon them present certain peculiarities characteristic of the syphilitic process. The natural tendency of the syphilitic product is to active growth, but this process is of an unproductive character, either forming atrophying cicatrices, or leading to a fattily degenerating cell-growth. The gummatous tumour is most characteristic. Actual inflammation only occurs in the vicinity of the morbid process, and fever is rarely present in syphilitic disease of internal organs. Such internal affections are by no means rare; Treitz met with them in 2 per cent. of all post-mortem examinations. The prognosis is in general not unfavorable if the disorder is early recognised and judiciously treated. In cerebral syphilis Jacksch has, unlike other authors, found material alterations in all his cases, but they are sometimes very slight. Syphilitic products in the brain are essentially to be regarded as new formations, which themselves undergo various changes, and induce the same in their vicinity. The most ordinary is transformation into a cicatricial, contracting substance adherent to the surrounding parts. The brain-substance at the diseased spot has generally disappeared, and is replaced by callous knots, less frequently by patches of softening, and still more rarely by cysts. The gummatous tumour is observed in its various metamorphoses in all parts of the brain and of its membranes, several of them may exist in the same brain. It is less usual for the brain to become secondarily affected from disease of the cranial bones. The cerebral nerves may be injured at their origins, or in their passage through the membranes, or by pressure on their trunks, or by disease of their own tissue. There is nothing peculiar in the symptoms of syphilitic cerebral disease. The mental disorders resulting from syphilis are interesting, both those which are permanent, and those which are temporary. From 45 cases of the former, 6 of them his own, Jacksch has drawn up the following description. They appear either as loss of memory and of imagination, or as melancholy passing into idiocy or into general paralysis, or as mania with the same results, or as delusions, or as primary paralytic idiocy, or as mere loss of consciousness. Of the 45 cases 26 recovered, 3 were improved, 2 remained unimproved, and 14 died. In the favorable cases the mental disease had lasted for the most part only some weeks or months, only in one instance more than 2 years. Among the cases

ending fatally were paralytic idiocy, mania, melancholia with idiocy, idiocy without paralysis, and loss of consciousness with refusal of nourishment. Autopsies were made in all the 14 cases, and lesions were generally found in the cerebral membranes and in the cortical substance; the former were thickened, and adherent with the latter. The brain tissue was softened both at the periphery and the centre. The same symptoms were not always associated with the same lesions. The other organs which were most frequently diseased were the cranial bones and the liver. The age of the syphilitic patients with mental disorder was usually that of adult manhood, and the majority of them were males. Between the appearance of the mental disorder and the primary affection there occurred an interval varying from 2 to 20 years. The primary symptom was usually a chancre, in two of Jacksch's cases it was of phagedænic character. As a rule antisyphilitic remedies of various kinds had been administered on account of the general symptoms, but often nothing had been given. The mental disorder was almost constantly preceded immediately by severe headache which lasted weeks and months, and was specially intolerable at night; the two often existed together. In 21 cases it was followed by hemiplegia which almost always came on gradually and was either complete or incomplete. Individual cerebral nerves were previously or simultaneously paralysed. In the further progress of the disease paralysis almost always ensued, which not unfrequently became general and affected the tongue, throat, and respiratory muscles. The diagnosis turns upon the presence of the recognised results of syphilis in other parts, on that of the peculiar pain in the head, and on the success of specific treatment. The prognosis is not unfavorable, but becomes so much worse the longer the disease has already existed, the more frequently it has relapsed, the more it is attended with other cerebral symptoms, especially paralyses, and the more the kind of mental disorder approximates to idiocy, or is combined with paralysis. Relapses are not rare.

#### NERVOUS SYSTEM.

MERKEL.—*Report on symptomatic defects and Loss of Speech produced by cerebral affections.* Schmidt's Jahrb. vol. 122, p. 106.

HUGHLINGS JACKSON, M.D.—*Loss of Speech, its association with valvular disease of the heart, and with Hemiplegia on the right side. Defects of smell. Defects of speech in Chorea. Arterial regions in Epilepsy.* Clin. Lectures and Reports of the London Hospital, 1864, p. 388. This valuable paper we can only refer to.

HUGHLINGS JACKSON.—Med. Tim. and Gaz., Aug. 13, 1864.

Jackson records the case of a male, æt. 49, healthy-looking, but affected with aortic regurgitation, who had loss of speech associated with hemiplegia on the left side, followed at a later period by epileptiform seizures. Jackson refers these to softening from imperfect supply of blood to the brain in the region of the right middle cerebral artery. Cases, he says, of unilateral epileptiform convulsions coming on suddenly in very healthy-looking young men suggest the inquiry whether some quasi accidental cause, like embolus, be not more frequently the origin of epilepsy than is generally

supposed. This is the more likely when it can be pointed out that the muscles first affected by spasm in those cases are the same as are paralysed in plugging of the middle cerebral artery; and again, that the hemiplegia which sometimes follows the unilateral convulsions (epileptic hemiplegia) is also of the same kind as that which follows plugging. In another case which he gives, the patient, *æ*t. 54, of healthy appearance, and free from valvular disease, had 9 or 10 fits consisting of loss of speech (temporary), right-sided convulsions, and unconsciousness. Jackson believes the cause to have been spasm of the middle cerebral artery or its divisions. This, he says, is a mere hypothesis, but it is at all events a smaller one than such theories of reflex irritation as are generally received; such for instance that worms or teething produce universal convulsions; and it gives the theory of reflex irritation at least an anatomical framework to say that disease in the range of a cerebral artery produces spasm of the branches of that arterial system. The view generally held, supposes that an irritation may produce paralysis or spasm in parts which have no special anatomical connection, or physiological relationship. According to Jackson's hypothesis, the brain-substance would be temporarily ill-nourished by spasm of the vessel, just as it would permanently in the case of embolism by plugging of the arterial trunk. In the first then, we should have unilateral convulsions, and in the second unilateral paralysis—in one hemiplegic epilepsy, in the other what, if, as is now and then the case, it were preceded by convulsions, we should call epileptic hemiplegia. Clinical observations seem to demonstrate beyond a doubt that convulsion is closely allied to paralysis. We constantly find paralysis following convulsions, and, what is more striking, we often find convulsions beginning in parts already paralysed. Such cases seem to Jackson to prove beyond doubt the truth of Dr. Radcliffe's views, that convulsions depend on enfeebled power of the nervous centres, or diminution of blood-supply, rather than on increased irritability or congestion. Now and then convulsions usher in hemiplegia from embolism. Here it is inconceivable that the condition of the motor tract, the corpus striatum, can be any other than one of anæmia. It may be said that the medulla oblongata and not the corpus striatum is concerned in convulsions. Whatever the medulla oblongata may have to do in some links of the seizure, it is a fact that unilateral convulsions do follow from affections of the corpus striatum, as in the instance of embolism, and that they do follow disease on the surface of the hemisphere. The medulla oblongata may be diseased as well, but post-mortem examination shows that in unilateral convulsions the middle cerebral artery itself, or of some part of the brain in its range is diseased too. Jackson further observes, a patient may be in rude health, and yet *part* of his nervous system may be below par from some quasi accidental cause, as embolism, or local injury to the side of the skull, or syphilitic deposit in the pia mater on the surface of the hemisphere. In such cases then, part of the nervous system only being affected, the convulsions also are partial. It seems then reasonable to suppose that when the nutrition of *a part* of the brain is below par we should give as drugs and food such substances as are known to contain constituents of nervous tissue. Then, the blood being enriched, the part below par would get its nutrient supply more easily. A case is next cited from the ex-

perience of Delasiauve, in which epileptiform attacks were constantly preceded by an excessively offensive odour, soon followed by trembling of the limbs on the right side of the body, and next by total loss of sensibility. Jackson says, in some cases of plugging of the left middle cerebral artery there is another symptom: (1) loss of smell as well as (2) paralysis of the right arm and leg, and (3) defect of speech. Jackson has had under his care a boy whose fits always begin by a disagreeable smell (1), he is then insensible, convulsed on the right side (2), and when he comes to himself he is unable to talk intelligibly for half an hour. A case of embolism in which (1) smell, (2) power on the right side, and (3) speech were lost, has been recorded by Dr. Fletcher, of Manchester (*Brit. Med. Journ.*, April 30); and Jackson has now under his care several cases in which these three defects exist together. In one of them there is valvular disease; and in that case at least it is probable that the left middle cerebral artery is plugged. It is quite clear that the boy's defects are analogous, except that they are slighter and very transient. Instead of (1) loss of smell, he has temporary disorder of that function; instead of (2) paralysis of the right arm and leg, he has convulsive movements of those limbs; instead of (3) loss of speech he has defect of speech. When we further consider that the left middle cerebral artery supplies (1) the roots of the olfactory bulb, (2) the corpus striatum, and (3) the hemispheres, we can readily understand how the three strangely associated symptoms should occur together in plugging of that vessel, and I submit that temporary spasm of the vessels in that arterial region would account for the 3 temporary symptoms in epileptiform seizures. Although the olfactory bulb, the motor centre for the arm and leg, and the seat of the faculty of language, have no relationship of function, yet being bound together by an artery, they have a relation by community of nutrition; and hence we understand how the three suffer very often together in disease.

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RUSSELL, JAS., M.D. *Cases of Hemiplegia with Loss of Speech.* *Brit. Med. Journ.*, July 23, Aug. 20.

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WILKS, S., M.D.—*Abstract of clinical lecture on a case of Loss of Speech and Paralysis in an hysterical woman. Cure by moral treatment.* *Med. Tim. and Gaz.*, Sept. 3.

E. P—, æt. 22, admitted May 30; eighteen months before, without any previous symptoms of hysteria or emotional excitement, she lost speech in the night. At the same time she became unable to sit up, and has been speechless, and has kept her bed ever since. She communicates her wishes by writing, and can make signs readily. She seems to be quite intelligent, understands what is said, and replies well by writing. She can use her arms, and passes most of her time in embroidery. On June 9, under some little exercise, and the fear of galvanism, she said yes and no in a whisper. To give the result shortly this patient without any drugs became quite well and was discharged. She spoke perfectly, and moved her limbs well. It was impossible to ascertain whether she was menstruating when she lost speech, but before and since there was no disorder of that function. Dr. Wilks remarked on the uselessness of



physic in such cases as the foregoing, and the importance of moral treatment.

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MARTYN, S., M.D.—*On the physiological meaning of Infra-mammary pain.* Brit. Med. Journ., Sept. 10.

After stating his reasons for being dissatisfied with previous explanations, Martyn affirms that in cases of this intercostal neuralgia there is palpitation on any exertion, and that in most cases the pain and the palpitation have a distinct connection. On posing the question—why is pain almost invariably confined to the sixth, seventh, and eighth intercostal spaces of the left side? the answer seemed to be *a relation to the heart*. Reflected or radiated pain is now recognised as extremely common, and in the view that the pain in question might be of this nature, Martyn inquired—are there any nerves supplied to the heart, and to the 6th, 7th, and 8th intercostal spaces from the same central region? and finds that a most important anatomical relation requires to be taken into account. The aortic arch impinges on the left side of the third dorsal vertebra; and opposite the 4th, 5th, and 6th, it receives contributions to its plexus from the corresponding ganglia of the sympathetic, while its plexus again contributes to the heart. These sympathetic nerves have, however, just received branches from the intercostal nerves themselves; and so it is that the heart and the intercostal spaces (4, 5, and 6), are supplied by branches of the same nerves. Moreover, this is on the left side and above only, for on the other side more of these branches go to the œsophagus, while below those from the 6th ganglion chiefly go to form the large splanchnic nerves. Now, the 4th, 5th, and 6th intercostal nerves are those which give off large, lateral, cutaneous branches, descending over two ribs before they terminate in the skin over the 6th, 7th, and 8th intercostal spaces, or the site of infra-mammary pain. Smaller twigs of the same nerves supply the ends of the same intercostal spaces, where the pain may also be perceived. He then refers to V. Bezold's experiments, reported in the Year-Book, 1864, p. 19, as showing that the region of the cord referred to contains nerves passing out to the heart. Thus the anatomical nervous connection between the heart and the region of infra-mammary pain, became endowed with a great significance, and it seemed more than ever probable that the sensorium received the impression of *some distress* in the heart through nerves which enter the gray posterior columns of the cord at the same point as those from the 6th, 7th, and 8th intercostal spaces. The central impression is radiated, and referred by the mind to the sensitive skin. In the case of aneurism of the descending portion of the aortic arch, the same nervous circuit accounts for the pain in the side, which is indeed a more aggravated form of infra-mammary pain. In severe instances of intercostal neuralgia painful spots are also to be found near the sternum and spine, at peripheral ends of cutaneous nerves, and even in the arm, which through intercosto-humeral branches receives also sensory nerves from the same source. In these and other ways the theory here laid down explains the actual phenomena. For instance the pain may be (though always to a much less extent) felt on the right side also. Now, although the first internal dorsal branches of the sympathetic on the right side go to the œsophagus, some of them

do run on from it, and under it to the aortic arch. Again, though the 6th, 7th, and 8th intercostal spaces form the habitat of this pain, it may be felt in the 5th and in the 9th also; this being readily accounted for by the delicate and very irregular filaments which run from the 1st and 2nd dorsal ganglia, as well as from the great variations in the mode by which the dorsal sympathetics form the great splanchnic. So far, then, Martyn believes there is reason, on anatomical, physiological, experimental, and pathological grounds, for adopting this theory that infra-mammary pain is a reflex neuralgia, expressive of some distress in the heart. The indications for treatment are to remove the source of irritation, relieve the heart of its work, and allay the pain.

GRAEFE.—*On Cardio-Thyroidean Exophthalmia.* Brit. Med. Journ., Sept. 17.

Graefe points out a symptom which presents itself from the first, is constant, characteristic, and pathognomonic. It is the suspension of the sympathetic connection normally existing between the vertical rotation of the visual plane, and the movement of elevation and depression of the superior eyelid. In the normal state the eyelid is seen to follow this movement, and to be elevated or depressed in proportion to the extent of the rotation of the eye. But in this disease the eyelid remains motionless, especially in the rotation of the eye downwards.

LAYCOCK, T., M.D.—*Clinical lecture on Exophthalmos.* Med. Tim. and Gaz., Sept. 24.

Laycock relates two cases; the first entitled vascular bronchocele, with exophthalmos and palpitations following upon a fright—neuralgia, but no anæmia; the second exophthalmos and vascular bronchocele with palpitations and neuralgia, aggravated paroxysmally; no anæmia. The first case was not treated, the second was made worse by iron and digitalis. Some cases of highly-marked anæmia are contrasted with the preceding, in which none of the peculiar symptoms of Graves' disease occurred, and which recovered under the use of iron and ergot. Laycock proceeds—it has been a doubt with me for some time past whether even in these cases it is the anæmia exclusively which gives rise to the murmurs, or whether there is not something in the constitution and morbid proclivities of the sex which is a cause of them, in part at least. He cites cases of great anæmia in males without any murmurs, and says the *absence* of these murmurs in anæmic *men* is the rule; their *occurrence* the rule in *women*, but in women with true chlorosis, and amenorrhœa, menorrhagia, and utero-ovarian disease. Even abdominal pulsations and murmurs, so common in the hypochondriacal and hysterical of both sexes, will not result from anæmia, as was proved by the absence of such murmurs in the cases referred to, although the aorta pulsated well; while in a case with little anæmia, although cachectic looking, there is loud murmur. As to the nature and causes of Graves' disease, and of inorganic murmurs in women, Laycock remarks that both are almost peculiar to women. The only two exceptional cases of palpitation and vascular bronchocele he has ever seen were both in highly nervous, hysterical males. Moreover, the above affections never are seen in old women. They therefore are in

relation with the age of reproductive activity, and are in some way or other associated in the sex with utero-ovarian function. The frequent coincidence of amenorrhœa in the unmarried patients with chlorosis and Graves' disease, and of leucorrhœa, menorrhagia, hysteralgia, or other like affection in the married, farther points to this conclusion. And still more conclusive is the fact as to the relations of the thyroid body to the utero-ovarian function. It is often slightly enlarged during menstruation and pregnancy, sometimes dangerously—nay, even fatally, while at least 90 per cent. of the bronchoceles met with in this country are observed in women. In these respects the thyroid body is like the mammæ, and since it is now admitted by all, I think, that the influence of the uterus and ovaries on the mammæ during menstruation and pregnancy is exercised through the nervous system; we may infer that this vascular bronchocele is induced in like manner. In short, we may conclude from a collocation of clinical facts that neuro-vascular women, naturally of an emotional, excitable temperament, or who, during uterine activity, or during sexual excitement, have had fright, grief, excessive mental labour, or other causes morbidly influencing the nervous system (amongst which we may place anæmia), or who are of an age at which the reproductive organs are *functionally* active, are predisposed to Graves' disease, and that emotional and similar mental states are the exciting causes. *The spinal seats of Graves' disease.* First, as to the violent palpitations. Laycock points out that in a fatal case of angina pectoris the neuralgic pains affected the very same parts as in the cases of Graves' disease, viz., those supplied by the external and internal cutaneous nerves, and the inter-costo-humeral. As to the motor nerves and the motor activity of the heart and large vessels there is complete dissimilarity. In the above case he observed diminished power of the heart, and therewith fatty degeneration, just as occurs in voluntary muscles, while in the female patients with exophthalmos, there was increased power and activity both in the heart and arteries. Now, as it has been shown experimentally that the oculo-spinal region of the cord contains a cardiac motor tract, we may conclude that in the case of angina pectoris the neuralgia was associated with paresis of the spinal motor tract of the heart and large vessels in the man, in the woman with excessive motor irritability. It is probable, too, that in these there is also a hyperæsthesia of the endocardium—not sensory, but reflex—for in experiments on the sympathetic increased capillary activity of the skin and cutaneous hyperæsthesia are conjoined. The increased activity of the large arteries is dependent upon some morbid condition of the same oculo-spinal region.

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WHITTLE, E.—Brit. Med. Journ., March 26.

Relates a case of hydrophobia occurring in a male æt. 35. The chief peculiarity was a constant and distressing inclination to pass urine, while scarce any was voided. He felt every now and then something flash through him, as if he were electrified, beginning at the penis. Every 5 minutes he was seized with a convulsive shuddering, that seemed to pervade his whole frame; some of the attacks were more severe than others, when he extended his arms and legs rigidly, leaped up in his chair, and called out to be held that he might not do harm to anybody. By a reso-

lute effort he was able to drink, but so violent and prolonged a paroxysm was occasioned by the attempt, that it seemed as if he would have been suffocated. After some time he remembered having been bitten very slightly on the penis by a little lap-dog, about 10 months before. Death occurred from exhaustion during a paroxysm, in the course of the 3rd day.

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CAMERON, J.—Brit. Med. Journ., June 11th.

Records a case of hydrophobia proving fatal in 35 hours after the first appearance of the symptoms, and 6 months from the time of the infliction of the injury. Death occurred apparently from sheer exhaustion. No definite morbid change was discovered at the autopsy. Blood generally fluid, and somewhat dark in colour.

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REID, J. W.—Edin. Med. Journ., Aug.

Records 6 cases of delirium tremens treated with large doses of tincture of digitalis. All terminated favorably. Four had taken more or less opium before the digitalis was given. The first case appeared to be in a very unfavorable, almost hopeless, condition at the time when the digitalis treatment was commenced. No depression was produced in any. The precautions taken were to ascertain that no heart disease existed, and to prevent the patient leaving his bed for any purpose before he slept, and for at least 24 hours after he had regained his nervous control. Strong beef-tea, or arrowroot, was always administered at proper intervals before sleep.

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PATERSON, A. S.—Australian Med. and Surg. Rev.; Glasgow Med. Journ., Jan. 1864.

Records 2 cases of mania produced by sun-stroke. In both the hands and feet were cold, and the circulation very languid. The first case took nourishment well, though it was necessary to feed her, but was very reluctant to take stimulants. She recovered in about  $3\frac{1}{2}$  months. The second was unwilling to take food or stimulants, and remained after 3 months' residence in the asylum, in the same mental though in an improved bodily condition.

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BONNYMAN, J., M.D.—*Observations on Heat-Apoplexy*. Edin. Med. Journ., May, 1864.

Bonnyman recognizes that exposure to the sun is by no means necessary to an attack. By far the greater number of cases that yearly occur in India, are those of men who have not been so exposed. It is not unusual for men who go to bed in apparent health to be seized during the night, and patients in hospital, who have been confined to bed for days previously, are frequently the subjects of attack. Great atmospheric heat then appears to be the condition chiefly concerned in the production of the malady, and whatever assists in rendering heat oppressive, as stillness and closeness of the air, over-crowding and deficient ventilation assists also in disposing to a seizure. The principal predisposing causes are those of a debilitating nature, as mental depression, anxiety, great bodily exertion, fatigue, intemperance, suppressed perspiration, and existing disease, especially in any of the depurating organs. Bonnyman describes

two forms of the disease, the gradual or progressive, and the sudden or severe. The first is sometimes preceded by well-marked premonitory symptoms, languor, inertia, drowsiness, vertigo, headache, and slight confusion of ideas; the patient feels weak and nervous, sighs frequently, has thirst, anorexia, constipation, and irritability of the bladder. If the disease proceed unchecked, the symptoms become aggravated, and the patient either passes into a state of profound coma, or the symptoms of the first form of the malady are developed, viz. distracting headache, with a feeling of weight and heat in the occiput, tightness, distension, and throbbing in the forehead and temples, anxiety at the precordia, nausea, and disposition to vomit. A sensation of sinking, or of insupportable weight and uneasiness is referred to the pit of the stomach, and a feeling of horror or of impending calamity, with a tendency to weep, is experienced. The breathing is natural, or slow and sighing. The face is generally natural, sometimes flushed; eyes bright, pupils either natural or somewhat contracted. Skin is very hot and dry, pulse full and accelerated, tongue white, thirst intense, bowels confined, urine suppressed. The patient is generally distressed and agitated, and speaks in short broken sentences. If these symptoms persist, tetanic convulsions suddenly appear, and the patient lapses into the second or severe form of the disease. This however not rarely makes its invasion suddenly. Its symptoms are tetanic convulsions, lasting for a few minutes, and followed by profound stupor, from which the patient cannot be roused; relaxation of the muscles; slow, deep, stertorous breathing, sometimes accompanied by a loud, prolonged, painful moan or cry. Skin intensely hot and dry. Partial perspiration about head. Countenance pale, no distortion of face. Eyelids closed; pupils at first contracted, but before death becoming widely dilated. Pulse at first full, quick, and bounding, afterwards becoming quick and weak. Heart's action violent. Sometimes a recurrence of the convulsions takes place, the breathing becomes more and more laboured, and the expired air cold; attempts at vomiting occur; froth appears at the mouth and nostrils; and death closes the scene. When the disease comes on gradually, the recognition of the earliest symptoms of its approach is of the greatest importance, as judicious measures employed in this stage are likely to prove useful in cutting short, or in preventing an attack. Intense headache, burning heat of skin, and a feeling of overpowering load at the epigastrium, are grave symptoms, as there is then imminent danger of the occurrence of convulsions and coma. On the supervention of the latter symptoms, with stertorous breathing, an unfavorable issue may generally be expected. An attack may prove fatal in from 10 minutes to 12 hours, and when well-marked seldom lasts longer than 2 days. Some cases on recovery from the more immediately dangerous symptoms, are attacked by agues or remittents, and after a period of several weeks die exhausted, the functions of the skin, and of the other emunctories never having been completely restored. While a few cases recover rapidly and completely, the majority on exposure to the sun for any length of time, are ever afterwards liable to occipital headache, and to a feeling of distension in the upper part of the head, the circulation within the cranium appearing to be deranged by the slightest causes. Relapses are frequent, and patients need to be carefully watched during

the commencement of recovery, lest the dangerous symptoms recur. The appearances after death, where there is no complication or co-existent disease, are pretty constant and unvarying. Irregular patches of a livid red colour are seen scattered over the whole external surface of the body, those over the neck and dependent parts being large, while those on the anterior surface are smaller and more numerous. These blotches not unfrequently begin to form before life is extinct. The whole body retains the animal heat for a long time. The encephalon and its membranes are found congested, and the veins and sinuses full of dark blood. A quantity of clear serum is generally discovered at the base of the brain, and the lateral ventricles are also full, while their choroid plexuses are generally pale and shrivelled. The lungs are gorged with dark blood, and the bronchi filled with frothy mucus. The right side of the heart generally contains fluid or semi-fluid blood, and the left side is empty. The liver, spleen, and kidneys partake of the general congestion. The blood throughout the body is of a dark colour, and fluid. Bonnyman advocates the theory, that the symptoms are the result of the poisonous action of retained carbonic acid, the elimination of which by the lungs is materially less in hot weather, while in heat-apoplexy not only do the other emunctories not make up by an increase in their functions for the deficient respiratory changes, but they themselves also cease in great measure to perform their depuratory office. And when it is borne in mind how absolutely necessary for the welfare of the body, and even for the existence of life, the proper performance of the functions is, it cannot be matter of surprise that on the interruption of function of so many important organs, as the lungs, kidneys, skin, and intestines, disease of a grave character should result. That the retention in the system of matters that ought to be eliminated, is intimately concerned in the production of the disease, is further demonstrated by the large quantities of black morbid matters, that continue for some time afterwards to be evacuated from the bowels of those who recover from the malady. Bonnyman points to the coincidence of the symptoms as well as of the post-mortem appearances in slow poisoning by carbonic acid, as described by Dr. Golding Bird, with those met with in heat-apoplexy. Cases of intermittent and of remittent fever not unfrequently terminate in heat apoplexy; and in these the patients are said to die *apoplectic*, though in the mortality returns death is ascribed to the disease for which the patients were admitted into hospital, namely, fever. On this account, the number of those who die of heat-apoplexy, often appears less than it really is. Bonnyman believes that further investigation will probably show that malarious fevers and heat-apoplexy are due to the same or to closely allied causes. It has been seen that the latter of these affections acknowledges great and continued heat as its essential cause. And though marsh exhalations are doubtless very frequent causes of periodic fevers, yet great atmospheric heat appears also to be often their sole cause. He says of the 89th regiment, to which he is attached, that during its service in India it has never been stationed in marshy localities. The men may have often passed through unhealthy tracts of country, and been exposed to privation in many ways, but it was when quartered in very hot stations that they suffered most from fevers. He mentions particularly Deesa, Neemuch,

Agra, Gwalior, and Umballa. Marsh fevers, he thinks, are produced either by the miasm, itself consisting of carbonic acid gas, entering the system from without; or, if it consist of some other gas, by its so lowering the vitality of the system, that the elimination of carbonic acid is prevented; the result in either case being ultimately the same, and the actual cause of the symptoms being the same both in marsh fevers, and in heat-apoplexy. The reason why in these fevers coma does not come on as in heat-apoplexy is, that free perspiration occurs by which the poison is removed. Cases of sudden death occurring during a march, Bonnyman thinks are not instances of heat-apoplexy, but of syncope. In the matter of treatment, he recommends the assiduous employment of cold affusion to the head and chest, till the preternatural heat of the surface has disappeared, sinapisms to the epigastrium and abdomen, the administration of stimulants, purgative enemata, diuretics and diaphoretics. Venesection ought never to be practised. If reaction set in rather strongly, and headache be much complained of, a few leeches may be applied to the temples, or, preferably, blisters to the back of the neck or sides of the head.

BENEDIKT, M.—*Observations relating to Hysteria.* Oesterrh. Zeitschr. f. prakt. Heilk., 9, 36, 41-1863; Schmidt's Jahrb., vol. 121, p. 42.

Benedikt states that hysterical paralyses are characterised by simultaneously existing anæsthesia of the skin, the muscles, and the joints; by the essential diminution of muscular contractility as tested by intra-muscular stimulation, while it appeared to be normal when the plexus or the large nerve-trunks were excited; by the sudden change of cutaneous anæsthesia into hyperæsthesia in consequence of electric stimulation of the plexus; and by the original deficiency of excentric sensibility, and its restoration *pari passu* with the sense of touch. The most successful treatment is powerful galvanization (Faradization) of the plexus and nerve-trunks belonging to the paralysed part, which is to be performed if necessary during chloroform narcosis. This is much more effective than the Faradization of the affected part, though the latter may also be employed to complete the cure. The essence of hysteria consists, according to Benedikt, in increased irritability with diminished conducting power of the nerve. When irritability predominates, convulsions and such-like phenomena ensue, when the failure of conducting power is the chief defect palsies and other symptoms of depression occur. He considers that both the central and peripheral nervous apparatus is morbidly affected.

HOLT, R.—Lancet, Jan. 16th.

Records a case of anomalous hysteria, of which the following is a brief account. A girl, æt. 14, non-menstruated, of healthy appearance, having never suffered any previous malady except a short intermittent fever, was admitted January, 1862, into the hospital at Milan, with a disorder which had existed two years in spite of all treatment. The only possible cause seems to have been a fright. Every day, precisely as the clock strikes 1, she begins to shake her head from right to left, gently at first, but with ever increasing rapidity; and so great is the velocity these movements attain towards 3 p.m., that it is almost impossible to distinguish her features. Her long hair is wafted in all directions, her mouth is

firmly compressed, and her fists are clenched. From time to time she bursts into a violent fit of laughter. The pupil is contracted, but there are no muscular twitchings in any part, consciousness and voluntary motion remain unimpaired. Exactly at 3 p.m. the paroxysm terminates, she falls back in a state of complete exhaustion, panting for breath, and covered with profuse perspiration. She eats her dinner with appetite at 4.30, at 5 p.m. she falls into a state of complete insensibility and remains so till 5 a.m. next morning, from which time till the recurrence of the access at 1 p.m. she is perfectly calm and sensible.

LASÉGUE, A.—*On Hysterical Anæsthesia and Ataxia*. Arch. Génér., April, 1864. Schmidt's Jahrb., vol. 123, p. 170.

A girl, æt. 18, previously hysterical was attacked by paroxysms of spasmodic disorder, which returned at intervals during 2 years. After one of these she became cataleptic, and subsequently fell into the same state every 2 or 3 days. At first the fits only occurred after an attack of spasmodic disorder, but at a later period they came on spontaneously. They consisted of deep sopor coming on and ceasing suddenly. The limbs were flexible, only the jaws were contracted. All parts of the body excepting the face retained any posture in which they were placed for a longer or shorter time, without any feeling of weariness or consciousness of their position being experienced. Circulation and respiration were unaltered, the face was pale. During the attack all consciousness was suspended. In the intervals it appeared that the cutaneous sensibility was quite lost in all the four extremities as regards contact, pain, and temperature, the same was the case in the greater part of the trunk, in the neck and head it was much diminished. The parts subjacent to the skin were anæsthetic like the skin itself. As far as the skin was sensitive the patient was able to move voluntarily the subjacent muscles, while the eyes were closed. If, on the contrary, she wished to move a limb she writhed her trunk to and fro as a sign that her volition was active, but no movement of the limb was effected. She was quite unconscious of the position of her limbs, or of their being changed in any way. She had no sense of fatigue, and as soon as her eyes were shut she kept the most uncomfortable posture which would have been intolerable in a few seconds to a healthy person. When her eyes were open she had the full use of her motor power, and experienced the sensation of fatigue after a moderate time. If the eyes, though open, were not directed to the object the movements were imperfectly executed, but if one was begun it could be completed. If she could only see her limbs through the bed-clothes she was able to make some use of them. It is a peculiar feature of hysterical anæsthesia that the patients take no account of it, and do not mention it as a morbid symptom as they do the paralysis, and the pains. Even when their attention is called to it they cannot point out accurately as a paraplegic or an ataxic patient can, the locality and extent of the insensible parts. This is the more remarkable since their customary actions are materially interfered with by the anæsthesia. With respect to the action of the eye in facilitating voluntary movements, Laségue thinks that it informs the intelligence and makes it correspond with the will. It is, however, inexplicable how before the execution of an action, vision can give the impulse to its



performance. Laségue states that the sense of fatigue is not, as might have been concluded from the above case, only a degree or mode of the muscular sense. Another hysterical patient, who had complete anæsthesia and paralysis of the lower limbs as far as the middle of the thigh, but not elsewhere, and in whom there was no anodynia, was able when her eyes were closed to move her arms in any direction, and was aware how they were placed. When, however, her eyes were closed she lost the sensation of fatigue, and could hold her arms in the most uncomfortable position for any length of time. In this instance, therefore, the sense of fatigue was lost, while that of the position of the limbs, and the power to move them voluntarily remained. These are, therefore distinct faculties.

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RAMSKILL, J. S., M.D.—*Clinical lectures on Epilepsy*.—Med. Tim. and Gaz., May 28.

Ramskill notices the action of belladonna on the bowels in many cases of epilepsy, and says that in a great many instances, no doubt spasm is the true cause of the constipation, and that it is removed by the belladonna; but that in many others the constipation is due to atony of the muscular coat of the entire tract, to a deficiency of susceptibility to impressions which mark the muscular condition of most chronic epileptics. Powerful stimulant purgatives are very much more permanently useful in these latter cases than in the former. With respect to the bladder, we meet, he says, with two common forms of spasm associated with epilepsy. In the first micturition is usually normal; occasionally, however, when two thirds of the contents of the bladder are discharged, the stream sinks to a mere dribble, and the act is finished by great expulsive efforts, attended by a decided feeling of obstruction to be overcome. This condition Ramskill attributes to a partial spasm of the sphincter rather than to failure of action of the detrusor. The second form is perhaps more common. A patient will micturate easily, and with a full stream, until the bladder is again nearly empty, when a complete stoppage accompanied by a decided crampy feeling referred to the neck of the bladder and parts adjoining occurs. In a few seconds the feeling passes away, and the power of micturition completely returns. Exploration of the urethra by a catheter is apt to aggravate considerably the tendency to spasm. In a marked case of this kind the patient was most benefited by belladonna suppositories, small injections of CO<sub>2</sub> into the bladder, and finally by cod-liver oil, and removal to the seaside. Ramskill applies the term ganglionic epilepsy to a class of cases in which an aura occurs consisting of some disturbance of sensation, accompanied or not by abnormal feeling of motion in the abdomen. Patients describe those feelings variously, as turning upside down, sinking, fainting, a sense of great coldness, or a rush upwards from the epigastric region, of heat, trembling, borborygmi, shivering, or a feeling of complete collapse, and emptiness of stomach, sometimes with nausea. More or less of these feelings may be always present, and exaggerated only just before a fit. Ramskill believes the symptoms complained of arise from a disturbed condition of the solar plexus and the ganglionic system of the abdomen generally. It may be from a failure of action, or from a disturbed or intermittent action of the solar

plexus, and its dependent neighbouring ganglia. The morbid action starting in the ganglionic system propagates itself by way of the splanchnic nerves to the cerebro-spinal centre, and a fit follows. Ramskill enforces more particularly that this disorder of the ganglionic system is a disease *per se*, often existing alone, and an antecedent to any epileptic attack; in fact, that the epilepsy is an accident which issues from, and follows it, and so is fundamentally different from epilepsy arising from disease in the cerebro-spinal centre, or from a distinct cause of irritation situate in any other part of the body. This ganglionic affection is as much related to hysteria, tetanus, catalepsy, and perhaps intermittent fever and cholera as to epilepsy; and it seems wise in the treatment of such a case to ignore the convulsive attacks for a time, if they be infrequent, or look upon them only as an index of our progress in restoring power to the great centre. Ramskill would ignore the attacks altogether, were it not for the fact, that each attack may, by causing congested blood-vessels, by effusions, by mechanically weakening delicate brain structure, predispose to other attacks, or by dilating the minute and weakened vessels of the medulla oblongata, cause permanent mischief. The subjects of ganglionic epilepsy have generally suffered from various depressing causes, as over-work, under-feeding, mental anxiety, grief; in the female sex from exhausting discharges, menorrhagia, many miscarriages, numerous children, prolonged lactation. Many cases arising from the last cause met with in general hospitals, possess every symptom that epileptics exhibit, even to the clonic convulsive action of the muscles, minus only the general convulsion and loss of consciousness.

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MCDONNELL, R.—*Observations on the treatment of certain forms of Epilepsy; bromide of potassium.* Dublin Quart. Journ. of Med. Sci., Feb. 1864.

The author confirms to a great extent the testimony of Sir Charles Locock as to the remarkable efficacy of this drug in epileptiform disease connected with uterine derangement. In some cases of this kind, however, it fails. He thinks a dose of gr. x, *ter die* is often sufficient, and says that he has given 30 or 40 grains, and even more, *ter die*, for months together. The remedy produces good effects in other forms of epilepsy besides those connected with uterine disorder. In certain cases where it has proved successful, a peculiar odour was exhaled from the skin and from the excretions shortly before the occurrence of the paroxysms. This odour was somewhat like that which the skin contracts by handling brass, or that of metallic arsenic when sublimed.

Dr. G. Rogers, (Lancet Dec. 10) reports also very favorably of the same remedy.

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STEIN, J.—Memorab. 8, 8, 1863; Schmidt's Jahrb., vol. 121, p. 42.

Relates a case of tetanus occurring in a boy, *æt.* 12, after bathing in a cold stream while heated. Trismus commenced the next day, and the disease subsequently involved the extremities and the trunk. The pulse was only accelerated during the first few days, the respiration remained pretty steadily at 28 per minute, and the temperature between 4 and 6 p.m. was on an average 101°·1 F. Tartar emetic and

morphia were of no avail, but packing in the cold wet-sheet always diminished the reflex excitability and the spasmodic paroxysms, and was employed continuously at first, and subsequently, as the disorder declined, at intervals. In 4 weeks there was but little trace of tetanus, and in 6 weeks the boy had quite recovered.

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OGLE, J. W., M.D.—*Med. Tim. and Gaz.*, March 12.

Records a case of tetanus treated unsuccessfully with nicotine. The patient was a thin, delicate-looking girl, *æt.* 14, whose leg had been lacerated by the wheel of a cart, some 9 days before tetanus commenced. Death occurred in about 3 days. About gr. ij of nicotine were exhibited by the mouth, or rectum, and gr. iv by hypodermic injection. But little improvement resulted.

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EDMUNDS, J.—*Med. Tim. and Gaz.*, March 12.

Records the case of a married woman, *æt.* 28, non-hysterical, who after nursing her second child for 9 months, was suddenly attacked with cramp-like contraction of the fingers, and pain in the arms, soon followed by a similar condition of the legs. By noon the symptoms had increased, there was extreme and rigid flexion of the hand and arms, and the head was so drawn forwards that the backs of her wrists were fixed close to her mouth. By the evening all her symptoms were aggravated, and she suffered so much that her screams could be heard across the road. Her neck became turgid, her respiration somewhat constrained, and she was becoming rapidly exhausted. She had passed a considerable quantity of pale urine. There was an expression of great anxiety and pain upon the face, and the lips were sufficiently retracted to show the teeth; but the expression was not exactly the risus sardonicus seen in opisthotonos. She was quite rational, and merely swayed herself about instinctively. There was no appearance of hyperlactation; no evidence of albuminuria or uræmic poisoning; no history of worms; no traumatic injury, and no clue whatever to any source of eccentric irritation, except the single fact that her bowels had not acted for 3 days. After administering croton-oil, calomel, and a turpentine enema, ice was applied continuously to the spine for 7 hours, at the end of which time all her severer symptoms had disappeared. The screaming and moans were at once mitigated by the ice, and in about half an hour ceased entirely. By the third morning the numbness entirely disappeared, and afterward she had no return of cramp or spasms, but a little subacute bronchitis and hoarseness hung about her 10 or 12 days longer. Edmunds mentions that in a case of obstinate laryngismus one of Dr. Chapman's ice-bags did more to keep off the strangling attacks than anything else.

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LANGE.—*Memorabilien*, 1863, 6, 6. *Schmidt's Jahrb.*, vol. 122, p. 179.

Lange records a case of rheumatic tetanus occurring in a female, *æt.* 36. She was suddenly attacked, without any apparent cause, by tetanus and trismus. The whole body was as rigid as iron, the mouth firmly closed, the face intensely flushed and burning. The rigidity was extremely often interrupted by convulsive quiverings. After opium,

cannabis indica, and tartar emetic had been given without success, a tobacco enema was administered, and soon afterwards an infusion of the same given by the mouth, and repeated until, in the course of 4 days, 3 drachms were taken. Immediately after the first drachm had been given, the trismus relaxed; and after the third, the tetanus ceased, with the exception of some stiffness of the neck, and some occasional exacerbations. She was not fully convalescent for more than a month.

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FALCONER, R. W.—Brit. Med. Journ., April 16th.

Falconer relates the case of a boy, *æt.* 11, who was attacked with severe tetanus, but recovered under the constant application of ice to the spine for 32 days.—MR. ADAMS (Lancet, July 16th) records a similar case (traumatic). He had also croton-oil and morphia.

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DR. GORDON STEWART.—Lancet, July 23rd.

Dr. Gordon Stewart records a case of recovery from traumatic tetanus, which supervened on the 18th day. It does not appear that the treatment had any material influence.

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MR. TYRRELL.—Med. Tim. and Gaz., Sept. 24th.

Mr. Tyrrell records a case of tetanus originating in a very slight injury to the nose of the patient, *æt.* 35. The symptoms supervened 9 days after, and he was brought into the hospital on the 22nd. He was then in a state of great prostration; his teeth clenched, the muscles of expression and mastication rigidly contracted, the dorsal and cervical muscles also rigid. He was conscious, and able to speak a little; was bathed in a cold perspiration; pulse 95; weak and intermittent. A slight lacerated wound was seen on the right ala of the nose, about half an inch in length; it appeared indolent, without disposition to heal. Tyrrell refers to another case of acute traumatic tetanus, treated by him in the same way as this one was (*v.* Dublin Med. Press, March 2nd, 1864), and states as follows his views on the subject:—As tobacco, or its active principle nicotine, is of service when given internally, *à priori* it should be more so in peripheral or eccentric tetanus, if applied locally, by paralysing the nerves of the affected part from which the irritation proceeds, and thus removing the cause of tetanic spasms; and that when tetanus arises from a small wound, when a decided impression should be made quickly, a solution of nicotine of known strength, or of tobacco, should be applied to the wound and surrounding parts. And in the idiopathic form of the disease, if the cuticle along the back was raised by a blister, the endermic use of the remedy would more quickly bring the cord under its influence, and with less vital depression, than when given internally. In the present case the cuticle was removed from the entire nose, and from about 12 inches square of the back of the neck, and the denuded surfaces were covered with spongio-piline, saturated with a strong solution of Cavendish tobacco. Enemata, containing brandy, ether, quinine, and strong beef-tea, were administered every 4 hours. On the 24th, he was able to swallow; on the 26th, the neck was quite pliant; towards evening he became delirious, and his hearing was morbidly acute; 28th, delirium much

increased. This symptom seems to have yielded to quinine and opium, and by the beginning of July the disorder was at an end.

J. LOCKHART CLARKE.—*On the Pathology of Tetanus.* Lancet, September 3rd.

Clarke has made a minute examination of the spinal cord in two fatal cases. The first was that of a male, whose leg was inflamed, and presented a deep slough, 4 inches long by 2 wide—the result of a fall. The actual cautery had been applied from the occiput to the middle of the dorsal region, the patient being under chloroform. At the autopsy the sheath of the cord was found natural in appearance. It had a reddish hue, owing to the fulness of the vessels on its surface. Over its whole extent the cord was covered with large injected vessels, which were nearly as thick as whipcord. They were near together, and ran more or less parallel to the length of the cord. The white and gray matters were both congested, and the puncta were very conspicuous everywhere. On examination of the principal parts of the cervical enlargement, after it had been hardened by long maceration in chromic acid, the following alterations were found:—The gray substance in particular was very much congested, and not only were the vessels unnaturally dilated, but each was more or less surrounded by a granular and originally fluid exudation, in which the natural tissue of the parts became broken down and ultimately dissolved. In some sketches which he gives, the following alterations are indicated:—In (1) a large triangular mass of exudation is shown at the bottom of the anterior median fissure, where it has destroyed a part of the anterior commissure. In (2) a large quantity of granular exudation has enveloped, and partially destroyed, some blood-vessels and the pia mater which supports them. The exudation extends to the left around the bottom of the anterior column, destroying a portion of the anterior commissure, and following the course of an evidently diseased blood-vessel into the middle of the anterior corner, where it has destroyed a part of the gray substance. In (3) the same kind of granular exudation is found enveloping the pia mater of blood-vessels which enter at the anterior median fissure. Very minute and numerous areas of granular or pellucid degeneration are scattered through the gray substance. Most of them may be seen to lie, as they probably all do, at the side of or around blood-vessels. In the second case, that of a girl, æt. 7, some pain and inflammation were produced by a small wound on the ball of the toe of the right foot. Tetanus set in about the 13th day, and she died 12 days later. At the autopsy the pia mater of the brain was found to be slightly blood-stained in the neighbourhood of vessels, but to be otherwise healthy. The dura mater of the cord contained about half an ounce of blood-stained fluid. The vessels of the surface of the cord itself were greatly injected, especially in the lumbar enlargement. Its gray matter was congested. The remainder of the cord was more than usually vascular, both on the surface and in the interior, but less so than in the lumbar region. Nearly the whole of the spinal cord was submitted to Clarke for examination. To the unassisted eye nothing unusual

was observable in its interior; but when the microscope was employed on sections properly prepared, lesions were discovered of the same general nature as those described in the first case. Every region—the cervical, dorsal, and lumbar—was more or less affected; but in each the morbid appearances seemed rather to occur at intervals, and not uniformly throughout its length. In some sections the injury was limited to the gray substance; in others it involved the white columns, particularly the posterior and lateral. Sometimes the lesion was in the form of a granular deposit around blood-vessels; sometimes in the form of globular masses or rings, arising from injury and displacement of the white substance of the adjacent nerve-fibres. The latter appearance was more frequent in the white columns and along the sides of fissures containing blood-vessels, where the tissue occasionally had the aspect of a moth-eaten cloth. In some places the lesional spots were exceedingly small, and might easily have been mistaken by an unpractised eye for the natural appearance of the part. The treatment which Clarke recommends consists of division of the wounded nerve as early and as high up as possible; cupping along the course of the spine; frequent doses of calomel with opium; and potassio-tartrate of antimony, repeated during the severer paroxysms at short intervals, and in sufficient quantity to produce nausea, or perhaps vomiting. The chief object of the antimony is to subdue the spasm; but it might also assist in arresting the morbid action of the blood-vessels. Some years back Clarke recommended the use of tartrate of antimony in those violent and prolonged paroxysms of hysteria which are so intractable and distressing, and he has never known it fail. As soon as nausea supervenes the spasms, however violent, begin to relax; and if the paroxysm be excited or prolonged by the presence of undigested food in the stomach, the vomiting will prevent its recurrence. In tetanus any depression that might be caused by the antimony would be much less than the exhaustion of the nervous system resulting from the violence of the spasms.

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MR. HOWARD.—Lancet, Oct. 1st.

Records a case of opisthotonos occurring in an hysterical subject cured by the application of ice to the spine. The patient was a male, æt. 25.

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VON GRAEFE.—Med. Tim. and Gaz., Oct. 22nd.

Relates a case of facial spasm affecting the muscles of the left side. It was exceedingly violent, and only ceased during sleep. It could be stopped alone by pressure on a certain point of the lower jaw, behind the last molar tooth. The nearer the pressure was exercised towards the maxillary foramen the easier it was to stop the spasm. The intensity of the spasm increased, and there appeared two so-called induced points of pressure, viz., one on the temple corresponding to the temporal branch of the subcutaneous malar nerve, and the other corresponding to the supra-orbital nerve. Induced points of pressure differ from the real starting-point by the circumstance that by pressure on the former the spasm is only diminished, but not altogether stopped, and also by their being absorbed at a later period of the disease only.

If neurotomy is made near an induced point, the spasm is considerably lessened, and sometimes appears as if it were cured, but it soon regains its previous violence. In order to see whether this would occur in the present case, Von Graefe first divided the supra-orbital nerve and the temporal branch of the subcutaneous malar. The spasm was diminished in some parts, but went on in the zygomatics and the levator lab. sup. muscles. Within 14 days, however, the whole aspect of the case was as bad as it had been before. On the inferior alveolar nerve being divided the spasm ceased at once and entirely, and did not recur. The gustatory nerve seems to have been divided at the same time. The patient felt no inconvenience from the extensive anæsthesia of the cavity of the mouth, the chin, the lower jaw, the temple, and the forehead.

J. W. COUSINS, M.D.—*Med. Tim. and Gaz.*, Feb. 20th.

Records a case of acute myelitis, occurring in a male, æt. 36, after exposure during a wet night. There was pyrexia, spinal tenderness, general hyperæsthesia, most marked on left side of body, and loss of power over both legs, which were frequently drawn up by spasmodic reflex movements. The left arm and both legs experienced gnawing sensations. No loss of power over arms or over sphincters. With belladonna, ergot, local blistering, and subsequently Pot. Iod., he recovered in about a month. The same physician also records the following instance of chronic myelitis limited to the cervico-brachial region. A widow, æt. 49, had in April severe neuralgic pain over right shoulder and down the arm. She improved under treatment, but in May she suffered from intense hyperæsthesia down the right arm, especially over the biceps and dorsum of the thumb; the left was only very slightly affected. There was also increased sensibility of the right cheek, without any change in the pupil. Hyperæsthesia was marked on the right side of the spine as low down as the middle of the back, and over the left leg. The lower cervical processes were tender on percussion, and a warm sponge applied to them caused intense pain. There was a constrictive sensation round the chest and pain in the cervical and occipital regions. Pulse small and feeble; lately she had become weak. She said her arms were weak, but there was no perceptible alteration in the voluntary control or reflex movement of either the upper or lower extremities. With belladonna and ergot internally, and blistering to the cervical spine, she got quite well.

RADCLIFFE, C. B., M.D.—*Lancet*, Dec. 3rd.

Records a case of acute and very extensive myelitis, terminating fatally in 10 or 12 days. The motor and sensory paralysis extended up to a line drawn round the body four inches below the ensiform cartilage. Reflex movements were absent. No pain was produced by percussion of the spine or applying heat to it. Priapism was marked. The urine remained acid throughout. There was retention of urine. At the post-mortem examination the meninges were found normal, but the whole substance of the cord, from its brachial enlargement to its inferior termination, was found of a yellowish-red colour, and softened to the consistence of cream. The natural structure of the cord was altogether broken down, and the débris mixed with blood-corpuscles, exudation-granules, and some pus-corpuscles. In spite of this disorganization

there was a return of some degree of sensation in the penis, bladder, and rectum, during the two days preceding death, after it had been altogether absent for upwards of a week. In reference to this, Radcliffe cites a case from M. Laugier, which goes to show that a divided nerve may still transmit impressions if the two severed extremities are placed in apposition.

BOURILLON.—Gaz. d. Hôp., 139, 1863. Schmidt's Jahrb., vol. 121, p. 305.

Records a case of ataxie locomotrice in which great improvement was obtained by the administration of nitrate of silver. The disorder supervened seven years previously, in consequence of a wetting. He was unable to walk, he had lost the sense of touch, but not that of temperature, and the sensibility to pain was increased. The muscular sense was preserved. Without the aid of vision the patient could not write nor command his movements properly. At times an irresistible impulse obliged him to advance forwards. All these symptoms improved under the treatment.

BOUCHUT.—*On the use of Nitrate of Silver in the Paraplegia of Children.* Bullet. Génér. de Thérap., Jan. 30th, 1863. Brit. and For. Med.-Chir. Rev., Jan., 1864.

A child, æt. 7, had fallen from the height of a few feet, and immediately complained of acute pain in the dorsal region. From this time the child was unable to walk, and when she was placed upright the legs bent and sank down under the weight of the body. The speech became slow, difficult, and indistinct, and the food escaped partly from the mouth during mastication. For nearly a month only expectant treatment was adopted, but Dr. Bouchut then conceived the idea of treating the paralysis with nitrate of silver. He prescribed gr.  $\frac{1}{5}$ , divided into 2 pills, to be taken every day; and this treatment (occasionally varying the dose) was continued for more than a month with success, for at the end of this time the child left the hospital perfectly cured. Bouchut regards the condition in this instance as one of commotion of the cord, and thinks the remedy would not be suitable in myelitis or meningitis.

LOCKHART CLARKE, J.—*Pathological investigations in a case of Paraplegia.* Brit. and For. Med.-Chir. Rev., April, 1864.

The patient was a man, æt. 49, in general healthy. He had been ill 7 months and had given up work for 5. The motive power of the legs was almost totally lost; sensation was almost abolished in the left leg, but existed in a considerable degree in the right. He died 10 days after admission, suffering with pleuritis of the left side. The morbid changes consisted of streaks and spots of transparent granular degeneration, patches of more opaque, hypertrophy of the connective tissue, degeneration of the white columns, and the presence of corpora amylacea. For details of the above alterations we must refer to the original description. Clarke, however, concludes his paper with the remark that his anatomical examination discovered structural changes to which no corresponding impairment of function is recorded in the history. We have seen, he says, that at the level of the fourth cervical nerves, the anterior and posterior commissures, and in some sections the tractus



intermedio-lateralis were injured by disease; while in the white columns many of the nerve-fibres had suffered either partial or entire destruction. Now, the only recorded symptom to which we can point as likely to result from these lesions is the laboured respiration; for this might have been partly due to injury of the tractus intermedio-lateralis, which is connected with the lower roots of the spinal accessory nerve. Through the brachial or cervical enlargement we found that the decussating fibres of the anterior commissure were destroyed to a considerable extent by fatty degeneration; that blood-vessels in the neighbourhood were enlarged and diseased; that the anterior roots of the nerves in some sections were more or less damaged; and that many of the fibres of the white columns, especially the anterior and the lateral, had suffered in a similar way. And yet, notwithstanding these various lesions of structure, we have not a single corresponding symptom or impairment of function recorded in the history of the case. There is no mention of any abolition whatever of either motion or sensation in the upper extremities; and on making further inquiries upon this point, I was informed that the patient had apparently the perfect use of his arms, and employed them in the usual way in eating his meals. Yet there can be no doubt that there was some abnormal condition of the arms and hands; and it is extremely probable that a closer scrutiny during life would have revealed its nature.

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NEUMANN, E.—*Deutsche Klinik*, 7, 1864. Schmidt's *Jahrb.*, vol. 122, p. 185.

States that it is a matter of experience that in certain paralyses, especially facial, the paralysed muscles soon cease to react to the induction current, applied either to the muscles or to the nerves; while with the constant current on closing or opening the circuit they react vigorously under the same conditions, more vigorously than those of the sound side. In the same proportion as voluntary motor power returns the reaction to the induced current increases, and that to the constant decreases. The cause of this remarkable phenomenon Neumann believes to be the momentary duration of the induced current. In a case of rheumatic facial paralysis, where the strongest induced currents had failed for a month to produce any contraction, and where the will was equally powerless, active twitchings were produced by the constant current both on closing and opening. Now, single induction-shocks both in opening and closing had no effect, which Neumann considers to prove that the non-efficacy of the induced current did not depend either on the rapid succession of its currents or on their varying direction. The real cause is, he thinks, the momentary duration of the induced current, for when the constant current, by a contrivance, was made nearly as momentary, its stimulus caused no contraction, but this regularly ensued if the current continued only for a brief time.

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DUCHENNE.—*On the state of the Sympathetic Nerve in Ataxie locomotrice progressive*. *Gaz. Hebdom.*, 1864, 8, 10. Schmidt's *Jahrb.*, vol. 122, p. 185.

In some cases of this disease Duchenne observed that the pupils were

usually very much contracted, but dilated greatly during the paroxysms of pain, and that simultaneously the conjunctiva of the lids and globe became very red, and its temperature increased, though no catarrhal secretion took place. Atropine in these cases would not produce dilatation of the pupils. Sometimes the enlargement existed without the other symptoms, sometimes there was only contraction. In some cases one eye only was affected, in others both. Duchenne believes that the pathological anatomy of ataxie locomotrice progressive is not yet made out, and compares the ocular derangement with those of the bladder, rectum, and genitals.

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MONTINEJA, A. DE.—Gaz. des Hôpit., 1864, 11.

Relates a case in which symptoms much resembling those of ataxie locomotrice progressive were removed by free cupping along the spine and blisters. An attack of typhus, which lasted 4 weeks, interrupted the improvement, which subsequently went on to complete recovery.

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AXENFELD—*On atrophic degeneration of the Spinal Cord.* Arch. génér. Aug., Oct., 1863. Schmidt's Jahrb., vol. 122, p. 291.

In an historical sketch of the disorder termed ataxie locomotrice progressive Axenfeld states his disapproval of the name and his preference of the older one—*tabes dorsalis*. He ascribes the first investigations respecting it to German rather than to French authors. The chief difference in the descriptions of the disease given by Romberg, Duchenne, and Trousseau, relates to the condition of the sensibility, which some writers state to be preserved, while others affirm it to be impaired, though certainly not in proportion to the amount of motor disorder. Respecting the pathological alteration, there is a very general agreement, both as to its nature and its seat. It can only be regarded as a chronic myelitis, as the vascular injection, the increase of connective tissue, and the wasting of the nerve-tissue, as well as the symptoms and the causes, testify. The chief symptom of *tabes*, the "ataxia" of the movements, has nothing in common with convulsive affections, for the latter occur independently of and against the will, while the former is manifested solely during voluntary movements. It has more resemblance to functional spasms, *e. g.* to writers' cramp, but is essentially different from this by being apparent in all kinds of movements, while the cramp only ensues when the hand is placed in a certain position. What alterations in the nervous system conditionate the "ataxia" is quite unknown; disturbance of the harmonic action of the antagonist muscles affords no sufficient explanation. The locality of the causal alterations is also undetermined. This only is certain, that they are situated partly in the posterior columns of the cord, partly in the cerebellum. Physiology as well as pathology teaches that diseases of the cerebellum and removal of its substance disturb the faculty of co-ordination; it is also certain that in the majority of autopsies gray degeneration of the posterior columns and posterior roots has been discovered. The conclusion from those facts must be that the cerebellum is a centre of co-ordination, but not that similar centres exist also in the cord, because the posterior columns may possibly only afford the means of communication from the periphery to

the cerebellum. It is further important to determine whether the loss of the co-ordinative faculty can exist quite independent of all derangement of sensation of the skin or muscles. That the muscular sensibility has an influence in the production of ataxia is proved by the experiments of Longet and Bernard, which prove that the movements immediately lose their harmony as soon as the sensory cutaneous nerves, or still more as soon as all the posterior roots, containing also the sensory muscular fibres, are divided. From this it must be concluded that in all cases of tabes in which the posterior roots along with the posterior columns are involved in the atrophy, and where, therefore, sensation must be more or less interfered with, the "ataxia" is to be regarded as the result of this anæsthesia. The case appears to be different in those instances where either the muscular or cutaneous sensibility remain perfect, or where their impairment is insignificant in comparison to the amount of "ataxia." In these cases it may either be supposed that the atrophic posterior columns together with their sensory function possess also a more direct relation to the co-ordination of movements, or that besides the cutaneous and muscular sensations there are also impressions conveyed from the joints, ligaments, and bones, which may be abnormal and give rise to the motor disorder. It is certainly remarkable that in hysteria, in spite of the intense disturbance of the cutaneous and muscular sensibility, the movements are never un-coordinated. The impairment of general sensibility explains also why the subjects of tabes are not much aided in their movements by the use of sight, while the mere loss of muscular sensibility is completely supplied thereby. The common combination of anæsthesia with peripheral radiating pains proves still further the sensitive function of the posterior columns. The disorder seems to have a connection with the period of sexual activity both in the male and female. No reason can be assigned why the posterior columns are so much oftener affected than the anterior and lateral, or than the whole thickness of the medulla. The disease can scarcely be confounded with any other affection of the cord, and not readily with those of the cerebellum, as the "ataxia" is the only symptom common to both. Bärwinkel (the reporter of the paper), while approving in general of the writer's views, states that they do not explain those cases in which the posterior columns are found quite normal. With regard to these, he suggests that not only the afferent nerves, but also the efferent motor, are concerned in harmonic movements, and that the latter may be morbidly changed while the posterior columns remain quite normal. Besides, it is by no means improbable that the process of performing combined movements in walking, standing, and many other actions which have become habitual, is by no means dependent on sensations of which we become conscious, but is produced in a purely reflex manner by nerves which proceed from the muscles, the joints, and the skin, and convey impressions to the centres of co-ordination. When the latter fibres are diseased conscious sensation may remain normal and yet the posterior columns may be atrophied. Bärwinkel recently observed a case where, shortly before death, the sensibility at least of the skin was not only preserved, but was even excessive, so that mere contact was painful. The patient had had tabes

for at least 12 years, being able to move his limbs, but unable to walk. After death the posterior columns and the posterior roots were found utterly degenerated in the whole length of the cord.

SALOMON, M.—*On Central Paralysis; an essay in differential diagnosis.*  
Deutsche Klinik, 35—46, 1863. Schmidt's Jahrb., vol. 121, p. 302.

LEVEN.—Gaz. de Paris, 9, 1864. Schmidt's Jahrb., vol. 122, p. 184.

Leven records the case of a female, æt. 31, who previously had had indurated chancre, and now presented an extensive pustulous syphilide on the upper part of the body. She suffered during many weeks with violent occipital headache and obstinate vomiting, against which Pot. Iod. was of no avail. Soon she became dull, and her gait was tottering; in bed she could easily perform all the movements of the legs; her arms were weak, but neither their movements nor those of the legs were deficient in co-ordination. Soon after, she had double convergent strabismus, associated temporarily with double vision under the influence of the will. The intellect and the sensibility were unimpaired, and the general functions were in good order. In a week after a mercurial treatment had been commenced improvement took place; first the headache disappeared and the vomiting, then the dulness and the squinting, and in 6 weeks the patient was restored and has remained well. Leven believes the morbid phenomena to have been produced by the presence of a syphilitic tumour in the cerebellum.

MÖLLER.—*Apoplexy of the Pons Varolii terminating in recovery.*  
Deutsche Klinik, 49, 1863. Schmidt's Jahrb., vol. 124, p. 24.

A female, æt. 24, was suddenly taken ill with pain in the left side of the head and stiffness and numbness of the whole left half of the body, soon succeeded by paralysis. The facial and hypoglossal nerves were involved. There was difficulty of swallowing, but no loss of consciousness. The respirations were frequent and shallow; the pulse small, 140; the state of the heart was normal. In a few hours the paralysis had disappeared, except that the sensibility remained unimpaired, especially in the face, the speech was also imperfect, the special senses were normal on both sides. After 2 days another attack of collapse occurred, attended with a feeling of rigidity on the right side and paresis of the right arm. The morbid phenomena again gradually disappeared; the anæsthesia remained longest in the right hand, which continued also to be affected with slight tremor and choreic twitchings for a long time. The gait for a long time manifested derangement of the co-ordinating faculty, which, however, could be prevented when the patient directed specially her attention to the matter. Sobbing also was prone to occur. At last all that was left was a certain slowness of speech and movements. Möller remarks that the pons is indicated to be the seat of the lesion by the disorder so speedily affecting the two sides, one after the other, and by the maintenance of consciousness. From the existence and the long duration of impairment of sensibility it may be inferred that the posterior and upper layers of the pons were affected, which are specially traversed by the sensitive fibres. The derangement of the respiration and circulation he refers to an inde-

pendent coincident pulmonary disorder, as he observes that such acceleration of the breathing and of the pulse have not occurred in any recorded case of disease of the pons. The derangement of co-ordination indicates that the cerebellum was involved.

HENOCH and STEFFEN (Berlin Klin. Wochenschr., 1, 13, 20, 1864; Schmidt's Jahrb., vol. 124, p. 24) record cases of tuberculosis of the corpora quadrigemina. Henoch's case was that of a girl, æt. 15 mo., who had tuberculosis of the lungs and bronchial glands after measles. While in this condition both superior recti muscles of the eyes became paralysed; then followed vomiting, somnolence, paresis of the right arm, of the palpebral and labial filaments of the right facial nerve, and of the right external rectus; occasional twitchings of the muscles on both sides of the body, and frequent loud cries ensued, and the pulse, which at first was slow and irregular, became very frequent and regular, while the respiration was much accelerated. At the autopsy there was found tuberculous basilar meningitis, the ventricles were distended with clear serum, but were in other respects normal; in the left posterior quadrigeminal body there was a round, yellow, homogeneous tubercle, half the size of a bean; the cerebral substance around this and everywhere else was normal. The absence of convulsions and of blindness is remarkable. The occurrence of palsy of both recti muscles, as the first symptom, is regarded by Henoch as the result of the pre-existing cerebral lesion, and not of the meningitis. Steffen's patient was a boy, æt. 3 years, who was admitted with ptosis of both eyelids, while the movements of the globes were normal. He had also pulmonary tuberculosis and severe headache. A month later eclamptic attacks occurred, diffused over the whole body, recurred more and more frequently, permanently dulled the sensorium, and caused death in four weeks. The brain and its membranes were in every part full of blood; the latter was rather soft, but otherwise normal; only the corpora quadrigemina were changed into a broken-up yellowish mass, which proved to be tubercle. The tissue in the vicinity of the corpora quadrigemina was normal. No tubercle in the meninges. In this case it is difficult to account for the paralysis of the branches of the third nerve distributed to the levat. palp., but the convulsions may fairly be referred to the state of the quadrigeminal bodies, especially as the rest of the brain was healthy, and experiment has shown that mechanical irritation of these parts produces convulsions.

EDWARDS.—Glasgow Med. Journal, April, 1864.

Records a case of abscess in the cerebellum, occupying the centre of the left lobe, and holding about ʒij. The membranes appeared healthy. The upper and back part of the petrous portion of the temporal bone was carious; there was pus in the tympanum, vestibule, and semicircular canals. The patient was a boy, æt. 19; his symptoms were shivering, sickness of stomach, pain in the head and right ear, convulsions, recurring strabismus, stupor, and turning round and round from right to left. He died while thus turning.

JONES, T.—*Observations on Cerebral Hæmorrhage, from an analysis of 40 fatal cases.* Brit. Med. Journ., June 18—Dec. 3.

Tremors, twitchings, convulsions, rigidity, and spasms—one or more of these symptoms supervened in 14 out of the 40 cases. In 4 two or more of these symptoms were observed in the same patient simultaneously or alternately, but not necessarily affecting the same parts. Thus, in one case there were tetanic spasms and tremor affecting the whole body, while there existed, at the same time, persistent rigidity of both arms. In others spasms and rigidity were confined to one side, but there were convulsive affections of the whole body. *Tremor* was noted in 4 of the 14 cases. It affected the parts paralysed in 3, and in the other was general, while the paralysis was confined to one side. In 3 of the cases the clot was situated in one or more of the ganglia at the neighbourhood of the base, in the other it was situated in the substance of the right middle lobe, but to such an extent and so near the ventricle as completely to obliterate it. Thus, we find that the clot existed in close contact with the origin of the motor nerve-fibres in all the cases. Again, in 3 cases the clot was confined to one side of the brain, in 2 of which tumours were general, but in the other this symptom was confined to the opposite and paralysed sides. In the other case the clot was situated in the central parts of the pons Varolii, and the tremor was general. In 2 of the cases there existed softening of the parts around the clot; in the other 2 it is distinctly stated there was no softening. In the former two the tremor was slight and occasional, and in the latter this symptom was more severe and continuous. There seems to be a decided connection between the urgency of this symptom and the duration of life; for in the two cases in which it was severe and general in its extent the patient lived but 4 hours, while in the other two, in which it was either unilateral or bilateral but slight, they lived as many days. *Muscular twitchings* were only observed in two cases. The side opposite to the paralysed one was affected in one, and the hand in the other; the muscles of the face and the eyeballs alone were mentioned as being paralysed in the latter. The clots in both cases were situated in the meshes of the pia mater, over the cerebral hemispheres; in one there was also some blood in one of the lateral ventricles. There was no softening around the clot. The patient lived 2 days after the supervention of this symptom. *Convulsions* were noticed in 7 cases; the time at which this symptom supervened varied from an hour to 18 days, and after the appearance of this symptom the attack proved fatal in from few hours to 17 days. In one instance the patient recovered, but was readmitted for another and fatal attack. Of the 6 cases in which the parts involved by the convulsions were noticed they were general in 2, in each of which the paralysis was confined to the right side; in 2 the convulsive affections were limited to one side; in one of these the paralysis was on the opposite side, and in the other it was general. In another case the convulsions affected the muscles of the face, but the paralysis was confined to the left arm and leg. In the other case the hands were the site of these movements, and the muscles of the face alone the parts paralysed. Thus, there does not seem to be any connection between the seat of the paralysis and the parts affected by these convulsive movements, except this, that they are not generally observed on the side paralysed where this is partial. What is the

relation existing between these convulsive movements and the site of the clot? Of the 7 cases the clot was in contact with the meninges in 3, in one of which the crura cerebri and pons, and in another one of the lateral ventricles, were implicated. In 2 the clots were situated in the substance of the hemispheres; in 1 the hæmorrhage was in the corpus striatum opening into the ventricle; and in the other the clot was in the centre of the cerebellum, near its root. These movements seem generally to occur when the hæmorrhage is either in contact with the membranes on the surface of the brain, or where these extend into the ventricles, or with some of the ganglia at the base. They seldom occur when the clot is situated in the substance of the cerebral hemispheres, unless there be extensive softening or breaking down of the tissues around, as was noted in the above two cases. Of 6 cases, in 2 the convulsive movements were on the same side of the body as the clot in the brain; in 2 the clot was on one side of the brain, while the paralysis was general; and in the other 2 the clot was on both sides of the brain and the convulsions were general. It seems to be the prevailing rule that, when the lesion is confined to one side of the brain, the convulsions are either general or on the same side of the body—seldom on the opposite side alone. In all the cases except one there existed softening around a recent clot or old clots and cysts. *Rigidity* was observed in 5 cases, and in all of them this symptom was continuous. It supervened in some cases in 4 hours; one patient died in 2 hours after seizure, and another in 6 hours. It almost always affects the parts paralysed. This symptom was associated in all the cases with a clot in one of the cerebral ganglia, and in all the cases except one the structure around the clot was softened or broken down. *Tetanic spasms* were noted in 3 cases, each attack being of short duration. They were general in all the cases, and accompanied with rigidity, or rather this symptom was observed in all the cases during the *intervals* of the spasms. Of all symptoms this is the most fatal, none of the cases surviving more than 6 hours, and one proving fatal in a few minutes after the supervention of this symptom. In the latter the parts around the clot were healthy; it was a case of small amount of effusion into both lateral ventricles, issuing from a large dilated vessel in the tænia semicircularis; in the other two there was softening around the clot. *Alterations of sensibility*.—*Cutaneous anæsthesia* and paralysis generally coexisted. In consequence of the frequent existence of coma in these cases it was difficult and indeed sometimes impossible to decide upon the presence or absence of this lesion of sensibility. In all those cases in which this symptom is noted it always existed in those parts which had lost their power of motility. In a few instances, however, where paralysis existed, anæsthesia was absent throughout. The loss of motion is almost always greater than the loss of sensibility. In those cases in which both symptoms coexisted in an equal degree anæsthesia was the first to pass off. This seems to point out that greater pressure is required upon a nervous centre to cause anæsthesia than to cause paralysis. Of the mucous membranes, that of the eyes was most frequently affected with loss of sensibility. Occasionally the conjunctiva becomes so insensible that the excito-motory action of the eyelids is completely

abolished, so that the finger can be passed over the anterior surface of the eyeball without causing the least movement of the lid, and without the patient evincing the least indication of pain. This is a very grave symptom, and the patients who present it to a great degree almost always die. Sometimes anæsthesia is confined to one eye, which is generally the one corresponding to the side of the face paralysed.

*Alterations of the special senses.*—Amaurosis was noted in two cases only, in one of which the lesion was in the pia mater and in the corresponding cortical substance of both hemispheres. This case tends to show that loss of sight is not always due to pressure upon the tubercula quadrigemina. Very probably it was due in this instance to irritation transmitted from the seat of the clot to some parts of the nervous apparatus of vision. In the other case there was sufficient hæmorrhage, and that in the central ganglia at the base of the brain, to account for the amaurosis by pressure on the tubercula quadrigemina or optic tracts. Amaurosis is a symptom more frequently attending cases of softening, abscess, or tumours of the brain, than of hæmorrhage. Deafness and tinnitus aurium are not mentioned in any of the histories.

*Alterations of intelligence.*—In the majority of cases the intellect was perfectly clear up to the time of the attack; or if altered, the change was so transient as to escape observation; but in some cases certain alterations were noted, as drowsiness, loss of memory, &c. At the time the hæmorrhage supervened three conditions of the intelligence were observed—(1) The loss of consciousness was complete. This occurred in 68·4 per cent. (2) Consciousness was but partially abolished. This occurred in 31·5 per cent. (3) Lastly, the intelligence was perfectly clear, although in the cases in which this state was observed there existed complete hemiplegia. The chief cause of these differences in the state of the intelligence was the extent of the effusion. The site of the hæmorrhage seems to have influenced the state of consciousness but little. Generally, however, the coma is less deep where the clot is situated in or about the ganglia at the base than when it occurs near the surface of the hemispheres; for it is interesting to note that, of the 38 cases in which the intelligence was more or less impaired, the principal site of the hæmorrhage was in the arachnoid cavity in 14, and in all these but one consciousness was completely abolished. Again, of the 14 cases there was no paralysis in 9, and of these the hæmorrhage was entirely confined to the arachnoid in 4; in 5 there existed partial paralysis, but there was lesion in other parts besides the arachnoid in all but one. In most of the cases the coma continued until death, an event which very rapidly supervened. Occasionally, however, the patients lapsed from a state of complete coma into that of partial unconsciousness. In others, again, consciousness was completely re-established, but their memory was feeble, and some became quite childish in their manner, even shedding tears on being talked to. Most of these cases marked by improvement were seized by other attacks, of which they died. As to the relation of consciousness to paralysis, Jones finds that of the 26 cases of *complete* unconsciousness there coexisted complete paralysis in 8, partial paralysis in 8, and no paralysis in 9; of the 12 cases of partial loss of consciousness, there coexisted complete paralysis in 2,



partial paralysis in 9, no paralysis in 1. Affection of the speech has been said to be dependent on lesion in the anterior lobes. This symptom was noted in 3 only of the cases under discussion, and in none of them were the anterior lobes implicated. In 1 case the arachnoid was the seat of the clot, in another the middle lobe, and in the 3rd the corpus striatum. There does not seem to be a very decided connection between the condition of the pupils and the alterations of intelligence. Of the 29 cases in which the state of the pupils was noted, both were contracted in 9 and dilated in 5; 1 pupil was dilated in 6 cases, and 1 contracted in 1. In 4 cases the pupils were inactive, and in 4 they were natural. In those cases of altered intelligence in which the pupils were contracted paralysis existed in 88·8 per cent., and in those in which the pupils were dilated paralysis coexisted in 55 per cent. From the foregoing Jones infers that in those cases of deep unconsciousness, associated with partial or with no paralysis and contraction of both pupils, the clot is most probably in contact with the membranes.

Out of 38 cases, 3 occurred between the ages of 30 and 40; 13 between 40 and 50; 10 between 50 and 60; 9 between 60 and 70; 3 between 70 and 80. These figures, corrected for the numbers living at each decennial period, give the following estimate of the liability to cerebral hæmorrhage. Between the ages of 30 and 40 the attacks are 1·2 per 1000; between 40 and 50 they rise to 7·2 per 1000; between 60 and 70 to 7·6 per 1000; between 60 and 70 to 9 per 1000; and between 70 and 80 they are only 6 per 1000. The male sex is more liable than the female in the proportion of 29:11. *Exciting causes.*—There seems to exist a most intimate connection between disease of the kidneys and of the heart and arteries and cerebral hæmorrhage. In 36 fatal cases, of which Jones has notes, the kidneys were found extensively diseased in 29, showing the high per-centage of 80·5. In 24 of these cases the organs were described as being small, hard, granular, with wasted cortical substance. In 4 the kidneys were large, soft, congested, and cystic, with old cicatrices on the surface. In another case 1 kidney was reduced to a very small trace, whilst the other appeared healthy. This large per-centage of nearly 90 per cent. cannot but be regarded as indicating a most intimate relation between disease of the kidneys and cerebral hæmorrhage. Besides, if the analysis be still further prosecuted, it will be found that renal disease bears a close relation to cardiac disease in these cases; for out of the 29 cases in which the kidneys were found disorganized, the heart was hypertrophied to a great extent in 15, and this hypertrophy chiefly affected the left ventricle. In 1 case the heart was fatty, in 3 very weak. Of these 19 cases, in which were found alterations in the muscular structure of the heart, atheromatous deposits were found in 18 on the mitral and aortic valves, but probably not to such an extent as to give rise to obstruction sufficient to produce the hypertrophy; hence we must look for a cause remote from the heart itself. Of the remaining cases, in which the muscular tissue of the heart was described as healthy, atheromatous deposits were found on the mitral valves in 6, in 1 of which there was thickening and opacity of the lining membrane on the right side, in 3 there were atheromatous deposits on the aortic valves, and the same

kind of deposits on both mitral and aortic valves in 5. Thus, the heart was found more or less diseased in 29 cases; of these, alterations of the muscular structure occurred in 19, in the remaining 10 atheroma alone. Thus, we find that renal disease was associated with cardiac in 29 cases. In 5 cases both organs were described as healthy. It is an interesting point that in almost all of these there was a history of previous injury to the head. Again, in pursuing the analysis still further, a most marked connection will be found subsisting between cerebral hæmorrhage on the one hand and disease of the kidneys and of the heart and *cerebral and other arteries* on the other. Thus, of the 36 cases the cerebral vessels were diseased in 25, and the other large vessels of the body in 14. Cardiac and renal diseases were associated with diseases of the cerebral vessels in 22. Renal and cardiac diseases, and diseases of the cerebral and other arteries, were associated in 10 cases. Disease of the heart was associated with disease of the cerebral vessels in 24 cases. But of the cases of cardiac disease it must be borne in mind that 15 only were hypertrophied, and of these disease of the cerebral arteries occurred in 10 only. Disease of the kidneys, on the contrary, was associated with disease of the cerebral vessels in 22 cases. From a table which is given it appears that in almost two thirds of the cases the kidneys, heart, and cerebral vessels, were simultaneously affected; and it is therefore highly probable that some connection exists between their lesions. Jones rejects the theory that disease of the arteries may be caused by hypertrophy of the heart, causing increased pressure on their walls, and ascribes it rather to coexisting renal disease, producing impairment of nutrition or precipitation of fibrine on their walls.

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THOMPSON, T. Y.—*A successful case of Paracentesis Capitis.* Proc. of Med. & Chir. Soc., vol. 4, 1864, p. 377.

An infant born healthy 2 weeks afterwards sustained a fall, and 3 weeks later the head was visibly enlarging. On September 25th, 1861, more than 3 months after birth, the head measured circularly, the tape being placed over the parietal eminences, 20 inches, and laterally, encircling the chin, 21 inches. The iodides and other absorbent remedies were given, and various external applications were made, but the distension continued to increase, and on May 1st, 1862, the circular measurement was  $24\frac{1}{2}$  inches, and the lateral  $24\frac{1}{4}$  inches. On May 3rd, 1864, the operation of tapping was performed. A trocar, about the size of an ordinary crow-quill, was employed, and introduced through the coronal suture on the left side, about  $1\frac{1}{2}$  inch from the anterior fontanelle. About 10 ounces of a clear liquid, resembling water, were drawn off, the soft parts forming the vault gradually collapsing. The head was then encircled in broad strips of adhesive plaster. First day.—The liquid continues to ooze out; several ounces have thus escaped; slight febrile symptoms. Seventh day.—Fresh strips of plaster applied. Tenth day.—A strong convulsion; contractions alternating with relaxations, limited to the right side. Two teeth ready to protrude, the gums punctured, and an aperient given. No return after continuing 2 hours. On June 9th, 5 weeks after the first operation, the distension being again considerable, the trocar was again introduced, and about 4

ounces of liquid withdrawn, milky, and of the consistence of weak gum water. No untoward symptom occurred; the head did not again enlarge. At the end of August, 1862, the soft parts forming the vault were still depressed. During 1863 the scalp became more and more firm. June 8th, 1864.—The child is now 3 years old, strong, and well nourished. The head measures circularly  $23\frac{1}{2}$  inches, and laterally 23 inches. The whole of the vault is firm. The mental faculties are in no way impaired; on the contrary, the child is quick and intelligent for its age. The teeth are all present. The exact situation of the liquid could not with certainty be determined. It was thought to be in the arachnoid. The history of the case—the occurrence at first of a circumscribed swelling, becoming gradually diffused, and finally followed by enlargement of the whole head—pointed to this supposition. The first operation must have excited some inflammation, which morbid process, producing a liquid of greater consistence than that previously present, may have mechanically prevented the exudation of more liquid, or, by exercising a certain amount of pressure, caused that which was left to be absorbed.

LEARED, A.—Med. Tim. and Gaz., June 30th.

Records a case of cerebral disease, apparently tubercular meningitis, which was successfully treated by Pot. Iod., gr. v., *6tis vel 4tis horis*, with frequent painting of the shaved scalp with Tr. Iod. co. The symptoms commenced on April 9th. The next morning he had a convulsive fit. Several of these recurred—more than 6—up to April 19th, when the iodide was commenced. The fits gradually diminished, and he was convalescent by May 1st. His intellect was quite unimpaired. The patient was a delicate boy, æt. 14, long subject to glandular swellings in the neck.

DR. JAMES JONES.—Med. Tim. and Gaz., March 5th.

Advocates the administration of bromide of potassium in cases of infantile convulsions characterised by hyperæsthesia of the nerve-centres, coupled with anæmia and complete absence of all symptoms of inflammation. The child has an aspect of timidity and an expression of anxiety, talks or mutters in his sleep, often starts up frightened. The urine is pale and copious, the tongue clean, the pulse weak and irregular; the fontanelle, if existing, is always depressed. Depletory measures are injurious; opium is often of great service. The bromide seems to act as a direct sedative, either to the cerebro-spinal centres or to the vaso-motor nerves, probably to both.

DR. BEHREND.—Lancet, May 28th.

Recommends bromide of potassium in gr. 25 doses *ter die* as a valuable remedy in the treatment of insomnia and restlessness, accompanied by or dependent upon nervous excitement and irritability. It does not produce the unpleasant effects of opium or any of its preparations, and the system does not so rapidly become accustomed to it as to require its administration in constantly increasing doses. The only ill result Behrend has witnessed from its use has been slight but temporary headache; no paralysis or weakening of sexual desire and power have been observed.

DUPLAY.—Gaz. des Hôp., March 5th, 1864.

Records a case of syphilitic disease, in which the cerebellum was probably affected, and in which recovery ensued under mercurial treatment. The patient, a female, æt. 30, had a well-marked pustular syphilitic eruption on the arms. During several weeks she complained of very severe occipital headache, and had obstinate vomiting, in consequence of which the iodide of potassium which had been administered to her produced no effect. The patient now began to grow feeble; she stumbled; walking became more and more difficult, and at last she was confined to bed. While lying down she had perfect voluntary power over both the upper and lower limbs. She had also double convergent squint, complicated with diplopia. The intellect and sensation and the principal functions remained intact. At the end of 6 weeks she was dismissed cured.

STEIN, J.—*Case of chronic Primary Tuberculosis of the Pons Var. Memorabilia*, 8, 9, 1863. Schmidt's Jahrb., vol. 121, p. 302.

The patient, an apparently healthy male, æt. 21, was attacked at first by severe headache and giddiness on stooping. Fourteen days later he began to have a feeling of weakness in the right hand, which subsequently extended to the right ear and side of the face, and to both the limbs on the right side. The loss of power became more marked, and somewhat later vomiting commenced; speech and the power of swallowing were impaired, and the right eye was somewhat everted. Enclosed in the left half of the pons was a tumour as large as a walnut, which had produced softening of the surrounding tissue. There was considerable serous effusion into the third and left lateral ventricle, and softening of the fornix and left thalamus opticus. The tumour seems to have been of a fibro-plastic kind, containing numerous caudate cells and dividing nuclei.

OGLE, J. W.—Brit. and For. Med.-Chir. Rev., October, 1864.

Relates 75 cases of scrofulous deposits, or diseases of the brain and spinal cord and their investing membranes. This valuable paper does not admit of abbreviation.

RUSSELL REYNOLDS and LOCKHART CLARKE.—*On a case of Paralysis, with Pathological Investigations*. Brit. and For. Med.-Chir. Rev., July, 1864.

This communication we can only refer to.

HUGHLINGS, JACKSON, M.D.—*Illustrations of Diseases of the Nervous System*. Clinical lectures and reports of the London Hospital, 1864, p. 337.

This valuable paper is unsuited for an abstract.

RACIBORSKI.—*Nitrate of Silver in Diphtheritic Paralysis*. Gaz. des Hôp., 20, 1864.

Raciborski treated a married couple for diphtheritic paralysis, which appeared in the man after a throat affection, in the female after primary diphtheria of a wound in the arm. In both cases the extremities and the muscles of the throat were affected. Nux vomica brought about

speedy recovery in the man, but was rather injurious to the female, although her symptoms were precisely similar. Nitrate of silver, however, was speedily effectual. The patients were not treated till some months after the commencement of the disease.

SEWELL, J. A., M.D.—Lancet, July 16th.

Reports 4 cases in which profound coma—resulting from an overdose of opium, or alcohol, or from other causes—was removed by the administration of strong green tea.

HUTCHINSON, J. H.—Amer. Quart. Journ. of Med. Sciences, April, 1864.

Reports the case of a girl, æt. 20, who had complete loss of speech, and also complete deafness, which seem to have continued 4 months, in spite of various remedies, including electricity and tonics and aniline. After being etherized, she entirely regained her hearing. Two days later she was etherized again, and regained some little power of vocalisation. After a third etherization she recovered her speech, and lost her hearing. A fourth etherization produced no immediate result, but in the course of a few days she was able first to hear loud voices, and later to understand what was spoken in a loud tone of voice. She improved rapidly after this, and was quite well by the middle of January. She continued under observation another fortnight, and remained quite well.

TEISSIER.—*On the internal employment of Turpentine in the headaches of nervous women.* Gaz. Méd. de Lyon, January, 1864. Brit. and For. Med.-Ch. Rev., July, 1864.

This cephalæa is characterised by a pain in the head, much more continuous and fixed than that of neuralgia, and may last, not only several weeks, but months and entire years, without presenting more than rare and slight intermissions. The pain is sometimes dull, sometimes shooting, and sometimes pulsative, occupying only a single point of the head or the whole of the cranium, accompanied by nausea or even vomiting, and complicated besides with much more serious symptoms, such as vertigo and tendency to syncope, inability to think or work, despondency, weariness of life, and sometimes numbness in the limbs. It is especially observed in nervous women, and often coexists with a- or dys-menorrhœa, or menorrhagia, though it is sometimes met with where the constitution is good and the uterine functions are regular.

ROSENTHAL, MOR.—*Researches and observations respecting the influence of Cold on Sensory and Motor Nerves.* Wien. Med. Halle, v, 1—4, 1864. Schmidt's Jahrb., vol. 122, p. 184.

Rosenthal examined the effect of cold on compound nerve-trunks by applying ice to the skin, covering them where they were superficial. He examined in this way the ulnar, radial, crural, and peroneal. The first effect was pain in the part supplied, soon followed by diminution of sensation, and finally by anæsthesia. In the same way the motor function was at first excited, but gradually weakened, and ultimately

paralysed. The temperature of the parts supplied by the nerves was at first slightly lowered, and afterwards notably increased by a degree (1·2) of Centigrade (2·1 Fahr.). Simultaneously with this increase of temperature signs of congestion appeared. After the ice was removed the peripheric elevation of temperature continued a considerable time. The parts adjacent to the seat of increased warmth became notably cooler. He gives the two following cases as examples of paralysis from cold:—A workman exposed himself to a cold draught, and contracted thereby pneumonia of the left side, soon followed by anæsthesia of the left foot as high as the ankle, which soon disappeared. A female after washing in a brook went a long way in a cold wind. The next morning pains set in in both the left limbs, which ceased spontaneously in a few days, and gave place to cutaneous anæsthesia, which spread over the whole arm, even above the shoulder, and extended over the foot and leg. The anæsthesia was of both touch, pain, and temperature. Electro-muscular sensibility and contractility were moderately lessened, voluntary motion was difficult, and walking, especially in the dark, was very unsteady. The power of estimating weight was defective. No hysterical symptoms existed. By the application of the interrupted and continuous currents from the cord to the nerves, and from the nerves to the muscles, recovery was effected in 8 weeks.

TROUSSEAU.—*On Neuralgias.* L'Union, 18, 20, 21, 1864. Schmidt's Jahrb., vol. 122, p. 293.

Trousseau states, as the result of large experience, that in every neuralgia the spinous processes of certain vertebræ are painful on pressure, especially those at the level where the diseased nerves come off from the cord. Exactly the same holds good in the case of trigeminal neuralgia, whether, as usually occurs, the occipital nerve is simultaneously affected or not. In this case both cervical (uppermost) vertebræ are painful. As long as a peripheral pain remains local, and there is no increased sensibility of the cord, so long the vertebræ also are free from tenderness. But if the organism reacts to the painful irritation, *e. g.* that of pain in the side from an injury, the pain of pleuritis, or that produced by a biliary calculus, then spinal tenderness shows itself, then the pain becomes converted into a neuralgia. Valleix's description of the painful points in intercostal neuralgia is not quite confirmed by Trousseau. He says there are only two which are constantly met with, *viz.* the spinous-process one, and that corresponding to the junction of the cartilage with the rib. In crural neuralgia the spinous processes of the last dorsal vertebræ, in sciatic the sacral spines are painful. If the neuralgia changes its seat, the spinal pain varies correspondingly. From intercostal neuralgia the pain of pleuritis is distinguished by being confined to the part of the chest situated behind a vertical line drawn downwards from the nipple; from that attendant on commencing tuberculosis by the situation of the latter in the first intercostal space close to the sternum. Trousseau notices the remarkable preference shown by certain general disorders for special localities, as, for instance, the affection of the fifth nerve and the solar plexus in chlorosis, that of the gastric nerves in ex-

haustion from uterine hæmorrhage or leucorrhœa, that of the supra-orbital nerve in malarious intoxication. No explanation has been given of the intermittency of neuralgia in certain cases where the cause is persistent. Trousseau has twice observed the most violent pains in the lumbo-sacral plexus occurring, with regular intermissions, produced by cancer and fibroid tumour of the uterus. The extension of an existing neuralgia to other nerves is produced by the secondary weakness of the organism and the great irritability of the whole nervous system to which this gives rise. The other branches of the same trunk are the first to be involved, and then the other branches of the plexus to which it belongs.

v. FRANQUE, A.—*On Prosopalgia*. Würzb. Med. Ztschr., 4, 1863, p. 134. Schmidt's Jahrb., vol. 122, p. 294.

Franque relates the case of a girl who suffered with this disorder from her 13th to her 19th year, apparently as the result of a severe attack of typhus. She was tall, but pale, weak, and amenorrhœal, and the genital organs and mammæ were only in a rudimentary condition. The neuralgia affected sometimes one, sometimes another division, sometimes appeared periodically, resisted obstinately all measures, and was even aggravated by the interrupted and continuous current, so as to affect both sides. Twice the application of leeches to the perinæum caused it completely to disappear; the amenorrhœa, however, continued.

COSTES (Journ. de Bord., April, 1864; Schmidt's Jahrb., vol. 123, p. 169) relates a case of histrionic facial spasm (*Mimischer Gesichtskrampf*) cured by the inhalation of chloroform, followed by its local application for several days. The patient had been treated fruitlessly for 11 months previously by valerianate of atropia, quinine, assafoetida, and anthelmintics.

SCHUH.—*On resections of Nerves*. Wien. Med. Wochenschr., 13, 1—5, 9, 10, 11, 1863. Schmidt's Jahrb., vol. 122, p. 217.

Schuh makes the following general remarks as a sequel to 11 cases of neuralgia and 3 of neuroma in which he divided the nerves involved. The pain during the paroxysms of facial neuralgia may extend from the affected side to the other. The paroxysm exhausts the morbid sensibility for some time, so that immediately after it has ceased the contact of an instrument or the finger is readily borne, which would otherwise have been extremely painful. The pathological alteration which essentially gives rise to facial neuralgia consists most frequently in a transformation of the nerve-medulla into a fine granular mass, which reflects light in the same way as fat-globules do, and may or may not be blended with calcareous deposits. This change is the result of previous inflammation; the neurilemma is often manifestly reddened and thickened. Resection of the nerve acts beneficially even in those cases where the mischief is more deeply seated than the surgeon's knife can reach. It is, however, necessary in such cases to divide all the twigs given off from the diseased branch beyond the affected spot, so as to cut off the sensory filaments from the more centrally seated trunk, and to do away with all conduction of impressions to it. When sensory or compound nerves are wounded, so as to divide transversely about half the cord, no remarkable derangement often ensues in the

conduction of the nervous influence, and also no special phenomena, such as spasmodic contractions, &c., provided only that the limb remains quiet, and is so placed that the nerve is not subjected to tension. Schuh has often observed this in the median, ulnar, and radial nerves in the forearm after accidental injuries. If, on the contrary, the wounded nervous cord, from its position or any other circumstance, is rendered more or less tense, pain and spasmodic contractions are produced. If a purely sensory nerve is cut across, and the ends are not separated by movements of the limb, sensation is restored again in a few days. In the case of motor and compound nerves the motor disorder lasts much longer, and may even be permanent. Facial paralysis induced by division of the "plexus anserinus" in the vicinity of the ear lasts for at least 3 months. If all the filaments are divided, so that the orbic. palpebrarum and corrugator supercillii are paralysed, the distortion sometimes persists for the remainder of life. Motor nerves require for the exercise of their function a much greater perfection of structure than sensory, and the restoration of the integrity of the nerve is less easily effected. Schuh has not yet found the peripheral end of a resected nerve in a state of atrophy; in some observations, he says, weeks or months had elapsed after the operation without any such alteration having ensued. Nervous anastomoses are a second cause of the speedy return of sensation in cases of resection; a third is the advancing growth of adjacent nerves into the paralysed district, a process which goes on often with surprising rapidity.

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CORNIL, V.—*On the alterations which ensue in Nerves and Muscles in cases of Hemiplegic Contracture.* Gaz. de Paris, 11, 1864. Schmidt's Jahrb., vol. 123, p. 165.

Cornil has examined in 6 cases of hemiplegia occurring after softening of the brain, and in 1 consecutive to apoplexy, the nerves and muscles of the permanently contracted limb, and has constantly found the following alterations, which were most marked in the median nerve. The whole nerve was enlarged so as to be even twice the size of the healthy one; and the increase in size depended on hypertrophy of the areolar tissue surrounding and between the primitive fasciculi, while the nerve-fibres themselves were perfectly normal. The terminations of the sensory nerves in the skin were also normal. Morbid changes were found in the nervous centres, in the corp. striata, thalami optici, crura cerebri, and pons of the same side, and the pyramid of the opposite, consisting in atrophy and fatty degeneration, and the presence of numerous glomeruli. The contracted muscles had lost their lively red colour, appeared yellowish or brownish, and were atrophied. True fatty degeneration was rarely found, but there were numerous molecular granules in the tissue, which dissolved in acetic acid and soda, and the nuclei of the sarcolemma were proliferating. The cerebral affection was from 1 to several years old. In 4 cases the contracture affected only the most distal parts of the limb, in the other it extended further in the direction of the trunk. In all but one case the cutaneous sensibility was normal in all respects, and reflex movements were produced when it was tested. The contracted limbs were always atrophied, especially



the muscles of the thumb and little finger, and the interossei. Voluntary motor power was abolished in all but one instance.

## PSYCHIATRIK.

SANKEY, W. H. O.—*The pathology of General Paresis.* Journal of Mental Science, Jan., 1864.

Sankey poses the question, whether there is such a disease as general paresis, distinct from all other diseases in its etiology, progress, and pathology? Taking for inquiry first the history of the disease, he says, if the symptoms are epiphenomena only, or complications engrafted upon another disease, or arise at any epoch during its progress, then, firstly, all second and third attacks of insanity should be equally liable to have the epiphenomena engrafted upon them as first attacks; and secondly, the symptoms should occur in old cases, or in cases in which the patient has been insane many years, as often as in cases of more recent origin. With regard to the first point, Sankey states that, out of 61 patients suffering under general paresis, among a total of 2280, there is not one who can be strictly said to be affected with a second attack of insanity. With regard to the second point he finds, from an examination of 105 fatal cases of general paresis, that at the end of 5 years 90 per cent. were dead. The evidence, therefore, afforded by the history is strongly opposed to the view that the symptoms are mere epiphenomena. Next, as to etiology, Sankey concludes, with regard to hereditary influence, that the data he adduces are, upon the whole, favorable to the view that general paresis is distinct from other cases of insanity, both in the difference in degree by which it is liable to be transmitted and also because there is strong presumptive evidence that the species when transmitted is transmitted in kind. Other testimony which Sankey has collected relative to the state of the propensities and passions appears to show that the predisposing causes which lead to general paresis are of peculiar kind, and rather favours the opinion of the specific nature of the disease. It is corroborated by a fact stated by Dr. Connolly, to the effect that in his large experience he has never met with a case of general paresis among females of the upper classes in society. The predisposition to the disease would appear to stand in the following order:—(1) Males of the lower classes, (2) males of the upper, (3) females of the lower, (4) females of the upper. And this order of sequence may be considered to be also that of the subjugation of the animal passions in the different classes. Under the head of pathology, Sankey gives a table stating in detail the post-mortem alterations found in 15 cases of general paresis compared with 15 cases of other forms of insanity. The greatest difference that, from the comparison, was found to exist, was in the frequency of occurrence of effusion beneath the arachnoid, which was found 11 times in the 15 cases of general paresis and 3 times in the other cases. A similar discrepancy existed in the increased vascularity of the pia mater, which occurred in every case of general paresis and in 7 of the other cases. Adhesion of the pia mater to the gray matter occurred in 8 of the 15 cases of general paresis and in one of the other cases. This appearance

is not, therefore, pathognomonic of the affection. The next most frequent difference was found in the state of the convolutions, which were abnormally open and wider apart in 9 of the cases of general paresis and in 3 of the other cases. Injection of the white substance existed in 12 of the cases of general paresis and in 6 of the other cases. The colour of the gray matter was found to be darker than normal in 8 cases of general paresis and in 3 of the other cases. The layers of the gray matter were indistinctly marked in 10 of the cases of general paresis and in 6 of the other cases, and the white matter firm in 8 of the paretic cases and in 4 of the rest. On the other hand, the periosteum of the calvaria was found more frequently normal in the paretic cases in the proportion of 12 to 4 of the other cases. There was a difference also between the colour of the gray matter, which was lighter than normal in 11 of the other cases and only in 3 of the paretic; and the pia mater stripped readily from the convolutions in 14 of the other cases against 7 of the cases of general paresis. These facts are evidence in favour of the difference of general paresis from other cases of insanity, although they fix upon no particular morbid appearance as distinctly pathognomonic of the affection. Under the head of microscopical anatomy Sankey quotes first the observations of Wedl and Rokitansky relative to the formation of connective tissue on the outer walls of the vessels, and the bulging and quasi-aneurismal dilatation of the same. He adds, "My own examinations of the capillaries in about 20 cases of insanity, and of which 7 were from patients who died of general paresis, led me to the conclusion that the capillaries of the cortical substance are more or less diseased in every case of general paresis. I do not find, however, that the amount of alteration bears any relation to the date, degree of imbecility, or impaired motility; nor have I detected any correspondence between the diseased condition and the etiology; but, on the other hand, I have not found the same amount of abnormal appearance in the capillaries of the other cases." There appears to be some amount of tortuosity in the capillaries in every case of general paresis. This tortuosity in places amounts to a simple sharp curve or twist, in places to a kinking of the vessel; in others to more complex twisting, until it forms, in fact, little knots of varicose vessels of very complicated kind. Sankey has not found this appearance in any other form of mental disease, but it is described as existing in other cases by Rokitansky and Wedl. He confirms the observations of the German pathologists as to the presence of hyaline deposit around the capillaries, which proceeds from a material thrown out by them; subsequently this contracts, and in so doing throws the capillary into bends or kinks; that as it goes on contracting it becomes less hyaline, more fibrous, and at length like a sheath; but if converted into fibres it has no share in the formation of the innumerable fibres that can be seen lacing and interlacing across the field when a portion of gray matter from a paretic brain is under the microscope. These are probably formed, as Rokitansky describes them to be, from hypertrophy and induration of the normal, diffused, formless connecting stroma. This change is not of inflammatory character.

WESTPHAL, C.—*Cases of Tabes dorsalis (gray degeneration of the posterior columns and Paralysis universalis progressiva)*. Journal of Mental Science, July, 1864.

TIGGES.—*On Dementia paralytica progressiva*. Allg. Ztschr. f. ~~Psychiatrie~~ Psychiatrie, 20, 4, p. 318, 1863. Schmidt's Jahrb., vol. 121, p. 231.

SERVAES.—Allg. Ztschr. f. Psychiatr., 20, 1, p. 51, 1863. Schmidt's Jahrb., vol. 121, p. 232.

GRIESINGER, W.—*On the grouping and diagnosis of Mental Disorders*. Journal of Mental Science, Jan., 1864.

STEWART, H. G., M.D.—*On hereditary Insanity*. Journal of Mental Science, April, 1864.

Stewart has gone carefully over the records of the Crichton Institution at Dumfries, embracing a period of 24 years, and containing the general history of 901 cases. During the first 10 years pauper as well as private patients were admitted, but subsequently only private, so that the cases belonging to the middle and upper classes of society predominate. In considering in detail the following questions relative to hereditary insanity Stewart gives at the same time a general view of the results obtained by other investigations in such a form that they may be easily compared with those which he brings forward:—(I) The proportion of the insane having an hereditary predisposition to the disease. Authorities vary much in their computations of the frequency of hereditary transmission, and this variation may be accounted for in many ways. Among the poor little is known of ancestry; among the rich, on the contrary, every information may be obtained, but not infrequently it is partly or entirely withheld. Some authors call only those cases hereditary in which mental disease has been known to exist in the direct line; but it is important to remark, says Guislain, that the transmission is not always direct; that the father of an insane person may not have been affected, while the grandfather, or aunt, or uncle, or cousin, may have presented symptoms. In asylums where acute cases only are received it may be easily understood that hereditary tendency does not reach a figure so elevated as in those where epileptics, idiots, imbeciles, and incurables are received. When mental disease appears in an individual some authors recognise it as hereditary if the parents have suffered from any nervous disease, while others hold that unless the parents have been actually insane (some even demanding that the insanity be of the same form) there is no evidence of hereditary transmission. The above statements explain the great discrepancy observable among the following figures:—Esquirol in the Salpêtrière found a per-centage of 13·30, in his private house of 34·80, at Charenton of 31·34. Guislain states it at 30 in one computation, in a second at 5·96. Holst makes it 69, Jessen 65, Parchappe 15, Aubanel and Thore 4·37, Michea 50 to 75, Damerow 24·29, Webster 32, Brigham 26·67, Thurnam 32·6 or including collateral 47·7, Hayner 11·97, Burrows 85·71, Noble 40, Hood 9·59, Morel 20, Marcel 42·85 in one and in another computation 90, Howe 84·52, Moreau (de Tours) 90, Ellis 15·36. Stewart's general conclusion is that it may fairly be inferred that the more perfect our information concerning the

patients, the higher, up to a certain point, will be the per-centage of hereditary cases. In all nervous disorders, convulsive, choreic affections, stammering, &c., Moreau detects a tendency to nervous disease and to insanity that may be transmitted. Renaudin observes it is not at the first step that mental alienation ordinarily becomes the result, and two or three generations may pass, having proteoform modifications of nervous disease, before arriving at the final result—insanity. In examining the condition as to hereditary transmission of the cases under his observation, Stewart carefully ascertained whether there existed, or had existed, in the direct line or in collateral branches of the patient's family insanity or eccentricity, and, if so, what relative had been affected. When a cousin in the *first* degree or any nearer relative had suffered from such disease the case was placed in the first hereditary class. In the *second* class were placed those whose relatives had suffered from hereditary disease not insanity, or in whose parents there was found some disease or condition which had apparently produced the insanity in their offspring. The third class comprises the cases in whose families, it was stated, no hereditary disease of any kind existed; and in the fourth class the condition as to hereditary tendency was unknown. Of the 901 cases, 447, or 49·61 per cent., belonged to the first class; 49, or 5·43 per cent., belonged to the second; 245, or 27·19 per cent., belonged to the third; and 160, or 17·75 per cent., to the fourth. In 181 of the cases only one relative of the patient was known to be insane, whilst in 266 cases more than one relative had been affected. The results approach very nearly those obtained by Thurnam at the Retreat, with which they may be fairly compared when he takes into consideration the insanity of collateral relatives. The per-centage falls far below the estimates of the later French and some English authors, owing to the wider view they hold of what constitutes hereditary predisposition. Question II relates to the numbers of the hereditarily predisposed whose parents, or collateral relatives, were affected. Stewart divides the 447 cases into five classes, according to the propinquity of the nearest relative known to be, or to have been, insane. The first class contains those cases in which mental disease had appeared in the direct line—whose parents or other ancestors had been insane. The number of these was 215, 127 being male and 88 female. In the second are those whose brothers or sisters had been insane. The number of these cases was 143, males 79 + females 64. In the third are those having uncles or aunts so affected; their total was 34, males 18 + females 16. In the fourth, comprising 18 (males 10 + females 8), those with cousins insane; and in the fifth, comprising 37 (males 19 + 18), those whose near relatives—relationship being unknown—had been insane. Question III relates to the influence of sex in transmitting insanity. When both parents have been insane it is concluded there is small chance of escape for the offspring; but even in such a case the disease may only appear in some of the children, while the rest may be exempt, at all events from an actual outburst of the malady. Esquirol first observed that insanity is oftener transmitted by the mother than by the father, and that the former may also during her pregnancy and lactation communicate disease to her offspring. The

observations of Thurnam, Brigham, and Baillarger, have confirmed these statements. Thurnam puts the paternal influence in all cases under observation at 8·3 per cent., the maternal at 8·5. Brigham's corresponding figures are 6·7 and 7·7, those of the Crichton institution 9·1 and 7·5. Stewart consequently rates the maternal influence less highly than the paternal. Another question of importance arises under this head—Is the insanity of the mother more dangerous to the females than to the males? Thurnam and Baillarger answer in the affirmative, and the latter further observes that the father's insanity is slightly more dangerous to the sons than the mother's, whilst the mother's is twice as dangerous to the daughters. Thurnam's figures show that the paternal influence produces insanity in 8·5 per cent. of the males and 8·1 per cent. of the females; the maternal in 7·6 per cent. of the males and 9·3 per cent. of the females.

Brigham's corresponding figures are, for the paternal influence 7·07 per cent. in the case of males and 6·3 per cent. in that of females, for the maternal 5·9 per cent. in the case of males and 9·5 per cent. in that of females. Stewart's own experience shows the paternal influence to be marked in 9·4 per cent. of males and 8·7 per cent. of females, the maternal in 7·1 per cent. of males and 8·1 per cent. of females. Dr. Burrows considers that a child physically resembling its insane parent will more probably suffer from mental disease than one resembling the sound parent. This, indeed, seems a natural conclusion. We have, however, Moreau, on the other hand, stating that there is a law by which the series of organs which holds under its dependence the psychocerebral organization, and that which gives the resemblance or analogy of physiognomy, are transmitted separately from the parents to their descendants. So, every time that an individual has presented an analogy of physiognomy more or less striking with one of his parents, he owed to the other parent his cerebral organization, as the presence of the hereditary evil has attested. Question IV relates to the influence of sex in receiving insanity hereditarily. Hood's numbers are 8·58 per cent. of males to 10·62 of females, Guislain's 4·75 of males to 7·172 of females, Thurnam's 32·82 of males to 35·48 of females, Esquirol's 32·20 of males to 24·66 of females, Stewart's 48·56 of males to 51·05 of females. These show sufficiently the greater liability of the female sex to suffer from hereditary insanity than the male. Question V relates to the frequency of the different forms of insanity among hereditary cases. Stewart admits that all varieties of mental disease are transmitted, and that a different form may appear in the child from what existed in the parents. Not only actual insanity in its various forms is transmitted, but also numerous forms of nervous disorder, as epilepsy, chorea, paralysis, convulsions, hypochondriasis, eccentricity, immoral tendencies, stupidity, waywardness. To these Whitehead and Marcé add obliteration of one or more of the sensorial faculties, such as hearing or sight; and the former observes in such cases a vicarious action by which the child born blind or deaf of insane parents is often in no way defective in its mental faculties. Not only this, but sometimes members of families in which nervous disease, and even insanity itself, is present, are gifted with genius, while they may even in their own

persons be subject to derangements of the nervous system betraying the existence of the diathesis. The hereditary tendency to suicide is illustrated in many instances. All forms of insanity—mania, melancholia, monomania, and general paralysis—appear reciprocally to reproduce each other; and just as we have in the course of an individual case varying forms of mental disease, so in the line in which hereditary predisposition exists we find in the same way similar varieties of disease appearing in different individuals of the race. Stewart gives the following figures as showing the proportions of hereditary cases in the different forms of insanity. In mania the number was 51 per cent., in melancholia 57.7 per cent., in monomania 49 per cent., in moral insanity 50 per cent., in idiocy and imbecility 36 per cent., in dipsomania 63.4 per cent., in general paralysis 47.6 per cent., in dementia and fatuity 39.5 per cent. The various forms assumed in hereditary insanity have a striking analogy in those of hereditary tubercular disease; for just as we have imbecility, idiocy, mania, and other forms of insanity, coming on at various periods of life, so we find hydrocephalus, tabes mesenterica, scrofulous enlargement of the lymphatic glands, and phthisis pulmonalis, appearing at different periods of development. As in the former case we observe one form of insanity being transmitted and appearing in the next generation in a different form, so also in the latter we have different forms of the tubercular disease apparently generating each other, in an infected race. Question VI relates to the age on first attack in hereditary cases of insanity. Esquirol observes that in hereditary cases the disease often comes on at the same period of life as in the progenitors. *Hérédité* appearing at the same time of life, and pursuing the same course in the offspring as it did in the parent, is called by Moreau perfect. Mental derangement is not likely to occur until the mind is fully developed. Should it appear before this period, or just at it, without there being any other cause likely to induce disease, it is probable that the source will be found in hereditary predisposition. Crichton states that after the age of 30, sometimes much earlier in life, the hereditarily predisposed to melancholy begin to have indescribable sensations of anxiety and internal uneasiness, of which they can give no good account, resulting in an attack of mania. Dr. Maudsley observes that hereditary mania is apt to appear at the age of puberty, and that in the decline of life melancholia and hypochondriasis, having a similar origin, become established. From a table Stewart gives of his own experience, and that of Thurnam, it appears that the predisposed cases are apt to suffer earlier in life than other cases, that they suffer more at the age of puberty and manhood, and decidedly less as old age approaches. In the Crichton cases 50.97 per cent. occurred before the age of 30, and 73.28 before the age of 40. Question VII relates to the number of attacks in hereditary cases. From Stewart's experience, and that of Thurnam and Hood, it results that hereditary cases have a much greater tendency to relapse than other cases, the per-centage of not first attacks being in the former 35.33, in the latter 20, 22, or 32. This point in their history may be still more forcibly illustrated. The number of individuals readmitted during the last 24 years to the Crichton institution is 78, and of these in less than 51

belong to the hereditary class of cases. Some of these patients have been admitted from 2 to 10 times. This tendency of hereditary insanity to recur is one of its most important characteristics, and claims our special attention in the prevention, prognosis, and treatment of such cases. Much may be done, especially in those belonging to the upper and middle classes, to prevent the recurrence of the malady. Question VIII refers to the domestic condition of those having hereditary insanity. The per-centage of married persons among the hereditary cases was 29·75, of single 66·44, of widowed 3·35; the corresponding numbers among the non-hereditary are 28·4, 64·2, and 7·4. On the whole, it will be seen that at the time of attack fewer hereditary cases are or have been married; and it is somewhat interesting to notice the marked lowness of the per-centage among the widowed, probably owing to the hereditary disease appearing earlier in life. Question IX refers to the proportion of recoveries and deaths in the hereditary and non-hereditary cases. The per-centage of recoveries is higher among the hereditary cases than among the non-hereditary ones, 36·9 : 32·2; while the per-centage of death is lower among the former (20·6) and higher among the latter (22·8). Hood's experience agrees with Stewart's, the high per-centage of recoveries (60·3) among the hereditary cases is very remarkable, and indicates the curability in the early attacks of this form of mental disease. Question X relates to the duration of life in hereditary insanity. Stewart believes that the duration of life is shorter among this class than it is among the insane generally. The per-centage of deaths occurring before the age of 50 is 65·37 in hereditary cases, and according to Thurnam 36·68 in cases generally. The mass of the hereditary cases die between the ages of 30 and 60, while the mass of the insane generally die between the ages of 40 and 70.

SANDER.—*On Rheumatism and Mental Disorder.* Ztschr. f. Psychiatrie, 1863, p. 214. Journ. of Mental Science, Jan., 1864, p. 581.

Sander gives 5 cases, with the following conclusions:—(1) That severe mental disorder may occur, not only during the persistence of acute rheumatism in the joints, but be prolonged for a month or upwards after this has ceased. (2) This mental lesion manifests itself without fever, usually with the character of depression, and often as decided melancholia with stupor. A state of excitement may follow, or be intercurrent with the melancholia. (3) Now and then convulsive or choreitic movements complicate the mental disturbance. (4) The prognosis is very favorable; and recovery, so far as the few recorded cases go to show, comes most rapidly and surely when a fresh attack of rheumatism supervenes in the course of the cerebral affection. It may generally be assumed that the brain affection and the rheumatism stand more closely related than do the chronic cerebral disorders consequent upon other acute diseases; as, for instance, typhus, where anæmia of the brain, or some other general cause, may be assigned as the basis of the psychosis. The question for solution is whether this association of rheumatism and insanity is attributable to the rheumatic poison acting upon the cerebrum and producing a form of rheumatic meningitis.

DUMESNIL.—*Differential diagnosis of an attack of actual Mental Disorder from the Delirium accompanying or preceding Typhus.* Ann. Méd. Psych., July, 1863. Schmidt's Jahrb., vol. 123, p. 85.

Dumesnil thinks that the presence or absence of albumen in the urine will afford valuable information in many cases, as it is very generally present in typhus, and often also in other disorders, as rheumatism and pneumonia, attended with delirium.

GRÄSER.—*Report of the Asylums at Eberbeck and Eichberg during the period from 1843 to 1859.* Schmidt's Jahrb., vol. 123, p. 88.

We have only space for some notice of the *causes*. The chief of these is hereditary tendency; insanity occurred among the relatives of the patients in 33 per cent. In 55 instances out of 891 the disease was transmitted directly by the father, in 57 by the mother, in 151 some of the nearest blood relations were insane. The paternal influence appears to have more effect on the sons, the maternal on the daughters. Many families decay for several generations in consequence of hereditary disposition to psychical disorders. It was seldom that psychical influences could be shown to have exerted a direct influence in the production of insanity. The missions of the Liguorians almost invariably give rise to mental disorders; political events seem to have no such influence. Long-continuing depressing emotions are often regarded as exciting causes, but the cause of the depression is generally of such a kind that it remains doubtful how much importance is to be attributed to it and how much to the mental state. Thus, mental anxiety is often the result of poverty and hard toil. Venereal excesses and onanism were not found to have induced insanity in any instance. Drunkenness had this effect in only 22 males and 1 female. The influence of the puerperal condition was apparent in 8·3 per cent.; out of all the patients who became pregnant while insane only one was cured. Among febrile diseases typhus appeared especially effective in giving rise to mental derangement; cachectic and anæmic conditions are frequently met with. With respect to the subjects of general paralysis, it appeared that 30·2 per cent. of such patients had led dissipated lives, indulging to excess (in baccho et venere), but mostly many years previously; prior syphilitic infection had occurred in 14·6 per cent. Undoubtedly, however, well-known steady men were also affected in the same way, although they had lived in the simplest manner and out of the range of all excitement. Among the patients there was a considerable number of those who, during their disease, had committed criminal acts, and whose insanity was first discovered in the inquiry to which these gave rise. Not unfrequently patients were transferred from the house of correction to the asylum, especially females, several of whom suffered from the form of disorder termed *excandescencia furibunda* (nymphomania). *Terminations.*—Of the total number of patients, 241 were cured, 102 improved, 223 died. The duration of treatment until recovery ensued varied between 2 months and 2 years; most recoveries occurred in the period between the third and ninth month after admission, and it may be stated generally that the prognosis became worse in proportion to the duration of the disease. However, recoveries took place in tolerable



number at a later period, extending up to even 12 years of detention in the asylum.

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WILKS, S., M.D.—*Clinical notes on Atrophy of the Brain.* Journal of Mental Science, Oct., 1864. This paper is valuable for reference, but scarcely admits of being abstracted.

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NASSE, W.—*Influence of Ague on Insanity.* Allg. Ztschr. f. Psych., 21, p. 1, 1864. Schmidt's Jahrb. vol. 124, p. 77.

The observations of the author extend over a period of  $9\frac{1}{2}$  years, and relate to 76 insane persons, in whom the influence of ague, by which they were repeatedly attacked, could be accurately traced. Tertian was the most common form, succeeded by gastric symptoms lasting even during the apyretic intervals. The use of febrifuge medicines was forborne so long as the attacks remained uncomplicated by any inflammatory local complications, and the dropsical and anæmic accidents did not become marked enough to excite any anxiety. In 26 cases the influence of ague exerted a beneficial effect, resulting in 2 cases in complete recovery, in 3 in permanent improvement, in 14 in transitory, but continuing longer than the attacks, while in 7 it was of shorter duration, and ceased with the febrile paroxysm. In 39 cases no result was obtained, and in 3 the ague appeared to be injurious. In the remaining 6 cases improvement, which had already commenced, was not at all checked by the fever. Arranging the cases according to their psychical forms, we have a favorable effect produced in 3 out of 4 cases of melancholia, in 3 out of 4 cases of mania, in 8 out of 25 cases of delusion (most of them attended with hallucinations), in 1 out of 26 cases of dementia and of secondary idiocy, in none of 4 cases of epilepsy attended with mental disorder. Of the 26 patients, 4 only had been ill more than 5 years, 6 for a less period than 2, in the remaining 16 the disorder had existed from 2 to 5 years. A more favorable prognosis may be given in primary forms of psychical disorder, and in those cases where the disease has lasted but a short time, with respect to the influence of an intercurrent ague on the mental malady. The conditions on which the beneficial influence of ague in cases of insanity depends appear to be best explained by assuming that the fever acts in a reflex manner on the cerebral circulation. The ague sets up a violent and acute vascular excitement, and thereby induces a revolution in the general circulation, which must have an effect on that within the cranium, as is evidenced by the generally great congestion of the head and the frequent epistaxes which occur during ague fits. The acceleration of the general circulation thence resulting must dissipate old-standing partial stagnations, induce a rapid afflux of new and qualitatively different blood, must reanimate to a certain extent diseased parts of the brain, and the frequent recurrence of these conditions must be of especial advantage in chronic congestions of torpid character. From this view we can understand why mild agues of short duration exert no or but little influence, and why numerous cases of old-standing derangement undergo no perceptible change. According to Nasse's observations, ague is to be regarded as an uncommonly powerful psychical agent as a cerebral remedy. The well-

known beneficial influence of typhus in insanity may be quoted as an analogous operation.

WILLIAMS, S. W. O., M.D.—*Remarks on the refusal of food by the Insane.* Journ. of Ment. Sci., Oct., 1864.

Williams distinguishes an asthenic form and a sthenic. In the former recourse must be had to treatment immediately, the least delay is most pernicious. The bowels are to be thoroughly cleared of scybala by an enema of castor oil and turpentine, after which the patient will often fall into a refreshing sleep, and on awaking take his food willingly. If he does not, he must be fed forcibly. Hydrocyanic acid is often of great efficacy. In the sthenic form there is generally mania, and always pertinacious insomnia. After constipation has been removed, or diarrhoea arrested, we must not delay more than 48 hours before (if persuasion fail) we resort to forced alimentation; for if we wait much longer the symptoms soon assume all the characters of the asthenic type. Timely administration of nourishment prevents all this, and allows of a medicinal treatment being initiated. This should consist in the energetic administration of opiates and the use of the hot bath, with cold applications to the head every evening. Williams prefers a spoon and india-rubber bottle to the stomach-pump and nasal tube, as safer appliances, there being no danger of sending the food into the lungs or of piercing the aorta, which have happened with the latter.

#### MUSCULAR SYSTEM.

BARKER, E.—*Progressive atrophy of the Tongue and Muscles of Speech.* Proc. of Med. and Chir. Soc., 1864, p. 359, vol. 4.

The patient was a male, æt. 51, who had enjoyed excellent health till May, 1859, when a slight difficulty of speech, accompanied by general failure of health and strength, induced him to seek medical advice. These symptoms, without any apparent cause, with the addition of impairment of deglutition, continued to increase; and in the following September, after some months' residence at the seaside, the tongue had assumed the following remarkable appearance—small and shrunken, it lay low in the floor of the mouth, and over its whole surface was noticed an unceasing tremulation of the fibrils of its muscular structure; it had lost its bright healthy hue, and was of a pale-yellow colour. The face had also lost its ordinary expression; the cheeks and lips were flaccid and hung down. Saliva frequently dribbled from the mouth. No symptom whatever of irritation of brain or spinal cord was ever present, but the muscular tissue in different parts continued to waste and degenerate with unrelenting pertinacity. Gradually articulation became unintelligible, and deglutition impossible. The fibrillary tremors so noticeable during the wasting of the muscles ceased with their destruction. From the tongue to the muscles of deglutition, thence to those of the upper and from these to the lower extremities, the disease extended. At length the intercostals were affected; and the breathing consequently became at times much laboured, as each morning brought increasing difficulty in the necessary expulsion of mucus

collected in the bronchial tubes during the previous night. Great exhaustion followed these attacks, and on the morning of Oct. 15, 1861, he gradually sunk. Various remedies had been tried for many weeks together, but none seemed in any way to arrest the steady progress of the disease. Cod-liver oil, quinine, iron in various forms, zinc, strychnia, and the constant use of galvanism, were the principal agents employed. The post-mortem examination of the tongue went to prove that it had been converted in its entire extent into a soft, pale-yellow mass of fatty tissue. The papillæ were shrunken, and of the lingual muscles only the genio-hyo-glossi and stylo-hyo-glossi retained any manifest traces of their form and structure. The nerves of the tongue, so far as traceable, were natural; the muscular fibres in the arches of the palate and in the uvula were chiefly natural, save here and there. The same granular appearance was noticed in the pectoralis major, and in a portion of the left ventricle of the heart, and in the left side of the diaphragm. In all, the muscular fibre was in great part natural, though each specimen in an equal degree contained stray fibres which were losing the clearness of their transverse markings, and becoming granular with fatty deposit. The examination, worked out with the greatest care and by accurate observers, failed to bring satisfactory evidence of any change in the nervous tissue supplying the affected muscles, either in their central or peripheric extremities; but, on the contrary, it tended to strengthen the prevalent opinion, that the disease is essentially one of the muscular tissue itself.

## CIRCULATORY SYSTEM.

ORMEROD, E. L., M.D.—*Review of the present state of Cardiac Pathology.* Brit. Med. Journ., Aug. 6.

Under the head of pericardial affections, Ormerod notices tubercular pericarditis, which he describes as slow, for the most part painless, with long persistence of the auscultatory sign, and having always, as far as he has seen, a fatal issue. It stands in the strongest contrast to the rheumatic form of the disease. With regard to the anatomical changes which are found in this latter, Ormerod's own experience inclines him strongly to believe that adhesion of the pericardium is in the majority of instances the natural termination of pericarditis. When general adhesion has once been effected, and the two opposing surfaces are firmly agglutinated, he believes these are very rarely separated by subsequent inflammatory exudation or set free by absorption of the connecting fibro-cellular tissue. Cases have, indeed, been recorded, in which, after general pericarditis had pursued its natural course, the pericardium has been found free from any trace of the previous inflammation. But these seem to be exceptional cases, and they scarcely justify our claiming for the pericardium a power of repair greater than that of the other serous membranes; for he finds, on analysis of a large number of cases, that observations of adherent pericardium after death bear the same ratio to observations of pericarditis during life as any other anatomical lesion does to its observed symptoms. As far as he has

seen directly, or can infer indirectly, the pericardium becomes adherent after inflammation, and, once adherent, nearly always remains adherent. Next, as to the effect of general adhesion of the pericardium on the action of the heart. The mere fact that there are no certain symptoms by which the existence of general adhesion can be ascertained during life is of itself almost a conclusive argument against attaching any pathological importance to this condition. When there is no accompanying valvular disease, no thickening of the investments of the heart by earthy or so-called cartilaginous deposit, the heart does not become enlarged in consequence of general adhesion of the pericardium. The requisite freedom of movement is gained by loosening the fibro-cellular tissue outside the pericardium; and, tested by its effects on the heart itself, the alternative of moving on a polished serous surface or in a loose bed of cellular tissue seems indifferent. But where the connecting medium is an unyielding tissue, earthy or fibrous, it constitutes a most serious impediment to the heart's action, and the effect is most disastrous. As to the quality of the disease, Ormerod says none would doubt the correctness of the characters in which under our own eyes, as it were, pericarditis has been drawn; yet I doubt if any one would now describe pericarditis in the same terms as we used to know. True, there are still cases of pericarditis, happily rare, where human suffering might seem to find its extremest limits compatible with life; and chorea in connection with cardiac inflammation is as dreadful as ever. But, whatever the cause may be, pericarditis, as we see it now, is shorn of more than half its distresses and dangers. It is of less frequent occurrence, and the contingent pulmonary affection is less severe; and I am free to express my belief that the cause of this difference is to be found in the general substitution of an alkaline for a mercurial and antiphlogistic plan of treatment in cases of acute rheumatism. Under the head of endocardial affections, Ormerod remarks, the motion of the blood in the heart probably produces no appreciable sound in the healthy state. In some cases of acute rheumatism, however, and in certain other cases, a murmur of another kind is occasionally audible. It is soft, but not blowing, somewhat resembling the so-called muscular sound. It continues equally through all the period of the first sound, being perceptible all over the cardiac region, but not beyond. It does not follow the rules of any specific valvular murmur, nor does it change into one; indeed, valvular murmurs are less apt to occur in cases where this murmur is found than in others. It does not occur as an early sign in rheumatism, and it passes gradually away. Ormerod believes this murmur to be an exaggeration of the normal blood element of the first sound. Again, the subject of tricuspid murmurs and tricuspid regurgitation is another disputed point incapable of solution by direct experiment. He has frequently tried the experiment of distending the ventricles with water, but has never felt satisfied that the retaining power of the tricuspid valve was really less than that of the mitral, nor has he seen anything to countenance the theory of its so-called safety-valve function. The obstruction in the veins is the same whether the blood is prevented from entering the ventricle or whether it is regurgitated through the tricuspid valve after it has gained admission into

the ventricle. Sometimes we seem to find evidence of tricuspid regurgitation in the condition of the jugular veins during life; but these cases are rare, and it is only on theoretical grounds that the frequency of tricuspid regurgitation can be maintained. Its advantages appear to be very problematical; it would be only at the best transferring to the brain and other organs the mechanical pressure which would be sustained equally well by the lungs, and certainly very much better by the mechanical arrangements of the heart itself. If these views be correct, any long inquiry into the ground of the commonly received opinion that tricuspid regurgitation is not usually accompanied by valvular murmur would be superfluous; and the habitual absence of any murmur in cases of obstruction of the right side of the heart, so far from proving that tricuspid regurgitation is unaccompanied by murmur, must in such case be added to the other arguments intended to disprove the opinion of the occurrence of actual tricuspid regurgitation. Tricuspid murmurs are occasionally distinctly to be recognised; but they are rarely audible, for two reasons—first, that they are singularly liable to be drowned in the sound of pulmonary obstructions; and, secondly, because occurring, as transmitted tricuspid obstruction does, towards the end of heart disease, murmurs on this side of the heart would be even more likely than mitral murmurs to become inaudible through feebleness of the current of blood. Ormerod next insists on the importance of not attempting to deduce from auscultatory signs more than they fairly convey. An unequivocal meaning, regardless of circumstances, must not be attached to each sound, but we must examine the auscultatory evidence from other points of view, eliminating by the aid of these circumstances the various surd answers till we arrive at the one which alone is compatible with the results obtained in other ways. Ormerod states that under ordinary circumstances the products of inflammation undergo the same changes on the valves as elsewhere; the adventitious matter contracts, coalesces with the subjacent membrane, and finally is removed by absorption. In a certain number of cases, however, this perfect repair fails, and inflammation results in permanent injury by induration of the valve.

Under affections of the muscular substance Ormerod notices fibrous and fatty degeneration. Of the former he says it occurs chiefly, but not exclusively, in connection with mixed hypertrophy and dilatation, affecting, by preference, the thinner portions of the heart's walls. The muscular tissue, under these circumstances, becomes hard and elastic, the cavity retains its shape when cut open, the muscle creaks under the knife, and the cut surface looks paler than natural, but is of a white rather than a yellow hue. And under the microscope the explanation of these changes appears in the substitution or the addition of an unusually large amount of fibrous or fibro-cellular tissue. The term degeneration does not fairly apply to all the conditions under which this change is found to occur. The youth and strength of the patients in whom it is most commonly found, and its habitual connection with hypertrophy, make one rather refer it to active nutrition. In accordance with this view, in such cases the struggle for life, the resistance to death, is generally strong, and the suffering severe and pro-

tracted. Its occasional connection with the results of previous inflammation, ensuing in obliteration of the pericardial cavity by thick unyielding adhesions, is an equivocal instance, not to be claimed absolutely as either an active or a passive pathological process. Under all other circumstances it generally contrasts strongly with fatty degeneration, and must be clearly distinguished from the simple atrophy of enfeebled muscle. For the design of this fibrous transformation is palpable—it is the substitution of a mechanical for a vital resistance to dilatation. Such a change Ormerod has found in the neck of the uterus ruptured during labour. Here, under the pressure of the uterine muscular tissue, the adventitious fibrous tissue, which could not dilate, was torn across. The pressure of the heart's contraction is probably not so great as, and its function is widely different from, that of the pregnant uterus; so the results are not so terrible. Hearts which have undergone fibrous degeneration are not liable to rupture. But while this change resists dilatation most efficiently, at the same time it limits the contraction of the chamber of the heart thus involved, and reduces it so far to the condition of a mere containing vessel. In an appendix to his address Ormerod relates, at some length, the results of an inquiry into the chemistry of fatty degeneration, and states his belief that the process by which the muscular structure of the heart is changed during life into fat is essentially a pathological, a vital, not merely a chemical process. The muscular tissue, for experiment, was cut into small pieces, picked as free from adipose tissue as possible, and dried by pressure in a clean cloth. Five hundred grains were then taken for immediate analysis, an equal quantity was placed in one of the decomposing solutions, and the rest was placed in a corresponding solution for the purpose of trial during the progress of the experiment. The first question is—What are the chemical results of fatty degeneration? The amount of fatty matter present in seemingly healthy hearts varied from 0.22 to 2.14 per cent., the mean of 7 observations being 0.916. Excluding two observations which contrasted strongly with the rest, the extremes were 0.22 and 0.54; the mean of these 5 observations being 0.455. In 2 hearts marked as granular the fatty matter constituted 0.48 and 2 per cent. of the mass experimented on, the mean being 1.24 per cent. One marked as distinctly fatty contained 2.74 per cent. The greatest care was taken in this case to pick out any portions of adipose tissue from the substance to be analysed, so that the amount of fatty matter found on analysis is rather below than above the truth. Now, though the per-centage of fatty matter in a heart not marked as unhealthy differed very little from that in the fatty heart—as little, indeed, as 2.14 from 2.74—yet the nature of the fatty matter was very different in the two cases respectively. In the healthy heart it was hard, dry margarine, while in the fatty heart the crystals of margarine swam in the oily part of the extract. One of the granular hearts displayed in a less degree this same excess of oleine. The fair inference seems to be that in fatty degeneration of the heart the fatty matter is increased, and that this is mainly due to an increase of the oleine, which enters only to a small amount into the composition of the fat of a healthy human heart. The second question is—Can

these results be obtained by acting chemically on healthy muscular substance of the heart by any of the methods employed to form adipocere? (1) All attempts to convert a definite quantity of muscular fibre into adipocere by a slow stream of water failed. When the meshes of the net containing the weighed muscle were fine they became clogged, and prevented the free access of water, and the muscle putrefied. Coarser meshes allowed fragments of the softened tissue to escape. Incidentally a curious result was obtained. Some loose fragments of muscle laid in a dish with common water from the tap containing lime in solution were converted into adipocere. Some other similar fragments laid in distilled water underwent no such change until pieces of bone were laid in the distilled water, when the formation of adipocere immediately began. (2) A portion of the muscular substance of a heart which had previously been found to contain 2.14 per cent. of fatty matter, chiefly margarine, was left to soak for 20 months in dilute nitric acid sp. gr. 1.42 (1 to 16) in a stoppered bottle. At the end of this time the fatty matters were found to amount to no more than 1.1 per cent. of the 500 grains operated on. The mass had been changed into a substance having the smell and appearance of ointment of nitrate of mercury. The elements of the fat originally existing in the mass had been newly arranged under the influence of the nitric acid, part having assumed the form of an aromatic ether. Much of the fat had been destroyed, but never at any time during the process was there any evidence of the fat having been increased in quantity. The muscular fibres generally retained their form, clearly recognisable under the microscope. The fibrils were broken off short into minute fragments, but each of these displayed distinctly either the transverse striæ or that longitudinal dotting which characterises the stage of granular degeneration already spoken of. Again, 250 grains of pure fibrine from bullock's blood, freed from all fatty matter by ether, were treated in the same way, and for the same period. Not a trace of fat, of any of the oily acids, or of the results of their decomposition, could be found on analysis. (3) A portion of the muscular substance of a heart which had previously been determined to contain 2 per cent. of fatty matter was left to soak for 8 months in dilute alcohol (1 to 7) in a stoppered bottle. At the end of this time the mass was found to contain 1.92 per cent. of fat and fatty salts of whatever kind. The fat seemed to have been destroyed to this extent by the process to which the muscular fibres had been submitted. To the naked eye the muscle thus acted upon appeared as a reddish flocculent mass, in which the division of the fibres into bundles was indistinctly perceived. Under the microscope, however, all was obscure; a few granular fibrils could be picked out here and there, but the rest was an indistinct flocculent mass with something of a linear arrangement. It contained a few white opaque grains with a radiating structure, apparently composed of a soap of lime. No loose fat appeared anywhere, and ether had very little effect in clearing the field. The inference from these observations seems to be that fatty degeneration cannot be artificially imitated by these methods. One step, indeed, adipoceros transformation and fatty degeneration seem to have in common—that which we recognise as the stage of granular

degeneration ; but as chemical analysis shows that this appearance is not necessarily accompanied by any increase of the fatty constituents, we must regard it here as an optical change only. (III) What is the nature of adipocere, and what relation does this so-called result of chemical fatty degeneration bear to the result of pathological fatty degeneration? Examination of various specimens of adipocere showed that it was, in all probability, not a newly formed substance, but rather a new arrangement of old materials, a saponification of the fat already existing. An analysis of 10 grains of adipocere from a human thigh gave of free margaric and oleic acids 4.1 grains, of margarate and oleate of lime with traces of magnesia 2.4 gr., of a peculiar fibre containing nitrogen and traces of phosphate of lime 3.4 gr., of water 0.1 gr. In the fatty matter here present margaric acid so predominated that it was necessary to add olive oil to allow it to crystallize freely in its characteristic form. In this as in all other respects this adipocere agreed perfectly with other specimens of adipocere from the human subject, and contrasted strongly with the results of fatty degeneration. Ormerod concludes that adipoceros transformation is altogether different from fatty degeneration. The one is a chemical change of dead, decomposing matter ; the other is a pathological process, and the part which chemistry plays is, as in inflammation and secretion, subordinate to the influences which are at work, however feebly, in a living body.

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HERMANN, F. ; v. KEMPF. — *On Scurvy*. Petersb. Med. Ztschr., 5, p. 293, 1863. Schmidt's Jahrb., vol. 124, p. 27.

Epidemics have prevailed at St. Petersburg in 1845, '48, '60, and '61 ; in the last, 131 cases of primary severe scurvy were brought to the hospital, and 10 cases of secondary, besides numerous cases of disease of various kinds with scorbutic complication. More than a third of the patients had suffered from rheumatic disorder, a small part only with commencing marasmus. In the second stage, besides hæmorrhages into the joints, under the periosteum, and the inner table of the os ilii, there was sometimes found separation of the costal cartilages from the bones. In the third stage dysentery never occurred, only catarrhal affection, attended sometimes with hæmorrhagic exudation. The urine was generally diminished in quantity, high coloured, clear, or, at a later period, turbid, always acid, and speedily became putrid. Its sp. gr. during the height of the disorder varied from 1009 to 1022 ; its solid constituents were always increased. As regards prognosis, hæmorrhages into the joints and diarrhœa were unfavorable signs. Effusion into the pericardium and cerebral cavities was always fatal. With respect to ætiology, Hermann remarks that all circumstances which weaken the forces of the organism may give rise to scurvy. He is quite certain that the limitation of the supply of sour-crust to the soldiers, which has been tried on the score of economy, has produced scurvy. While the epidemic prevailed no condition or calling in life was exempted from its visitations, not even those who were well off. Cold and damp certainly promoted its action ; but it is remarkable that the acme of the disease reached its height in April, May, and June, and declined in



spite of the more unfavorable weather until November. Young people whose growth was not finished, and whose frame was weakly, and who in this state had to struggle with hard work and unfavorable circumstances, were the most frequent subjects of the disorder; old persons and children, on the contrary, were rarely affected. The apparent immunity of women is explained by Hermann on the ground of their social position, their greater psychical capacity of endurance, and their more sober mode of life. Under the head of treatment Hermann ascribes the chief importance to diet. Lemons, he thinks, are the best antiscorbutic, but on account of their high price vinegar is used instead as an external application, and, internally, citric acid prepared in England in the proportion of 1 drachm to a pint of water. Blisters act admirably, produce no gangrene; they should be applied in strips 1 or 2 finger-breadths' wide when the costal cartilages are affected, in sclerosis, and in buboes, where they are to be laid along the edge of the ulcers.—V. Kempff relates the case of a person, æt. 20, who resided in a place severely visited by scurvy, and was suffering with perilous paroxysms of suffocation, and had signs of effusion into the chest. By paracentesis thoracis a large quantity of blood-serum was drawn off (about 8 or 9 pints), and in 4 days the patient was discharged.

MARTYN, S., M.D.—*Instance of recovery from Leucocythæmia.* Brit. Med. Journ., March 12.

A tall, gray-haired man, æt. 66, an artist by profession, came under Martyn's care in May, 1861. He had originally had most robust health, and been capable of much exertion in following field sports; had never been ill before. He stated that he had been ill, on and off, for more than a year, chiefly with inflammation of the left lung (as he calls it). Much emaciation and pallor. Is very prostrate from profuse perspirations near morning. Some dulness and congestion of the lungs behind, with râles. Heart healthy. In the left hypochondrium there is a large convex tumour, smooth, and with a notch at its anterior edge near the umbilicus, not painful. There was chronic diarrhœa. The urine was loaded with phosphates; its sp. gr. was 1030. The blood taken from the finger showed the white corpuscles in great excess, visible everywhere in the field, and of varying sizes, and in groups. By the middle of Nov., 1863, he appeared to have recovered. From the previous emaciation and pallor he had become stout and florid, though showing age in weak memory and slow, stooping gait. The splenic dulness was unduly extensive, but not so as to attract any attention if the previous history was unknown. The blood contained more white corpuscles than would be present in typically healthy blood, but not more than are seen in anæmia and in a great number of indeterminate conditions. Ammonia was the remedy which seemed to induce recovery.—MERBACH (Schmidt's Jahrb., vol. 124, p. 26) reports a case of leucæmia associated with splenic enlargement. The proportion of colourless corpuscles to red was 244 to 885. Besides the colourless and red corpuscles there were numerous irregular masses of gray granular substance, which appeared to have resulted from the coalescence and breaking up of a number of white corpuscles. The

splenic enlargement increased until the organ reached down to the right iliac region; the liver was enlarged from the time of his admission, but did not continue to increase. The patient was a male, æt. 23; had never suffered from ague. The urine was usually normal. The disease progressed and must have proved fatal shortly after he left the hospital.

**EICHWALD.**—*On the nature of Stenocardia (Angina pectoris), and its relation to Sub-paralysis of the Heart.*

In 9 cases, observed during 4 years by the author, there were some very constant symptoms, which he considers essential. In 3 instances, in females, the disorder appeared to be a neurosis. In all, the action of the heart was diminished during the paroxysms of pain, so much so as sometimes quite to disappear, while during the intervals and at the close of an attack it was visibly increased. The respiratory movements were, in all the instances, imperfect by reason of the pain; but there was no real dyspnoea, unless a severe paroxysm lasted for some time. During the acme of an attack the condition is one of pulselessness, apnoea, and arrest of circulation. The heart is distended with blood during the paroxysm, and does not empty itself completely. It thus comes in contact with a larger surface of the wall of the chest, and as its muscular fibres contract vividly there is produced a strong diffused impulse, together with indistinct sounds and a weak pulse. The anginose attack depends not only on mere depression of the heart's action by weakness, but on an actual arrest of it by a mechanical impediment, and the pain is produced by the more or less unavailing efforts which the heart makes to overcome this obstacle. In the purely neurotic cases he believes this impediment to be produced by irritation of the regulating nerves of the heart.

**LANCEREAUX.**—Gaz. Hebdom., 14, 1864. Schmidt's Jahrb., vol. 124, p. 26.

Records a case of angina pectoris, where after death the following condition was found. The patient was a male, æt. 54. In the aorta, between the openings of the two coronary arteries, which were considerably narrowed, there was an elevated patch of new-formed connective tissue situated between the inner and middle coats, and sending ramifications into the former; the outer coat at the corresponding part was highly injected, and the cardiac plexus in the same situation was covered with vessels, some of its fibres thickened by a kind of plasma, and some of its nervous elements wasted by pressure, as was shown by microscopic examination. A calcified tuberculous mass, the remains of a lymphatic gland, lay below, and was adherent to the recurrent nerve. The heart and its valves normal.

**LONDON, B.**—Oesterrh. Zeitschr. f. prakt. Heilk., 9, p. 42, 1863. Schmidt's Jahrb., vol. 121, p. 175.

Mentions a case of enteric fever, proving fatal in about twelve days, in whom a systolic murmur was heard all over the heart, loudest between the second and third left ribs, where there was vibratory impulse. The murmur disappeared before death. It was loud enough to quite mask the first sound of the left ventricle. The second pulmonic sound was accentuated. At the post-mortem the valves were found healthy;

there was a good deal of turbid serum in the pericardium. The diagnosis had been made of fever with paralysis of the muscoli papillaires.

PALMER, T.—Lancet, April 2nd.

States that he has met with subclavian murmur in 37 men out of 129 who were engaged in various manual occupations, and were all in the enjoyment of perfect health. He thinks that the murmur is caused in many cases by elevation of the first rib. In the 37 cases it occurred 17 times on the left side only, 7 times on the right, 13 times on both sides.

SCHNITZLER and ROKITANSKY.—*On persistence of the Ductus Botallii.*

Wien. Med. Halle, 5, 10, 1864. Schmidt's Jahrb., vol. 123, p. 44.

After relating a case, Schnitzler indicates the following as the most important diagnostic points:—Extended cardiac dulness and rasping murmur in the second and third intercostal spaces, one inch from the left border of the sternum. This murmur is produced by the blood flowing rapidly into the pulmonary artery, meeting with the blood coming from an opposite direction, and being thus thrown into a whirling motion, which produces vibrations in the walls of the pulmonary artery. Rokitansky states as the result of his experience that (1) arrest of the involution of the duct proceeds from the aorta; (2) the current flows in the persistent duct from the aorta into the pulmonary artery; (3) the hypertrophy and dilatation of the right heart, which are frequently present, are not of foetal origin, but are the result of the aortic stream entering the pulmonary artery.

SKODA.—*On insufficiency of the Valves of the Heart.* Allg. Wien. Med.

Ztg., 8, 48, 1863. Schmidt's Jahrb., vol. 123, p. 45.

The signs of insufficiency sometimes retrograde and completely vanish in acute rheumatism and acute endocarditis. This is to be explained by the removal of thickenings or excrescences being effected by the process of resorption, so that the valves again become capable of closing. In the same way elongated cordæ tendineæ may return to their normal length. In many cases this improvement is only temporary, because the process of resorption goes too far, and produces permanent alteration of the valves. The papillary muscles may be temporarily paralysed in endo- and pericarditis, and also in states such as the hysterical attended with anomalies of innervation. In typhus, variola, scarlatina, even in endocarditis, phenomena of valvular insufficiency are produced, especially in the beginning of the disease, by anomalous innervation of the muscular structure, and disappear again with the remission of the acute febrile symptoms. Even when insufficiency has lasted a long time the defective condition of one valve may be compensated by an enlargement of others, or by an endocardial exudation taking place upon it. Carditis attended with formation of cicatrices in the muscular tissue may produce phenomena of insufficiency, which will only be increased by wasting and absorption of the deposit. Skoda considers that such cicatricial formation may be diagnosed when it affects the anterior wall or the apex by the increased bulging of the intercostal space, which occurs at each systole, without the pulse being

correspondingly forcible, and also by the symptoms of pulmonary congestion which cannot otherwise be accounted for.

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HÖRING.—*Case of Rupture of the Septum Ventriculorum of the Heart from the kick of a horse.* Wurtemb. Corr. Bl., 34, 10, 1864. Schmidt's Jahrb., vol. 123, p. 45.

The patient lived sixty hours after he had received the blow. An indeterminate whining murmur was heard over the heart, and the sounds were not clearly separated.

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WATERS, A. T. H., M.D.—Lancet, November 12th.

Accounts for the hypertrophy of the left cavities of the heart which occurs in emphysema by the displacement of the organ altering the relations between the ventricles and the great arteries which issue from them, so that the blood is not expelled with the same facility as in the normal state, the heart's action becomes embarrassed, and more powerful contraction is rendered necessary. He does not, however, exclude engorgement of the venous system as an accessory cause.

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RAMSKILL, J. S., M.D.—*Cases of dilatation of the Left Ventricle of the Heart associated with difficulty of articulation, and with sub-occipital pain.* Clinical Lectures and Reports of the London Hospital, 1864, p. 472.

Ramskill suggests that disease in the vertebral artery, where it lies between the sub-occipital and hypoglossal nerve, may account for the symptoms. He thinks that the mischief arising from disease in the arterial tunics is hastened by certain forms of heart disease, of which weakness or dilatation is a chief characteristic. In such cases, which are often treated as cases of brain affection only, remedies should be addressed to the heart, and an improvement in its action will be followed by a corresponding arrest of the sub-occipital pain and difficult articulation, and by a postponement, at least, of the coming apoplexy, hemiplegia, or the cerebral lesion.

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LEBERT. — Virchow's Archiv, 28, 1863, p. 405. Schmidt's Jahrb., vol. 121, p. 172.

Records the case of a youth who died at the age of 20, of pulmonary phthisis, in whom there was found the following malformation of the heart. The right ventricle was hypertrophied and dilated, and communicated freely with the left. The auricles also communicated through the open foramen ovale. The aorta was 3 times as large as the pulmonary artery; the two had a common origin. The valves were healthy and efficient. No cyanosis existed during life. No symptoms seem to have existed until 20 months before the patient's death. At that time, after raising a heavy load, he was attacked with violent pain in the right anterior and superior region of the chest, and ever after suffered with palpitation and dyspnoea on any exertion. A loud, sharp, systolic murmur was heard all over the region occupied by the heart, and masked the first sound completely and the second partially. The mode of production of this murmur was not ascertained; it may have depended on the meeting of the currents of blood from the two ventricles

in a comparatively narrow space, or on a ripple caused by the projection between the aorta and the pulmonary artery.

BÖTTGER, H.—*On spontaneous rupture of the Heart.* Arch. d. Heilk., 4, p. 501, 1863. Schmidt's Jahrb., vol. 122, p. 48.

Böttger relates 2 cases occurring, one in a female of weak intellect, æt. 69, the other in a male, æt. 30, who had insufficiency of the aortic valves, and hypertrophy of the left ventricle. From a number of cases he has collected, it appears that ruptures never occur spontaneously in a healthy organ. Fatty degeneration is the great cause of ruptures that are not produced by violence; among 62 cases it was found 32 times, while endocarditis was observed only thrice. Ruptures occur most often in advanced age; on an average, about the middle of the 60th year. Traumatic ruptures generally take place in the right auricle, spontaneous in the left ventricle. In the greater number of the cases, 31 out of 49, death occurred instantaneously; a short continuance of life is only possible when the pericardium in the vicinity of the rupture is adherent and thickened. In many cases there are no premonitory symptoms; in others, especially in incomplete ruptures, the event is preceded by pain in the chest (in 21 out of 34 cases), great dyspnoea (11 times), nausea and vomiting (6 times).

HABERSHON, S. O., M.D.—*Clinical observations illustrating the effects produced by the implication of branches of the Pneumogastric Nerve in Aneurismal Tumours and in some morbid growths.* Proc. of Med. and Chir. Soc., vol. 4, 1864, p. 281.

The author stated that pressure on the pneumogastric nerve and its branches by aneurismal tumours in the chest led, first, to paroxysmal and spasmodic contraction of the muscles of the larynx; secondly, to diminished muscular power and to paralysis and wasting of the laryngeal muscles; and thirdly, to pulmonary congestion and consolidation; but that gastric symptoms, such as were found in peripheral pulmonary irritation of incipient phthisis, were not observed in thoracic aneurism. The effect of changed nervous supply of the œsophagus was briefly referred to; spasmodic contraction, and possibly also ulceration, taking place without direct pressure; the author stating that spasmodic contraction from this cause aggravated the effects of the direct pressure of tumours generally. It was likewise mentioned that occasionally no dysphagia existed, because the whole of the œsophagus opposed to the tumour was pushed aside *en masse*.

MOORE, W.—*On the diagnosis and treatment of Thoracic Aneurism.* Dubl. Quart. Journ. of Med. Sci., May, 1864.)

Moore has observed cases of this disease in which there existed, together with other symptoms, ptosis, alteration of the muscles of expression, heat of the ears, pustular and hepatic eruptions, and other signs of nervous pressure. He refers to Bärensprung's observations as to the production of herpes as an illustration of the possibility of cutaneous eruption being dependent on nervous irritation. The herpetic eruption in one case had persisted for 10 years.

GULL.—Lancet, April 9th.

Records a case of aneurism of the aorta opening into the superior vena cava just at its entrance into the auricle. The patient was a male, æt. 34, who had suffered with cough, dyspnœa, and inability for hard work, for several years. Five weeks before death his face began to swell and became purple, his neck became puffy and his arms. On admission his head, neck, thorax, and arms, seemed as though they belonged to a bloated individual, while the abdomen and lower extremities looked as if they were the parts of another man, for they were fine and thin, not gorged with blood, and mostly of the normal colour. A vibratile thrill, synchronous with the second sound of the heart, was seen over the right side of the chest. No murmurs were heard with the cardiac sounds. All over the ascending portion and middle of the arch of the aorta a soft wheezing murmur was very distinct. At the commencement of the arch it was diastolic, passing upwards it was both diastolic and systolic, but chiefly the former. Pulse 108, small, regular, right less than left. The opening into the aneurismal sac occupied the side and posterior wall of the ascending aorta, commencing an inch above the valves, and reaching to the innominate.

COCKLE, J., M.D.—Lancet, April 30.

Relates two cases as strongly confirmative of the value of a sign of abdominal aneurism, which is in some instances most to be relied on, viz., severe and intermitting pain in the back and loins, often radiating to the front of the abdomen and downwards to the thighs. One patient was a male, the other a female. In the latter the aneurism affected the inferior mesenteric artery.

MURRAY, W., M.D.—*Case of Aneurism of the Abdominal Aorta treated and cured by compressing the artery immediately above the tumour.*

Proc. of Med. and Chir. Soc., vol. 4, 1864, p. 352.

The patient was a spare man, æt. 26, and had often strained himself in ramming paving-stones. Eleven months ago, after hard work, he was seized with severe pain in the back. Two months later the same pain began to be felt in the abdomen, catching his breath, and was very severe. Previous to treatment his condition is described as follows:—His abdomen is somewhat spare, so that a distinct pulsation can be seen opposite the umbilicus. On applying the hand a hard and slightly movable tumour of a distinctly globular form is to be felt. Its pulsations are very strong, sudden, and laterally expansive. The tumour is about the size of a large orange; when pressure is made on the aorta above it all pulsation ceases, and when it is removed a distinct thrill is felt to accompany the rush of blood into the tumour. A line drawn across the abdomen over the umbilicus encloses with the ribs a triangular [space, the epigastric region; and over the left half of this space there is just room enough above the tumour to compress the aorta against the spine. The aorta below the tumour can be felt, and its pulsations appear to be normal. A slight bruit is heard over the tumour. No evidence of degeneration of the arterial system. General health good, but he is worn out with pain and consequent loss of sleep.

On April 16th the patient was put under the influence of chloroform, and pressure by means of an ordinary horseshoe tourniquet was kept up for 2 hours. On removing the pressure no apparent effect had been produced. On April 19th the pressure was again used and maintained, with but momentary intermissions, when the instrument became displaced, but even these were avoided during the last hour, as the instrument was carefully held in its place, and the patient kept under the influence of chloroform very fully. After about 5 hours the pressure was removed, and now very little pulsation existed in the tumour. Beyond a little shivering and numbness, with coldness of the feet and legs, nothing of an untoward nature followed. In the evening a most careful examination failed to detect the slightest pulsation in the tumour, or in the aorta below it. On April 20th the patient was restless and sore, legs feeling numb, with a sensation of pins and needles in the feet. After this date he rapidly improved, became free from pain, and was able to walk. The tumour became quite solid, diminished in size, and all expansion, thrill, and bruit, ceased. By May 5th the patient was able to walk a considerable distance, without other discomfort than slight weakness and numbness in the legs.

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WATERS, A. T. H., M.D. — *On Thoracic Aneurisms and Thoracic Tumours.* Brit. and For. Med.-Chir. Rev., Oct.

After relating eight cases, Waters remarks, with respect to diagnosis, that in all cases of aneurism of the arch the least equivocal sign is dulness opposite the upper part of the sternum. It is there that the tumour first begins to push aside the lungs, and to come in contact with the thoracic wall, and it is usually from this spot that the dulness extends to the right or left side. According to Waters' experience, in the majority of cases no bruit is audible. The objects of treatment he thinks are, 1st, to promote the formation of fibrinous deposits in the aneurismal sac; and 2nd, to improve the nutrition of the arterial coats.

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WEDL.—*Contributions to the Pathology of Blood-vessels.* Schmidt's Jahrb., vol. 123, p. 28.

(1) *Elongation and dilatation* of the small blood-vessels is produced by an increase of the tension to which they are subjugated, and causes them to take a serpentine course. Such changes are very well observed in atrophying dental pulps. In these the veins are usually 3 to 4 times wider than usual, and retain this diameter often in their whole length. The cellular elements of the vascular wall shrivel up, so that it presents a more homogeneous appearance. Fusiform and pouch-like dilatations like those which occur in the cerebral are often met with in such vessels. In glaucomatous eyes the vessels of the choroid and retina are affected in the same way, in consequence of the increased intraocular pressure.

(2) *Colloid deposits*, or corpora amylacea, are found on the walls of small arteries, capillaries, and veins, and always on their outer side. For the most part they project free from the surface, but sometimes they are surrounded with a capsule. They are more frequent on the small arteries than on the veins. They are not uncommon on the blood-vessels of diseased retinae, but Wedl warns us that, unless fresh speci-

mens are used, we may be led into error by their being accidentally introduced. (He says they may occur as "leichen symptome," post-mortem symptoms.) Wedl is inclined to believe that the colloid masses in individual cases are immediately separated from the blood, and are to be regarded as decomposition-products. (3) *Calcifications* of the small vessels, especially of the capillaries, occur rarely in so extensive a manner that whole vascular networks appear encrusted with calcareous salts. These are deposited in the capillary wall as well as in the wall of small arteries and veins, sometimes as small glistening granules, sometimes in the form of masses which project more or less above the periphery of the vessel. Between both these conditions numerous transition stages occur. The fine granular form of calcareous deposit is met with especially in the small arteries and cerebral vessels of drunkards. In these the deposit does not take place in the outer coat (as is often the case in the small veins), but in the middle; in many places large calcareous granules seem to obstruct the canal of the vessel. When the lime is removed by muriatic acid nothing can be distinguished of the nuclei of the organic muscular fibres of the vessel. Calcifications of the large arteries are always situated actually in the new-formed connective tissue of the lining membrane. (4) *Connective-tissue growths*.—Wedl describes in detail the anatomy of a case of diffuse cerebral cancer, as illustrating the great share which the cellular elements of the walls of the vessels take in the production of new formations. On examining the vessels, which were numerous and serpentine, it was found that nuclear growths were remarkably developed in the outer coat of the veins and in the adjoining tract of capillaries, while in the arteries and the arterial capillaries there was no such appearance. The diameter of the capillaries was everywhere wider than in the normal state. On the outer walls of the veins were seated knobbed or club-shaped excrescences, some of them branched, which were filled with nuclei. They did not appear hollow, and did not communicate with the cavity of the vessels. The basis substance in which the nuclei lay imbedded appeared finely granular. The original capillary network was being destroyed by wasting pressure; the blood-channels were interrupted. In the apparently healthy tissue surrounding the new growth numerous nuclear formations were discovered on the veins, demonstrating the part which the vessels took in the diffusion and in the growth of the tumour. Connective-tissue deposits on the internal coat of the large arteries are distinguished essentially by the want of elastic fibres from the connective-tissue growths of the outer, in which, when hypertrophously developed, elastic fibres are very abundantly present. When the deposits on the internal coat are at all large two layers can be distinguished in them, namely, an internal more hyaline, and a granular subjacent. The internal hyaline layer contains partly roundish, partly fusiform, connective-tissue-cells, which are connected together to some extent by their processes. Often aggregations of nuclei only can be made out, which appear grouped in long rows or in nests. The external granular and darker layer contains larger globular cells, which lie rather near each other, and are also connected partially by processes.



Along with these are greater and smaller masses of shrivelling nuclei, as well as numerous granules and globules of elain, calcareous salts, tablets of cholesterine, and masses of pigment. Here also the plates of calcifying connective tissue are formed. The connective-tissue growth of the inner coat at a later period, when its elastic layer has disappeared, advances also to the middle, so that either the layers of the circular coat are separated by the pressure of the new-formed connective tissue or their inner layers are actually replaced by it. The integrity of the circular coat may also be attacked from the outer when connective-tissue growth, accompanied with new formation of vessels, takes place in the latter. The vessels of the outer coat then grow into the middle, and Rokitansky has even followed them into the connective-tissue deposits on the inner. In the basis substance of the connective tissue growing between the layers of the middle coat are found cells solitary or in groups with roundish or oval nuclei. At the same time also the nuclei of the organic muscular fibre-cells in the middle coat usually take on exaggerated growth. The elasticity of the arterial tube, which depends on the contractility of the middle coat, is, of course, diminished correspondingly to the amount of connective-tissue growth which takes place in the middle coat and the thickness of the deposit on the internal.

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PEACOCK, T. B., M.D.—*Cases of unusual slowness of the Pulse, with remarks.* Med. Times and Gazette, Jan. 2, 9, 16.

Peacock says, "the occurrence of slowness of the pulse, in connection with cardiac disease, has been long familiar to practical men, and that syncopic or epileptic paroxysms are of common occurrence in such cases. It remains to inquire whether the infrequency of the pulse is connected with any special form of cardiac disease or may occur in different organic affections. Mr. Mayo supposed that slowness of pulse especially occurred in cases of ossification of the coronary arteries, and atrophy with or without passive dilatation. It appears, however, more in accordance with experience to find a weak and irregular pulse in cases of atrophy and dilatation; and in the only case of slowness of pulse which I have had the opportunity of examining after death the heart was in the opposite condition, the left ventricle, though large, being very greatly hypertrophied. Dr. Stokes and Dr. Quain have pointed out that slowness of pulse frequently accompanies fatty degeneration of the walls of the heart, and suppose that the attenuation in the structure of the organ occasions the diminution in the rate. Of the frequency of the coincidence there can be no doubt, attested as it is by other observers. On the other hand, Dr. B. Jones and Dr. Ogle have related cases in which the heart had undergone the fibrinous degeneration, and the pulse during life had been remarkably slow, and they ascribe the slowness to the state of the structure of the heart. These views are, however, open to very grave objections. We know that the occurrence of slowness of pulse in cases of fatty degeneration is only exceptional, the most usual character being weakness and irregularity. Dr. Quain, in the table which he gives of the state of the pulse in cases of fatty degeneration, reports only 8 cases of slowness in the 51 which he refers to.

Dr. Stokes also relates several cases of fatty degeneration in which the pulse was not slow. We have, indeed, all met with cases of the most marked fatty degeneration, in which the pulse has not been below the healthy standard. In Dr. Ogle's communication two cases of fibrinous degeneration are recorded, and in one only was the pulse slow, while other examples of the same condition of the heart are reported in the 'Pathological Transactions' which equally show that there is no necessary connection between slowness of pulse and this form of degeneration. Both kinds of morbid change must materially impair the power of the left ventricle, and the blood being thus only feebly impelled into the aorta, the pulse at the wrist will ordinarily be weak, and frequently also irregular and small. Two cases of slow pulse related by Dr. Stokes are instances of aortic valvular disease, and in one related by Peacock the same condition existed, but in some of the most remarkable cases of slowness on record there was no evidence of any valvular disease of the heart. It was supposed by Mr. Mayo that slowness of pulse depended in some cases on general depression, exhaustion, and reduction of strength. He cites two cases in proof:—In the first, a young lady, in consequence of suffering from a neuralgic affection of the face and throat, was advised by her medical attendant to abstain from taking food by the mouth, and was supported by nutritive enemata exhibited 2 or 3 times daily. In 4 days symptoms of fever supervened; in a month the catamenia, which had been suppressed for 9 months, returned, and 2 weeks after, the pulse suddenly sunk from between 70 and 80 to 35. In the other case a medical student, after having sat up for 6 nights in attendance upon a patient, found his pulse rapidly fall to 35, and, though it rose again to 40 in a few days, several years elapsed before it reached the healthy standard. It is by no means uncommon in convalescence from acute febrile diseases for the pulse to fall below the natural rate, and remain remarkably slow for some time. This is especially the case in convalescence from severe uncomplicated typhus. The pulse which, during the active period of the disease, may have ranged from 112 to 120 or upwards, falls, as convalescence advances, to 70, 65, 60, 50, or even 45 and 40. This slow rate it will retain for some time, and then, as the patient uses more exertion, it often again rises to 110 or 100, and in the upright position even to 120, and lastly sinks gradually to the healthy standard. These changes Peacock has been in the habit of pointing out to the students of St. Thomas's as being the natural process of recovery in typhus, provided no serious local complication occur to interfere with the ordinary course of the disease. Similar changes may be observed during convalescence from other acute diseases, especially diphtheria. Peacock does not agree with Mayo, that slowness of pulse may be dependent on general exhaustion. Such a state ordinarily is attended with a very opposite character of pulse; under such circumstances, indeed, the left ventricle acts feebly, irritably, and rapidly, and the pulse is quick, small, sharp, and generally feeble. In cases in which the rate of the pulse is unusually low during convalescence from severe disease, it is not during the stage of greatest exhaustion that the rate begins to fall, but during the period of recovery, and the diminution often continues and increases

while the patient is steadily progressing towards cure, taking more food and gaining strength. There is also no just relation as to the degree of prostration between the cases in which the pulse becomes slow and those in which it continues to beat considerably above the healthy standard. Certainly in an instance which Peacock relates, the rheumatic symptoms were slighter, the prostration less, and the recovery more rapid than in another case in a neighbouring bed, though the pulse of the latter patient long continued to beat upwards of 100 in the minute. Closely allied to the class of cases last named are those in which the pulse is slower than in health, and sometimes much slower during the active stages of acute febrile diseases. Peacock has seen cases of fever in which the pulse never exceeded 52, and a case of pneumonia in which it ranged between 50 and 60, without there being any cerebral disorder, and in which, unlike the former cases, the pulse rose with the progress towards recovery.

“It will thus be seen that slowness of pulse occurs under very different circumstances—in some cases in which the heart is extensively diseased, and in others in which there is no reason to suppose that there is any defect in the structure of the organ. It must also be evident that none of the causes hitherto assigned for the peculiarity—applicable, as they are, only to particular classes of cases, and not to the whole of those in which it obtains—can be accepted as affording adequate explanations of the occurrence of the condition. As also it has been further shown, that when the slowness of the pulse is combined with decided disease of the heart, the structural changes are of very different characters, it follows that such changes can only be regarded as coincident, and not as essential to the production of the peculiarity, the defect being evidently one of function. It would appear, therefore, that the undue slowness of pulse must result either from a want of proper muscular irritability, or from a defect in the special nervous endowment of the heart. Whichever view we adopt, it will explain the occurrence of the peculiarity; for such defect may, and is, indeed, very likely to coexist with any form of structural change in the heart, and yet may occur when the organ is entirely healthy. It would also be a condition likely to ensue during convalescence from acute febrile diseases; for it is a well-ascertained law of the animal economy, that no organ can be the seat of prolonged over-action without its power being exhausted, and a state of debility or defective action being induced. In the cases in which the pulse is slow during the active stages of febrile diseases, the morbid cause may be supposed to act specifically upon the part in the same way as certain sedatives (*e. g.* aconite and the cinchona alkaloids given in full and frequently repeated doses), depress the power of the organ, and greatly reduce its rate of pulsation. The condition of the blood probably affects the rate of the pulse in some cases, a slow pulse being not very uncommon in cases of chlorosis and anæmia.

This view, which affords a probable solution of the occurrence of slowness of pulse in the different circumstances described, is further supported by the very little effect which, in some of the cases in which the condition supervenes during convalescence from acute diseases, is

produced upon the rate by the exhibition of stimulants. Indeed, sometimes the condition is very persistent, continuing after the patient has gained both flesh and strength, and is able to make a considerable amount of muscular exertion. In such cases, indeed, it only subsides under the prolonged use of iron, and other remedies which may act directly on the muscular structure or nerves of the heart. The intermittent pulse bears a very close analogy to the slow pulse, and occurs under very similar circumstances. It may accompany different forms of valvular and other diseases of the heart, yet may be present when the organ is entirely free from disease. The explanation which has been given of the cause of the former condition is equally applicable to the latter.

PISSIN.—*On bleeding from the Ranine Vein.* Deutsche Klinik, 8, 1863. Schmidt's Jahrb., vol. 121, p. 239.

Pissin recommends this procedure in cases of stomatitis, tonsillitis, pharyngitis, and laryngitis. He records the case of a youth, æt. 15, suffering from acute laryngitis, in whom it seems to have proved very beneficial. The vein is to be opened longitudinally, and the bleeding encouraged as much as possible. In adults 6 to 8 ounces of blood may be procured from one bleeding.

DR. STIRLING.—Med. Tim. and Gaz., March 5th.

Records 3 cases benefited by digitalis, and remarks that from his experience of the action of digitalis in cardiac disease he is satisfied that we have in that drug a most valuable agent in cases of enfeebled heart without valvular complications. Its action on the organ appears direct and rapid, and no bad effects seem to follow its prolonged use.

#### RESPIRATORY SYSTEM.

GIBB.—Lancet, January 23rd.

Records a case in which the entire trachea, and the bronchi to some extent, were greatly thickened, and the diameter of the canal contracted so that a tracheotomy tube could not be introduced. The contraction commenced about half an inch from the commencement of the trachea, and continued nearly all the way to the bifurcation, where the walls were 2 lines thick. The diameter of the left bronchus at its commencement was about 2 lines, and its lining membrane was intensely inflamed, with several ulcerated patches. The rings of the trachea could not be distinguished from within, for the whole of its interior was irregular and uneven from fibrinous deposit. The lower half of the epiglottis was occupied by a number of flattish, warty, fibrinous bodies; 2 or 3, the size of small peas, smooth and round, were present on the right side of the larynx, involving the false vocal cord. The patient was a male, æt. 20, and had suffered with difficult and stridulous breathing for 12 months, with cough and expectoration. His voice, though feeble and somewhat hoarse, was quite audible. There was no history of syphilis, though the disease was suspected from ulceration and purulent secretion of the left nostril.

GIBB, G., M.D.—*On Albuminuric Aphonia.* Lancet, Feb. 20th, 1864. After citing a case from his own experience, Gibb gives the following

summary of C. Fauvel's original observations. The aphonia depends on a white œdema, either chronic or intermittent, of the vestibule of the larynx and vocal cords, preceding or following albuminuria, and more often present without any external manifestation to afford even a suspicion of the existence of Bright's disease. This œdema at one time abruptly manifests its presence, and at another slowly, by complete aphonia or slight dysphonia. The first symptom which appears is hoarseness; the patient neither coughs nor expectorates; complains only of slight uneasiness of breathing and a little oppression at the chest. Very soon he is obliged to make great efforts at inspiration, and after some days the voice is weak and obscure, sometimes altogether lost, and a whisper occurs only with the lips. Dr. Fauvel has seen many patients attacked with aphonia or dysphonia in the best of health, without any other explanation to account for the swelling in the larynx than albuminuria, very sensible traces of albumen being discovered in the urine by the application of nitric acid.

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MORELL MACKENZIE, M.D.—*Notes on Laryngoscopy.* Med. Tim. and Gaz., March 5th.

The author remarks that loss of function, independent of structural disease, might depend on some peculiar condition of the nerve-force, or it might be due to extrinsic disease—that is to say, to pressure applied to the pneumogastric nerve or its branches. It was very necessary to recognise this fact, because it had a very important bearing both on the treatment and the prognosis. Fortunately, it was easy to diagnose between these two conditions; for whilst in true functional aphonia the vocal cords were always both equally affected, in cases where the loss of voice was due to pressure on the pneumogastric or recurrent nerves the paralysis was almost invariably unilateral. In true functional aphonia the vocal cords sometimes scarcely moved at all in phonation, whilst at others they appeared to approximate perfectly. The fact, however, that in functional aphonia the two cords always acted equally afforded a point for differential diagnosis between the two diseased states under consideration. It was only when the pressure was applied to the recurrent nerves in their passage between the trachea and œsophagus that both nerves were at all likely to be affected at the same time. This sometimes occurred in malignant stricture of the œsophagus. When one vocal cord remained immovably fixed it was necessary to make a very careful examination of the chest, as there was every reason to fear the existence of a thoracic tumour. As an important feature in diagnosis, where the laryngoscope could not be used, Dr. Mackenzie observed that in true functional aphonia the cough is almost invariably natural—that is to say, it *sounds* perfectly. In aphonia due to pressure on a nerve the cough has always a peculiar metallic ringing sound. In simple functional aphonia the voice is generally completely suppressed, and the patient can only whisper; in unilateral paralysis the voice is seldom suppressed, but the patient speaks in a shrill, painful voice. Mackenzie warns that an unsymmetrical appearance of the larynx may be produced by an unsymmetrical position of the mirror, and that it is desirable to introduce the latter, first with

one hand and then with the other. He states that a small growth in close proximity to the vocal cords may sometimes only indirectly give rise to aphonia or hoarseness, which may be removed though the growth persists.

WALKER, T. J., M.D.—Med. Tim. and Gaz., April 23.

Contends that the best and simplest means of concentrating artificial light for laryngoscopic purposes, is by the use of a small glass globe of water placed in front of an Argand or gas lamp. By means of a mirror  $3\frac{1}{2}$  inches long by  $2\frac{1}{2}$  wide, placed immediately in front of the lower part of the globe, and made to incline at a convenient angle, the person whose throat is under observation can, by casting his eyes downwards, obtain in it a perfect view of the laryngoscope and the image reflected in it; at the same time two or more on-lookers can, by placing their heads on a level with that of the person under observation, and looking into the mirror, get the same view of the fauces and of the laryngeal image.

MORELL MACKENZIE, M.D.—Med. Tim. and Gaz., Dec. 3.

Describes a light-concentrator to be used in laryngoscopy, which is portable and ensures always having an excellent light at command. The maker is Mayer, of 51, Great Portland Street.

SPENCE, JAS.—*Tracheotomy in Diphtheritic Croup*. Edin. Med. Journ., March, 1864.

Spence has operated in 18 cases of true diphtheritic croup, and of these 7 have recovered. Of the fatal cases the smaller number died from extension of the disease beyond the opening into the trachea. The larger group consists of those patients who died from the 6th to the 21st day after the operation, in consequence of asthenia, the effect of the blood-poison. The most formidable complications are paralysis of the pharynx, giving rise to inability to swallow; or of the palate, leading to regurgitation of the food through the nostrils; or of the glottis, allowing the food to enter the air-passages and escape, as it does sometimes, through the tracheotomy tube.

BUCHANAN, G., M.D.—Glasgow Med. Journ., Jan., 1864.

Records 6 cases where tracheotomy was performed in croup or diphtheria. Three cases of the latter disease proved fatal, 1 recovered. Two of croup recovered. In 5 of the cases the symptoms were urgent.

WINDSOR, J.—Brit. Med. Journ., Jan. 30.

Records a case of inflammation of the epiglottis, which was successfully treated by free puncturing, repeated several days in succession, with calomel to slight salivation. The epiglottis was felt to be much enlarged, in the form of a roundish solid ball, apparently filling up the passage from the pharynx to the œsophagus. Windsor believes we are warranted in stating that epiglottitis occasionally occurs as a primary affection, and may be recognised both by the eye on depressing the tongue and by the finger. It may extend to and involve the larynx, or, *vice versâ*, may commence in the latter. If the power of deglutition be much

impeded, or altogether obstructed, the epiglottis is probably the organ chiefly involved.

MOISSENET and BOURDON.—*On Syphilitic narrowing of the Trachea.*  
L'Union, 22, 1864. Gaz. des Hôpit., 12, 1864. Schmidt's Jahrb.,  
vol. 122, p. 299.

Moissenet had some years previously concluded that syphilitic stenosis of the trachea, after the destruction of its cartilaginous rings, may produce death by contraction of the cicatrix, and that on this account antisyphilitic treatment must be directed by the result, and that generally active measures must give way to expectant when a too speedy cicatrization is apprehended, not allowing the lungs to accommodate themselves to the altered capacity of the air-passages. This view was supported by Bourdon in his narration of the case of a female, who appeared to be almost cured by antisyphilitic treatment, but was taken ill one month later with the symptoms of tracheal stenosis, and died speedily, in spite of tracheotomy. An autopsy was made. In opposition to this view, Moissenet now lays down the rule, that generally where life is perilled by stenosis, and especially when the kind of stenosis cannot be quite positively diagnosed, specific treatment should be carried out energetically. In support of this view he relates the following case. An old woman, who had suffered a long time with asthmatic complaints, was attacked rather suddenly by considerable dyspnoea. The patient in all probability had previously had syphilis, and now there existed at the side of the trachea a tumour as large as a nut, which appeared to be of a gummatous character. Her condition got worse with the small dose of Pot. Iod. which at first was administered; but when it was increased, and combined with mercurial inunction, the symptoms soon subsided to their old amount, and no aggravation ensued in the course of 9 months. Moissenet believes that the chronic dyspnoea was produced by enlarged glands about the bifurcation of the trachea similar to the one in the neck, and that the aggravation of it was occasioned by the development of fresh ones. These were dispersed by the remedies, and therewith the dyspnoea. Where peril is imminent tracheotomy must be performed as low down as possible, and endeavours made to dilate the passage.

THUDICHUM, J. L. W.—*On a new mode of treating diseases of the Cavity of the Nose.* Lancet, Nov. 26, Dec. 3.

This method is founded on the discovery of Prof. Weber, of Halle, that when one side of the nasal cavity is entirely filled through one nostril with fluid by hydrostatic pressure, while the patient is breathing through the mouth, the soft palate completely closes the choanæ, and does not permit any fluid to pass into the pharynx, while this fluid easily passes into the other cavity, mostly round and over the posterior edge of the septum narium, in some persons also through the frontal sinuses, and escapes from the other open nostril, after having touched every part of the first half of the cavity of the nose, and a great part, certainly the lower and median canal, of the second half. By means of the application of this principle to the treatment of diseases of the nose, it is possible easily and frequently to wash the nasal cavity, to disinfect and

deodorize it, to remove the sordes which accumulate so easily in it, and to apply to its surface a great number of beneficial medicinal substances, so as to prevent acute affections from extending, and to incline them towards a speedy recovery; to stop hæmorrhages, allay irritations, and subdue in a remarkable manner chronic affections of the Schneiderian membrane, so as to re-establish a perfectly healthy surface and normal condition of the organ of smell. The apparatus (which is constructed by Weiss) essentially consists of a glass vessel to hold the fluid, a stop-cock, a pipe, and a nozzle accurately fitting the nostril of the patient. The solutions which Thudichum recommends are those of phosphate of soda, phosphate of ammonia, common salt, soda, and permanganate of potash, the latter in the proportion of gr. i—x in Oj of water. Besides these the following are prescribed, when a more potent therapeutic action is desired, viz., solutions of alum  $\zeta$ ss ad Aq. Oij, of sulphate of zinc gr. 20—60 + Sodæ Sulph.  $\zeta$ iv— $\zeta$ j, of sulphate of copper in same proportion, of Plumbi Acetas  $\zeta$ j—ij + Sodæ Acetas  $\zeta$ iv— $\zeta$ j ad Aq. Oij, of Arg. Nitras gr. 16—32 + Sod. Nitras  $\zeta$ iv— $\zeta$ j ad Aq. Oij, of Hyd. Bichl. gr. v + Sod. Chlorid.  $\zeta$ j ad Aq. Oij, of Acidi Hydrocy. dil.  $\mathfrak{M}$ 40, of Tt. Opii  $\mathfrak{M}$ 120 ad Aq. Oij; as styphes, ice-cold water, or the same with the addition of Tt. Ferri Mur.  $\zeta$ ij ad Aq. Oij; as a stimulant,  $\zeta$ iv of Eau de Cologne ad Aq. Oij + Sod. Chlorid.  $\zeta$ ij, black wash, and yellow wash. Some useful remarks are added on the constitutional treatment of diseases of the cavity of the nose.

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HYDE SALTER.—Lancet, Jan. 23.

States his experience with regard to the use of Pot. Iod. in asthma to be that in some, comparatively few, cases it achieves great success. It is often some time, perhaps a fortnight, before it begins to take effect. It is not only in gouty or rheumatic gouty conditions that it proves beneficial, nor in those where chronic bronchitis coexists with the asthma.

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SMITH, E., M.D.—*Dietary in disease. Emaciation.* Lancet, April 16.

Emaciation is present in a majority of the cases of asthma. In the treatment of this affection it is of prime importance to keep the quantity of the blood as uniform as possible, and to prevent those considerable variations which occur in health when a large meal follows a long fast. The deficient respiration also tends to lower the amount of the vital transformations below the healthy standard, and hence indigestion is as common a feature as emaciation. The two leading principles in the treatment of such a case are to supply very small quantities of food at a time, and to render the dietary highly nitrogenous. In no case of confirmed asthma should more than 6 oz. of fluid and solid food be given to a female and 8 oz. to a male at one time. It is therefore necessary to administer food frequently, viz., at least 6 times in the 24 hours. Two supplies should be given during the night and in the early morning, when the attacks of dyspnœa cause wakefulness and distress. The others may be given at intervals of from 2 to 4 hours during the day. In the selection of food it is important to avoid much bread or other starchy material, and to supply milk and beef tea largely.



In numerous cases fats are borne well and may be given with advantage, but in all cases it must be borne in mind that a somewhat rapid and material increase in the bulk of the body (a condition which will be due in part to the increase of deposited fat) is a sure precursor of an attack of the disease. Smith affirms that the improvement effected by such a plan is past belief by those who have not witnessed it.

HYDE SALTER. *On the value of Chloroform in the treatment of Asthma.*  
Lancet, Nov. 5.

Out of 13 cases in which Salter has employed chloroform it did good in 12; in 1 it did positive harm, increasing the asthma. A more common fault of it, and a very serious one, is that the relief which it gives is transient, and in many cases merely coextensive with the insensibility which it produces. Indeed, it is the *rule* for the beneficial effect of the chloroform to pass off in a greater or less degree with the insensibility. This, however, is not always the case, for in some instances, when the insensibility passes off, the asthma does not reappear; in some the relief is produced without any insensibility whatever; and in some a very small dose is sufficient to give relief, the patient immediately passing into a tranquil sleep, which may continue for hours, and from which he will wake with the asthma gone, although the original dose was far short of enough to produce the true chloroform sleep. Salter believes chloroform to act usually on the nervous system, but he has seen one case in which it appeared to act directly on the bronchial muscle, because the effect was so immediate. Salter has no fear of administering chloroform so long as the dyspnoea is purely of nervous origin, and his experience does not induce him to believe that the presence of valvular disease or muscular weakness of the heart adds anything to the danger of chloroform, unless these conditions exist to such an extent as materially to affect the circulation. Idiosyncrasy of nervous organization is, he believes, the circumstance that determines whether chloroform shall exercise a fatal influence on the heart's action. In one case, which he relates at length, the chloroform produced, after some hours, nausea and a copious secretion of viscid saliva, which continued, gradually diminishing, till the second or third day. Besides these effects certain more remote results gradually developed themselves, in proportion to the length of time that the habit had existed and the increased quantity taken on each occasion. These were insomnia, deafness, apathy, tremulousness of hands, increase of the asthmatic tendency. The most strongly marked, and the most distressing of all, was the insomnia. It came on very gradually, and for a long time the cause of it was not suspected. The increased tendency to asthma depended probably on the chloroform rendering the nervous system more susceptible, shaky, and irritable. In another remarkable case the asthma never came on when the patient was asleep, and if she could in any way get to sleep the asthma was sure to cease; chloroform only gave her permanent relief when it was inhaled at such a time when she would, if free from her asthma, be likely to sleep continuously.

DR. H. GREENHOW.—*Med. Tim. and Gaz.*, Feb. 20.

Greenhow states that in cases of passive flux from the bronchial membrane, when expectorants cease to be useful, he has used with much success tincture of larch. He gives  $\text{mxx}—\text{xxx}$  with nitro-muriatic acid and tinct. of gentian. Its effect as a remedy is to lessen gradually the amount of expectoration and with it the cough and dyspnoea.

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*Report of the Vienna Hospital for 1860, '61, '62.* Schmidt's Jahrb., vol. 123, p. 245.

The view taken is that all cases of emphysema are not of the same kind, either pathologically or aetiologically considered. When the emphysema is partial, and has its seat, as is then usually the case, along the borders and at the apices of the lungs, is attended with some other lung affection, or has preceded it, the morbid alterations may have been principally induced by mechanical force, without any preceding disease of the lungs. It is otherwise in the dangerous lobar emphysema. The stealthy way in which this comes on, the almost entire absence of cough and of all other symptoms except the gradually increasing dyspnoea, and the tightness in the chest of which the patients complain, the occasional rapidity with which the disease advances, the secondary consequences, and the general atrophy which not unfrequently ensues, all point to the grave character of the disorder, and to its constitutional origin from a degeneration of the pulmonary tissue, without our being able exactly to say whether this begins as a disease of the capillary vessels or of the basement membrane and the elastic fibres. In this, as in the case of other diseases, we may derive important indications from the way in which it is influenced by remedial agents. Setting aside the bronchial and asthmatic symptoms, the chief principles according to which emphysema is to be treated are quite the same as guide us in the management of other degenerative diseases, as Bright's disease and fatty degeneration of the heart. A persevering constitutional treatment, and especially the administration of iron, is productive of great advantage.

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DÉLIOUX DE SAVIGNAC.—*On the comparative efficacy of Musk and Acetate of Ammonia in the treatment of cases of severe Pneumonia with delirium.* *Bullet. génér. de Thérap.*, July 30, 1863. *Brit. and For. Med.-Chir. Rev.*, Jan., 1864.

Délioux specifies opium, musk, and acetate of ammonia, as the most useful medicines in the treatment of those low forms of pneumonia which have been called typhoid, malignant, ataxic, or are accompanied with delirium. The physiological action of acetate of ammonia is not identical with that of musk, but is very like it in several respects. Both are antispasmodics, moderators of the nervous perturbation, regulators of the nervous influx, and, as they might be called, anti-ataxics. But musk at the same time sustains, and even stimulates, the nutritive organic actions, while acetate of ammonia lowers the circulation, and probably acts besides on the blood by attenuating its fibrin, as all the ammoniacal preparations do, and induces a proportionate degree of debility. Délioux states that since he has been in Provence, where diseases are often complicated with nervous symptoms, and where he

has seen ataxic cases of pneumonia perhaps more frequently than elsewhere, acetate of ammonia has appeared to him to be more efficacious than musk, and he has therefore employed it with remarkable success. Pneumonia, complicated with eruptive fevers, and which would become malignant and accompanied with delirium, may be mitigated by musk or acetate of ammonia. If an adynamic condition prevails, musk, especially the tincture, together with cinchona, appears to be preferable; but in Délioux's experience acetate of ammonia in large doses relieves the pneumonia which is consecutive to measles and scarlatina.

LEVICK, J., M.D.—*Remarks on the Epidemic Influenza of 1861 and 1863, with notices of some malignant forms of this disease.* Amer. Journ. of Med. Sci., Jan., 1864.

Levick states that, though the influenzal is generally a mild form of disease, it is capable of developing symptoms of the gravest character, and that in all ages its periodical visitations have preceded, accompanied, or succeeded, epidemic diseases of the most malignant and pestilential character. He notices as anomalous symptoms swelling of the parotid and other glands, earache, buzzing, and other sounds in the head, giddiness, intense pain in one eye, soreness, and in one instance exquisite tenderness in the abdominal muscles simulating peritonitis. In one case there was acute arthritis, with profuse renal hæmorrhage. Intense mental depression was a more constant and more distressing symptom than the pulmonary complication; indeed, it was often present without any accompanying pulmonary lesion. The latter he attributes to the operation of the poison on the respiratory nervous centres, which will give rise to dyspnœa, passive congestions, pulmonary œdema, and leave the enfeebled lung exposed to the assaults of inflammatory or other disease. In several cases cutaneous eruptions were observed of a measly or lichenous character, sometimes covering the whole body. Occasionally influenza goes a degree further in the downward scale, and assumes the form of a putrid fever, with all the marks of septicæmia.

HJALTELIN, J., M.D.—*Epidemic Pneumonia in Iceland in the year 1863.* Edin. Med. Journ., May, 1864.

The author says—"It must certainly be accepted as a well-known fact that a cold climate, with a stormy and rigorous winter season, will generally in more or less degree give rise to severe and acute pulmonary affections, and it is equally clear that such causes may in our "ultima Thule" work with greater energy than in the more temperate climates, and that even to such extent which medical men practising in the more southern latitudes scarcely may imagine. I am very well aware of the contrary view by some modern pathologists, who are inclined to look upon all diseases as well-defined things, which always, in all ages, and by all circumstances, will be the same; but such a view, by which diseases are made up to a sort of individuals, like well-defined minerals, plants, or lower organisms, may do well in renowned medical books, but they will never be found borne out by facts; and looking more closely into the matter we shall surely find out that the history of epidemics speaks strongly against such an acception (assumption?).

The proposition of old Celsus, "Differunt quoque pro naturâ locorum genera medicinæ, et aliud opus est Romæ, aliud in Ægypto, aliud in Galliâ," still holds good, and is verified by medical history since his time. Diseases are certainly no stable things, no individuals, but very variable pathological phenomena, modified in an indefinite manner, according to various causes which produce them. The combination of many effective causes seemed in our epidemic to influence the malignity of the disease; the heavy storms, the dry and cold air strongly impregnated with ozone, all combining their irritant effect on the mucous membrane of the lungs and air-cells, must necessarily make all inflammations of the chest organs more dangerous in the high latitudes than they are in Great Britain, or in the countries of the same parallel." Hjaltelin gives short histories of 80 cases, of which 8 died. Three of these were drunkards, and 4 others were only seen *in extremis*, when there was no opportunity for treatment. In 4 autopsies the usual changes were found. He relates in a naïve and interesting manner the results he has witnessed from hydropathic treatments, which seem to have been very favorable. He had previously, from his own experience, seen reason to moderate the use of the lancet, and subsequently he became well acquainted with all the arguments used in the blood-letting controversy. He details these circumstances to show that he was formerly inclined to no light degree of scepticism regarding the usefulness of bloodletting in pneumonia, and proceeds—"Many cases came in the mean time which convinced me of the necessity of bloodletting in the severer cases of this disease; and those cases were in this our epidemic far more numerous than I formerly would have expected. It is no doubt that it may be a rare occurrence in the warmer climates of Europe to see healthy and strong people so rapidly affected by a pulmonary inflammation that death follows in 2 or 3 days; but this happened very often in our epidemic, and was the general rule when the disease was let alone. I saw several, even young, strong, and healthy people, who, the day before the attack, were at their work without any complaint, but who next day were nearly breathless, with all the symptoms of the most acute pleuropneumonia. I know a parish in the interior of our country, with only 300 souls, where 19 persons died thus affected in a very short time. Having been more than 16 years in foreign countries, I never saw any case of pneumonia which could be compared with the common cases of this our epidemic. It is clear to me that medical men who are accustomed to treat the ordinary sporadic pneumonias as they have occurred of late will hardly have any idea of this disease being so acute and malignant as it really was. It would, no doubt, have been a good lesson for the medical men of the nothing-doing treatment to see the ravages of this frightful disease amongst the helpless inhabitants in all the parishes where no medical aid was to be had, and they would have been able to see that their healing process of nature, which they call the natural progress, is in a really acute and malignant occurrence of the disease generally death, and nothing but death. In order to make this clearly out I asked several of the clergymen of those parishes where little or no medical aid could be had to give me an account of the cases of pneumonia which might occur in

their neighbourhood, and some of them did this with due accuracy. (Iceland has only 8 medical men, but 180 clergymen, who are mostly well educated and capable of contributing to the vital statistics of the country.) From these accounts it was clear enough that nearly all the patients who were without any medical aid died in 3 to 6 days. Thus, in the parish of Gardor, with about 1200 souls, and where medical aid could seldom be had, out of 24 patients 17 died. In the parish of Utskalar, with 900 souls, where 19 fell sick, and where medical aid could not be obtained, 11 died. In the parish of Kalfabjorn, with 800 souls, nearly all the affected, their number being 14, died; and such has the result been everywhere in all those parishes which have been destitute of medical interference." Hjaltelin, in the beginning, made use of the lancet with some hesitation; but experience very soon taught him that bloodletting was more necessary in this sort of pneumonia than he had anticipated. The insupportable pain beneath the right nipple, across the chest—the great dyspnoea, which in some diseased seemed to threaten with imminent danger—the disturbed balance in the circulation—were generally greatly relieved; and the hard, incompressible, but often irregular, pulse, became more regular after the loss of 8 to 12 oz. of blood. The relief thus obtained was not always momentary, but could last for several hours or even one day; and although the rapid and dangerous pulmonary congestion could by no means be subdued by this remedy, it was evidently of great service to calm the storm until it could be lowered by other means, as by the use of calomel, which I in all dangerous cases, according to my former custom, made bold use of until the gums began to be a little touched." Hjaltelin states that up to the year of this epidemic he had not lost a single patient in pneumonia. The calomel was given in 2-grain doses combined with a little opium, every second or third hour, according to the severity of the case. In most severe cases each dose was combined with half a grain of tartarized antimony. This treatment was continued only until the gums were slightly affected; it was then stopped, light but nourishing diet ordered, the patients kept well covered in bed, and, if possible, the room heated by the vapour of hot water. Augmentation of the chlorides in the urine was constantly observed as a consequence of the administration of calomel, and Hjaltelin is inclined to consider that the drug was the cause of the excretion. Chloroform inhalation, short of producing complete anæsthesia, was of use to lessen the painful cough and the sensation of pain in the chest. When there was a considerable pleuritic effusion Hjaltelin sometimes used blisters, but more commonly the iodized hydroiodic ointment of Prof. Delioux, which he found very effectual. In pleurisy warm fomentations of pure water, in which a good deal of carbonate of potash is dissolved, were always found very serviceable.

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*Report of the Vienna Hospital for 1860, '61, '62.* Schmidt's Jahrb., vol. 123, p. 244.

The pneumonic cases amounted in 1860 to 189, in 1861 to 334, and in 1862 to 272, forming a total of 795, of whom 552 recovered, while 177 died. The mortality was greater among females than males, that

of the latter ranging from 18·22 to 26·11, that of the former from 25·27 to 37·18. Most cases occurred in the decade from 10 to 30 years of age. Treatment was most successful in the first 10 years of life, and from that period it gradually became less so with advancing years, so that after the 50th year the per-centage of mortality exceeded that of recovery. The disease was most prevalent in the first 5 months of the year, especially in March, April, and May. Most of the patients traced their attack to a chill, but it is doubtful how often this sensation should be regarded as one of the first morbid phenomena of which they were conscious, and how often it was actually produced by an excessive degree of cold. It was only in the minority that the disease began with a violent febrile paroxysm announcing a grave impending disease, and that the local affection became physically demonstrable on the 2nd or 3rd day, while the febrile movement continued more or less violent. In other cases fever gradually supervened and increased in proportion to the advance of the local mischief. The view appears, therefore, warranted, that in certain instances a local action on the lungs provoked an inflammatory process, while in others certain alterations in the blood preceded, and the action of the respiratory process on this altered blood led to, a localization of an exudation process in the lungs. Under the head of treatment, the following remarks are made. If at a former period blood was taken too often, in too great quantity, and too indiscriminately, it is now certain that at the present day too little use is made of this remedy. Many ill results justify this remark and contradict, in a deplorable manner, the recent notion that venesection is to be entirely rejected. A circumstance which is of special significance in this question, and which, with a few exceptions, justifies bleeding, is the existence of hardness of the pulse. This kind of pulse separates abruptly the influenzal pneumonia from acute sthenic; with respect to its adaptation to venesection, the former bears bleeding very badly, in the second it is useful and necessary. A strong, tense, or hard pulse requires, as a rule, even a repetition of bleeding, while, on the contrary, when the pulse is above 110, and compressible and weak, when the patient is of delicate constitution or of advanced age, venesection is not indicated. So also it acts in general prejudicially when the disease is produced by infectious matters, septic poisons. Depressing mental conditions, an atmosphere laden with malarious exhalations and impure matters, or that of great cities, especially in narrow streets, damp dwellings, deep cellars, crowded hospitals, hinders the good effects of bleeding, and makes it even injurious. In general, it is recognised that individual cases of pneumonia are often so dissimilar that it is impossible to put them all into one class, and to lay down for their treatment one and the same method. The aspect of the patient, the state of the pulse, of the nervous and muscular systems, and of the skin, the sputa, &c., must reveal to us the true quality of the disease, and afford us the best grounds for our judgment and action. If we are in doubt as to the right course to pursue, the best plan is to test the body cautiously with an agent of known efficacy, and to observe the result. Hitherto there has been too much tendency to regard inflammation as an always quite uniform process, and to treat it as such always quite

uniformly. It may be admitted that at the present day, in this country and in our hospitals, cases are rare which require considerable blood-letting and lowering remedies, and in which for the lessening of an active inflammation more than moderate measures are necessary; nevertheless there are cases recurring at different times, more or less numerous, where the contrary prevails, where an expectant treatment is very injurious, because it allows the disorder to prolong its duration, or even to proceed to a fatal issue.

BRYSON.—*On Epidemic Pleuro-pneumonia in some Ships of the Mediterranean Fleet in 1860.* Lancet, Jan. 9.

The disease was of a low asthenic or typhoid type, accompanied with great congestion of the lungs, usually of the lower lobes, and, in many of the cases, in the ship chiefly affected—the St. Jean d’Acre—with scorbutic symptoms, although the diet of her crew was, in every respects, as good as in the other vessels of the squadron. In the Cressy, too, there was an unusual prevalence of lung disease, often of an obscure and anomalous character, which was not easy to designate. The evidencies of the pulmonary tissue being congested or even consolidated, in different parts of the chest, associated with pleurisy or pleurodynia, and with such a cachectic condition of the system as might probably lead on to tubercular degeneration in chronic cases, were the most conspicuous features of the malady. Effusion into the chest was discovered in a few instances. Diarrheal and dysenteric attacks were common both in the early and in the later stage. From a table given, showing the number of the crew in each ship, and the number of cases of sickness, it appears, on taking the per-centage, that the Marlborough, with the largest crew, had, in the course of the year, 81.6 per-cent. cases of sickness, the Agamemnon 104.9, the St. Jean d’Acre 196.4, and the Cressy 206 per cent. The diseases are classified as pulmonary, intestinal, continued and remittent fevers, and ulcers. The pulmonary were more numerous than all the others put together, in the ratio of 1069 : 1044. The deaths from disease in the St. Jean d’Acre and in the Cressy were twice as numerous as in the Marlborough, notwithstanding the much smaller crews of the former vessels; and the number invalided from the first ship was fourfold as numerous. As to the chief cause of this enormous disproportion in the sickness and mortality, &c., in two ships of the same fleet and similarly exposed, it was clearly shown that this lay in the excessive overcrowding of the men at night in the St. Jean d’Acre on the lower deck, while in the Marlborough the men were more distributed on the different decks, and greater attention was paid to ventilation of the between decks. Only 14 inches of space were allowed to each hammock in the former ship, and so thoroughly was cool fresh air excluded from the men while asleep that the air above the hammocks was found to be from 8 to 10° hotter than the air below the hammocks, and so offensively impure as to cause nausea to any one going down from the open air. With such a state of things it is not wonderful that the health of the ship was so bad during the two years while on the station that it was at last found necessary to send her back to England to be paid off. Besides several features of re-

semblance in the symptoms of the pleuro-pneumony in the St. Jean d'Acre and Cressy to the lung disease in cattle, it is to be noted that there are good grounds for suspecting that the affection was communicated by the sick landed from these vessels to other patients in Malta Hospital.

BÉHIER.—*On Thoracentesis in Pleuritic Effusion.* Journ. de Méd. et de Chir. pratiq. Edin. Med. Journ., Aug.

The operation is indicated and ought to be performed—in all cases where the effusion is in large quantity, and does not diminish rapidly under the ordinary means, and still more if it goes on increasing; in all cases where the patient appears too delicate, too weak, to bear up against the long process of resorption of an effusion which occupies completely, or nearly so, one side of the chest; in all cases where, though the effusion is not very copious, we find the opposite lung impeded in the performance of its function, as by bronchitis, a certain degree of œdema, &c.; in all cases where we believe we have to do with a patient predisposed to pulmonary phthisis, whether we can make out its existence in either of the lungs or not. Before practising the operation we wait, if possible, until the inflammatory phenomena have abated, which generally occurs between the 9th and the 11th days. At the same time it must be borne in mind that inflammatory symptoms may be altogether absent, or at least very little marked in a large number of cases of copious effusions, and that it is precisely in these cases that sudden deaths are most frequent, as they are also those that recover best after thoracentesis. To refuse the operation in such circumstances, on account of the slight apparent gravity of the disease, and because we observe neither violent dyspnoea nor imminent asphyxia, would be, in our opinion, a grave fault on the part of the physician. These cases frequently occur in persons of little vital energy; their very passiveness is often an obstacle to their cure by ordinary means.

KIDD, G. H.—*On the use of the Drainage-tube for removal of fluids effused into the cavity of the Pleura.* Dublin Quart. Journ. of Med. Sciences, May, 1864.

Kidd states (1) that the drainage-tube may be introduced into the cavity of the pleura with safety, and that in suitable cases it is a most efficient means of treatment. (2) In empyema the result of acute and chronic pleuritis it appears to be most useful, and in cases where the fluid in the pleura has been ascertained to be purulent, the sooner the tube is introduced the better is the prospect of a cure. (3) In cases where, after tapping, the fluid, which, in the first instance, is serous, reaccumulates quickly, produces much distress of breathing, the plan of drainage claims to be considered; and a case recorded by Dr. Banks affords great encouragement to its use. (4) Where a fistulous opening exists in the wall of the thorax, but the discharge does not escape freely, the retained portion becoming decomposed, the making of a counter-opening at the lowest part of the cavity, and introducing a tube, is shown by Goodfellow's and Gordon's cases to be highly advantageous. (5) In cases of hydro-pneumothorax the introduction of the tube may



not only palliate the sufferings of the patient, but prolong life. (6) The removal of the tube must not be attempted so long as pus continues to be secreted; but when this has ceased the tube may be withdrawn. If the tube appear to be keeping up the discharge, it may be replaced by silk thread, so as to keep the opening patulous, and allow fluids to escape. The threads also afford an easy means of reintroducing the tube, if this should become requisite.

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KREUSER, BOUCHUT.—*On Tuberculosis of the Bronchial Glands.*  
Schmidt's Jahrb., vol. 121, p. 176.

Kreuser states that tuberculous enlargement of the bronchial glands may occur as an idiopathic disease in adults, though it is not nearly so frequent in them as in children. Tuberculosis of the lungs, or of other organs, may either be absent or too slight to cause death. ('Wurtemb. Corr. Blatt.,' xxxiii, 16, 1863). Bouchut considers tuberculosis of the bronchial glands to be very rare as a primary affection, and generally to occur secondarily to similar disease of the lungs. When the glands attain a very large size they may compress the bronchi and great vessels, displace the œsophagus, and irritate the vagi nerves. Compression of the superior cava and pulmonary artery may cause œdema of the face, distension of the superficial cervical veins, epistaxis, and hæmoptysis. The occurrence of asthmatic paroxysms without any discoverable disease of the heart or lungs is a very significant symptom of the probable existence of bronchial tuberculosis. Weakening of the vesicular murmur over one of the lobes of the lungs, attended with dulness in the sternal region, indicates compression of a bronchus. Death is apt to be produced by hæmoptysis or suffocation, but recovery is possible ('Gaz. des Hôpit., 108, 109, 1863).

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COTTON, R. P. ('Brit. Med. Journ.,' June 25), gives a summary of his observations during 5 years on the treatment of phthisis by different therapeutic agents. Each substance was tried with 25 patients. Phosphorus, in the form of phosphoretted oil, produced considerable improvement in 4, slight in 5, none in 16. Liquor potassæ gave, as corresponding numbers, 1, 2, and 22. Hydrochloric acid 11, 6, and 8. Iodide of iron 10, 4, and 11. Iodide of potassium 6, 5, and 14. Chloride of sodium 8, 6, and 11. Vinum Ferri 13, 3, and 9. Glycerine 4, 2, and 19. Sesquichloride of iron 12, 5, and 8. Chlorate of potash 5, 4, and 16. Quinine 7, 5, and 13. Phosphoric acid 3, 8, and 14. Cotton's general conclusions are—(1) that none of these agents deserves the title of specific; (2) that the good produced by them is due to their tonic influence; (3) in the majority of cases steel, especially Tr. Ferri Sesquichl., and the mineral acids, appear to be most effective; (4) since, however, these as well as other useful tonics are undoubtedly inert in a certain proportion of cases, it is not improbable that there are varieties or modifications of phthisis, each of which may require a particular treatment, according to the analogy of many other diseases. Cotton anticipates that observation and experiment will show that under certain, at present obscure, conditions of system phthisis assumes

definite and special forms, each of which requires definite and special management.

BEAU ('Edin. Med. Journ.,' Aug.) records facts substantiating his opinion that pleurisy may give rise to phthisis in a patient who previously appeared free from this disease. He does not advise a spare diet during the pleurisy, because, by debilitating the system, it renders it more liable to the invasion of disease.

WOILLEZ.—Bull. gén. de Thérap., Jan. 15, 1863. Brit. and For. Med.-Chir. Rev., Jan., 1864.

States that tannin has an undoubted influence in improving the general condition of the phthisical patient, and in inducing a favorable change in nutrition, and that its tonic action is comparable to that of cinchona. But he admits that this favorable action on the nutrition, and its reparative influence on the pulmonary lesion, are not constant; and he cannot accurately state the proportion of successful and unsuccessful cases he has observed. Even in the advanced period of pulmonary consumption Woillez has known tannin produce a favorable result, by arresting the symptoms in their progress, and in modifying them to such a degree as to produce an apparent cure. The principal conditions in which tannin has seemed to fail in phthisis are the continuance of fever, the rapidity of the course of the disease, and the existence of recent delivery in women—circumstances which seem to make phthisis almost necessarily fatal.

SMITH, E., M.D.—*Dietary in disease—in Phthisis.* Lancet, April 16.

Smith says emaciation is universal in cases of phthisis, but varies in degree and in the period of the disease at which it occurs. It depends (1) on defective appetite for certain kinds or for all kinds of food; (2) on defective digestion; (3) on defective assimilation. Dislike of fat is one of the most striking features of the dainty appetite in the early stage, as also in states of general debility, and among certain classes, as tailors and shoemakers, who are particularly prone to fall into phthisis. Whatever may be the dislike of fat, it never includes fat of every kind. Smith states that he found, in his researches relative to this subject, that, of five kinds of fats—viz., butter, suet, milk, bacon, and fat of butcher's meat—whilst only 51 per cent. ate all kinds, 72 per cent. ate 4 kinds, 82 per cent. ate 3 kinds, and 99 per cent. ate 2 kinds. Hence it is not difficult to select some kinds of fat which are tolerated; and of these butter and bacon, or fat boiled pork, should be used as freely as possible at the breakfast and tea meals. The following amount of fat should be eaten daily:—Butter in milk,  $2\frac{1}{4}$  oz.; separate, 2 oz.; bacon or fat pork, from 2 to 4 oz.; salad oil, 1 oz.; fat in meat (20 per cent.),  $1\frac{1}{2}$  oz.; suet in puddings,  $\frac{1}{4}$  oz., or 1 oz. twice a week, and cream *ad libitum*; which, besides the cream, will afford upwards of 6 oz. of carbon, or nearly two thirds of the required daily quantity. For the purpose of invigorating the weak digestive and assimilative power, as much outdoor exercise should be taken as possible—not less than 4 to 6 hours daily, when the strength and weather will permit. Alcohol in its

various forms and fats act beneficially on the skin, by lessening its tendency to be soft and active. In all cases of early phthisis advancing towards health, in whom there is improved appetite and assimilation and increased weight of body, the skin assumes a condition of comparative roughness and dryness.

BEIGEL, H.—*On Spirometry*. Lancet, Jan. 30, Feb. 13.

Beigel's formula rests upon measuring the thorax, in order to calculate its volume ( $V$ ) from it. The upper, middle, and lower circumference of the chest are added, and divided by 3. This quotient ( $x$ ) is raised to the square, and the result is multiplied by the front length of the chest ( $h$ ). This result is divided by 36. The received quotient is taken in halves, and thus we obtain the amount of respiration  $V, = \frac{x^2 h}{36}$ .

If the calculated amount of respiration exceeds 3000 c.c., it is necessary, after the formula has been calculated as before, that  $h$  be subtracted from  $H$  (the side length). The remainder is then to be divided in halves, and the result, already divided by 2, divided by the dividing quotient, and this quotient is to be subtracted from the quantity of respiration.

HORACE DOBELL, M.D.—*On the Assimilation of Fat in Consumption*. Lancet, Sept. 10.

In 71 cases, where there were unequivocal signs of tubercle in the lungs, 16 liked fat and 46 liked sugar, while 55 disliked fat and 25 disliked sugar. Of those who liked fat only, 19 per cent. were in the third stage of the disease; whereas of those who disliked fat 38 per cent. were in the third stage, while of those who liked sugar 37 per cent. were in the third stage. Mr. Hutchinson analysed 56 cases of consumption in different stages, and found that about 71 per cent. disliked fat and about 37 per cent. disliked sugar. If Mr. Hutchinson's cases and Dobell's are added together, we have 127 cases in which about 74 per cent. disliked fat and about 36 per cent. disliked sugar. With a view of testing by direct experiment whether this dislike for fat is due to a defect in the emulsifying properties of the pancreatic secretion, Dobell treated a series of cases of consumption with pancreatic juice, artificially introduced into the digestive apparatus. An emulsion of beef fat was prepared with the pancreatic juice of the pig, of the consistence of thick Devonshire cream. This, in the proportion of half an ounce in a breakfast-cupful of milk, was not at all an unpleasant drink. The treatment was continued 8 weeks. The whole 33 cases—7 being in the first stage, 14 in the second, and 12 in the third—were treated by this new remedy, with the following results:—Measured by general symptoms—improved, 24; stationary, 2; worse, 4; not noted, 3. Measured by physical signs—improved, 13; stationary, 10; worse, 5; not noted, 5. Emulsion agreed, 30; disagreed, 3. Cod-liver oil agreed in 13, disagreed in 11, not tried in 9. Average quantity of emulsion taken by each patient, about 1 oz. avoirdupois in 1 pint of milk each day for 8 weeks. The 33 patients consumed about 105 lbs. of emulsion, which required 315 pancreases to emulsify the fat.

BLAKE.—Brit. and For. Med.-Chir. Rev., July, 1864.

Relates the particulars of 7 cases of phthisis showing the influence of living completely in the open air. The locality where his patients resided was in the coast range of the mountains of California, 3—5000 feet above the sea, where the temperature is very equable, and no rain falls for 5 or 6 months. When the rainy season arrives a short sea-voyage takes the patient to Northern Mexico, where the winter climate is exactly analogous to the summer climate of San Francisco. The patients are directed not even to sleep in tents, but out under the trees, and to live on the game which is found in the mountains. Except where the lungs are too extensively destroyed, Blake believes there are few cases which may not be cured by the above method.

HYDE SALTER, M.D., F.R.S.—*On Tracheal Dysphagia.* Lancet, July 2, 23.

Salter says there are two kinds of dysphagia—one in which there is some embarrassment or obstruction in the act, and the other in which swallowing is *painful*, and only difficult because painful: remove the pain, and there is nothing left. His observations refer only to the latter form of dysphagia, and to it as affecting the œsophagus. The two diseases to which œsophageal dysphagia principally points are aneurism of the aorta and malignant or other organic stricture of the gullet; and it is because it points to these two mortal diseases that it becomes so momentous a symptom. But the dysphagia to which Salter directs attention is not œsophageal dysphagia; it is so *apparently*, but not *really*; and it is because it simulates this the gravest form of dysphagia, and yet is entirely free from any of the gravity and seriousness of that affection, that the detection of its true nature becomes so interesting and important. Five cases are recorded, the first of which, being related by a medical man, who was himself the patient, may be quoted as a type of the disorder. A. B., æt. 40, enjoys very good health, except that he is liable to take cold, which is very apt to affect his chest, giving him sternal soreness, accompanied with cough and expectoration for three or four mornings. His first attack of the dysphagia was many years ago, and he has had many of them since. He first noticed it in the night, as he almost always has; the attacks are all alike, differing only a little in severity. He thus describes one of them:—"I go to bed with a feeling that I have taken a cold. I have been sneezing, perhaps, and shivering, and have a certain amount of feverishness, and it may be a little sore throat. Perhaps I feel a little of what is called a sore chest—a rawness at the top of my sternum, passing back to between the shoulders; so much so sometimes that I have had a mustard plaster on my chest for it. I go to bed and to sleep, but in the night I wake with a sense of severe and horrible pain beneath the upper part of the breast-bone. The moment after I wake I find it subside, at least in a great degree; but on the first occasion on which I swallow my saliva after waking (a thing one is constantly doing) I again experience it; and I have no doubt it is the pain occasioned by an act of swallowing during sleep that in these attacks wakes me up. The pain is something

horrible; it is of the same kind as that ploughing up of the chest experienced with a very sore chest each time one coughs, only worse. It is as if a dozen lancets were plunged into the top of the sternum each time an act of swallowing is made. The pain coincides with the muscular act of deglutition, and in no way succeeds it; the moment the voluntary part of the act is over, the height of the pain subsides, and nothing but the abiding sense of soreness remains. I early discovered—whether accidentally or by an intuitive perception, I cannot tell—that the position of the head made a great difference—all the difference—to the pain; that if the head was thrown back, and therefore the chin raised, the pain on swallowing was the greatest—much greater than when the head was in the ordinary position; that in proportion as the head was bent forward the pain on swallowing was diminished; and that if the chin was quite bent down on the breast, absolutely no increase of pain might be felt on swallowing, at a time when swallowing with the chin raised gave intolerable suffering. The height of the attack only lasts a few hours; in the course of the morning it gradually becomes much mitigated, but I still take the precaution of depressing my chin on my breast each time I swallow. In 2 or 3 days all pain on swallowing has ceased, and the abiding soreness at the top of the sternum has also nearly disappeared. The disappearance of the pain on swallowing coincides with the diminution of the sternal soreness, and with the appearance of expectoration; the moment I can cough up a pellet or two of mucus the swallowing is easier. On one occasion a pellet of gelatinous mucus which I coughed up had a spot of blood upon it. I have observed that, when I am suffering from this painful swallowing, I have a certain amount of the same pain on taking a very deep inspiration, the severity of the pain being proportionate to the depth of the inspiratory act.” Another patient describes his dysphagia as follows:—Every time he swallowed it felt, as the bolus of food was passing the painful part, as if it was a round ball covered with thorns. The seat of the pain was underneath the lower end of the breast-bone, “as near the breast-bone as could be, and passed backwards right between the shoulder-blades.” Coughing occasioned pain and a sense of scraping in the same situation. The dysphagia with the cough lasted 6 months, and the suffering from swallowing was so great that he only ate one meal a day, and that not more than half a penny bun, and every particle he ate he had soaked. His voice at the same time was hoarse, and for 3 weeks he nearly lost it. In a second attack, while under Salter’s observation, the pain in swallowing was not quite so severe as on the first occasion, but still it was so great as quite to convulse him. Salter watched him while he was swallowing a piece of bread crum, and says that he was quite easy as long as he was chewing; but the moment he tried to swallow it his difficulty began. The effort was evidently attended with the most severe pain; the expression of his face and the contortions of his body indicated great suffering, and it was only after two or three efforts that the food apparently passed. He felt as if each mouthful he swallowed stopped beneath the sternum, and lodged there till he swallowed another mouthful, and that pushed it on. A blister

on the sternum, at a spot corresponding to the seat of pain, with opium, chloric ether, and ipecacuanha, internally, proved effectual remedies. After observing that the dysphagia cannot be of faucial or pharyngeal origin, Salter states that it is clear, from the issue of the cases, that the pain is not due to any of the graver causes of œsophageal dysphagia—ulcer, stricture, aneurism; they get well completely and quickly. Besides, there is a complete absence of the essential symptoms of any of these affections; and that the pain is not due to œsophageal dysphagia of any kind is shown by the time at which it occurs—viz., at the *very moment of faucial deglutition*, at the commencement of the act, before the bolus of food has fairly become engaged in the pharynx, still less in the œsophagus. By the time œsophageal deglutition has commenced the height of the pain is over. Against the hypothesis that the pain depends on a rheumatic state of some of the muscles concerned in deglutition, Salter objects that in these cases no symptoms of rheumatism were present, and the seat of the pain was not that of muscles undergoing contraction at the time. If it be said that pain is felt in muscles that are stretched as well as those that are contracting if in a rheumatic state, that when the larynx is drawn upwards the sterno-hyoid and sterno-thyroid must be on the stretch, and that the pain may be due to a rheumatic condition of their sternal attachments—Salter replies that the identity of the pain with that produced by coughing, its association with and proportion to the other bronchial symptoms, and its seat being in some cases far too low for the sternal attachment of the depressions of the hyoid bone, prove that it cannot be rheumatic. The symptoms all point to the view that the pain is dependent on catarrhal inflammation, and in some cases ulceration of the lining membrane of the windpipe. Every symptom that such a state would imply is present, and no symptom that such a state would involve is wanting; the preliminary cold, never absent in any case that I have seen, the croupy cough and croupy voice, the sternal soreness, the mucous secretion, the points of blood in the expectorated mucus, the tenderness on pressure over the windpipe, the mitigation of the dysphagia on the appearance of the secretion, and its final departure with that of the other symptoms of the respiratory affection. The explanation of how the pain on swallowing is produced is as follows:—Every time we swallow, the upper extremity of the windpipe is drawn up; but the lower is fixed at the roots of the lungs, and is unmoved by deglutition. Every time, therefore, that we swallow, the windpipe is stretched. In the healthy condition of the parts this gives rise to no sensation; but as soon as the lining membrane is inflamed pain results. That this stretching of the windpipe is the cause of the pain is shown by every circumstance of the case, especially by that *experimentum crucis*—the regulation of the pain by the position of the chin. The muscles that draw the larynx forwards and upwards in swallowing, the genio-hyoid, the mylo-hyoid, and the anterior belly of the digastricus, produce most effect when the chin and jaw are raised, and *vice versâ*. Thus we see that, while swallowing with the head in the ordinary position may be attended with moderate pain, the elevation of the chin causes the pain to be intense, while depression

may obliterate the pain altogether; in other words, the pain is proportioned to the stretching. The time at which the pain is felt is entirely consistent with this explanation—it is at the moment the larynx is drawn up; and equally consistent with it, and with no other, is the production of a certain amount of the same kind of pain by taking a deep inspiration. Here, too, the windpipe is stretched; but the fixed and movable ends are reversed to what they are in swallowing. In treatment no regard is paid to the dysphagia; the state of the windpipe alone was considered.

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F. A. BULLEY.—Med. Tim. and Gaz., July 30.

Records a case of hard nodulated tumour of the tongue, apparently of a cancerous nature, which disappeared after existing 2 or 3 months under the use of Galium Aperinum. The dose given was about 6 grains of the solid extract *ter die*.

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FENWICK, S., M.D.—*On the condition of the Stomach and Intestines in Scarlatina.* Proc. of Med. and Chir. Soc., 1864.

The object of this paper is to prove the following propositions:—1st. That the mucous membrane of the œsophagus, stomach, and intestines, is inflamed in scarlatina. 2nd. That desquamation of the epithelium of these parts takes place. 3rd. That notwithstanding the anatomical changes in the mucous membrane of the stomach, the formation of pepsine is not prevented. 4th. That the condition of the skin is similar to the condition of the mucous membrane in scarlatina. In support of the first proposition, the microscopic conditions of the mucous membranes of the œsophagus, stomach, and intestines, were detailed in 10 cases of death from scarlatina during the first week of illness, and in 6 cases who died in the second and third weeks of the fever. The first effects of the scarlatina poison upon the mucous membrane of the stomach were shown to be congestion of the blood-vessels and the stripping of the epithelium from the tubes and the surface of the organ, and also the softening of the tissues. The tubes are greatly distended by granular and fatty matters, or by small cells intermixed with granules, and in some cases they are lined by newly formed membrane. Sometimes no normal cells can be distinguished; in other cases they are present, but are scattered irregularly. After the second or third week the tubes are found less distended than at an earlier period; and whilst their closed ends are still loaded with granular matters, which greatly obscure the gastric cells, these become more evident towards the surface of the mucous membrane. The cells at this period are sometimes very large, sometimes loaded with fat or coated with granules, and seem to have but little adhesion to their base-membrane, as they readily separate from the tubes, but adhere closely to each other. The effects of the inflammation upon the intestines seem in slighter cases to consist in the effusion of granular and fatty matters into the mucous membrane; but in more severe cases the tubes of Lieberkühn are obstructed by epithelial cells, whilst extravasations of blood take place in the villi, and these, with the rest of the mucous membrane, are loaded with small cells and granules. In

one case the mucous membrane was entirely stripped of villi, excepting a few fragments which still remained, and the enlarged and prominent openings of the follicles of Lieberkühn gave its surface the appearance of a sieve. In some instances evidences of disease were found in the pancreas. The second proposition was more difficult of proof, inasmuch as vomiting usually occurs only in the first stage, and Fenwick had no opportunity of examining the vomited matters at this period of the disease. In one case, in which vomiting took place in the third week, fibrinous casts of the stomach-tubes were discovered, and inflammation of the mucous membrane was proved to have existed by post-mortem examination. The chief reason upon which the opinion that desquamation of the epithelium occurs was derived from the microscopic examination of the contents of the stomachs of those who had died of this disease. The contents in recent cases consisted of pieces of fine membrane, of cells, and of granules and shreds of membrane. The membranes were of the shape and size of the tubes of the stomach, and were covered with granules and fat. The cells varied from  $\frac{1}{1200}$  to  $\frac{1}{2200}$  inch, and were usually fringed with fine pieces of membrane. In cases of longer duration the membranes were covered with cells, and were also of the size and shape of the stomach-tubes. In order to ascertain if these appearances were trustworthy as evidences of inflammation, the contents of the stomachs of 45 subjects were examined, and the condition of the mucous membrane at the same time being noted. In only 1 were there any fibrinous casts, and it was in a case of acute gastritis. In 18 there were only separate cells, chiefly of the columnar form; and in none of these was there any inflammatory action. In 8 cases casts of the upper parts of the tubes were plentiful, composed only of healthy conical cells, and in all the mucous membrane was in a natural condition. In 18 there were either plugs formed of cells and granules from the secreting parts of the tubes, or the casts of conical cells were overlaid with granular matters; and in all of these the stomach was more or less inflamed. Two cases of gastritis unconnected with scarlatina were also quoted as examples of the forms in which casts of the stomach-tubes appeared in vomited matters during life; and the author stated he had detected casts of the stomach-tubes in matters vomited by persons affected with gastritis connected with diseased kidneys, with inflammatory dyspepsia, and other forms of inflammation of the gastric mucous membrane. It was urged that if casts of the gastric tubes can be discovered during life in cases of gastritis, and if in scarlatina this condition exists, and casts have been found in the stomach after death, there is every probability that desquamation of the epithelium takes place in this organ as it does in the skin and in the kidneys. In support of the third proposition, the results of the following experiments were given in 3 cases of scarlatina:—10 grains of hard-boiled white of egg were digested at a temperature of  $90^{\circ}$  for 12 hours in an infusion of the mucous membrane, to which 3 per cent. of hydrochloric acid had been previously added. The average loss of albumen was  $3\frac{2}{3}$  grains. Similar experiments performed on the stomachs of 11 males, who died of various diseases at the same hospital, gave an average loss of 4 grains, so that



there had been scarcely any diminution of pepsine produced by the fever. As a contrast to this were the results of similar experiments upon 4 cases who died of typhus fever. In 2 of these the albumen had gained 3 grains of weight by imbibition, and was not at all softened; whilst in the other 2 it was softened, and 1 had lost only half a grain, the other  $1\frac{1}{2}$ , in weight. But as the activity of the digestion must depend, not only upon the relative amount of pepsine, but also on the bulk of the mucous membrane, this was also attempted to be estimated. The average weight of the mucous membrane of 10 males dying of various diseases was 18 drachms, the weight of 2 recent cases of scarlatina was 18 and 16 drachms (the latter being in a boy), whilst it only amounted to 15 drachms in one who died in the third week of illness. In 4 cases of typhoid fever the average weight of the mucous membrane only reached 11 drachms. The skin was microscopically examined in 3 cases. In the first, in which the patient died after a few days' illness, the only morbid appearance in the cutis was an occasional minute extravasation of blood in the neighbourhood of the sudoriferous ducts. The rete mucosum was greatly thickened, and numerous round cells with large nuclei were everywhere visible, intermixed with the natural cells. The basement membranes of the sweat-glands were thickened, and the epithelium lining them was so much increased that in most cases it obstructed their channels. In some of the sweat-glands the coils of which they were composed were loaded with coagulated blood, and were greatly and irregularly distended. In the other recent case the appearances were similar, excepting that the external layers of the cuticle were stained with blood in minute patches, and the sweat-ducts were also reddened; but there were no extravasations of blood either in the glands or cutis. In some of the ducts the epithelium was detached from the basement membranes. In the case of a man who died during the third week the sudoriferous tubes were still choked up; but in the glands the epithelium seemed in many places to be torn away, leaving the basement membranes bare or only covered by ragged particles. The cutis was in a natural condition. The author stated that although he had, in accordance with the usual custom, described the appearances of the skin and mucous membranes as the results of inflammation, yet that certain considerations suggested the idea that the term when so used was perhaps misapplied. In scarlatina we find that in each part the morbid condition is mostly confined, in the first instance, to the basement membranes, and consists in the formation of layers of new cells, which in the skin are transformed into cuticle of natural appearance, and in the stomach contain pepsine. If future researches should prove that a similar condition occurs in the kidneys and other parts, it will be necessary to look upon the structural changes produced as resulting from increased physiological rather than from pathological action, and that the primary effect of the scarlatina poison is suddenly and violently to stimulate the natural cell growth of the various secreting organs.

During epidemics of typhus, gastric and intestinal catarrhs became prevalent, and continued for a considerable time after their cessation, though less extensive and severe. The culminating point of the curve of the catarrhal disorder seems to have coincided with that of the fever, or nearly. The following arrangement of cases of the former kind is given—(a) those where the gastro-intestinal catarrh set in, accompanied by a periodic fever, of tertian type, with regular stages and intermissions, which, after 2 to 4 paroxysms, became continuous, while at the same time the phenomena of an acute catarrhal affection became more prominent; (b) gastro-intestinal catarrh, with choleraic symptoms, its stormy outset and course coming to a speedy conclusion, and recovery taking place in a few days; (c) gastro-intestinal catarrh, with typhus symptoms. In these the violence of the symptoms at the commencement, and the high fever, attended with slight splenic enlargement, diarrhœa, and meteorism, presented a very deceptive resemblance to typhus; but the distinction was evidenced by the rapid decline of all these symptoms and the speedy recovery.

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TRASK, J. B.—*On the use of Trisnitrate of Bismuth in acute and chronic Diarrhœa.* Schmidt's Jahrb., vol. 122, p. 285.

Trask reports very favorably of the action of this drug, both in the acute and chronic disorder. It seems to have acted better alone than when given with calomel. A single dose of from 20 to 50 grains seems to have been sufficient in the acute form. In 74 cases the disorder had lasted between 20 and 210 days, and the number of stools daily varied from 6 to 12. All of these, with the exception of 11 patients in whom the disorder had lasted from 90 to 210 days, took a daily dose of 60 grains, or two of 40 grains, and all recovered, on an average, in 5½ days.

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CHAPMAN, J., M.D.—*Sea-sickness, its nature and treatment.* Med. Tim. and Gaz., Sept. 3, 10.

Chapman says, "The doctrine of the excito-motor or reflex functions of the spinal cord is a guide to the whole physiology of sickness, and following it I was led to predict how to prevent, arrest, or control, not only sea-sickness, but also how to remedy or palliate every kind of sickness, whatever may be its *primary* cause. I hold that the proximate cause of sea-sickness consists in an undue amount of blood in the nervous centres along the back, and especially in those segments of the spinal cord related to the stomach and the muscles concerned in vomiting. This condition of the nervous centres in question is induced by the movement of the vessel in, I believe, three ways—1st, through the brain; 2nd, through the ligaments of the spinal cord; 3rd, through the abdominal and pelvic viscera." Chapman believes the concussions communicated to the brain and cord excite their tissue, and cause an unwonted number of exciting impulses to be transmitted from them to the viscera. It is a notable fact, he says, that in many sufferers from sea-sickness headache, peculiarly intense, is one of the most striking symptoms. The increased shaking of the viscera gives rise to an abundance of abnormal impressions, which are conveyed to the spinal cord, and influence it in the same manner as the direct concussions do.

After further details and arguments on this subject, Chapman proceeds—“The inevitable conclusion from the foregoing exposition is that the only scientific and really effective remedy for sea-sickness must be one which has the power of lessening the amount of blood in the whole of the nervous centres along the back. This can be effectually done by lowering the temperature of the spinal region by the application of ice. The results of 15 experiments in the treatment of sea-sickness induce me to believe that, as a general rule, liable to few exceptions, the effect of this simple expedient will be the annihilation of all unpleasant symptoms. The ship’s motions having induced an abnormal amount of blood in both the spinal and ganglionic centres, there is necessarily a greater evolution of heat than is usual in health, and hence it is that cold along the whole spinal region is not only tolerable but positively pleasant. Experience will teach those who use ice along the back that there seems almost as if there were a wonderful intelligence in the nervous centres of the whole spinal region, which denotes, by quickly expressive and unmistakeable feeling, the exact parts where the application of ice is most desirable, and where it should be omitted.” Full directions are given as to the proper mode of application of the ice-bags, and as to the precautions to be observed.

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OPPOLZER.—*Pathology and treatment of inflammation of the Sub-peritoneal Areolar Tissue.* Wien. Med. Wochenschr., 13, 1863; 14, 1864. Schmidt’s Jahrb., vol. 122, p. 49.

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GREIG.—*On Insufflation as a remedy in Intussusception.* Edin. Med. Journ., Oct., 1864.

Greig records 5 well-marked cases of this disorder, 4 of which were treated successfully by the above means, while 1, proving fatal, was left to nature. He says the symptoms of an intussusception are unmistakeable, and may shortly be said to be—the sudden seizure, the obstinate vomiting, the paroxysms of pain, the hard tumour in the abdomen, and chiefly the passage of blood per anum; all these various symptoms may show themselves in other diseases, but when combined together, and especially when the last-mentioned symptom, the passing of blood per anum, is present, no one can have any difficulty in forming a correct diagnosis. The prognosis is always unfavorable, and although cases of spontaneous recovery are occasionally met with, as the one recorded by Dr. Hare, this favorable termination is quite rare and exceptional. As to treatment, purgatives in the first place naturally suggest themselves; but these are worse than useless, rarely remaining on the stomach, and if they do, only stimulating the bowel and aggravating the disease. Warm-water enemata are useful, but can seldom be administered, owing to the very peculiar irritable spasmodic condition in which the rectum usually is. In any case where this spasmodic action is not present, or only to a slight degree, Greig has no doubt warm-water enemata, or, as used in Case 3, warm water and air thrown in by a syringe, would be useful. The ease, however, with which air is thrown into the spasmodically contracted rectum, when it is impossible even to introduce a teaspoonful of warm water, gives this agent a pre-eminence over all

others, and astonishes all who have seen it used. The remedy is always at hand, and its application is so simple as to require no direction; the only necessity being that enough air be thrown into the bowel to distend it as far up as the neck of the invaginated portion, or, in other words, that the operation be continued until the child begins to be uneasy and the belly distinctly tympanitic. Amongst other means for relief, cases are on record where the abdomen has been opened for the relief of the bowel in intussusception. It is difficult to reduce one by manipulation after death, and Greig has no doubt it would be much more so to do it during life.

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MEISSNER.—*Report on recent researches relative to Tapeworms and Vesicular Worms (Echinococci)*. Schmidt's Jahrb., vol. 124, p. 29.

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MACKAY, A. E., M.D.—*Naval Medical Contributions—Dysentery*. Edin. Med. Journ., Jan., 1864.

Under the head of prophylaxis, Mackay lays down the following rules:—(1) To institute a watch over men sleeping in the open air, and take care that any exposed part of the body is immediately covered. (2) To have it established as a rule, that after exercise or heavy drill in the tropics the men should shift into dry clothing. (3) To have most stringent regulations established with regard to men dressing, or at least putting on their trousers, before going into the "head" at night. (4) That on the Canton river station, ships should be relieved as frequently as possible from river service, and that while stationed there during the hot season a morning and evening dose of quinine should be issued to the ship's companies. (5) That the first and middle watches in the Canton river, and in malarial districts generally, should have an allowance of tea or cocoa issued to them. (6) That a strict surveillance of bumboats should be established in all localities, but especially in those where dysentery is notoriously endemic. (7) That the men should be warned to report themselves on the first signs of diarrhoea appearing. (8) That salt meat should be entirely excluded from the rations during the hot season. Under the head of treatment, Mackay prescribes perfect rest in the horizontal posture, especially during the more acute stages, local depletion to any tender parts of the abdomen, or to the anus, carefully managed fomentations. His experience is decidedly in favour of the administration of mercury, for he has found, as a rule, that the more speedily the system has been brought under its influence the more rapid and satisfactory has been the cure. He usually gives Calomel, gr.  $1\frac{1}{2}$  + Pulv. Ipecac. gr. j + Pulv. Opii gr.  $\frac{3}{4}$  in pil. *3tiis vel, 4tis horis*. When the nervous system is much implicated it will always be found that there is great difficulty in inducing the specific action of the mercury, and care must be taken not to push its use too far, as its tendencies after a certain time are decidedly hurtful. When the disease has lasted so long without amendment (that is to say, without a stop being put to the muco-sanguineous dejections) as to induce the belief that considerable disorganization of the intestinal mucous membrane has taken place, it will be necessary to stop its exhibition, for its tendency is to cause softening and ultimately to lead on to gangrene. It will generally be

found that if mercury has been employed regularly for 4 or 5 days without showing any sign of action upon the system, a considerable amount of irritability is begotten, the pulse becomes hard and sharp, and the dysenteric symptoms become aggravated. "I have on several occasions seen this difficulty experienced in procuring mercurialism in cases of dysentery in China, and in every such case the disease either proved extremely urgent or had a fatal termination; while, on the other hand, both in China and elsewhere, when the mercury has speedily acted all the symptoms have rapidly improved, and the case has proceeded to a favorable termination without further difficulty. I have also seen cases where, mercurial frictions having been continued after it has been advisable to stop the internal administration of mercury and have recourse to other remedies, ptyalism has set in, and with its accession all the dysenteric symptoms have begun at once to improve." Should it not be deemed advisable to proceed with the mercury, much relief may be obtained from powders composed of Bismuthi Trisnitas gr. 6 + Pulv. Ipecac. gr. j + Morph. Muriat. gr.  $\frac{1}{6}$ , *bis vel ter die*. These act admirably in allaying the irritability of the intestinal canal, but cause very urgent thirst and great and most irritating parching of the nasal mucous membrane. Acetate of lead he thinks the best astringent, to be used, like all remedies of this class, only in the later periods of the disease. In flatulent distension of the abdomen, Spiritus Terebinth.  $\mathfrak{xxv}$ — $\mathfrak{xx}$  + Ol. Ricini  $\mathfrak{zj}$  + Aq. M. Pip., was found useful. But little fluid should be taken, especially cold. During the whole course of the treatment the diet should be very restricted. A patient recently attacked should never be placed next to one who is recovering.

**PALM.**—*Case of Verminous Disease ending fatally.*—Wurtemb. Corr.

Bl., 33, 25, 1863. Schmidt's Jahrb., vol. 124, p. 38.

A healthy child, 23 months old, was taken ill in consequence of a chill, with moderate fever and loss of appetite. Calomel and santonine were given in small doses, under the use of which numerous round worms (*Ascaris lumbricoides*) were brought away by vomiting and by stool. The total number so got rid of was 58. On the 10th day the belly became distended, hard, and tender; on the 12th day convulsions set in, and death ensued some hours later. At the autopsy the small intestine was found of a blackish-red colour for an extent of about 4 inches, with a notable amount of vascular injection in the vicinity. A large number (38) of whitish, round worms, were projecting through the intestinal wall at this part into the peritoneal cavity. Five of these and 1 older worm had already completely penetrated into the sac, and were undergoing putrefaction. The peritoneum in the vicinity was but little inflamed, and presented only traces of dirty grayish exudation. When the intestine was opened it was seen that the posterior third of the worm was still contained in the cavity of the bowel, and that they had perforated the intestinal wall in an oblique and not in a transverse direction, so that the middle third of their bodies was completely covered by the intestinal membranes, and it was not easy to draw them out. After they were removed, the intestinal wall had the appearance of a sieve; the canals made by the worms commenced with

a manifest fissure, 2 or 3 lines long, in the mucous membrane, and passed then obliquely through the coats for a space of 6 to 10 lines. According to the observations of H. E. Richter, the ova of round worms (*Ascarides lumbric.*) undergo development in water, and produce a complete embryo, which moves about, but remains for years in its shell, and is not even killed by being completely dried. These eggs (64 millions of which are produced by one female) are conveyed by insects, worms, snails, &c., to salad-plants, fruit, and other articles of food, and thus come to be swallowed, especially by children of the lower classes. This highly probable view has not, however, yet been experimentally proved.

#### SECRETORY SYSTEM.

R. MARTIN.—*Hepatic Diseases in the East Indies.* Lancet, July 16.

MARTIN, J. R.—*Treatment of the suppurative stage of Acute Hepatitis.* Lancet, August 20, 27.

Martin says when so sad a result as abscess forms the actual issue to acute parenchymatous hepatitis, or to acute congestion of the liver, the treatment resolves itself at once into the medical and surgical management of a most grave consequent and complication; the first purporting to calm nervous and vascular irritation and to support the failing powers of the constitution, while the second aims at securing the discharge of the purulent fluid, whenever it can be done with a prospect of benefiting the sufferer. Whatever be the direction in which the abscess tends to make a way for the discharge of its contents, our care must be to allay constitutional and local irritation by anodynes, by tonics and alteratives (as the mineral acids with taraxacum or mild bitters), a light but nutritious diet, pure air, and avoidance of exertion—rest, in fact. In the desperate circumstance of extravasation into the cavity of the peritoneum opium repeatedly administered offers the only chance of escape from death. With a view to determine what can be effected by surgery, a most careful examination of the hepatic region, often repeated, will reveal, not only the existence of suppuration, but generally also its site in the liver, as well as its extent. These circumstances, viewed in relation to the general condition of the system, are the necessary preliminaries to action, and the question for decision is one of the most grave import. Coming to the subject of mechanical interference, the tendency which can best be aided and relieved by the surgeon is that outwards, through the abdominal parietes; and when the tumidness and fluctuation are discoverable, and the constitutional sympathy in the form of general and local irritation is becoming manifest and urgent, the operation by puncture is reasonable, and bids fair to be successful; with or without evidence of adhesion between the two peritoneal surfaces, it ought not to be delayed. When, on the other hand, the abscess is pointing outwards, and is near to the surface, the constitution being calm and undisturbed, the system not being emaciated or greatly enfeebled, we can afford, all things proceeding kindly, to wait upon nature for the discharge of the purulent matter.

But when the patient is suffering from a high irritative fever, the result of inward and hidden suppuration, more or less extensive, and when emaciation, night-sweats, and exhaustion, are sure to follow, what is to be done to save life? If we are to rely on the authority of systematic writers, or even on that of elaborately recorded statistics, we shall do nothing; yet the sufferer is sinking daily, and such course of inaction is neither satisfactory nor just. To wait upon nature, as we call it, is here to wait for death. Frerichs, even on his European experience, cautions us against delay in so critical a position. "We must not wait for the supervention of fluctuation, or for the œdematous infiltration of the abdominal walls; because these signs, especially in the intercostal spaces, are sometimes late in making their appearance; in such cases the prominences of the false ribs and the obliteration of their intercostal spaces suffice to justify operation." This distinguished authority adds that "when the abscess takes a direction outwards we ought not to delay in making an artificial opening. In most cases, when fluctuation can be detected, the abscess has already attained a considerable size; and the longer its evacuation is delayed the greater are the dangers of its bursting into the abdominal cavity, of an extensive destruction of the liver, and of the formation of a dense, rigid, not easily cicatrized cyst." Again, "care must be taken not to lose time in counteracting the exhaustion which at this period is apt to supervene in an imminent degree." Statistics will not solve our difficulties, for none of them have as yet counted in how many instances surgical aid had come too early, in how many cases when too late, nor yet in how many cases was the operation believed, and by the result judged, to have been performed just at the right time. Without such important and necessary information the numerical system can in the case before us yield no other than an unsafe guide to surgical action. To count the few persons who may come home from India suffering from suppuration of the liver consequent on hepatitis, and who have trocar marks on their flanks, is to trifle with an important subject. What we desire to know is, how many per cent. died in India, or on the voyage home, from the neglect or from the fear of the trocar; how many per cent. might have been saved by an earlier and more judicious recourse to operation. No one can have seen much of hepatic disease, as it prevails in the East, without a very painful feeling that he has witnessed the loss of many a life which might, perhaps, have been saved had the mode of saving it been made more manifest in his time; and this reflection will not be lightened if the surgeon apprehend, when too late, that he had yielded too easy an assent to the doctrines of the day. Owing mainly to statements and facts adduced by Drs. Cameron, Templeton, and Crerer, the question of the treatment appropriate to the ordinary stages and conditions of suppurated liver has to be taken up anew, and from a more definite and precise point of departure, with a view to a more just management by surgical relief. An accurate diagnosis being of the last importance on general grounds, and a necessary preliminary to success in any surgical action, the following suggestions are offered as helps towards a right conclusion:—(1) The limit of the liver being accurately ascertained by percussion in the state of expira-

tion, on a full breath being taken the liver will be carried downwards into the abdomen if its upper and anterior surface be not adherent to the parietes. (2) If it is adherent, unless the adhesions be long, it will remain where it was at first, which can easily be ascertained by percussion. (3) Before proceeding to ascertain the existence of a spot most suitable for puncture by the exploring trocar, a careful general examination and comparison should be made of the two hypochondria, standing at the foot of the bed. There will then, in general, be found a more or less uniform bulging, corresponding to the region of the contour of the liver. (4) If superficial œdema be found, the abscess may usually be concluded to be under it, or near at hand. (5) Examine carefully for the slightest degree of intercostal fulness with tenderness, desiring the patient to breathe deeply while the finger is pressed gently along the spot indicated. If the breath be caught under the finger on a deep inspiration that (says Dr. Cameron) is the spot for puncture. (6) In the absence of local fulness, the place where the inspiration is most impeded must be our guide, having due regard to anatomical relations. Whenever the indications are clear as to the presence of suppuration, and as to the site of the abscess, the constitution meanwhile evincing sympathy even approaching to irritative fever and general distress, the sooner the abscess is discharged the better for the safety of the patient; for the volume of purulent matter is rapidly increasing, with extensive destruction of liver, involving the danger of bursting inwards, along with a surely increasing hectic and emaciation. Dr. Cameron has shown that under such unfavorable circumstances both exploration and puncture for the discovery and evacuation of the abscess are more safe and efficacious than had before been known or believed. He states as follows:—“(1) I have repeatedly plunged a trocar into an enlarged liver without finding an abscess, and never had the slightest ill result beyond a little local pain, yielding readily to opium, or to a few leeches applied round the puncture. (2) I have also found such puncture followed by gradual absorption and disappearance of the enlargement. (3) In men who died with abscesses which I failed to reach I have found it extremely difficult to detect the marks of such unsuccessful explorations, and this, too, when there had not been any adhesions; so that the danger said to attend upon such an operation has been diagnosed, I believe, rather from analogy than from any consequent mortality. (4) A trocar with canula of moderate size I consider preferable to either scalpel or lancet for opening the abscess. The scalpel may be used when the skin is thick, to divide the integument, and thus to allow the trocar to enter with gentle force. (5) The pus will flow readily through the wound with a little help from a probe and from the aid of gravitation; and when the abscess seems well emptied the canula should be carefully fastened in, by twine passed through perforations in its rim, and also by a broad piece of adhesive plaster having an opening in its centre. (6) A large warm poultice should be laid over the side, and the patient placed on it, having a pad or pillow so placed as to prevent pressure on the canula. The same course should be adopted when it proves difficult or impossible, from the size and deep-seated nature of the abscess, to replace a



canula that has slipped out. (7) A strong dose of morphia should be given immediately after the operation, which is generally attended with great relief and followed by refreshing sleep. (8) The poultice should be changed twice or oftener in the twenty-four hours; and at his morning visit the surgeon should see to the opening, and aid the discharge by very gentle general pressure over the side, avoiding manual interference. (9) About the third day the canula may be replaced by a tent-sponge, or by lint dipped in oil, which should be changed daily. (10) A liberal diet, with porter and wine, should be supplied; and, where possible, the food should be such as the patient may prefer and relish. (11) All matters going on well, the discharge will gradually lessen, while the patient will regain strength, the probe showing that the depth of the cavity is decreasing, while tumidness of the side will disappear. Presently a clear mucous, gleet-like fluid replaces the pus, and finally the wound closes. (12) If, on the other hand, the case tends badly, either from the existence of a plurality of abscesses, the great size of the one opened, or an absence of power in the constitution to repair the damage, it is denoted by continuance of hectic and by wasting discharge. Martin refers to some remarkable experience published by Cameron and Templeton, and corroborates their statements by the good results which accrued from the same treatment in a case recently under his own care.

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OPPOLZER.—*On Syphilis of the Liver.* Wien. Med. Halle, 4, 1863.  
Schmidt's Jahrb., vol. 124, p. 179.

Syphilitic disease of the liver shows itself—(1) as simple perihepatitis; (2) as interstitial; (3) as gummatous hepatitis; (4) as colloid or amyloid degeneration of the liver. All these forms may either exist separately or, as more frequently happens, they may be variously associated together. Perihepatitis especially occurs but very rarely alone, but is generally complicated with interstitial inflammation. So also the gummatous form is apt to be complicated with amyloid or bacony degeneration of the liver. In perihepatitis we usually find very hard callous thickenings of the capsule of the liver, which on the one side almost constantly lead to adhesions with the adjacent organs, especially with the diaphragm, more rarely with the colon and stomach; and on the other traverse the parenchyma of the liver itself, especially its convex surface, and give it an irregular-lobed shape. If they are incised a tendinous, vascular, fibrous tissue is met with, which extends to a greater or less depth from the thickened capsule into the glandular parenchyma, which is mostly atrophied. One lobe may be thus affected, or the whole organ. In the gummatous form we find in a normal or bacony liver, or in the above-described cicatricial tissue, masses of deposit varying from the size of a bean to that of a walnut, consisting of a whitish or yellowish cheesy substance. These masses sometimes are converted into a chalky pap or into calcareous concretions. Their substance is for the most part traversed by fibrous bands, but they are sometimes met with in the midst of normal parenchyma. The large divisions of the portal vein, of the hepatic artery and duct usually, but not always, are uninvolved. On the degree in which they are affected depends the

occurrence of secondary diseases, as ascites, icterus, &c. The parenchyma remaining between the cicatricial or the gummatous deposits may be normal, or fattily degenerated, or hypertrophied, or in a state of bacony transformation. The whole volume of the liver is usually somewhat enlarged in simple perihepatitis, but often shrinks up very much when the interstitial tissue becomes affected; it is also mostly enlarged when gummatous masses are present, though shrinking subsequently occurs from wasting of the normal parenchyma; enlargement is constant and excessive only when the syphilitic liver is at the same time in a state of bacony degeneration. The disease in question possesses no characteristic or even commonly existing symptom; the most careful examination of the existing condition will not ensure accuracy of diagnosis. Feelings of weight, pain, and pressure in the hepatic region, which are usually complained of by patients, occur also more or less in all diseases of the liver. Icterus is not constant, and when it does occur has nothing distinctive. Ascites and splenic enlargement are also of small value in diagnosis, as they are almost constant accompaniments of granular liver. The presence of syphilitic cicatrices or knotty tumours in the liver is a material aid to diagnosis, but they may lie out of the reach of palpation, as under the ribs or on the inferior surface of the liver, or the distension of the abdomen by fluid may make accurate examination of the liver impossible. The diseases with which experience shows syphilitic affections of the liver are most likely to be confounded are cirrhosis and cancer. The granular form of syphilitic liver may easily be mistaken for cancer. General cachexia exists in both cases, and even the form of the liver itself scarcely presents any notable difference. The age of the patient can rarely guide us; for though carcinoma is most frequent in advanced age, yet it is sometimes present before the thirtieth year. On these accounts an exact history of the disorder, conjoined with the most thorough examination, is indispensable. If there is the least suspicion of syphilis the organs where the virus is prone to localize itself must be carefully inspected; we must seek for cicatrices in the pharynx, enlargement of the lymphatic glands, and of the bones, &c. It is difficult to ascertain accurately to what stage of syphilitic infection the disease of the liver appertains. Oppolzer has seen cases, like those recorded by Dittrich and Gubler, which belonged to the so-called secondary period, but the majority unquestionably belong to the tertiary. The disease now described in the liver is also a pretty frequent accompaniment of hereditary syphilis. The prognosis is not so absolutely unfavorable as it has been represented by many authors; we find, however, sometimes indications of hepatic syphilis in the dead body when the patients have perished from other diseases, and when the morbid condition of the liver has declared itself by no grave symptom. In general, the prognosis is more favorable so long as the liver is still in the stage of hypertrophy than when atrophy has commenced. Cachexia, dropsy, protracted diarrhoea, and renal degeneration of amyloid character, are of unfavorable import. As regards the treatment of syphilitic inflammation of the liver, Oppolzer does not agree with authors, as Niemeyer, who describes all measures as quite powerless. Though it is true that cicatrices in the liver cannot be removed, it may

also be maintained that cases of syphilitic inflammation, especially of the gummatous form, as long as the organ is enlarged, may be benefited and even cured by rational treatment. Oppolzer recommends iodide of potassium, while Leudet prefers mercury. Other symptomatic treatment may also be employed, as saline aperients, mineral waters and baths in the hypertrophic form, in the atrophic tonics, as iodide of iron, and a generous diet.

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GRAINGER STEWART, T., M.D.—Brit. and For. Med.-Chir. Rev., Oct., 1864.

Records a case of syphilitic affection of the liver. Stewart remarks, "It is evident that the waxy degeneration of the liver in this case was very different from the form of that degeneration usually met with in two respects, viz., first, that in the bulk of the organ, instead of affecting the cells, it affected the vessels; and, secondly, that groups of nodules in individual parts had become completely degenerated, every cell presenting an exquisite specimen of the degeneration, and the masses scattered like cancer throughout the whole substance, presenting an appearance exactly like beeswax. The liver was about the natural size, it contained a number of nodules scattered throughout its substance, and on its surface a number of cicatrices. Stewart believes that the cicatrices were results of transformation of the waxy nodules, for there was no cicatrix without a corresponding waxy mass, and there were many masses without a cicatrix; moreover, the depth of a cicatrix bore a definite relation to the condition of the masses. The series of changes he believes to have been the following:—(1) Extreme waxy or amyloid degeneration of certain districts or groups of lobules in the liver. (2) A development of connective tissue in these masses, gradually causing atrophy of the degenerated gland-cells, and leading to the formation of cicatrices. (3) The cicatrized condition—bands of fibrous tissue radiating from a dense centre into the surrounding tissue, and enclosing within the remains of the broken-down cells. Stewart does not, of course, deny that syphilitic cicatrices may arise from gummy or simple inflammations, as has been described, but he thinks that the above instance proves that they may be formed in another and altogether different way.

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GERHARDT.—*Direct treatment of Icterus Catarrhalis.* Würzb. Med. Ztschr., 4, p. 312, 1863. Schmidt's Jahrb., vol. 122, p. 187.

Gerhardt states that he has succeeded in two cases in forcing out the plug of mucus obstructing the orifice of the common duct, and so evacuating the accumulated contents of the gall-bladder. The occurrence of this is proved by the bilious coloration of the fæces, which appears soon after the manipulation has been successfully practised. He directs the practitioner to ascertain by percussion the limits of the distended gall-bladder, which is then to be compressed carefully by the fingers steadily pushed backwards. The organ may be distinctly felt to collapse, and when this has occurred its dulness has disappeared.

STORCH, O.—*Cases of Echinococcus in the Liver.* Hosp. Tid., 17, 18, 1863. Schmidt's Jahrb., vol. 122, p. 50.

Storch relates 6 cases, 2 of whom were males and 4 females. The first 2 cases died apparently of other disorders; the third had on Jan. 7, marked hydatid fremitus in a small tumour projecting from under the right ribs; but on March 19, and subsequently, the fremitus was no longer to be detected, although the tumour increased in size. In the fourth case, a female, æt. 64, the tumour burst into the peritoneal cavity, and caused fatal peritonitis. In the fifth case, æt. 31, male, the tumour made its way through the diaphragm, and large quantities of hydatids were discharged through the right lung. This continued for 3 or 4 weeks, and by the middle of September he was convalescent. In the last case the patient, a female, æt. 37, died of peritonitis after the operation of paracentesis abdominis. The abdomen had been greatly distended by a very large cyst attached to the upper part of the spleen, which contained a turbid greenish-yellow fluid, like that which had been drawn off in the operation, and some loose hydatids. The liver contained numerous large cysts, filled with a yellowish turbid fluid, in which floated membranous flocculi.

HARLEY, G., M.D.—*Lectures on the Urine and Diseases of the Urinary Organs. On Uro-hæmatin, and the abnormal pigments met with in white, yellow, green, blue, and black Urine—their clinical significance and treatment.* Med. Tim. and Gaz., Sept. 10; Oct. 29, Nov. 26, 1864.

The colour of the urine varies greatly in disease. It may be perfectly white, yellow, brown, red, black, green, or blue, and each of these tints, in the absence of ingesta capable of accidentally producing them, invariably indicates the existence of grave disease. Normally coloured urine does not, however, exclude the possibility of disease, for the colour of the freshly passed urine is no absolute criterion either of the quantity or the kind of colouring matter it contains. The abnormal, like the normal pigments, are often combined with some of the other urinary ingredients in the form of colourless compounds, and it is not until the compound is decomposed, and the pigment set free, that we can take cognizance either of its quantity or its quality. For example, here are three urines—1st, a pale, almost colourless urine, from a healthy infant, æt. 18 months; 2nd, an equally pale, almost colourless urine, from a girl, æt. 19, suffering from chlorosis; 3rd, a dark straw-coloured, but perfectly transparent urine, from a healthy man, æt. 33. All have the same sp. gr., 1018. To each of them add a quarter of their bulk of strong nitric acid, and bring them to the boiling-point. The infant's pale urine is scarcely altered, the man's dark urine is only slightly deepened in tint, whereas the almost colourless urine of the chlorotic girl has assumed an intensely red hue. What is the cause of this difference? The infant is in the bloom of health; there is no waste of blood-corpuscles in it; all the blood-discs it possesses are employed in the development of its frame. The man has arrived at maturity; he is still in the prime of life and in the enjoyment of perfect health; his blood-corpuscles are not wasted, but merely consumed in the wear and

tear of everyday life. The young woman, on the other hand, is suffering from chlorosis; she has a pale lip and a blanched cheek; her corpuscles are being too rapidly consumed; her life's blood is oozing away by the kidneys, and there is, it appears, an excess of uro-hæmatin in her urine. Take, again, these two urines, so different in appearance. They are from young men about the same age (24 years). The one urine is perfectly colourless, like water; the patient suffers apparently from excessive spinal irritation; the other is of a deep-red colour, case of hæmaturia from disease of the kidney. On adding strong hydrochloric acid to the colourless urine it rapidly assumes a port-wine tint, whereas the same amount of acid added to the red urine, instead of heightening, actually destroys the colour it already possesses. And why? Simply because the pale urine contains an excess of combined uro-hæmatin, which is liberated by the acid; whereas the red urine contains merely a number of free blood-corpuscles; and as the colouring matter in them is insignificant in quantity when compared with the amount of uro-hæmatin in the other, no sooner are their cell-walls destroyed, and the contained hæmato-globulin set free and coagulated, than the red colour disappears. Now, which of these two classes of urine denotes the most danger? Assuredly not that containing the free blood-cells. A very small quantity of blood will sometimes colour a great deal of urine; whereas an immense destruction of blood-corpuscles may take place in the body, and their débris be so eliminated as to be invisible to the eye until the application of an acid sets it free. In fact, experience has shown me that the normally coloured urine of disease is a most treacherous guide to go by. It often lulls the inexperienced into the belief that there is nothing materially wrong, when a grave lesion is making rapid strides towards a fatal termination. Harley cites a case where the patient was said to suffer from hysteria, while examination of her urine showed that she was affected as above described. In some of those cases of obscure disease the excess of uro-hæmatin in the urine is so great that often it has been set free by an acid and taken up with ether; the ether, after standing, solidifies into a red-currant-jelly-like mass, and may actually in some cases be cut with a knife. Sometimes in disease a great part of the uro-hæmatin exists in the urine in a free state, and in that case the urine is red in colour before any acid is added. If it contains a deposit the urine may or may not be high coloured. Another fact, which is of great clinical importance, is that the uro-hæmatin is not always in the same state of oxidation, and, like indigo, its amount depends on the amount of oxygen it contains. So that it may be pale yellow at one time, red at another, and brown at a third. In consequence of this, different acids act upon the urine differently. In one case we may find that the addition of nitric, sulphuric, or hydrochloric acid gives rise to exactly the same results; whereas in another case hydrochloric acid may turn the urine red, while nitric acid only causes it to become yellow. In a third case sulphuric acid may develop the colour of the uro-hæmatin better than either of the others. An excessive excretion of uro-hæmatin is not limited to cases such as we have been describing. It occurs to some extent in several diseases, especially those in which there is an

excessive tissue metamorphosis, and consequent too rapid blood consumption. Hence we occasionally meet with it in low fevers, in diphtheria, in pneumonia and some other inflammatory affections, in lesions of the nervous system, during an attack of gout, after a fit of ague, and during convalescence from nearly all grave diseases. It is, however, in chlorosis (either in the male or female), and the many unnameable obscure affections of that class, where it becomes a dangerous symptom. In fact, it always indicates the existence of a past or present mischief, meriting the closest attention of the physician, and where we cannot remove the cause we must at least attempt to check the effects of the symptom, viz., to restore to the blood as much as possible of the material which is being drained from it. Harley recommends the various syrups of the phosphate of iron as the best remedies, or, in cases where the drain is very great, gr. j—iss doses of zinc. In some cases of disease the excretion of uro-hæmatin by the kidneys appears to be diminished, but this is only when the system has been so drained that there is little more to come away. With regard to blue, green, brown, and black urine, or, more exactly, urines which assume these colours a certain time after they have been voided, Harley asserts that these several pigments are nothing more than grades of oxidation of a white radical.

With regard to phosphoric acid, Harley states that in inflammatory diseases of the nervous system, notwithstanding the low diet on which the patient may be placed, there is an actual increase in the amount of phosphoric acid excreted. In a patient suffering from paralysis, the result of injury to the head, an enormous excess of phosphates was found in the urine. A few days after admission the patient eliminated no less than 135·609 grains of phosphoric acid in 24 hours, and this, too, at a time when he was taking very little food, and that little poor in phosphates. Gradually, as the patient recovered from the effects of the injury, the phosphoric acid daily diminished, till it actually fell below the normal standard, notwithstanding that his food was more abundant and richer in phosphates. Harley speaks very highly of the good effect of administering phosphoric acid in degenerative disease of the nervous centres, and superphosphate of lime in rickets.

Under the head of oxaluria, Harley remarks that skill and judgment are required in the treatment. A remedy that is suitable for one patient may be quite inappropriate for another; and even in the same patient, life being an ever-fluctuating quantity, a remedy which was beneficial at one time may prove prejudicial at another. For example, I have seen cases of oxaluria which had resisted all the usual routine of mineral acid tonics at once entirely disappear when the patient was put on the acid phosphate of soda, and *vice versâ*. With regard to drinks, carbonated alkalies must be refrained from as they are transformed into oxalates in the body. It is important that the water used should contain but little lime, for if this be not the case any oxalic acid present will combine with the lime, and thus form one of the most insoluble of salts. Oxalate of lime and prosphatic calculi are the two most common forms of stone met with in districts where the water is impregnated with large quantities of lime, and it is astonishing how long it some-

times takes to arrest these deposits in persons habitually accustomed to the use of such waters.

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HARLEY, J., M.D.—*On the endemic Hæmaturia of the Cape of Good Hope.* Proc. of Med. and Chir. Soc., vol. 4, 1864, p. 283.

In a patient under the author's care, the symptoms were the following:—After micturition a little blood, never exceeding a teaspoonful or some dark "veins," appeared with the last half ounce of urine. The urine itself was never bloody. Sometimes "the veins" would block up the urethra, and cause obstruction for a few minutes. He had an occasional twinge of smart pain in the loins. He said great numbers of people of both sexes were affected in precisely the same way in certain parts of the Cape. Inquiries made by Dr. Harley corroborated the patient's statements. In the various examples of urine sent to him by his patient he invariably detected the eggs of an entozoon, and in one specimen he had the good fortune to discover the perfect embryo after its escape from the egg-shell, under the form of a minute ciliated animalcule. From its anatomical characters and developmental changes he was led to refer the parasite to the trematode class of worms, and to the family Distomum. The animal which it seemed most nearly to resemble in the outward form of the eggs, as well as in the symptoms of the disease it produces, was the *Distomum hæmatobium*. This parasite, according to Bilharz and Griesmyk, was very common in Egypt, and inhabited all parts of the urinary apparatus. There were, however, notable differences between this animal and the one he had described, and which he proposed to term *D. Capense*. In the urine of two young men who had suffered from the endemic hæmaturia, but considered themselves to be now free from it, Dr. Harley was able to detect the characteristic eggs of the parasite in question. Having thus demonstrated the existence of the same parasite in three individuals suffering or having suffered from the hæmaturia endemic in some parts of the Cape, he concluded that the animal was the constant cause of the disease.

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WADE.—Med. Tim. and Gaz., July 30.

In many cases of renal dropsy has found that the use of ordinary vegetable diuretics in large quantities produces diuresis when smaller doses fail. He gives for example sometimes a quart of the compound decoction of broom. He has also found that iodide of potassium exercises a most marked influence upon the rather rare cases of albuminuria which have a syphilitic origin. The same drug he has recently employed with marked results in a case of painful enlarged and nodulated liver, in a young girl who presented all Mr. Hutchinson's indications of congenital syphilis.

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HASSALL, A. H.—Lancet, Dec. 17.

Publishes some analyses of the blood and urine in an instance of granular degeneration, and in one of fatty degeneration of the kidney. In the first the amount of urine was considerably in excess of the normal amount, but the sp. gr. was low and the urea, uric acid, phosphoric acid, sulphuric acid, and chlorine, were all more or less below the

healthy averages. The blood was deficient in fibrine, blood-corpuscles, and albumen, and contained an excess of water. In the second case these changes in the blood were still more advanced. The mean daily loss of dried albumen was found to be 310·8 grains, equal to 10 oz. of blood. The vapour bath is, he considers, preferable to diuretics and purgatives for the removal of the dropsy.

KUSSMAUL.—*Contributions to the anatomy and pathology of the Urinary Organs.* Wurzb. Med. Ztschr., 4, p. 24, 1863. Schmidt's Jahrb., vol. 123, p. 46.

(I) Tuberculosis appears in this situation either as an accompaniment of the acute, miliary, or chronic disease; or it is the primary disease itself; or it is propagated by extension from the male sexual organs, almost always from the seminal ducts or the prostate, to the urinary bladder and urethra. When the urinary organs are affected secondarily to the male sexual, the disease extends gradually upwards; when the kidneys are first attacked it descends towards the bladder. In a case related, however, the left kidney and urinary bladder appeared to have been affected about the same time and primarily, while the intervening ureter was not involved till a later period. Tuberculosis of the genital and urinary organs is very rare in females; when the latter are affected the disease, as a rule, is primary, not secondary, to tuberculosis of the genitals. For the most part, one kidney alone is degenerated, while the other is quite or nearly free, which accounts for the rarity of uræmia in tuberculosis. The diseased kidney is generally larger, but may be of the normal size, or even smaller; much depending on whether the ureter is still pervious or not. Tuberculosis of the urinary organs is a very rare disease, occurring scarcely in 1 of 100 tuberculous subjects, or in 1 out of 1000 persons dead of various diseases. It is rare before the 10th and after the 60th year. The diagnosis must be made from the concurrence of the following phenomena and circumstances:—(1) The patients suffer from progressive emaciation, generally resulting from hectic fever, the loss of blood, or drain of pus by the urine, night-sweats, gastric derangements, and ultimately diarrhoea. (2) There are symptoms of chronic inflammation and ulceration of the urinary passages; those immediately resulting are pains of the most different kind in the region of the bladder and the loins, increased on pressure and in micturition; strangury, incontinence of urine; the presence of pus and blood in the urine, of the epithelium of the urinary passages, and sometimes of casts; the discovery of elastic fibres, granular detritus, and flakes of dead areolar tissue in the urine, or of larger fragments of cheesy matter, consisting of the so-named tubercle-corpuscles, granular detritus, and elastic fibres; more remote consequences of the inflammation and ulceration are diminution of the quantity of urine, the formation of a perceptible renal tumour. (3) Other causes which are capable of inducing similar disease of the urinary passages are to be excluded. In this respect we must note the absence of gravel, calculi, and echinococci in the urine, the absence of attacks of renal colic, the absence of the elements of villous cancer and of the simple villous tumour of the bladder, absence of stricture and of enlargement of the



third lobe of the prostate. (4) We must note whether there is an hereditary tendency to tuberculosis, or whether there is clinical evidence of the presence of tuberculosis in other organs, especially in the epididymis or in the lungs. Tuberculosis of the urinary organs usually destroys life in from 1 to 2 years. (II) A case is related of encephaloid of the left kidney in a boy *æt.* 3½. (III) A case of syphilitic bacony degeneration of liver and spleen, with dilatation of both kidneys, especially the right, which contained a quantity of greenish pus. (IV) A case of morbus Brightii, which lasted probably nearly 11 years, and which then ended fatally in consequence of an operation on the rectum. (V) A case of jaundice in which the urine contained blood-globules, numerous mucous corpuscles, some of them coloured by bile-pigment, round larger cells containing numerous nuclear corpuscles, and still larger cells containing with nuclei corpuscles exactly resembling the free mucous. In many cells the colouring matter was in a crystalline form, the crystals forming rods or aciculæ, sometimes arranged in radiating groups.

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MUNK, PH.—*On Uræmia.* Berlin Med. Wochenschr., 1, 11, 1864.  
Schmidt's Jahrb., vol. 122, p. 186.

Munk produced uræmia in dogs and rabbits by extirpating the kidneys, tying the renal arteries or the ureters. The first acted most rapidly, the last the most slowly. Vomiting occurred early, the rejected matter being watery and highly acid, and containing much urea, but scarcely a trace of Ammon. Carb. The more copious was the vomiting the later were the head symptoms in making their appearance. Diarrhœa of the same character never occurred in dogs, but constantly in rabbits. These evacuations consequently may be regarded as vicarious of the renal. The pulse became slower, full and hard, the respiration notably more frequent. On dissection the arterial vessels were always found hyperæmic up to the smallest divisions, the brain evidently œdematous, the convolutions flattened, especially where there had existed deep coma. Extravasations of blood were sometimes discovered, but never arachnitis. The amount of urea and creatin in the blood and muscles was always increased. Injections of urea and carbonate of ammonia in animals deprived of their kidneys never produced phenomena resembling the uræmic, but only temporary irritation. Other salts acted quite in the same way. Injection of water alone into the vessels after the ureters had been tied produced no uræmia. Injection of water or of whipped blood (defibrinized) into the vessels of dogs who had their ureters and one jugular vein tied rapidly induced coma and very various kinds of convulsion. If there was much loss of blood or copious vomiting in the first few hours after the injection the uræmic phenomena were much less severe. Death ensued in 12 to 24 hours, and dissection showed anæmia and œdema of the brain and flattening of the convolutions, in one case only slight extravasation. If, on the contrary, after ligature of the ureters both carotids were tied, vomiting ensued, but there was an absence of sopor and convulsions; in the last hours of life the frequency of the respiratory movements became enormously increased, while that of the pulse was materially diminished.

On dissection the anterior and middle part of the brain was found anæmic; the medulla oblongata, on the contrary, very much congested. The result of these experiments tends to show that when the blood is diluted up to a certain point tension of the aortic system beyond a certain degree determines the occurrence of the so-called uræmic phenomena, and that this may be prevented by lessening the supply of blood to the cerebrum and mesocephale, though the medulla oblongata then is severely affected. The chief object of treatment in uræmia is consequently to lessen the watery constituent of the blood as much as possible.

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JOHNSON, G.—Lancet, Jan. 16.

Remarks, with regard to the copious diuresis which occurs spontaneously during convalescence from acute renal dropsy, as follows:—  
 “During the acute stage of the renal disease the constituents of the urine, both solids and liquids, have accumulated in the blood, and have thence been effused into the areolar tissue and into the serous cavities. Now, urea itself is a most powerful diuretic, and no sooner is the inflammatory congestion of the kidney removed, and the freedom of the renal circulation restored, than the urea exerts its natural diuretic action on the kidney. The copious diuresis thus induced speedily removes the accumulated urinary solids and liquids from the blood, the areolar tissue, and the serous cavities in which they had been effused, and so the dropsy is cured. This abundant flow of urine occurs without aid from diuretics or drugs of any kind. I have seen it occur when bread pills alone were given as a *placebo*.”

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SOCQUET and CHATIN.—Gaz. Méd. de Lyons, Oct. and Nov., 1862.  
 Brit. and For. Med.-Chir. Rev., Jan., 1864.

Recommend the simultaneous employment of perchloride of iron and ergot of rye in albuminuria. The beneficial action of the iron was much accelerated by the ergot. The cases observed were some men of bad constitution, weakened by former unfavorable hygienic conditions, such as insufficient food and dwelling in damp and badly ventilated localities. The dropsy in all the cases at first confined to the face had successively attacked the limbs and the peritoneum. The urine was pale and inodorous, and contained large quantities of albumen, and in one case microscopic examination revealed the presence of renal epithelium.

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DICKINSON, W. H., M.D. Cantab.—*On the treatment of Albuminuria in Children.* Proc. of Med. and Chir. Soc., vol. 4, p. 355.

The granular kidney appears to be unknown in childhood. The only form of disease which produces albuminuria at this period of life is that which produces enlargement of the kidney, and gives it a smooth, mottled exterior. This is, in fact, a renal catarrh. The tubes become obstructed by an excess of their own epithelial growth, and hence arise all the evils of the disease. If only there is a free escape for the contents of the tubes the vascularity of the gland will be relieved by secretion, and the disorder will soon be at an end. The principle of treatment must be to send as much water as possible through the organ. This fluid is

devoid of irritating properties, and probably passes through the gland rather by filtration than by true secretion. With these views the patients were restricted to a fluid diet. They took from two to four pints of distilled water daily, and small doses of the infusion of digitalis. When the active symptoms had subsided iron was given. Out of 26 cases treated in this way 22 recovered completely, 3 were lost sight of while improving, 1 case did badly, and eventually died under other treatment. Many of the cases were of great severity. These results appear better than those afforded by other methods. Among the in-patients at the Children's Hospital otherwise treated 11 died out of 39, and of 69 cases treated by Dr. Millar in dispensary practice 8 died. It was found, on an average, that the little patients were restored to apparent health in 30 days, while 15 days more were needed to get rid of the last traces of albumen. The use of the water did not seem in any case to increase the dropsy, but the contrary. It was usual, however, when the swelling was great, to let the digitalis set up a certain amount of diuresis before ordering the full quantity. The subsequent use of iron was believed to correct the effects of the disease, without influencing the disease itself. On the occurrence of secondary disorders, such as convulsions or acute inflammatory attacks, it was argued that the treatment of the renal mischief should be sedulously persisted in, with such additions as might be called for. The anæmic state of the brain in uræmic convulsions, and their frequent occurrence after the exhaustion of diarrhœa or vomiting, were urged as reasons for abstaining from depressing remedies. A case was cited in which, under these circumstances, small doses of opium had been used successfully.

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OLLIVIER, LANCEREAUX, DANJOY.—*On Albuminuria in cases of Lead Poisoning.* Arch. Gén., Nov., Dec., 1863; April, 1864. L'Union, 150, 1863. Schmidt's Jahrb., vol. 123, p. 43.

Ollivier has found in a series of cases occurring among workers in lead, who were neither addicted to drinking nor cachectic, that albumen was present in the urine. The albuminuria was either merely temporary, ceasing by the tenth day, or it continued up to and after the patient's dismissal from the hospital. Lead was discovered several times in the urine. Experiments performed on animals, in which acute poisoning was produced, showed also the presence of lead and albumen in the urine, and besides the alterations peculiar to morbus Brightii, together with deposits of lead in the kidneys. The duration of the unhealthy occupation and the kind of the antecedent toxic phenomena did not appear to have any influence on the production of albuminuria; on the contrary, individual peculiarities seemed to be of most importance. Ollivier regards the deposition of lead in the kidney as the essential cause of the renal degeneration, and this, again, as the cause of the albuminuria. When the latter is temporary the lead probably only passes through the kidney. He suggests that albuminuria is an attendant symptom on all poisonings, and is an expression of the excretion of the poison through the kidneys. Lancereaux has recorded 4 cases in which albuminuria existed during life, and nephritis was

found after death. Three of them were chronic, 1 comparatively recent. The alterations were such as are found in cases of granular kidney. Lancereaux thinks that these changes occur only in cachectic persons; they are, however, not peculiar to lead poisoning, since he has found them also in individuals suffering from the effects of mercury and sulphuric acid, and in one syphilitic subject who had taken Pot. Iod. for a long time. Danjoy's experience is confirmative of the above statements, and he adds that he has also met in such cases with cerebral affections and amaurosis. He considers the latter to result from the chronic nephritis which is produced by the lead. This view is supported by the circumstance that in several cases the amaurosis and the cerebral (usually epileptic) symptoms appeared and ceased coincidentally with the invasion and cessation of the albuminuria.

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SMITH, E.—*On the diet in Diabetes.* Lancet, Feb. 6, 1864.

Smith lays down the following directions:—(1) *Fluids.*—To be limited by degrees daily, until they shall not exceed  $5\frac{1}{2}$  lbs. in both fluid and solid food. Of this quantity 2 to 3 pints should consist of new or skimmed milk, and 1 pint or less of tea. Tea is very beneficial, since it tends to increase both the respiratory and the cutaneous actions. In the cold season, and at night, fluids should always be given hot. Of all the alcohols brandy is the best, and may be given with water only, or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time, and when milk is reduced in volume by cooking the daily quantity of fluid must be made up by an additional supply of the same or other fluid. (2) *Solids.*—Dr. Prout's combination of eggs and milk with sharps (the inner husk of wheat) substituted for bran is excellent. Four ounces of sharps, and as much of peas or lentils, may be made into bread or pudding, with milk, or into omelettes with eggs and herbs, and given when starchy food cannot be altogether intermitted. These, with cheese, gluten bread, meat fat, and oils, may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad, or drunk alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind should be allowed which is most agreeable. Four ounces of sharps, 3 oz. of wheaten flour, 5 oz. of peas, 1 lb. of meal, 2 oz. of cheese, 2 pints of milk, and 3 eggs, will afford more than about 13 oz. of carbon and 1 oz. of nitrogen daily.

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MARCHAL DE CALVI.—*L'Union Méd.*, Oct. 20, 1863. Brit. and For. Med.-Chir. Rev., Jan., 1864.

Contends that cerebro-spinal lesions are frequently the consequence, and not the cause, of the diabetic condition. He cites one case in which a female, æt. 38, had been diabetic seven years before a fatal attack of cerebral symptoms.

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ANSTIE, F. E.—*On some points in the treatment of Diabetes.* Brit. Med. Journ., Sept. 17.

Anstie thinks it dangerous to diminish suddenly the daily dose of opium, though it may be large, which diabetics are in the habit of taking. He thinks they require a larger proportion of fatty food, and that phosphorus in the form of hypophosphites is beneficial.

OWEN REES, M.D.—Lancet, Oct. 16.

Records the case of a female suffering from well-marked diabetes mellitus who obtained considerable benefit from the administration of *Liq. Arsenici Chloridi*, *ṃv ter die*.

LOWENSON.—*On a particular condition resulting from the epidermoid transformation of the Epithelium of the Bladder.* Petersb. Med. Ztschr., 2, p. 225, 1862.

Rokitansky describes as one of the results of chronic cystitis a more or less extensive growth of epidermis on the mucous surface, which ultimately leads to the formation of thickly laminated, whitish, glistening layers of epidermic cells, which become detached in large laminae. This change may be propagated to the ureters. Lowenson regards this degeneration as the starting-point of an advanced and interesting form of disease, of which he records the following instance:—A female, *æt.* 40, died of peritonitis, the abdomen being very painful and distended. There was a roundish tumour felt above the symphysis pubis, and stenosis of the mitral valve. At the autopsy the tumour was found to extend as high as the umbilicus, and to be closely adherent to the uterus. On cutting into it it was found to consist of the urinary bladder, enormously dilated, and filled with a very large quantity of small yellow globules, and of dully glistening scales lying free in their interstices. The mass, weighing about  $3\frac{3}{4}$  pounds, was exceedingly like a soup of boiled yellow peas, between which the flattened husks lay. The small, clear, yellow globules had a spherical or lenticular shape. Their diameter varied from 1 to 4 tenths of an inch; their surface was smooth, their consistence that of moist clay. The whole inner surface of the bladder was covered with laminar flakes, many of which lay between and in the globules. These laminae covering the wall of the bladder were elastic, firm, of a dull mother-of-pearl brilliancy, and the layers lying next to the cavity of the bladder resembled in colour and consistence the substance of the globules. After the removal of these laminae epithelial membranes could be peeled off the mucous surface. In certain places the transition and the transformation of the laminar deposits into the semifluid substratum of the globules was very evident. The mucous membrane of the bladder was normal, in some places only it was worn away, and depressions were left. The urethra and the ureters were normal. The kidneys were in a condition of granular atrophy. The large intestine was inflamed, the peritoneum covered with puriform exudation. On examination of the yellow globules with the microscope it was seen that young epithelial cells of the mucous membrane, often in a state of fatty degeneration, assumed gradually all the qualities of very large epidermic scales as they passed into the laminar deposits. Most of them were devoid of nuclei, many were granular, and, according to their position, presented various microscopic peculiarities. The action of reagents showed that the globules consisted of granular fatty matter, and calcareous, of

granule-cells, and epidermic scales. Cholesterine could not be detected in the masses; they consisted principally of stearine. Lowenson believes that under the influence of a continued inflammatory irritation an abundant epithelial growth took place, and the cells which were formed either immediately underwent fatty degeneration or after they had assumed the character of large epidermic cells. Then the contractions of the bladder detached fragments of the fissured deposits, and out of these the fatty concretions were formed, the globular form being imparted by mutual attrition and friction. It is not surprising that under these circumstances the wall of the bladder became hypertrophied.

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BILLROTH; BEER.—*Pathological changes in the Spleen.* Schmidt's Jahrb., vol. 123, p. 23.

(I) Acute diffuse processes.—These may occur with or without swelling, with hyperæmia or anæmia, and with varying degrees of consistence. In the *typhus* spleen the venous sinuses are but slightly dilated, the capillaries and arteries not. In the veins there was quite a surprising quantity of cells containing 2 to 6 nuclei, just as in the lymphatic glands of the same subjects. The normal cells are present in much smaller number. Among the larger cells it is not rare to meet with some one or two processes indicating their relation to the epithelium of the venous channels. In the splenic tissue and in the Malpighian corpuscles Billroth was unable to discover these large cells. The Malpighian corpuscles were almost always poor in cells, and therefore were not so evident, but were never absent. The large cells were most abundant in the spleens of those typhus subjects who died in the first or second week; at a later period they were more scanty. If their size is compared with the width of the hepatic capillaries it must be admitted that some of them may stick and be arrested there, or at least may give rise to obstructions in the circulation of the liver. In *pyæmia*, *septicæmia*, and *morbis maculosus*, the consistence of the spleen varies; the very soft quality is not characteristic, but dependent on the duration of the disease in each case, on the febrile marasmus, and the anæmia. On accurate examination no morphological change was ever found except a slight tumefaction of all the cell elements. In one case of *morb. maculos.* the spleen, without being putrid, was almost in a state of pap, and after it was hardened contained extraordinary large amounts of myeline products, leucin-globules, and cholesterine-crystals. (II) Acute circumscribed processes.—*Miliary tuberculosis* affects the whole organ. The whole parenchyma is dark, full of blood, firm, and exquisitely brittle, and contains scattered through its substance a great number of white deposits, of the size of a millet-seed, consisting of fine granular, molecular masses. Such spleens convey the impression that the Malpighian corpuscles are greatly enlarged, but Billroth positively declares that the tubercles are chiefly situated in the splenic tissue, and very rarely in the corpuscles, which are often compressed. The veins in the vicinity of the tubercles are enlarged, turgid with blood, and contain a great number of cells with large nuclei, almost as in the typhus spleen. *Hæmorrhagic infarctum and its metamorphoses.*—Infarcta are as frequent in the interior of the spleen as on its surface. Billroth doubts whether they are caused by embolism; he always found the venous sinuses in a

state of thrombosis (Grohé believes the hæmorrhagic infarctum to be produced by extravasation of blood), and tensely filled with blood. The blood-globules are often massed together in roundish heaps by agglutinating fibrine, presenting the appearance which has been termed "blood-corpuscle-holding cells." Billroth has not observed the transmission of an infarctum into an abscess. (III) Chronic diffuse process. *Simple hypertrophic spleen.*—The alterations in this state may be very various. The splenic tissue may contain a great excess of cells, while the plexiform fibres condense and thicken, and the capillaries enlarge. The highest degree of condensation of the plexiform tissue leads to disappearance of the cells. In some cases considerable enlargement of the spleen depends only on hypertrophy of the plexiform tissue, while the capillary veins may remain normal. In other cases they are narrowed or enlarged. The walls of the larger veins and arteries are never thickened, but the venous epithelium is often abnormally large. Yellow pigment is often present, but this is not peculiar to the hypertrophic spleen. The Malpighian corpuscles often are unaltered. Billroth, however, observed in two cases, where there existed enormous enlargement of the lymphatic glands and splenic tumour without leucæmia, these vesicles generally enlarged, and of cartilaginous consistence, the plexiform tissue thickened with local fibroid, cicatrix-like formations. The degeneration does not remain limited to the Malpighian corpuscles, but extends itself in their vicinity, and may lead to obliteration of the small veins. Diffuse contractions are not met with in the spleen. *Hypertrophic spleen, with black pigment.*—This Billroth considers to be the special result of intermittent fever. The splenic tissue is not essentially altered; the Malpighian corpuscles are almost normal. The brownish-black pigment consisting of granules and grains irregularly massed together in globular forms or as mere flakes, was in two cases scattered about the Malpighian vesicles and the trabeculæ; in a third case the vesicles were almost quite free, but the whole tissue was full of it. Grohé believes the pigment to be derived from capillary hæmorrhages. The *bacony* spleen is not always enlarged, but is always abnormally firm. Two forms are to be distinguished. In the first the so-called sago-spleen, the bacony matter lies exclusively in the Malpighian corpuscles, and degeneration proceeds further from this starting-point. The deposit takes place from the arteries, but whether it occurs in or between the cells remains doubtful. The capillaries do not become obliterated. The second form is that where the bacony matter appears in the walls of the small veins. In sections unaltered epithelium is seen on the inner surface of the structureless thickened wall of the vessels. The intermediate tissue is poor in cells, in part quite altered and changed into an homogeneous substance, strongly refracting light. Billroth has not met with a combination of these two forms, which Sch. Seidel affirms to occur. He says, also, that amyloid spleens are very suitable for studying the capillary veins, since they are well adapted for injections. (IV) Chronic circumscribed processes.—Cheesy tubercle in three cases was concurrent with enlargement of the spleen. The tubercles were numerous, and it was evident that they were developed out of miliary. The masses, some of which were as large as a walnut, were either defi-

nately circumscribed or bounded by a layer of thickened connective tissue. Hæmorrhage and pigment formation had not occurred in them, but pigment existed in the more or less hypertrophic intervening tissue. Cholesterine was abundantly present in all three instances. Atheromatous degeneration of the splenic artery, which is common in old persons, was never found to extend to its branches.

**Dron, A.**—*On Syphilitic Disease of the Epidydimis.* Arch. gén., Nov., Dec., 1863. Schmidt's Jahrb., vol. 121, p. 31.

Dron observed in the course of 6 months 16 cases of orchitic disease in syphilitic hospital patients at Lyons. In 14 of these the epidydimis alone was affected. The globus major is the part most often and most considerably diseased. In 9 of the 16 cases both the organs were attacked at the same time, but one side generally in a greater degree than the other. The existence of the disorder often is but little noticed; in the 5 cases where its commencement was observed it is stated to have appeared at the earliest 2, and at the latest 5 months after a chancre. Other secondary symptoms are always present. The disorder yields to treatment, on an average, in about 2 months; Pot. Iod. seems to be quite as efficient as mercury. If left to itself it probably continues for an indefinite time.

**Sturges, O., M.B.**—*Bronzing of the Skin in connection with diseased Supra-renal Bodies.* Lancet, Nov. 19, 26.

Sturges relates three cases, in all of which the supra-renal bodies alone were the seat of disease of any extent likely to interfere with life, and in all the bronzing of the skin was coincident with the first notice of impaired health. In one case the gradual darkening of the integument could be watched almost from day to day as the disease advanced, till near the patient's death, some parts of the body were almost black. Sturges does not regard every case of debility with bronzing of the skin as an instance of Addison's disease, but contends that in cases where symptoms of debility arise and persist which are inexplicable by reference to the condition of any other part of the organism, and which are accompanied by bronzing of the skin, the supra-renal capsules are diseased. He considers it as doubtful, in spite of Dr. Bucknill's case (examined by Dr. Ogle), whether exceptions to this rule ever occur.

#### CUTANEOUS SYSTEM.

**ERASMUS WILSON.**—*On the Phytopathology of the Skin, and Nosophyto-dermata, the so-called Parasitic Affections of the Skin.* Brit. and For. Med.-Chir. Rev., Jan. 1864.

**CHAUSSIT, M.**—*On the so-called acute Parasitic Diseases of the Skin.* L'Union, 101, 103, 105, 106, 108, 110, 111, 1863. Schmidt's Jahrb., vol. 121, p. 44.

Chaussit lays down the following as the necessary criteria of the parasitic nature of a disease:—(1) The parasite must be present from the very commencement. (2) It must be shown that its contagious quality depends on the transfer of fungi-sporules from diseased to healthy individuals. (3) Parasiticide treatment must be more rapidly



successful than others. After examining in detail the nature of the supposed parasites, the nature and the contagious quality of parasitic diseases, and, lastly, their treatment, the author submits the following conclusions:—(1) It is possible that there are vegetable parasites which find on the surface of the human body favorable conditions for their development. (2) At the present time it is not demonstrated that such parasites constitute the essential and necessary cause of certain cutaneous diseases. (3) Neither microscopic nor chemical nor anatomical examination support the view of the vegetable nature of the favous formation, or of the round corpuscles described as fungi-sporules. (4) They rather prove that the elements of the favous formation are produced by the organism, and that the other corpuscles may have proceeded from components of the tissues altered by disease. (5) In all cases these products are not the initial phenomenon of the so-termed parasitic skin diseases. (6) It is wrong to regard them as the cause of their contagious property, because they are formed with the same characters in other non-contagious diseases. (7) Even the advocates of the parasitic theory do not agree respecting the part which these hypothetic vegetable formations play in the pathogeny of skin diseases. (8) It follows that at the present time we cannot admit in dermatology either a disease essentially depending on a parasitic vegetable growth or an antiparasitic treatment.

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WARBURTON BEGBIE, J. — *Clinical Observations on Favus*. Edinb. Med. Journ., March, 1864.

Begbie advocates depilation in the treatment of favus as superior to all other modes of treatment. It is, however, to be combined with the use of phyticide applications, as a solution of corrosive sublimate, a liniment of huile de cade, and sulphate of mercury ointment. The precise plan pursued in all the cases of favus recently under Begbie's care is as follows:—On reception the patient has at once a hot bath, and both head and body are thoroughly cleansed with the aid of soft soap; the hair of the head is then cut to the level of the favus crusts, and the oil of juniper is applied by means of a thick camel-hair brush. On the succeeding day poultices of potato starch are placed over the head, and diligently continued till the complete separation of the crusts is effected. This done, the juniper oil is reapplied, and on the day following the process of depilation commenced. While this is continued the daily use of one or other of the phyticide applications is being made. Care should always be taken that the depilation is complete, and that it is persevered in until the growth of healthy looking hairs over all parts of the scalp is observed. Thus, the treatment may require many weeks for its thorough execution, but when it is remembered that the cure effected is radical its lengthened duration may well be tolerated. A case is recorded in which it seems probable that favus-sporules gave rise, first, to herpes circinnatus and subsequently to favus in the same part.

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TILBURY FOX, M.D.—*On Impetigo contagiosa*. Brit. Med. Journ., Jan. 16, April 30, May 7, 21, June 4.

The author applies the above name to a form of disorder designated

under the indefinite name of "porrigo," by Mr. Startin. On the scalp it appears as isolated, circular, flat, yellowish, granular-looking scabs, without any inflammatory areola, developed as a *primary* disease from a small pustule; on the general surface as small red points, isolated most usually, becoming pustular, then quasi-bulbous (always umbilicated), and presenting a circular form, with more or less redness around, attaining the size of a shilling or more, and then breaking out into superficial, wet-leather-looking, ulcerated surfaces. The contents of the pustules were made up of puriform material (a plastic lymph), pus, fat, epithelial cells, and parasites, animal (*Steatozoon folliculorum*) and vegetable, resembling the *trichophyton*, and also bodies resembling amyloid corpuscles. The parasites are only found occasionally, and are accidental components of the disease. Certain deviations are met with from the normal standard. The disease is essentially and highly contagious, and the specific contagious quality resides in the secretion of the pustule, and is not parasitic, as shown by microscopic examination. Cases were quoted to show that the disease was inoculable, by the introduction into the skin of a sound person of some of the discharge. Fox points out the similarity between cases of impetigo contagiosa and so-called "bastard vaccinia." The latter was in many cases simply impetigo contagiosa, which mostly followed vaccination, or could be traced by contagion through a series of cases to some one subject in whom the disease had followed close upon vaccination. Impetigo contagiosa of the scalp often coexisted with so-called bastard vaccinia of the general surface. Inoculation produced a pustular condition closely resembling vaccinia. Some of the cases appeared to be impetigo modified by the vaccine virus. Fox was sure that vaccination had a great deal to do with the disease, and in this he was confirmed by Dr. Fuller's testimony as to a remarkable epidemic of skin-disease which was consecutive to vaccination at Southampton. The treatment consisted in the application of sulphur ointment and administration of cod-liver oil and iodide of potassium. Inoculation experiments proved the contagious nature of the disorder, while it was also positively determined that no vegetable parasite existed in the matter employed.

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TILBURY FOX, W., M.D.—*On the nature of so-called Parasites of the Skin.* Brit. Med. Journ., March 19, April 2.

Fox argues against the correctness of Erasmus Wilson's view, and endeavours to show, first, that the attributes possessed by the so-called parasites are sufficiently distinctive of vegetable bodies. These he enumerates as—(a) structural, (b) chemical, and (c) vital. Of the first, he says, we are enabled to distinguish the presence of cellulose externally, and internally the primordial utricle coloured by iodine; also the *tubed* mycelial form and fructification, the latter being unrepresented in animal structures. Of the second, ether, chloroform, and spirit of wine, render epithelial tissues transparent, and dissolve all fatty substances, while vegetable parasites remain unchanged. Ammonia dissolves animal products, *e.g.* pus, puriform secretion, crusts, &c., converting them into a gelatinous mass, and caustic potash has the same effect. Of the third he affirms that in the vast majority of cases

the external air has certainly free access to those situations in which fungi are wont to occur, so that the germs of these formations are derived from without. He states also that a separate hair affected with parasitic growth, after being put aside for some time in a warm place, will sometimes exhibit a luxuriant crop of mycelial threads and sporules, while not a particle of fungus can be found in any other part of the field. This proves that the formations supposed by Mr. Wilson to originate from granular degeneration of living tissues will grow when separated from them and deprived of any nutrition from the blood. The occurrence of a union of cells, as in the formation of the mycelium, is without example in the epithelium of animal tissues. Secondly, Fox insists that it is impossible to admit the possibility of a conversion of an animal into a vegetable tissue, which he deems contrary to the law of limitation, by which tissues preserve their type. A degenerating structure loses its vitality alike in all its parts, and undergoes chemico-physical change; it cannot assume a different form and enter upon a new kind of life. Fox sums up his arguments as follows:—"Having regard to the law of limitation as it obtains generally; to the vegetable nature of the parasites; the differential attributes of animal and vegetable; the effects of inoculation (the latter now succeeding, now failing); the experiments of various observers, showing that nutrition is lowered in its standard in cases of parasitic disease, both in man, animals, and vegetables; the experiments of Stilling on frogs; the free existence of the germs in the air; the existence of fungi generally in the hard structures of animals; the independent life of the parasite; the adaptation of certain soils to certain vegetations; the effects of treatment (a combination of local and general remedies succeeding best in tinea); the distinct evidence of the existence of a state of local malnutrition, before the appearance of any fungus, except thrush, potato disease, and the like—it appears certain that, in all cases of parasitic complication, two conditions are necessary—the presence of a suitable soil, which may or may not be appreciable to the naked or microscopic eye, and the implantation thereon of the germs of a parasite derived *ab externo*. These conditions may vary much in degree; the parasite may take hold upon the surface, and the soil may be too little developed to nourish it; hence its death and disappearance. This explanation holds equally good in tinea, in thrush, in the instances of fungi found in the cavities of tuberculous lungs, the stools of cholera, or the ordinary shreddy discharges of muco-enteritis, as in the ordinary mouldy jam or oïdial vine disease. The doctrine that the tissue of animals can retrograde into vegetable structures, like that of spontaneous generation, shocks my mind and offends my reason."

ZIEMSEN.—*Sycosis*. Greifsw. Med. Beitrag., p. 99, 1863. Schmidt's Jahrb., vol. 123, p. 298.

The author's researches confirm the observations made by Köbner respecting this disease and its relation to mycosis tonsurans, and lead him to the following conclusions:—There is a parasitic and a non-parasitic (inflammatory) form of sycosis. The former depends on the development of a fungus which appears to be identical with that of

herpes tonsurans. Like Gruby and Koch, he always found the fungus chiefly between the hair and the interior root-sheath, and describes as they do the form of spores and sporidia-chains as the predominating. In the later stages of development Ziemssen found some conditions varying from those described by the above-mentioned observers, but agreeing with the account given by Köbner. He observed, not only mycelium-threads of considerable length, and which often branched dichotomously, but also the hairs of the beard, like those of the scalp in herpes tonsurans, were so penetrated by the fringe, that the connection of its fibre-cells was loosened, the hair breaking off short close to the surface of the skin, and presenting deep lateral indentations and fractures. He relates the following successful inoculation. He rubbed for a long while a spot of his chin, which he had shaved, irritated till it was red, and moistened with saliva, with a number of hairs containing fungi. After a week he felt itching, and there appeared a knotty infiltration of the size of a pea, which was perforated by a hair and covered by a scab. After 4 weeks had elapsed the infiltration had considerably increased, and caused painful tension. A central hair was drawn out of the nodule, which presented a white mass lying between the hair and the root-sheath. After the application of solution of caustic potash a layer of fungi was seen under the microscope, consisting of spores and a few threads. On the contrary, the scales and scabs lying on the infiltrated spot nowhere showed any spores. Ziemssen says this case proves that where a fungous growth exists in sycosis it is to be regarded as the cause of the whole disease. Cases of non-parasitic sycosis are characterised by a leathery condition of the affected skin, and by an eruption of pustules, which at first were discrete, but afterwards crowded together, were thickened at their basis, and had a hair in the centre of each. The fungoid growth of the papillary structure, the suppuration, and the fungi, were absent. Ziemssen examined also 6 cases of alopecia circumscripta, but found no fungi in any, nor any loss of sensibility in the bald patches.

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HILLIER, T., M.D.—*Is Alopecia areata or Tinea decalvans contagious?*  
Lancet, Oct. 1.

In a large parochial school at Hanwell, containing from 1100 to 1200 children, of both sexes, and from 6 months to 14 years of age, a number of the children were found all at once to have on their heads patches of baldness, quite smooth and pale. Most of the patches were round, some were more irregular in shape. The number of children affected was 43, and they were all girls from 7 to 14 years of age, who lived together. There was no case of the same kind amongst the infants or the boys, who occupied a separate part of the building. On more careful inquiry it was ascertained that 1 girl had been suffering from this disease of the scalp in an aggravated form for 1 or 2 months, and had been allowed freely to associate with the others. In the root-sheath of some hairs some amount of parasitic growth was detected, but on the whole it was very small. Hillier has failed, like others, to detect any parasite, even in cases where baldness has been extending rapidly, and is inclined to believe that alopecia in circumscribed

patches may arise independently. He states that we must not expect to find the parasite when the hairs have all come out, but when the disease is advancing and attacking fresh hairs. The best treatment consists in blistering the affected patches.

J. RUSSELL, M.D.—*Cases of Pemphigus apparently originating in disease of the Cutaneous Nerves.* Med. Tim. and Gaz., October 29.

Russell notices—as leading features of his cases—the nature of the disease itself, vascular determination followed by effusion of fibrinous fluid; the occurrence of the malady in distinct paroxysms; the sequence observed in the phenomena, marked nervous disturbance in the particular spot about to become the seat of the eruption taking the lead, and remaining limited to the spot; and in the second case the presence of a cause operating directly upon the nervous system through the mind; finally, in the first and most characteristic case, in which the disease was almost united to the constitution, a remarkable tendency to perspiration and habitual turgescence of face. In herpes zoster, and probably urticaria, the phenomena are very similar in nature.

DUCHESNE-DUPARC. — *On the treatment of Prurigo.* Edinb. Med. Journ., Aug. J. de Méd. et de Chir. pratiq.

Prurigo is not a disease which directly compromises the existence, but its obstinacy, its tendency to relapse, and the insupportable annoyance it occasions, render it one which causes much trouble and anxiety to the practitioner. Prurigo especially affects the nervous and the suffering. It has been supposed to be contagious, but this is certainly not the case; it may be complicated with itch, but, when simple, no acarus or any other animalcule is present. What distinguishes the two diseases further is that the anatomical character of prurigo is the papule, of itch the vesicle. Sometimes, no doubt, the diagnosis may be difficult. Thus, in chronic prurigo some papules may present at their summit a small vesicle, and, on the other hand, the vesicles of itch may rest upon a papuliform induration; but even here the doubt should not be frequent, and should not last long, both because such cases are rare and, besides, the papules of prurigo occupy the back of the limbs and the posterior surface of the trunk, just the contrary of what is noticed in itch. The pruritus again, affords light to the practitioner who is in doubt. This is the essential symptom of prurigo, and is much more marked and persistent than that which is met with in itch. Besides, the small lamellated crusts which follow the vesicles of scabies could not be confounded with the black concretions formed in prurigo by drops of dried-up blood. The violent itching of prurigo may be simulated around the anus by ascarides in the rectum, by hæmorrhoids, by slight inflammation of the rectum, and in the case of the genital organs by pediculi pubis or eczema of the scrotum or vulva. In a practical point of view, there are only three forms of prurigo—the recent, the chronic, and that which was called by Alibert the latent, where papules cannot be seen by the naked eye. If prurigo is recent the antiphlogistic treatment affords the best results. If the subject is young, sanguine, and plethoric, and if the eruption occupies large surfaces, Duparc commences by bleeding at the arm or

applying leeches to the anus; he then prescribes a milk and vegetable diet, cooling drinks, especially lemonade prepared with nitric or sulphuric acid and sweetened with syrup. He lays much stress upon bran baths, prepared by boiling 4 lbs. of bran for half an hour in a sufficiency of water and mixing it with the water of the bath. The affected parts are frequently washed with decoction of lettuce, dulcamara, or poppy; or the lotions are replaced by prolonged inunctions made with oil of hyoscyamus, opiate cerate, or the following—chloroform grs. 75 + glycerine grs. 300. This treatment, combined with mild purgatives, often lead to a sudden and complete cure. But if the prurigo be, as is usually the case, of old standing, we must trust chiefly to external agents, though still insisting upon a suitable regimen and the use of acid drinks. The alkalis here form excellent topical applications; the salts of potash and soda, in sufficiently diluted solutions, both favour the resolution of the papules and calm the itching. With the same object we may have recourse to simple or aromatic fumigations, vapour baths, sometimes even corrosive sublimate. Duparc, however, gives the preference to tar in suspension or incorporated with lard and united with opium. Lotions and baths of tar water should be frequently renewed. The following formula gives excellent results:—Tar 60 grs., gummy extract of opium 15 grs., lard 1 oz. In the case of baths and lotions it is well to add a gelatinous substance (such as 2 lbs. of glue to 200 quarts of water) because the papillæ parts are the most sensitive of the skin. Duparc finds sulphurous preparations only moderately useful in prurigo. They only do good when it is complicated with pityriasis or psoriasis. The most useful of the mineral waters are those which are alkaline, and contain a thick vegetable principle, such as the waters of Neris. In prurigo pudendi and in prurigo podicis we must often have recourse to the application of prussic acid, sulphate or muriate of morphia, chloroform, &c. In some patients benefit is derived by the occasional use of astringents and antispasmodics; in others slight and altogether superficial cauterizations do good. Nevertheless, though topical applications are very important, the necessity for internal remedies must not be overlooked, especially when the disease is of old standing. It is here that aconite is very useful. Many years ago M. Cazenave derived great benefit from the use of this substance in papular cutaneous affections, especially in prurigo. Considering prurigo as a neuralgia of the papillæ of the skin, having as an accessory character the appearance of papules, Cazenave had recourse to the simultaneous employment of alkaline baths and the use of the following pill:—alcoholic extract of aconite, extract of taraxacum, ana gr. 15, M. ft. in pil. 40, i—ij o. n. et mane. Duparc generally prefers tincture to the extract of aconite; where the case is very obstinate, the use of the arseniate of iron and emollient baths are often useful. The prolonged use of the bath is especially important. Duparc often directs them to be of 2 or 3 hours' duration, and to be repeated daily. If, while, the patients are undergoing them, friction of the affected parts of the skin, or, still better, an intelligent shampooing, be practised, a very beneficial modification of the skin will be brought about.

COLLES, W.—Lancet, April 9.

Affirms that he has greatly improved, and even cured, cases of anæsthetic leprosy in India by applying to the diseased parts ointments of arsenic and biniodide of mercury. The former is used of a strength varying from 10 to 30 grains to the ounce, the latter in the proportion of 15 grains to the ounce. The arsenic was applied for about a fortnight, night and morning; after it had caused the development of pustules like those produced by tartar emetic the biniodide was substituted, which produced vesication. This process was repeated once, or oftener, on various diseased parts, about 6 square inches of surface being acted on at one time. There were indications of absorption of the arsenic.

KALB.—Brit. Med. Journ., June 18.

Recommends, as the most economic and infallible method of curing itch, a bath to which is added 1 to 2 kilogrammes (2·2 to 4·4 lbs.) of sulphuric acid. The patient on entering the bath soon feels an itching, which causes him to scratch himself; and in this way the scabs, &c., are removed, and the acid allowed to operate on the acarus, its larvæ, and its eggs. In the course of a few minutes more the stinging sensation caused by the acid is replaced by a most agreeable feeling, so that the patient gladly remains in the bath during the 30 or 60 minutes required for his cure. One bath usually suffices, but Kalb finds that a repetition of the bath every second day is an excellent means of cure of the ecthyma, ulcers, impetigo, and eczema, which so often accompany itch. By way of economy, the same bath may be used for several soldiers, as its efficacy is not readily destroyed.

V. FRANQUE, A.—Wurzb. Med. Ztschr., 4, p. 73, 1863. Schmidt's Jahrb., vol. 123, p. 43.

Records a case of hæmorrhagic sweat occurring in an hysterical female, æt. 45, whose catamenia were regular. The bleeding ensued 3 times after long-continued severe convulsions, produced by mental emotions. On the fourth occasion Franque himself was present. The patient suffered for 4 days previously the most violent pricking pains along the vertebral column, in the left ear, the forehead, and the left arm. After the convulsions had lasted an hour there broke out all over the body a copious sweat, which appeared red at the parts which had been the seat of pain, and derived its colour from actual blood containing red globules. The convulsions and the pains now gradually ceased. As the skin appeared unbroken, Franque presumes that the hæmorrhage took place from the sweat-glands.

KER, T. F.—Lancet, August 13.

Recommends the use of armoracia in acne rosacea. He gives 2 ounces of the Inf. Armoraciæ co. with ℞ of Spt. Ammon. co., and a little syrup of ginger, to be taken night and morning; applies a milk infusion of the fresh root to the parts affected, and enjoins the avoidance of stimulating liquors, and the occasional use of gentle aperients.

SPENDER, J. K.—*On the nature and treatment of Non-syphilitic Psoriasis.* Brit. Med. Journ., Jan. 16.

Spender recapitulates his arguments and facts as follows:—(a) Non-syphilitic psoriasis, so far as it can be proved to be non-syphilitic, presents itself under the three forms of acute, subacute, and chronic. (b) Psoriasis, like its congeners, probably arises from “tissue irritation,” which may be aggravated or perpetuated by an unhealthy state of blood. (c) The acute form requires to be treated locally by black wash and glycerine; the subacute and chronic forms are relieved by tar ointment. The preparation which Spender employs consists of Ungt. Picis diluted with a large per-centage of chalk to give it consistence, and, finally, with a moiety of zinc ointment to give it astringency. (d) The internal administration of arsenic is generally necessary for the cure of psoriasis when it has passed into the chronic stage. (e) In doubtful cases, where arsenic, single handed, seems to fail, the union of arsenic with bichloride of mercury will sometimes produce the most satisfactory results. In anæmic persons the therapeutic properties of arsenic will sometimes lie almost dormant, until it is combined with some preparation of iron.

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NAYLER, G.—Brit. Med. J., Sept. 3.

Gives the following precepts for the treatment of lichen:—In the acute stage the use of purgatives should not be neglected, as the Mist. Magnes. Colch., to which antimony may be added, and as an external application either Goulard lotion or one holding in weak solution creasote and bichloride of mercury gr. i ad ʒj. Lotio Carbonis is also of considerable benefit in these cases. In the more chronic conditions, and in lichen agrius, small doses of mercury should be given; and, indeed, in the greater number of papular complaints this mineral will be generally required, the amount not exceeding gr.  $\frac{1}{6}$  of the biniodide, or gr.  $\frac{1}{8}$  of bichloride. Before going to bed some mercurial ointment should be rubbed into the affected surface. That in use at the Blackfriar's Hospital is a compound of bisulphuret and nitric-oxide of mercury, with a little creasote. In the lichen urticatus of children the same means may be adopted, regard being had to the age. Thus, to a patient of 3 years old the carbon lotion should be diluted with an equal amount of water, and the mercury diminished by two thirds for a dose. When the eruption is confined to a few spots, or takes place in a weakly subject, quinine or iron may be prescribed with advantage, the local treatment remaining the same. The tincture of aconite in certain cases is highly spoken of by Neligan, and as a local measure the same author recommends conium, given thus, viz., Succi Conii ʒj + Glycerinii ʒss + Sodæ Carb. gr. v + Aquæ ʒj. Baths are highly serviceable in these disorders, but the temperature should not be too high. Alkaline baths, or sulphuretted, may be serviceable and where the irritation is very great, and the skin rough and dry, a starch or gelatinous bath will be productive of considerable comfort. Scrofulous lichen requires, according to Hebra, Ol. Morr. ʒss *bis die*, and in lichen ruber the best remedy is arsenic.



ERASMUS WILSON.—*On the nature, the varieties, and the treatment of Eczema.* Brit. Med. Journ., Nov. 19.

Wilson lays great stress on the distinction between the moist and dry forms of eczema, comprising under the latter *E. erythematosum*, *E. papulosum*, and *E. squamosum*; and under the first *E. vesiculosum*, *E. ichorosum*, and *E. pustulosum*. In these the amount of exudation serous or muco-purulent is often astonishing, forming a positive flux. According to his observation the dry forms of eczema are more than twice as frequent as the moist. The copious exudation of *E. ichorosum* is not merely a serous fluid expelled from the vessels in consequence of over-distension of their parietes; it is a positive secretion, in which the cellular elements of the cuticle take an active part, and bestow upon the fluid its special properties—for example, its density and frequent opalescent appearance. That same influence which causes the discharge of such immense quantities of fluid from the mucous membrane of the bowels in cholera is also active in *E. ichorosum*. In the course of a few hours several pints of fluid may be poured out from the denuded surface of the derma, partly, no doubt, by way of excretion, but not less actively also by way of secretion. The causes of eczema are grouped under the heads of general and local debility, the former comprising assimilative, nutritive, and nervous debility. In 300 cases 278 were referable to general and 22 to local debility; and of the above 278 there were 143 examples of assimilative debility, 103 of nutritive debility, and 32 of nervous. If we consider them in the order of their numerical importance, the arrangement in reference to the leading remote predisposing causes would stand as follows:—deranged digestion, 51; errors of diet, 33; weakly parentage, 21; vicissitudes of cold, heat, and moisture, 21; anxiety and affliction, 16; hereditary diathesis, 16; ungenial climate, 14; constitutional and organic disease, 14; excessive labour, mental and physical, 11; uterine, reproductive, and puerperal derangements, 11; errors of hygiene, 10; gouty and rheumatic diathesis, 8; deranged menstruation, 7; fevers, eruptive and malarious, 7; excessive growth, 7; vaccination, 7. Of constitutional remedies the most important are aperients and tonics; among the former Wilson values highly sulphate of magnesia, which may be given in combination with small doses of quinine and nitric acid. Arsenic is only to be given when other means have accomplished all that they can; it should always be administered in small bulk and on a full stomach. It should be given in small doses, and its use should be continued for a considerable time. The local treatment of eczema must be conducted according to the general principles of surgery. The inflamed part must be soothed in the acute stages of the disease, it must be supported and stimulated during the chronic stages, and it must be excited to a new action in the most chronic stage of all. To soothe we must employ water-dressing, unguents, cerates, well-adjusted bandages, and rest. To give local tone, we must have recourse to stimulant applications of various kinds. The water-dressing is useful where there is heat, pain, itching, or tension, but should not be continued too long, lest it lower the tone of the tissues and perpetuate the eruption. When great irritability prevails in the constitution of the patient we require to have recourse to seda-

tives; and where irritability is present in the part we may find it difficult to contrive a dressing which will perfectly suit the eruption. Sometimes a sedative, such as the acetate of plumbi, added to the ointment, relieves the irritability; sometimes a more stimulating application, such as the unguentum resinae flavæ, or the juniper tar ointment. At other times we may put an end to the irritability by pencilling the surface with a weak solution of the nitrate of silver in nitric ether. Again, we rarely fail to relieve the irritability by washing the part thoroughly with the juniper tar soap, drying it, and dressing and packing it up again as before. The erythematous form of eczema yields very kindly to the benzoated ointment of oxide of zinc; so also do the moist forms of the eruption, the dressing being aided by moderate compression with a bandage. Eczema ichorosum must be followed up patiently with this plan of local treatment until the ichorous secretion ceases to be formed and the eruption heals. But the chronic forms of the disease, represented by eczema squamosum, require a stimulant treatment. Washing with the juniper tar soap, dressing with the unguentum resinae flavæ, pencilling with a solution of nitrate of silver, or a strong lixivium of potash.\* In the moist forms of eczema there is always a considerable quantity of serous lymph present in the tissues of the skin; and until that serous fluid is removed, either by absorption from within or by excretion from the part, the skin cannot return to its normal state. It is to the presence of this fluid, infiltrated in the substance of the skin, that the chronic forms of eczema owe their thickening, their induration, and their rupture; the latter giving occasion to fissures and cracks, and being most conspicuous where the skin is naturally thick and wrinkled, as on the hands and fingers or the feet, behind the ears, along the borders of the mouth and in the cleft of the podex. For this state of the skin in an aggravated form there is no remedy to compare with a solution of caustic potash. That application seems to purge the skin of its abnormal fluids, to promote absorption, and to give energy to nutrition; and it is amazing with what rapidity the cracks will heal and the most chronic state of disease get well under this treatment.

MEADE, R. H.—*On the treatment of Eczema.* Brit. Med. Journ., Dec. 17.

Meade finds the most efficacious internal remedies are bichloride of mercury and antimony. The latter is more especially useful in acute eczema occurring in persons of a full inflammatory habit, who are also, perhaps, subject to gout or rheumatism. Tartar emetic given here in combination with aperient salines and magnesia will often cure the complaint very quickly. We frequently see very annoying cases of eczema in oldish people, in whom the skin round the anus and about the scrotum or labia is affected. The combination of bichloride of mercury and tartar emetic is particularly useful in these cases, effecting a cure in a week or two after they have resisted other treatment for 2 or 3 years. The dose of bichloride is gr.  $\frac{1}{16}$  *ter die* + Ant. Pot. Tart. gr.  $\frac{1}{8}$  in Dec. Sarzæ or Dec. Dulcimar. Eczema in infants is very bene-

\* Whenever these stronger local remedies are used, the eruption should be subsequently dressed with the benzoated ointment of zinc, and then carefully packed up.

cially treated by Hydr. Bichl. gr  $\frac{1}{60}$ , with fluid extract of sarsaparilla and Glycerine.

DEVERS.—*On the spontaneous origin of Malignant Pustule as the result of internal causes.* L'Union, 24, 25, 1864. Schmidt's Jahrb., vol. 123, p. 50.

The possibility of the spontaneous origin of the disease which was asserted by the earlier writers was denied by Enaux and Chaussier. Nélaton and Vidal admit that the disease may be produced by inoculation with morbid matter, and may also originate spontaneously. Devers' observations, made in the department of Landes, in France, are to the following effect. The district of La Bénate is situated in a barren, dry region, with a calcareous soil, and has a population of about 500 inhabitants. Since the end of the previous century, on account of the want of grass fodder, trefoil and clover were laid down, and the cattle were driven into a neighbouring forest for pasture. Coincidentally with this a raging pestilence broke out among the horned cattle and the sheep, viz., malignant pustule, which only subsided, and that gradually, after the natural meadows were restored and many vineyards laid out, by which the live stock was much diminished. Since 1830 no occurrence of malignant pustule was any longer observed among the cattle, but, on the contrary, from a date 10 years earlier it began to prevail among men. The first case, in a man aged 70 resulted from the prick of a thorn; in the 2nd and 3rd cases, one of which proved fatal, infection was doubtful; in the 4th and 5th cases it was clearly demonstrated; in the 15 other cases observed after 1830 there was decidedly no communication of disorder; in the period from 1835 to 1848 no case occurred, but from thence up to 1863 there were 12 reported. On the whole, 20 persons (6 m. and 14 f.) were attacked, of ages varying from 18 to 70; 5 females died, but no males. The pustule was situated 16 times on the arms or on the hand, 4 times on the face. The conclusions which the author draws from the history of this epidemic are as follows—(A) *Causes.*—In La Bénate carbuncular fever appeared among animals, in consequence of bad feeding, and disappeared again after about 30 years, when the cause was removed. During this epizootic some cases of pustula maligna were observed in men, which were directly communicated by contagion from without. After a pause of 13 years there have again been observed for some years in men numerous cases exactly like the first, but as the disease in animals had ceased for a long time these could only have proceeded from internal causes. These causes appear to develop themselves in men under the influence of excessive heat and dryness during the summer. (B) *Nature of the disease.*—The pustule is the most common result of the action of the poison of carbuncle upon men, whether the same be introduced from without or has originated spontaneously in the system. The special reaction of the human organism in the endeavour to remove the poison induces the formation of the pustule, unless its powers are overwhelmed by the excessive quantity of the spontaneously produced poison, or by the direct reception of the same into the circulatory, digestive, or respiratory channels. The carbuncular poison concentrated in the pustule appears at first to suffer

an arrest, and even a weakening of its active properties (especially of its inoculability, according to the experience of the Medical Society of Eure and Loire), but soon regains its original malignity, destroying the neighbouring tissues and producing the usual disorders. In the cases where the reaction of the organism, in consequence of the excessive virulence of the poison, does not take place in the manner described, another variety of carbuncular disease arises, termed by Fournier malignant carbuncle, by Maunoury carbuncular fever, by Bourgeois gangrenous erysipelas. This last variety appears in men only exceptionally, but is the rule in animals; the converse also is the case. Malignant œdema (which the author has not observed) appears to occupy an intermediate position between these two chief varieties. (C) *Prognosis*.—This is very different, according as the pustule has been treated early and in a judicious manner or not. In the first case the patients all recovered quickly and without grave accidents; in the other 5 cases of death occurred, and only 3 who had not been treated recovered after great danger and long suffering. It is more dangerous if the pustule is situated on the face than when it is on the arm or the hand. (D) *Treatment*.—The malignant pustule is to be destroyed immediately, under all circumstances, whatever be its form, its seat, or the stage of its development. The author found the actual cautery (*ferrum candens*) the best remedy, and always successful in his hands. It has the advantage, especially in the country, of being always at hand, it only destroys the parts which it touches, promotes the effusion of a large quantity of serum, and induces the necessary reaction in the adjacent parts better than any other means. If the epidermis is elevated by recently exuded serum and separates itself around the necrosed part the cauterization has not been sufficiently deep, and must be repeated. The next most efficacious means is caustic potash, others are much inferior. The after-treatment consists in cold compresses, the application of charpie wetted with decoction of oak bark or cinchona, and repeatedly touching with nitrate of silver to promote the healing process. The diet must be strengthening and exciting; poultices, leeches, and low diet are injurious. (E) *Prophylaxis*.—This consists, when sources of external contagion are present, in diminishing the number of cattle, improving the quality of their food, and allowing them, especially during the heat of summer, to be but little fatigued. The bodies of diseased animals must be buried in deep pits far from human habitations, and men themselves must observe the greatest cleanliness, and wash every abrasion of the skin immediately with vinegar, &c. It was only by the use of these means that the inhabitants of La Bénate remained almost entirely exempt, and that the pest ultimately ceased among the cattle. It is less easy to afford protection against the internal or spontaneous origin of the disease, as its causes are more difficult to avoid. Devers counsels to mitigate as much as possible the effect of bodily exertion in the heat and drought, by providing shady plantations, springs, and cisterns.

COLLIS, M. H.—*On the treatment of Anthrax by pressure.* Dub. Journ. of Med. Sci., Feb., 1864.

Collis uses in most cases empl. saponis c. opio, and applies it in all

stages of the disease, both when inflammation is commencing and when gangrene and suppuration have already occurred. He states it as a fact, that as soon as pressure is made the fibrinous exudation under the fascia ceases to extend, the pus is more easily evacuated externally, and the plugs of exudation are more readily forced out.

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MAUVEZIN, J. L. and C. L.—*New mode of treatment of Malignant Pustule.* Arch. génér., March, 1864. Schmidt's Jahrb., vol. 123, p. 173.

The authors reject the caustics (Hydr. Bichl. and Pot. fusa) as uncertain and inefficacious; the actual cautery they find, if used alone, too tedious and painful, requiring as it does the application of 12 to 15 irons to the part, besides others to the adjacent. They recommend the extirpation of the pustule by the knife and the subsequent application of the hot iron to the surface of the wound. This proceeding is always successful if performed before phenomena indicating general infection of the system have set in, and even at a later period it is of some advantage. In cases where the pustule is situated over an artery there is much less danger of hæmorrhage by operating in this way than in employing caustics.

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HUTCHINSON, J.—*Leucoderma and its differential diagnosis from Morbus Addisonii.* Clin. Lectures and Reports of the London Hospital, 1864, p. 7.

Hutchinson thinks that mistakes have been made from the circumstances that the affection occurs almost solely in persons of very swarthy skins, in whom it has been supposed that the dark portions were the morbidly affected tracts, and not the white. The history of the patient will usually guide us; but if doubts should still remain, they may be removed by observing carefully the edges of the patches. If the edges of the brown tracts are convex then it is the brown which is spreading on the white ground; if, however, the reverse, then we may be sure that the skin was originally brown, and that the new and aggressive process is that of loss of pigment in patches. In either case the change begins at points. These enlarge into small round patches; the latter increase, still retaining a more or less accurately circular form. Two or more may join, and sometimes small islands of brown may be left on large areas of white, which may then look very like new patches, but the careful application of the rule referred to will clear up their true mode of production. Another point which may serve to distinguish true bronzing from leucoderma is that the white in the latter is too white. The change does not consist in a gradually produced paleness of the integument, but in the formation of abruptly margined patches, which are totally destitute of pigment, and present a degree of whiteness which is not normal even in the fairest skin. Lastly, in the true bronzing, consequent on disease of the supra-renal capsules, the coloration is always diffused, and never in well-defined patches. No special dyscrasia has been observed in connection with leucoderma; in 5 out of 8 cases no deviation from good health could be detected. The affection may occur at any age; the

skin does not appear in any degree altered as regards texture, softness, thickness, growth of hair; no parasitic growth can be detected in the altered part.

SUBJECTS OF GENERAL INTEREST.

MACKINTOSH, D., M.D.—*Notes on three persons struck by Lightning*  
Lancet, July 30.

E. W—, æt. 10, was unable to walk for about 20 minutes, but was morbidly affected in no other way, with the exception of slight scorching of the surface. J. W—, æt. 11, lay prostrate and unconscious, with an expression of grim terror and suffering; frothed at the mouth and moaned piteously, flung his arms and legs about in all directions, and the bystanders expected every moment to be his last. The respiration was deep, slow, and laborious; heart palpitating, pulse weak and very irregular, pupils dilated and insensible. The scorching was more severe in this case than in the preceding, the red streaks being arranged on the sternum and tubera ischii in a stellate manner. He was unconscious for 5 hours, but rapidly recovered. T. W—, æt. 46, was struck dead on the spot. The expression of his countenance was remarkably placid; the pupils widely dilated. The electric fluid entered at the junction of the occipital with the parietal bones, inflicting a large lacerated wound on the scalp, but not fracturing the bones of the skull. It then seemingly divided into two currents, which passed respectively downwards between the soft parts and the cranium on either side of the head. That on the left side passed downwards anteriorly to the left ear and terminated on the side of the neck, rupturing blood-vessels and soft parts, which gave rise to swelling and extravasation of blood, that closely resembled, and might have been easily mistaken for, an extensive bruise produced by mechanical violence. The right side current passed directly downwards to the supra-clavicular region, leaving the ear and soft parts on its way livid and swollen, and terminated in that region in a dark-blue mangled-looking patch of skin, in which there were several free communications with the surface. The hair at the back of the head and that on the front of the chest was singed, but not that which covered the wound at the vertex.

CHAPLIN, T., M.D.—*The Fevers of Jerusalem.* Lancet, August 27,  
September 3, 10.

Jerusalem is one of the most unhealthy of cities, and fever is its principal disease. Orientals and Europeans, immigrants and natives, alike suffer; and during the sickly period of the year almost one fourth of the population become ill. Yet Jerusalem is situated more than 2000 feet above the level of the sea, in a country not naturally insalubrious, on the summits and sides of lofty hills; it is surrounded for three fourths of its extent by deep and precipitous valleys, which afford admirable facilities for drainage, and has not a marsh within fifteen miles. The circumstances which tend to make the city unhealthy are the amount of rubbish upon which it is built, the neglect of sanitary regulations, the poverty and the filthy habits of the people, and the con-

tamination of the water supply. The varieties of fever to be met with in the Holy City are almost endless. Chaplin considers them under the heads of febricula, mild remittent fever, severe remittent fever, intermittent fever, typhus and typhoid, bilious or bilio-gastric. Syrian, or severe remittent fever, is a most variable disease in every circumstance connected with it. Not only are no two cases exactly alike, but the difference between one case and another is in many points so great that it is scarcely possible to include the modifications of the disease in a general description. It may begin with fits of ague recurring at longer or shorter intervals, or after exposure to the sun and fatigue; it may ensue gradually or suddenly. The cold fit varies much in severity and in duration; in many cases it is scarcely perceptible. As a rule, the severer the attack the less marked is the cold stage; to shake out well is a good sign in this as in the intermittent form of fever. The complications are chiefly irritability of stomach, amounting sometimes to gastritis; congestion of the liver and spleen, and sometimes also of the brain. In a few cases the chest suffers, and there is cough and pain. After the paroxysms have been cut short by medicines the system does not immediately return to a healthy state. Not only is there extreme debility, but the aspect and feelings of the patient show that the disease has not yet relinquished its hold. He is depressed, anxious, restless, and does not regain his appetite. Often there is headache, thirst, and a dry tongue, even though the pulse be quick and the skin cool; and in other cases mild but distinct attacks of feverishness come on daily. This condition may last a week or more, and if great care be not taken a relapse, which may prove fatal, is very likely to ensue. Chaplin is acquainted with scarcely any disease which is so liable to relapse as Syrian fever, and with hardly any state of the system which gives so much trouble and anxiety as the convalescence from it. Even long after the patient has been able to walk about and has returned to his ordinary avocations pains in the limbs, and especially in the knees and calves of the legs, will frequently remain and prevent sleep. This long-continued debility forms one of the most important sequelæ of the disease. Often it remains for months, and can then only be removed by change of air. Enlargement of the spleen is sometimes added, and helps to prolong still further the infirm state of health. Chronic hepatic disorder is also very liable to follow, and occasionally terminates in abscess. Chaplin has only seen 3 such cases; in two of them there had been no preceding diarrhœa or dysentery. It has been impossible to investigate the morbid anatomy of Syrian fever. While not doubting that this disease and ague are specifically distinct, and that their exciting causes are not always identical, Chaplin thinks it beyond question that a true ague may develop into a remittent fever. Observation has led him to doubt whether Syrian fever be not really a continued fever, accompanied by a succession of periodical paroxysms, and whether it have not as definite a course to run as typhus or typhoid. Quinine will cut short the paroxysms, but it will not cure the disease; and, on the other hand, numbers of persons have this fever and recover from it without taking quinine or any other antiperiodic. Moreover, cases frequently occur in which it is very difficult to mark the paroxysms.

One patient is always hot, another always cold ; one is constantly bathed in sweat, another for several days in succession does not sweat at all ; whilst in a great number of instances the exacerbations of fever are unattended by either a cold or a sweating stage. Diffused purple discolorations, as well as true petechiæ and sudamina, are not uncommon in this fever ; but, so far as I have hitherto observed, there is no peculiar and characteristic eruption. Exposure to the sun, especially if attended with fatigue, a sudden chill, or sleeping on the ground on cold dewy nights, are some of the most frequent causes. The disease can by no means always be traced to a malarious origin. In the matter of treatment the first thing to be done in every case is to purge, and if the constitution is robust a mercurial cholagogue is best. During the continuance of the fever acetate of ammonia and antimonial wine may be given, and, immediately on a remission being apparent, quinine. Chaplin usually gives quinine in doses of gr. v, uncombined, and in the form of pills. But when the remission is not marked, and the skin and tongue are dry, it may, with the best effect, be combined with calomel and antimonial powder. It is sometimes very difficult to decide whether quinine should be given whilst the patient is still hot or whether a remission should be waited for. No rule can be laid down ; the state of the powers of the patient is the most important point to be considered. If the pulse is very frequent, and at the same time small and compressible, quinine may often be given with advantage, even when the heat of skin and dryness of the tongue show that the fever is at its height ; but in these cases it should never be administered without calomel and antimony. Infusion of serpentaria with acetate of Ammonia is a most valuable medicine under these circumstances, promoting perspiration and at the same time supporting the powers. It is well to continue its use after the paroxysms have ceased, until all febrile symptoms have subsided, and the skin become soft and cool, when decoction of bark with soda may be substituted, and continued during the convalescence. Venesection may occasionally be employed for the purpose of bringing on a remission, and leeches may be applied to the epigastrium or behind the ears if vomiting or headache are troublesome. Agues in all their manifold varieties are met with in Jerusalem. Of 1666 cases of febrile disease attended to at the English hospital in 1862, 1147 were intermittent ; in 1863, out of 1306, 931 were intermittent. In the first quarter of 1863 there were 133 cases, in the second 142, in the third, 261 and in the fourth 395. The suddenness with which a copious fall of rain ameliorates the medical constitution and diminishes the prevalence of febrile disorders is very remarkable. But a more moderate fall, as of an inch or an inch and a half, followed by warm dry weather, produces an opposite condition, and increases considerably the amount of sickness. Also the slight showers just sufficient to wet the surface of the ground, which now and then occur during the summer, are very injurious ; and the Arabs have a saying that each drop of such a shower is an ague. One of the most troublesome of the irregular forms of intermittent fever is a kind of febricula which comes on every night without cold or shivering, and passes off again towards morning without a sweat. This is especially common in



children and delicate women. Another obstinate form is marked by a constant coldness and clamminess of skin, with sluggishness of secretions, loss of appetite, and debility. But of all the forms of intermittent fever, uncomplicated with enlargement of the spleen, those in which an attack occurs at intervals of 10 days, a fortnight, or a month, are the most intractable, and a long course of careful treatment is usually required for their removal. A low state of vital power, however induced, predisposes to ague. Sleeping in a damp room and without a bedstead, especially if the room be on the ground floor and have a well under it, very commonly leads to an attack. Quinine is the only remedy that can be relied on; arsenic given to  $\text{m}\times\text{v}$  daily has almost always failed. In recurring ague quinine only arrests the attacks for a short time, and it is necessary to pay special regard to the general state of the patient's health and the circumstances of his dwelling, occupation, food, &c. Hæmorrhage from the bowels frequently accompanies long-protracted agues, and, as well as diarrhœa, should not be hastily checked unless the patient is weakened thereby in a marked degree. The rules for prophylaxis are to take daily active exercise outside the walls, to have a cold bath each morning on rising, and a few minutes' brisk exercise immediately afterwards, to keep to a plain and regular diet, avoiding large draughts of water, especially after eating fruit, to guard against sudden chills and mental perturbations, to avoid exercise in the heat of the day during summer, and not to sleep on the ground floor. Typhus and typhoid are said to occur. The former has been rare in Jerusalem the last 3 years; the latter has also been less frequent than might have been expected from the filth and bad odours with which the city is pervaded. Not a few cases have differed so much from ordinary typhoid that they were only determined to be of this nature by the exclusion of typhus. In two instances of bilio-gastric fever the patients vomited large quantities of bile; complained of great heat in the præcordia; had wet skins and slow pulses during the day, with attacks of fever at night. Both were very ill, but recovered under the use of calomel and quinine in large doses, the first signs of improvement being accompanied by a copious dejection of biliary matter.

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Lancet, October 1.

The influence of drainage on the rate of mortality is strongly exemplified in Salisbury. For nine years previous to the adoption of the Public Health Act, in 1850, the annual death-rate was 30 per 1000; for the nine years subsequently it was reduced to 20 per 1000, or one fourth less. For the Close of Salisbury the death-rate for the same periods was respectively 20 and 13. The deaths by consumption for seven years before the drainage were 286, and for seven years since only 143. For 1863 the deaths from consumption were only 11, or 1 in 818 of the population, whilst for the whole kingdom they were 1 in 376.

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DR. ALTHAUS.—Dublin Quart. Journ. of Med. Sciences, August, 1864.

Contributes a useful paper, giving a summary account of the mineral waters of England and the Continent of Europe, which are at present generally used for therapeutical purposes. He successively considers the alkaline, acidulous springs; the muriated, alkaline, acidulous waters;

the alkaline, saline, and the bitter waters ; the simple muriated and the muriated lithia waters ; the brines ; the iodo-bromated and earthy waters ; the indifferent thermal springs, the chalybeates, and the sulphurous waters.

WEBER, H.—*Notes on the Climate of the Swiss Alps, and on some of their Health Resorts and Spas.* Dublin Quart. Journ. of Med. Sciences, February, May, 1864.

Weber notices the meteorology, the physiological, pathological, and therapeutical influence of the Alpine climate. The following are some of the more important points. The respiratory movements become increased in frequency and depth with increasing elevation ; the contractions of the heart become more frequent in proportion to the elevation ; the appetite and thirst are augmented ; the sanguification is improved ; the nervous system becomes invigorated ; the sleep in general more healthy ; the activity and energy of the muscular system become increased ; the secretion of the skin is most likely augmented ; the urine appears to be not materially altered in quantity, the amount of solids being probably increased slightly ; the metamorphosis of tissues is, we may infer, accelerated. The prevalent diseases are the inflammatory affections of the respiratory organs, and their results—chronic catarrh, emphysema, and asthma ; goître and cretinism, and scrofulous complaints ; rheumatic affections and diseases of the heart ; which affections are in some degree due to the unfavorable hygienic conditions in which most of the inhabitants of the Swiss mountains live, while others are dependent upon the meteorological peculiarities of the climate, and especially the unfavorable influences prevalent during the cold seasons. Dr. Brugger, who practises in the Upper Engadin (elevated between 5000 and 6000 feet), describes pneumonia and pleuritis as very frequent among his patients—an experience which is shared by almost all the medical men practising in the higher portions of Switzerland. The deaths from pneumonia form in some parts one third of the entire mortality, according to Lombard. Occasionally a malignant form of pneumonia, or pleuritis, or pleuro-pneumonia, popularly known under the name of Alpenstich, is observed to occur epidemically. Lombard infers that the Alpenstich is sometimes a pleuritis, sometimes a pleuro-pneumonia, but always attended with typhoid symptoms of very rapid course, and most frequently fatal termination. In the true Alpine regions tubercular consumption is extremely rare, as also cretinism. The elevation beyond which phthisis becomes rare, or is absent, seems to vary considerably in different latitudes, and to become lower as we proceed toward the poles. In the tropical zone it may be regarded as becoming rare above 7000 feet ; in the warmer temperate zone, above 3500 to 5000 feet ; in the colder temperate zone, above 1300 to 3000 feet elevation. At Brotterode (1840 feet), in the mountains of Thüringen, the per-centage of deaths from phthisis is only 9. Brehmer assures us that in the neighbourhood of Görbersdorf, in Silesia (1700 feet), tubercular phthisis has never been seen by him amongst the inhabitants. On the whole, it may be stated that with the increasing elevation ague, acute diseases of the liver, hæmorrhoids, diarrhœa and dysentery, yellow fever and cholera, become much

less frequent. The beneficial influence of the mountain climate is especially felt in various forms of dyspepsia and dyspeptic hypochondriasis; in the atonic diarrhoea, anæmia and want of tone observed in people returning from hot climates; in the cachexia, with or without splenic tumour, caused by marsh malaria; in the various forms of anæmia, chlorosis, and hydræmia, not dependent upon serious organic disease; in scrofulous complaints; in the tendency to tuberculosis, and in its first stage especially on the higher regions, while in the slightly advanced forms some of the lower and more sheltered situations only ought to be resorted to; in chronic bronchial catarrh, with abundant secretion. Sleeplessness, hysterical and neuralgic affections, as also hypochondriasis, are often removed by a stay on the Alps. The nervous system, Weber states, is influenced in a very marked manner by a stay on the mountains, most people perceiving very soon a greater buoyancy of spirits, a diminished irritability of temper, a greater calmness of judgment, and especially a sounder sleep. The changes effected in sleep is especially remarkable in many constitutions; I have met with a large number of persons who for many months had been deprived of healthy sleep, and who regained it almost in the first night which they spent on the mountains; and this change seems not to be caused by mere change of scene and relaxation of the mind—it is certainly not in all cases caused by these influences. Thus, I am acquainted with a gentleman, a hard-working student and philosopher, who for many years past has been in the habit of spending the greater part of his holidays in one of the establishments on the Rigi; his principal complaint while at work in a university is want of sleep, lying hours in bed without being able to fall asleep, and frequently waking after having fallen asleep. This gentleman does not regain his sleep by merely spending his holidays away from home, on the borders of the Rhine, at the sea, or even at a place of low elevation in Switzerland; but whenever he goes to a place beyond 3000 feet high he at once enjoys very sound sleep, and does so during the whole of his stay, and even for a few weeks after his return to his usual occupation. This is by no means an isolated instance. On the other hand, there are some persons who never sleep well on elevated situations, though they have often made the experiment.

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MEISSNER.—Schmidt's Jahrb., vol. 122, p. 313.

Has a long report on trichina disease, to which, however, we can only refer, as the subject was noticed at some length in the last 'Year-Book,' pp. 171—175. A sequel and extension of the same is contained in vol. 124 of the same work, pp. 182—194.

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DE RICCI, H. R.—*On the therapeutic value of the Alkaline and Earthy Sulphates in the treatment of Catalytic Diseases.* Dublin Quart. Journ. of Med. Sciences, August, 1864.

Ricci gives 2 cases in which the administration of the sulphites was of great efficacy. The first was that of a lady, who appeared to have been poisoned by the emanations from a dead body, and in whom the aspect of the disorder at first was exactly that of epidemic cholera in the stage of collapse. The second was one of poisoned wound of the

hand, which was enormously swelled, of a dusky purple colour, with large bullæ over the dorsum; the forearm also swelled, though not discoloured, but presenting several longitudinal red lines running up to the elbow. There was great local pain, intense thirst, headache, loss of appetite, shivering, and general feeling of sickness. On incising the hand matter oozed out.

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HAVILAND, A.—*The Hour of Death in acute and chronic disease.* Brit. Med. Journ., October 15.

The author has collected over 5000 cases of death, with the hour of death and other circumstances recorded, which he had tabulated and exhibited on a large chart. By this chart he showed that in 1000 cases of death in children under 5 years of age the periods of the greatest mortality took place during the hours between 1 and 8 a.m., and that in the succeeding hours between 9 and 12 p.m. the rate of the mortality was at its minimum. He then compared these statistics with 2891 deaths from all causes, and the chart showed how remarkably the wave-lines of death compared with those above. Deaths from consumption, although they showed a general resemblance in the wave-line, yet between the hours of 4 to 8 a.m. showed a depression when compared with the first 4 hours' period. He contended that the tables on the chart proved the extraordinary mortality in the early hours of the morning, when the powers of life were at their lowest ebb. He urged the necessity of feeding and stimulating the patients at their weakest hour, so as to tide them over a critical period, and, even if death be inevitable, so to support the patient that he might at least have a few more hours of life snatched from eternity, to admit of his being able to carry out some neglected duty, pardon some enemy, and see some beloved friend.

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ANDREW CLARK, M.D.—*Clinical Lectures and Reports of the London Hospital, 1864, p. 209.*

Clark contributes several short papers on warty growths, on the soft palate, on naso-palatine gland disease, on the use of the microscope in the diagnosis of diseases of the lung, on the seat of the products of pneumonia, on the migrations of spermatozoa, on albuminous urine, on renal calculi without hæmaturia, and on a hitherto unnoticed condition of the urine in disease and its probable relation to the habitual exhalation of ammonia from the skin and the temporary occurrence of albumen in the urine.

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DR. RICHARDSON.—*Med. Tim. and Gaz., January 16.*

From his examination of the Norwich hospital records finds that the lowest mortality during 30 years occurred in 1831, when bloodletting was freely employed, and a liberal amount of alcoholic liquor administered, viz., 15½ oz. per patient. The highest mortality was in 1836, when only 7 oz. of alcoholic liquor were allowed, and the abstraction of blood was nearly a fourth less than in 1831.

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BRUCE THOMSON, J.—*The Epidemics of the General Prison at Perth, and of the City of Perth, compared and contrasted.* Edinb. Med. Journ., March, 1864.

# REPORT ON SURGERY.

BY

THOMAS WINDSOR,

SURGEON TO THE SALFORD ROYAL HOSPITAL, AND TO THE MANCHESTER EYE HOSPITAL.

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T. BILLROTH, general surgical pathology and therapeutics (pp. 712, Berlin, G. Reimer). F. J. Gant, the principles of surgery, clinical, medical, and operative (pp. 860, London, Churchill). W. Güntner, principles of general surgery (Prag, F. A. Credner). W. K. Fischer, compendium of surgical pathology and therapeutics (Wien, Schönewerk). G. H. B. Macleod, outlines of surgical diagnosis (pp. 529, London). J. Hilton, on the influence of rest in the treatment of accidents, &c. (London, Bell and Daldy). W. Fergusson, course of lectures on the progress of anatomy and surgery during the present century ('Lancet,' 1864, i, 661, &c.). G. M. Humphry, address in surgery, ('Brit. Med. Journ.,' 1864, ii, 175). M. Burggraevé, examples of conservative surgery ('Bull. de l'Acad. Roy. de Méd. de Belgique,' 1863, p. 884).\*

*Dr. Meyer-Ahrens, Wilhelm Fabry, commonly called Fabricius Hildanus;—an historical sketch* ('Arch. für klin. Chir.,' vi, 1). *O. Weber, a memoir of C. W. Wutzer* (ibid., v, 342). *T. Billroth, memoir of Dr. C. Fock* (ibid., vi, 228).

*Surgical Pathology.*—*M. Chauffard, the influence of race on the results of surgical operations* ('Gaz. Hebd.,' 1863, p. 713; transl. in the 'Med. Times and Gaz.,' 1863, ii, 494).—Fully admitting the greater number of recoveries after important operations in England than in France, more especially after ovariectomy, the author thinks the principal part of this difference must be attributed to the influence of race.

T. Billroth on the epidemic occurrence of some surgical diseases ('Arch. für klin. Chir.,' iv, 537). M. Azam, on sudden death from pulmonary embolism in cases of contusion or fracture ('Gaz. Hebd.,' 1864, p. 611). E. v. Wahl, case of pulmonary embolism after removal of a tumour ('St. Petersb. Med. Zeitschr.,' v, 327).

\* This work will be hereafter quoted as the 'Bull. Belge.'—T. W.

*Military Surgery.*—J. Neudörfer, handbook of military surgery (Leipzig, Vogel). F. Cortesa, theoretico-practical guide for the army surgeon in the field (pp. 357 and 339, Torino; vide 'Med. Times and Gaz.,' 1864, i, 550). Mr. Little, surgical notes on the campaign in Schleswig, 1864 ('Lond. Hosp. Rep.,' i, 274). E. Gurlt, remarks on the transportation of the wounded, on the Danish and Prussian bullets, and on shell wounds, with a statistical account of gunshot injuries ('Berl. Klin. Wochenschr.,' 1864, pp. 253, 265).

#### OPERATIVE SURGERY.

*T. S. Wells on some causes of excessive mortality after surgical operations* ('Med. Times and Gaz.,' 1864, ii, 349).—After citing a number of facts to prove that some of the mortality after surgical operations might be avoided or prevented—in other words, that the mortality is excessive—especially in the large hospitals of large cities, Mr. Wells continues:—"But lessening the number of large hospitals, and increasing the number of small hospitals, and having the wards all on one story, would all be useless if there are too many beds in a ward. It is very possible that a large hospital, with large wards and beds widely apart, would be a far better place for the sick than a small hospital in which many beds are crowded into small wards. Indeed, by lessening the size of a ward we multiply the surfaces and angles to which putrescent matters or organic poisons may adhere. And it is extremely probable that we may have to go further than this, and not only lessen the size of hospitals, the number of floors in the building, the number of wards, and the number of beds in each ward, but also *isolate* the patients in all cases when contagion or infection is probable. Not only must communication of wards with each other be avoided, but there must be separate wards, containing one, or at most two beds, for patients recently operated on, and in lying-in hospitals for women recently confined, before we can hope to reduce mortality from the excessive to the unavoidable rate.

"Now, to show that these lessons of modern sanitary science are borne out by the most recent discoveries in physiological chemistry, let me turn for a moment to the remarkable labours of Pasteur,—all made known within the last five years. His memoir on 'Alcoholic Fermentation,' in 1860; 'On the Organised Corpuscles existing in the Air,' and his 'Examination of the Doctrine of Spontaneous Generation,' in 1862; in the same year his 'Studies on the Mycoderms,' and the 'Manufacture of Vinegar;' and in 1863 his 'Examination of the part attributed to Oxygen in the Destruction of Animal and Vegetable Matters after Death,' and his 'Researches on Putrefaction,'—have all a very important bearing upon the development of purulent infection and the whole class of diseases most fatal in hospitals and other overcrowded places.

"Commencing by purely chemical researches into the phenomena which accompany the decomposition of organic bodies, M. Pasteur was soon led into the field of physiology. He found that fermentation was always associated with the existence and development of certain microscopic beings; and he was led to inquire whether the generation of these living corpuscles was a spontaneous act or change, or whether it could only be

explained by the ordinary laws of reproduction. In order to ascertain what germs might be suspended or floating in the atmosphere, he adopted the simple expedient of causing a current of air to pass over gun-cotton—a substance soluble in a mixture of ether and alcohol. The fine fibres of the gun-cotton act as a sort of air-filter, arresting all the solid particles, and the finest powders are found in the solution, and fall slowly to the bottom of the fluid. By careful microscopic examination he found in these atmospheric impurities (1) a quantity of granules of starch, very easily recognisable, and the numbers explained by the abundance of cultivated cereals; and (2) corpuscles which resemble in every particular the germs of the lowest organisms, and vary greatly in size and structure. The germs so collected are fecund. If they are sown in infusions in which any pre-existing germs have been destroyed by ebullition, and which have only been exposed to air which cannot possibly contain any living organism, as it has been passed through a tube of red-hot platinum, an abundance of cryptogamic vegetables or infusorial animalcules very soon appear. These are the *Mucors* or *Mycodermes*, which cover the liquid with a greasy or gelatinous pellicle; the *Mucedinea*, formed of small tubes; *Torulacea*, or non-tubular plants, which attach themselves to the bottom of the vessels. The infusoria are small *Monads*, *Bacteria*, and *Vibrios*. The *Bacteria*, especially the *Bacterium termo*, exist in the air in immense abundance. This smallest of the infusoria is found also in all putrefying substances. It multiplies in the intestinal canal of man, and is found constantly in the white matter which collects daily between the teeth. In sour milk it is found in company with *Vibrios*, the most vivacious of the infusoria, whose germs are not destroyed by a temperature of 100° Centigrade. The spores of the *Mucedinea* remain fecund even up to 120° Centigrade. It appears that a short exposure to 130° Centigrade destroys all fecundity even in the most robust; but in nature neither spores, vegetable, nor animal germs, are ever exposed to a degree of heat which can render them sterile.

“When an organic infusion has been deprived of germs by heat, and is mechanically protected from the corpuscles which the air might carry to it, it is as unalterable as an ordinary chemical solution of a mineral. The liquids ordinarily the most prone to fermentation now show no tendency to decomposition—no symptom of life is manifested. It is quite clear, therefore, that the development of living beings in organic infusions is not spontaneous, and that, in the circumstances under which fermentation ordinarily takes place, the germs of the living beings are carried in the atmosphere.

“The germination of inferior beings as powerful agents of decomposition has relations as important in the putrefactive as in the fermentative process. Whenever organic matter undergoes change—dies, is decomposed, putrefies—germs are sown, which find their nourishment in the remains given up to destruction. Without these germs the immediate principles of living bodies would be almost indestructible; with them, everything which has ceased to live is returned to the atmosphere and to the mineral kingdom. Blood as it issues from the arteries, fresh urine, milk received into close vessels, and open only to air which had been deprived of germs, remained unaltered for three years; but when these liquids were exposed to ordinary atmospheric air, they very soon became

covered with Mucedinea, Bacteria, and Monads, and were filled with moving Vibrios.

“Each form of fermentation or decomposition is associated with the growth and development of some low form of vegetable or animal life. It had long been known that the yeast formed in brewing beer was an organized substance, living, and formed by a mass of cells capable of reproduction by budding; but it was left for M. Pasteur to show that the cells of the yeast really nourish themselves at the expense of the sugary infusion, and transform it, not by a physical or chemical, but by a physiological action; that some substances added to the infusion favour the budding and multiplication of the yeast, others retard, others altogether arrest it—like the albumen of fresh eggs, which kills it, or acts on it as a poison. When alcohol is transformed into acetic acid, a vegetable Mycoderma (*Mycoderma aceti*) is the agent of the transformation. When sugar or lactic acid is converted into butyric acid, the agent is not a vegetable, but a small animalcule, seen in the form of small cylinders or rods, isolated or united into chains of many links, which turn, undulate, and float in every direction in the liquids, and are reproduced by fission. The most remarkable property of these Vibrios is that they have the power of living and indefinitely multiplying themselves without oxygen. Not only can they live without air, but air kills them. This peculiarity essentially distinguishes the Mycodermis from the Vibrios. The Mycodermis incessantly feed on oxygen, and when they do not find it in solutions take it from the atmosphere. The Vibrios are killed by oxygen, yet it is by them that the butyric and tartaric fermentations are effected.

“These are the most simple of the decompositions produced by animalcules which live without free oxygen. They are phenomena which do not differ from what is called *putrefaction* of animal substances. In putrefaction, as in the butyric fermentation, the work of the Vibrios is prepared for them by infusoria. In infusions of animal substances no change is observed for about twenty-four hours; then a slight movement may be observed, which is caused by small animalcules—*Monas corpusculum*, *Bacterium termo*—moving in all directions in search of the oxygen in the infusion. If access of air is shut off, the infusoria die as soon as they have consumed all the free oxygen, and fall dead to the bottom of the vessel. But if the infusion is open to the air, they find an inexhaustible supply of oxygen at the surface, when they soon form a pellicle of gradually increasing thickness. But as soon as this living pellicle has been formed, the germs of Vibrios are in their turn fecundated, and these animalcules rapidly multiply in a liquid which contains no oxygen. At the bottom, the Vibrios change the organic matters into substances of more simple composition; while at the surface the Bacteria and Mucedinea burn these new products with the oxygen which they take from the atmosphere, and reduce them to the state of the most simple binary compounds—water, ammonia, carbonic acid. In the same way, after the death of an animal or human body, the Vibrios and their germs, which have remained in the intestinal canal quite inoffensive so long as the movements and functions of life have prevented their development, commence their office directly after the death of the body which they have inhabited. Shut off from oxygen, surrounded by nourishing food, they pass from within outwards,



destroying the substances which surround them. At the same time the germs of infusoria which the air has deposited upon the external surface of the body are developed, and work from the surface inwards. At length the infusoria and Vibrios meet. The Vibrios are killed by the contact of the air, the infusoria die in their turn as soon as they have consumed all the Vibrios, and the work of destruction is then complete.

“I have given this rapid sketch of some of the principal results of the researches of Pasteur, in order that the influence of atmospheric germs upon our bodies in health and disease may be comprehended. Although the air contains the germs which are necessary for the processes of fermentation and putrefaction, these germs cannot be everywhere present in all forms and equal numbers. In some currents of air there are few, in others many; they are numerous in the lower strata, fewer and fewer as we rise higher and higher, and almost absent at the level of the snow-capped Alps. Air taken on the slopes of Mont Blanc was almost free from germs. On the chain of the Jura they were more numerous, and they increased in quantity as one descended into the valleys and approached inhabited places, becoming most abundant in the air of large cities, where an enormous quantity of organic matter is daily decomposed. Their influence upon the development and propagation of epidemic and contagious diseases has yet to be made out; but something has been done. Many years ago, Dr. Angus Smith led the way by his examination of the air of large cities and of crowded rooms, which other observers have carried on further. M. Chalvet found in the air of the wards of St. Louis a large quantity of starch-corpuseles; and he collected a great deal of putrescible organic matter from the walls, windows, and bed-curtains, and found that the linen returned from the laundry was still tainted by altered blood, pus, linseed-meal, and other organic substances—probably as capable of infecting as threads charged with vaccine lymph. When watery vapour near a suppurating focus was condensed, it was found to be strongly charged with irregular corpuseles resembling dried pus; and Eiselt, of Prague, found small cells, like pus-cells, in the air of a ward where epidemic ophthalmia was raging.

“When commenting on the spread of puerperal fever, M. Trousseau says:—‘These germs may not be developed as readily in all patients, because the conditions of their reception vary infinitely. Some patients, like certain earths, may not receive certain germs. The wind may spread the same seed widely over a country, and yet the grain will not spring up everywhere alike. Here the soil may be too wet; there too dry; here other germs have grown up, and stifled the new seed. Just so is it with morbid germs and ferments. They, individually, require conditions favorable to their development.’

“Carrying on the analogy between puerperal fever and purulent infection in the various forms which contribute so large a share to the excessive mortality after surgical operations, and applying the knowledge, for which we are indebted to Pasteur, of the presence in the atmosphere of organic germs which will grow, develop, and multiply, under favorable conditions, it is easy to understand that some germs find their most appropriate nutriment in the secretions from wounds, or in pus, and that they so modify it as to convert it into a poison when absorbed—or that the germs,

after development, multiplication, and death, may form a putrid infecting matter—or that they may enter the blood and develop themselves, effecting in the process deadly changes in the circulating fluid.

“That these low forms of animal life may seriously affect the blood of the higher orders of animals is clearly proved by the recent researches of Davaine, who has furnished us with the first well-established example of a disease of the blood due to the presence of inferior beings which are capable of development and multiplication in the torrent of the circulation. These creatures (*Bacteria*) differ from the whole class of infusoria which form in putrefied matter, as they disappear completely as soon as putrefaction of the blood commences. The *Bacteria* are rapid consumers of oxygen, and when they exist in the blood they absorb the greater portion of the oxygen furnished by respiration, and thus hinder the combustion of all the effete and used-up substances which ought to be eliminated from the body. The blood, instead of nourishing the body, nourishes the parasites. Inoculation of animals with fresh blood which contains them leads to their development in the blood of the inoculated animal, not in any special organ. They consist of minute, straight, extremely fine filaments, varying in length from four to twelve thousandths of a millimetre, and have no spontaneous movement whatever. When the blood putrefies, they become flexed in different directions, and then break up and disappear.

“M. Davaine was at first disposed to consider them as belonging to the filiform infusoria, the *Bacteria* or *Vibriones*, from which they differed only in the absence of movements. In subsequent observations, however, he found a great number of these corpuscles of far greater length than that assigned to *Bacteria* or even *Vibriones*. He now believes that they cannot be properly classed with any of the known species; he considers them to be a well-defined species, resembling the filiform protozoa by their mode of generation and propagation, the filamentous *confervæ* in form, appearance, and dimensions, and certain ferments by the phenomena which they induce. M. Davaine proposes to term them provisionally merely bacterides. There are considerable varieties in the size of the bacterides observable, without any condition of the inoculated animals explaining the fact. Their number also greatly varies, from myriads found in some instances, to their rare occurrence in others. A very peculiar condition in animals affected with carbuncular disease is the disposition which exists for the globules of blood to become agglutinated to each other, so as to present little islets in the serum. When the blood infected with bacterides begins to putrefy, these agglutinated globules separate again. The blood of the capillaries is far richer in bacterides than is that of the large vessels; but they have not been found to have passed from the mother to the fetus, although existing in prodigious numbers in the placenta. When putrefaction has commenced and the bacterides can be no longer recognised, the blood ceases to possess the power of inoculating the carbuncular disease, although, if used in sufficient quantity, it may still cause the death of the animal, with other accompanying phenomena. The carbuncular disease, or splenic apoplexy, as observed in sheep, and which first led to the discovery of the bacterides in the blood, can only be transmitted by inoculation when the blood is fresh. The power which the blood possesses to communicate the disease continues for a longer or shorter time after death,

according to the temperature, this faculty disappearing during the heat of summer in less than two days. Dried blood may retain the power of propagation providing it be rapidly desiccated prior to putrefaction; and it is highly probable that dried bacterides transmit the disease in flocks of sheep through the medium of the respiratory organs. The disease may, too, be transmitted by the agency of the digestive organs, though less certainly than by subcutaneous inoculation. The duration of the period of incubation, after inoculation with fresh blood, has in Davaine's experiments varied with the size of the animal, but the rapidity of the occurrence of death has not been found to be in proportion to the number of bacterides produced. They multiply within a very few hours after they first appear, but cease to multiply after the death of the infected animal. Inoculated rabbits lived from eighteen to seventy-seven hours, a mean of forty hours; but only five hours after the bacterides appeared, thus giving thirty-five hours as the mean period of incubation. The blood in the heart and large vessels was found firmly coagulated."

Mr. Wells then alludes to the recent researches on trichinosis, to the dependence of various skin diseases upon the growth of vegetable parasites, and to the production of measles by the inoculation or inhalation of the fungi given off from mouldy straw or linseed meal. He adds:—

"But the real practical end of all our work—the prevention and cure of disease—the lowering of excessive mortality—must not be lost sight of. And here, fortunately, the recent experiments of Polli, of Milan, on the action of sulphurous acid and the alkaline and earthy sulphites, open to us a wide field for inquiry, brightened by cheerful rays of hope." These researches having been already noticed in the Year-Book for 1862 (p. 215), it is only necessary to remark that—“(1) the sulphites should be given as long as possible after food, unless it is especially desired to neutralize the fermentative action of the gastric and pancreatic juice; and (2) that nothing containing citric, tartaric, malic, or oxalic acid, should be taken after them, as these acids decompose the sulphites and hyposulphites, and set the sulphurous acid free. But acetic acid does not decompose these salts.”

"The sulphite of magnesia in the solid form answers well for internal administration.\* It contains more sulphurous acid than other sulphites, and is not disagreeable. The sulphite of soda is disagreeable, easily decomposes, and is chiefly useful in solution for lotions or enemas. The sulphites of potash and ammonia are too disagreeable and changeable for medical use. The hyposulphite of soda is not very disagreeable; its solubility makes it convenient for administration, but it is more adapted for prophylactic use than for severe cases, its action being much slower than that of the sulphites, as it must be converted into a nascent sulphite before the wished-for effect can be obtained.

"Some cases of septicæmia in which I have given the hyposulphite of soda having been already brought before the profession, I will now only add, that the effects convinced me that it is a remedy of great value, well worthy of a general and extended trial. But I trust that no such exaggerated expectations will be entertained of its value, or of that of any other remedy, as could possibly lead any one to neglect those leading principles of sanitary science which should govern the size and construction of our

\* Up to three or four drachms daily.—T. W.

hospitals, or those lessons so recently taught by physiological chemistry which confirm those sanitary principles—which teach us how easily our patients may be poisoned by any want of that attention which should always secure the most scrupulous cleanliness and purity of everything surrounding them—and which prove that a knowledge of principles and a practical supervision of details must be combined to enable us to recognise, avoid, prevent, or counteract the *causes of excessive mortality.*”

*J. Paget on scarlatina after operations* ('Brit. Med. Journ.,' 1864, ii, 237).—Mr. Paget, referring, in the course of a clinical lecture, to a case of lithotomy recently under his care in the hospital, said:—"The boy lately operated on for stone had scarlatina; at least, an eruption exactly like that of scarlatina appeared over nearly the whole surface on the day after the operation, with general febrile disturbance. Two days later, it began to fade; and in a few days had disappeared, and left him in about the same state that we may suppose he would have been in if no such illness had occurred. All went on well for a month; the wound was nearly healed; and he was deemed convalescent, when, perhaps in consequence of exposure to cold, he had severe pain in passing urine, and evacuated with it a considerable quantity of blood from the kidneys, and tenacious mucus. Two days after this, he had sore throat; then an eruption, like scarlet fever, again appeared; it continued for three days, and was succeeded by desquamation. The urine in about ten days had gradually regained its natural condition, and he again seemed well. But now whooping-cough set in, and again retarded, though it did not finally prevent, recovery.

"If I had never seen a case similar to this, I should have hesitated to call it scarlatina; for the symptoms of the first attack were very incomplete, and those of the second were unusual and disorderly. But I believe the case was really one of scarlatina, modified by the circumstances in which it occurred; and that it may be reckoned with other similar cases in illustration of some interesting general principles.

"About this time last year, when scarlatina was very prevalent, I saw six cases after operations in private practice; I have notes of four more that occurred either before or since; and I have heard of many more. By some, these cases may be supposed to have been only casual coincidences of scarlatina with surgical diseases; but, if they were so, we ought to find a proportionate number of cases among surgical patients not operated on. But this does not happen. In private practice, I do not remember to have seen scarlatina supervene in any surgical cases, except those in which operations had been performed; and, in hospital practice, I doubt whether it is much more frequent among all the other patients taken together than it is in those who have been operated on. I cannot, therefore, doubt that there is something in the consequences of surgical operations which makes the patients peculiarly susceptible of the influence of the scarlatina poison. And, together with this susceptibility, we may observe that the disease undergoes in them certain modifications, especially in the period of incubation, which is much shortened. In all the ten cases that I have noted, the eruption appeared within a week after the operation; and in eight of them, within three days after it; namely, in two cases, on the first in three, on the second; and in three, on the third day. Other

deviations from the typical course of scarlatina were, that in some of the cases the eruption came out over the whole surface at once, and on the limbs more fully than on the face and chest: in some, there was no sore-throat; in others, no desquamation.

“The cases are not numerous enough to determine the import of these variable deviations from the type of scarlatina; but that in which all of them, whether complete or incomplete in other characters, agreed, namely, the very early period after the operation at which the rash appeared, deserves particular notice. It adds to the evidence, that the appearance of scarlatina is in some way connected with the early consequences of operations. If it were not so, and if patients after operations had only the same liability as others, there would be no reason why the eruption should appear early, rather than late, after the operation; but, so far as I have seen, it always appears early—always within the first week.

“Two explanations may be offered of this fact. Either the condition induced in a patient by a surgical operation is one that gives a peculiar liability to the reception of an epidemic or contagious morbid poison, and any one of these, being imbibed immediately after the operation, produces its specific effect in much less than the usual period of incubation; or else those who suffer with scarlatina within a few days after operations had previously imbibed the poison, but would not have manifested its effects so soon, if at all, unless their health had been exhausted or disturbed. The second of these explanations appears rather the more probable; for it is in accordance with what has been observed when many persons have been exposed to the contagion of fever, and some have been afterwards exhausted by fatigue or otherwise. These have had fever; while those who rested after exposure have escaped it.

“But, whatever explanation may be given, the fact of peculiar liability to scarlatina after operations seems certain, and may be important in relation both to the pathology of the disease and to the risks of surgery. In one of the cases which I have seen, it was fatal; in another, it was followed by fatal pyæmia; and I think it not improbable that, in some cases, deaths occurring with obscure symptoms, within two or three days after operations, have been due to the scarlet-fever poison hindered, in some way, from its usual progress.”

J. Harrinson records a case of gunshot wound of the foot, followed by an erythematous rash over the whole body (*Brit. Med. Journ.*, 1864, ii, 373).—The accident occurred on July 2nd; on the evening of the 8th, there was great prostration; the patient wandered at times, but was quite conscious when roused; the pulse was rapid and feeble; the abdomen tense and tympanitic; he had hiccough; a dry and brown tongue; occasional vomiting and purging of dark matter; scanty and high-coloured urine. The wound was sloughy and very offensive. There was no swelling of the foot, nor evidence of any inflammation of the absorbents or veins; but the whole surface of the body presented a red appearance, as if covered with the rash of scarlet fever. There was no sore-throat; nor was there any scarlet fever in the neighbourhood. On the 12th violent diarrhœa ensued, and was followed by death; the skin retained its red appearance, though it assumed a darker hue, to the very last.

Dr. Wilks remarks (*Brit. Med. Journ.*, 1864, ii, 428),—“The numerous

instances which have come before me lead me to believe that the fact must be well known to every surgeon. Ever since I have known the practice of Guy's Hospital, I have constantly visited the surgical wards to give an opinion about a rash in a patient who has recently undergone an operation; and this rash generally resembles scarlatina. It is, also, well known, that puerperal women are often said to die of scarlatina taken soon after labour; and here it may be suggested, whether the rash be not due to some special condition of the system existing at that time. I do not allude to eruptions which may be seen in cases of pyæmia and other blood-poisons; for they are generally of an erythematous or roseolous kind; whilst the scarlatina-like rash occurs soon after operations, and before there is any evidence of pyæmia."

G. May, case of scalp-wound, followed by scarlet rash ('Brit. Med. Journ.,' 1864, ii, 428). J. Edmunds, scarlatinoid disease after operations (*ibid.*, p. 453).

J. Syme, *excision of the scapula* (Edinburgh, Edmonston and Douglas).—In this work three cases are recorded, which show that the entire scapula, either alone, or together with the arm, may be removed without much difficulty or loss of blood; that the wound may heal quickly and soundly; and that the arm, if preserved, may be strong and useful.

*Discussion on the preliminary ligature of arteries* ('Gaz. Hebd.,' 1863, p. 772).—M. Verneuil, after giving an account of a case in which he had removed a parotid tumour, called the attention of the Surgical Society of Paris to the question of preliminary ligatures. Cases undoubtedly occur in which death is caused during or soon after the operation by hæmorrhage; in one related by M. Michaux (of Louvain), the removal of a nasopharyngeal polypus was followed by such formidable bleeding, that that surgeon considered it necessary to resort at once to transfusion. As to the objections made to preliminary ligature of the common carotid, M. Verneuil remarked, that if it prolongs the first part of the operation, it shortens the latter part, and that if in some cases there has been free bleeding after it, there would have been enormous without it. He thinks that the questions, whether the ligature could be replaced by some other means, such as mediate or immediate compression, temporary ligature, ligature of the external carotid, and to what extent ligature of the common carotid is in itself dangerous, require further investigation. After sketching the history of the operation (*ib.*, p. 633), he asks—(1) Ought the preliminary ligature to be totally abandoned? (2) Are the advantages less than the dangers? (3) What are the advantages, and what the dangers? (4) Instead of permanently arresting the circulation, ought we to stop it only for a time? (5) If so, what method should we use? (6) It cannot be denied that ligature of the common carotid is attended by special dangers: can it be replaced by ligature of the external carotid? (7) Admitting that the preliminary ligature of the common carotid is to be rejected, should we also abandon that of the subclavian, axillary, or iliacs, to which the same objections do not apply? (8) Ought we not to distinguish ligature of the vessel in the very wound from that where the artery is exposed at a considerable distance nearer the heart?

M. Richet urged (*ibid.*, p. 788) that the advantages of this preliminary

proceeding were for the most part illusory; that ligature of the common carotid was tedious, difficult, and dangerous; that at all events it could only be applicable to cases of cancer, with which he preferred not to meddle. M. Chassaignac recommended that if the ligature were passed round the vessel, it should not be tied until required.

M. Verneuil replied that the latter plan involves as much danger and does not present the same advantages as at once tying the thread, and that it is in cancer that this proceeding is specially required. He has collected twenty-five clear cases of preliminary ligature and five of ligature during the operation; of this number nine died, four from causes quite independent of the ligature, and of the rest two only appeared to him to be certainly owing to that proceeding. He is therefore of opinion, that the preliminary ligature of the carotid should be used in certain serious cases, for example, when the tumour is of enormous size, when it is very vascular, when it is seated in a difficult region traversed by important organs, and when the patient is much debilitated. The common trunk should be tied, when there is reason to fear a wound of the internal carotid; in other cases the external division should be ligatured if possible. Ligature of the common carotid *per se*, exposes the patient to serious danger, but on the other hand it is attended by decided advantages; it renders possible, or even comparatively easy, operations which would be almost impracticable without it.

M. Richet (*ib.*, 1864, p. 27) urges that Verneuil's statistics are too favorable; that ligature of the carotid followed by a serious operation cannot be more favorable than ligature of the carotid *per se*; that in the latter cases there has been a mortality of 25 per cent., and that therefore in the former there will be at least one death in four cases. As to tying the external carotid, he thinks that when it is possible, the tumour must be small and the operation unnecessary, and that when it would be useful, the tumour is large and the ligature extremely difficult or impossible.

G. B. A. Hanuschke, twenty-five years' experience in operative surgery, (Leipz., Engelmann). C. Bojanus, cases from the hospital of Nischny-Nowgorod, 1855 to 1859; a contribution to operative surgery, (Dorpat, Gläser). J. F. Heyfelder, report on operations performed at the St. Petersburg "Arbeiter-Hospital" in 1862 ('Berl. Klin. Wochenschr.,' 1864, p. 36).

#### MATERIA CHIRURGICA AND THE MEDICAL TREATMENT OF SURGICAL CASES.

Dr. Heineke adduces two examples ('Greifsw. Med. Beitr.' ii; "Report of the Soc. of Baltic Phys.," p. 12) for the purpose of showing the practical value of *measurements of the temperature*\* in surgical diseases. He first points out, that in certain cases of articular inflammation, the use of the thermometer enables the surgeon to decide, whether there is already caries or not; remittent fever with the thermometer ranging in the morning between 37.5° and 38.5° C., and in the evening between 38.5° and 40° C., proves the existence of articular caries, provided other causes can be excluded. Again, measuring the temperature is of use, when an

\* *Vide* 'Year-Book' for 1862, pp. 183—201.—T. W.

injured limb is enclosed in a starch bandage. So long as the latter is firmly applied to the extremity, the surgeon may rest satisfied with the conclusion to be drawn from the condition of the peripheral (uncovered) portion. When, however, the bandage becomes looser, sudden increase of the temperature to the extent of half a degree Centigrade or more (the morning temperature being of course always compared with that of the next morning, and the evening with that of the next evening), which cannot be referred to any other cause, is a most certain sign, that some intercurrent affection, erysipelas, phlegmon, or periostitis, is attacking the extremity. The value of this indication is obvious, for it is well known that these diseases are not always announced by local pain.

*Prof. Nussbaum, the prolongation of chloroform-anæsthesia for several hours by means of the subcutaneous injection of morphia* ('Wien. Med. Halle,' 1863, p. 432).—Of several cases recorded, it may suffice to quote the following:—The upper jaw was excised for cancer, and owing to the skin being implicated, a flap had to be transplanted from the temple. A grain of the acetate of morphia was injected under the skin, while the patient was still under the influence of the chloroform. He slept for eight hours, during which time the breathing was perfectly quiet, the pulse regular, and the skin completely anæsthetic. It is noteworthy that the same dose had been administered in the same way some days previously, and had scarcely induced sleep, far less anæsthesia. Possibly this combination of narcotic means may prove of use in tetanus, in certain neuroses, &c.

Dr. Burow has found that gypsum hardens much sooner when a weak solution of alum (about a teaspoonful of alum to the pint) is used instead of water ('Deutsche Klin.,' 1864, p. 207). R. Gieseler on the use of quinine in surgery ('Arch. für klin. Chir.' iv, 550). M. O. Reveil on permanganate of potash and on its use as a disinfectant ('Arch. Gén. de Méd.,' 1864, i, 21). M. Soupert, description of some new instruments ('Bull. Belge.,' 1863, p. 628). Lutter, instrument for cutting plaster bandages ('Deutsche Klin.,' 1864, p. 12). J. H. Packard, 'Manual of Minor Surgery,' (pp. 228, Philad., Lippincott & Co.).

#### PLASTIC SURGERY.

*B. Langenbeck on a new mode of performing rhinoplasty* ('Berl. Klin. Wochenschr.,' 1864, p. 13).—Very satisfactory results may be gained by the usual operation, provided the nasal processes of the upper jaw still remain, only the ossa nasi, skin, and cartilages being deficient. But when the whole of the bones and soft parts have been destroyed, both the Indian and the Italian methods are quite insufficient. The new nose, however large and perfectly formed, sinks gradually, as time advances, to the level of the face, and ultimately projects no farther than the original stump.

With the view of rendering the new nose firmer, and, if possible, of giving it a bony foundation, Langenbeck tried in 1859 *periosteal rhinoplasty*, i. e. transplantation of a frontal flap including both skin and pericranium ('Deutsche Klin.,' 1859, No. 48). From five cases thus treated by him, he draws the conclusion that the nose so formed is really much firmer, and that by ossification of the transplanted periosteum more or



less perfect bone may be formed. Yet even this method fails to form a sufficiently prominent nose, when the nasal processes of the upper jaw are absent. Ollier, in 1861, combined periosteal rhinoplasty with transplantation of the remains of the nasal bones and of a portion of the nasal process. The author does not approve of this proceeding; he thinks it best to leave the remains of the ossa nasi, however large they may be, where they already are. The object is not to produce a bony apex to the nose, but to support its bridge and root, and it is in this very position that any remains of the nasal bones must be found. It would not be very difficult to transplant with the frontal flap a sufficiently large portion of the external table of the os frontis, but the fear of exciting phlebitis or purulent meningitis has prevented Langenbeck from carrying out the idea.

He has accordingly followed another plan—that of transplanting a relatively small frontal flap over a previously erected bony framework. To explain his method more clearly, it will be advisable to preface a few remarks on the pathological condition. In rare cases both ossa nasi are destroyed, and then the nasal processes of the maxilla are usually more or less defective. Rarely do the latter parts preserve their perfect integrity and normal projection, when the nasal bones, septum, and vomer, have been entirely lost. Generally, indeed, the nasal bones are only partially wanting, and their remains are depressed towards the nares. Thus the stump becomes flattened, a change that becomes more decided in proportion to the destruction of the nasal processes.

The ulcerative process by which the nose is destroyed, is mostly very chronic, requiring even ten or twenty years for its cure. Now it is known, as, indeed, the often-cited osseous depositions on the tibia in chronic ulcers of the leg show, that the irritation excited during a series of years by such sores very constantly induces the formation of fresh bone, and this process may frequently be proved in respect to the nose. Ossifications form from the edges of the *apertura pyriformis*, and often from the whole inner surface of the nares; they materially diminish the aperture, and sometimes fill the cavity, so that there only remains a central canal as large as a quill. A species of regeneration of the ossa nasi occurs in rare cases, an osseous bridge forming between the nasal processes, no doubt owing to gradual ossification of the granulations. The surrounding skin is dragged towards the middle line by the contraction of the cicatrices. Langenbeck observed these particularities, which had been hitherto overlooked, for the first time whilst performing rhinoplasty on the living patient; he has since, however, found the same alterations in nearly forty crania existing in different collections.

No new bone had been formed in some cases, in which the osseous framework of the nose had been entirely destroyed, but as the details of the morbid process had generally not been recorded, no certain explanation for these exceptions can be given. Langenbeck suspects, however, that either the integument had not been destroyed but had been retracted into the nares, or that the morbid process had rapidly destroyed the nose, and then been immediately arrested by treatment.

Langenbeck's operation is adapted for the ordinary cases in which there are some remains of the ossa nasi, and in which new bone has been

deposited along the margins of the apertura pyriformis. It may be divided into three portions:—

1. A vertical incision from the nasal process of the os frontis along the middle line divides the skin covering the cicatricial stump into two halves, each of which is dissected up towards the cheek. Any remains of the ossa nasi or of the nasal processes, and the portions of newly formed bone are now exposed.

2. A piece of bone,  $1\frac{1}{2}$ —2''' broad, is partially separated from each side of the apertura pyriformis by means of a fine saw. The length of this piece must depend on the skin which it will have to support. The bone is then carefully raised by an elevator, leaving it attached to the upper jaw near the lower margin of the apertura pyriformis. Thus a bony framework is prepared, to which the skin dissected off in the first part of the operation is attached by thread. Any remains of the nasal bones, which may have sunk towards the nasal cavity, are separated on either side by the saw, the incision passing from the nasal processes perpendicularly towards the frontal bone, and the elevator is again used to raise them to a sufficient height. The suture between the ossa nasi and os frontis forms a hinge on which the former may be moved.

3. Transplantation of a frontal flap, including, if necessary, a piece of pericranium.

This operation presents the advantage that a nose quite of normal prominence is produced with very little expenditure of material. For whilst rhinoplasty by means of the frontal skin alone requires a flap at least 3'' broad, the latter measured in Langenbeck's case only an inch. Four months later no change had taken place in the prominence of the nose. Langenbeck has no doubt, that this method may be employed with advantage in raising sunken noses.

P. Bert on animal grafting ('Arch. Gén. de Méd.,' 1864, i, 207).  
J. Hamilton on the restoration of a lost nose (pp. 58, Dublin, Fannin and Co.).

#### WOUNDS.

A. J. Jobert on reunion in surgery (pp. 700, Paris, J. B. Baillière).

A. Pribram has published ('Prag. Med. Wochenschr.,' 1864, p. 23) three cases from Professor Blazina's clinic, in which men had been bitten by men; twice a finger, once a thumb, was the part affected. One case alone ended fatally. All three presented the same peculiarities in their course:—

1. In all, after an apparently trifling injury, there occurred mortification of the whole finger or thumb.

2. The gangrenous part separated at the metacarpo-phalangeal joint during the fourth week.

3. The rest of the extremity suffered only in so far that the morbid process extended along the subcutaneous cellular tissue, in the form of ichorous phlegmon, in one case to the wrist, in the other two along the back of the hand and of the forearm as far as the elbow; the disease did not spread beneath the aponeuroses, and in the latter two cases the skin became gangrenous at a relatively late period.

4. As to the general symptoms, the great exhaustion at an early period is worth notice; one patient indeed died from marasmus.

*J. Hutchinson on diphtheritic or pellicular wounds* ('Lond. Hosp. Rep.,' i, 94).—"Amongst the numerous instances of phagedæna which we have had during the past year, not a few have presented the peculiar condition known as 'diphtheria of wounds.' It has long been well recognised in France and some other parts of the Continent, that wounds may become diphtheritic, and you will find allusions to such cases in the monographs on diphtheria published a few years ago by the New Sydenham Society. Little, if any, attention has, however, been given to the subject in England.

"The first instance of it which I ever saw occurred under very curious circumstances. A young gentleman, the son of a surgeon, had a compound fracture of his leg. The accident occurred in a country lane, and he was carried into an adjacent farmhouse, where he remained throughout. I saw him an hour after the accident, and, assisted by his father, succeeded, after sawing off the end of the tibia, in reducing the displacement. The wound was large, but there was not much contusion. All went on well for some time. At the end of a fortnight, however, the wound assumed a condition of which previously I had not seen any parallel (I have often seen such lately). The edges swelled and became very œdematous, whilst the entire granulating surface was covered by yellow, semi-transparent, gelatinous lymph. This we used to scrape away and peel off in large flakes, but it was very rapidly reproduced. We employed various local remedies, and in the course of about ten days the wound was again healthy. Now, the interesting facts as to diphtheria in this case are these:—This young gentleman had himself suffered from diphtheria of the pharynx, very severely, about six months before his accident, and he was still feeble from its effects. One of his brothers had died of it. Further, in the farmhouse to which he was carried, diphtheria had occurred only a few weeks before, and one of the children had died of it; so that we had two sources of possible contamination. You must note that he had every sanitary advantage—a large bedroom, in excellent air, and the freest ventilation which open windows could afford (it was mid-summer).

"In some of the many cases of diphtheria of wounds which we have recently had in this hospital, the disease has been associated with hospital phagedæna, but in many it has not. In some we have had most interesting opportunities for noting the distinctive features of the two affections, for different parts of the same wound have shown the two in perfectly characteristic stages. The pellicle of lymph differs much in thickness in different cases; in some it is very thick, but soft and gelatinous, in others it is thin, but tough and coherent. I have often peeled off portions as large as halfpence.

"During an entire year, we have had hospital phagedæna in certain parts of the hospital, and throughout the whole of this period we have never had a case of it in Gloucester Ward. Yet, several instances of diphtheria of wounds have occurred in Gloucester Ward. None of these have, however, been as severe as some which I have seen in the other

wards. The worst cases have certainly occurred in association with phagedæna.

“None of my own patients have suffered from diphtheria of the pharynx at the same time that their wounds were affected by it; but in one case which my colleague Mr. Maunder requested me to see with him, both the throat and the wound were simultaneously affected. I have had several cases of diphtheria of the throat occurring in patients who were inmates of wards in which were others suffering from diphtheritic wounds.

“In some conditions of wounds, a pellicular exudation takes place, without any swelling, and under conditions very different from those which we are describing. A gentleman, now under my care on account of an ulcer on one leg as large as a halfpenny, and in a remarkably irritable condition, now and then presents this state of things. I have peeled from his sore a continuous layer about as thick as white kid leather, and quite coherent. This membrane will cover the entire sore, so that every trace of granulation is concealed. There is no swelling of the edges of the wound, and no tendency to phagedæna.

“As regards the treatment of diphtheritic wounds, the most essential point is to remove the pellicle. It must be scraped away every few hours as fast as formed. Nitrate of silver may be applied, or a solution of Condy’s fluid, or continued irrigation with warm water. On the whole, I prefer irrigation; but, to be successful, it must be profuse, and the pellicle must be very patiently and completely and frequently removed. Repeatedly I have seen no good obtained from irrigation for several days, on account of neglect to scrape off the pellicle. I have usually prescribed a mixture containing chlorate of potash and tincture of bark; but as we have always devoted much attention to local treatment, it would be unsafe to infer that these remedies had any material share in the cure.

“In several cases in which the wounds were on the hand or forearm, I have ventured at once to discharge the patient from the hospital when the diphtheritic inflammation made its appearance. In two such—an Irishwoman, from whose hand two fingers had been amputated after a severe crush, and a man from Mellish Ward, with a severe wound of the forearm—a cure resulted very quickly after leaving the hospital. In several others I am not acquainted with the ultimate result, but I believe that in no instance did the disease afterwards advance.”

Dr. Klotz has employed, instead of Serres-fines, a kind of clasp for the purpose of uniting wounds (*‘Deutsche Klin.,’* 1864, p. 261). J. K. Haschek on punctured wounds (*‘Wien. Med. Halle,’* 1864, p. 22, &c.).

#### BURNS AND SCALDS.

*M. Lemberg, the treatment of burns by phosphorus* (*‘Gaz. Méd. de Lyon,’* 1864, No. 10).—The author thinks that the special danger of these injuries consists in a part of the phosphorus remaining in the wound, where it gradually oxidizes; the acid thus formed causes great irritation both of the wound and surrounding parts. He recommends painting the

part with ether immediately after the injury, the application being repeated till luminous exhalations are no longer given off in the dark.

*J. Hutchinson, the internal administration of belladonna in cases of severe burn* ('Med. Times and Gaz.,' 1864, i, 10).—Experimental physiologists have recommended belladonna for use in the treatment of burns, in the belief that it diminishes that state of the nervous functions under which reflex inflammations are likely to be originated. They assert, on the other hand, that of all remedies opium is the one most powerful in increasing this peculiar state, and that it ought consequently to be avoided. In clinical practice, however, we believe that this opinion is wholly disregarded, and that opium is the form of anodyne most commonly resorted to in these cases. Yet it is generally suspected that the causes of death after burns are, in a majority of instances, connected with reflex inflammations, *e. g.* ulcers of the intestine, pneumonia, &c. In a series of cases under Mr. Hutchinson's care in the London Hospital during the last six months, the belladonna treatment has been tried. The result appears to have been fairly satisfactory. Mr. Hutchinson considers that the cases in which the remedy had seemed to be most useful, were those of children in whom general febrile symptoms, attended with restlessness, loss of appetite, &c., had set in without any local complications. In several of these, there could be no mistake that the feverish state had passed away quickly and very satisfactorily under the use of belladonna. In no case had he witnessed any ill results. If the burn itself was very painful, and the patient unable to get sleep on account of the pain, then the belladonna seemed comparatively inefficacious to procure ease, and morphia was far more efficient. As a rule, no opium had been given to the cases treated by belladonna; but in a few, and those chiefly in adults, it had been found requisite to give an occasional night dose. Possibly more benefit might have been obtained had the administration of the belladonna been pushed to larger doses. The usual amount given had been a third of a grain three times a day.

#### GUNSHOT WOUNDS.

*F. H. Hamilton on the use of Nélaton's probe* ('Amer. Med. Times,' 1863, ii, 288).—"This excellent little instrument has not been brought into the general use and appreciation to which it is already entitled; indeed, its value was fully declared, when on its first trial, and in the person of the illustrious Garibaldi, a problem was solved, which had puzzled the most skilful European surgeons. The records of this hospital show several cases where Nélaton's probe has discovered the presence of lead, and, in one case, of iron, where their existence was never suspected, certainly not known. Thus a grapeshot, weighing 2 oz., was discovered, and removed by Dr. James B. Cutter, from the calf of the leg—the patient previously averring that the ball had gone 'clean through.' In this case, the iron being rusted left upon the probe a brownish stain. In the following case the instrument discovered the presence of lead. M. G—, private 7th Connecticut Vols., was admitted with a gunshot wound of the left leg, a short distance above the ankle-joint. His medical attendants upon the field had informed him that the ball had merely glanced across, but had

not entered the bone. The patient was firm in his belief that there was no ball in the wound. Three months after the receipt of the injury, when under my care, at the McDougall General Hospital, the wound showed no signs of healing; and this fact, together with the thin, dark-coloured discharge, led me to suspect the presence of some foreign body, other than dead bone, notwithstanding the statements of the patient to the contrary. I therefore introduced one of Nélaton's probes, and carefully explored the cavity. Removing the probe, and washing off the blood, I found the presence of lead indicated by several marks on the porcelain. Soon after I enlarged the wound, and, cutting down into the tibia on its outer surface, found a small opening into the bone, where the ball had entered. With some difficulty, I then extracted from the substance of the bone, where it was firmly impacted, an entire Minié rifle ball, slightly flattened at its apex. I also removed some pieces of dead bone. After this the wound proceeded to heal kindly, and was soon entirely closed. Necrosis had already occurred in consequence of the presence of the foreign body, but by its removal the further extension of the necrosis was prevented. These cases would scarcely, in themselves, be of sufficient importance to merit a special record, were it not that they, as well as any others, serve to illustrate the great value of the instrument. The negative evidence furnished by the probe is often as valuable as the positive, for if, upon a thorough and skilful examination of the wound, we fail in obtaining the evidence of lead or iron upon the probe, we are far more confident in asserting that there is no such foreign substance remaining, than we should be after such an examination with the common gunshot probe. After withdrawing the probe, the blood, pus, or other matter should be removed, by carefully passing the porcelain ball through a basin of clean water three or four times; when the marks, if there be any, of lead or rusted iron will be left plainly defined upon the surface of the bulb. Of course, these marks should be carefully removed before using the probe again."

*J. Moses, surgical notes of cases of gunshot injuries occurring during the advance of the army of the Cumberland in the summer of 1863 ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 324).*—In regard to wounds of the knee-joint, the author writes,—“It seemed to me that the patients had not so much died from the injury itself as from timid surgery. A wounded joint within forty-eight hours begins to swell, and becomes tense, shiny, and painful, and soon fluctuation is felt within the capsule and exteriorly. This may be delayed for several days by cold applications. Matters go on from bad to worse; there is discharge from one or both wounds, but which does not relieve the distension. The general system finally succumbs, and after death we find the joint cavity and all the tissues above and below the knee with burrowing abscesses. It is a rule of surgery to give free exit to pus wherever it is detected, and more especially when beneath fibrous and resisting tissues. Now, if we apply this good precept to the knee-joint as soon as we find distinct fluctuation, shall we not save the increase and spread of the pyogenesis? Shall we fear to freely open the knee-joint? Are we not told that shell wounds tearing open the joint are less dangerous than gunshot or punctured wounds? Are not amputations and resections at the joints abundantly

successful? By such reasoning I had determined as soon as opportunity presented, to risk a trial to save a limb, and this occurred."

Sergt. Haynie received, on June 6th, a wound of the left knee-joint; the ball struck the centre of the patella, and passed through, comminuting it; it then passed outward and backward, involving the articular surface of the outer trochanter of the femur, and tearing the capsular and lateral ligaments. "He was brought to the field hospital immediately, and soon after seen by several surgeons. I recommended that the track of the wound should be laid open and a free incision made into the joint, the limb firmly fixed in a good position, and cold irrigation applied. This was done effectually as soon as swelling and redness appeared, and the fragments of patella removed at various intervals. No pus was allowed to accumulate or burrow. Cold or warm water dressings were used, as most comfortable to the sensations of the patient. Everything progressed most favorable, and when I left the post,\* Sept. 14th, the wound was nearly closed, and the patient had some motion of the joint." Four other cases are related. The author adds "ten cases of wounds of the knee-joint were admitted (all except Sergt. Haynie) into Hospital No. 1, from the several skirmishes of the advancing army. Of these three died without operation; one died after amputation; one died of secondary hæmorrhage from a branch of the popliteal artery; three were nearly recovered when I left the post, Sept. 15th, and two remained with fair chances of ultimate recovery."†

Thus we have one half of the cases which will in all probability be saved with useful limbs and various amounts of motion in the joints. These cases were treated under the most favorable circumstances; the physical condition of the men was most excellent, and soon after the reception of the injury, they were taken to well-appointed hospitals, surrounded with comfort, and with every luxury of diet at command, and skilful surgical attendance.

*S. W. Mitchell, G. R. Morehouse, and W. W. Keen, report on reflex paralysis as a result of gunshot wounds ('Amer. Med. Times,' 1864, i, 259, &c.).*—"The various effects produced upon the nervous system by gunshot wounds have received, it seems to us, far less attention and far less study than their interest and importance appear to call for. Among them are some which must clearly be classified with the results illustrated by the cases reported in this paper; but there are also others which are far more numerous, in fact very common, and which are signally exemplified on every battle-field. These have been more or less vaguely treated of as shock, commotion, stupor, &c. The larger part of those who receive

\* "Nov. 25th.—I have since learned that he went on furlough, the wound having entirely closed."

† In a later paper (l. c., vol. 48, p. 362) the author states that both these cases ultimately sank. He there says, "While I have lost confidence in the possibility of saving gunshot wounds of the knee-joint, involving fractures of the condyles of the femur or head of the tibia, under the usual circumstances of bustle and confusion of the field, and repeated removals of wounded in ambulances to the rear, yet I still firmly believe that many cases can be saved." The conditions of success are that such cases should, immediately after injury, be placed in a hospital from which they would not be moved for sixty days, and that they should be provided with comforts and skilful surgical care.

flesh wounds involving no important organ, are but little affected at the time, or may even be unconscious of having been hit, and at all events exhibit no well-marked immediate constitutional disturbance. In other cases, and particularly in wounds of graver nature, the patient instantly falls senseless, and so remains during a few minutes or many hours, reviving again either completely, or suffering from a continued state of depression known as the result of shock, and marked by the usual features of great weakness, feeble circulation, pallor, &c. In other cases these last-named symptoms come on at once, and without the intervention or accompaniment of unconsciousness. These very interesting states of system may be due, it seems to us, either to an arrest or enfeeblement of the heart's action through the mediation of the medulla oblongata and the pneumogastric nerves, or to a general functional paralysis of the nerve centres, both spinal and cerebral, or finally to a combination of both causes. Arrest of the heart movements is producible, as is now well known, by any violent irritant directly addressed to the trunks of the pneumogastric nerves, or to the medulla oblongata, and it is conceivable that such an effect may be brought about by any very severe injury of an external part. In fact, it has long been known that the sudden crushing of a limb in inferior animals will stop the heart or make it act slowly for a greater or less length of time. Now if we add to this M. Bernard's experiments, in which he showed that irritation of the posterior roots of spinal nerves suddenly checks the cardiac motions for a time, and that like irritation of the anterior or motor roots gives rise to no such result, we shall be able to see how it is possible that a gunshot wound of a large limb may be competent to effect a like result. We should remember, too, that in nearly all these cases the hæmorrhage from large vessels, such as are usually opened by accidents of this nature, is sufficient, even during syncope, to add to or deepen, so to speak, the effects of the reflected nerve impression. Where small vessels only have been wounded, this might not occur, but it is proper to state that men who have fallen senseless at the instant of the wound, frequently awaken after a time to find themselves drenched with blood. Supposing such an arrest of the heart's movements to have taken place, a continuance of their stoppage, even for a brief period, would naturally give rise to cerebral anæmia, pallor, unconsciousness, and the remaining phenomena of shock.

“Again, as we have said, a severe injury, as a gunshot wound of a limb or the neck, may produce its effects of unconsciousness and loss of power, by greatly weakening or for a time destroying with various degrees of completeness, the functions of all the nerve centres, and of their conducting cords. The influence of shock in thus causing temporary paralysis of nerve trunks is very well known to every experimenting biologist. Thus after opening the spinal cavity, it is very common to discover that the sensitive nerves are for a time unimpressible by stimuli. But, as a general thing, this is not so as regards the nerve centres within the skull, which are rarely so disturbed by the operation of uncovering them as to refuse all reply to irritations. The majority of physicians will no doubt be disposed to attribute the chief share in the phenomena of shock in its various forms to the indirect influence exerted upon and through the heart. There are, however, certain facts, which, duly considered, will, we



think, lead us to suppose that in many cases the phenomena in question may be due to a temporary paralysis of the whole range of nerve centres, and that among these phenomena the cardiac feebleness may play a large part, and be itself induced by the state of the regulating nerve centres of the great circulatory organ. The loss of consciousness, and the appearance of a state outwardly resembling syncope, prevent us in most cases from feeling sure that the great nerve centres suffer loss of function primarily and not through want of nutrition from feeble or arrested heart action." The author then alludes to the rarer cases where the patients do not fall when struck, but become insanely excited or almost hysterical, to those where the symptoms are attributable to the shock given to the auditory nerve, and to certain cases of local paralysis due to the mere mechanical effect produced upon the neighbouring parts; for example, a ball passed along the outer surface of the lower jaw, there was no fracture, yet the shock caused complete paralysis of the inferior dental nerve, with absolute anæsthesia, analgesia, and loss of sense of temperature in the lower lip and chin of the injured side.

In rare cases gunshot wounds cause partial or very general paralysis of grave type and prolonged duration in parts not directly injured; these protracted paralysees must be due to an equally permanent affection of the nerve centres. Seven cases are related at length in support of these assertions.

"*Case 1.*—The wound involved the muscles of the neck or throat, and the hyoid bone. *Result.*—Paralysis of both arms and of the neck.

"*Case 2.*—Fragment of shell; wound of muscles over and external to the right femoral artery. The injury may have caused concussion of the crural nerves, and thus much of traumatic paralysis. *Result.*—Reflected paralysis of the right arm and leg, and the left leg.

"*Case 3.*—Probable injury of the sciatic nerve (commotion). *Result.*—Reflex paralysis of the right arm.

"*Case 4.*—Ball wound of right testicle; paralysis of right anterior tibial muscles and peroneus longus.

"*Case 5.*—Wound by fragment of shell in external side of left thigh; paralysis of tact on a corresponding part of right thigh.

"*Case 6.*—Ball wound, probably involving the crural nerves. *Result.*—Paralysis of right arm.

"*Case 7.*—Ball wound of deltoid muscle; sensory and slight motor paralysis of same arm.

"There is no evidence in this case that the ball struck the bone or directly injured any large nerves, since even the deltoid itself had nearly full power when the patient was first examined by us. In three of these cases the leg was hit, and the arm of the same side was paralysed. In three cases the paralysis affected the opposite side of the body, and in one the paralysis of tact and pain was observed to have fallen upon a space symmetrically related to the wounded spot as regards position. No general law, therefore, can be deduced from these records, nor from what we see in the causation of reflex paralysis from disease should we expect to find any inevitable relation between the part injured and the consequent paralysis. The constitutional condition at the time of the wounding, as to excitement, mental and physical, may possibly have to do with

causing the resultant paralysis. Of the seven cases above reported, two were in active movement, two were standing about taking aim, one was kneeling, and of two we have no information as to this point. It may prove, upon examining a larger number of cases, that a man wounded when moving violently, or when excited, is more than another liable to reflex paralysis, but as yet we are not entitled to such an inference. In most of our cases the constitutional effects were instant and severe, and could not therefore have been due to the loss of blood, which in some of them was copious. Four of the seven cases had stinging, smarting, or burning pain in the part paralysed reflectively. The pain was an early symptom, which disappeared in all of them after a time. In three cases no such pains were complained of. The after history of these cases is extremely curious. However grave the lesion of motion or sensation, it grew better early in the case, and continued to improve until the part had nearly recovered all its normal powers. In almost every instance some relic of the paralysis remained, even after eighteen months or more from the date of wounding. In some the part remained weak, in others there was still left some slight loss of sensibility, and in two the loss of power and of sensory appreciation was very considerable. In a case of reflex paralysis from a wound we have, therefore, some right to expect that the patient will recover rapidly up to a certain point; then in most cases a small amount of loss of power or sensation may remain. The future history of our own or other cases may determine hereafter whether the recovery is ever quite complete.

“In two of the seven cases there were lesions of sensation and motion. In three, motion alone was lost, and in two the senses of tact and of pain were affected without other loss of function.

“Although long periods had elapsed in every case before we examined them, in only one was there any very notable wasting; and even in this patient the loss was general throughout the member, and may be readily ascribed to mere lack of use. In none was there atrophy, such as characterises lesions of nerves, and certain rheumatic and other palsies, save, perhaps, in the doubtful instance of the right arm in Case I.”

After discussing the explanation given by Brown-Séquard for reflex paralysis, it is remarked, that “either the shock of a wound destroys directly the vital power of a nerve centre, or it causes paralysis of the vaso-motor nerves of the centre, with consequent congestion and secondary alterations. But there is no reason why, if shock be competent to destroy vitality in vaso-motor nerves or centres, it should be incompetent so to effect the centres of motion or sensation. Until the causation of these cases is better understood, it is vain to speak confidently as to treatment founded on a conception of the mode of their production. Experience has shown that the removal of the first cause, and in some instances the application of alteratives, as blisters to the cicatrix, prove valuable in relieving such induced pain as may exist. Further, that stimulating liniments or blisters to the affected member are useful, and that the local application of induced electric currents to the muscles is of the utmost service. The question of the use of internal remedies has yet to be decided by larger clinical experience. We ourselves have been unfortunate, in that no chances have presented themselves of treating these

cases in their early stages, when the causes which first produce the paralysis are present and before those later nutritive changes occur which, as we presume, are essential to the continued existence of the state of palsy. We have endeavoured to show in this report that the condition called shock is of the nature of a paralysis from exhaustion of nerve force; that it may affect one or many nerve centres; and finally, that it may be so severe as to give rise in certain cases to permanent central nerve changes, productive of paralysis of sensation and motion, or of either alone."

N. Pirogoff, 'General Military Surgery' (pp. 1168, Leipz., F. C. W. Vogel). E. Sonrier 'Gunshot Wounds during the Italian Campaign' (Paris, V. Rozier). Dr. Zechmeister, 'Gunshot Wounds, &c.' (München). On gunshot wounds ('Schmidt's Jahrb.,' vol. 120, p. 71). Prof. v. Pitha, case of gunshot wound of the neck ('Wien. Med. Halle,' 1864, p. 51). A. J. Semmes and T. Longmore, cases ('Lanc.,' 1864, i, 90, 266). G. Basile and Dr. Ripari, the wound of Gen. Garibaldi ('Lanc.,' 1864, i, 467). J. Scholz, case of wound of stomach, diaphragm, and lung ('Wien. Med. Wochenschr.,' 1864, pp. 37, 53). J. Moses, cases occurring near Chattanooga in September, October, and November, 1863 ('Amer. Journ. of the Med. Sciences,' vol. xlviii, p. 344).

#### SUPPURATION.

*W. B. Herapath on the occurrence of indigo in purulent discharges* ('Med. Times and Gaz.,' 1864, ii, 338).—After describing the different forms of indigo observed in the urine, the author relates a case in which this substance was found in pus. A man with old disease of the knee-joint had a large, tense, fluctuating swelling in the calf of the same leg. "It was punctured, and a large quantity of serous fluid poured out, together with some large white bodies, which, at first sight, appeared like hydatids, but were afterwards thought to be masses of fat, as no distinct hydatid structure could be discovered in them." On the 7th September the puncture was repeated, and on the 11th the wound was enlarged. Towards the end of the month "he had an attack of violent phlegmonous erysipelas around the knee-joint, in the leg, and over the calf, which rapidly extended down even to the foot. Fluid continued to escape from the opening made in the sac, but it had now a decidedly purulent character, and the margins of the wound became very red, angry, and inflamed. During the course of the next week or more, evaporating spirit lotions were used to keep down the temperature of the inflamed leg, and several large bullæ formed upon the dorsum of the foot, upon the calf, and under the ham; from these, on bursting, a sero-purulent fluid exuded in large quantities, and the discharge from the original wound was considerably increased. He had frequent startings and jumpings in the leg, which gave him intense agony, and his nights were sleepless unless he had strong morphia draughts, or opium in some form or other. His leg was now so painful and swollen that he could not bear the least motion, and it was kept in one position, on its outer side, upon a splint, and somewhat flexed at the knee. During three weeks he continued in this pitiable condition, and it was during this period that the cloths employed to keep his limb wet

with spirit lotion, together with all the bed-clothes where the fluid had soaked through them, were found constantly tinged of a greenish-blue colour, having very much the appearance of mouldy cheese, whilst the spirit and water used, after a little time became equally greenish blue from having the cloths frequently wrung out in the vessel containing the dilute spirit, which was made by mixing gin with about four or five times the quantity of spring water. This peculiar colour gave me no alarm, for at first I was disposed to consider it as the natural mouldiness occasioned by the presence of microscopic fungi vegetating in the organic matters of the discharges; and I ordered some of the fluid to be saved for microscopic examination, fully anticipating that I should discover these minute plants without any difficulty. But to my very great surprise, I found no such organisms apparent, even with the higher powers of the instrument; whilst on repose, the bottle being full and corked, the blue colour disappeared in the course of a few hours. However, upon again taking out the cork, and exposing to the air for a short time, the blue colour was again developed, chiefly at the surface of the fluid. This experiment clearly proved that the phenomenon was due to some chemical action of oxygen upon a colourless material analogous to indigo in its deoxidized condition. So upon treating the blue liquid with a solution of hypochlorite of lime or soda, the colour was immediately discharged as certainly as if indigo itself had been acted upon. When treated with an ammoniacal solution of acetate of lead, the whole colouring matter was precipitated in combination with the lead. And, if filtered through paper, although some of the blue pigment was retained in the meshes of the paper, some passed through from the very fine state of molecular division in which the substance was; a further deposit took place after a time in the filtrate in consequence of the oxidation it had undergone from being so freely exposed to the action of oxygen during the process of filtration. By repeating this operation several times, sufficient material was obtained to furnish other evidence of the presence of indigo blue, namely, by its solubility in hot alkalies, when deoxidized by sugar or protoxide of iron, and the volatilization of the pigment and crystallization of the substance when submitted to cautious sublimation. It is much to be regretted that the true nature of this substance was only discovered upon the eve of its disappearance, or a much larger supply could have been readily obtained. On changing the remedial measures to poultices, which became necessary in consequence of the formation of numerous abscesses along the course of the saphæna vein, and in the ham, and upon the dorsum of the foot and around the ankle, the feet assumed the ordinary appearances, and the blue colouring matter was no longer found to develop itself; this might have been either from its having ceased to be formed, or from the poultices preventing that constant oxidation which was so essential for the production of the blue colour from the originally colourless base." Soon afterwards the limb was amputated.

Dr. Hildwein, case of abscess rapidly healed after injection of permanganate of potash ('Wien. Med. Halle,' 1864, p. 147). Case of purulent diathesis ('Gaz. d. Hôp.,' 1863, p. 538). F. Innhauser, psoas abscess cured by animal baths ('Wien. Med. Halle,' 1864, pp. 168, 180).

## ERYSIPELAS.

*Dr. Post* alluded at the New York Academy of Medicine ('Amer. Med. Times,' 1863, ii, 123), to the good effects of bromine in cases of diphtheria and erysipelas. "In the 'Park Barracks,' in Louisville, erysipelas broke out with great severity, and the moment that the bromine treatment was introduced, the disease ceased to spread. The remedy was used both in fumigation and as a local application. The surgeons were in the habit of moistening lint with the compound solution of bromine and applying it directly to the part, and covering the whole with oiled silk. *Dr. Post* saw a number of cases treated in that way where improvement had taken place in a very short time. He was informed by those gentlemen who had charge of the erysipelalous hospital, that in almost all cases, in from twelve to twenty-four hours after the commencement of the treatment, the erysipelas began to subside. It scarcely in any case continued to spread beyond two or three days; generally its spread was checked within from twelve to twenty-four hours."

## HOSPITAL GANGRENE.

*W. Thomson* states ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 393) that "the discharges from several of these cases were examined, to ascertain whether some of the speculative views in regard to the presence of fungi and their influence in producing the disease could be sustained, but no fungi were found. The discharge consisted of fluid, granular matter, and débris. The connective tissue seemed to have been broken down into unrecognisable granular material. The fibrous tissue was softened and easily teased out, and in the muscular tissue the striated appearance was lost before the fibrous. No evidence of textural growth was found in the discharges, although the 'piled-up' and thickened margins of the ulcers would probably reveal, on examination, a multiplication of the connective tissue-corpuscles, as reported in a similar group of cases at Annapolis, Md., by Assistant-Surgeon Woodward, U.S.A."

*Dr. Parker* believes ('Amer. Med. Times,' 1863, ii, 109) "that the same causes operate to produce hospital gangrene which are necessary for the development of typhus or typhoid fever, but with this addition, the presence of suppurating wounds! Superadded to the effects of bad ventilation we have, also, the results of the decomposition of pus and other discharges from wounds. How does this cause operate? I know that some assume, on the one hand, that it operates locally; and still others, that it operates through the constitution. We all know that smallpox may be developed either through vaccination or by direct exposure to contagion; and I believe that very much the same thing is true with reference to hospital gangrene. We may have in some cases the local symptoms showing themselves first, and then subsequently the constitutional symptoms and *vice versa*. *Dr. Ball*, who has written an inaugural thesis on hospital gangrene, the result of observation during the summer months while engaged in the hospital in the charge of *Dr. Weir*, in Frederick, enumerates forty-three cases, in five of which he states that

the constitutional symptoms were the first ones that showed themselves."

*F. H. Hamilton* records two cases of hospital gangrene, occurring without previous wound ('Amer. Med. Times,' 1863, ii, 181).—"Case 1.—General Hospital, No. 4, Nashville, Tenn. Westley Frost, of the 85th Illinois Volunteers, was convalescing from a severe attack of pneumonia, when, about the 22nd of March, 1863, a small vesicle appeared upon the front of his right leg, where the skin was perfectly sound. This soon dried up, became black, and the sloughing commenced. This man had never had syphilis, or any other constitutional specific malady, but at the moment of his attack he was exceedingly feeble. There were at the same time two or three cases of hospital gangrene in an adjoining ward, but none in the ward which he occupied. On the 14th of April, when my attention was first called to him, the gangrene had been corrected by bromine, but the ulcer covered eight inches by four of superficial surface, and the shaft of the tibia was dead. Some time during the month of August, by the courtesy of the surgeon in charge of the hospital, I was permitted to remove the dead bone, which was found to include all, or nearly all, of the tibia intermediate to the epiphyses. I have seen him several times since then, and find the wound cicatrizing finely, and his general health steadily improving.

"Case 2.—On the 26th of March, 1863, I saw, in General Hospital No. 7, at Louisville, Kentucky, a Confederate soldier, Travis Austin, with two large ulcers, one upon the right wrist and the other upon the right leg, near the ankle, both ulcers being the result of hospital gangrene, which had been arrested by the use of bromine, applied as recommended by Dr. Goldsmith. I was informed that he had not been wounded, but that he was admitted on the 15th of February, 1863, with purpura hæmorrhagica. He had been living for a long time without fresh vegetables, and he was no doubt scorbutic. The gangrene commenced almost simultaneously both upon his wrist and his ankle, as a small pimple, from which point it rapidly spread."

*W. C. Pryer* observed two epidemics of this disease ('Amer. Med. Times,' 1864, i, 4). In the first, "the disease would run its course somewhat after the following manner:—A patient, whose wound would be progressing to a favorable result, would suddenly be seized by a chill, followed by fever: that is, by heat of skin, frequency of pulse, headache, loss of appetite, a furred tongue, constipation of bowels, &c. No sweating stage, however, was observed. The wound previously healthy, would assume an inflamed appearance, not immediately, for the constitutional symptoms would precede the local, by from twelve to twenty-four hours. The integument and subcutaneous areolar tissue surrounding the wound then became inflamed, and infiltrated with serum, afterwards with pus, and the sloughing would commence at the edges of the wound. The skin itself resisted the sloughing process longer than the subcutaneous tissues, and for that reason the edges of the wound would become undermined for some inches beyond the open surface, and portions of sound skin would project beyond the general circumference, giving the wound a ragged appearance. The sloughing would advance, both by eating away the edge of the wound and by penetrating deeper into the subjacent tissue;

but in no instance, during the first epidemic, did it involve any structure deeper than the deep fascia of the part affected. In most cases the duration of the disease did not exceed ten days or a fortnight, at the end of which time the wound would again assume a healthy character, the exposed surface granulating very rapidly, while the appetite and general health of the patient would return. It will be noticed at once that the disease described has all the characteristics of ordinary phlegmonous erysipelas, and, in fact, with the exception of a few points to be noticed presently, it differed from that disease but little. Some of these points of difference were these:—First, the sloughing advanced more rapidly than is usual in phlegmonous erysipelas, and involved a large surface. Second, the contagious properties of the disease are much increased; so much so was this the case, that at one time fully one half the patients in the pavilion were affected by this sloughy condition. The third point of distinction between this and ordinary phlegmonous erysipelas was shown in the fact, that in several instances patients lying next to one affected by the form of gangrene already described, would take from him not this, but another form of the disease, which will be spoken of when describing the characteristics of the second epidemic.

“After this first epidemic had run its course, or had been checked, the wounds, both in the pavilion and tents, assumed a healthy appearance, and so continued for about two or three weeks, when the second epidemic commenced. In this the mode of attack was very different from that which has been described. The chill, the fever, the sudden prostration, in fact nearly all the symptoms of constitutional disturbance which usually mark the inception of an acute disease, were absent. The first symptoms of gangrene were purely local, and would present themselves somewhat in this way. The wound, which yesterday presented a perfectly healthy appearance, would to-day show in the midst of its healthy florid granulations, a small spot, perhaps a mere point, of a grayish hue. From this point the sloughing would commence, the spot enlarging and appearing, as it were, to eat its way into the wound, the newly formed tissue melting away as the disease advanced, until the wound had assumed its former proportions. The sloughing, however, would not stop here, but would invade the old and healthy tissues, involving not only the skin and subcutaneous and deep fascias, but all the tissues, including the bone itself. In fact, this second epidemic was more formidable than the first, whether it attacked a patient, who had previously suffered from sloughing, or one who had before remained unaffected. No deaths, however, occurred from this cause among the patients under my care, but in all cases the sloughing finally ceased, and, as the dead tissue was removed, healthy granulations showed themselves underneath, and the healing process went on as before. It was certainly interesting to witness the readiness with which the patients recovered from the repeated attacks, and the rapidity with which the wound closed up, when once the granulations began to form.”

“In drawing a distinction between these two forms of gangrene, it is not intended to give the idea that they are different diseases, but simply to note the fact of the appearance of gangrene at different times, in different forms. In the first form the erysipelas appeared as the most

prominent characteristic, while in the second this was entirely wanting. In the first the constitutional symptoms were very marked, and preceded the local manifestations; while in the second the disease began as a local disorder entirely, although the symptoms of constitutional irritation, of course, presented themselves as the disease advanced. The fact, however, that one form seems to be able to produce the other appears to establish the link between the two."

*F. Hinkle on the use of permanganate of potash* ('Amer. Med. Tim.,' 1863, ii, 254, 265).—"In the treatment of over fifty cases in the Campbell Hospital the *modus operandi* of employing the remedy was discovered, and the following is my report:—From one to four grains of (in?) solution\* was given in twenty-four hours, and it acted as a tonic astringent, oxygenator, and vivifier of the blood. As a constitutional remedy, it was only given in cases where the system was greatly depressed. Locally the concentrated solution was applied as an escharotic, with a hair pencil, over the surface of the wound, even extending its application over the cuticle four inches beyond the seat of the wound. After the wound was thoroughly pencilled, lint saturated with the dilute solution was applied, and the dressing repeated every three or four hours. The dilute solution is prepared as follows:—From two to four drachms of the concentrated solution is added to a pint of water, the strength varying in accordance with the severity of the case. Previous to the application of the solution the wound should be thoroughly cleansed with Castile soap and water. In cases where the wound is deep or difficult of access, the concentrated solution, as an escharotic, was injected with a gutta-percha syringe two or three times during the day, and the dilute solution at regular intervals, when lint could not be applied. By this local application the most aggravated cases of gangrene, resulting from traumatic wounds, were arrested; the treatment was then modified to suit the state of the wound, until healthy granulations ensued. After the gangrenous slough had entirely disappeared, which occurred in about five days from the time the gangrene had been arrested, simple dressings were applied with the dilute solution, until the wound was entirely healed. It also proved valuable as a remedial agent in bed-sores, where there was extensive suppuration along the spine and hips beneath the integuments, causing a number of openings in the cuticle for the discharge of pus. The sores and the parts beneath the integument were thoroughly cleansed with Castile soap, and water was then injected two or three times a day. Subsequently the affected parts were thoroughly injected with a dilute solution (ʒiv ad Oj) of the permanganate of potassa. Occasionally, in aggravated cases, it was expedient to inject the concentrated solution once a day for several days." It was also used in the treatment of stumps after amputation, in some cases of hæmorrhage, and as a general application in gunshot wounds.

*T. P. Pick, history of a recent epidemic of phagedæna or hospital gangrene,—St. George's Hospital* ('Brit. Med. Journ.,' 1864, i, 262).—"Nitric acid failed to stop the disease; and as it causes excruciating pain,

\* The solution contains 85 grs. to the fluid ounce of water, dissolved by heat.



Mr. Pick does not think its use advisable. *Carbolic acid* was applied locally in several cases, all general treatment being avoided. In no one instance was there sufficient evidence to justify the assumption that it arrested the disease. "The transfusion of a stream of *chlorine gas* through the ward was tried in one or two instances, though not sufficiently often to establish any definite result. On August 6th there were three cases of phagedæna in the Fitzwilliam Ward of this hospital. They were of different duration, and were all spreading, though in one there was some slight tendency to arrest. A gentle stream of chlorine gas was passed through the ward for eighteen hours, at the end of which time the phagedæna was arrested in all three cases. A man, having undergone amputation, was placed in a separate apartment. Two days after, he was attacked with phagedæna, which rapidly extended. A stream of chlorine was passed through the ward, and in forty-eight hours the disease was arrested. Though these facts are satisfactory, they are not conclusive, and are far too meagre to arrive at any just conclusions. Whether this remedy has any control over the disease or not, there is no doubt that it must act beneficially, if in no other way, at least in destroying the disgusting effluvia, which it does in a pre-eminent degree."

"There is no doubt that *opium* is our sheet-anchor. After watching the wonderful effects of this drug—not in one or two cases, but in dozens, and after every other conceivable remedy had been tried, and failed—I am confident that, if there is such a thing as a specific, opium is a specific for phagedæna, if properly administered, and in sufficient quantities. I have never seen it fail. The most obstinate case was that of William W—, whose history is given above. He took laudanum in gradually increasing quantities for fifteen days, till at last he was taking nearly half an ounce in the twenty-four hours. This, however, subdued the disease. But this must not be regarded as a typical case. Instances have been seen in which a rapidly spreading sore has presented a perfectly clean and healthy surface under twenty-four hours' treatment by opium; and two or three days may generally be considered as ample time to stop the most rapidly spreading sore.

"*Chlorate of potash*.—This remedy, from its known properties in checking unhealthy and gangrenous ulcerations, was largely tried in phagedæna, and with some amount of success; for, though it did not appear to arrest the disease—at all events, not with the same certainty as opium—still it appeared to act beneficially in the cleaning of sores and the separation of sloughs; and, from a knowledge of its properties, it was supposed that it might act as a prophylactic, and prevent a recurrence of the disease, and was accordingly prescribed largely.

"*Ammonia* possesses no power over the disease, but was often a necessary addition, on account of the very rapid prostration and the great deficiency of nervous power which is often observable in these cases.

"Dr. Polli, of Milan, has lately introduced a class of medicines before the profession as having the power of arresting the putrefactive fermentation, viz., *sulphurous acid*, in combination with potass, soda, and lime. These remedies were tried in phagedæna, and the drug did not

appear to exert any influence. It was given in several cases, and in no one instance was the slightest benefit obtained.

“The treatment, then, that has been adopted during the late outbreak has been in the main opium, sometimes combined with ammonia or chlorate of potass, at other times alone, and a liberal diet. And, whatever may be the result of treatment in other epidemics, there is no doubt that, in the one under consideration, this plan was followed by the best results; in fact, it was the only one which really subdued the disease. Of forty-seven cases of which accurate records are kept, the average time which the opium took to subdue the disease was forty-eight hours, the shortest being twenty-four hours.”

*Dr. Parker* ('Amer. Med. Tim.,' 1863, ii, 110) says:—“I saw a large number of cases last summer at the New York Hospital, and afterwards at Bellevue; and, with the assistance of my friend *Dr. Peck*, I made trial of almost everything claimed to be useful in the treatment of the disease; and we came to the conclusion that what is called there the disinfecting powder—composed of percarb. of iron, pulv. cinchon., and opium—was the most grateful application, while constitutionally there was nothing to equal the scattering of patients the plentiful supply of *fresh air, a clean skin, and generous diet.*”

*F. H. Hamilton* publishes a tabular statement of thirty-three cases ('Amer. Med. Tim.,' 1863, ii, 205), from which it appears that death twice occurred, though not till some days after the gangrene had been arrested. In the one case the patient died from exhaustion, the result of extensive suppuration in the knee-joint, the wound having been in perfectly healthy condition for several days. In the other, the patient died from dysentery, his wound having put on a healthy action two weeks before his decease. “In one case, where nitric acid was used, the disease was not arrested; and at the end of ten days it was found necessary to amputate the leg above the knee. The stump healed by the first intention. Looking at the table again, and analysing it, it will be seen that the average duration of all the cases under all treatments amounts to 12·1515 days.

Number treated with nitric acid	.	.	.	18
Average duration of disease	.	.	.	16 days.
Number treated with sol. bromine	.	.	.	14
Average duration	.	.	.	6·6428 days.
Number treated with iodine	.	.	.	1
Average duration	.	.	.	7 days.

The constitutional treatment consisted in good diet, whiskey, and iron.

*J. Moses* found bromine to be the most useful remedy ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 333). He remarks that “its application, though very painful, should be thorough. Great care should be taken in its application, which should be to the sound tissue, after separating the slough carefully. One application will often be sufficient, but a second and third are not unfrequently required.”

*W. Thomson* (loc. cit.) says,—“Recognising the depressed condition of the first few cases, I endeavoured to remedy it by giving at short intervals nutrients and stimulants, with such tonics as seemed proper;

and milk punch, alternating with beef essence, porter or ale, and egg-nog, was at first given, regardless of the desires of the patient. The Ferri et Quin. Cit. with sherry wine was given in doses of gr. vj to x three times daily. This system was found injudicious, since it overpowered the feeble digestive organs, and caused nausea, vomiting, and diarrhoea; it was suspended, and Acid. Hydrochloric. gtt. iv, in combination with Tt. Opii gtt. xvj, were given every three hours. Under this treatment the tongue became moist and clean, and the appetite returned sufficiently to cause the patient to ask for and enjoy a reasonable quantity of food. The opium was given to allay the gnawing pain and to give rest and sleep, as well as to obtain any specific influence over the disease which it might possess, as claimed for it by the older writers.

“The local treatment consisted at first in the use of undiluted nitric acid, freely applied to the entire surface of the ulcer. The table (of 9 cases) indicates the success of that treatment. Of the 9 cases, all were treated with the acid in the early stages. Of these, 2 were fatal, and 2 resisted the acid; or in other words, in 4 cases it was useless. Of these 4, the two fatal cases were not treated otherwise, whilst the other 2 were treated with success, with bromine. The 5 cases treated successfully with acid are marked ulceration, and were milder than those that proved fatal, or than those that were treated with bromine successfully. The dressing, after the use of the acid, was an antiseptic wash, either creasote, or Liq. Sod. Chlor. in a dilute solution. In some instances a yeast poultice, or a stimulating one of cinchona, ginger, and porter, seemed to assist in cleaning the surface. Where the sore lost its sloughing character, after the use of nitric acid, the mild antiseptic washes were sufficient to encourage rapid granulation.

“Of more value than the acid is the solution of bromine in water and bromide of potassium, proposed by Surgeon Goldsmith, U.S. Vols. Two cases were treated with this agent, in both of which nitric acid had failed. One of these would, doubtless, have proved fatal, whilst the other was progressing rapidly, although the acid had been used several times without benefit. The action of the bromine is that of a caustic; all the necrosed tissues are converted into tough yellow shreds, and are perfectly deodorized. The ulceration seems to be checked at once, whilst the nervous system, no longer depressed by the absorption of the fetid products of the mortification, soon recovers from its depression. The areola loses its livid hue, becomes more crimson, and finally disappears; the sloughs are rapidly thrown off, and a rosy, florid surface appears beneath. The bromine was also used in the form of vapour, confined to the surface by oiled silk. Its antiseptic influence is very powerful, since not the least odour could be perceived on dressing these gangrenous sores, even when they had been covered closely with oiled silk for twelve hours.”

To this report the author appends notes of 4 other cases occurring sporadically; he remarks that “it will be observed that 3 of these 4 cases were fully treated with pure nitric acid without benefit, and that the 4 did yield eventually to the local application of bromine. Where

that remedy has required heretofore several repetitions, it would now be used more energetically. The diseased surface would be thoroughly cleansed of all sloughs, by removing those portions dead, yet tenaciously adherent, with the forceps and scissors, and pure bromine would be freely used by means of a glass pipette or a syringe. A number of the cases reported I am now satisfied would have proved fatal but for this local treatment."

*R. L. Stanford* reports a case ('Amer. Med. Tim.,' 1863, ii, 24), in which the compound solution of bromine was applied daily for the term of twenty-seven days without arresting the gangrenous process, while the *pure bromine* arrested it upon the first application. "The wound was prepared for the reception of the remedy in the same way, and with no more pains than had been taken upon each application of the solution. The constitutional symptoms subsided within twenty-four hours after the pure bromine had been applied; the gangrenous odour disappeared entirely within the first six hours after the application of the pure remedy. Within twenty-four hours the appetite returned, and has continued good ever since."

*G. R. Weeks* reports ('Amer. Med. Tim.,' 1863, ii, 46), that "there were 115 cases treated in the various hospitals in Louisville, Ky. Of these, 104 were treated with bromine in some manner, and 11 by other remedies. Of those treated by bromine, 3 died; 2 of pyæmia and 1 of cellulitis, gangrene having been previously arrested, and the wounds were granulating. Of the 11 otherwise treated, 3 died of gangrene. Of those treated by bromine, 80 were treated with compound solution (Smith's formula), and 24 with pure bromine. The average time of arrest in the cases treated by compound solution of bromine was 8.19 days; those by bromine pure, 2.12 days; and of those otherwise treated, 14.66. I observed this general fact, that, as the strength of the remedy was increased, the process was shortened in a corresponding ratio also; that, where bromine pure was properly and efficiently applied, only one application was required to arrest it, although three or four days were afterwards necessary for the development of granulations. Another and more important fact was observed, *i. e.* that the local application of bromine to a gangrenous surface had a *direct* effect upon the constitutional symptoms, which are immediately lessened in violence, and the constitution rebounded as if relieved of a burden: this was the case with those who had no constitutional treatment whatever."

The author thinks bromine superior to nitric acid, because "it is not so destructive to living tissue, and can be used where the acid is inadmissible on periosteum, tendons, and vessels, without destroying their integrity. It is of great utility in cases of secondary hæmorrhage, where the artery has sloughed; three cases have occurred where arteries were tied in gangrenous sores with complete success, thus enabling us to extend the rule of Guthrie to these cases—'always tie a bleeding vessel in the wound, if it can be reached at that point'! I have tied the anterior tibial artery upon the face of a gangrenous stump, and arrested the process by the use of bromine, and the patient recovered as well as by a primary operation. The brachial and dorsalis pedis arteries

were tied under the same circumstances, with the same result. The patients are now well. Bromine arrests the gangrenous process so effectually and certainly, that I am inclined to think this procedure good practice."

"I believe the best mode to apply the bromine to be this:—with a pair of scissors or a scalpel cut away all the sloughs down to the living tissue (or until by hæmorrhage you are warned to go no further), being careful to clean out all nooks and corners putting off from the central sore, or where it has dipped down into intermuscular spaces or followed along the cellular plane, where it is apt to escape observation. Then wash the wound with warm water, and dry with a pledget of lint or charpie; then apply pure bromine to the entire surface with a mop or swab, and if cavities exist, inject it into them with a small glass syringe, and with a pine stick press it up so as to mix it with all the pulp or pultaceous matter that may still linger in the wound. Simple dressings should then be applied, and the sore excluded from the atmosphere for two days, when warm-water dressings should be used to facilitate the detachment of the slough, after which points of granulations will be noticed springing up, and, if no fetor is present, the arrest is complete. If some fetor still exists, it is evidence that some points have been missed and should be retouched, observing the same rule as in its first application. The wound should then be treated on general principles. If the granulations become weak, I have found much benefit from the use of a weak solution of bromine, say 40 gtt. comp. sol. bromine to ʒj of water, applied morning and evening."

*Dr. Post* mentioned at a meeting of the New York Academy of Medicine ('*Amer. Med. Tim.*, 1863, ii, 122), that "the preparations of bromine that have been used have been either the pure bromine, a dark-red liquid with a pungent odour, or more frequently a preparation analogous to *Lugol's* solution of iodine—160 grains of the bromide of potassium are dissolved in 4 oz. of water, this solution is placed in a bottle, an ounce of bromine is added, making a solution of the bromuretted bromide of potassium." He speaks very highly of the effects of this treatment, and remarks, that he "saw at Louisville a case of hospital gangrene of the leg, where, in the course of the disease, the posterior tibial artery became involved, and hæmorrhage occurred. The interesting feature in this was, that the surgeon in charge tied the artery at the bottom of the sloughing surface, and applied the bromine immediately over it. I saw that case a little less than a week after the application occurred, and the case was doing remarkably well. The ligature had separated the day before I saw it, and at that time the sore was in a state of healthy granulation." *Dr. E. Jarvis* stated that he had seen this case on the twenty-fifth day, perfectly recovered.

*M. Goldsmith*, bromine in hospital gangrene ('*Amer. Med. Tim.*' 1863, ii, 121). *L. Graves* used a drachm of bromine to eight ounces of water as a local application (*ibid.*, p. 206). *D. C. Lloyd*, in his report of five cases (*ibid.*, pp. 266, 278), speaks very highly of the effects of bromine. *J. A. Dougherty*, case (*ibid.*, p. 84). *G. P. Hachenberg* on the local use of turpentine (*ibid.*, 1864, i, 264). *Mr. Maunder*, cases ('*Lond. Hosp. Rep.*,' i, 104).

## PYÆMIA.

M. Burggræve treated sixty-five wounded patients with the *sulphites* ('Bull. Belge,' 1862, p. 342). The sulphite of magnesia was administered in the dose of fifteen grains, four to six times a day; it was given with a little sugar in a glass of water. The wounds were dressed with lint wet with a solution of the sulphite of soda.

He found that the internal use of the sulphite of magnesia promoted digestion; the tongue remained clean, and the skin moist; the urine was clear and acid; it resisted decomposition for an unusually long time when exposed to the air.

The local use of the sulphite of soda caused anæsthesia or insensibility of the wounded surface, especially marked in cases of burns. It appeared to stimulate the process of reparation, for the wounds filled rapidly with granulations. More important is its action on the purulent discharge, which is diminished in quantity, and rendered inodorous and perfectly neutral.

*Dr. Doutrelepon* on the operative treatment of *pyæmia* ('Arch. für klin. Chir.,' vi, 100).—The author relates the following case with the view of showing, that even when recovery appeared hopeless, and all the symptoms of *pyæmia* were present (fever, rigors, yellow colour of the skin, metastatic abscesses in various parts of the body), removal of the morbid focus would have saved the life of the patient, had not an intercurrent affection occurred.

Joseph K—, æt. 40, was injured by a fall on the 7th May, 1859. There was a transverse fracture of the humerus above the condyles, and the latter were broken into several pieces. The forearm was displaced backwards. On the 17th a plaster bandage was applied; fourteen days later it was removed, owing to pain about the inner condyle. Acute inflammation with suppuration of the joint followed. On the 24th June the joint was excised; on the 30th there were rigors, followed by very violent fever; the wound, which had begun to granulate healthily, became relaxed, and the pus ichorous; the forearm swelled, the wrist-joint inflamed and suppurated. Owing to the violent fever and repeated rigors, the patient's strength rapidly sank; large abscesses quickly formed on the sacrum and scapula, and, when opened, discharged an ichorous fluid, mixed with pieces of dead cellular tissue; the skin became yellowish. Amputation of the arm was, therefore, performed on the 8th June. By the 12th, the general condition of the patient had decidedly improved, and the fever had diminished. The yellow colour of the skin gradually disappeared; almost the whole wound healed by the first intention. The metastatic abscesses soon filled with healthy granulations; the patient became able to get out of bed for some hours each day. Suddenly on the 28th July symptoms of internal strangulation appeared, and death followed on the evening of the 29th. The post-mortem examination proved that the constriction was effected by a fold of the mesentery; no abscesses were found in the lungs.

The author also mentions two cases of amputation of the thigh,

in which life was saved by the removal of the cause of pyæmia. Some time after the operations symptoms of infection appeared; there were repeated rigors, and continually increasing fever; in one case violent dyspnœa supervened, for which no cause could be found by percussion or auscultation. As no retention of pus could be traced, to which the pyæmic symptoms could be attributed, the stumps were again opened out; the ends of the bones were found to be in a state of osteomyelitis, and were excised; from that moment there were no more rigors, and the patients perfectly recovered. These were examples of self-infection, cured by removal of the morbid source. In other cases where no local cause could be found, and the pyæmia had to be attributed to hospital miasm, the author has observed the symptoms disappear after the removal of the patient to another building. He states that he has seen many cases placed in the wards of the surgical clinic, towards the end of the session, present symptoms threatening pyæmia. On their removal to the Catholic hospital, these symptoms soon disappeared; patients who had previously had one, or even two rigors, daily, accompanied by violent fever, were immediately freed from these attacks, although only the air was changed, the treatment continuing exactly the same.

Prof. Rühle, case after endocarditis ('Greifsw. Med. Beitr.,' i, Rep. p. 38). W. Roser on pyæmia ('Arch. d. Heilk.,' 1864, p. 257). O. Weber on the origin and treatment of pyæmia ('Arch. f. klin. Chir.,' v, 274). Dr. De Ricci and M. Semmola on the use of sulphites and hyposulphites in the treatment of zymotic diseases ('Dubl. Quart. Journ.,' vol. xxxvi, p. 470; 'Gaz. Hebd.,' 1864, p. 523).

## SEPTICÆMIA.

*Prof. O. Weber on septicæmia* ('Berl. Klin. Wochenschr.,' 1864, p. 377).—The author had shown by a former series of experiments, that putrid fluids, such as pus or blood, never cause infarctus or the so-called metastatic abscesses, provided they have been carefully filtered; these lesions are observed only when bodies, which, though extremely small, are still sufficient to obstruct the vessels, pass into the circulation. He now undertook, in company with Dr. Urfey, a fresh series of experiments with the view of showing the influence of the various products of decomposition of such fluids over the different septic phenomena. The latter consist, as indeed was already proved by the experiments of Stich, principally in very marked congestions of the intestinal mucous membrane, accompanied by extremely free watery secretions, which appear during life in the form of profuse diarrhœal evacuations: in more severe cases, in true croupy inflammations of the bowel, accompanied by fibrinous metamorphosis of the cells of the mucous membrane and active proliferation of those of the submucous tissue; this more serious form is characterised by rice-water stools as in cholera, and intestinal hæmorrhages as in dysentery. More or less marked congestions of the most various organs, especially of the lungs, brain, liver, spleen, and kidney were, however, regularly found; they were often attended by small ecchymoses. Fever, in proportion to the intensity of the infec-

tion, attends during life the intestinal catarrh ; it is characterised by a rapid increase of temperature, which again at the approach of death steadily sinks below the normal. At the same time the respirations often become very frequent ; various nervous symptoms occur, sometimes rather of a spinal nature, as clonic spasms or paralyzes of the muscles, especially of the posterior extremities, sometimes depending on the sympathetic, as spasm of the vessels, more or less violent rigors, excessive peristaltic and antiperistaltic movements with crampy strictures of the bowels, sometimes finally in a cerebral form, as intense irritation of the brain, ascending even to mania, in the later stages as somnolence and torpor. These symptoms, though varying in degree, were constantly observed, when carefully filtered *septic fluids* (pus and serum of the blood) were employed. Even small quantities (two drachms) of a putrid fluid suffice, in little animals as rabbits, or small cats, to cause violent opisthotonos, followed by rapid death.

Further experiments were made with sulphuretted hydrogen, sulphuret of ammonium, and butyric acid, as the bodies principally produced by the decomposition of pus or blood ; ammonia also was tried, a substance already often injected (by Frerichs, Picard, &c.). The general effect of these substances was the same as of putrid serum from blood or pus ; only in reference to the nervous symptoms was there a difference, inasmuch as butyric acid induced somnolence like that of uræmic poisoning, symptoms indicating dulness and paralysis of the sensorium, great apathy, and sometimes, though not constantly, slowness of the respiration ; symptoms which did not arise from sulphuretted hydrogen or from sulphuret of ammonium ; yet the injection of butyric acid caused spasms of the parts supplied by the motor oculi or by the spinal nerves, indeed even opisthotonos. Extreme weakness of the posterior extremities was constantly observed after its use ; on the other hand, the intestinal symptoms and lesions were far less intense, being indeed confined to congestion of the mucous membrane. The action of putrid serum from pus or blood is simulated especially by the injection of a solution of sulphuretted hydrogen, even in very small quantities. The symptoms then most closely resemble those of cholera ; especially does the temperature, which is at first increased, sink to a low point in company with extremely profuse rice-water evacuations from the bowel. Death with violent opisthotonos occurs, when the action is very intense ; if the animals rally, we notice vomiting, discharge of urine and fæces, quickened respiration, spasmodic twitchings, sometimes rigors.

The sulphuret of ammonium does not act so powerfully ; the symptoms are much the same as after the use of sulphuretted hydrogen, except that rigors are always noticed.

The three substances examined are, like putrid organic fluids, very powerful poisons ; the most so is sulphuretted hydrogen. Rabbits died immediately after the injection of a drachm of water saturated with sulphuretted hydrogen ; it was indeed found that the injection of a drachm of distilled water with two drops of a saturated solution of this substance was sufficient to kill at once a rabbit, and two drachms of water with three drops of the solution to kill a little cat in six hours. A large cat became very ill after the injection of two drachms with two



and a half drops of aqua hydro-sulph. ; it ultimately recovered, but died after the injection of four drops. Much larger quantities of sulphuret of ammonium are borne; rabbits resist the injection of six, dogs of twenty drops of it in water. For the former ten drops, for the latter sixty drops are fatal. Butyric acid is more poisonous: five drops are indeed still borne by rabbits, though they suffice to kill a little cat; for the former ten drops are, however, absolutely lethal.

At least six experiments were made with each substance, and in all the injection was passed with the necessary care into the crural vein.

These experiments prove, that the various substances, which are formed during the decomposition of pus and blood, cause symptoms far more like those induced by putrid fluids, than do ammonia or urea. The effects of the solution of sulphuretted hydrogen resemble the most closely those of putrid fluids: very extensive congestions and transudations, which may be traced from the stomach to the rectum along the whole intestinal canal, in severer cases accompanied by decided croupy changes, occur in the same manner in both. The violent peristaltic movements and the spasmodic strictures of the bowel are identical in both. The same statement is true of the nervous symptoms; the latter, however, when excited by sulphuretted hydrogen and sulphuret of ammonium, resemble those from putrid fluids more nearly than do those induced by butyric acid. The cause of septicæmia must therefore principally depend on the passage of these matters into the blood; besides, as these chemical products are very rapidly formed in purulent collections which are directly or indirectly exposed to the air, and always occur in gangrenous disintegration of the tissues, *it is very surprising that septicæmia does not occur much more frequently*, the impregnation of the tissues and vessels with such matters appearing scarcely avoidable.

*Do the granulations prevent absorption?* It is astonishing what little quantities suffice to cause serious poisoning of the blood. The changes in the blood deserve further examination: the alteration in its colour is decided; after the injection of butyric acid it becomes of a dirty green, and after that of sulphuretted hydrogen very dark. It is less affected by sulphuret of ammonium. The blood-corpuscles appear after all three much contracted and wrinkled; possibly they may lose certain functional properties. It is noteworthy that the blood after the injection of sulphuret of ammonium coagulates very rapidly, but very slowly after that of sulphuretted hydrogen or butyric acid. The latter effect is also produced by the injection of putrid fluids, notwithstanding the older views and theories.

Whilst the clinical delineation of pyæmia is often compounded of septicæmic and embolic phenomena, various attempts have also been made to explain traumatic fever as a kind of septicæmia; Roser especially has recently\* defended this view in an able manner. Weber shows that the temperature-curves in traumatic and (artificial) septic fever, are very similar. More important than this similarity, which also appears in other febrile affections, is the following experiment; it is,

\* *Vide* 'Year-Book' for 1863, p. 192.

indeed, of general interest with reference to the genesis of fever. Admitting that in febrile states of the system some matter, possibly derived from the disintegrating tissues, circulates in the blood, and acts like a ferment; admitting besides that the complex of symptoms which we call fever, should be referred to the action of this poison on the nervous centres, and especially on the central organs of the vaso-motor system, the idea at once occurred, to inject the feverish blood itself into other animals, with the view of discovering whether in this way fever could be produced. In respect to septic fever the experiment was brilliantly successful. The first trial showed, that the blood of animals suffering from septic poisoning, is indeed a very powerful toxic agent. On the 10th June, 1864, Weber injected into a large and strong cat three drachms of flaky pus, which emitted a smell of sulphuretted hydrogen, and which had not been filtered. The animal was at once attacked by opisthotonos, then by vomiting, diarrhœa, and very intense fever, with repeated rigors. After a time spasms, then bloody stools, on the third day purulent irido-choroiditis of both eyes, frequent respirations, somnolence; finally on the 15th day, death occurred. There were embolic infarctus in the lungs and spleen, putrid panophthalmitis, and fully developed intestinal croup; a septicæmic pyæmia had thus been produced. An ounce of blood was taken from the vena brachialis of this animal twenty-four hours after the injection of the pus, carefully deprived of its fibrine, and injected into the crural vein of a little cat. The latter at once emitted a large quantity of urine; the breathing became very hurried, then again slower and deeper; death with violent twitchings ensued after two minutes. On dissection, *the bladder was found to be already again distended with urine*; the lungs, liver, spleen, brain, and kidneys were hyperæmic. A second experiment was made with two dogs. Three drachms of very fetid serum from pus, which had been carefully filtered through paper, was injected into the crural vein of a large and powerful dog, on the 17th June. The animal suffered from the complex of symptoms which have been already described as proper to septicæmia—with extreme, but rapidly sinking, fever; it died on the 18th in violent convulsions. An ounce of blood was taken from it a few hours before its death, and defibrinated; three drachms of this were injected into a little dog. The latter suffered, although the injection was performed with the greatest care and very little injury, from a fever that continued for seven days, and that was attended by moderate rigors. Shivering was noticed immediately after the operation; it recurred at irregular intervals. The only symptoms of septicæmia besides the fever, were great depression, slight retching, loss of appetite, and a little diarrhœa.

Finally, Weber mentions that he has also tried as antiseptics the sulphites which have been so strongly recommended by Polli in septic and pyæmic infections. It was indeed very striking, how a rabbit which had taken six grammes of the sulphite of soda, rapidly recovered from an injection of two drachms of distilled water with half a drop of aqua hydrosulphurica; yea, indeed, how the same animal under the daily use of two grammes of the sulphite, could still bear three successive injections at intervals of four days, the last injection

containing seven and a half drops of the solution, a dose which had been previously found to be invariably lethal. The animal took in all twenty-two grammes of sulphite of soda; fourteen drops of the solution of sulphuretted hydrogen were administered by injection. Yet the effect was so pernicious that the animal became extremely emaciated, and suffered from hectic fever; death ensued after a month, and no definite local lesions could be found on dissection. Although this would appear to show some prophylactic action of the medicine, an equally favorable result could not be obtained in dogs. A large white poodle, after taking two grammes of the sulphite of soda daily for four days, suffered after the injection of half an ounce of fetid, but carefully filtered, pus-serum, into the crural vein, from repeated vomiting, severe diarrhœa, and violent opisthotonos, and died in twelve hours. Another dog, after taking the sulphite for four days, received an injection of half an ounce of flaky pus and lived for three days, on each of which two grammes of the sulphite were given: it was very feverish, became emaciated with extreme rapidity, and died with marked symptoms of septic pyæmia. On dissection a notably croupy state of the bowels and embolic infarctus in the spleen and lungs were found. Hence it would appear that the prospect of curing septicæmia by this means is very slight.

E. v. Wahl, *contributions to the clinical history of the purulent diathesis and of septic infection* ('St. Petersb. Med. Zeitschr.,' v, 321).—The author discusses these important affections in a lengthy paper, and illustrates his remarks by the relation of numerous cases. It appears that in St. Petersburg most of the cases of septicæmia arise from progressive sanious disintegration of the subcutaneous cellular tissue (acute purulent œdema of Pirogoff),\* the latter following some slight bruise or wound, or, as often happens, commencing spontaneously without any external cause. As to the fever in these cases of progressive gangrene of the cellular tissue, the author states, that a rigor usually occurs at the commencement, especially when the disease has not arisen from any external injury, and that afterwards the temperature continues very high with very slight morning remissions. About the ninth to the eleventh day, there is a rather considerable fall of the morning temperature, accompanied by profuse sweating. He thinks the thermometer of great use in determining the question of amputation in such cases, the difficulty being to distinguish at a sufficiently early period traumatic from septic fever. In the former, however, the temperature rapidly augments, the highest degree, between 39° and 39.9° C., being usually attained on the first or second day; the defervescence is also rapid, and generally commences on the second day. On the other hand, progressive gangrene is developed up to the fourth day, but not later; the commencing septic fever becomes at once continuous and high, the temperature ranging constantly between 39° and 40° C. Dr. Wahl has tried for a considerable time the sulphites, but has never seen the least effect. There is towards the end of this paper a good account of the rapidly fatal cases of boils on the face, which have been described by Pirogoff, Güntner, &c.

*Gangrene.*—E. v. Wahl endeavours to show that the extension of

\* *Vide* 'Year-Book' for 1862, pp. 197 and 216.

gangrene in a particular direction is due sometimes to the mere gravitation of septic fluids ('St. Petersb. Med. Zeitschr.,' vi, 143). J. Spence, case of spontaneous gangrene, dissecting aneurism of the common iliac, &c. ('Edinb. Med. Journ.,' x, 7, 66). J. Cockle on spontaneous gangrene, connected with disease of the heart, &c. ('Med. Mirror,' i, 321, 400).

## TETANUS.

According to Dr. Bernoulli ('Schweiz. Zeitschr. für Heilk.,' iii, 127), the general assertion that tetanus is more frequent in tropical lands is erroneous; there are at all events other conditions at work. The author learnt by repeated inquiries from intelligent residents in Nicaragua that this disease is there very common, often following the slightest injuries, and especially fatal in infants; taking cold was quite as often considered the cause as an injury. On the other hand, the author himself during an extensive practice for five years has not seen a single case, and is aware of the occurrence of only two in Guatemala and San Salvador.

*J. L. Clarke on the pathology of tetanus* ('Lanc.,' 1864, ii, 261).—Two cases are described, in both of which very similar pathological lesions were found, viz., great congestion of the spinal cord, with granular exudation around the vessels. Thus in the second example, "the pia mater of the brain was found to be slightly blood-stained in the neighbourhood of vessels, but otherwise healthy. The dura mater of the spinal cord contained about half an ounce of blood-stained fluid. The vessels of the surface of the cord itself were greatly injected, especially in the lumbar enlargement. Its gray matter was congested. The remainder of the cord was more than usually vascular, both on the surface and in the interior, but less so than in the lumbar region. Nearly the whole of the spinal cord was sent to me by Dr. Dickinson for examination. To the unassisted eye nothing unusual was observable in its interior. But when the microscope was employed on sections properly prepared, lesions were discovered of the same general nature as those which I described in the first case. Every region—the cervical, dorsal, and lumbar—was more or less affected; but in each the morbid appearances seemed rather to occur at intervals, and not uniformly throughout its length. In some sections the injury was limited to the gray substance; in others it involved the white columns, particularly the posterior and lateral. Sometimes the lesion was in the form of a granular deposit around blood-vessels; sometimes in the form of globular masses or rings, arising from injury and displacement of the white substance of the adjacent nerve-fibres. The latter appearance was more frequent in the white columns and along the sides of fissures containing blood-vessels, where the tissue had occasionally the aspect of a moth-eaten cloth. In some places the lesional spots were exceedingly small, and might easily have been mistaken by an unpractised eye for the natural appearance of the part.\*

\* These changes are evidently essentially the same as those described by Rokitansky (1856) and Demme. As the researches of these anatomists do not appear to be generally known, we append a short account of Demme's statements (from 'Schmidt's

“Although I shall abstain from giving any decided opinion on the exact nature of the morbid action in tetanus until I have examined more cases, the plan of treatment which I should try would be the following:—Division of the wounded nerve as early and as high up as possible; cupping along the course of the spine; frequent doses of calomel combined with opium; and potassio-tartrate of antimony, repeated, during the severe paroxysms, at short intervals and in sufficient quantity to produce nausea, or perhaps vomiting. The chief object of the tartrate of antimony is to subdue the spasms; but it might also assist in arresting the morbid action of the blood-vessels. Some years back, in the columns of this journal, I recommended the use of tartrate of antimony in those violent and prolonged paroxysms of hysteria which are so intractable and distressing, and I have never known it fail. As soon as nausea supervenes, the spasms, however violent, begin to relax; and if the paroxysm be excited or prolonged by the presence of undigested food in the stomach, the vomiting will prevent its recurrence. In tetanus, any depression that might be caused by the antimony would be much less than the exhaustion of the nervous system resulting from the violence of the spasms.

“I shall be glad to receive the spinal cords and medullæ oblongatæ of any patients that may die of tetanus. If they cannot reach me immediately, they may be cleanly cut with a sharp knife into pieces about an inch long, and preserved in a solution of chromic acid, in the proportion of 1 part to 300 parts of water. I shall also be glad to receive cords belonging to cases of muscular atrophy or ‘wasting palsy.’”

*H. Demme on curare as a curative agent in tetanus* (‘Schweiz. Zeitschr. für Heilk.’ ii, 356).—In this paper the author recapitulates all that has yet been discovered in regard to the chemical, pharmaceutical, and physiological properties of curare, discusses at length its application to tetanus, and relates three fresh cases of the traumatic form cured by its use. According to him, there have hitherto been twenty-two cases treated by this means, and of these eight recovered.

J. W. Ogle, case treated by nicotine (‘Med. Tim. and Gaz.’ 1864, i, 277). J. R. Barton, case of traumatic tetanus, nicotine, death (‘Dubl. Med. Press,’ July, 1863). H. J. Tyrrell on the treatment of tetanus by the local application of tobacco (‘Med. Tim. and Gaz.’ 1864, ii, 326); a case treated successfully by this means (‘Dubl. Med. Press,’ 1864, p. 213). Mr. Cam, case treated by aconite and nicotine (‘Med.

Jahrb.’ vol. 112):—1. The constant, anatomical character of tetanus appears to be proliferation of the connective tissue; the most striking peculiarity of this lesion is the extent over which it is found. 2. The product is a viscous mass, abounding in nuclei; it remains at this stage of development in both acute and chronic cases, *never progressing to the formation of fibres*. 3. This change is found almost exclusively in the white medullary substance; the gray matter seems to suffer only secondarily, and then from compression rather than from interstitial deposit. 4. The proliferation is not always followed by corresponding swelling of the white matter; it can often be recognised only by means of the microscope. 5. It was principally found in the medulla oblongata, the crura cerebri, the inferior peduncles of the cerebellum, and in the greater part of the spinal cord. 6. This lesion of the connective tissue appears to be due to long-continued or repeated congestions. 7. The period, at which it occurs, probably varies in different cases.

Prof. Wagner has also noticed these changes (‘Year-Book,’ 1862, p. 219).—T. W.

Tim. and Gaz.,' 1864, i, 451). R. W. Falconer, case treated with ice to the spine, recovery ('Brit. Med. Journ.,' 1864, i, 414). Mr. Adams, case treated successfully by ice to the spine ('Lanc.,' 1864, ii, 67). H. Coote, case in which Calabar bean was given ('Lanc.,' 1864, i, 348). Prof. Busch, case treated by æther-chloroform ('Deutsche Klin.,' 1864, p. 241). L. C. Lane, traumatic tetanus successfully treated by chloroform and subsequent use of belladonna ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 567). L. de Lachèse, a very slight case of traumatic tetanus, treated by opium, belladonna, and mercury ('Gaz. Hebd.,' 1864, p. 292). D. Hunt, case in which tetanus and paralysis coexisted ('Amer. Journ. of the Med. Sciences,' Jan., 1863). J. Dwyer, traumatic tetanus treated successfully by large doses of whiskey and morphia—"on the night of the crisis thirty-two ounces of whiskey" ('Amer. Med. Tim.,' 1864, ii, 29). Dr. van Duul, post-mortem increase of temperature ('Arch. d. Heilk.,' 1864, p. 187), and C. A. Wunderlich on the animal heat at the end of fatal neuroses (ibid., p. 205). A. J. Semmes, case treated successfully by narcotic doses of morphia ('Lanc.,' 1864, i, 267).

*Hydrophobia.*—Discussion at the Academy of Medicine ('Gaz. Hebd.,' 1863, p. 713). G. Herbst on, (Götting., Dieterich). Cases at Milan ('Gaz. Hebd.,' 1864, p. 49). Cases by Dr. Whittle ('Brit. Med. Journ.,' 1864, i, 353), J. Cameron (ibid., 632), S. G. Chuckerbutty (ibid., 1864, ii, 364), and Dr. Stabel ('Berl. Klin. Wochenschr.,' 1864, p. 379).

#### MALIGNANT PUSTULE.

*J. L. and C. L. Mauvezin, new treatment for malignant pustule* ('Arch. Gén.,' 1864, i, 257).—In the treatment of this disease, the all-important indication is to destroy the primary local lesion, on which the various secondary symptoms depend. With this object two principal methods have been employed—(1) destruction of the pustule by caustics; and (2) by the actual cautery. The former is the method usually employed in the localities, where the disease is endemic. There are many objections to both these plans; to the former the slow and irregular action, the great and long-continued pain; to the latter, that it only destroys the part superficially, so that it is necessary to use numerous cauteries—sometimes twelve or fifteen; still more important is the objection, that the surgeon cannot by either plan recognise when he has cauterized sufficiently; he can only guess when to stop, and is equally liable to destroy too much or too little.

All these inconveniences may be avoided by preliminary excision of the pustule. The method followed by the authors is as follows:—After having carefully determined the margin of the pustule, its base is circumscribed by an incision; the little tumour is raised by forceps, and carefully dissected from the subcutaneous cellular tissue; the fundus of the wound must be carefully examined, and every trace of induration excised. Finally the bleeding surface is cauterized with the hot iron. The consequences of this operation are most simple, provided it has been performed before the occurrence of general symptoms; the pain is immediately relieved by the application of cold water. Next

day the œdematous swelling is decidedly diminishing, and the eschar is surrounded by a bright-red zone. The slough separates in from eight to fifteen days, and the wound soon fills with granulations. Fourteen cases are related in support of these statements. It is obvious that the local lesions can thus be thoroughly eradicated with greater certainty than by any other method, and the author has never had occasion to repeat the cauterization. When the disease is located near important tendons, nerves, or vessels, the latter may be easily avoided—an advantage not possessed by caustics.

M. Batut on malignant pustule ('*Montp. Méd.*,' Dec., 1863). A. Pribram ('*Prag. Med. Wochenschr.*,' 1864, pp. 296, 304).

*Serpent-wounds, &c.*—H. C. Bastian on the structure and nature of the guinea-worm ('*Trans. of the Linnean Soc. of London*,' xxiv, 101).

VENEREAL DISEASES.

E. Langlebert, treatise on venereal diseases (pp. 755, Paris, F. Savy). L. Belhomme and A. Martin, treatise on venereal diseases (Paris, Cocoz).

F. J. Bumstead on venereal diseases of the anus and rectum ('*Amer. Med. Tim.*,' 1864, i, 247).—The author distinguishes—A. venereal affections of the integument and mucous membrane, including—1st. gonorrhœa of the anus and rectum. 2nd. Vegetations, due to the irritation of acrid discharges from the genital organs, but not specific in their character.

B.—Ulcerations, frequently involving the underlying cellular tissue, as well as the integument or mucous membrane; and including—1st. The chancroid, with its various complications. And 2nd. The initial lesion of syphilis, or true chancre.

C.—Stricture of the rectum, in which the mucous, cellular, and muscular tissues are all more or less involved.

In regard to the disease last mentioned, Dr. Bumstead confirms in the main Gosselin's researches, first published in the '*Archives Générales de Médecine*' for 1854.

"At the time when all venereal diseases were confounded, this lesion was commonly called 'syphilitic.' Modern researches, however, have shown that it is not dependent upon infection of the system with the syphilitic virus. Upon post-mortem examination not the slightest trace is found of a deposit of syphilitic tubercle or gummy material, such as infiltrates the tissues in the neighbourhood of syphilitic stricture of the larynx, trachea, and œsophagus. Again, at least half of the patients with venereal stricture of the rectum have never presented any evidence of constitutional syphilitic taint; and in those cases in which the two have chanced to coexist, there has been no uniform correspondence between them; the syphilitic symptoms sometimes belonging to an early, and in others to a late period.

"The correct explanation of the etiology of this affection appears to be that given by Gosselin—viz., that it is dependent upon chancroidal ulceration situated upon the perinæum, or margin of the anus. Chancroids frequently give rise to an hypertrophied condition of

the neighbouring cellular tissue, exhibiting a tendency to contraction. This is often observed in the prepuce in men affected with chancroids, the preputial orifice becoming so contracted as to occasion partial or complete phymosis; in women a similar result is seen in thickening of the labia.

“Now the great proportion of cases of venereal stricture of the rectum occurs in women, in whom a chancroidal discharge from sores upon the vulva readily flows upon the perinæum and anus, and, since this discharge is auto-inoculable, may give rise to a chancroid of this region. In fact, in most of the cases of this affection, either such a sore, or the cicatrix of one, has been actually found, or the patients have confessed to having had one; and, in three cases on record, stricture of the rectum has been developed under the observation of the surgeon in women who were affected with chancroids of the perinæum or anus, and who presented no evidence of constitutional syphilitic taint.

“The symptoms of venereal strictures of the rectum are peculiar in some respects, although not pathognomonic in all cases. Cicatrices, if not ulcerations, are commonly found upon the perinæum or margin of the anus. The lower portion of the rectum, just within the anus, is inflamed, smeared with pus, and often presents the internal openings of fistulæ communicating with the perinæum. The stricture itself is more constant in its seat than other forms of this disease, and is almost invariably situated at a point corresponding to the upper edge of the sphincter of the rectum, or about two inches within the margin of the anus. In extent from below upwards, it rarely exceeds four tenths of an inch. The obstruction is never complete, and will usually admit the tip of the little finger. The bowels are commonly relaxed. The patients suffer from gastric disturbance, and have frequent calls to stool, accompanied by tenesmus. There is a copious discharge of pus, which either oozes away constantly, or is found mixed with the stools. This drain upon the system is probably the cause of the emaciation and depression which almost invariably attend the disease.

“Post-mortem examination shows that the stricture is made up of fibrous exudation, deposited chiefly in the cellular tissue, but affecting also the mucous and muscular tissues. The mucous membrane at the seat of the contraction can be detected, thickened, and adherent to the cellular tissue beneath. The dilated portion of the rectum above the stricture is found to be extensively eroded, traces of the epithelium and glandular structure of the mucous membrane alone remaining. It is, doubtless, from this portion proceeds the copious discharge of purulent matter.

“As to the treatment of venereal stricture of the rectum, no benefit whatever is afforded by the administration of anti-syphilitic remedies, as mercury and iodide of potassium. Local treatment by means of bougies and cautious incisions of the stricture, may prove successful at an early period, but, in advanced cases, is only palliative. Every effort should be made to sustain the strength of the patient by tonics and a nourishing diet, and the quantity of the discharge may be di-



minated by astringent enemata. When death ensues, it is commonly due to exhaustion, or some intercurrent disease, as phthisis."

H. Friedberg on venereal diseases in Indian medicine ('Arch. für path. Anat.,' xxx, 251). J. F. Vleminckx on the venereal disease in Belgium ('Bull. Belge,' 1862, p. 264). Prof. Sigmund on the classification and nomenclature of venereal affections ('Wien. Med. Wochenschr.,' 1864, p. 81, &c.).

## GONORRHŒA.

*Mr. H. Collis on the treatment of gonorrhœa.* ('Dubl. Quart. Journ. of Med. Science,' vol. xxxv, p. 1.)—"Dr. T. Chambers asserts that gonorrhœa, if let alone, will get well spontaneously in two or three weeks. Certainly the milder forms get well on surprisingly little treatment. For years I have not given either cubebs or copaiva at all. They are, perhaps, useful drugs, but I have not found it necessary to use them; the disease, as I have met with it, admitting of a ready cure by less unpleasant remedies. In persons of full habit and great vigour, I generally give a saline purgative at the commencement, followed up by minute doses of tartar emetic, if there be much constitutional disturbance or a tendency to high local inflammation. Cold affusion will also be of service in these cases. The main treatment, however, is by injections; not heroic solutions of nitrate of silver, which are eminently uncertain and dangerous in their action, but by weak, and frequently repeated, solutions of alum. The rule for applying injections is simple:—if the inflammation be severe, let the solution be weak and frequently used; if it be of chronic type, let the solution be strong and seldom used. This is the key to the successful use of injections; and not only is the rule applicable in gonorrhœa of the urethra and of the conjunctiva, but it may be extended (with necessary modification) to the treatment of all inflammations, and to the use of internal remedies as external applications."

"In the most acute form of gonorrhœa, when the discharge is profuse, thick, and glutinous,—the lips of the urethra red, villous, and pouting—the patient should be directed to pour a small jug of cold water over the organ, and immediately inject a syringeful of solution of alum of the strength of half a grain to the ounce. This injection is to be repeated every half hour for the first day, and as often at night as the intervals of sleep will allow. In all probability, before twenty-four hours have elapsed, the secretion will be lessened in quantity, and somewhat thinner; the local heat, swelling, and redness will have abated; and the ardor urinæ will have almost disappeared, if the saline purgative and the tartar emetic have been used along with the local treatment. The injection may then be increased to a grain to the ounce, and used every hour; in all probability, after the lapse of forty-eight hours more, the discharge will have ceased entirely; the injections, however, must be continued for another week or two—but at the strength of half a drachm to the eight ounces—three times a day; otherwise a relapse may occur, which will be harder to cure than the original clap.

“In the common forms of gonorrhœa, when local inflammation and general fever are not severe, and where the discharge and ardor urinæ are the only sources of discomfort, little internal medicine need be given—a purgative pill or so if necessary, and a few drops of liquor kali in gum-water or camphor mixture, with a pill of hyoscyamus, camphor, and morphia at night, will be enough. Here, however, the judgment of the surgeon will be called into play in each case to appor-tion the strength and frequency of the injection. The general rule has been given above; in carrying it out, the amount of discharge—its condition, purulent or half mucous—the appearance of the orifice of the urethra—and the amount of ardor urinæ will guide us. If the discharge is still abundant, puriform, and accompanied by redness of the lips of the urethra, and by considerable scalding, we must use weak solutions (eight to twelve grains to the eight ounces of water), every second, third, or fourth hour; but if, on the other hand, as will occur in old staggers, the discharge is half mucous, the lips blue and the scalding not complained of much, we may advance in strength to a drachm, and diminish in frequency to three or four times a day. If a syringe-ful is injected, we may spare our patient much of the unpleasant scalding by injecting before micturition. This treatment will cure an ordinary gonorrhœa in from four days to a week—at least, it will in that time stop all discharge; but, as in the acute types, the injections must be continued for several days lest a relapse occur, as is sure to be the case after excitement or errors in diet, and sometimes without such provocation.

“Gleet, the opprobrium of this branch of surgery, is not unfrequently kept up by over-anxiety to cure it. The introduction of a bougie smeared with lard and dusted over with powdered alum, or a single touch of nitrate of silver by means of a *porte caustique*, not repeated more than twice, and at an interval of a week, will sometimes succeed, provided nothing else is done in the interval, and the organ get sufficient rest. I have occasionally cured a gleet by first administering muriated tincture of iron and tincture of opium, in doses of fifteen drops of the former to five of the latter, three times a day, and thus rendering the discharge more genuinely puriform. When this effect follows, a spontaneous cure will sometimes arise; and if not, the injections of alum will often now succeed, though they previously failed.”

Prof. Bernatzik on cubebs, chemically and physiologically (‘Prag. Viertelj.’ 1864, i, 9). D. Hicguet on the treatment, &c. (Paris, A. Delahaye). J. Popham, case of gonorrhœal rheumatism, successfully treated with the tincture of larch (‘Dubl. Quart. Journ.’ vol. xxxvi, p. 478). C. Hardy, memoir on gonorrhœal abscesses (Paris, A. Delahaye). J. G. Rich on permanganate of potash (‘Canada Lancet;’ ‘Edinb. Med. Journ.’ x, 259). A. Ott, case of acute prostatitis after injections (‘Prag. Med. Wochenschr.’ 1864, p. 300).

#### SYPHILIS.

A. Guérin, clinical lectures on the diseases of the external genitals

of the female (Paris, A. Delahaye). C. Drysdale, treatment of syphilis without mercury (Lond., Baillière). H. Köbner, clinical and experimental communications, &c. (Erlangen, Enke). Dr. Hardy, lectures on scrofula and syphilis (Paris, A. Delahaye). W. Miehler, communications from Lindwurm's clinic for syphilitic and cutaneous diseases (pp. 112, München, 1864).

Dr. Sperk on syphilis in Siberia ('St. Petersb. Med. Zeitschr.,' vi, 254). M. Daga on syphilis among the Arabs ('Arch. Gén. de Méd.,' 1864, ii, 158, 287).

Dr. Köbner in a paper on auto-inoculability of the syphilitic virus ('Deutsche Klinik,' 1863, p. 483) gives some cases which show that after excision of mucous tubercles the pus secreted by the wounded surface is inoculable on the patient himself.

Prof. Waller on the duality of syphilis ('Prag. Med. Wochenschr.,' 1864, pp. 34, 42). M. Sperino's doctrines ('Lanc.,' 1864, i, 226). B. Hill, two cases showing a prolonged incubation, and caused by secondary contagion ('Lanc.,' 1864, i, 696).

*H. Veale on excision of indurated chancre* ('Edinb. Med. Journ.,' x, 13). —“Until an indurated chancre has been followed by enlargement of the lymphatics in the neighbourhood, I am of opinion that it is both justifiable and expedient to obtain the destruction of the part affected by it, for which purpose excision is especially applicable when the sore happens to be seated on any part which, like the prepuce, admits of ablation without detriment or disfigurement to the patient. I make this statement with the utmost possible deference for those observers who affirm that it is useless to extirpate an indurated chancre. I do not pretend to deny that most frequently, when the induration has become manifest, the entrance of the poison into the system is inevitable, and has perhaps already taken place; but I think it is an error to conclude that the induration is the result of the general contamination and a proof of it. For, if it were so, why should it occur only once? why should we be unable to reproduce it by a subsequent inoculation? why should not every superficial solution of continuity occurring at this period also undergo the same process? and why should it occur only at the site of inoculation? It would seem to be more probable that the specific induration is a strictly local process, dependent, it may be, upon the conjunction of several conditions; of which, however, the following may be regarded as the chief:—First, the constitution must have been previously free from syphilitic infection. It must not have undergone that kind of leucocytosis which the syphilitic virus produces. Indeed, every leukæmic state seems to be adverse to the process of induration: for we find that in women, in whom a chloro-anæmic or leukæmic state is more common than in men, the induration of chancres is much less frequent; and it is also observed that a chloro-anæmic state of the system, however produced, delays the specific induration even in men. Secondly, a certain degree of activity or concentration of the virus seems to be necessary; for, according to several observers, the induration produced by inoculation through the medium of the blood, or with the fluid of certain secondary lesions, is not so well marked as that which results from the action of the virus implanted directly from

a chancre. Thirdly, certain purely local conditions seem to be favorable, although by no means essential. Thus the process of induration is usually much more complete on the prepuce and on the lips, for example, than it is on the trunk, and it may perhaps be owing to a similar special aptitude or affinity that the lymphatic glands are so constantly and readily affected by it.

“ It may, perhaps, be objected, however, that oftentimes when a chancre has been cauterized or excised, the wound, although made in parts previously unindurated, has been observed to undergo induration. But if this be a proof of the action of the virus through the medium of the blood, or of systemic infection, why is it that superficial solutions of continuity happening simultaneously in other parts, do not also become indurated? Every day's experience shows that they do not, and yet the same blood and the same constitutional state exist for them as for the part that is undergoing induration. Why again, it may be asked, is a reproduction of induration in a wound made for excising a true chancre to be regarded as a proof of constitutional infection more than the reproduction of an epithelial cancer after imperfect extirpation? The reproduction of the induration after excision much more probably proves that the quantity of tissue removed has not been sufficient; it perhaps also proves, that although the syphilitic virus may have passed into the blood, the true syphilitic diathesis has not yet been produced; finally, it may prove the extremely gradual extension of the poison from the primary centre or centres, and may serve as an argument not against the propagation of the poison through the medium of the blood, but in favour of a quite different explanation. If we withdrew our minds from the too exclusive contemplation of the part played in the animal body by the vessels and their contents, we shall perhaps be all the more ready to admit the possibility of the syphilitic poison extending itself from cell to cell, very much after the manner of cancer. Indeed, in more than one respect, the analogy between cancer and syphilis is becoming every day more and more apparent. But, however that may be, it will perhaps be allowed that the evidence in favour of the theory which attempts to account for the extension of the process of induration by reference to what is vaguely called systemic infection is not clear, whereas the view that the syphilitic virus disseminates itself through the contiguous cells, and is carried away by the lymphatics, in the same way as cancer, becomes more and more tenable the more we examine it. Although, therefore, it is established by clinical observation that the specific induration of a sore only becomes perceptible to us, as a rule, after the poison has entered the system, there is nothing in the mere fact of induration which should cause us to regard the constitutional infection as either present or inevitable. Such induration ought rather to be regarded as the direct result of the syphilitic poison upon a part suited to undergo the process, and there is consequently no reason, theoretically, why the excision of a chancre should not often be as successful as the excision of its analogue—cancer; but in order to be so, it must be conducted on the same principles. It must obviously be a difficult matter to afford practical proof of the truth of this conclusion, because, as yet, we cannot exactly determine

the difference between a specific and an accidental induration, but it is at least safe for me to say that I have occasionally seen cases in which, after the extirpation of an apparently specifically indurated sore, there has been no evidence of systemic infection. But whatever may be the eventual verdict on this point, it is almost universally admitted that when the lymphatics have once become involved, the treatment of the sore alone is not sufficient. The poison having entered the system, it must be combated by constitutional remedies."

*Dr. Humphry* remarks in his address on surgery ('*Med. Tim. and Gaz.*' 1864, ii, 175) that "the mercurial plan, especially for the indurated form, is again in the ascendant, and, I think, deservedly so. Regarding the primary sore or spot as the continuing source, as well as the origin, of infection to the system, we can have no question of the importance of eradicating it as quickly as possible; and what we especially require is some more rapid and effective means of doing this. The milder caustics seem to me simply to increase the amount of induration; and the severer ones, even when freely applied, very often fail to destroy it. I was accordingly led to try the removal of the sore with the knife, when it admitted of being easily and completely insulated—in the cases, for instance, of chancre on the prepuce, especially near the margin, or on its exterior (and, in this latter situation, they are, in my experience, peculiarly liable to be followed by secondary symptoms). I am, in such cases, in the habit of removing the prepuce. The earlier it is done, of course, the better the prospect of complete eradication of the malady. Even at a late period, when secondary symptoms have set in, the primary lump still being large and hard, I have sometimes followed the same course, believing that the removal of that, which seems to be, not merely a source, but a maintenance of infection, would facilitate the cure of the patient; and I have found reason to be satisfied with the practice under these circumstances. The wound has in every instance healed kindly. I would warn those who may be disposed to resort to this summary method, that the incision should be carried quite wide of the base of the sore, so as to include a clear and considerable margin of healthy skin and tissue with it; for in this, as in cancer, the influence of the disease extends for an uncertain distance around its apparent site; and I have, in some instances, been disappointed at the recurrence of induration in the cicatrix, when I had not been sufficiently careful on this point. I would warn them also against giving too strong an assurance of immunity from a subsequent appearance of the disorder; for it is impossible to tell when the infection of the system begins, and whether, therefore, in any particular case, it has taken place; neither do we know what is the period of incubation, or whether there is any regular period; and I have seen secondary symptoms commence after the wound caused by ablation of the primary sore had healed with a sound soft cicatrix. They have, however, been slight. I think the prospect may be represented thus: if induration has not taken place, or is only commencing, the probability of an appearance of secondary symptoms, after the complete removal of the sore, is very slight; and, if they do appear, they are not likely to be severe. If the induration has set in, the operation will diminish the

probability of their occurrence; and if they, in addition, have already appeared, it will facilitate their cure. After all, however, this treatment is applicable only to a few cases—to those, namely, where the prepuce or the exterior of the penis is the seat of the primary disease. I have not tried it in the female.”

*C. F. Maunder* remarks ('*Med. Mirror*,' i, 17) that “instances of *indurated chancre and of epithelioma* occasionally occur in peculiar localities and under unusual circumstances, rendering a careful investigation necessary, in order to avoid errors in diagnosis.” He relates three cases,—one of epithelioma on the vulva in a healthy looking woman of twenty-six, one of indurated chancre on the lower lip in a man, aged fifty-five years, and a third of indurated chancre on the penis of a boy of ten. He tabulates the *differential diagnosis* as follows:

EPITHELIOMA

Generally recurs after operation—usually observed after the middle period of life—surface and margin more or less hard, irregular, minutely nodulated, and sooner or later attended by sanious and offensive discharge—attended by an adenopathy after the lapse of *months*.—Painful.

INDURATED CHANCRE

Occurs only once in the same person (one exception has been recorded), and at any period of life—surface more or less smooth, and only just moist—attended by an adenopathy after the lapse of *days*.—Painless.

*M. Nodet*, on the different kinds of chancre (Paris, A. Delahaye). *Dr. Bondi*, case of mixed chancre ('*Prag. Med. Wochenschr.*,' 1864, p. 146). *A. Martin* on the indurated chancre ('*Arch. Gén. de Méd.*,' 1864, i, 221). *Dr. Szabadföldy* on the occurrence of movable cells in a primary syphilitic pustule ('*Arch. für path. Anat.*,' vol. xxix, p. 470). *Messrs. Kluyskens and Hairion* on the treatment of bubo by the local use of iodine and methodical compression ('*Bull. Belge*,' 1862, p. 500).

*Constitutional syphilis*.—*E. Güntz* on *syphilitic fever* ('*Küchenmeister's Zeitschr.*,' ii, 3; and *Sachs' 'Med. Alman.'* for 1864, p. 189).—Syphilitic fever occurs in adults during the commencement of the constitutional symptoms; its course varies much, depending, as it does, on the local changes. Its principal characteristics may be enumerated as follows:—

1. General (premonitory) symptoms, the earliest being sometimes slight fever, are observed before the occurrence of the eruption.

2. From the time of infection to the occurrence of general symptoms the temperature is normal.

3. With the appearance of the eruption the temperature continues abnormal, or becomes so provided it had not previously risen—increasing on an average in not very violent cases to 30·4 R. in the evening, with a morning remission to 29·9 R.

4. The fever increases with the extension of the eruption on the skin, averages in severe cases 31 R., with a morning remission to 30·9 R., continues at this height for two, three, or four days, and then sinks during a series of days or even weeks (two to three) to the normal.

5. The pulse varies in proportion to the temperature, thus at 31 R. there are on an average 110 beats in the minute.

6. The time, when the fever ceases, depends on the degree of the local lesions, on the intestinal catarrh, and on the coryza.

7. The fever ceases at a late period when fresh eruptions take place, at each of which the temperature increases some tenths of a degree.

8. The fever is so slight in many cases, especially in robust and otherwise healthy persons, as not to be noticed by the patients themselves; it can, however, be detected by the thermometer.

Among other interesting examples of constitutional syphilis under Prof. Rühle ('Greifsw. Med. Beitr.,' ii; Report, p. 63), we find the following:—A woman was admitted into the hospital with the diagnosis of "pulmonary phthisis in its last stage." She was emaciated to the utmost degree; on the right side under the clavicle there was moderate dulness and bronchial respiration; on the left side in front the breathing was indistinct. On the back the percussion-sound was normal; on the right side, over a great extent, but gradually becoming less intense from above downwards, there was loud bronchial breathing, with clear but scanty rattling; on the upper part of the left side also the breathing was bronchial. The voice was entirely lost. The uvula and a considerable part of the soft palate were wanting; there were ulcerations both on the soft and hard palate. The epiglottis felt rough and irregular. There was great difficulty in breathing and in swallowing.

From the state of the pharynx and larynx syphilis was diagnosed; although the patient was wasted to a skeleton, yet as the most immediate danger was from the laryngeal disease, inunction was commenced, half a drachm of mercurial ointment being rubbed into the thigh morning and night. Easily digestible food, broth, milk, &c., were given, and mercurial stomatitis was prevented by diligent gargling with cold water and astringents. The ulcers in the pharynx were almost entirely healed after this treatment had been continued for six weeks; the difficulty of breathing, the cough, and the stridor had diminished. The bronchial breathing at the back had also gradually lessened, though the dulness at the apex still persisted. The patient had become much stouter. Preparations of iodine were then administered, and continued for a long period. At a later period laryngoscopic examination showed that the epiglottis was almost entirely destroyed, the true vocal cords were normal, the posterior wall between the arytenoid cartilages much swollen and mammillated, though pale in colour. At a later period she was repeatedly attacked by inflammation of the conjunctiva and cornea of the right eye, and by periosteal affections of the skull, nose, sternum, and tibiæ. The condition of the larynx, however, improved, the voice steadily becoming louder and purer. When discharged, she was in excellent condition.

H. Zeissl, 'Treatise on Constitutional Syphilis' (pp. 432, Erlangen, F. Enke). A. Reumont, 'Contributions to the Pathology and Treatment of Constitutional Syphilis' (Erlangen, F. Enke).

Prof. Zeissl on syphilitic affections of the skin ('Wien. Med. Halle,' 1864, pp. 41, 62). J. Hutchinson, rare forms of disease consequent on syphilis ('Brit. Med. Journ.,' 1864, i, 440; 1864, ii, 263). J. L. Biedenkamp, sketch of the different treatments employed at the University

Hospital, Christiania, 1863 (vide 'Med. Tim. and Gaz.,' 1863, ii, 468). W. Petters on broad condylomata ('Prag. Med. Wochenschr.,' 1864, pp. 205, 213). Dr. Kleinhans on syphilitic herpes ('Berl. Klin. Wochenschr.,' 1864, pp. 170, 181). T. Reade, the growth, progress, and present state of knowledge of nervous syphilitic diseases ('Dubl. Quart. Journ.,' vol. xxxvi, p. 324). H. C. Brodrick, on sternal tenderness as a sign of constitutional syphilis ('Edinb. Med. Journ.,' ix, 468). A. Dron on syphilitic disease of the epididymis ('Arch. Gén. de Méd.,' 1863, ii, 513, 724). T. McCall Anderson on syphilitic pemphigus in the adult ('Glasg. Med. Journ.,' xii, 138). F. Mosler, case of leucocythæmia from syphilis ('Berl. Klin. Wochenschr.,' 1864, p. 15, &c.).

*Congenital syphilis.*—W. Allingham on the treatment of congenital syphilis ('Med. Tim. and Gaz.,' 1863, ii, 453). T. Bryant, disease of the testicle (ibid., 614).

*M. Roger on hereditary syphilis* ('Med. Circ.,' vol. xxv, p. 158).—The death of the child in utero and abortion are frequent consequences of the transmission of the taint to the foetus. When three miscarriages occur in succession in the same woman, the presence of syphilis should be strongly suspected. The bodies of infants who perish under these circumstances are soft and flabby; the cuticle is detached, exposing the dark hue of the derma; the viscera also present signs of the infection. M. Depaul has described fibro-plastic or purulent deposits, which occur in the lungs; the lobules are in a state of induration, which is considered characteristic by A. Guérin, and the liver presents a flinty colour and granular aspect, to which M. Gubler has called attention. Supposing, however, that pregnancy has reached its full term, the child may present, in addition to the appearances we have enumerated, and to others of a very serious nature in the thymus and periosteum, an external symptom indicative of syphilis, viz., pemphigus. This is the only secondary eruption which is not ushered in by any premonitory signs, and, although unfrequent, is viewed by M. Roger as pathognomonic. It cannot be mistaken for simple pemphigus, which never breaks out before the sixth, eighth, or even tenth month after birth. The simple form of the disease is moreover discrete, whereas the syphilitic variety is abundant, especially over the palms of the hands and soles of the feet. The contents of the bullæ are serous in the former and puriform in the latter, in which, in addition, the hand assumes a bluish tinge, and the complexion a cachectic hue; the bullæ display a tendency to ulceration, and a fatal issue occurs in eleven out of twelve cases, doubtless on account of coincident visceral complications. These various circumstances supply a sufficient clue to the diagnosis of syphilitic pemphigus occurring shortly after birth.

When the hereditary taint is not thus immediately revealed by the appearance of pemphigus, no other external manifestations of syphilis occur for a fortnight. Thus, M. Cullerier has only twice in ten years observed symptomatic psoriasis in the first two or three days of extra-uterine life. The presence of the poison in the blood seldom gives rise to papular or pustular manifestations around the anus, in the inguinal region, or to specific coryza before the child is at least a fortnight old. Of 235 instances of hereditary syphilis collected by M. Roger, the



symptoms broke out in the course of the first month, and generally in the second fortnight of that month, in 112; in 92 cases the secondaries appeared in the second and third months; and in 31 cases only after that date.

Hence it appears that a child may be born with the poison in his system, and yet present for a fortnight the outward appearance of perfect health. Others, on the contrary, have a distressingly aged aspect, and, having already reached the latest stage of secondary disease, are, indeed, at death's door; in most instances they are extremely feeble, and are sometimes covered with pemphigus. When the affection sets in at the usual period, the integument assumes a characteristic dark-brown hue, and at the same time various eruptions appear, together with the special coryza. This chronic irritation of the Schneiderian membrane is essentially different from that caused by cold. The latter usually supervenes two or three days after the infant's birth, and coincides with epiphora and bronchitis. Syphilitic coryza at first occasions dryness of the mucous membrane, and impedes the breathing; a seropurulent secretion soon follows, sometimes tinged with blood, and containing squamæ, which indicate superficial ulceration. The concomitant eruptions generally consist in roseola and psoriasis of the palm of the hand and sole of the foot. M. Roger also points out the frequency of mucous tubercles of the mouth and of the anus.

H. Bohn on the transmission of syphilis by vaccination ('Schmidt's Jahrb.,' vol. 120, p. 97).

*Disease of the spinal cord, possibly of syphilitic origin* ('Dubl. Med. Press,' 2nd ser., ix, 659).—E. Winge exhibited at a meeting of the Norwegian Medical Society, the spinal cords of two patients, both of whom had suffered from syphilis, been treated with mercury, and had died in the Royal Hospital. In the first, a man, aged 39, paraplegia occurred, bed-sores formed, and he died, apparently from thrombosis. The principal disease was found in the spinal cord, attaining its maximum in the middle of the dorsal portion. A transverse section showed that the white substance was almost entirely replaced by a grayish-yellow, transparent mass, much resembling solidified mucus. In the cranium a small exostosis on the inside of the parietal bone, and traces of osteophytes on the os frontis were found. In the second case, the changes were confined to the membranes. The patient, a man of 33, had twelve years previously been treated for syphilis with mercury. He was admitted into the hospital for supposed hepatitis. No relapse of the syphilis had been observed. Whilst under treatment, tenderness and pains in the lumbar region supervened, with considerable hyperæsthesia and neuralgic pains in both thighs, finally motor paralysis of the lower extremities, difficulty in passing urine, bed-sores, and, lastly, obstinate hiccough ensued; these symptoms persisted until death occurred from dyspnœa. On dissection, the spinal dura mater was found to be everywhere attached to the arachnoid by a false membrane, which, in its lower half, was almost as thick as the dura mater. "The morbid process was in this instance of a more specifically inflammatory character—a meningitis spinalis gummosa; in the first case, on the contrary, it was an atrophy of the nerve-fibres of the spinal cord, with

fatty degeneration and development of corpora amylacea—a process analogous to the so-called gray degeneration of the posterior columns of the spinal cord, the anatomical basis of most cases of tabes dorsalis.”

*C. Lancereaux on the visceral lesions connected with constitutional syphilis* ('Gaz. Hebd.,' 1864, p. 501, &c.).—Syphilitic affections of the viscera generally present anatomical characters sufficiently constant and distinct to indicate the cause on which they depend. They may all be naturally grouped under three forms, (*a*) that of interstitial inflammation, (*b*) the gummy, and (*c*) the cicatricial form.

Certain organs, as the liver and testicle, which contain a large amount of fibrous tissue, are more especially the seat of the first form. New elements, nuclei, cells, and fibres of connective tissue are developed; they cause at first increased volume, and at a later period retraction and atrophy of the affected organ. At the latter period the surface of the glands mentioned is traversed by furrows and depressions, which give a peculiarly characteristic appearance. In the liver there is a lobular cirrhosis (cirrhosis with large granules), which is very different from the granular disease of drunkards (cirrhosis with small granules). This form is less distinct in the other viscera, as the brain, kidney, lung, or heart; in these organs, indeed, it bears the characters of cerebral sclerosis or softening, of interstitial nephritis, of pneumonia, and of chronic myocarditis.

The second anatomical form of visceral syphilis is characterised by tumours of the size of a pea, a nut, or even a bean (gummata or gummy tumours). Differing little according to the organ, these tumours are firm or soft, of grayish, yellowish, or whitish colour, according to their age and the relative proportions of their histological elements, nuclear, cellular, and fibrous; they are generally placed within dense, fibrous, grayish, vascular, and firmly resisting tissue, forming a kind of capsule, from which they may occasionally be enucleated; the presence of such a covering is, in the author's opinion, one of their best characters and often sufficient to differentiate them from tubercular, cancerous, and other new formations. In their earliest stage these gummy tumours are formed of the embryonal elements of connective tissue; at a later period they undergo retrograde or fatty changes. Hence it is possible for them to be again spontaneously absorbed, though even then they may leave behind them various lesions, such as cyst-like membranes in the brain, fibrous bands or cicatrices in the liver; thus even when the gummy tumour has disappeared, the latter point to its previous existence. In some cases, however, syphilitic tumours undergo a calcareous and not a fatty metamorphosis.

Differing from cancer, from fibrous or fibro-plastic tumours, both by their defective vascularity and by the characters already mentioned, syphilitic tumours are more likely to be confounded with tubercular or scrofulous lesions, with vascular atheroma, with the products of glanders or farcy. Yet it is still possible to distinguish them from the latter affections by the characters already assigned and by attentive examination of all the diseased organs, more especially of the liver.

The cicatricial is in reality merely a termination of the preceding forms; it is characterised by the presence, on the surface of organs, of

single or multiple, simple or starred, cicatricial furrows, of more or less deep depressions, and of fibrous bands or layers in the parenchyma. Of these lesions, the former differ from the atrophies which result from the obliteration of vessels, by the presence of a considerable amount of fibrous tissue at the depressed spot, and by their not following the course of the vessels. They are distinguished from traumatic cicatrices by the absence of the colouring matter of the blood. The latter varieties may be differentiated from absorbed or cicatrized purulent collections by their multiplicity and the absence of purulent detritus in and around the cicatricial membrane.

To these anatomical forms we may add one which is peculiar to glands; it is hypertrophy with or without change in the active elements. Out of twenty-four cases the author found hypertrophy of the spleen, ten times, of the deep lymphatic glands, ten times, of the thyroid, four times, of the supra-renal capsules, twice. Finally, in some cases he found the follicles of the base of the tongue, pharynx, and tonsils hypertrophied. These glandular lesions are usually accompanied by an alteration in the blood and cachexia.

The fatty, amyloid, lardaceous, or waxy degenerations of the organs, especially of the liver and kidney, are met with in many cases; there is, however, every reason to believe that they are not developed, like the preceding alterations, from the immediate influence of syphilis; moreover they accompany a great number of other diseases with cachexia, particularly when the bones are diseased.

Of all the viscera, the liver is the most frequently affected by syphilis. The author has noted interstitial hepatitis or syphilitic cirrhosis, thrice; gummata without cicatrices, once; cicatrices without gummata, seven times; cicatrices of the surface of the liver with gummata in its interior, eleven times. In most cases the liver was adherent to the diaphragm or adjacent viscera; there had consequently been perihepatitis, an affection which was never observed isolated.

Out of the same number of cases there were in the kidney interstitial nephritis, thrice; nephritis with waxy degeneration, twice; little disseminated tumours, once; cicatrices of the surface, with atrophy, twice.

The testicles in three cases presented the following lesions; gummy masses causing increased size of both testicles, with complete disappearance of the glandular elements, once; gummy growths in the one, and interstitial orchitis of the other, testis, once; periorchitis, once. In some other cases, the testes have been atrophied, the atrophy being apparently only a termination of interstitial orchitis of syphilitic origin. The author has also met with alterations in the ovaries very analogous to those of the testis just mentioned.

In the brain, the author has seen old gummy tumours which had in part undergone fatty degeneration, twice; a cyst-like membrane with numerous partitions occupying the greater part of the right anterior lobe, with secondary atrophy of the corresponding anterior pyramid and of the antero-lateral fasciculus of the opposite side, once; cicatrices on the surface of one of the convolutions and a cicatricial fibrous band at the junction of the gray and white substance, once; amyloid degeneration of the choroid plexus and softening of the pons (once).

In the lungs, chronic pneumonia and deep cavities with smooth and regular walls, twice; gummy growths, thrice; cicatrices on the surface once; contraction with dilatation of the bronchi, twice; cicatrices and ulcerations of the pharynx (larynx?) many times; ulcerations of the larger bronchial tubes, once.

The forms of disease observed in the heart were,—distinct gummy myocarditis, characterised by the presence of tumours in the midst of fibrous tissue, with alteration or even the disappearance of most of the muscular fibres, twice; simple myocarditis, once; lardaceous degeneration, twice; in some of these cases sudden death resulted from the cardiac lesion.

In general, the functional affections excited by syphilitic lesions of the viscera do not possess any specific characters. Each diseased organ manifests its suffering by an aberration of its own peculiar function; hence it results that the symptoms not only vary according to the organ affected, but also, for a single organ, according to the position and extent of the disease. In these cases the clinical diagnosis must depend upon the history of the case, upon the existence or previous occurrence of other syphilitic symptoms; it is, however, well to take into account the age, to examine the liver with the utmost care, for the changes in its form are often characteristic, and to examine the urine for albumen. The simultaneous occurrence of disease in several viscera must also be considered; and still more important is the special cachexia which almost invariably accompanies visceral syphilis.

The prognosis is, as the rule, serious; yet it should be remembered that much depends on the special organ affected.

Specific treatment (mercurials and iodide of potassium) properly employed, often causes rapid disappearance of symptoms even threatening life. Of course these remedies have no power over the cicatricial form. A point, that should not be forgotten, is that the treatment should in cases of visceral syphilis be continued for a lengthened period; such appears to be the best plan of preventing a recurrence of the disease.

Prof. Jaksch, clinical lectures on syphilitic affections of internal organs ('Prag. Med. Wochenschr.,' 1864, p. 1, &c.). Cases of syphilitic disease of the *larynx* ('Med. Tim. and Gaz.,' 1864, i, 253). M. Boeckel, on syphilitic stricture of the trachea ('Gaz. d. Hôp.,' 1864, p. 11.) Dr. Bolze on syphiloma ('Prag. Med. Wochenschr.,' 1864, p. 301).

H. Maudsley, syphilitic disease of the *brain* ('Journ. of Mental Science,' x, 82). Dr. Liedesdorf on syphilitic disease of the brain and insanity ('Wien. Med. Halle,' 1864, p. 88), and some cases ('Wien. Med. Jahrb.,' 1864, ii, 112). R. Kuh, case of cerebritis syphilitica ('Prag. Med. Wochenschr.,' 1864, p. 184). M. Leven, syphilitic tumour of the cerebellum ('Gaz. d. Hôp.,' 1864, p. 105).

E. Wagner, on syphiloma of the *liver* ('Arch. d. Heilk.,' 1864, p. 121). M. Hérard ('Gaz. Hebd.,' 1864, p. 523). Dr. R. Haldane, case of cirrhosis with syphilitic deposit ('Edinb. Med. Journ.,' ix, 1074). Dr. Rudnow, syphilitic disease of the liver and kidney ('St. Petersburg. Med. Zeitschr.,' vi, 256).

*Report of a committee (Drs. Steffens, Egeberg, and Voss) on syphilisation* ('Prag. Med. Wochenschr.,' 1864, p. 122).—The cases on which the

committee reported were observed in the departments of Prof. Boeck and Dr. Hjort, during a period of three years (1856-9). Since then three years more have passed, during which time the committee has constantly kept the patients in view, so that any recurrences could be noted.

The first question discussed is that of the *immunity with reference to fresh infection*, which is bestowed by inoculation. The committee confirms the statement that the effects of inoculation repeated during a lengthened period become gradually less, and finally cease altogether. On the other hand, it is remarked, that:—

1. After such is the state in one part of the body, for example, the chest, a positive result can still be gained elsewhere, *e. g.* on the extremities. As it is practically impossible to inoculate every point of the whole surface, the existence of perfect immunity cannot be proved.

2. There may be immunity with reference to the syphilitic pus of one individual, and yet the normal reaction follows inoculation with that taken from another patient. So also may the pus of an inoculation-sore be entirely inert on the person himself, and yet produce normal pustules on a second person, whilst in the former a chancre is produced by the pus furnished by a third case.

3. Moreover, the immunity appears to be only temporary: it was found that persons who for a time were inoculated without effect, again became sensitive to the poison at a later period. Cases also were not rare, in which after the occurrence of immunity and apparent cure, the disease recurred, and was again treated by syphilisation, thus showing that the patients had again become sensitive to the virus.

4. There may be immunity and yet the syphilitic symptoms persist, thus proving that the former is not a sign of the disappearance of the syphilitic diathesis.

As to the *curative influence of syphilisation* the committee states that too short a period has yet elapsed for it to admit the permanency of the recoveries, and to pronounce the impossibility of further (tertiary) relapses. The value of this method must for the present be decided by comparing its results with those of other means.

1. Ninety-two patients, of every age, who were treated in Boeck's division for secondary symptoms of *acquired syphilis*, and who had not previously taken mercury, gave the following results with syphilisation:—

*a.* 69 cures = 75 per cent., with an average period of treatment of 150 days.

*b.* 14 recurrences = 15.2 per cent.; among these, in each of 4 patients the disease recurred twice, and in one case thrice.

*c.* 9 cases without any certain result = 9.8 per cent.

2. Only in one patient who had been treated for "secondary" symptoms by syphilisation, were there observed, nine months after the first recurrence, "tertiary" symptoms (for which the iodide of potassium was administered). He did not know whether he had been previously treated with mercury.

3. Eight children, of whom six suffered from hereditary syphilis, were borne by six women, who had been previously treated with syphilisation for secondary symptoms by Prof. Boeck, and who had been

supposed to be cured. A woman under Dr. Hjort was treated by syphilisation in 1856, and three years later had a child which suffered from hereditary syphilis; another woman, treated in the same way in 1856, had two years later a child which only lived two days.

4. As to the influence of syphilisation on tertiary symptoms, no conclusion could be drawn from the three cases observed.

5. Of 12 children suffering from hereditary syphilis, 5 were cured; in 1 the disease recurred, and 6 died during the treatment, 5 between the fifteenth and thirty-fifth days of treatment, 1 on the hundred and thirty-fifth day.

6. A cure was generally not effected by syphilisation in cases of secondary or tertiary syphilis, when the patient had previously taken mercury. As these patients received at the same time or alternately iodide of potassium, no further conclusion could be arrived at.

7. In affections of the nervous system and of the internal organs, syphilisation has little or no effect.

In reference to the influence of this treatment on the *general health* of the persons inoculated, it was found that:—

1. It caused no particular pain or other trouble.

2. The treatment was attended with some pain in only rare cases, where the ulcers produced by inoculation considerably enlarged, became confluent, or phagedænic; in such cases it sometimes exercised a pernicious influence on the general health.

3. After the termination of the treatment the patient had, almost without exception, a healthy appearance and felt active and strong.

4. These patients took no special precautions after their discharge from the hospital; they do not appear to have been more sensitive to other diseases afterwards, than healthy persons in general.

Dr. Hjort tried some experiments with antimonial plaster with the view of determining whether syphilisation owes its effects to some specific quality of the ulcer, or simply to "depuration" effected by the ulcerative process.

The committee found that:—

No condition occurred analogous to the so-called immunity after syphilisation. In little children it was followed by considerable reaction. In general it gave more pain and trouble than syphilisation. The pustules and ulcers discharged but little, were unequal in size, and a vesiculo-papular eruption sometimes appeared suddenly on other parts of the body. Phagedæna was not observed.

The results were, that:—

1. In 75 patients, of whom three only were under five years of age, suffering from acquired secondary syphilis, who had not been treated with mercury,

a. Cure, without recurrence up to the time of the report in 43 = 57·3 per cent.; the duration of the treatment averaged 151 days.

b. Recurrence in 14 = 18·7 per cent.; the disease twice recurred in each of two patients, and thrice in one case.

c. No definite result in 18 = 24 per cent.

2. In none of these cases have tertiary symptoms hitherto appeared.

3. Of four women suffering from secondary syphilis, who had never

taken mercury and who were treated in this way, two had immature dead children, one a syphilitic child which died at the age of six months, and one child was said, after a year and a half, to be still healthy and without any symptoms of syphilis.

4. The same result was found with this treatment in persons who had previously taken mercury, as with syphilisation.

5. The influence of the general health was, with the exception of the pain, just the same as that of syphilisation.

*Mercury.*—A. Kussmaul on chronic mercurialism ('Deutsche Klin.,' 1864, p. 130). H. Lee, unusually severe case cured by calomel fumigation ('Brit. Med. Journ.,' 1864, i. 389). E. W. Pollard on the treatment of syphilis by mercurial vapour ('Lanc.,' 1864, ii, 116). Prof. Zeissl on absorption and excretion of mercury ('Wien. Med. Halle,' 1864, p. 282). Dr. Diday on the disadvantages of mercury ('Revue de Thérap. ;' 'Edinb. Med. Journ.,' ix, 470).

#### ELEPHANTIASIS.

*Mr. Fiddes, case of amputation for elephantiasis* ('Trans. of the Path. Soc.,' xiv, 258).—After mentioning the enormous hypertrophy of the dermis, with the fatty degeneration of the muscles, found in such cases, the author states "that the disease never extends higher up than the knee, and amputation through this joint, or rather immediately above it, making the flap from the gastrocnemius muscle, is that which answers best." He has repeatedly removed limbs so affected, with the happiest results, relieving the patients from a distressing infirmity, and enabling them to get about, and do something for a livelihood.

A. Steffen, case of elephantiasis Arabum ('Arch. für klin. Chir.,' iv, 599).

#### ANTHRAX.

*M. H. Collis on the treatment of anthrax by pressure* ('Dubl. Quart. Journ. of Med. Science,' vol. xxxvii, p. 74).—The author states that the seat of anthrax is deeper than the skin or subcutaneous cellular tissue. "This any one can satisfy himself upon by dissection of a single anthrax; or, if such an opportunity be denied him, he has only to inspect the cavity of a large one from which the core has been wholly expelled, and to observe what parts are laid bare, as well as to note the deeply depressed cicatrix which marks the site when all is healed. Having done so, let him examine carefully the early stages of anthrax, on the looser skin of the sides, abdomen, eyelid, or any other part where the fascia is not closely bound to the skin by numerous strings and short bands of the corion, and he will find it in all such cases, not only subcutaneous, but deeper still, lying beneath the lax areolar tissue, and in and beneath the fascia."

"Anthrax is essentially an inflammation of dense fascia, in which the superficial areolar tissue is implicated, as in furuncle, and also the deep, as in plegmonoid erysipelas. There is along with, and resulting from this threefold inflammation, a copious exudation of lymph, which agglutinates the inflamed parts into an almost homogeneous yellowish-gray mass, destroying the vessels, and of necessity stopping the circulation; hence a large and rapidly increasing core results. So peculiar

is this core, that Nélaton classes it among false membranes, similar to those which form on the surface of serous membranes. There is some show of truth in this notion of Nélaton's, but it is only part of the truth, and not the main part either. The mode of extension of anthrax much resembles that of phlegmonous erysipelas—sub-fascial exudation goes on, cutting off the vascular supply to fascia, and, at the same time, exudation goes on superficial to the fascia, cutting off the vascular supply to the skin. This double exudation produces two sets of physical signs; a broad elevation, equal in extent to that of the deep exudation, with livid or dusky red hue of skin, and hard œdema, extending somewhat beyond that limit, points to deep subfascial inflammation. The brighter red of the skin round these openings is another sign of their being akin to simple follicular abscesses; for though not so bright as in healthy phlegmon, the colour is less dull than it is in the outlying parts of the tumour. This superficial inflammation is of less extent than the deep, for the simple reason that its products get vent more quickly. The skin only has to be perforated, whereas in the other case, deep fascia and skin must both give way, and the fascia only gives way by becoming a dead slough, and by being cast off by a process of ulceration along its edges. This is a slow process, during which exudation advances, and the diseased action extends its limits."

"Dublin surgeons, as a rule, have been in the habit of treating anthrax by the crucial incision of Abernethy. Some advise that the incision should reach from sound skin to sound skin. Even Mr. Ledwich, following the stern surgery of Tagart, and undeterred by the fatal cases he himself has quoted, gave in his adhesion to this practice. I have long been satisfied that this length of wound was a needless increase of risk and suffering to the patient, and that the mere extent of a crucial incision was of little consequence in comparison with its depth. If not deep enough to allow free vent to the dead core and matter, an incision is worse than useless—it is positively mischievous, and causes the disease to spread. To be deep enough it must penetrate the core, and tap the inflammatory exudation and purulent depôt which lie beneath it, and which would not otherwise find a vent until the core had separated. When making the crucial incision it is easy to know if we have gone deep enough for our purpose. Should there be still much vitality in the integument, which we have cross-cut, the wound will gape widely, and the point of each angular flap will curl up considerably. Even in advanced cases, where the skin is much undermined and thinner, and where it has not sufficient elasticity to curl up or retract, we shall be able to know if we have gone deep enough by lifting up the angles of the flaps in a forceps and feeling if they are well loosened from the parts underneath. If they do not yield at once, and freely, we must cut deeper, until we reach the subjacent muscle. The crucial incision then, if adopted, must be deep to be of use in checking the spread of the disease and facilitating the repair of the affected part."

As an example of the treatment by pressure, we shall select the last of the four very interesting cases related by Mr. Collis. "A man of blanched aspect, prematurely old-looking, and with all the marks of poverty about him, had two anthraces—one on the point of the right



scapula, of large size, and a smaller one in the axilla, near the scapula. The large one was about four inches by three in diameter, as regards the central boggy portion, with a livid margin, a couple of inches wide, all round. The small one, more prominent, was also more advanced, although later to appear. The core was beginning to separate in it, and it had ceased to spread. The larger one was still spreading—it was the seat of deep and burning pain, and had not commenced to open spontaneously. I strapped both with spiral strapping, covering the entire of the larger, and all but the centre of the small one. Not having soap plaster with opium at hand, I used common adhesive plaster. In twenty-four hours the improvement was marked. The pain had lost its burning character, the swelling had decreased, the lividity of the centre part was changed for a healthier red, and the edge of the outer margin was paler. The improvement continued from day to day; a small central opening gave vent to a good deal of healthy pus; and in ten days not only was the core out completely, but the cavity from which it came was mostly healed up; and in three weeks he was well. I gave him a little bark during this period. He had no means to enable him to get good food or stimulants, and continued as an extern all the time.

“From these cases, to which many others might be added, it is plainly evident that anthrax may be treated sometimes without incision. It is, I think, clear enough that we may pause over each case, and consider if it be necessary or advisable to resort to the knife. For my own part I am satisfied that, as a rule, anthrax need not be cut. I do not wish to be dogmatical, or to lay down an absolute rule that the crucial incision is to be entirely abandoned, but I am entitled to ask that it should not be held to be a *sine qua non*.”

“I have observed that as soon as the parts get support, the extension of sub-fascial exudation ceases. This is the natural result of giving support round the margin of the inflamed part. The efforts of the matter to get vent are then directed towards the surface, and the necessary sloughing and ulcerative processes are more rapidly performed. I have also observed that the core is more extruded or pushed out than where incisions have been made. In the latter case we have often to pull at the core, and to dress the wounds with terebinthines and other stimulating dressings before the sloughs separate. This has never been necessary where pressure was used. The core came out generally in one mass, and a healing process seemed to have been going on behind it, so that the subsequent closing up of the cavity was rapidly effected. I may add that I have frequently used the soap plaster with opium, in common furuncle, and in acne rosacea, with the best effects. It checks the suppuration of furuncle if applied in time, and always relieves the pain. In acne it seems to resolve the hard exudation, and to promote a discharge of a drop or two of healthy matter. This has been specially the case in the very chronic form of acne, which would otherwise remain for weeks itchy and sore, neither disappearing nor suppurating. Pressure is not to supersede appropriate internal treatment, of which, if I have said little in this paper, it is not to be supposed I am neglectful.”

P. C. Smyly, anthrax treated by pressure (‘Dubl. Quart. Journ.,’ vol. xxxvii, p. 280).

## MUSCLES ; TENDONS.

*W. Webster, resection of one inch of an imperfectly united tendo Achillis, and successful treatment by sutures* ('Amer. Med. Times,' 1864, ii, 117).—The tendon ruptured while the patient was running a foot-race. Three months later there was an intervening gap between the divided ends, of about an inch in length, where but little plastic matter seemed to have been poured out to fill up the space. The uniting band was so elongated and weak as to render the limb powerless in progression. "I resolved to expose the parts by a free incision, remove the slight connecting medium, pare the retracted extremities, and endeavour to unite them by the introduction of sutures of silk. The operation of bringing the severed ends in contact after the removal of the intervening substance was attended with considerable difficulty. This, however, was accomplished by placing the limb in a thoroughly relaxed position, and inserting two strong ligatures through the ends of the tendon about three lines from the extremities. The parts were thus approximated, and the relaxed position of the limb was maintained by an apparatus consisting of a ring of leather placed around the thigh, above the knee, from which a cord was attached to a loop in the back of a slipper. The gastrocnemii muscles were also surrounded by a firm bandage. This apparatus was used for six weeks, when the patient was allowed to walk about, wearing a high-heeled shoe, for three weeks longer. After having tied the ligatures one end of each was cut off, and the others withdrawn, as practised in the ligation of vessels. The incision was then united its entire length (which was about three inches) in the most exact manner possible. The ligatures were removed on the twenty-fifth day, and during the greater part of that time the wound discharged purulent matter. The fourteenth week after the operation the patient walked with scarcely any lameness, and the tendo Achillis appeared to be perfectly united."

*W. F. Teevan on tumours in voluntary muscles, with an analysis of sixty-two cases, and remarks on the treatment* ('Brit. and For. Med.-Chir. Review,' vol. xxxii, p. 504).—Out of the 62 cases, in which the growth originated in the body of the muscle, the relative numbers were—cancerous, 21; fibrous, alone and in combination, 16; cystic, 8; hydatid, 5; erectile, 5; osseous and osteoid, 3; doubtful nature, 3; myeloid, 1. The muscles of the lower extremity are affected almost as often as those of the upper limb; but with this difference, that in the latter the tumours are almost entirely confined to the pectoralis major, deltoid, and biceps, whereas in the former they are very equally distributed. The muscles of the trunk, head, and neck were rarely the seat of tumours, with the exception of the rectus abdominis, which would appear very subject to them.

There is a class of swellings in muscles, the result of constitutional syphilis, which may simulate other growths, and so lead to probable error in diagnosis. Cases of this kind have been described by Mr. Tatum, M. Nélaton, M. Bouisson, and others. "The greatest experience, and the most consummate diagnostic tact, will sometimes fail

to discriminate softer forms of encephaloid tumours from syphilitic swellings, when the skin is intact; and when we consider that operations have often been needlessly performed for growths supposed to be cancerous, but which turned out to be syphilitic, we cannot be too careful lest we also commit like errors." Again, a cold abscess with thick walls will often puzzle an able surgeon. The author, therefore, considers that the exploring needle and iodide of potash will be found useful auxiliaries in cases of difficult diagnosis. Mr. Teevan discusses at length the treatment of muscular cancer; his conclusion is, that, "whenever practicable, a cancerous tumour in a muscle should not only be excised, but the muscle in which it originated ought to be cut out from its origin to its insertion. But if the cancer be of large size, or if the skin be affected, or if the wound resulting from the excision of the muscle would be of great extent, then the limb ought to be amputated, and the remainder of the muscle in the stump excised."

G. L. Simmons, divided tendo Achillis united by silver wire ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 566). C. Hueter on diagnosis of injuries of the biceps brachii ('Arch. für klin. Chir.,' v, 321). T. Bryant, inflammatory thickening of the sterno-mastoid ('Med. Times and Gaz.,' 1863, ii, 614). Prof. Pitha, ossification of muscles ('Wien. Med. Halle,' 1863, p. 476). Dr. Bohn on hæmatoma of the sterno-mastoid in infants ('Deutsche Klin.,' 1864, p. 267). C. De Morgan on some cases of vascular tumour seated in muscle ('Brit. and For. Med.-Chir. Rev.,' vol. xxxiii, p. 187). J. Bär, muscular paralysis from defective nutrition ('Prag. Med. Wochenschr.,' 1864, p. 157, &c.).

#### NERVES.

Mr. Paget after relating some cases of local paralysis, which appeared to have been caused by injury of the nerve-trunks ('Med. Times and Gaz.,' 1864, i, 331), refers to the treatment. "It must be somewhat different in the cases of simple paralysis and in those that are complicated with inflammatory hardening of textures, neuralgia, and other various symptoms.

"For the former the main design must be to maintain the nutrition of the limb, notwithstanding its inaction. And for this purpose there must be provided, in addition to whatever may be required for the maintenance of vigorous general health,—

"1. Constant warmth of the limb; the whole body must be warmly clothed; the paralysed limb and its fellow especially so. No good or quick repair will take place in a cold limb.

"2. Regular friction and shampooing, especially circular shampooing.

"3. Localized galvanism, that every several paralysed muscle may be made to contract.

"4. Constant voluntary efforts; constant endeavours to attain every lost movement; and when any such endeavour is effectual, frequent exercise of the recovered power.

"5. Swedish gymnastics, *i. e.* set exercises for each muscle in which power is not wholly lost.

“ 6. Guards against distortion from unbalanced actions of muscles, especially contracted fingers or elbows.

“ With these things patiently, that is, year after year continued, much good may be achieved. In the case already mentioned as exactly like that of the young man in the hospital, great good has been gained by a year's treatment; she can now move the elbow in flexion and extension, and draw the upper arm inwards, and slightly bend and extend the fingers. There are very distinct sensations in the whole arm and hand, and freedom from all pain; the natural temperature has been restored, and she has ordinary sensations of heat and cold. Galvanism seems to have done special good; the arm was observed to become weaker when it was omitted for a week.

“ But for the more complicated state, though the treatment must be essentially the same, it must be gentle, with less of galvanism, and less force of movement, and less of voluntary exercise, for these can rarely be borne as they can be in the cases of simple paralysis.”

*J. M. Warren on neuralgic affections following injuries of nerves* ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 316).—“ It is important to inquire into the propriety of dividing the nerve as a remedy for traumatic neuralgia. In answer to this question, we may state that if the nerve is simply divided, sensation will probably return before the tissues implicated in the original injury have had time to recover their normal condition, and that, therefore, the operation will afford only very transient relief, and may have to be repeated several times. If, on the other hand, a portion of the nerve is excised, the restoration of the nervous function will be very much longer in taking place, but there will also be great danger that the repair will be incomplete or even that it may fail altogether, and thus entail permanent loss both of sensation and of motion. The deliberate removal of a long section of the nerve with a view to the permanent abolition of its functions can be but very rarely indicated, and then only as a *dernier ressort*, as the possible alternative of amputation. The rational treatment of these neuralgic affections seems to me to be based on the fact that their natural tendency is to recovery, if only we can keep the patient comfortable and thus induce him to wait for this tardy relief. This can only be effected by division of the nerve, or by the use, either local or general, of narcotics. The protracted use of opium internally in sufficient quantity to relieve the pain, will almost inevitably exert a most pernicious influence on the health, while mere local applications to the skin seem to have very little effect. The great benefit which has been derived from the use of hypodermic injections of morphia for ordinary neuralgia, naturally suggested the propriety of trying them in this affection, and the success which has attended the experiment has been most gratifying.”

Dr. Warren appends three cases of severe traumatic neuralgia, which have lately occurred in his practice, and which throw light upon certain points in the pathology and treatment of this painful affection. The first case is related as follows:—

“ *Severe neuralgic affection following a gunshot injury of the median nerve.*—In the second battle of Bull Run, Lieut. A—, of a N. H.

regiment, was struck by a ball on the outside of the middle of the arm. The ball passed obliquely through, traversing the biceps muscle, and coming out on the inside. For two or three days he was exposed to the weather, lying under the piazza of a house, having but little food, and with his hand constantly wet with the rain which was falling. The hand was benumbed, but he suffered somewhat with a sensation of heat in it, which was partially relieved by keeping it exposed to the wet. There was no pain in the wound itself. Shortly after he was removed to Washington, where he first experienced very severe pain in the whole hand, but more particularly in the part of it supplied by the median nerve. I saw him about a fortnight after the receipt of the injury. He was then in constant and severe pain in the hand, so much so as to require to be kept more or less under the influence of morphia, which he was taking to the amount of a grain a day. On examining the point at which the wound was received, a puckered eschar was seen with an induration extending deeply into the belly of the biceps muscle to which the skin was adherent. The situation occupied by the vessels and nerves on the inside of the biceps was also enveloped in a mass of indurated tissue. The first idea suggested by this state of things was to cut down upon the nerve, to divide it. It seemed, however, possible, by the gradual change going on in the tissues, that a healthy action might ultimately be set up, and, at the same time, the indurated tissue surrounding and compressing the nerve might be absorbed, finally relieving the nerve from pressure. The question was whether the sufferings of the patient could be sufficiently mitigated by artificial means to allow of the adoption of a temporising course. He was advised to place the limb perfectly at rest, wear it inside his clothes, next the body, and to have a sleeve made of sheet india-rubber to envelope the lower part of the arm, which covering was to be removed from time to time, the arm exposed to the air and washed with soap-and-water; he was directed to discontinue the use of the rubber sleeve if much irritation was set up in the skin, and to envelope the arm in flannel instead, which he had at all times found necessary owing to the great reduction of temperature. He went home to New Hampshire, and followed this plan for three or four weeks. At the end of that period he came to me again, with the desire of having the nerve divided, as his sufferings had become so intolerable, in spite of the use of opiates, as entirely to deprive him of rest. Before resorting to an operation on the nerve, I determined to try the effect of subcutaneous injections of morphia. Half a grain of sulphate of morphia, in solution, was injected deep under the skin of the forearm twice a day. He was at once placed in a state of comparative ease, and the evening injection gave him a good night's rest, such as he had not enjoyed for many weeks. This plan was followed up for a month with equally good effects; his digestion was not in the least affected by the use of the morphia, and he gained considerably in flesh. If, however, the dose was omitted, the pain became as bad as ever. It was therefore decided to perform an operation. An incision of three inches in length was made over the inner edge of the biceps, and the integument dissected on both sides separating the cicatrices, caused by the entrance

and exit of the ball from the subjacent tissues. The indurated mass which surrounded the vessels and nerves was now cut into, and the median nerve being discovered where it entered, was gradually laid bare and dissected out, so that it lay perfectly loose in the wound for an inch and a half or two inches of its length. It was thought best not to divide the nerve, but to await the result of the healing of the wound. The edges of the wound were loosely approximated, and water dressings applied. For some days the pain was entirely relieved, although from the effect of the habitual use of morphia, a small dose was required to promote sleep. As the wound began to heal, however, the pain returned, but was much less severe than before. Desiring now to return home, one of his family was instructed in the use of the subcutaneous injection of morphia. About two months afterwards he called on me, and again (March 20, 1863), four months after the operation. He was then in a state of perfect health, and had gained much flesh, but complained still of neuralgic pain in the hand, requiring the employment of the narcotic injection, whether from habit or not seemed to be a question. The arm, hand, and fingers had begun to acquire some motion. In regard to the local effect of the injections it may be said, that although they had been used twice a day for five months, he had never suffered from any irritation at the point of puncture, except in one instance, in the case of a freshly prepared solution of sulphate of morphia, the use of which was followed by the production of a large red blotch whenever it was injected. On substituting a solution of acetate of morphia no further trouble of this nature was experienced.\* The patient had, therefore, had nearly three hundred injections of morphia, more or less, and, with the above exception, no traces remained of its protracted use. Oct. 26, 1863.—I have just seen this patient, and find that he has recovered his health, and enjoys complete immunity from pain. The hypodermic injections were continued until the month of July, or about nine months from the receipt of the injury. He then by a great effort suddenly discontinued them, and has not used them since. The neuralgic affection, except during extreme changes of the weather, has left him. The forearm has recovered its natural sensibility; he has the power of complete flexion of the elbow, and of partial rotation of the forearm, while the fingers, which were formerly held in a state of extension, can now be approximated to the thumb, so as to make the hand useful for most of the ordinary purposes of life. This motion is continually improving.”

D. D. Gilbert on neuralgic affections after injuries of the nerves ('Boston Med. and Surg. Journ., vol. lxx, p. 340).

A. von Graefe, case of neurotomy ('Deutsche Klin.,' 1864, p. 199).  
 Prof. Schuh, cases of operation for facial neuralgia ('Wien. Med. Wochenschr.,' 1864, pp. 385, 401; 'Spit. Zeit.,' 1864, p. 73).

Prof. Remak on facial spasm ('Berlin Klin. Wochenschr., 1864, pp. 209, 221, 229).

\* This accident is probably to be explained by the common practice of adding free sulphuric acid to promote the solubility of certain specimens of sulphate of morphia. The acetate is very soluble in water.

*M. Laugier on suture of nerves* ('Gaz. Hebdomadaire,' 1864, pp. 454, 520).—Owing to an injury, both the radial and ulnar arteries, the palmaris longus, and the median nerve, had been completely, the flexor sublimis partially, divided; the arteries were at once ligatured. On the 13th June, when M. Laugier first saw the patient, there was no sensibility in any of the parts supplied by the median nerve; *i. e.* over the whole palmar surface of the thumb, index, and middle fingers, and over the outer part of the ring finger. It was only partially lost where the radial is distributed; thus, perfect over the dorsal surface of the thumb and first interosseal space, it was entirely wanting in the index and lower half of the dorsum of the middle fingers. The movements of opposition of the thumb were impossible. A silk thread was passed through the middle of the upper part of the nerve, entering about twelve millimetres above the wound; it was then passed in like manner through the lower end, and knotted; thus the edges of the wound were placed in apposition. No accident, attributable to this proceeding, appeared, but the same evening the sensibility appeared to be returning. Next day it was quite decided, and the thumb could be readily opposed to the fingers. The thread came away on the twelfth day; this was followed by evident inflammation of the nerve, lancinating pains along the thumb, index, and middle fingers, and diminished sensibility. Twenty days later the tactile sensibility was evidently becoming much more perfect; the patient could not only oppose, but circumduct the thumb. M. Laugier thinks that this case sufficiently shows the advisability of suturing the larger nerves.

M. Nélaton, after removing a neuroma of the median in the middle of the arm, and excising a piece of the nerve two centimetres long, sutured the two ends by a wire thread; in forty-three hours the sensibility and power of voluntary motion began to return.

## ARTERIES.

*A. G. Reid on the treatment of cases in which a large artery is wounded* ('Edinb. Med. Journ.,' ix, 1006).—In a report of surgical cases under the care of Mr. Spence, the author remarks, that "even in recent surgical works a rule is laid down, that in primary hæmorrhage no attempt should be made to tie the wounded artery unless it is bleeding. This law is certainly very applicable to small blood-vessels to which there is no direct guide, and which may be generally trusted to nature and compresses. But where the artery is of large size, such as the radial and upwards, there is no security from hæmorrhage without ligature of the vessel; and if from the position and direction of the wound it is suspected that the arterial trunk has been opened into, the incision should be enlarged in the direction of the course of the artery, and a ligature applied, if necessary. Two of the above cases illustrate this modification of the rule—the one shows the necessity of a careful examination of the wound, and the early application of the ligature; the other indicates the risks arising from delay. In C. C—the wound looked at first sight trifling; it was situated rather low down in the thigh to lead to the suspicion that the femoral was opened into, and but for the blanched appearance of the child, and the mother's state-

ment that there had been a great loss of blood, the real danger might have escaped observation. In order to examine the injury thoroughly, the patient was placed under chloroform. On inserting the finger into the wound, it was found to pass obliquely upwards; and on tracing the lacerated tendon of the adductor, the sartorius was felt divided, and the end of the femoral artery pulsating in Hunter's canal. In addition to this, a large accompanying vein was torn across, and the shaft of the femur laid bare at the seat of injury. Although, under these circumstances, there was great liability to gangrene of the limb, it was not deemed proper to adopt severe measures in the first instance, inasmuch as the patient was young, the bruising of textures limited, and there was no great effusion of blood to compress or prevent the collateral circulation. The wound was, therefore, extended in the direction of the course of the main vessel, and one end secured in Hunter's canal; the other, which had retracted into the popliteal space, was followed and tied. The recovery of the patient was uninterrupted and complete; but if the rule stated above had been neglected, there is every probability that, on the restoration of the natural force of the circulation, the clot would have been broken down, the hæmorrhage been repeated, and the already exhausted child have succumbed under the further loss of blood. In the second case, M. P—, a wound of the brachial artery was treated in the country for two weeks with compresses and bandage; but during that time there had been repeated attacks of hæmorrhage, which greatly exhausted the patient, and the wound had assumed such an unhealthy appearance, that it was impossible to continue the treatment. From the position of the wound over the bend of the arm, and from the occurrence of repeated bleedings *per saltum*, there could be little doubt that the brachial was opened into. In order to tie the bleeding vessel, the incision was extended, and the infiltrated textures separated by the finger. The round tendon of the biceps was then felt completely divided, and the semilunar fascia entire and stretched; but as the wound passed in the direction of the artery, the fascia was divided, and the lymph over the vessel broken down. After this, when the tourniquet was relaxed, blood was seen to issue from a puncture in the side of the brachial, just above the bifurcation; a double ligature was therefore applied above and below the opening. The arm was kept in a flexed position, in order to promote the union of the biceps. After this there was no recurrence of the hæmorrhage. In this patient the operation was much more difficult than in the former, on account of the infiltrated state of the tissues, and the great difficulty experienced both in separating them and in recognising the various textures. Two instances of suspected wound of the palmar arch were admitted some days after receipt of the injuries. As the patients were strong men, and little affected by the hæmorrhage, there was no great risk from bleeding, so long as they were under direct observation. Compresses were therefore placed directly over the wound and over the radial and ulnar, and secured by a firmly applied bandage. This, combined with flexion and elevation of the limb, proved sufficient to prevent further hæmorrhage."

H. Lee, two cases of ulceration of arteries ('Med. Tim. and Gaz.')



1864, i, 425). B. Holt, five cases of operation in which the vessels were secured by the wire ligature, and in which both ends were cut short and left in the wound ('Lanc.,' 1864, ii, 91). Dr. Weinlechner, ligature of the carotid in a child, æt. four years and a half ('Wien. Med. Halle,' 1864, p. 45). C. A. Pope, ligature of the common carotid ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 556). W. W. Keen, wound of internal maxillary, ligature of common carotid, &c.—death (ibid., vol. xlvi., p. 27). M. Mahon, ligature of common and external carotids for gunshot wounds of the face—recovery (ibid., p. 276). Dr. Markoe, wound of the carotid, injection of the persulphate of iron ('Amer. Med. Tim.,' 1864, i, 65). Dr. Armsby, ligature of the subclavian ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 564). Dr. Parker, ligature of the right subclavian inside the scalenus, together with the common carotid and vertebral arteries ('Amer. Med. Tim.,' 1864, i, 114). O. M. Humphrey on the ligature of the axillary or subclavian for secondary hæmorrhage (ibid., p. 161). Prof. Brainard, ligature of the common iliac ('Amer. Journ. of the Med. Sciences,' vol. 47, p. 565). E. Cock, ligature of the common iliac for aneurism (in "select cases of aneurism," 'Guy's Hosp. Rep.,' x, 207). J. B. Cutter, on ligature of the external iliac, with a statistical table of thirty-five cases in which this operation has been performed since 1846 ('Amer. Journ. of the Med. Sciences,' vol. xlvi., p. 36). Prof. Linhart, three cases of ligature of the femoral ('Wien. Med. Halle,' 1864, p. 185, &c.). P. S. Wales, ligature of the femoral ('Amer. Journ. of the Med. Sciences,' vol. xlvii, p. 551).

#### ANEURISM.

*T. T. Sabine, the treatment of aneurism involving the subclavian in such a part of its course that a proximal ligature is only applicable within the scaleni* ('Amer. Med. Times,' 1864, ii, 74, 89, 101, 116).—The author discusses in succession medical treatment, external applications, compression, galvano-puncture, injection, manipulation, amputation, distal ligature, and the proximal ligature. The successful employment of the last method is the great desideratum. "No other, excepting perhaps indirect compression, affords so safe, speedy, and effectual a cure as this; and hence in those cases which have been hitherto unsuccessful, it should be our aim to seek out and remedy, if possible, the causes of failure. This is the more important in subclavian aneurism where indirect compression is impossible, and the other methods inapplicable. These methods I have already briefly discussed, and the conclusion arrived at was, that none of them, excepting perhaps amputation, afford much, if any, chance of success. Amputation has never been resorted to, and hence all reasoning upon the subject can only be hypothetical; besides, amputation necessitates the loss of a most important member, in most cases the *right* arm, and ought not to be thought of if proximal ligature can be rendered a tolerably successful operation. Hitherto it has not been so, and I shall now discuss the different operations that have been performed, their causes of failure, together with two new operations which have not yet been tried, but either of which appears at present to afford good grounds for believing that they will prove

successful. One of these has been already spoken of by different surgeons; the other I have not heard mentioned, and therefore I do not know whether it is original with myself or not.

“Four different operations have been performed, viz., 1st. Ligature of the innominata; 2nd. Ligature of subclavian in the first part of its course; 3rd. Ligature of both subclavian and carotid, just beyond their origins. 4th. Ligature of subclavian, carotid and vertebral, just beyond their origins. Two new operations are proposed—viz., 1st. Ligature of subclavian, carotid, vertebral, mammary, and two or more branches of the thyroid axis, in fact every artery that can be reached that exerts any influence on the aneurism; 2nd. Ligature of the innominate, carotid, vertebral, mammary, and the three branches of the thyroid axis.”

*Ligature of the innominate.*—This artery has been tied thirteen times; all the cases ended fatally. “In whatever situation a ligature be placed, secondary hæmorrhage will almost inevitably occur and probably from the distal side, because a ligature could not, without very great difficulty, be applied much below the bifurcation, and hence there would be sufficient space for a proximal, but not for a distal clot. The question now arises—Supposing ligature of the innominate were a perfectly successful operation, would it arrest the progress of aneurism. I think not. There would still be the branches arising from the subclavian to keep up a circulation through the tumour, sufficient in all probability to prevent its consolidation. Of these the vertebral, owing to its size and very free anastomosis through the circle of Willis, would be the most effectual. The inferior thyroid, on account of its connection with the superior thyroid, together with the other branches of the thyroid axis, as well as the mammary and superior intercostal, would all act as preventing causes. Though the size of the tumour might remain stationary, or even diminish for a short time, it would increase as soon as the collateral circulation became pretty well established, which never takes very long.”

*Ligature of the subclavian within the scaleni.*—The author has collected nine cases of this operation, besides four in which other arteries were also ligatured; of the former two died from accidental causes, before the ligature had had time to separate. All the rest (seven) died from hæmorrhage. There appears to be little chance of both distal and proximal clots forming: “by as much nearer as the ligature is applied to the origin of the first branch of the subclavian, by so much does it increase the chance of formation of a proximal clot and diminish that of a distal, and *vice versa*. In such cases as these the difference of a single line, or even one-half line, may determine whether a clot is or is not to be formed. Ligature of the subclavian alone, in the first part, should be banished as a means of treatment.” Even if the operation succeeded, it seems probable for similar reasons to those already mentioned with reference to the innominate, that the aneurism would not be cured.

*Ligature of the subclavian and carotid.*—“Seeing the fatal results attending ligature of the subclavian alone, surgeons endeavoured to avert them by the above operation. In adopting it they had two objects in view: 1st, to insure a proximal clot; 2nd, to afford more space for a

distal one. The argument was this:—If a ligature be applied to the subclavian immediately at its origin, more room, it is true, will be afforded for the formation of a distal clot, but then there will be almost absolute certainty of an absence of a proximal one: if now a ligature at the same time be applied to the carotid, it will render a proximal clot, in the innominate, pretty certain, and the full advantage will be reaped of the greater amount of space afforded between the origin of the subclavian and its first branch. The carotid above the ligature will almost certainly be obliterated.” Three cases so treated have been recorded; they were all unsuccessful. From them, from the cases of ligature of the innominata, from those of ligature of the first portion of the subclavian or of the carotid, it may be concluded, that both the proximal and the distal carotid clots are pretty certain to form, but that the distal portion of the subclavian will remain open.

*Ligature of the subclavian, carotid, and vertebral.*—The chief obstacle to success being apparently the circulation through the vertebral, Dr. Parker tied it also; death followed on the forty-second day from hæmorrhage. The innominate, carotid, and vertebral were closed; the subclavian remained open.

*Ligature of the carotid, subclavian, and its branches.\**—The indications in the treatment of subclavian aneurism by proximal ligature are four. “1st. A practicable and tolerably safe operation; 2nd. The formation of proximal clots; 3rd. The formation of distal clots; 4th. The cure of the aneurism. The first, second, and part of the third are answered by the two operations last discussed. Part of the third, the distal subclavian clot, and consequently the fourth, are not. The indication to be met is, then, the formation of the distal subclavian clot.” The author thinks this operation both practicable and safe. “As to whether the second and third indications, the formation of proximal and distal clots will be answered by this operation, can best be seen by supposing a case in which the operation has been performed. Let such a case be taken, then, in which the arrangement of the arteries is normal, and ligatures be applied in the several positions indicated. From the experience derived from former operations, it may very safely be concluded that clots will form on the proximal sides of the subclavian and carotid ligatures, that is to say, in the innominata, and on the distal sides of the carotid and vertebral ligatures. In Parker’s case the proximal stump of the vertebral had ulcerated away, and therefore it is impossible to say whether a clot had formed or not. It probably had, and that for reasons given on a previous page. There is no reason whatever why clots should not also form on both sides of the mammary, inferior thyroid, supra-scapular, and trans. colli ligatures. The arteries are comparatively small, no branches are given off near the point ligated, and hence there is nothing to prevent such a result. I have thought it better to substitute ligation of the three branches of the thyroid axis for that of the axis itself. If the ligature be applied to the axis itself, there will not only be very little room for a proximal clot to form, on account of the shortness of the vessel, but the formation of a distal clot might be prevented by the current which would

\* Except the sup. intercostal.

pass from the inferior thyroid into the supra-scapular and trans. colli, as that would be one of the principal means for the establishment of the collateral circulation.

“Thus far everything promises success, and now the formation of the distal subclavian clot alone remains to be considered. The amount of space afforded by these additional ligatures, is much greater than has ever been obtained by any previous operation. It includes all that exists between the ligature and the sup. intercostal, which, as has been shown, arises within the scalenus in only 24 out of 158 cases—1 in  $6\frac{1}{2}$ . This amounts to  $1\frac{1}{4}$ — $1\frac{1}{2}$  inch. Can a clot form in this space? By referring to the statistics of the length of the innominate, it will be seen that in more than half the cases it was less than one and a half inch, and yet after its ligature a proximal clot formed in three out of four cases. If, then, a clot will form in an artery so large and so unfavorably situated for such a result, we ought surely to expect it in an artery so much smaller as the subclavian. Suppose now the branches of the subclavian are not normal, what will be the effect? They will arise within, beneath, or beyond the scalenus. If they arise within, they can easily be secured. If they arise beneath or beyond, they will have no effect in preventing the formation of a proximal subclavian clot.”

*Ligature of innominate, carotid, vertebral, &c.*—“This operation is the same as the last, excepting that a ligature is applied to the innominate instead of the subclavian. The objections to this are two. 1st. The difficulty of applying such a ligature. 2nd. The chance of a proximal clot not forming. The difficulty cannot be very great, as the artery has been tied thirteen times, and in four other cases the artery has been exposed, but the operation abandoned for other causes. It could easily have been tied in Parker’s case. The chance of a proximal clot not forming is a more cogent reason. I do not, however, think that need be feared, and for reasons already given under previous heads. The advantages are:—

1. A clot is almost certain to form in the subclavian, between its origin and the first pervious branch (sup. intercostal), extending thence into the innominate and carotid.

2. If for any reason the vertebral could not be ligated, or it should hereafter prove that its ligation is unsuccessful, there would still be room for a distal clot.

3. If the subclavian were found diseased more internally than was supposed, a more healthy artery, or rather a different artery, would be ligated.

4. The innominate is not in such close relation with important structures as is the subclavian, where the ligature is applied, *e. g.* the pneumogastric, sympathetic, pleura, &c. The above operation is one of my own proposal; at least, I have not heard it mentioned by any one.”

*D. L. Rogers, case of successful ligature of the innominata* (‘*Amer. Med. Tim.*, 1864, ii, 95).—The subject was a mulatto man of 33 years of age; the tumour was large, with a strong pulsation. On the 15th May, 1864, Dr. A. W. Smith, of New Orleans, applied a ligature to the arteria innominata, and to the right carotid about one inch above

its origin. "The wound was dressed in the usual manner, and the man removed to bed. May 28th.—The ligature came from the carotid. May 29th.—Hæmorrhage from the wound, but arrested by slight pressure. 30th and 31st.—The hæmorrhage returned. June 1st.—The hæmorrhage returning, Dr. Smith removed the lint, and filled the wound with small shot. June 2nd.—Ligature separated from the arteria innominata. June 17th.—A part of the shot removed from the wound, followed in a few hours by hæmorrhage. The shot returned. July 5th and 8th.—Hæmorrhage returned. Believing the hæmorrhage must be supplied by the vertebral artery, through the subclavian, it was determined to ligate the artery, and accordingly Dr. Smith secured the vertebral artery on the 9th of July. July 19th.—No return of hæmorrhage. The ligature separated from the vertebral artery this day. A doubtful pulsation may be felt in the right radial artery. The aneurismal tumour has disappeared. July 30th.—General health much improved since the last report. The wound is nearly closed. He walks about the ward, and is desirous of returning home." V. Mott adds to this report, that on the 9th August, "Dr. Rogers called on me (having arrived the day before from New Orleans), and stated that the aneurismal tumour had entirely disappeared, that the wound had healed, and that the man was well and walking about."

*C. H. Moore on a new method of procuring the consolidation of fibrine in certain aneurisms* ('Brit. Med. Journ.', 1864, i, 455).—"In February, 1863, Mr. Moore had been led to review the conditions of such aneurisms as could not be surgically treated through the artery, and had devised a method of producing consolidation of them in accordance with the mode of their natural cure.

"The principles involved in this method were the following:—  
1. Large aneurisms can only be benefited by the deposition of fibrine within them; 2. The natural means of obtaining fibrine from the blood are inadequate, because it can only settle in layers on the wall; 3. In the central part of an aneurism there is a large quantity of blood with fibrine ready to collect on any apt material; 4. Fibrine may be elicited from arterial blood, by exposing a foreign body in it. Two cases were quoted in which this had occurred; one, in which gangrene of the leg had resulted from plugging of the arteries, by fibrine detached from a needle in the left ventricle; the other, that of a sailor, who died three days after being shot, and in the interior of whose ascending aorta was a bullet imbedded in fibrine.

"The foreign body which, according to our present knowledge, would produce least irritation was wire. If a large quantity were coiled in an aneurism, it would attract fibrine, as the twigs do in whipping freshly drawn blood, support the mass which it entangled, and lead to the cavity of the aneurism being eventually filled. The wire might be passed in through a small canula, with care not to leave the last end in the minute wound, and not to direct a coil into the orifice of the artery.

"Only a sacculated aneurism could be so treated, not one which had two orifices, since fragments of fibrine would be broken off by the force of the current. Brasdor's operation might be previously required in

some parts. This danger might be incurred in a sacculated aneurism also, if wire enough were not introduced, because of the large intervals which would be left between the few coils of wire. The wire would remain in the solidified aneurism, and be harmless."

A case is then related of saccular aneurism of the ascending aorta projecting through the anterior wall of the left side of the chest, in which this treatment was employed. "The operation consisted in the introduction of a quantity of fine iron wire into the aneurism, with the object of inducing coagulation. A small pointed canula was inserted into the tumour, and the wire was passed in through this without difficulty. The operation occupied one hour, and the quantity of wire introduced was twenty-six yards. It gave rise to no pain or inconvenience except a slight and transient feeling of faintness. The quantity of blood lost did not exceed half a fluid ounce. The immediate effects of the operation were a reduction of the pulse from 116 to 92, an almost complete cessation of the pulsation in the tumour, and a diminution in its size. Immediately before the operation, the circumference of its base was sixteen and three quarter inches; at the close of the operation it was sixteen inches. These changes began to be noticed soon after the commencement of the operation, and became more marked as it was proceeded with. At 11 $\frac{1}{4}$  p.m. the patient was asleep, and his pulse was only 78. He slept comfortably during the night, and had no bad symptom until the following morning." He was then attacked by a severe rigor, followed by great pain, violent action of the heart, intense thirst, &c. Death occurred in four days and twenty and a half hours after the operation. "An autopsy was performed a few hours after death. The walls of the external tumour were formed by the integuments and fibres of the pectoral muscle, infiltrated with serum. They were nowhere less than a quarter of an inch in thickness. The skin covering a great part of the tumour presented a deep livid hue. The interior of the tumour was filled, for the most part, with a fibrinous coagulum, enveloping and imbedded in the coils of wire, and firmly adherent to the surrounding walls. The rest of the cavity contained fluid black blood. The interior of the outer tumour was nowhere lined with a prolongation of the arterial coats; but it communicated with the proper aneurismal sac within the chest by two large openings in the first and second left intercostal spaces, the intervening rib being bare and eroded, and at one place broken through. The aneurismal tumour within the chest was about the size of a man's fist. It lay immediately behind the sternum; it encroached slightly upon the upper lobe of the left lung, and inferiorly it rested upon the right auricle. It was partially filled with a fibrinous coagulum, which was continuous with that in the outer tumour, and was adherent at one part over a space measuring about one third of an inch in diameter. It communicated by a circular opening, scarcely so large as a sixpence, with the ascending aorta. Through this opening a clot projected from the aneurism into the vessel, and extended downwards into the heart, and upwards into the arch. The greater part of this clot was evidently of post-mortem date; but part of it, close to the opening, was pale, firm, and laminated." The effects of old disease of the lungs and of recent

pericarditis were also found. "Both kidneys contained a number of circumscribed abscesses, varying in size up to that of a small pea."

"Three facts appeared to Mr. Moore to justify a repetition of the operation, or of some modification of it:—1. The separation of fibrine upon the foreign body, and its rapid deposition. 2. The exemption of the inner aneurism from inflammation, probably to be accounted for by its possessing a lining membrane, which the outer cavity had not. 3. The firm adhesion of the clot to the wall. Not having yet thought of a more suitable foreign body than wire, he had but two modifications of the operation to suggest: 1. The introduction of a smaller quantity. The objections to this had already been pointed out. 2. The use of slender needles as temporary means of procuring the consolidation of the fibrine. The safety of this must depend on the number of needles which might be inserted, the gentleness with which they should be withdrawn, and the period at which fibrine so procured should acquire a sufficiently firm attachment to the wall of the aneurism to allow of the artificial support of the needles being dispensed with."

Mr. Sheppard, aneurism of carotid cured by compression ('Med. Tim. and Gaz.,' 1863, ii, 643). Prof. Oppolzer, case of aneurism of the subclavian ('Allg. Wien. Med. Zeit.,' 1863, pp. 187, 194). H. Davies, aneurism of innominata and subclavian, in which distal occlusion occurred ('Lond. Hosp. Rep.,' i, 1). C. H. Fagge, aneurism seated on an abnormal main artery of the lower limb ('Guy's Hosp. Rep.,' x, 151). M. Gayet, case in which a knife passed through the profunda femoris and opened the corresponding vein, treated by digital compression, ligature of the external iliac, and ending in death ('Gaz. Hebd.,' 1864, p. 166). C. J. Bracey, cases cured by compression ('Med. Tim. and Gaz.,' 1864, ii, 221). M. Broca on the diagnosis of *embolism* ('Gaz. d. Hôp.,' 1864, p. 3).

#### VEINS.

*M. Blachez on facial phlebitis* ('Gaz. Hebd.,' 1863, p. 716).—This variety of phlebitis has some special characters, owing to the anatomical arrangement of the veins, and their free anastomoses with the intracranial sinuses. At 11 a.m. on the 16th July, 1863, a soldier, aged 43 years, was admitted under Dr. Gérier at the Gros-Caillou Hospital. He had been ill for some days with fever, redness, and slight swelling of the forehead; these symptoms were attributed to erysipelas, and emetics were administered, but without success. On his admission he was found to be delirious; the skin on both sides of the nose, over the eyelids and the forehead, was red; the swelling extended some distance further under the hair; the palpebræ were œdematous and could be separated only so far as to show the presence of chemosis. The redness was not uniform, but in patches of a slightly livid hue along the fronto-temporal veins. The latter as prominent, hard, violet-coloured cords.

At 4 p.m., the delirium was becoming more violent, and in the evening it became necessary to apply the strait-waistcoat. The pulse became small and irregular; coma followed, and death at 2 a.m. At the post-

mortem examination the brain and its membranes appeared normal; the cavernous and circular sinuses were full of pus; the right internal jugular was for a short distance filled with a soft red clot. There were two large ulcerations of the mucous membrane in the nasal fossæ. The ophthalmic vein was full of pus. Both lungs were adherent by means of yellowish soft false membranes; in the right pleural cavity there was some fluid pus, and there were numerous metastatic abscesses in the lungs.

The author considers that the morbid process sprang from the ulcerations in the nasal fossæ, the inflammation then spread along the frontal and ophthalmic veins to the cavernous sinus. Cases of facial phlebitis have been observed in furuncle, &c., of the face (vide Güntner in 'Year-Book,' 1862, p. 166).

M. Dubreuil has published ('Gaz. Hebdomadaire,' 1863, p. 764) two cases of facial phlebitis with furuncles; one recovered and the other died; in both cases there were orbital abscesses.

H. Lee, obliteration of varicose veins ('Brit. Med. Journ.,' 1864, i, p. 87, 118). F. C. Skey on varicose veins ('Lanc.,' 1864, i, 1). M. Sistaeh, statistical studies on varix and varicocele ('Gaz. Méd. de Paris,' 1863; 'Arch. Gén.,' 1864, i, 609). L. Ellinger on the injection of Liq. Ferri Sesquichlorati into varicose veins ('Arch. für path. Anat.,' xxx, 1).

*Transfusion.*—P. L. Panum, experimental researches ('Arch. für path. Anat.,' xxvii, 240, 433; xxix, 241).

*Hæmorrhage.*—M. Dolbeau, &c., on hæmorrhage from abscesses ('Med. Times and Gaz.,' 1864, i, 487). J. Y. Simpson on acupuncture ('Med. Times and Gaz.,' 1864, i, 1, &c.). A. Hamilton, cases of acupuncture ('Edinb. Med. Journ.,' ix, 630, 662). J. Dix on the wire compress as a substitute for the ligature (ibid., x, 207). W. B. McKinlay, case of secondary hæmorrhage in which the femoral, external iliac, and afterwards the common iliac, arteries were tied, recovery (ibid., ix, 808). W. Eddowes, case of secondary hæmorrhage ('Brit. Med. Journ.,' 1864, i, 93).

*Hæmorrhagic diathesis.*—D. Foot, case ('Dubl. Quart. Journ.,' vol. xxxvi, p. 449)

*Vascular tumours.*—M. Broca on the structure of erectile tumours ('Gaz. des Hôp.,' 1863, p. 536). A. Hermann ('Prog. Viertelj.,' 1863, iv, 159; 1864, i, 104; 1864, ii, 128). R. B. Carter on the subcutaneous injection of perchloride of iron ('Med. Times and Gaz.,' 1864, i, 683).

#### TUMOURS.

T. Holmes distinguishes from congenital cysts properly so called, an affection which he calls the *congenital innocent tumour* ('Lanc.,' 1864, i, 575, 605). He describes it as "a solid tumour, developed before birth, and sometimes growing with great rapidity in the early days of life, so as to threaten to prove fatal, either by exhaustion or by its pressure on organs in the neighbourhood." He has met with these tumours in the neck (three times), on the nape and back of the head, in the orbit, and (a doubtful case) in the pharynx. The disease appears to have no character of malignancy except rapid growth. Cysts are very common in



these tumours, and in many of them the cysts form the greater part of the whole mass; their presence, however, appears to be an accidental circumstance, caused merely by the mode of growth.

As to diagnosis, the disease may be confounded with degenerated nœvus or cancer. "The diagnosis is usually not difficult if the surgeon is aware of the general history of congenital tumours. Many of these tumours are quite separate from the skin, and in these cases their hard lobulated feel, and perfect independence of the circulation, distinguish them from nœvus, especially if they are seen at a very early age, when a nœvus of any large size could hardly be reasonably expected to have passed through all its stages of growth and arrest. But in some instances the skin adheres to the tumour, and shows traces of nœvus, and the more care is required in weighing the various symptoms and appearances, especially if there be cysts in any part of the tumour. But the great practical consideration is, that the mass is growing rapidly. This proves both that the tumour is not a transformed nœvus, and that it must be removed, since the weakly condition of a young infant cannot afford to support a rapidly growing tumour. As to the diagnosis from cancer, the congenital occurrence of the tumour, and the otherwise perfect health of the child, will usually suffice."

In regard to the treatment, Mr. Holmes writes that "the personal experience which I have detailed above, though limited to six cases, is enough to show how different is the course of the disease in different cases. In the first two the growth was so rapid as to prove fatal at a very early period of life; while in the third the tumour had remained nearly stationary for several years. On the strength of this case alone, I would dissuade any attempt at removal in situations involving danger, unless the fact of active growth be established beyond question, as it was in that case, by careful observation of the progress of the disease while the child was an out-patient. On the other hand, those cases in which the whole side of the neck becomes filled up, and the face trenched upon by a rapidly growing mass, in which cysts are developed, are very probably from the commencement incurable, in consequence of the deep position and extensive connections of the disease, even at the time of birth. Again, in some other cases, where there is nothing to be detected except two or more large cysts, with some uncertain solidification at their base, the disease may be a true instance of the multilocular cystic tumour, and the feeling of solidity at its base may be due, not to the presence of any morbid tissue subject to rapid growth, but only to the traction or the pressure of the superjacent cysts.

"It would be unreasonable to recommend similar treatment for such different cases. I think, however, that it may be laid down as a rule that congenital solid tumours, when not situated in dangerous positions, had better be removed while they are at their smallest size, since we may not afterwards have them under our own observation, and it is not safe to trust to that of mothers and nurses. In such situations as the neck, where these tumours are far more common than elsewhere, we must act according to circumstances. If it be necessary to interfere at all with the tumour, and the latter be of only moderate size, the choice of removal or of measures directed to the obliteration of the cysts is

presented to us. Removal is at all times difficult, and may prove impossible. These tumours, as far as I have seen, always dip beneath the deep cervical fascia, and it is utterly impossible to know to what extent they reach, or what structures they may overlap or inclose. The carotid sheath or the œsophagus may be so surrounded by the growth as to render the removal of the latter impossible. This was so in Mr. Arnott's case, quoted by Mr. Hawkins, and it would, I dare say, have been found to be so in my first case had I been driven to attempt the removal of the tumour. Of course, the relations of a tumour in the anterior triangle are far more formidable than in the posterior, though even the latter are sufficiently embarrassing in many cases. Still I have given an instance of the removal of such a tumour with apparent success; and even in Mr. Arnott's case, though the operation could not be completed by the total removal of the deep part of the tumour, the patient is said to have ultimately 'done well.' These are encouragements to proceed somewhat boldly in cases where the tumour is growing rapidly, and where, therefore, we have reason to think that life will not be protracted very long; but the limit between justifiable boldness and fool-hardiness must be fixed by each surgeon for himself. Pressure on the jugular vein, interference with deglutition, projection into the mouth, would in most cases contra-indicate the attempt at removal, as would enormous extent of disease.

"If so little solid structure can be made out that the surgeon is doubtful whether the disease is not purely cystic, of course the obliteration of the cysts will be the first measure indicated. If such means do not succeed in checking the growth of the tumour, it will then be time to think about more radical measures. I have seen such striking success from the injection of tincture of iodine into these cysts of the neck, that I should not think of employing any other measure at first. If this fail, and still the solid part of the tumour is not increasing, setons may be tried. If an attempt be made to dissect out the cyst or cysts, a very free opening should be made by crucial incision, and large flaps of skin be turned back from the tumour. Every part of the cyst should if possible be removed. I have noticed in two of the above cases, that I left small fragments of some of the cysts; but this was done only as a *pis aller*; in one case because the child was dying, in the other because I could not distinguish the cysts from the skin. I related the third case to the Pathological Society a few weeks since, when the president mentioned a case in which, in removing a cyst, a portion had been left adhering to the subclavian vessels, and where the cyst reappeared after many years of apparent health. This uncertainty on the vital question, whether it will be possible effectually to remove such tumours, is another reason for abstaining from the attempt as long as it is justifiable to do so. But in the diffused and rapidly growing tumours I believe total extirpation is the only remedy, and such of them as are beyond the reach of that measure I believe to be incurable. Injections are inert in these formidable affections; setons and caustics appear rather to hasten the fatal event. Perhaps the least hopeless plan, when total removal is impossible, would be to lay open the cysts freely, and repeat this from time to time as fresh

cysts might present in the first wound; but although I tried this measure in the second of the cases above detailed, it certainly proved inefficient in checking the disease."

*Mr. Paget, clinical lecture on tumours under moles* ('*Med. Tim. and Gaz.*,' 1864, i, 58).—The occurrence of melanotic cancers under or in moles or pigmentary nævi has been long known. Among the cases of this disease, having their primary seat in or near the skin, more than half have thus grown in close relation with moles. Hence, "if a patient have a tumour growing in or beneath a mole, it must be considered as most likely a melanotic cancer; or, if we have an increasing outgrowth from a mole, epithelial cancer must be suspected. And if in any one, especially an elderly person, a mole begins to grow prominent, or to become more vascular or more irritable, it had better be forthwith cut out or destroyed with caustic. I have known cases in which, when moles were quickly increasing, and changing just like those that have afterwards become seats of melanotic cancer, their total destruction has been the end of all mischief. Of course, I cannot be sure that these would have become cancerous if they had been left; but I believe that, at least some of them would, and that the rule for the destruction of all growing like them is a good one. If the formation of cancer be not quite averted by it, it may be deferred, as it seemed to be in a case I have lately seen. A patient had many pigmentary moles in his back. Five years ago one of them began to grow, and Sir Benjamin Brodie destroyed it with caustic. The scar remained sound until a few months ago, when an epithelial warty cancer began to spring up from it."

Mr. Paget has also seen three examples of another kind of tumour, which he describes in the following manner:—"Growing on the back of the trunk, they lie imbedded in the subcutaneous fat. They are roundly oval, moderately well defined to the touch, closely connected with the structures round them, very firm, heavy, dully elastic, feeling like fibrous tumours. The skin over them is raised and thinned by their growth; adherent, but not confused with their surface; and, in addition to the dark tint of the mole spread over part of the surface, the skin has a dusky, or ruddy and glossy, tint of diffused vascularity; and enlarged veins ramify over it, or away from it. The skin, or the tumour beneath it, has been in two cases the frequent seat of hot, burning pain; in the third there was no pain. The section of the tumour has a lowly nodular, or tuberous outline, easily separable by dissection from the surrounding skin and subcutaneous tissue. The cut surface appears divided by whitish tissue into lobes and minuter lobules, much like those of secreting conglomerate glands. It is very pale, grayish-white, with tinges of yellow or pale purple, smooth on its section, and glistening. It may have minute cavities filled with fluid, or one or more larger cysts, containing serous fluid or grumous matter. The substance is firm, but brittle, easily breaking into small fragments, yielding on pressure or scraping only some yellowish clear fluid, and no turbid fluid like cancer juice even after it begins to decay. The microscopic appearances are too various and indefinite for any useful minute description."

“There is sufficient in these structural characters to prove the occurrence of a form of tumour which, so far as I know, has not hitherto been described; but there is not enough of what is definite to justify the giving of a new name. More specimens must be examined before this can be safely done. Meantime, it may be held that moles are, even more than has been supposed, apt to be the seats of the growth of tumours, and that among the tumours likely to be found in or beneath them are some which are neither epithelial nor melanoid cancers, and which, probably, are not cancers at all. One of the cases, indeed—the second—has now remained well, without any recurrence, for more than four years after the removal of the tumour—a period much longer, almost certainly, than that which would have elapsed after the removal of a deep-seated epithelial or a melanotic cancer.”

*W. Ferguson on the removal of skin in the excision of tumours* ('Lanc.,' 1864, i, 691).—“In the removal of tumours which are prominent on the surface, it is a common practice to include an elliptical portion of the skin. Now, excepting in instances of cancer where this texture is involved, and a few rare exceptions, I consider this to be a great error. For cysts on the scalp of or above the size of a walnut, this practice may be said to be the rule; yet the loose bag of scalp, if one is left, will very speedily contract to its natural dimensions, while when an ellipse is taken away there is apt to remain a broad, white, bald cicatrix. In removing an enlarged testis, the custom is to take away a portion of skin too; yet the scrotum is so contractile that soon after, although only a slit be made in the skin, it will appear less voluminous than on the untouched side. The contraction of the skin in this locality is well exemplified in instances of large hydroceles where, after the radical cure, the scrotum soon assumes its normal size. It is seldom, indeed, that I remove any portion of the skin when it is merely stretched and attenuated over the disease.”

R. Virchow and Prof. Breslau on the statistics of tumours ('Arch. für path. Anat.,' vol. xxvii, p. 425; vol. xxviii, p. 556). C. O. Weber on the implication of the vessels, more especially of the capillaries, in tumours (l. c., vol. xxix, p. 84). N. Friedreich, cases (l. c., vol. xxvii, p. 375). M. Nélaton on the destruction of tumours by electricity ('Gaz. Hebd.,' 1864, pp. 520, 530). T. Billroth on the origin of fibroids ('Arch. für klin. Chir.,' iv, 545). A. Hermann on sarcomatous tumours ('Prag. Viertelj.,' 1864, iii, 71). H. W. Berend on congenital tumours, ('Berl. Klin. Wochenschr.,' 1864, p. 243). C. Küttner on cavernous tumours ('St. Petersburg. Med. Zeitschr.,' vi, 202). M. Gosselin, hematic tumour of the buttock—cyst with a fibrous wall ('Gaz. des Hôp.,' 1864, p. 58). B. Holt, large serous cyst protruding beneath Poupart's ligament, &c. ('Med. Circ.,' vol. xxiv, p. 41).

#### MALIGNANT TUMOURS.

*H. C. Bastion on the mode of origin of secondary cancerous growths* ('Med. Mirror,' 1864, p. 622). “The following theories have been advocated by different pathologists to account for the production of this species of new formation:—

*First.* By inoculation, owing to the actual transference of cancer-cells from the primary disease to the secondarily affected part, by means either of the circulation in the (a) veins, or in the (b) lymphatics, with their arrest and subsequent growth in these situations.

*Second.* The contamination of the distant part (through the same medium either of blood-vessels or lymphatics by means of certain ichorous juices or cancer-blastemata, which are supposed either (a) to produce some specific irritating effect upon the natural tissues, or (b) to have the power of developing these by acting themselves as germs or rudiments for the production of the new growth.

*Third.* The formation of the secondary growth, independently altogether of the primary, save and except its being an additional manifestation of an error of nutrition, similar to that which has caused the first growth, which abnormal tendency may be due either (a) to congenital, and perhaps hereditary tendencies in the organism itself, or may be, as it were (b) a mere accidental and acquired deviation from the natural laws of growth and development; or, lastly, according to other views, these independent secondary formations are held to be due to the intensity of 'blood disease,' and consequent dyscrasia.

I. (a) With reference to the first supposition, that secondary cancer is induced by cells of the primary growth conveyed to a new site by means of the blood circulating in the veins, it is now admitted that this could only occur from cancerous disease of the walls or lining membranes of the vascular system, and more especially of the veins. In these cases portions of the cancer project into the current of the circulation, and cancer-cells may be swept off by the rapidly moving blood. Yet this "theory does not seem to be at all borne out by the usual sites in which we meet with these secondary growths, since the order of their production is by no means coincident with the course of the circulation. In numberless instances, when if this mode of propagation were potential we should expect to find cancer in the lungs, none is met with, whilst it is found in the liver, where theory does not require its presence. Then, again, granting that cancer-cells are swept off into the current of the circulation, and arrested in the capillaries of certain organs, if this is to be the origin of cancerous new formations, what are we required to believe? Certainly things of which hitherto we have not had the slightest approach to what may be considered a distinct proof. We should have, for instance, to believe that one or several cells, separated from the parent formation, retained a sufficient degree of vitality and reproductive power to develop a growth similar to that from which they or it had been derived, and this, too, in a situation where, I believe, as yet we have no evidence of new formations ever being produced, viz., free and unattached, within the vessels themselves. And if this method of growth seems improbable when the cancerous matter is, as it were, driven into a *cul-de-sac* in the capillaries, it seems even more improbable that cancer-cells should become fixed, and grow on the inner surface of a large vein in the direct current of the circulation."

(b.) Respecting the transmission of cancer-cells by means of the lymphatics, almost nothing is known, although, owing to the frequent

implication of the adjacent glands, the agency of the lymphatics appears very probable. Virchow has, however, pointed out, that solid elements would necessarily be arrested at the first gland, and that thus the progress of the cancer would be stayed till this, in its turn, acted as a fresh centre of infection.

II. (a) Prof. Virchow is the great advocate of the opinion that secondary cancerous growths are produced by means of a specific irritation set up in the affected part or organ by certain ichorous juices derived from the primary cancer, and circulating with the blood. It seems doubtful, however, whether the degree of malignancy of a cancer is to be always measured by the amount of parenchymatous juices which it contains. If we yield this position, we shall find "that the hypothesis requires the aid of two or three rather remarkable postulates to lend it support. We have to imagine that this cancerous juice, even when diluted to the extreme degree, that it must be by being mixed with the whole mass of the blood, not only possesses irritating properties capable of exciting certain morbid processes in particular parts of the system, but irritating properties of such a *special* nature as to cause the tissues acted upon to produce a growth similar in general characters to that from which the poisonous blastema was itself derived, and these effects, too, be it remarked, are supposed to be produced by a fluid which, for aught we know to the contrary, and which all positive knowledge would lead us to believe (saving the exigencies of certain hypothesis), to be as bland and non-irritating in its nature as any other albuminous or fibrinous fluid in the body."

(b) Mr. Paget believes that cancer-*blastema* getting into the current of the circulation and becoming arrested in certain organs, has the power of *developing out of itself* the germs of a new cancerous growth. But how this could be effected, seems almost inexplicable, when we consider that this liquid blastema must necessarily, soon after mixing with the blood, be diffused through this vital fluid and thus be reduced as it were to a solution of extreme tenuity. The same difficulty, too, presents itself as in the case of the cancer-cells, as to how and where any of this blastema could find an undisturbed resting-place in which to develop. Of course the very possibility of such an occurrence as the origination of cancer-cells out of a perfectly homogeneous blastema, would be strenuously denied by all advocates of the cellular pathology, whose watchword is *omnis cellula e cellula*.

III. "We may also consider these secondary cancerous growths to have been produced in a manner entirely independent of direct influence from the primary formation, and to be developed under the agency of the same conditions that gave rise to the first growth. In many cases, indeed, of nearly simultaneous development of cancer in various parts or organs, the growths must almost necessarily be produced in this independent manner. In the language of the humoral pathologists, who look upon cancers as the 'local manifestations of certain specific morbid states of the blood,' wherein 'are incorporated peculiar morbid materials which accumulate in the blood, and which their growth may tend to increase,' this simultaneous or independent development of multiple cancerous growths, would be attributed to the 'intensity of the can-

cerous cachexia.' But it may be explained also in a manner in harmony with the general doctrines of the cellular pathology; and that, too, I think, with the greatest deference for the learned and philosophical founder of this school, without the necessity of having recourse to the supposed irritating effects of cancerous juices. For, in reality, what necessity is there for us to resort to other methods to explain the production of these secondary growths, different from those which are supposed to have given origin to the first? They are all tumours or new formations, and hence all alike come, in the apt and terse language of Paget, to be considered not only as hypertrophies, but 'parts overgrowing, and as overgrowing with appearance of inherent power, irrespective of the growth or maintenance of the rest of the body, discordant from its normal type, and with no seeming purpose.' The same errors of nutrition—whatever be their nature—that were sufficient by their deviation from the ordinary equable and normal mode of development, to give rise to these local manifestations of abnormal but inherent powers of growth, would surely be adequate to the production of other growths of a similar nature in different parts of the body. It seems difficult to conceive any reason why, when we meet in the body with several new formations of a similar nature, it should be thought necessary—in the face, too, of so many difficulties—to assume that the first has been, in some obscure way, causative of its successors, when we have every right to imagine that the same causes were in operation during their production, as existed and probably helped in the genesis of the first."

"Seeing, as we do, from actual observation, how frequently these so-called malignant growths are produced in a multiple manner, we may assume that there is an inherent tendency in the organism to the production of growths of this particular nature; just in the same way as we must suppose something similar to account for the extraordinary number of fatty or fibrous local aggregations, in the cases of multiple tumours of either of these types, which are from time to time met with in the body of the same patient. And the difference between the two cases seems to be this, that whereas in the case of fibrous tumours it is but rarely that such a disposition is manifested, and the progress of the several growths is for the most part slow; whilst, on the other hand, with cancerous products, this seems to be the rule, that the state of system, or tendency in the organism, which results in their formation, is of such a tendency and superior activity as to lead for the most part to the production of rapidly increasing growths in different parts of the body, either simultaneous or successive. And just as this tendency is capable of producing obvious and sensible alterations in nutrition, so may it also be capable of producing other *obscure and imperceptible* changes in the general nutrition of the body, such as fully to account for those cachectic conditions of the system so often met with, over and above what may fairly be ascribed to the effects of local irritation and ulceration produced by the various growths themselves. The fact that where many cancerous formations exist in the same body, these are mostly found to be of the encephaloid type, may be only an index of the intensity of the diathesis; which is also borne out by the rapidity of their growth, and by the fact of their scarcely ever passing

beyond the cell stage of development, and hence does not at all require that we should have recourse to the agency of their parenchymatous juices to explain this plurality. We can readily imagine that a tendency of the organism so marked as this is seen to be from its results, may in many cases be handed down from parent to offspring, just in the same way as we see a close resemblance to the parental type in other respects, such as personal appearance, voice, manner, and mental peculiarities. But I see no difficulty either in our imagining that such a tendency or peculiarity of the organism may be also acquired in the course of life, through the slow and steady operation of certain hidden physical agencies operating upon the body; more especially when the activity of the processes employed in healthy nutrition are on the wane, at that post-meridianal epoch of life in which cancerous growths are most prone to form in the system."

*C. Fleming, case of epithelial cancer* ('Dubl. Quart. Journ. of Med. Science,' vol. 37, p. 239).—Notwithstanding excision on two occasions, the use of potassa fusa, and the application of the actual cautery, the growth, which was seated in the popliteal space, recurred. "I now had recourse to 'Burnett's Disinfecting Fluid,'—a remedy which I had found, on not a few occasions, very valuable in the treatment of cutaneous cancerous or cancroïd growths, much similar in their nature. It often arrested their progress very efficiently, and the resulting granulating surface cicatrized smoothly and permanently so. A similar result took place in the above case; and, more than twelve months having since elapsed, it is reasonable to hope that the cure will be permanent." The application causes pain, but not for any long duration.

M. Bergeron on chlorate of potassa in cancroïd ('Gaz. des Hôp.,' 1863, p. 603). M. Bauchet on cancroïd (l. c., p. 527). A. Lücke on encysted epithelial cancer ('Arch. für path. Anat.,' vol. 28, p. 378). C. O. Weber on the development of epithelial cancer in internal organs (l. c., vol. 29, p. 163). A. Hermann on cancer ('Wien. Med. Halle,' 1864, p. 32, &c.). Dr. Ritter, congenital carcinoma of the skin ('Arch. für klin. Chir.,' v, 338). W. Eddowes on operations for cancer ('Brit. Med. Journ.,' 1863, ii, 628).

#### BONES.

*E. v. Wahl on phosphorus-necrosis* ('St. Petersburg. Med. Zeitschr.,' vi, 212).—So long as lucifer matches were manufactured in large and well-ventilated works, no cases of this disease were observed in Russia. But since these establishments have been closed, owing to certain regulations of the government, cases have appeared at various hospitals; the workmen, indeed, continued in secret to make the matches in their cottages under the most unfavorable technical and hygienic conditions.

Among the symptoms the author gives violent neuralgia in those parts to which the branches of the fifth nerve passing through bony canals—especially the infra-orbital and mental—are distributed. When the pain ceases, the corresponding portion of integument is generally found to be completely anæsthetic, showing that the nerve has been destroyed by the previous inflammation. Thus the author treated for



acute phosphorus-periostitis of the lower jaw a patient who, after most violent neuralgia in the right side of the lower lip and chin, had circumscribed anæsthesia to such a degree, that needles passed to the bone caused no pain.

The prognosis is unfavorable in only the more acute cases. Phosphorus-caries and circumscribed periostitis, accompanied by a decided tendency to the production of osteophytes and plastic regeneration, may last for years without injury to the general health, and disappear with the removal of the noxious conditions. Even when in such cases a sequestrum is thrown off, extracted, or removed by partial excision of the jaw, little or no deformity or loss of power ensues. Worse are the cases in which the periostitis rapidly spreads, in which it presents from the very commencement a destructive character, and does not allow the formation of a bony case, which, after the removal of the dead jaw, will preserve the form of the part, or enable the patient to retain the saliva and to masticate. In such cases we must not trust to the disease becoming stationary. Long after the patients have been removed from the exhalations of phosphorus, we see one tooth after another become painful, loose, and finally fall out; and, if we introduce a fine exploratory trocar at any part of the gum, we find that the periosteum is separated, and the bone extensively bared. It is in these cases that, after removal of one half of the jaw, the periostitis spreads further, and necessitates in time the removal of the other half. Such was the fate of the first exarticulation, performed by Heyfelder in 1845—in the case of Margarethe Rumpler, who after submitting to a second operation by Stadelmann in Nürnberg died from periostitis of the skull and hectic fever. The rapid extension of the disease, especially to the bones at the base of the skull—the latter may cause purulent encephalitis—renders the prognosis very unfavorable, and demands early and active interference by the surgeon.

As to the treatment, the surgeon may wait in chronic cases for the spontaneous separation of the dead bone, merely extracting loose portions, provided the general health does not suffer and the discharge is moderate. In a pamphlet published in 1852,\* which has attracted but little attention, Geist has related a case in which, after continuance of the disease for five years, the dead lower jaw was completely surrounded by solid new bone.

When the disease is very acute, when the periostitis rapidly spreads, and the general health suffers much from the sanious discharge, the pain, &c., there should be no delay—subperiosteal resection of the affected part should be at once performed. As the limits between healthy and diseased tissue cannot be accurately determined, further operations will often be required. The advantages of early operation are—

1. With the dead bone the cause of the ichorous, exhausting discharge is removed; the patient gains strength so that he can bear further disease with less danger.
2. The soft parts do not retract so far; the remaining portion of the

\* 'Ueber die Regeneration des Unterkiefers nach totaler Nekrose.'

jaw and the thickened soft parts give sufficient support where the bone has been excised.

3. The bone is more likely to be regenerated, on the one hand because the periosteum is less damaged, on the other because the patient is in better condition. No regeneration takes place if the operation is delayed too long.

The author sums up the more important practical results to the following effect:—

1. Phosphorus-osteomyelitis occurs in a more acute or chronic form according to the intensity of the poison and the individual predisposition.

2. The treatment may be expectant or operative;—in chronic cases the former with proper attention to the general health, in acute the latter.

3. The operation must be performed at a very early period. The surgeon should not wait for demarcation of the disease, but remove the whole part that is already dead—with the anticipation of later recurrences. The rules of general surgery cannot be applied to the acute form of osteomyelitis caused by phosphorus.

4. In the operation the periosteum should be preserved as much, and the external soft parts injured as little, as possible.

F. Wulff, cases of disease of the facial bones from phosphorus ('St. Petersburg. Med. Zeitschr.,' vi. 225).

*Inflammation of bone.*—H. Demme, case of osteomyelitis epiphysaria multiplex ('Wien. Med. Halle,' 1864, p. 217, &c.). A. Gamet on osteomyelitis epiphysaria ('Arch. Gén.,' 1864, i, 225).

R. Volkmann on the histology of osteitis and caries ('Arch. für klin. Chir.,' iv, 437).

*Necrosis.*—Dr. Page and Mr. Porson, two cases of necrosis of the bones of the great toe ('Brit. Med. Journ.,' 1864, ii, 58). R. Volkmann, necrosis from embolism after endocarditis ('Arch. für klin. Chir.,' v, 330).

*Caries.*—W. S. Savory on caries and its relation to necrosis ('Lanc.,' 1864, i, 4, 33). Juan Creus y Manso on subperiosteal resection in caries (or osteitis) of the shaft ('Gaz. Hebd.,' 1864, p. 19): he gives two cases, one recovered after long illness, the other died.

E. Blasius on osteogymnosis ('Deutsche Klin.,' 1864, p. 105).

*Exostosis.*—M. Legouest, case of exostosis filling the left nasal fossa, and projecting into the pharynx, removed by an osteoplastic resection of the upper jaw ('Gaz. Hebd.,' 1863, p. 854): by means of bone forceps he separated the external wall of the nares, passed it outwards, extracted the exostosis, and then replaced the parts; the operation was successful.

*Tumours.*—R. Virchow on enchondroma ('Deutsche Klin.,' 1864, p. 90). J. Birkett, fibroplastic tumour of the shaft of the tibia ('Guy's Hosp. Report.,' x, 159). C. Steele, case of cancer, accompanied by great pain ('Brit. Med. Journ.,' 1864, ii, 60). A. Ransome, case of encephaloid cancer (l. c., p. 272).

*A. E. Durham on osteomalacia and on porous hyperostosis* ('Guy's Hospital Reports,' 3rd series, x, 380).—In most museums there are to be found bones, principally skulls, which are much thickened and in some instances to an enormous extent. In the skulls the sutures are obliterated, the diploe more or less completely absent, and the grooves and foramina for the blood-vessels very greatly increased in size and number. Such specimens may be arranged in two series. "In the first of these series the bones are more or less uniform in structure. They are comparatively spongy, light, and somewhat disposed to crumble under pressure. Their general appearance has not inaptly been compared to that of dried mortar. All such conditions may properly be included under the name of porous hyperostosis. In the second of these series the bones are extremely hard, dense, and heavy, but, like those of the first series, they have a certain rough irregularity of texture. The several varieties of this series may be included under the generic term sclerotic hyperostosis. Now, it is, I believe, generally considered by the few who have paid any attention to this subject, that the dense heavy condition is related by succession to the light porous condition, and that the transformation is effected by a process of what has been termed 'consecutive induration' (Rokitansky). It seems to me, however, after the most careful examination, that it is probable, rather, that although processes of 'consecutive induration' unquestionably go on in each, yet nevertheless the two series are really distinct, and represent the more or less perfectly cured conditions of different diseases. The soft mortar-like series illustrates, I believe, the changes which ensue when the progress of mollities ossium has been arrested, and a more or less successful attempt at repair and the re-establishment of normal nutrition has been set up. The dense and hard series, on the other hand, similarly illustrates, I believe, the cure of rickets under certain particular circumstances and conditions."

"With regard to the transition of bones softened by mollities into the porous form of hyperostosis, the evidence seems to me very strong, and may briefly be stated as follows:—In mollities the bones become, as we have seen, distended and sponge-like in their general structure. In the skull the diploe disappears, and the tables become thickened; the sutures are more or less obliterated, and the grooves for the blood-vessels enlarge. All these alterations remain, and some of them become more pronounced in porous hyperostosis. Indeed, if a portion of skull affected with mollities be slightly macerated and dried, and then compared with a similar portion from a skull affected with porous hyperostosis, a very striking general similarity in appearance is at once seen to exist between the two. It seems, to the unaided eye, as though the mollities-bone did but want the addition of a little more earthy matter and a little more general firmness and resistancy to make it exactly resemble the other." Microscopical examination besides proves that in general arrangement, shape, and size, the lacunæ and canaliculi of the porotic bone closely resemble those of the bone affected with mollities, and that in both cases these structures differ from the corresponding ones of healthy bone in precisely similar respects.

## SPINE.

S. Solly on diseases of the spine, &c. ('Lanc.,' 1864, i, 375). D. v. Thaden on spondylitis deformans ('Arch. für klin. Chir.,' iv, 565). J. A. Lidell on injuries of the spine, including concussion of the spinal cord ('Amer. Journ. of the Med. Sciences,' vol. 48, p. 305). Prof. Rühle on compression of the spinal cord ('Greifsw. Med. Beitr.,' i, 5). E. Rollett, symptoms caused by compression of the upper part of the spinal cord ('Wien. Med. Wochenschr.,' 1864, p. 371, &c.). H. Dick, new instrument for the treatment of spinal curvature ('Med. Times and Gaz.,' 1864, ii, 203).

*Fractures of the spine.*—Mr. Curling, cases illustrating rare forms of fracture and dislocation ('Lond. Hosp. Rep.,' i, 138). P. Bevan, fracture of the odontoid process, perfect ankylosis of its apex with the occipital bone, and partial luxation forwards of the atlas ('Dublin Med. Press,' 1863, Feb.).

*Dislocations*—M. Richet, two cases of dislocation of the cervical portion ('Gaz. des Hôp.,' 1863, p. 574). J. Flögel, successful reduction of a subluxation of the cervical vertebræ ('Wien. Med. Halle,' 1864, p. 147).

*Pott's curvature.*—W. Adams ('Lanc.,' 1863, ii, 680). B. Lee, gastralgia the initial symptom of caries of the vertebræ ('Amer. Med. Times,' 1864, ii, 28).

*Spina bifida.*—Dr. Wilson, successful excision ('Trans. of the Path. Soc.,' xiv, 214). M. Reiner, case successfully treated by excision ('Allg. Wien. Med. Zeit.,' 1863, p. 315, &c.).

## FRACTURES.

*E. R. Bickersteth on a new operation for obtaining union of an ununited fracture, with remarks on its application in certain cases of recent fracture* ('Lanc.,' 1864, i, 325).—"From a consideration of the cases narrated, Mr. Bickersteth proposed to treat an ununited fracture by passing one or more drills through the broken ends of the bone in such a manner as to secure their perfect immobility, and without making any external wound beyond that caused by the entrance of the drill. The limb should then be secured by properly adjusted splints, and kept at perfect rest. After two or three weeks the drills may be removed, and water-dressing applied to the punctures. For several weeks after, it would, of course, be desirable to continue the use of the splints." In replying to a criticism by W. H. B. Winchester (l. c., p. 463), Mr. Bickersteth says (l. c., p. 621):—"Mr. Winchester urges as objections to the operation—

"1st. '*The risk*' which, in his opinion, 'far outbalances the success which may occasionally attend its performance.' On this subject I have simply to say that the operation has only (as far as I am aware) been performed five times, *i. e.* twice on the lower jaw, twice on the humerus,

and once on the tibia; that no constitutional disturbance worthy of notice has followed in any instance; and that the result has been uniformly successful.

“2nd. *The difficulty of performance.* He writes: ‘to preserve the ends (of the bone) in exact position, while drilling oblique holes through them, must be attended with extreme difficulty.’ Had Mr. Winchester ever performed ‘resection’ for ununited fracture, or even witnessed this operation, he could not have failed to observe the extreme difficulty of *separating* the broken ends, so firmly are they, in the vast majority of cases, adherent by dense fibrous tissue. The bones require no holding, and the operation of drilling required no more skill than is possessed by the most ordinary artisan.”

A. G. Reid reports (‘Edinb. Med. Journ.,’ ix, 1014) a case of ununited fracture of the tibia treated by Mr. Spence. “It resulted from a severely comminuted fracture of the leg, produced by the direct stroke of the paddle-wheel of a steamer in motion. The mode of treatment first adopted, and which was afterwards persisted in for several months, consisted in placing the limb at perfect rest by means of starch bandages, and at the same time giving the patient nourishing diet, combined with small quantities of stimulants. This treatment, however, was only partially successful; and as the amount of mobility had remained unaltered for some time, a thick needle was passed between the fragments, the ligamentous union thoroughly destroyed, and the limb afterwards adjusted in plaster of Paris. On taking it down, at the end of six weeks, it was found to be perfectly firm. It is questionable whether this mode of treatment would be sufficient for the cure of flail-like false joints, but it is generally effectual in cases like the preceding, where only a certain degree of mobility remains, though quite sufficient to render the limb useless to the patient.”

C. D. Doig, notes on fractures (‘Glasgow Med. Journ.,’ xi, 336). M. Müller on the use of a plaster mould embracing the posterior surface of the limb in *compound* fractures (‘Arch. für klin. Chir.,’ vi, 159). J. Caspary on continued extension of *badly united* fractures (l. c., v, 258). J. A. Lidell on gunshot fractures of the *pelvis*, &c. (‘Amer. Med. Times,’ 1864, i, 135). R. W. Smith, case of fracture of the acetabulum (‘Dubl. Quart. Journ.,’ vol. 35, p. 174). Treatment of fractures of the *clavicle* in New York (‘Amer. Med. Times,’ 1864, ii, 42). Dr. Ogle, laceration of the internal jugular vein by the fractured portion of *clavicle* (‘Arch. of Med.’ iv, 125). Prof. Bardeleben, cases of fracture of the surgical neck of the *humerus*, plaster bandage (‘Greifsw. Med. Beitr.,’ ii, Report, p. 13). v. Thaden on fracture of the greater tuberosity of the *humerus* in dislocation of the arm (‘Arch. für klin. Chir.,’ vi, 67). Dr. Drake on fracture of the *radius* by indirect force (‘Prag. Viertelj.,’ 1864, ii, 1). Mr. Chassaniol, separation of the epiphysis of the *femur* (‘Gaz. des Hôp.,’ 1864, p. 39). D. W. Cheever, case of fracture of the *femur* in an infant seven months old (‘Boston Med. and Surg. Journ.,’ vol. 70, p. 355). F. H. Hamilton on gunshot fractures of the *femur* (‘Amer. Med. Times,’ 1864, i, 1, 13). Treatment of fractures of the *femur* in New York (l. c., 1864, ii, 42). J. Tyson, treatment of fractures of the *femur* by extension effected by means of weights

(‘Amer. Journ. of the Med. Sciences,’ vol. 48, p. 328). G. E. Pyle, cases of fractured *patella* treated by Malgaigne’s hooks (‘Med. Times and Gaz.,’ 1864, i, 86). B. Beck, gunshot fractures of both *legs* (‘Deutsche Klin.,’ 1864, p. 9). Dr. Bérenger-Féraud on fractures in V (Paris, A. Delahaye).

## JOINTS.

*Mr. Holt, case of chronic hydrarthrosis of the knee-joint* (‘Lanc.,’ 1864, ii, 265).—The patient was admitted on the 14th of January: the joint was greatly distended with fluid, slightly painful, but not red. Failing in all ordinary treatment, on April 19th, Mr. Holt punctured the joint, which measured  $15\frac{1}{4}$  inches, with a small trocar, and removed a considerable quantity of thin, serous, and slightly yellow fluid, and afterwards injected equal parts of iodine (tincture) and water. After some time, the joint was punctured again; “two drachms of undiluted tincture of iodine were now injected, and left in. The patient did not experience any pain, and on the following day the joint was more swollen, but not painful. From this time the joint gradually decreased in size, and after another month measured thirteen inches. He was also able to leave his bed, first walking with the aid of crutches, and afterwards with sticks, when he left the hospital for the country, being able to get about with comparative comfort.”

*Prof. W. Busch, contributions to the knowledge of contractures in the hip- and knee-joints, and their treatment by forcible extension, with reference to the cases observed from the 1st Nov., 1855, to the 1st October, 1861* (‘Arch. für klin. Chir.,’ iv, 50).—It is well known that in the great majority of cases of inflammation of the hip-joint, the extremity is at the commencement of the disease flexed, rotated outwards, and slightly abducted; at a later period it continues to be flexed, but the rotation outwards becomes rotation inwards, and the abduction adduction. The former position appears, from the experiments of Bonnet and Dittel, to be a purely mechanical effect of effusion into the joint and of swelling of the parts. The latter is, according to the author, owing to progressive enlargement of the acetabulum; the head of the femur then slides further and further, till at length it is arrested by the ilio-femoral ligament; should the caries still progress, the thigh rotates around this ligament, which then becomes relaxed, and allows the head to recede further.

From the dissections of Froriep and his own observations, Prof. Busch concludes that the muscles do not contribute at all, or only very slightly, to the resistance presented by a false ankylosis; the latter depends on the shortening of the connective tissue in the fasciæ, in the ligaments, or in the sheaths of the muscles.

But one case of firm ankylosis of the hip has been treated by forcible rupture at the Bonn Clinic; the effect was only in part satisfactory. Nine cases of false ankylosis of the hip with flexion of the thigh on the pelvis, were treated; eight of them had resulted from hip disease, the other one had formed during the progress of a diseased knee. The treatment consisted of forcible movements, the result being secured by the use

of the plaster bandage for fourteen to twenty-one days; all the cases were improved, some materially; in one, however, fresh inflammation was excited, so that the patient remained eight months in hospital. In six cases, the limb was straightened and immobilised whilst the inflammatory process was yet active; in four of these the result was very good; in the fifth, the bandage had to be removed owing to pain, the lad left the hospital, and ultimately died from disease of the other hip; in the sixth, death ensued from pyæmia. Straightening the limb and immobilising it in this position, is undoubtedly the best treatment of the early stages of hip disease; at a later period when the bones are carious and the joint suppurating, it becomes dangerous, being liable to augment the inflammation already existing. Excision should be used only in exceptional cases, as a means of saving life; the author considers that a limb, even when it cannot be extended beyond  $40^{\circ}$  (compelling the patient to walk with great curvature of the spine, and a tolerably high sole), is more useful than after resection.

In respect to disease of the knee, the leg is generally flexed on the thigh, rotated outwards, and subluxated backwards. The flexed position appears to be in some cases the mechanical result of effusion of fluid into the joint, in others, to depend on swelling of the synovial membrane. Flexion is, however, not the only change in the position of this joint; in at least five sixths of all cases it is accompanied by rotation of the leg outwards. It is obvious that rotation can only occur where the limb is flexed to a considerable degree; according to Robert's researches, it cannot occur till the leg is flexed on the thigh at an angle of  $45^{\circ}$ . As moreover it is not present in all patients, indeed not in many when the limb is strongly flexed, it is evident that it does not form an essential part of the process. There has been much dispute about its cause, some attributing it to a particularly powerful traction of the biceps muscle, others to the posterior crucial ligament. The author has, however, never found any particular tension of this ligament in amputated limbs, where rotation was very marked; indeed when the ligament is not destroyed, after dividing the whole of the parts placed on the posterior side, and opening the capsule from behind, the leg can be again rotated inwards, without any interference with this motion by the crucial ligaments, a proceeding that is not possible before the section of the soft parts. Hence the author is quite of the opinion of Dittel, developed in his essay on the position of the leg in inflammation of the knee joint ('*Zeitschr. d. k. k. Gesellsch. d. Aerzte in Wien*, 1859, p. 385), and thinks that rotation outwards is caused by the weight of the extremity, more especially by that of the foot, and that it is afterwards rendered permanent by contraction of the connective tissue. Dittel also appears to be perfectly right in attributing the angular position of the leg after the manner of genu varum, which occasionally occurs, to excessive wearing away of the bones on the inner side of the joint. If the patient, in a case of advanced disease, when both the cartilage and bone are undergoing destruction, rests the leg on its outer side, the articular extremities will press against one another with greater force on the inner than on the outer side, and as a necessary consequence, the bone will be worn away to a greater degree where

there is the more pressure. The opposite deformity, that of genu valgum, arises in a similar way, owing to excessive pressure on the external condyle. All the examples seen by the author were in patients who were still able to use the limb in walking, the joint being flexed, but the inflammation not being very active. It must be remembered that the leg and thigh meet naturally at an angle salient to the inner side, that the strong internal lateral ligament alone prevents the production of genu valgum by the weight of the body, and that this ligament does not offer the same resistance when the joint is flexed as when it is extended. Thus the external condyles are more especially pressed against one another, and after a time genu valgum is produced, as the bone gradually disappears where the pressure is excessive.

More important than these changes is the subluxation of the tibia backwards, which so regularly accompanies flexion; the author has found it absent only when the contraction has been induced by some other cause than inflammation of the joint, or when the arthritis had very soon terminated, as in some cases of wounds; in all other more chronic cases, subluxation constantly appeared. This deformity is immediately owing to the bones being compressed and destroyed to a greater degree at their posterior part; it is promoted by contraction of the corresponding connective tissue, and by tension of the muscles.

Anchylosis of the knee is far more often false than true. When the angle is not extreme, the patient, though compelled to limp, can still generally use the limb; where the bones are extensively destroyed, the ligaments relaxed, or where the angle of flexion is very great, he has to use a wooden leg or crutch. In a case mentioned by the author, both extremities were affected; the patient used his arms as crutches, and had gained such skill as to move with great rapidity.

Froriep was the first to throw some light on the mechanical impediments to straightening the contracted knee; in his 346th plate and accompanying text with reference to a flexed knee caused by long continuance in one position owing to caries of the foot, he decisively proved that the cause was not, as generally supposed, retraction of the muscles, but contraction of the fascia. Prof. Busch had for a long time no opportunity of dissecting an old contraction; but even in cases of amputation of the thigh for acute disease of the joint he found that after dissecting off all the soft parts and dividing the lateral and crucial ligaments, the posterior portion of the capsule presented such resistance to straightening that the leg remained almost at a right angle. More recently he has dissected three specimens, though not one of them was, indeed, the direct result of articular inflammation. The first was obtained from an extremely anæmic girl of 19, who had not yet menstruated, and who for many years had suffered from necrosis of the femur, as a consequence of which the leg had become flexed at almost a right angle. An incision was made and a large sequestrum was readily extracted. Violent and repeated secondary hæmorrhage ensued from the soft spongy granulations coating the interior of the bony capsule; plugging the cavity did not answer; ligature of the femoral and profunda arrested the bleeding, but the patient was so exhausted that she



died on the evening of the same day that these operations were performed.

The author employed the specimen to test the degree of resistance of each particular layer. For this purpose the extremity was separated at the hip-joint, and fixed on a board, its anterior surface being downwards; a weight of 3 pounds was fastened to the foot. Although the origins of the flexor muscles had been divided, the leg still formed an angle of  $124^{\circ}$  with the thigh after the attachment of the weight. After division of the skin it was  $126^{\circ}$ . The superficial fascia was then carefully removed, and the angle increased to  $133^{\circ}$ . The deeper cellular tissue presented string-like processes, of which one surrounded the peroneal nerve, and several passed from the middle line to the sheath of the biceps: the parts between the heads of the gastrocnemius were now excised so far as could be without injury of the posterior capsule,—the angle was then  $139^{\circ}$ . The muscles both of the thigh and leg were divided two and a half inches from the joint by straight incisions down to the bone; the angle scarcely changed, certainly not more than half a degree. When, however, the muscles and their sheaths were entirely removed, leaving only the posterior capsule and a firm layer of connective tissue with which it was covered, the angle increased to  $150^{\circ}$ . After a transverse section of this layer and of the posterior capsule without injury of the lateral ligaments, the angle at once became rather greater than  $180^{\circ}$ . Similar results were found in the examination of the other two specimens. Hence it would appear that the application of force sufficient to straighten a contracted knee, the patient being fully under the influence of chloroform, would not rupture the muscles, but only the more resisting fibrous bands. At the same time it should always be remembered that the vessels and nerves may be seriously contused, and that the bones may yield rather than these pseudo-ligaments. Another deduction is that subcutaneous division of the tendons can be of little service in such cases.

The author's own experience has shown him, that where the configuration of the bones has not been much altered by disease, the limbs may be straightened, so as to place the articular surfaces in their normal position, and to leave little or no trace of subluxation; this was the result in 3 out of 56 patients treated for contracture, the effect of disease of the knee-joint. In the immense majority of cases the articular surfaces of the tibia and femur have been so damaged and altered in form, that it is only in the rarest examples possible to again restore the bones to their normal position. The almost universal result is that the tibia is placed straight at the spot with which it previously formed an angle.

Any sudden attempt at straightening the limb would involve risk of increasing the subluxation; yet, as the author remarks, any such danger may be readily avoided, provided the surgeon is not so vain as to attempt to place every ankylosed knee straight at a single sitting. Whenever there is any but the slightest obstacle, the author at the first operation only extends or ruptures the parts which first become tense. Now, whilst the ordinary machine for stretching the knee is quite useless before such an operation, it is surprising how readily the

leg may be extended by it, after the more immediate resistance has been overcome. The special conditions of each case must decide how much may be obtained by forcible extension, and how much should be left for the machine. Should the latter not be able to overcome all resistance in exceptional cases, forcible extension may be repeated after a time.

In 10 of the author's cases the joint was still suffering from chronic inflammation—the patients complaining of more or less acute pain in the knee as soon as it was touched. Nine of these presented the symptoms of white swelling; there were no fistulæ, but in all the tibia was displaced somewhat backwards, so that the cartilage was undoubtedly destroyed. The angle varied between 130 and 75 degrees, the duration of the disease between 6 months and 3. In the tenth case the joint had suppurated; four fistulæ passed into a granulating cavity; the condyles of the femur had become irregular and worn away, more especially on the inner side, inducing a slight genu varum. The limb was forcibly extended in 8 of these patients; in the ninth there were symptoms of rather acute inflammation, and the joint contained a large amount of fluid; permanent extension by weights was therefore preferred, whilst most active counter-irritation was kept up by the actual cautery, &c. In five months the leg was straight, but there was rather a considerable sublaxation, and the patella was ankylosed; the patient could walk with the help of a machine. Similar treatment was employed in the tenth case; in six months the limb was straight, and the patient, assisted by a high sole, could walk without pain. A large number of cases, of course, occurred in which either amputation had to be performed for the purpose of saving life, or in which the inflammation was treated by various means, with the intention of rendering the limb again useful by forcible extension at a later period.

Forty-six patients, in whom the inflammatory processes had terminated, were treated by forcible extension; all, except one, were discharged with straight limbs. In the single case of failure a small sore formed on the calf, for the healing of which the patient would not wait, but left the hospital.

The ultimate result was, of course, very various; sometimes the patients recovered good use of the joint; in other cases they were compelled to avail themselves of crutches. Once the peroneal nerve was temporarily paralysed; in another patient the lower end of the femur was attacked with chronic inflammation; in a third an abscess formed, and left a fistula passing into the joint. One case of bony ankylosis was ruptured, and the limb straightened; unfortunately, only fibrous union took place, so that it was necessary to still continue the use of a crutch. The shortest period in which a patient could walk well without a stick, but with a machine, was 13 days; on an average the patient could walk about the room without pain in about 4 weeks. In not quite the sixth part of all the cases, the knee-joint possessed some mobility after treatment; in all these, however, it had been movable before the operation, the patients being able both to flex and extend the limb to a certain degree. The author never succeeded in gaining any mobility when the patella was ankylosed. The patient

can himself decide, from his own feelings, when he can dispense with the use of a supporting machine; some require it only for a brief period, others must wear it for life.

M. Rizet, treatment of *sprains* by shampooing ('Gaz. Hebd.,' 1864, p. 46). M. Jarjavay on the puncture of joints affected with traumatic *hæmo-hydrarthrosis* ('Gaz. des Hôp.,' 1863, p. 593). C. Rauchfuss on inflammation of the joints in infants ('St. Petersb. Med. Zeitschr.,' v, 193). M. Morel-Lavallée on blisters and elastic compression in *hydrarthrosis* ('Gaz. des Hôp.,' 1863, p. 609). M. Abeille on the injection of iodine in acute arthritis with effusion (l. c., 1864, p. 41).

Dr. Klein on the origin of *loose cartilages* ('Arch. für path. Anat.,' vol. xxix, p. 190).

V. Duval on false *anchylosis* of the knee (pp. 116, Paris, J. B. Baillière).

M. Collineau on a case of acute tubercular disease of the *hip-joint* ('Gaz. Hebd.,' 1863, p. 837). M. Giraud-Teulon on measuring the length of the lower extremity (l. c., 1864, p. 228).

C. H. Moore, a singular case of periodical inflammation of the *knee-joint* ('Lanc.,' 1864, i, 485). B. B. Miles on gunshot injuries of the knee-joint ('Amer. Med. Tim.,' 1864, i, 50). Prof. Bardeleben, cases of wounds of the knee-joint ('Greifsw. Med. Beitr.,' ii, Report, 23), and case of acute suppuration of the knee-joint (l. c., p. 28).

## DISLOCATIONS.

*A. Guérin, case in which the forearm was torn off during an attempt at reduction of an old dislocation of the humerus* ('Gaz. Hebd.,' 1864, p. 299; and 'Med. Times and Gaz.,' 1864, i, 400).—A woman, æt. 63, entered the St. Louis Hospital for a dislocation of the left shoulder, of three months' date, the arm being completely paralysed. The sensibility of the skin, though diminished, was not lost; there was no change in the temperature, but the lower part of the forearm and the hand were œdematous. She suffered violent pains in the limb. The patient having been placed under chloroform, extension was made by four intelligent assistants, through the medium of bands applied at the wrist. While traction was being gently made, the limb suddenly separated, and fell to the ground. The artery, which bled freely, was tied; the end of the humerus was excised, and covered over by a lateral flap which had been left. On examination, the limb was found to have separated at the elbow-joint, and every tissue, muscle, bone, vessel, &c., was found in a soft and friable condition. The muscles separated under the pressure of the finger just like a soft coagulum of blood. M. Guérin attributed these lesions to compression of the brachial plexus by the head of the humerus. Messrs. Broca and Houel doubted whether traumatic paralysis could, in three months, cause such changes in the bone. According to them, there must have been atrophic softening long before the accident. According to this hypothesis, the same alteration would be found in most of the bones of the skeleton. The patient died 12 days later, and it was then found that the bones of the luxated limb were the only ones softened.

H. Harley, rupture of the axillary vein from a dislocation of the humerus into the axilla ('Brit. Med. Journ.,' 1863, ii, 634).

P. J. W. Henke, anatomy and mechanism of the joints with reference to dislocations, &c. (Leipz., C. F. Winter).

*Pathological dislocations*:—Dr. Dittel, cases of reduction ('Wien. Med. Halle,' 1863, p. 477). Dr. Zeis and Prof. Busch, remarks on Wildberger's cases of reduction ('Deutsche Klin.,' 1864, p. 234; 'Berl. Klin. Wochenschr.,' 1864, p. 263). Prof. Schuh, case ('Spit. Zeit.,' 1864, p. 148). W. Roser, the theory of spontaneous luxations ('Arch. der Heilk.,' 1864, p. 542).

Mr. Couper, an account of an attempt to reduce a dislocation of the jaw, of nearly four months' standing ('Lond. Hosp. Rep.,' 1, 262). F. C. Skey, case of dislocation of the *pelvis* ('Lanc.,' 1864, 1, 31).

Dr. Hahn on incomplete dislocation of the *elbow* ('Schmidt's Jahrb.,' vol. 120, p. 88). J. G. Petrequin, the doctrines of Hippocrates as to dislocation of the elbow ('Gaz. Hebd.,' 1864, p. 543). Dr. Dittel on reduction of dislocation of the *thumb* backwards ('Allg. Wien. Med. Zeit.,' 1863, p. 106). J. C. Wordsworth on metacarpo-phalangeal dislocation of the thumb ('Lanc.,' 1863, ii, 443). W. E. Lee, case of dislocation of the thumb (l. c., p. 480). Dr. v. Foller, dislocation of the *hip* backwards reduced on the 3rd day by the method of Busch ('Arch. für klin. Chir.,' vi, 206). Dr. Sawostitzki, complete dislocation of the *leg* at the knee forwards and outwards ('St. Petersburg. Med. Zeitschr.,' v, 253). Prof. Linhart, complete dislocation of the leg, reduction, cure ('Wien. Med. Halle,' 1864, pp. 357, 369). J. Hutchinson, clinical lecture on cases of dislocation of the foot backwards, with fracture of the fibula ('Med. Tim. and Gaz.,' 1864, 1, 449).

#### EXCISIONS.

*W. Fergusson on excision of the knee* ('Lanc.,' 1864, ii, 31, 59).—In comparing the results of excision with those of amputation, the author remarks that "a well-healed stump never in reality improves, unless, possibly, it gets somewhat more callous, whilst often it gets more tender and irritable; but the seeming perfect result of excision at the end of six or twelve months (just when stumps are generally at the best) is no criterion of true perfection. If the limb is properly managed afterwards, it goes on improving for months—aye, for years. Without again discussing the question as to length, and without applying the remark to all, I can affirm, from ample experience in my own practice, that thigh, leg, and foot, enlarge in bulk; and, in particular, that with this change the leg and foot improve in muscular energy. It may to some be more impressive when I say that the calf of the leg shows again in increased muscularity and vigour. This observation has never yet, I believe, been dwelt upon by those who have written of the good qualities of limbs after excision; but it is an important fact, and one which, in my opinion, goes far to balance that of shortening, which has been so eagerly put forward by writers previously referred to." The author insists strongly on the value of the foot, quoting, as examples, Ducornet, who painted with his toes, and Hervio

Nano, a famous gymnast in his day. "The object of these remarks is to draw attention to the value of the foot, whether it comes directly in contact with the ground, or is the point of attachment for something to make up the proper length of limb on that side. In an anchylosed knee the foot is of great importance in progression. Besides the mechanical construction of the foot, its comparative size is of enormous value as a support; and what tissue of a stump in the thigh can compare with that of the sole and heel of the perfect foot?

"But I feel almost ashamed to carry this argument further. Persons out of our profession would think it strange to hear an argument in the College of Surgeons to show that the possession of a healthy foot is better than the absence of a foot; that a foot, leg, and lower third of the thigh, all free from disease, are better than nine inches only of a shrivelled thigh; that a nearly whole limb, two feet or two feet and a half long, is better than a shortened and shrivelled thigh which measures some nine or twelve inches from the hip. Yet such is the seeming argument to which I have been forced, for those who have opposed the operation of excision of the knee have almost invariably represented a good stump, as it is called, as superior to any limb preserved by such a proceeding. My own impression, however, is very different. I cannot say of a single instance coming under my own observation, that amputation would have been better. I am not here to say that excision must invariably be superior to amputation; but this I will say without hesitation, that however short the limb may be after this operation, the parts preserved, provided the original disease is cured, and no special or great distortion be left, must be beyond measure superior to the best stump that can be made. I care not whether the limb may be five or nine inches shorter than the other, my impression is that were the femur so much diminished in length by cutting and by want of development that the foot on the damaged side should actually be above the level of the sound knee, its presence would ensure a better support than a stump of the thigh. I thus admit and take what may be considered an extreme case, such as has never yet been brought forward, and such as is likely to occur rarely, if ever. I do so to meet the exigencies raised by Messrs. Pemberton and Humphry, and particularly to meet the all-important question as to the propriety of performing this operation on young persons in whom the bones have not attained their full length. The reasoning—if such it may be called—on this question has been remarkable. It amounts to this: that as the limb does not grow after this operation in young persons in proportion to the rest of the body, particularly in proportion to the other limb, it should not be performed; for this want of growth, great or small, is an insurmountable objection. Yet, as I have shown, the shortening is likely to be as great after a tedious recovery extending over years from disease of the knee in early life. For example, look at this leg and foot, and compare them with the other (referring to a cast). These shrivelled parts are the result of disease. But that is, indeed, a favorable acceptance of this objection; and, to say the truth, it is not the view taken by those to whom I refer, nor is it a view which I myself admit for a moment. The question is not in such cases between

excision and the cure of the disease: it is between excision and amputation."

Mr. Fergusson recommends even a repetition of the operation in certain cases. "In my own early aspirations regarding this operation, I always kept amputation in reserve as the last resource, either at the time of excision, or weeks or months afterwards; but my views in this respect have been considerably modified. I prepared myself to meet with failures at every stage; and then, as I thought, the patient, if not slain outright, could but submit to amputation. Such a view as this was extensively acted upon by Dr. Humphry, for of 13 cases amputation was performed in 4 instances, happily all recovering. But I have since altered my opinion considerably on this point, and now look upon amputation as a step rarely to be anticipated in such cases. I can conceive it possible that a seeming necessity might arise at the moment of excision to resort to amputation: I have taken this step twice myself. But in instances where all does not go on well afterwards, instead of taking fright or losing heart at an early period, I ask for time; and when that does not suffice, I believe dealing freely with the wound, opening sinuses, clearing away strumous effete material, picking away loose necrosed pieces of bone, gouging away bare material of the kind—ay, even opening up the whole surfaces, and sawing off fresh pieces of bone—to be better than amputation. To do all this, particularly to repeat excision—to perform resection, as it may with propriety be called—seems an admission of failure; but it is no more so than having to repeat an original amputation of the thigh, as has frequently been done. The results are or may be very different, however, for there is still the limb left to compare with the abbreviated stump.

"There is more, however, in these words than may appear; for I do not speak from theory, but from actual experience. In October, 1862, Jane Bolton came under my care in King's College Hospital to have her limb removed, after unsuccessful excision of the knee. There was no ossific union, and a considerable portion of the lower end of the femur protruded through a large opening in front of what remained of the original knee. Bearing in mind what I had occasionally done in cases of unsatisfactory results of excision at the elbow, I opened up the parts, took away the projecting portion of bone, trimmed here and there, and ultimately succeeded in getting a sound cicatrix, a perfect ankylosis, and a limb so strong that, although shorter than its fellow by several inches, the patient was delighted with it; yet when she came to town, and for months even after the second conservative operation, she was anxious that amputation should be performed. I have since repeated similar operations with the most satisfactory results, and, as a general practice, I decidedly recommend it in preference to amputation, as the secondary alternative."

*Dr. Dontrelepont on excision of the elbow-joint* ('Arch. für Klin. Chir.,' vi, 86).—According to existing statistics, the results were in 333 cases of this operation, as follows:—

Death . . . . .	40 or 12 per cent.
Amputation . . . . .	14 „ 4·2 „
Anchylolysis . . . . .	23 „ 6·9 „
Mobility . . . . .	256 „ 76·87 „

To these cases the author adds 20, 18 of total and 2 of partial excision, performed by Professor Busch since 1858 at the Bonn Clinic. Of these three died; in one a secondary amputation was performed, and after the stump had nearly healed, death resulted from internal strangulation; another death ensued from tuberculosis, and a third from pyæmia.

The author is of opinion, that when there are signs of pulmonary tubercle, amputation should be preferred to resection, experience having shown that the stump soon heals, and that the patient improves after removal of the limb. The large cavity produced by excision must be filled up by granulations; through the profuse suppuration and the long-continued fever, the tubercular process is promoted, and the constitution is rapidly undermined.

Two cases of old dislocation of the head of the radius were submitted to resection. As this operation has been rarely performed,—Heyfelder quotes three cases, of which only one ended favorably,—we append a brief account of them both.

Adelheid K., æt. 16, of Königswinter, presented on her admission the following symptoms:—the left forearm was about an inch and a half shorter than the right one. Towards the lower third the ulna formed a considerable projection backwards. At the outer and back part of the elbow, the upper end of the radius formed a prominence about three quarters of an inch in height. The patient could furnish no account of the history; the symptoms showed that there had been a fracture of the ulna, and that there still remained a dislocation of the head of the radius. On the 14th May, 1858, the upper part of the radius was excised, the rest of the bone being replaced opposite the external condyle, and the wound united by suture. The wound healed in the course of a month, and the radius showed no tendency to luxation. On the 22nd June an attempt was unsuccessfully made to refracture the ulna; on the 24th osteotomy was performed. On the 16th August she was discharged with a perfectly straight arm. According to later information, the arm has become just as serviceable as the other one; flexion and extension, pronation and supination are perfect.

Bernhard Z., æt. 22, from Dambruch, suffered from inflammation of the elbow-joint and periostitis humeri, owing to a fall when he was 16 years old. The head of the radius, which had become dislocated, was excised on the 25th February, 1860; the wound healed by granulations. The mobility of the joint still remained much impaired. Forced movements under chloroform were used; and on the 25th June he could extend his arm to an angle of  $121^{\circ}$ , and flex it to one of  $15^{\circ}$ .

*C. Hueter, the longitudinal incision in excision of the knee-joint* ('Arch. für klin. Chir.,' v, 323).—The incision commences a little above the internal condyle, passes down in a line with the anterior edge of the internal lateral ligament, and ends just above the insertion of the sartorius. The knee should be extended, and the knife carried at once down to the bone. The internal lateral ligament is then cut across, and the

capsule divided along the upper and inner side of the femur. The knee being flexed, the patella is dislocated over the outer edge of the external condyle. The crucial ligaments are now exposed and may be readily divided; by strongly flexing the limb, easy access is gained to the external lateral ligament. The rest of the operation may be performed in the usual manner.

B. Langenbeck on subperiosteal excision, &c. ('Deutsche Klin.,' 1864, p. 2). T. Holmes on excision of the *elbow* in childhood ('Lanc.,' 1863, ii, 359). F. Sander on excision of the *wrist* ('Arch. für klin. Chir.,' vi, 213). A. Eulenburg, reports of six cases of excision of the *hip* ('Greifsw. Med. Beitr.,' ii, 72). T. Holmes on excision of the *hip* ('Lanc.,' 1864, ii, 234). G. M. Humphry on excision of the *knee* ('Med. Tim. and Gaz.,' 1864, ii, 179). T. Hartag, subperiosteal excision of the *external malleolus* for caries ('Deutsche Klin.,' 1864, p. 147).

#### AMPUTATION.

*A. Hewson on Pirogoff's amputation* ('Amer. Journ. of the Med. Sciences,' vol. 48, p. 121).—The author treated the stump in the following manner:—"the flaps were brought together by leaden stitches, and all the ligatures of the arteries, save that at the plantar, were brought out at either angle. No dressing was applied over the wound, but it was left uncovered. The stump was put in a fracture-box, and the weight of a brick, about  $4\frac{1}{2}$  lbs., was applied by means of a long and broad strip of adhesive plaster on the back of the leg to overcome all tendency to displacement of the os calsis, by contractions of the muscles attached to the tendo-Achillis."

Five cases are recorded: "in all a cure followed rapidly. In two especially, the result was least to be expected. These were the adults, one of whom was a seaman, advanced in years, and who had been leading an exceedingly intemperate life; and the other a soldier, who had been wounded in a battle after long and tedious marching in pursuit of the enemy, and who was operated on four weeks after receiving his wound in a military hospital, where gangrene was prevailing to a very great extent at the time. How much the firm and speedy union of the bones in all these cases was the result of the expedient resorted to, namely the strip of adhesive plaster and weight, to prevent the contraction of the muscles attached to the tendo Achillis, is a question which we are not prepared to answer. The possibility of such a union not taking place has been the only theoretical objection apparently of any importance advanced against the operation. But how far such an objection has been realised in the experience of others we have not been able to ascertain. Our own experience certainly points to its being of little, if any, value. For surely there could not be found two more unpromising cases for any operation than those of the adults here reported, and it is against the operation in adults especially that this objection would seem to have greatest force. The very perfect character of the union which took place between the bones in Bowers' case, as is to be seen in the specimen which we had the good fortune to obtain after his death, furnishes as strong a refutation as a single instance



could of this theoretical objection. Nothing could be more satisfactory than the manner in which the cancellated structure of these bones has become blended together, making as perfect a union as ever takes place in a simple fracture or in a wound of the soft parts themselves. And this was the more remarkable considering the man's age (48 years) and his habits, which eventually produced his destruction." As to the value of the stumps, the author states that "all but one of the four cases operated on at the Pennsylvania Hospital were walking about freely on their stumps before they were discharged from the institution; one of them, and that an adult, was discharged 70 days after the operation. The exceptional case was Morris Lammey who had a small sinus communicating with the bursa between the tibia and fibula, and which was speedily healed by the use of a single piece of sponge-tent after he left the hospital. The case at the military hospital did not walk on his stump as early as he might otherwise have done, in consequence of the necrosis of the fibula, which did not, however, prevent the union of the os calcis with the tibia, which became firm in 28 days.

"No such results as these have ever been obtained from the Syme operation—for not more than one half of the cases which have applied to Mr. Palmer for artificial limbs have been able to bear any pressure whatever on the end of the stump, and that a long time after they were entirely healed. The only case of a Syme amputation of which we have had the opportunity of seeing the result was unable to bear his weight on it a year after it was made. The least amount of shortening furnished by any of the cases of Pirogoff here reported was one inch, and the greatest two inches; these were both the adult cases, whereas the Syme always gives a shortening equal to the whole depth of the foot, or about from two and a half to three inches."

*J. A. Lidell on the major amputations for injuries in both civil and military practice* ('Amer. Journ. of the Med. Sciences,' vol. 47, p. 361).—By reasoning, cases, and statistics, the author endeavours to show that primary are decidedly preferable to secondary amputations. "Primary amputations are more advantageous than secondary ones, because, in the *first place*, they afford a chance of recovery to a numerous class of persons suffering from gunshot wounds, or other injuries, who would not survive the inflammatory stage, together with its intercurrent disorders, until such time as the secondary amputation could be performed; and because, in the *second place*, primary operations are a great deal less fatal, *per se*, than secondary operations. Such being the facts, it follows as a necessary consequence that the *proper time to amputate*, in all cases of wounds or injuries demanding that operation, is during the primary period, *i. e.* previous to the commencement of inflammation in the wounded parts, or within a period of 24 or 36 hours after the infliction of the injury." He believes that the opinion of the military surgeons of the United States is unanimous in favour of the primary operation, and that even in doubtful cases primary amputation should always be practised, true conservatism in surgery—a conservatism which makes the preservation of the patient's life paramount to the preservation of a limb—fully sanctioning the wisdom of this recommendation.

“The presence of a slight, or even a moderate amount of shock, does not contraindicate immediate amputation; but if the shock be excessive, or even severe, then it is better to delay the operation until reaction has been fully established. In the mean time, reaction should be promoted by the application of dry heat externally, and by the administration of such stimulants internally as are adapted to the degree of the shock, employing the most powerful of the diffusible stimulants, such as brandy and carbonate of ammonia, freely in the desperate cases, and the same stimulants, in smaller quantity, or perhaps only wine, or even warm tea or coffee, in cases of a less severe character. As soon as the reaction has been fully established, amputation should be performed without further delay, because the injured part will speedily become inflamed, and such a condition of the limb may quickly supervene as to preclude a successful operation.”

*C. O. Weber on the relative value of the different methods of performing amputation near the ankle-joint* (*Arch. für klin. Chir.*, iv, 313).—Of 43 amputations of the leg at the point of election, 10 were for recent injuries; 10 for tumours, &c.; and 23 for caries; 30 recovered, 13 died—viz., of ten amputations for injuries there were

4 primary	. . . . .	2 recovered, 2 died.
6 secondary	. . . . .	1 „ 5 „
Of 10 amputations for tumours, &c.	. . . . .	9 „ 1 „
Of 23 „ caries	. . . . .	18 „ 5 „

or 1 death to 2·30 recoveries, equalling a mortality of 30·2 per cent. Small as is the number of cases, yet the difference between amputations for injury and for chronic disease is very marked. For the former the cases of death amount to 70 per cent.; for the latter, to only 18 per cent. The greater danger of secondary amputations also appears, for 5 died out of the 6 operations, whilst 2 of the 4 primary cases were saved. Of these 7 deaths, 5 were from pyæmia, and 2 from tetanus. In the 10 amputations for tumours, 1 death occurred from pyæmia; and in 3 cases, recurrences followed after the healing of the wound, and proved fatal. In the cases of caries, 3 died from pyæmia, 1 from tuberculosis, 1 from organic disease of the heart (fatty degeneration of the heart and liver, amyloid spleen). The average period required for the healing of the wound was 52 days, the minimum 30, and the maximum 90.

Amputation in the lower third of the leg, as near, indeed, as possible to the malleoli (Lenoir's amputation), is yet rejected by many surgeons. The author gives an account of the discussion at the Paris Surgical Society in 1856, and considers at length the various advantages and objections. He urges the importance of well covering the stump; for, if any part has to heal by granulations, it will again readily ulcerate. Much in favour of this process is the fact that the mortality does not exceed 16·6 per cent., or, in other words, that there are twice as many recoveries after it as after amputation at the point of election.

As to Syme's and Pirogoff's operations, the author finds that the period required for healing was, in 11 cases of Syme's amputation, on an average, 52 days; under 1 month, 2; minimum, 25 days. In 28

cases of Pirogoff's amputation, on an average, 43·6 days; under 1 month, 9; minimum, 19 days.

As to the serviceable nature of the stump, he states that, in 71 cases of Syme's amputation, it was perfectly good in 13, good in 55, useless in 3. In 45 cases of Pirogoff's amputation, it was perfectly good in 23, good in 20, useless in 2. In 12 cases performed after the method of Baudens-Roux, it was perfectly good in 6, good in 5, useless in 1.

The point principally in dispute about Chopart's amputation has been the serviceable nature of the stump. The author states that out of 82 cases there were 50 with perfectly useful stumps, and 32 with luxation of the astragalus; most of the latter could walk, however, with proper boots.

Throughout this paper the author compares his own results with the statistics of other authors. He concludes that in respect to the mortality, amputation at the seat of election gives 1 death to 2·55 recoveries, or a mortality of 28·09 per cent.; amputation close to the malleoli, 1 death to 5 recoveries, or a mortality of 16·6 per cent. ;\* amputation, according to Syme, 1 death to 5·9 recoveries, or a mortality of 14·4 per cent. ; according to Pirogoff, 1 death to 6·8 recoveries, or a mortality of 12·7 per cent. ; according to Textor-Malgaigne (sub-astragaloid), 1 death to 13 recoveries, or a mortality of 7·6 per cent. ; Chopart's amputation, 1 death to 5·9 recoveries, or 14·4 per cent.

In regard to the length of time required for healing the wound, the operations of Chopart, Textor-Malgaigne, and Pirogoff are much the same; then follows amputation near the malleoli, then that of Syme, and finally that at the seat of election.

In regard to the usefulness of the stump, the operations of Pirogoff and Malgaigne are the best; then follows that of Syme, then that at the seat of election, Lenoir's operation, and finally that of Chopart.

B. Beck, *statistics of amputations and resections* ('Arch. für klin. Chir.,' v, 171). C. Völckers on the statistics of amputations and excisions (l. c., iv, 574). H. D. Carden on amputation by the *single flap* ('Brit. Med. Journ.,' 1864, i, 416). Prof. Bardeleben on *previous ligature* of main arteries, and on double or triple simultaneous amputations ('Greifsw. Med. Beitr.,' ii, Report, p. 9). Prof. Esmarch on *previous bandaging* of the limb (l. c., p. 11). Dr. Wodarski on the *drainage of stumps* ('St. Petersb. Med. Zeitschr.,' v, 248). Cases of amputation at the *hip-joint*, by Prof. Gross ('Amer. Journ. of the Med. Sciences,' Jan., 1864); J. Spence ('Edinb. Med. Journ.,' x, 1); A. Poupert ('Bull. Belge,' 1863, pp. 367, 447); and J. Fayrer ('Med. Tim. and Gaz.,' 1864, ii, 165). G. H. Porter, case of amputation *through the condyles of the femur* ('Dubl. Quart. Journ.,' vol. 37,

\* Prof. Weber has overlooked the more recent statistics furnished by M. Debout ('Coup d'œil sur quelques appareils prothétiques,' p. 28, Paris, 1862). According to this author, M. Velpeau has had 30 cases of supra-malleolar amputation, with 4 deaths (1, however, was from phthisis, and not really the effect of the operation); M. Nélaton, 12 cases, 1 death; M. Denonvilliers, 10 cases, no deaths; M. Lenoir, 42 cases, 6 deaths; M. Robert, 13 cases, 2 deaths; M. Michon, 24 cases, 3 deaths; M. Michaux (of Louvain), 8 cases, no death; M. Vial reports 15 cases, no death, from the hospital of St. Etienne; M. Busquet (of Laval), 2 cases, no death. Thus there would be 1 death to 9 recoveries, or a mortality of 10 per cent.—T. W.

p. 12). Prof. Schuh on amputation by the *method of Gritti* ('Wien. Med. Wochenschr.,' 1864, p. 1). G. R. Symes on amputation *at the ankle-joint* ('Dubl. Quart. Journ.,' vol. 37, p. 65). Dr. Mosetig, case of *Chopart's operation* as modified by Blasius ('Wien. Med. Halle,' 1864, p. 295).

## SPECIAL SURGERY.

## HEAD.

*W. F. Teevan, experimental inquiries into certain wounds of the skull* ('Brit. and For. Med.-Chir. Review,' vol. 34, p. 205).—The experiments (125 in number) were made with a view of determining, "firstly, what generally are the comparative varying forms of the apertures of entry and exit; and, secondly, to inquire into the causation of a fact ascertained in the course of experiment—the always relatively greater size of the aperture of exit."

If a bullet be fired at the outside of a skull, with a full charge of powder, close and at right angles to the part to be struck, a wound is produced which, for practical purposes, may usefully be called a typical wound. "The aperture of entry in the external table is cleanly cut, and of exactly the same shape and size as the circumference of the bullet, the opening merely sufficing to admit the bullet, and looking very much as if it had been made by a trephine. There is never any splintering or fissuring about the edges. If the aperture of exit in the internal plate be examined, it will be found considerably larger than the aperture of entry; its circumference will generally be irregular, though rarely having splinters attached to or fissures radiating from its edge. The average diameter of the aperture of exit exceeds that of the aperture of entry by about one third. The average irregularity in the aperture of entry seldom equals a line, whereas the irregularity in the aperture of exit generally varies from one eighth of an inch to half an inch. The size and shape of the aperture of entry made by a shot fired under the conditions already laid down never vary, whether the skull be thick or thin, hard or comparatively soft; not so with the aperture of exit, which attains its maximum size and irregularity in thick or hard skulls, and its minimum size and irregularity in soft or thin skulls. If a head be taken off, and then fixed, and a shot be fired through the foramen magnum into the skull, the above descriptions will equally apply and be found to be true, if instead of aperture of entry in the external table we read aperture of entry in the internal table, and if instead of aperture of exit in the internal table we substitute aperture of exit in the external plate—thus clearly proving that the aperture of exit of a bullet is always larger than that of its entry. In no instance was there a single exception to this rule, neither have I been able to find one in the specimens in the different museums."

"That bullet whose velocity can be reduced to the lowest compatible with its penetrating the skull will produce the greatest amount of damage. Hence, if the distance be gradually increased, or the amount of the charge of powder be gradually decreased, a correspondingly increased amount of damage will be produced. Bullets going at low

velocities generally make apertures many times their own size, irregular in shape, with fissures radiating from, and fragments of bone adherent to, their edges. They have also a great tendency to present depressed fractures, consisting of three or four triangular pieces of bone driven in at their apices, but still usually adherent, more or less, by their bases, to the skull; in fact, they produce very similar wounds to those that are made by a hammer whose striking surface is about the size of a shilling; and it is in these cases that the dura mater so often protects the brain, and entirely prevents the fragments being driven into that organ."

Mr. Teevan discusses the reason assigned for the comparatively greater size of the aperture of exit, and proves experimentally that none of them can be admitted. The following proposition explains the real cause:—"The aperture of entry is caused by the penetrating body only, whilst the aperture of exit is larger than the aperture of entry, inasmuch as it is made by the penetrating instrument plus the fragments of bone driven out of the proximal table and diploe."

*P. G. Hewett, clinical lecture on caries and necrosis of the bones of the skull* ('Lanc.,' 1864, 1, 205, 239).—The two diseases very frequently co-exist—caries in one part, and necrosis in another of the same skull; or they may lie side by side on the same bone. More commonly, however, a cranial bone is affected by one of these diseases alone. Both diseases sometimes follow a low form of inflammation and suppuration, which may have arisen in the cranial bone without any apparent cause, or followed some injury. But in by far the greater number of cases, these diseases are connected with scrofula, and much more commonly still with syphilis, and the careless administration of mercury.

In describing syphilitic disease of the cranium, the author says:—"But, laying aside the question of the effects of mercurial cachexia upon the osseous system, there is still another difficulty as to these so-called syphilitic skulls. Are there any characteristic signs by which we can recognize syphilitic disease of the bones of the skull? Given a diseased skull, are we at present in a position to say that the disease was of venereal origin? Some of the best of modern pathologists would, I know, answer in the affirmative; but of the correctness of their views, I must say that I have all along had very serious doubts. The features said to be characteristic of the venereal origin of the disease may be clearly marked in a skull, the history of which tells us that the patient had never suffered from syphilis. . . . The frontal and the parietals are the bones of the skull which are said to be most commonly affected with syphilitic disease; but in all the skulls in which the disease is undoubtedly of venereal origin, it will, I think, be found that the basilar bone and the front part of the foramen magnum are also, to some extent at least, affected. And this is just what we might have anticipated, if we recall to mind the frequency with which the soft parts covering these bones are involved in secondary syphilis. The diseased appearances to which I refer are a thickened and tuberculated condition, with excessive vascularity of the under surface of the basilar bone and front part of the foramen magnum; and in some cases I have even found this portion of the

foramen magnum contracted by the deposition of minute nodules of bone. I have also, but more rarely, found a carious and worm-eaten appearance about the bones, which may, in such cases, be stricken with necrosis”

Death may result in such diseases from various complications; thus from erysipelas to which patients with fistulous openings in the integuments are very liable; from hæmorrhage when the disease is in the neighbourhood of a large vessel; from inflammation of the diploic veins or of the large venous sinuses; from inflammation of the cerebral membranes, abscess in the cerebral substance, or softening of the brain; and finally from hernia cerebri.

“And now as to the treatment of caries and necrosis of the bones of the skull: that, fortunately, differs now-a-days widely from the treatment resorted to formerly. In by-gone years the practice was to pursue and destroy the diseased bones wherever they existed: the more extensive the disease, the more praiseworthy the efforts of the surgeon. And in one case you may read of the whole parietal having been thus removed; in another, of the whole of the frontal, including its orbital arches, having been got away by means of divers and sundry instruments. But such cases dwindle into nothing when compared with the case of Méhée de la Touche, wherein he glories in that he had been able to cure an extensive caries of the skull in the course of fifteen months, during which time he had applied no less than 52 crowns of trephine, 27 of which laid bare the dura mater. But, as I said, such treatment is fortunately by-gone; and with us the rule is that we are in caries of the bones of the skull not to interfere, in the way of an operation, unless the disease happens to be, which is rarely the case, limited to a very small area. And in necrosis, the rule is, save in exceptional cases, to wait patiently until the diseased bone is thoroughly loose. True it is that for this we may have to wait for months, and even years, but nevertheless surgical interference is not to be attempted, even with full knowledge of all the manifold risks which I have described, and which we know that patients must run in such protracted cases. By waiting patiently until the bone is loose, large portions may either come away, or be removed, without any risk. In the museum of St. George’s Hospital, there are two pieces of necrosed bone, making up nearly the whole of the perpendicular portion of the frontal, which I removed, some time back, from an elderly woman, who shortly afterwards left the hospital quite well. And in one of the patients now in the hospital, large portions of the frontal bone have, at various periods, come away. This has been going on for 29 years, but the disease has now stopped, and an examination of the parts shows a thin, transparent, newly-formed skin, through which the irregular, nodulated, and eburnated surface of the healed bone, with more or less marked excavations and shelving margins, may easily be felt.

“In exceptional cases, as I said, the application of a crown or two of the trephine may become necessary—that is, when there is not sufficient space for the matter to make its way outwards, and which may thus become pent up between the bone and the dura mater. And occasionally, too you may have to cut away pieces of overhanging bone, in order to remove a necrosed portion which is otherwise quite loose,

“But in every case of diseased bone of the skull, especially must we bear in mind that by active surgical interference we may lead the patient into those very dangers which, by operating, we hope to save him from. I have seen the application of a single crown of trephine followed by inflammation of the membranes of the brain and death.

“We are then to be very careful how we interfere surgically with such cases, but medically we may do much good; and for this all medical treatment must, as a matter of course, be based upon the peculiar condition which in each individual case may have led to the bone becoming diseased. In every case great care must be taken to keep the patient up by every possible means, and especially must great care be taken to avoid, as far as may be, every risk of erysipelas, and other liabilities which I have enumerated.”

S. Smith on contusion of the skull-bones (*Amer. Med. Times*, 1864, 1, 25, 49). J. Ashhurst on injuries of the head (*Amer. Journ. of the Med. Sciences*, vol. 48, p. 17). Dr. Guttenberg on depressed fractures (*Arch. für klin. Chir.*, iv, 592). T. P. Pick on trephining, &c. (*Brit. Med. Journ.*, 1863, ii, 543). A. Goschler, case of recovery after fracture of the base (*Allg. Wien. Med. Zeit.*, 1863, pp. 298, 306). A. M. Edwards, cases (*Glasgow Med. Journ.*, xii, 58). M. Morand, depression without fracture, post-mortem examination (*Gaz. des Hôp.*, 1863, p. 529). W. D. Spanton on collodion in hernia cerebri (*Lanc.*, 1864, 1, 268). M. Broca, two cases of traumatic aphemia, &c. (*Gaz. des Hôp.*, 1864, p. 107). F. H. Hamilton on gunshot injuries (*Amer. Med. Times*, 1864, i, 61, &c.). H. Raphael, case of Pott's abscess of the brain, trephining, necrosis, and removal of the right parietal and part of the frontal bones, recovery, (*Amer. Journ. of the Med. Sciences*, vol. 47, p. 414). J. H. Hutchinson, case of hernia cerebri (l. c., p. 423).

#### JAWS.

*Prof. Langenbeck on the means of preventing disfigurement after excision of the lower jaw* (*Deutsche Klin.*, 1864, p. 19).—Scarcely any operation renders the patient more unsightly than this, and not only is the distortion permanent, but it even increases with time. When the whole jaw has been removed, and this operation has been by no means rare since phosphorus-disease became of frequent occurrence, the lower lip and chin recede so far back that they are in the same plane with the larynx; the profile is thus shockingly altered; speech is rendered difficult; mastication becomes almost impossible, and thus the general nutrition is seriously impaired.

Almost as bad are the effects of removing the central portion up to the angles.

When one half only of the jaw is disarticulated, the face sinks in more or less on that side, the mouth becomes obliquely placed, and the remaining half of the jaw is drawn towards the affected side so that its teeth are directed towards the palate, and thus mastication is much impeded. In some cases indeed, for reasons unknown, the deformity just mentioned does not ensue.

If a still smaller piece, including the whole thickness of the bone is re-

moved, we find as the rule almost the same displacement of the portions remaining, as after exarticulation of one half.

To avoid these results we may adopt one of the following plans :—

1. *Preservation of the lower margin of the portion excised.* This operation may be performed in the cases of non-recurrent tumours (osteomyeloid, osteofibroid, enchondroma, and sarcoma) which so often occur in young persons, provided the lower margin of the bone is not diseased. It was first applied by Rhea-Barton to excision of the central portion : it may, however, be used even in removal of the whole of one half. Langenbeck is surprised that this method has been so little noticed ; he himself has employed it with the best effect in six cases. In one of these, where there was a fibrosarcoma of the whole of the left half of the bone, he resected the whole of the diseased portion including the degenerated coronoid process ; the joint was untouched, and the lower edge of the horizontal and ascending ramus was left in the form of a bony plate as thick as the back of a knife. After recovery there was no change in the form of the face or in the mobility and power of the lower jaw.

2. *Subperiosteal resection* may be employed in necrosis ; considerable displacement, however, takes place before the bone is regenerated. Langenbeck has therefore in necrosis of the whole jaw divided the operation into two parts, first excising only one half, and when the bone was regenerated after about six months, the second half ; notwithstanding this precaution, the chin and lower lip became much retracted.

3. Billroth of Zürich lately performed an operation in a case of phosphorus-necrosis of the whole jaw with the design of *preserving not only the periosteum but also the newly formed bone.* The latter adheres both to the periosteum and to the diseased bone. By means of an incision along the lower edge of the jaw the osseous deposit is cut or sawn through as far as the diseased jaw and then separated by an elevator or by the instrument (*Geissfuss*) used by Langenbeck in periosteal uranoplasty. In the case so treated the bony capsule accurately represented in form and size the portion removed and was sufficiently firm to prevent any retraction of the soft parts ; no necrotic exfoliation followed, and a perfectly solid lower jaw of normal form was the ultimate result.

4. Where the periosteum cannot be preserved, it appears plausible to *introduce foreign bodies* into the wound, with a view of preventing displacement, till the cicatricial tissue has become sufficiently firm. Thus gutta-percha splints with steel points at each end have been placed in the wound ; unfortunately such violent inflammation and suppuration ensued in five or six days that they had to be removed. A better result was gained by an apparatus like that used by dentists for straightening teeth, by means of which the lower was fixed against the upper jaw. Although in a case so treated, half of the jaw had been excised, very little displacement ensued.

5. *Transplantation of a piece of bone.* Non-recurrent tumours often affect only the part of the horizontal ramus between the canine tooth and angle of the jaw. In these cases it is possible to saw a piece of bone, 4 to 6 lines thick, from the coronoid process, leaving the slip attached by its lower extremity, and then to turn it round into the wound. Langenbeck attempted to follow this plan in a case of fibro-



sarcoma. After an incision had been carried along the lower edge of the jaw as far as its angle, the outer incisor tooth was extracted, the jaw was sawn through, and the soft parts were separated both from the inner and outer side of the bone. Then the portion of the jaw was pressed downwards, the temporal muscle was partially separated from the coronoid process, and the latter divided by the saw vertically into two almost equal parts. The jaw was now again divided at the root of the coronoid process, and the diseased part removed. On trying to partially fracture the portion of the coronoid process, it unfortunately broke off. This accident appeared to be due to unnatural brittleness, for on the subject Langenbeck found the operation could be successfully performed.

Dr. Ivanow on suffocation by the tongue, in resection of the lower jaw ('St. Petersb. Med. Zeitschr.,' v, 255). Dr. Lehmann on preservation of the teeth in resection of the alveolar process of the upper jaw ('Deutsche Klin.,' 1864, p. 25). C. Völckers, case of osteoplastic resection of the upper jaw ('Arch. für klin. Chir.,' iv, 603). M. van Biervliet on osteoplastic resections of the upper jaw ('Bull. Belge,' 1863, pp. 582, 722). F. Grohe, melanotic cancer of the intermaxillary bone ('Arch. für path. Anat.,' vol. 29, p. 209). S. W. Fearn, case of dentigenous cyst of the lower jaw, operation ('Brit. Med. Journ.,' 1864, ii, 241).

## EYE.

T. Longmore, 'Manual of instructions for the guidance of army surgeons, in testing the range and quality of vision of recruits, and in distinguishing the causes of defective vision in soldiers,' (pp. 78, Lond.). A. Zander, 'The ophthalmoscope: its varieties and its uses,' transl. by R. B. Carter (pp. 225, Lond. R. Hardwicke). J. Jago, 'Entoptics, with its uses in physiology and medicine' (pp. 188, Lond., J. Churchill). A. Zander and A. Geissler, 'Injuries of the eye,' (Leipz., C. F. Winter). M. Clot-Bey, 'on ophthalmia, trichiasis, entropion, and cataract in Egypt,' (Paris, Masson).

M. Warlomont on the free use of sulphate of copper in external ophthalmia ('Ophth. Review,' 1, 186).—The author has found the eye remarkably tolerant of external irritants. One case of pannus recovered excellently under the use of the pure tincture of cantharides applied two or three times daily. Warlomont has even used glycerine saturated with the sulphate of copper, and also the latter finely powdered, in cases of granular ophthalmia. He found that such large doses were very beneficial, and that they did not cause greater pain or more violent reaction than smaller ones. He ordinarily employs one of the following forms:—

No. 1, 1 part	} of sulphate of copper to 8 parts of pure glycerine.
„ 2, 1½ „	
„ 3, 3 „	

A few drops are applied by means of a brush twice or thrice daily; (1) in fleshy pannus resulting from luxuriant granulations: in such cases Warlomont applies from time to time a thick layer of

finely powdered sulphate on the conjunctiva; (2) in the chronic blepharo-conjunctivitis of scrofulous children, where the eyelids are large, thick, and shining, the cornea is normal, and a muco-purulent discharge escapes from the fissure, so as to simulate a purulent ophthalmia; by these means the swelling, which frequently resisted all other treatment for months, was removed in a few days; (3) in vascular and interstitial keratitis, with remarkable benefit according to Van Roosbroek.

*J. Homberger on a new mode of applying atropine* ('Amer. Journ. of Ophth.,' 1, 253; ii, 18).—In place of repeated applications of a solution, the author recommends its use in substance. Solid atropine readily adheres to the end of a silver probe, and a particle may be thus placed on the inner surface of the lower lid. According to the author, the alcaloid soon dissolves in the tears, and does not excite any irritation. Two applications a day appear to him to have as much effect as twenty instillations. In iritis he introduces "the fortieth part of a grain of atropine, in substance, into the lower conjunctival sac, which can be easily done by placing the salt, with a probe, on the everted lower lid. The patient is kept for half an hour under observation. Dryness in the throat is a usual effect of the application of the drug, which soon passes away; only if further symptoms (congestion to the head, paralysis of the m. protractor urinæ) should approach, it will be necessary to give the patient, internally,  $\frac{1}{6}$ th to  $\frac{1}{3}$ rd of a grain, or a subcutaneous injection of  $\frac{1}{8}$ th to  $\frac{1}{4}$ th of a grain of the sulphate of morphia. Though I have but twice been obliged to resort to these means of counteraction, I consider it necessary to have them always on hand. It will be well to examine the patient some hours after the first application. If the pupil has enlarged considerably, one application daily will soon bring about dilatation, and no further treatment will be necessary, particularly in cases of a non-specific nature. If the enlargement is noticeable, but of little extent, or if there is no change, another application is made with the same care, and the case re-examined the following day. On the second day, those cases which do not present a marked increase of the size of the pupil, are, according to the current rules, subjected to the action of mercury, to depletion, paracentesis of the anterior chamber, or iridectomy. Those, on the contrary, where the pupil has become larger, are treated with atropine exclusively, and only those where marked constitutional syphilis exists, submitted to a mild mercurial treatment."

*Prof. K. Stellwag von Carion on luminous eyes* ('Ophth. Rev.,' 1, 174).—Beer, who first called attention to this subject, attributed the peculiar lustre to pathological disappearance of the choroidal pigment (cat's-eye amaurosis). It was soon found that medullary cancer of the retina at an early stage produces exactly similar reflections to those described by Beer, and the latter were accordingly enumerated among the symptoms of that disease. Yet the observations of Travers, Ammon, and others, showed that sometimes after this symptom had been observed, the eye-ball gradually became softer and atrophic. This process was at first explained by the supposition that the cancer had undergone a retrograde metamorphosis—a supposition, which was proved to be incorrect by

Chelius. It is now known that in such cases the tumours are of inflammatory origin, that they are formed of connective tissue, and that they usually proceed from the choroid, although, in exceptional instances, they may be primarily developed in the retina. Such tumours constantly end by suppuration or atrophy; they, of course, destroy the eye, but do not, like cancer, destroy the patient. They now pass under the title of sarcomatous tumours.

The peculiar lustre is also seen in other cases—for example, in some cases of separated retina, provided the latter is thickened and transformed into a dense tendinous mass (see case by Alfr. Graefe in the 'Ophth. Review,' 1, 160).

There has been some doubt as to the nature of the affection described by Beer under the title of "cat's-eye amaurosis." Himly refers it to absorption of the choroidal pigment, and supports his view by the light colour of the fundus oculi, and the lustre observed in albinos. It is true that some observers have not noticed the latter appearance, probably owing to their neglect of the conditions under which it can be seen. If an albino is placed in a partially darkened room opposite a moderately distant window or lamp, a properly placed observer will scarcely ever fail to perceive the lustre—only, indeed, when the pupil cannot dilate. The author considers rapidly advancing myopia to have been the essential lesion in Beer's cases; extreme atrophy of the choroid and consequent exposure of the sclerotic very much conduce to the production of the lustre; the author, can, from his own experience, affirm that it may always be seen in the most brilliant manner in such cases, provided the external conditions of the phenomenon are fulfilled. Even if there is only a posterior staphyloma, or if the surrounding choroid is but little atrophied, this symptom can always be perceived, provided the pupil is well dilated, and the eye properly directed with reference to the lamp.

Stellwag also perceived the lustre in cases of fibrous degeneration of the optic disc where the choroid was quite normal. It may, indeed, be seen in normal eyes; though it is very difficult to render it apparent so long as the pupil is contracted, there is not much trouble after full dilatation has been effected by the use of atropine. It is, for this reason, a constant symptom in cases of congenital absence of the iris.

There is no great difficulty in determining what is the part of the fundus that takes the place of a mirror. If the choroidal pigment is entire, the room must be darkened, the lamp placed at a distance of several feet from the eye to be examined, and the observer must place a screen between himself and the flame, so that he may look almost exactly in the same direction; at the same time, the eye observed must be directed somewhat inwards. This is the only position in which the lustre is observed. The experiment is much facilitated by full dilatation of the pupil. Hence it is evident that there is in the normally pigmented fundus no considerable surface which can act as a speculum; the opinion that the optic disc is the reflector appears to be confirmed by the fact already mentioned, that the lustre is more readily observed when the nerve has undergone fibrous degeneration.

Where, from any morbid process, the choroidal pigment has been

extensively destroyed, the exposed sclerotic takes the place of the tapetum in animals. For exactly analogous reasons, the lustre is very marked and very readily perceived in albinos. Retinal cancers, light-coloured choroidal tumours, fibrous degenerations of the separated retina, very closely resemble the tapetum in their physical qualities.

A. v. Graefe on subcutaneous injections ('Arch. für Ophth.,' ix, 2, p. 62): on the compressing bandage (l. c., p. 111): on tumours of the eye and its appendages (l. c., x, 1, p. 176). M. Tetzner on contractions and interruptions of the visual field ('Wien. Med. Jahrb.,' 1864, ii, 155). M. Giraud-Teulon on the apparent size of objects seen through optical instruments ('Bull. Belge,' 1862, pp. 427, 588). H. Hancock on division of the ciliary muscle ('Lanc.,' 1864, 1, 321, &c.). H. Power on some cases of irido-choroiditis treated by division of the ciliary muscle ('Med. Mirror,' 1, 79). J. Z. Laurence on some ophthalmic instruments ('Ophth. Review,' 1, 126). Mr. Critchett on sympathetic ophthalmia (l. c., p. 178). H. Jackson on defects of sight in diseases of the nervous system ('Med. Tim. and Gaz.,' 1864, 1, 480). E. Rose on the hallucinations induced by santonine ('Arch. für path. Anat.,' vol. 28, p. 30). Dr. Schiess-Gemuseus, contributions to the pathological anatomy of the eye (l. c., vol. 29, p. 321). G. Fischer, supraorbital neuralgia with retinal irritation cured by operation ('Ophth. Review,' 1, 349). Dr. Burow, cases, &c. ('Deutsche Klin.,' 1864 p. 287). G. Lawson, cases of removal of eyes, &c. ('Lanc.,' 1864, ii, 209). Dr. Kleinwächter on the use of calabar extract in poisoning by atropine ('Berl. klin. Wochenschr.,' 1864, p. 369).

#### EYELID.

*Cancer of the eyelid.*—According to Prof. Arlt ('Ophth. Review,' 1, 272), when it is necessary to remove from the lower lid new growths which have affected its whole thickness (from the integument to the conjunctiva, and even from the inner to the outer canthus), but which do not extend far down, not indeed more than 3 or 4 lines from above downwards, there is no occasion to replace, by transplantation, the excised piece; for we may safely calculate on the fibres of the orbicularis gradually dragging upwards (*i. e.* pressing the lower towards the upper lid) the cicatrix which now unites the cutis to the conjunctiva, and that thus the patient will recover the power of closing the lids.

*Dr. R. Koller, cases of ectropium from Professor Arlt's clinic* ('Ophth. Review,' 1, 274).—The third case is to the following effect: a robust man of 33 had been burnt about the right frontal eminence about 14 months previously. During cicatrization the upper lid was gradually drawn upwards and everted, so that he could only partially shut his eye. An attack of corneitis induced him to apply at the General Hospital; 5 weeks later, when transferred to the eye-clinic, the inflammation was already passing away.

The skin of the right half of the forehead was replaced by a cicatrix reaching from the root of the nose and edge of the orbit over a space 5 inches high and 3 inches broad. The outer two-thirds of the upper lids were everted; its ciliary border was applied to the edge of the

orbit, and was three quarters of an inch longer than that of the left upper lid.

The edge of the lid was first separated from the orbit by an incision parallel to the former, but at a distance of 3 lines from it; it commenced at the supra-orbital notch, and ended on the temple about 3 lines to the outer side of the external canthus. The deeper layers, including the fascia tarso-orbitalis, were now divided, until the edge of the lid could be placed in its normal position, care being taken not to injure the levator palpebræ. The wound was now from 5 to 6 lines broad and 18 lines long; the flap, with which it was filled, had to be taken from the cheek. Union by the first intention resulted, and in 8 days the eye could be perfectly closed. After a time the flap somewhat retracted and drew the whole lid a little towards the temple. The patient was, however, quite satisfied with his condition, and would not submit to any further treatment.

The greatest difficulty in the operation—that of avoiding the levator palpebræ—was happily overcome by division of the contracted and tense fascia tarso-orbitalis close to the edge of the orbit, where, indeed, the levator is separated by fat from the fascia, and thus protected from injury. The patient was discharged on the 23rd day after the operation; he could then raise the upper lid enough to uncover the whole cornea when he was looking directly forwards.

A. v. Graefe on the operative treatment of ptosis ('Arch. für Ophth.,' ix, 2, p. 57). M. Warlomont on palpebral phimosis ('Bull. Belge,' 1863, p. 195).

*Muscles.*—M. Benedikt on the use of electricity in paralysis of the ocular muscles ('Arch. für Ophth.,' x, 1, p. 97, and 'Wien. Med. Halle,' 1863, p. 459). A. v. Graefe on the form of convergent squint caused by myopia ('Arch. für Ophth.,' x, 1, p. 156); cases of paralysis of the 3rd nerve ('Ophth. Review,' i, 216). Alfr. Graefe and Dr. Mooren on the treatment of strabismus by glasses (l. c., pp. 82, 169). J. H. Knapp on strabismus, &c. (l. c., p. 184). F. C. Donders, memoir on the pathogeny of strabismus ('Dubl. Quart. Journ.,' vol. 37, pp. 232, 480; vol. 38, p. 223). W. Fröbelius, case of muscular asthenopia, &c. ('St. Petersburg. Med. Zeitschr.,' vi, 382). H. D. Noyes on strabismus ('Amer. Med. Tim.,' 1864, 1, 244, &c.). A. von Graefe on bringing forward the tendon by suture in comparison with the method by ligature ('Arch. für Ophth.,' ix, 2, p. 48).

*Orbit.*—F. Horner, case of orbital periostitis, accompanied by perineuritis of the optic nerve ('Ophth. Review,' i, 76). E. L. Holmes, aneurismal tumour (l. c., p. 287). M. Aubry, pulsating varix of the ophthalmic vein ('Brit. Med. Journ.,' 1864, 1, 613).

#### EXOPHTHALMUS.

*Prof. von Graefe on the diagnosis between Inflammation of the Cellular Tissue in the Orbit and Periostitis* ('Ophth. Review,' i, 138).—In a clinical lecture on a case of exophthalmus from inflammatory infiltration of the cellular tissue behind the eyeball, the author says—“This diagnosis is of great importance in reference to treatment, for if

acute periostitis causes so considerable a protrusion of the eyeball as in this case (more than 6''), it is always attended with suppuration, and, on account of the danger of its terminating in diffused caries of the orbit, an incision or an exploratory puncture deep into the orbit must not be delayed. On the contrary, if we are dealing with a simple exudation into the cellular tissue, it is not only better to delay any opening in the hope of resolution occurring, but allowable even if its termination in suppuration has been already made out, that we may choose the most appropriate place for the opening, whether in the conjunctiva or in the skin. It is true that periostitis of the *posterior* parts of the orbit, which alone could cause an exophthalmos of this kind, commences generally with acuter and more widely spreading pains than inflammation of the cellular tissue, in which the pain only begins with the protrusion, and only becomes distressing as the tension increases. But we cannot depend on this symptom in our diagnosis, for it is in this as nearly all cases, too much dependent on the individual tolerance of pain. We gain by far more reliable evidence from a careful examination of the swelling, and by estimating how far the skin and cellular tissue are simultaneously involved. In simple inflammation of the cellular tissue the swelling surrounds the posterior hemisphere of the globe generally pretty equally, and extends in the natural direction of the cellular tissue. The protrusion is also mostly forwards in the direction of the axis of the orbit. Pressure against the roof itself of the orbit, as far as we can still reach, is but little felt; pressing the globe against the cushion of fat causes pain. In suppurative periostitis the secondary participation of the cellular tissue concentrates itself principally in the vicinity of the diseased spot, surrounds the posterior hemisphere of the eyeball unequally, and accordingly often presses the globe more on one side; then the impairment of mobility is more marked in certain directions, less so in others; the pain on pressure extends forwards along the bone, on which account pressing the finger against the roof of the orbit gives pain, even in front, some distance away from the seat of the suppuration. Moreover, the skin and subcutaneous cellular tissue become more slowly involved than in genuine inflammation of the cellular tissue. Here the skin of the upper lid, as the protrusion advances, becomes generally intensely red, or even of a dark red, whilst in periostitis it remains longer unaffected, or only covered with a rosy tinge. Finally, we must mention that in periostitis, in which only gradually infiltration of the cellular tissue supervenes, the consecutive protrusion of the globe develops itself more slowly; in genuine inflammation of the cellular tissue, on the contrary, more quickly. For all this the diagnosis is sometimes uncertain, as a narrowly circumscribed periostitis may serve as the point of origination of a vast infiltration of the cellular tissue, when it naturally loses its own characteristics amidst the symptoms of the latter."

J. H. Knapp, case of exophthalmus from orbital emphysema ('Ophth. Review,' i, 84). A. Rothmund, case of neuroma of the optic nerve, &c. (l. c., p. 162), and case of enormous hypertrophy of the lachrymal gland, &c. (l. c., p. 163).

*Exophthalmic goitre.*—v. Graefe ('Deutsche Klin.,' 1864, p. 158).

Dr. Valentiner (l. c., p. 193). J. Schnitzler ('Wien. Med. Halle,' 1864, p. 245, &c.). T. Laycock ('Med. Tim. and Gaz.,' 1864, ii, 323). M. Peter ('Ophth. Review,' i, 346). M. Collard, case ('Revue Méd.,' 15th Dec., 1863).

*Lachrymal apparatus.*—G. Critchett, lectures on the diseases ('Lanc.,' 1864, i, 89, &c.). E. Follin on the present treatment of diseases ('Arch. Gén. de Méd.,' 1864, ii, 340).

*Accommodation and refraction.*—J. Z. Laurence, lectures on the optical defects of the eye ('Med. Tim. and Gaz.,' 1864, i, 360, &c.), and on astigmatism ('Med. Mirror,' i, 4). Discussion on myopia ('Bull. Belge,' 1862, p. 458, &c.). O. Becker on the mechanism of accommodation ('Ophth. Hosp. Reports,' iv, 304).

*Calabar bean.*—v. Graefe ('Ophth. Review,' i, 36). J. Girtler ('Wien. Med. Wochenschr.,' 1864, p. 232, &c.). R. C. Moon, cases of paralysis of accommodation treated by the calabar bean ('Ophth. Review,' i, 58). B. Ruete, experiments ('Arch. der Heilk.,' 1864, p. 174). Dr. Frommüller ('Deutsche Klin.,' 1864, pp. 310, 333).

*Cancer.*—R. B. Carter, intra-ocular cancer extirpated without return ('Med. Tim. and Gaz.,' 1863, ii, 583). E. Thomann, cases ('Wien. Med. Halle,' 1864, pp. 284, 291).

*Conjunctiva.*—M. Vleminckx on the so-called military ophthalmia ('Bull. Belge,' 1862, p. 540), followed by discussion (l. c., 1863, p. 60, &c.). Dr. Wolff on the treatment of Egyptian ophthalmia ('Wien. Allg. Militärärztl. Zeit.,' 1864, p. 65, &c.). R. Schirmer, an epidemic of contagious granular ophthalmia ('Ophth. Review,' i, 70). A. v. Graefe on contagious inflammations of the eye ('Deutsche Klin.,' 1864, p. 79). E. C. Hulme, 3 cases of conjunctivitis with fibrinous deposits on the lids ('Med. Tim. and Gaz.,' 1863, ii, 452). H. Demme, case of cancrroid simulating phlyctenular ophthalmia ('Ophth. Review,' i, 79). E. Cheshire and R. B. Carter, tartarised antimony in strumous ophthalmia ('Brit. Med. Journ.,' 1864, i, 609; ii, 102). Dr. Heymann, case of neuro-paralytic ophthalmia ('Ophth. Review,' i, 158).

*Cornea.*—Dr. Niemetschek on the development of vessels in keratitis ('Prag. Viertelj.,' 1864, iii, 48). W. S. Watson on keratitis ('Med. Mirror,' i, 393, 457). Prof. Hasner on paracentesis in keratitis profunda ('Prag. Med. Wochenschr.,' 1864, pp. 3, 10). Dr. Schiess on the pathological anatomy of corneal staphyloma ('Schweiz. Zeitschr. für Heilkunde,' iii, 35). R. C. Moon, case of cancrroid ('Ophth. Review,' i, 255).

#### IRIS.

*T. Windsor, iridectomy as a method of forming an artificial pupil* ('Ophth. Review,' i, 11).—After describing the operation and some of the affections in which it is employed, the author states that by far the most serious and difficult to treat are the cases of genuine *universal posterior synechia*, in which the whole of the posterior surface of the iris is adherent, and the posterior chamber obliterated. A tough, whitish-gray membrane, even containing calcareous or bony deposits, and closely adhering to both the capsule and the iris, sometimes takes the place of the posterior chamber. The iris is often fragile, so that

only shreds of it can be torn from the subjacent exudation. Such a condition is the result of irido-cyclitis, as remarked by v. Hasner.

Prof. von Graefe has noticed, in cases of chronic iritis, synechia annularis pass into the form of synechia totalis. In some of these cases there has been no previous collection of fluid behind the iris; in others, the fluid exudation is again absorbed, the characteristic projections of the iris disappear, and the latter becomes intimately connected with the subjacent layer of pigmented neoplasms. The tissue of the iris appears tightly stretched, and its fibrillation is indistinct; it seems changed in colour, partly owing to a diffuse cloudiness of the aqueous humour and atrophy of the stroma-pigment, principally owing to the continued admixture of red; numerous vessels can be seen in it with the magnifying glass, or even with the unaided eye. Its condition is thus essentially different from that in which fluid is collected behind, where the tissue is anæmic and somewhat of a grayish hue. The whole of its surface is usually pressed forwards, so as to much diminish the anterior chamber; *the projection may be distinguished from that in annular synechia by its affecting uniformly the whole of the iris, and by the absence of any depression in the region of the pupil.* In such cases the iritic process cannot be considered to have ended; for inflammatory proliferations continue to take place at the posterior surface for an indefinite period.

The treatment is summed up in the following manner:—"In practice every stage will be found between the annular synechia already described and the present form. Even in respect to the latter, we meet with much variety in the condition of the iris, of the subjacent exudations, and of the deeper parts of the eye. In some cases a small peripheral fold may still be seized, and the aperture may be enlarged by the blunt hook at a subsequent operation. In others, a satisfactory result may be gained by the use of straight forceps and repeated operations. Lastly, in the worst cases, the lens must be extracted, and an artificial pupil formed at a later period; it must also be remembered, that in these cases passage of some vitreous through the wound appears to be a condition of success."

F. Fieber on the treatment of mydriasis by electricity ('Wien. Med. Wochenschr.,' 1864, p. 340). F. Horner, foreign bodies in the iris ('Ophth. Review,' i, 166). A. Graefe and P. Steffan on iridodesis ('Arch. für Ophth.,' ix, 3, p. 199; x, 1, p. 122).

#### LENS.

*A. von Graefe*, in a *clinical lecture on cataract* ('Ophth. Review,' i, 243), discusses the combination of iridectomy with flap-extraction (vide 'Year-Book' for 1862, p. 282).—"To sum up what we have said, iridectomy offers no protection against general or partial suppuration, but disposes the latter to a more favorable termination; it moreover prevents up to a certain point primary iritis and prolapses of the iris. Hence the general principle that some of the danger following extraction is obviated by iridectomy, and that we therefore should especially perform it in cases which appear particularly prone



to such danger. As regards its special indications, I some years back ('Arch. für Ophth.,' vol. ii, part 2, pp. 247, 248, in the year 1854) have said that iridectomy should always be performed if the operation itself has not gone on smoothly; *e. g.* if, on account of too small a flap, a comparatively too small opening of the capsule, or the outside of the lens adhering firmly to the capsule, the lens did not easily glide out, but had to be forced out with difficulty. Again, I attach importance to iridectomy when, on account of imperfect apposition of the flap after the operation, the pupil has a tendency to get dragged towards the wound, and thus to occasion prolapse of the iris. I also perform iridectomy where a hard cataract of the whole lens-substance occurs simultaneously with a small imperfectly dilatible pupil; where, on account of an unripe cataract, cortical portions of it may have to be either pressed out with difficulty, or even be left behind; or where the former occurrence necessarily takes place on account of the toughness and cohesion of the cortical portions of the cataract. In any case, indeed, which especially runs the risk of an imperfect healing of the wound, iridectomy may be recommended as promising a better result, if circumscribed suppuration should occur." As to the proposition to *always* combine iridectomy with extraction, Prof. Graefe mentions some objections to this plan, and then remarks:—"These disadvantages are, it is true, not very considerable; but, as iridectomy is only advantageous in the minority of cases, and in favorable ones is most probably superfluous, weighing the pros and cons. together, I cannot make up my mind to perform it indiscriminately in all cases."

*W. Zehender* discusses the *form of the edge of extraction knives* ('Ophth. Review,' i, 5). He says:—"In so delicate and nice an operation as extraction by the flap-incision, the weakest physical strength will more than suffice to completely obviate any such insufficiency. But the more easily and equably the section can be made, the more certain will be the progress of the knife, and the less will the whole eyeball be compressed and drawn upon by and during the section. This is the sense and signification which we attach to the above point. The great advantages of a well and evenly ground knife will be unhesitatingly conceded by all. And the advantages we are now discussing are of quite as much importance as these; they equally aim at completing the intended operation with the *minimum amount of force.*" He decides in favour of a convex edge; "the centre of curvature must, to attain our object, lie in a perpendicular to the widest part of the knife, or more correctly expressed, to that part of the edge which is to cut through the last piece of the cornea. The length of the radius of curvature is of subordinate importance, and may be regulated pretty arbitrarily according to convenience. The shorter this radius, the shorter will be the entire blade, and *vice versâ.* We have in our instruments taken the radius at 4 inches, which gives with a maximum width of the knife of somewhat less than 3 lines, a very conveniently proportioned length."

R. Schirmer on the spontaneous displacement of the transparent lens ('Ophth. Review,' i, 69). E. Hart on cataract ('Lanc.,' 1864, i, 405, 631). M. Singer and E. L. Holmes, cases of pyramidal cataract ('Wien. Med.

Wochenschr.,' 1864, p. 213, &c.; 'Ophth. Review,' i, 354). L. Rydel on zonular cataract (l. c., p. 265). G. Lawson on the treatment of congenital cataract ('Brit. Med. Journ.,' 1864, ii, 33, 268). G. Critchett, case of congenital cataract treated by iridesis ('Ophth. Review,' i, 183). T. P. Teale on extraction of soft cataract by suction ('Lanc.,' 1864, ii, 348). A. v. Graefe on the use of a broad needle in fluid cataract ('Arch. für Ophth.,' ix, 2, p. 43). M. Warlomont, case of death after a needle-operation ('Ophth. Review,' i, 182). J. H. Knapp, linear extraction of a diabetic cataract (l. c., p. 86). R. B. Carter on recent improvements in the methods of cataract extraction ('Med. Tim. and Gaz.,' 1863, ii, 432). G. Critchett, new instrument, the vectis spoon, for the extraction of cataract ('Lanc.,' 1864, i, 666). C. Bader on corneal incisions with scissors ('Med. Tim. and Gaz.,' 1863, ii, 434). Dr. Blessig on extraction with and without iridectomy ('St. Petersburg. Med. Zeitschr.,' vi, 129). W. Fröbelius, some unusual cases of extraction (l. c., p. 28). C. Taylor, cases of cataract extracted by Mooren's method ('Ophth. Review,' i, 262).

*Choroid.*—Dr. Manz on tuberculosis ('Ophth. Review,' i, 181; 'Arch. für Ophth.,' ix, 3, p. 133). A. v. Graefe on the artificial production of suppurative choroiditis as a means of reducing the size of the globe (l. c., ix, 2, p. 105).

*Vitreous.*—A. v. Graefe on the extraction of foreign bodies, depressed lenses, or entozoa from the vitreous ('Arch. für Ophth.,' ix, 2, p. 79); and on the division of membranous opacities in the vitreous (l. c., p. 101).

*Glaucoma.*—J. S. Wells, glaucoma and its cure by iridectomy (pp. 86, Lond., Churchill). Dr. Magawly, contribution to the clinical history of glaucoma ('Ophth. Review,' i, 233). Case of Prof. Arlt's treated in 1857 by operation ('Wien. Med. Wochenschr.,' 1864, p. 394). J. Jacobi, glaucoma simulated by sarcoma in the choroid ('Ophth. Review,' i, 79). G. Braun on glaucoma ('Arch. für Ophth.,' ix, 2, p. 222). T. W. Jones on iridectomy and glaucoma ('Med. Tim. and Gaz.,' 1864, ii, 83, &c.).

#### RETINA.

*A. Nagel on a peculiar affection of the retina* ('Centralblatt f. d. Med. Wissensch.,' 1864, No. 45).—The author found the following condition of both eyes in a young man of about 20; the whole of the retinal arteries from their entrance at the disc up to their minutest branches appeared as *white strings*, which were sometimes glittering and clearly defined, sometimes of a duller hue and with somewhat indistinct margins. A fine bright-red line was seen in the middle of most of the larger strings. Here and there this red line became somewhat larger, and where the white hue of the stripe was but little intense, the double contour of the artery could be traced, though indistinctly, as if through a haze. A very few small arterial twigs appeared normal, except that their red colour was somewhat dulled. The venous system also participated in the disease; the larger trunks were somewhat diminished and irregular in size, and a few of their peripheral branches were changed into white strings. The degeneration generally stopped at

the junction of branches, so that the vein appeared formed by two twigs, one of which was red, the other with all its ramifications white. Some parts of the retina were a little clouded, untransparent: here and there a kind of network was formed by little whitish stripes which were supposed to be small vessels with thickened walls. There were numerous punctated, and a few larger, ecchymoses, partially collected into groups. White, translucent, prominent masses concealed the entrance of the central vessels on the optic disc. A great quantity of closely packed red points and streaks in this situation proved to be formed by vessels, whose origin and growth were watched for a long time. On slight pressure of the globe every trace of red vessels disappeared from the white glittering deposit.

Contrary to all expectation, central vision was nearly normal. The visual field, however, was defective; at first the defect was island-like near the point of fixation, at a later period by gradual increase it formed an irregular zone, which enclosed a tolerably circular, slightly excentric field of vision, and was itself surrounded by a sentient portion.

It was learnt from the history that the disease had progressed very gradually, and that at different times there had been brief obscurations of one or both eyes. The author thinks that such sudden, temporary obscurations—not unjustly denominated *epilepsia retinae*—depend on momentary anæmia of the retina.

The general health is unaffected, and the heart healthy; there is some reason to suspect a commencing central lesion, though after watching the case for many months, the author has failed to discover any corroborative symptoms.

This, although a solitary, case differs so essentially from the forms of retinitis hitherto described, and is at the same time so well characterised, that the author has no hesitation in adducing it as an example of a special form of retinal disease. He thinks it must be considered to be a chronic, though slowly progressive, inflammation, which commences in the walls of the vessels as a proliferation or induration of the connective tissue, spreads to the same tissue in the parenchyma of the retina, is transmitted from the arteries by means of the capillaries to the veins, and is possibly connected with similar changes in the central organs and their vessels. The latter suspicion is supported by the occurrence of the disease in both eyes.

Wedl, Billroth, Rindfleisch, and Leidesdorf, have shown that many diseases of the brain and spinal cord arise from the walls of the vessels. The author compares his case with one described by Rindfleisch, in which there were many centres of gray degeneration in the brain and anterior portions of the spinal cord, and in which the degeneration had evidently commenced in a proliferation of the cells and nuclei of the external coat of the vessels. The author thinks that the process was similar in his case, and that he might justly denominate the affection *gray degeneration of the retina*.

C. Schweigger on the physiological excavation of the optic disc ('Berl. Klin. Wochenschr.,' 1864, p. 232). M. Colin, case of disease from albuminuria ('Ophth. Review,' i, 84). Mr. Hulke, cases of disease occurring in the course of kidney-disease ('Med. Tim. and Gaz.,'

1864, i, 9). F. Horner on the lesions of the retina, which accompany Bright's disease ('Ophth. Review,' i, 75). Dr. H6ring, case of retinal affection from Bright's disease (l. c., p. 159). A. Mooren on retinitis pigmentosa (l. c., p. 46). Van Biervliet and van Rooy on retinitis pigmentosa in the horse ('Bull. Belge,' 1863, p. 542, &c.). O. Just, embolism of arteria centralis retinae ('Ophth. Review,' i, 163). F. Horner, case of retinal tumour (l. c., p. 164). M. Fano, case of traumatic separation ('Gaz. des H6p.,' 1863, p. 562). A. von Graefe on perforation of the separated retina ('Arch. f6ur Ophth.,' ix, 2, p. 85). W. Bowman on needle operations in detached retina ('Ophth. Hosp. Reports,' iv, 133).

#### AMAUROSIS.

*W. Mackenzie* records a case of *amaurosis coincident with oxaluria* ('Ophth. Review,' i, 213). The disease was of two years' duration, when, on Sept. 18, 1863, the following symptoms were noted:—"Left or better eye.—The left optic disc is very irregular in form; and stretching upwards from it in the retina are two long white lines or streaks, formed apparently by enlarged and obliterated vessels, the coats of which have become condensed and opaque. With this eye reads No. 18 of J6ger's test types. Right or worse eye.—The right vitreous is so turbid, that the fundus oculi is not visible. Can read none with this eye." He was ordered a pill, thrice a day, consisting of two grains of sulphate of iron and two of extract of gentian. On the 21st, the specific gravity of the urine was 1020; its reaction acid; no albumen; octahedral crystals of oxalate of lime abundant. On the 28th he was ordered to omit the pills, and to take ten minims thrice daily of a mixture of equal parts of nitric and muriatic acid. On the 21st Jan., 1864, it is noted that "both eyes improve; right disc much better defined; little apparent change in left retina; the two white streaks in it unaltered. Reads No. 8 with left eye at five inches, and No. 1 with right at fourteen inches."

This patient "had come from a distant colony first to the north of Ireland and latterly to Glasgow, in the hope of obtaining a restoration of his sight; and finding no benefit from the treatment which had been used; was about to return home in despair, when he fell under my care. The result far exceeded my expectations. This is the second case in which I have seen much benefit from the use of nitro-muriatic acid in chronic internal inflammation of the eye, combined with oxaluria. It is evident, however, that in the present case a turn to the symptoms was first given by the sulphate of iron."

*J. Hutchinson*, *clinical data respecting cerebral amaurosis, more especially with reference to that form supposed to be connected with the use of tobacco* ('Lond. Hosp. Rep.,' i, 33).—"A person, most commonly an adult, and usually a man, begins rather suddenly to notice that he cannot see well, 'there is a fog over everything'—he has no muscæ, no flashes of light, no pain in the eyeballs; frequently, he has more or less of headache, but often not much, and very often there is more or less of giddiness. A symptom, I believe not hitherto noticed, is, according to my experience, one of those most frequently present, viz.—excessive

tendency to sleep. One eye is usually attacked a month or two before the other; the left is mostly the first to fail. In a short time, however, both eyes are affected, and within from 4 months to a year from the date of onset, the patient is so far blind that he is unable to read. From 18 months to 2 years usually suffice to complete the entire loss of all sight. Through the whole course of the attack, the patient has usually continued in excellent health, after the first few months the liability to headache, and the tendency to sleep have passed away, and all his bodily functions excepting those of sight, have appeared in perfect order. From beginning to end, he has had no ocular symptoms excepting progressive abolition of the special sense. In this form of amaurosis the ophthalmoscope reveals to us remarkable and very constant conditions. In the early stage the optic disc is usually too red, and the whole of the choroid full of blood, and presenting the appearance of a pile of red velvet. There are no ecchymoses, nor any effusions of lymph. In a little time the congestion of the optic disc diminishes, instead of being too red it is too white. At this stage, the arteria centralis retinae is much lessened in calibre, but its accompanying vein is of normal or even increased size. From this stage onwards, the optic disc gets whiter and whiter until all traces of arteries, excepting the largest trunks, are lost, sometimes, but very rarely, even the largest cease to be visible. At this latest stage the veins are usually very small, but I have never known them absent. Whether the stage of preliminary congestion is always present or not, I do not know, since a large majority of cases come under notice long after it is passed. With regard to the method by which the abolition of function is brought about, I entertain a strong opinion that it is not owing to any altered state of the eye itself. Neither the primary congestion nor the subsequent anæmia of the retina suffice to explain it. I have seen many cases in which the patient could not see, although the arteria centralis was still of fair size. It seems to me probable that these alterations in blood-supply are secondary to some deeper-seated change, and that the real location of the changes causing failure of the perception of light is in the cerebral origins of the optic nerves, *i. e.* in the tubercula quadrigemina. The form of amaurosis to which I now allude is always symmetrical. Its most prominent symptoms, however, white atrophy of the optic disc and shrinking of the arteries which supply the retina, are now and then observed in only one eye. These unsymmetrical cases, however, usually present other symptoms which clearly demonstrate that they are of a wholly different nature. They probably depend upon local disease in the optic nerve-trunk of the affected eye."

The author records 47 cases of the symmetrical disease in adults, 12 cases of the same form in young persons, and 7 of the non-symmetrical amaurosis at various ages. These sufficiently show that there are at least 12 cases of the first form in the male for 1 in the female, whilst unsymmetrical amaurosis is equally frequent in the two sexes. In the great majority of cases there is no reason to attribute any influence to occupation, intemperance in the use of stimulants, sexual excesses or masturbation, syphilis, or injuries to the head. Thus we arrive at the question of the possible influence of tobacco, in regard to which Mr.

Hutchinson states "that in a very considerable number of cases no probable hypothesis can be given as to the determining cause of the failure of sight, and that almost all these unexplained cases (symmetrical and well marked in all their stages) occur in men who have been accustomed to smoke." He therefore thinks *that it is most desirable to insist upon abstinence from tobacco*, and that since he has adopted this rule, his results have been better than formerly.

J. Hutchinson, cases of amaurosis in children ('Med. Tim. and Gaz.,' 1863, ii, 615). E. Lancereaux on degeneration of the optic nerves in disease of the hemispheres of the brain ('Ophth. Review,' i, 152). L. Danjoy, the dependence of saturnine amaurosis on albuminuria (l. c., p. 156). A. Graefe, case of cat's-eye amaurosis (l. c., p. 160).

*Hemeralopia*.—C. Küttner ('St. Petersb. Med. Zeitschr.,' vi, 65). M. Netter on the use of the dark room (Paris, G. Baillière). M. Desponts on cod-liver oil (Paris, A. Delahaye).

#### EAR.

*Dr. Pagenstecher on trephining the mastoid process and petrous bone* ('Arch. für klin. Chir.,' iv, 523).—The importance of suppurative inflammation of the external and middle ear with reference to disease of the adjacent periosteum and secondary changes of the bone is well known; so indeed is the connection between caries of the petrous bone and thrombosis of the sinuses, purulent meningitis, or abscess in the brain. The ease is often truly astonishing, with which, especially in children, an apparently unimportant superficial suppuration of the external meatus, such as commonly occurs with eczematous eruptions of the face or with the exanthematous fevers, induces serious cerebral symptoms. Yet after long continuance, indeed, as our first case will show, after almost forty years, can a circumscribed purulent destruction of the periosteum in the external meatus also excite disease in the membranes of the brain and induce death. We not unfrequently meet amongst children both with acute cases of serious cerebral symptoms proceeding from otorrhœa, and with more gradual diseases of the bone, the former sometimes without, the latter generally after, destruction of the membrana tympani. Intermediate between these are the cases, in which after previous suppuration in the outer portion of the meatus, disease of the mastoid process, usually without injury to the membrana tympani, but in company with violent cerebral symptoms, supervenes. The children have generally not suffered for any length of time from otorrhœa; they suddenly become very feverish, vomit sometimes, wander, and often pass into a state of stupor so early as the second or third day; the ear becomes very painful, hot, red, and swollen, especially about the mastoid process; in slight cases suppuration takes place under the periosteum, in serious ones within the osseous cells. Should the course be favorable, the pus makes its way outwards; if unfavorable, the morbid process spreads more deeply, and death ensues from thrombosis, abscess in the brain, or purulent meningitis. In the majority of cases, the disease is limited to the outer part of the meatus and to the mastoid process, and ends in recovery, even without the aid of an artificial exit for the pus; the tympanic membrane then generally

remains intact. The author has recently observed an example in a girl of 12, who had suffered from a discharge out of the right ear for 8 days. The outer portion of the upper and posterior wall of the meatus was ulcerated, and the membrana tympani slightly clouded. Suddenly there appeared fever with delirium, then slight sopor, whilst the integument over the mastoid process became swollen, hot, and red. Pressure caused violent pain. Blood was repeatedly drawn by the artificial leech; mercury and iodide of potassium were administered; the parts were kept perfectly clean. The cerebral symptoms disappeared in 6 days, the noises in the ear and deafness in about 3 or 4 weeks; the hearing was not perfect, however, for some months; the membrana tympani was uninjured. A similar example was seen in a man aged 60. He was said to have been for some days in a partially comatose state; otorrhoea on the left side was stated to have existed for 8 or 10 days. The ear and the parts about the mastoid process were of a dark-red colour, very hot, and extremely painful. The soft parts were incised, and the bone perforated; a large quantity of pus and small osseous fragments were evacuated. He recovered perfect consciousness in a few hours; the wound rapidly healed; the membrana tympani was intact. It appears certain that in such cases the inflammation spreads from the external meatus to the mastoid process, and attacks the spongy tissue only at a later period: the importance of an early incision is obvious.

Rarer, but far more serious, are the cases in which secondary disease of the petrous portion appears after extension of the morbid process to the middle ear and usually after destruction of the membrana tympani. The portion of bone over and to the outer side of the tympanum, close to the cranial cavity, is tolerably spongy even in adults, and forms the principal seat of disease. Separated both from the tympanic and cranial cavities by only thin plates of bone, and connected with both spaces by cellular tissue, this spot is above all others liable to become involved in disease of the middle ear, and to induce further extension of the morbid process to the intracranial organs. Abscess may form in the spongy tissue of the petrous bone with or without previous perforation downwards (into the tympanic cavity), and may end fatally with or without perforation into the cranial cavity. Suppurative inflammation on the one side of the bone possesses in the cellular tissue accompanying the vessels and nerves ways enough of passing to the other surface. Purulent periostitis of the orbit is sometimes fatal in two or three days from meningitis. Caries and previous perforation appear, however, to be by no means rare in the ear. In both the following cases perforation had taken place into the tympanic cavity, but not into the cranium; in the first one, the meningitis was probably induced by the transmission of the inflammation along the auditory nerve. Purulent thrombosis probably depends on the passage of decomposing clots, meningitis on simple extension or on perforation, abscess of the brain often on perforation. Where suppuration has taken place in the interior of the petrous bone, a free aperture outwards for the discharge of pus and fragments of bone will render recovery possible, and thus occasionally save life; the objections raised to trepanning cannot under such circumstances be considered of any account. The first condition for the operation must be the presence of symptoms of suppuration

in the interior of the bone without the existence of any sufficient aperture for its discharge,—the great, very painful, dark-red swelling of the soft parts with expansion of the bone itself, and otorrhœa; if the swelling is more prominent over the mastoid process, the cells of the latter will be chiefly affected; if it is principally seated over the depression which generally marks the attachment of the mastoid process, it is more especially the spongy tissue of the petrous portion that is diseased. The condition of the external meatus and of the tympanic membrane may aid the diagnosis. Perforation of the antero-inferior part of the mastoid process opens its cells; to penetrate the petrous bone, we must pierce the upper attachment of the mastoid process at the point, which, as already mentioned, is usually depressed, to the depth of 6 or 9 lines. The author used for this purpose a brace with a sharp-angled bit of  $1\frac{1}{2}$  to 3 lines' diameter. The direction in which the instrument should pass is clear; the mastoid cells are opened by boring behind the ear from before a little backwards, the drill being placed just below the middle of the anterior surface of the process. The spongy tissue of the petrous bone is to the outer and upper side of the tympanic cavity, close to the end of the external meatus; the perforator must therefore be placed on the root of the mastoid process, and introduced in the proper direction from 6 to 9 lines deep. Any necessary enlargement of the aperture at the bottom of the wound may be easily effected by a strong director, the bony septa being very friable.

We shall add the author's second case as an example:—F. Braselmann, æt. 36, a workman, was examined on the 10th June, 1862. According to his account, his illness had commenced in the previous December with violent pains in the teeth and face on the right side; the last upper molar, although healthy, was pulled out without relief; towards Christmas he suffered from pain and noises in the ear, then from a discharge and increasing deafness; five weeks ago the right side of the face became paralysed.

Present state:—Pale, sallow appearance, great emaciation and weariness, mind slothful, entire loss of sleep for weeks; no fever, no diarrhœa, lungs healthy. Violent headache over the whole right side, especially along the posterior auricular nerve, increased by the least motion; the head is constantly inclined half-way towards the right side. Complete paralysis of the right half of the face, all play of the features arrested, the sensibility distinctly diminished. The right eye cannot be closed, and is during rest much more widely opened than the other; the obliquity of the mouth is not very noticeable when the features are at rest. The inner part of the lower lid is at a considerable distance from the eye; free lachrymation, great conjunctival congestion, slight desquamation of the epithelium from the lower part of the cornea. The vision and mobility of the eye are normal; the uvula is straight. The ear on the affected side is swollen, red, and hot; there is an abundant, fetid discharge from it. The external meatus is swollen up; the membrana tympani cannot be seen. The mastoid process is very prominent; whilst on the left side there is a deep sulcus just above the process, on the right side there is a prominence at least as broad as the finger; the soft parts are reddened, swollen, and painful on pressure; deep pressure on the bone causes intense pain. Total deafness; no subjective aural sensations.



Perforation was performed two days later, because the strength was rapidly failing, and the torpor increasing. The instrument was applied at the most painful and prominent part of the mastoid process, just beyond the margin of the external meatus, and then introduced in the direction of the petrous bone. At a depth of six lines it entered an irregular cavity, lined with a soft velvety membrane, from which escaped thick cheesy flakes of pus and some necrotic fragments. By means of a strong blunt-pointed director, the cavity was dilated to the depth of 8 or 9 lines; the pus and débris were then well cleared out by repeated tepid injections. Immediate relief and sleep; greater sensibility of the affected side of the face and less insufficiency of the orbicularis, with less lachrymation so soon as the next day. The patient rapidly improved during the following two weeks, though no further change in the facial and auditory nerves occurred. On the twelfth day destruction of the membrana tympani, caries of the floor of the tympanum and of the upper wall of the meatus were found. In August the patient could hear a watch at an inch distance. In the beginning of September some larger pieces of dead bone were removed; the suppuration had almost ceased, the patient worked at his business, and was quite strong and free from pain.

So far as can be determined from the history and the course, the affection began as an inflammation of the middle ear with early implication of the bone; perhaps, rare as this may be, as a primary disease of the bone. The patient repeatedly asserted that the local and extracranial pains, and the impairment of hearing had existed for a long time before the occurrence of otorrhœa; the facial and auditory nerves became paralysed as the disease of the petrous bone progressed. Both paralyses are now somewhat less complete; that of the auditory is less so than that of the facial. It must remain doubtful in what manner the 5th nerve (pain in some branches at the commencement, slight anæsthesia of the face) was implicated; the author is inclined, both from this symptom and from the mental condition of the patient before the operation, to the view that the intracranial organs were to some degree affected.

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R. Virchow on malformations ('Arch. für path. Anat.,' vol. xxx, p. 221). Z. Oppenheimer on the diagnosis of ear-diseases (l. c., p. 240). Drs. Ockel, Glama, and Wreden, report of the cases at the Maximilian-heilanstalt for the years 1858-61 ('St. Petersburg. Med. Zeitschr.,' v, 129, 257; vi, 257, 321). J. Böke, cases ('Wien. Med. Halle,' 1864, pp. 379, 391). Dr. Erhard on examination of the ear with reference to soldiers and medico-legal questions ('Wien. Med. Wochenschr.,' 1863, pp. 730, 761). J. E. Weber, cases ('Berl. Klin. Wochenschr.,' 1864, p. 164). S. Duplay, an examination of recent publications on the anatomy, physiology, and pathology of the ear ('Arch. Gén.,' 1863, ii, 327, 576). A. Lucae, anatomico-physiological contributions ('Arch.

für path. Anat.,' vol. xxix, p. 33). Dr. Brenner on the use of galvanism (l. c., vol. xxviii, p. 197). Mr. Hinton, improvement in hearing voice, but not in hearing watch ('Med. Times and Gaz.,' 1863, ii, 644); case ('Guy's Hosp. Reports,' x, 340); and on insufflation of alum in chronic catarrh of meatus, &c. ('Med. Times and Gaz.,' 1864, i, 11). W. S. W. Ruschenberger, description of a syringe for washing the auditory canal ('Amer. Journ. of the Med. Sciences,' vol. xlvi, p. 86). M. Follin, case of trepanning the mastoid process ('Gaz. des Hôp.,' 1864, p. 4). M. Triquet on bleeding from the ear (l. c., p. 26). Dr. Gruber on the diseases of the muscles ('Wien. Med. Halle,' 1864, p. 36). J. Böke on cancer (l. c., 1863, pp. 428, 438). J. H. Hutchinson, hysterical loss of speech and hearing successfully treated by the inhalation of ether ('Amer. Journ. of the Med. Sciences,' vol. xlvi, p. 412).

*Eustachian tube.*—Politzer's method of inflating the tympanum ('Med. Times and Gaz.,' 1864, i, 10). W. Kramer on the introduction of fluids, &c., into the tympanic cavity ('Deutsche Klin.,' 1864, p. 113), and on Politzer's method of inflating the tympanum (l. c., p. 325). A. Hermann on a new mode of catheterising ('Wien. Med. Halle,' 1864, p. 339). T. M'Call Anderson, a short sketch of obstructions, &c. ('Glasgow Med. Journ.,' xii, 1).

*Membrana tympani.*—A. Politzer on the artificial membrane ('Wien. Med. Halle,' 1864, p. 5, &c.). Dr. Schreiber on perforations (l. c., pp. 323, 342). E. Siegle, the pneumatic ear-funnel (an instrument that, by exhausting the air in the external meatus, draws the membrana tympani outwards) ('Deutsche Klin.,' 1864, p. 363). J. Gruber on myringotomy ('Allg. Wien. Med. Zeit.,' 1863, p. 305, &c.).

Dr. Dardel, anomalous condition of the internal ear in congenital deaf-mutism ('Schweiz. Zeitschr. für Heilk.,' iii, 155).

#### MOUTH.

*W. Fergusson on threatened non-union after the operation for harelip* ('Lanc.,' 1864, i, 721).—"When it has seemed needful or best to take away the mesial projection (in double fissure), the closure of the gaps has always been a very easy matter, but when this part has been prominent, there has often been cause for much anxiety as to the result. The tension of the lip over this part has threatened to be too much for the recent adhesions. In only one instance has there been total failure of union, and in that I afterwards repeated the operation with success. In several cases there has been serious threatening of non-union by the gap opening an hour or two, or a day or two, after the stitches have been removed. In such instances I have scraped the surface, introduced needles again, and put all up as at first, and thus made the process appear only as one. This method I have rarely seen fail. On one occasion a child was running about eight days after a very successful operation for a single fissure. It unfortunately fell on its face, and at once split the union open. Although eight miles off, it was brought to me within a couple of hours, when I introduced fresh needles, and with the ordinary care the result was as perfect as could be desired."

C. Heath on the causes and treatment of closure and immobility of the jaws ('Dublin Quart. Journ. of Med. Science,' vol. 35, p. 323).

A. Györy, essay on permanent closure of the mouth ('Wien. Med. Wochenschr.,' 1863, p. 711, &c.).

M. Bauchet, cases of cancrroid of the lower lip,—resection of the jaw ('Gaz. des Hôp.,' 1863, p. 527). Prof. Bardeleben, cases of cancrroid of the lower lip, &c. ('Greifsw. Med. Beitr.,' ii, Report, p. 4).

Prof. Schuh, on epulis ('Spit. Zeit.,' 1863, p. 553).

Dr. Burow, plastic operation for harelip where the skin is deficient ('Deutsche Klin.,' 1864, p. 217). M. Debout on horizontal fissures ('Bull. Belge,' 1862, p. 347).

*Tongue.*—M. Maisonneuve, almost total destruction by means of cauterization "en flèches" ('Gaz. des Hôp.,' 1863, p. 549). A. Bryck, sublingual atheroma ('Wien. Med. Wochenschr.,' 1864, pp. 337, 357). H. Fremmert, cases of disease ('St. Petersb. Med. Zeitschr.,' vi, 357).

#### PHARYNX.

C. H. Moore records some cases of accidental wounds of the pharynx ('Lanc.,' 1864, ii, 287).—In reference to the treatment, he considers, that "wholly, or in part, the patient should be nourished by enemata. None but the blandest food should be given by the mouth. The pain attending every act of deglutition may render this caution superfluous, but some patients may need to be advised to abstain from whatever might irritate. Of every substance that enters the fauces a part must escape into the cellular textures or the neck, and these can only be injured by stimulating drinks and medicines—by brandy, or colocynth, or salt. Such matters, if required, should be administered by the rectum, whilst milk only, or such nutriments as jelly and arrowroot, which have the least solid residue when digested, should be swallowed. The quantity, also, of even these articles of food should be limited, since it is clear that the extent of the infiltration will depend on this, as the severity of the injury will correspond with the nature of the misdirected aliment."

J. Czermak, use of the laryngeal mirror in a case of foreign body ('Prag. Med. Wochenschr.,' 1864, pp. 91, 112).

#### PALATE.

M. Langenbeck on the causes of accidental perforations in the hard palate ('Arch. für klin. Chir.,' v, 95).—Wounds of the hard palate by pointed weapons, tools, &c., introduced through the mouth are comparatively rare, because the instrument glides backwards along the smooth surface, merely injuring the mucous membrane, till it arrives at, and perhaps perforates, the upper part of the velum. Any hæmorrhage so induced may be best arrested by pressure with the finger alone, or with charpie moistened by liquor ferri; in other respects, such injuries are of only subordinate interest. The mucous membrane is more or less extensively torn from its attachment to the bone, and its edges usually slough; sutures are scarcely ever indicated. Large flaps may be kept in contact by a sponge placed in the mouth till reunion has ensued.

More common are gunshot injuries; in cases of suicide the palate is

often extensively destroyed. In 2 cases, where the shot had been fired from a distance, Langenbeck has seen loss of both the alveolar margin and a large piece of the corresponding palate. The aperture in the latter part should be closed by uranoplasty, and the teeth replaced by the dentist. Recent gunshot injuries of the bony palate require great attention on the part of the surgeon. Fragments of bone, still attached to the soft parts, should not be removed, but replaced, as soon as the bleeding has ceased, with the greatest care; they may be retained in proper position by discs of sponge fastened to the teeth by thread, or pressed up by the lower jaw, or by a gutta-percha plate. It may not be practicable to keep the fragments permanently in position by such means, when the palate is extensively comminuted; recourse must then be had to suture of the mucous edges. Owing to the danger of gangrene, Langenbeck thinks it advisable not to introduce the sutures for 36 or 48 hours, the infiltrated or gangrenous edges being first carefully excised. He recommends this method of treatment, because he obtained most excellent results in the year 1848, in extensive shot-wounds of the face, nose, and ear, by accurate union of the wound after 48 to 60 hours. In one respect the treatment should, however, differ—in the face, any necessary plastic operation should be performed at the same time, in the palate it should be deferred to some later period.

Acute inflammation of the bone, osteoperiostitis and osteomyelitis, in rare cases attacks the hard palate and the adjacent alveolar process, and may cause perforation owing to necrosis. Yet as the periosteum is usually not destroyed but only separated from the bone, and as the pus generally escapes into the nares, or at the margin of the alveolus, large pieces of the hard palate may be exfoliated without the production of any perforation. A young woman, 6 days after her confinement, suffered from violent tearing pain in the palate, and increased fever. The mucous membrane became red and swollen; it was separated for some distance from the bone, and formed towards the middle a fluctuating swelling as large as a hazle nut. An incision was at once made, through which pus escaped, and the bone was felt to be bared. In the 3rd month a piece of bone, 4 lines in width, and including the whole thickness of the palate, came away. Perforation into the nares did not follow; a depressed cicatrix formed under the application of tincture of myrrh. More common are cases of chronic osteitis and necrosis of the hard palate.

In phosphorous disease of the upper jaw, the necrotic process invariably commences in the alveolar process, gradually spreading to the rest of the bone. After long-continued suppuration under the gum, the teeth become loose and fall out, the gum recedes, and the alveolar process is bared. The suppuration continuing, the involucrum palati gradually, though as the rule at a late period, recedes, so that the palatine processes become exposed. The retracted involucrum forms a firm swelling, here and there containing newly formed bone, and beneath which the probe can be passed further. In the same way does the periosteum on the external surface of the jaw recede with the other coverings from the dead bone, so that as far as the malar bone on the

one hand, and on the other to the middle of the palate, it can be seen and felt to be exposed. To remove the dead bone, a large part or even the whole jaw has been excised, any soft parts remaining being removed at the same time, thus causing dreadful mutilation. It is clearly sufficient to extract the bone alone; for this purpose, Langenbeck in 2 cases separated the periosteum from the palate and from the outer surface of the jaw, removed the dead bone, and united the edges of the separated periosteum by suture with perfect success. This operation should be performed as early as possible, *i. e.* as soon as the extent of the necrosis is decided; valuable time is lost, when, as generally happens, spontaneous separation of the necrosed piece is in vain awaited.

Perforations of the palate are of comparatively frequent occurrence from syphilitic caries or necrosis. In rare cases the soft palate is at the same time more or less destroyed, its remains being united to the posterior wall of the pharynx. In an example recently observed by the author the velum in a man of 36 had been divided to within a line of its posterior end by syphilitic ulceration in such a way that the aperture, which was as broad as the finger, was not unlike a congenital fissure. There was also a perforation in the middle line through the palate-bones. The ulceration had extended from the velum to the periosteum and bone, inducing necrosis of the latter. This case is rare for another reason, because even extensive destructions of the velum usually cicatrize spontaneously, provided the perforation does not include its whole width or length. Perforations are more commonly found in the hard palate alone.

The author has never seen syphilitic (so-called secondary) ulceration of the palatine mucous membrane penetrate to the bones and cause necrosis; syphilitic ulceration indeed appears to be unusual in the coverings of the hard palate. Perforations are generally the result of diseases which commence in the bones, and are therefore included in the class of tertiary affections. Syphilitic osteo-periostitis and the gummy tumour of bone or of the periosteum occur in this region, but their course has not been so carefully observed as elsewhere.

The gummy tumour of the periosteum appears on the surface of the skull as a small soft tumour, which is at first indolent, but after a time becomes very sensitive to the touch. It may run its course without the occurrence of the pains characteristic of tophi (gummy tumours of the bone) or of syphilitic osteitis. Thus there may be at the same time gummy tumours on the skull without pain, and enlargements of the tibia and clavicle which ache violently at night. As the disease advances, the skin gradually reddens, becomes œdematous and swollen; at length it gives way, allowing the discharge of a little pus and of a semi-transparent, jelly-like mass, and leaving a deep ulceration, at the bottom of which is the perfectly smooth dead bone. The ulcer gradually enlarges till all the infiltration has been thrown off: the whole thickness of the bone generally dies, and the necrosed piece commonly takes six to eight months in exfoliating, after which the cerebral pulsations can be distinctly felt. The aperture may, however, after the lapse of a long period be closed by solid new bone proceeding from the endocranium,

the external layer of the dura mater. The pericranium is destroyed over the whole extent of the necrosis; the endocranium throws out granulations which unite with the granulating edges of the pericranium to form a smooth cicatrix. The author observed this process recently in a case of hereditary syphilis ('Deutsche Klinik,' 1862). The peculiarity of the periosteal gummy tumour seems to be, that, owing to the destruction of the periosteum, necrosis occurs without the production of thickenings of, or deposits on, the surrounding bone.

The same process occurs in the palate, but certainly has been rarely observed; the patient does not recognise the importance of the disease, and therefore does not apply for aid till the bone becomes exposed. The author has only once been able to watch the course of a gummy tumour on the hard palate; this was in a young man who at the same time suffered from painful swellings of the tibiæ and cranial bones. After the tumour had opened and an ulcer had formed through retraction and destruction of the mucous membrane, the palate-process became exposed and in the course of six months exfoliated to a far greater extent than had been expected. As there was no thickening of the bone around the necrosis and no reproduction after the exfoliation of the sequestrum in all the cases observed by the author, he is inclined to believe that the most common syphilitic disease of the palate is the gummy tumour of the periosteum. In the cranial bones syphilitic caries and necrosis most frequently follow osseous enlargements owing to osteitis and osteomyelitis, or owing to gummy tumours formed in the bone itself. Syphilitic tophi, on whatever part of the skeleton they occur, are susceptible of entire resolution, occasionally leaving behind a cicatricial depression of the bone, and hyperostosis around. When a tophus opens outwards, a more or less deep crater-like ulcer is formed, at the bottom of which are rough porous, as it were weather-worn, sequestra, surrounded by much thickened and hardened bone.

In 1862 Langenbeck saw a caries of the bony palate, apparently a result of congenital syphilis, attended by rapid destruction of the bone, but without any trace of necrosis, take place in a girl of 8 years. Her father was said to have suffered from a fixed pain in his head. The girl was stated to have been healthy and robust when born, to have suffered from some skin eruption when four weeks old, and from inflammation of the eyes in her fourth year. In the autumn of 1861 there had been a fetid discharge from the nose; in the winter of 1862 a perforation of the hard palate appeared, for which she was admitted into the clinic. The child was well nourished; the nasal bones were a little enlarged; both the upper and lower incisors were considerably worn away. Somewhat behind and to the right side of the centre of the hard palate there was a small round ulcer, the middle of which passed through the whole thickness of the bone. The probe struck upon friable bone; no sequestra could be found. The treatment employed—iodide of potassium, little inunctions, decoction of sarsaparilla, good diet—failed to arrest the disease; the latter indeed spread so rapidly as to destroy the greater part of the hard palate.

The author has seen two cases of constitutional syphilis, in which there was ichorous periostitis with extensive necrosis, but without any

hyperostosis in the remaining bones. In both cases there had been ulcerations of the pharyngeal mucous membrane and syphilitic exanthemata, when suddenly with the symptoms of a very violent coryza, lachrymation, and a watery discharge from the nose, there appeared tearing pains in the palate and middle piece of the alveolar process of the upper jaw, accompanied by tolerably severe fever. The discharge from the nose and from under the separating edges of the gum became sanious and extremely fetid, the incisors became loose, and ultimately, without any perforation of the involucrium palati, the whole of the alveolar process and palate that corresponds to the intermaxillary bones, together with a part of the vomer, exfoliated. The sequestrum showed no change in form or structure; nor could any enlargement of, or deposits on, the remaining bones be perceived. The bone was not regenerated by the separated periosteum.

We cannot determine with certainty how a perforation of some standing has been produced—whether from a gummy tumour of the periosteum or of the bone, from ichorous periostitis, or finally by ulceration spreading from the mucous membrane to the bone. Syphilitic perforations of the palate appear generally to differ from those of the skull in this respect, that hyperostosis and formations of new bone are usually present in the latter, but absent in the former.

Scrofulous disease, which resembles the gummy process in many respects, may cause perforation of the palate. In the examples observed by Langenbeck the disease of the bone was secondary to that of the nasal mucous membrane or of the involucrium palati; he has never seen primary disease of the bone, *i. e.* unpreceded by some affection of one or other of the mucous surfaces. All the cases presented the symptoms of the so-called lupus, and were accompanied by destructions of the skin on the face and of the membranous, cartilaginous, and osseous portions of the nose. The dead pieces of the palate were exfoliated in the form of little, grayish-brown-black, worm-eaten, fragile sequestra. The process, by which the bone is softened and destroyed, seems to depend on a peculiar proliferation of the periosteum, which degenerates into grayish-red, semitransparent, soft villi; this change seems to the author extremely similar to that found in chronic scrofulous osteomyelitis of the phalanges and metacarpus (the spina ventosa of some authors), with the difference that in the latter the connective tissue of the medulla is the part degenerated.

In lupus of the nose the destructive process very often begins in the skin, and gradually spreads deeper, even to the bones. Tubercles are formed in the integument; they inflame and pass into pustules. The secretion of several confluent pustules dries into a blackish-brown or yellow scab, under which the destructive process penetrates to the deeper layers. If the scab is removed, the part under it is found to be of a reddish-gray colour, bleeding easily, villous, and so soft that the tissue can be brushed from the deeper layers without difficulty. The same kind of proliferation accompanied by softening and rapid disintegration seems to occur in the perichondrium and cartilages of the alæ nasi and septum, as well as in the nasal bones. On removing the scabs from the diseased bone, we find the fragile, soft, carious surface covered

with almost gelatinous granulations, arranged like villi, and similar to those on the skin.

Although the scrofulous or lupous caries of the hard palate generally commences in the nares, and therefore cannot be accurately examined, still in rare cases—the author has seen three examples—the morbid process first attacks the involucrem palati, the nares presenting no sign of disease. Dark-red tubercles, arranged in groups, are then formed, which, by disintegration, leave numerous ulcers with ragged undermined edges. No crusts are produced, but the fundus of each ulcer presents the same fragile granular mass that is seen in lupus of the external skin, and through this the probe passes to soft, carious bone.

Perforations caused by syphilis or scrofulosis are, so far as the author has seen, generally placed in the middle line of the palate. Only once has he seen a circumscribed caries in the left palatine process; it was in a scrofulous child, and the rest of the palate and nares presented no sign of disease. Thus, the carious process appears to usually commence at the sutures between the palatine processes, one with the other, and with the vomer: possibly the continuity of the nasal and palatine periosteum at these spots may furnish some explanation. The author quotes with reference to this particular a case in which the periosteum was stripped from the frontal bone in a rhinoplastic operation. The frontal suture, around which the bone was bared for about an inch and a half, was present; the sutures between the nasal processes of the frontal bone and the remains of the nasal bones were also exposed. It was found as the wound healed that the granulating process was much more active at these spots, so that the sutures were marked by large granulations at a time when the rest of the osseous surface presented none.

Whilst the whole os incisivum is occasionally exfoliated (Langenbeck 2 cases, Ricord 1 case), owing to syphilitic disease, scrofulous caries does not appear to cause such extensive destruction in this region, although it is very liable to attack the neighbourhood of the foramen incisivum.

Dr. Semeleder on polypi of the uvula and soft palate ('Gaz. des Hôp.,' 1863, p. 535). Prof. Bardeleben, case of wound ('Greifsw. Med. Beitr.,' ii, Report, p. 1). S. Wells, easy method of passing sutures ('Med. Tim. and Gaz.,' 1864, i, 10). Prof. Szymanowski on union of the soft palate with the posterior wall of the pharynx ('Prag. Viertelj.,' 1864, i, 59; ii, 142).

M. Sédillot on method of uranoplasty in congenital fissure of the hard palate and division of the alveolar arch with projection of the intermaxillary bone ('Gaz. des Hôp.,' 1863, p. 531). B. Beck and M. Cochu on uranoplasty ('Arch. für klin. Chir.,' iv, 418; 'Gaz. Hebd.,' 1864, p. 5). Prof. Engel on congenital fissure and union of the upper jaws ('Prag. Viertelj.,' 1864, ii, 116). G. Simon on uranoplasty, with special reference to the restoration of a pure (not nasal) voice ('Greifsw. Med. Beitr.,' ii, 129). B. Langenbeck, further experience in uranoplasty ('Arch. für klin. Chir.,' v, 1).

*Œsophagus.*—E. Sonrier, case of œsophagotomy ('Gaz. des Hôp.,' 1864, p. 66). H. Salter on tracheal dysphagia ('Lanc.,' 1864, ii, 5, 88).



*Tonsil.*—Dr. Rupprecht, a new tonsillatome ('Wien. Med. Wochenschr.,' 1864, p. 327). M. Mackenzie on the treatment of enlarged tonsils without cutting ('Med. Mirror,' i, 465, 522).

## NARES.

A. Clark on naso-palatine gland disease ('Lond. Hosp. Rep.,' i, 211). Prof. Bardeleben, case of huge carcinoma of the nose ('Greifsw. Med. Beitr.,' ii, report, p. 7). Dr. Matèjovsky, case of stenochoria ('Prag. Med. Wochenschr.,' 1864, p. 151). S. D. Gross on the extraction of foreign bodies from the ear and nose ('Amer. Journ. of the Med. Sciences,' vol. xlviii, p. 394).

*Naso-pharyngeal polypi.*—M. Maisonneuve, case ('Gaz. des Hôp.,' 1863, p. 521). M. Michaux ('Bull. Belge,' 1862, p. 679).

*Rhinocopy.*—Dr. Gibb, case of ulceration of the mucous membrane over the turbinated bones, &c. ('Trans. of the Pathol. Soc.,' xiv, 22, 47). G. Johnson, case of cyst obstructing the posterior opening of the right nasal fossa ('Med. Circ.,' 1864, vol. xxiv, p. 1).

*Neck.*—N. W. King, syphilitic caries of the hyoid bone ('Amer. Journ. of the Med. Sciences,' vol. 47, p. 428). O. Kappeler, excision of half an inch of the pneumogastric in removal of a large tumour; recovery ('Arch. der Heilk.,' 1864, p. 271). J. Spence, case of enormous, deep-seated tumour, successfully removed ('Dubl. Quart. Journ.,' vol. 36, p. 272). Dr. Heusinger, congenital fistula of the neck ('Arch. für path. Anat.,' vol. 29, p. 358).

*Thyroid gland.*—G. Bernoulli on goître ('Schweiz. Zeitschr. für Heilk.,' iii, 120). C. Hueter, the position of the isthmus in children ('Arch. für klin. Chir.,' v, 319).

## PAROTID.

*A. Verneuil, removal of a parotid tumour* ('Gaz. Hebdom.,' 1863, p. 772).—A man, æt. 41, was admitted into the Hôtel-Dieu in 1860 with a fibro-glandular tumour as large as a hen's egg; it evidently included the greater part of the parotid, and adhered firmly to the skin and deeper parts. Owing to the impossibility of enucleation, the knife had to be used; there was considerable hæmorrhage, though no large vessel was wounded; the carotids were exposed for the distance of three centimetres. After the operation there was for a short time a little ptosis of the right half of the lip, and eight days later an attack of erysipelas; in a month cicatrization was complete, with the exception of a little salivary fistula.

In 1861 M. Verneuil again saw his patient; the cicatrix was red and slightly raised. Two years later, in last July, an operation was again required. The whole right half of the neck was occupied by a very vascular tumour, extending from the ear nearly to the clavicle, and from the ascending ramus of the jaw to near the spinous processes. The tumour was immovable. The absence of any displacement of the tonsil and pharynx appeared to show that there was no deep prolongation. Deglutition, voice, respiration, and hearing, were normal;

the jaw was depressed with difficulty, and, as the sterno-mastoid was involved in the growth, the neck was slightly inclined towards the shoulder, and was almost motionless. For more than 15 days he had had no rest, owing to violent neuralgia, probably caused by the distension or compression of branches of the cervical plexus. He was exhausted and anæmic; owing to the pain, he urgently pressed for the operation.

With the view of diminishing the danger, M. Verneuil decided to ligature the external carotid some distance from its origin; on looking for it at the bottom of his first incision, it was evidently not in its usual place. He therefore enlarged the incision downwards, so as to expose the common carotid opposite the lower border of the cricoid cartilage. Even at this point the vessel was almost 4 centimetres deep, owing to the thickened and rigid sterno-mastoid; the latter was divided so as to allow free access to the sheath. The free bleeding that had already taken place sufficiently proved the necessity of this preliminary step. During the rest of the operation the oozing was so slight that the trunk and the larger branches of the facial nerve were easily recognised, and safely dissected out. The only bleeding was indeed venous and readily stopped; the patient lost scarcely 7 ounces of blood. The operator first divided a vein, the external jugular or one of its branches, whilst separating the supra-clavicular prolongation of the tumour; a whistling sound indicated the passage of air into the vein; the latter was instantly compressed, then tied; no change occurred in the pulse or breathing. The tumour was divided to facilitate its detachment from the pharynx and the sheath of the vessels. The external carotid was included in the morbid growth; the surgeon excised a portion of it at least two centimetres long, and tied the two ends, from which passed a very feeble jet of blood. He also excised between two ligatures the common trunk of the facial and temporal veins, and finally enucleated the supra-clavicular ganglion. The wound was enormous; all the muscles of the side of the neck were bared.

The progress was afterwards most satisfactory; only some local symptoms, partial paralysis of the face, angina, laryngitis, occurred. On the 5th day the edges of the wound showed a trace of inflammation in only one point, and that was supplied principally by branches of the subclavian; the suppuration was healthy, though very scanty. In 15 days he began to get up. When he left the hospital, the wound was not completely cicatrized; the neck moved with difficulty, but the hoarseness of voice and the facial paralysis were rapidly diminishing. The tumour was again fibro-glandular; in many parts, however, the culs-de-sac were destroyed, and nucleated epithelium was infiltrated in the fibrous stroma.

On tumours of the parotid ('Schmidt's Jahrb.,' vol. 120, p. 338).

#### LARYNX AND TRACHEA.

*John Windsor, case of epiglottitis* ('Brit. Med. Journ.,' 1864, i, 120).  
—The patient, a male, æt. 35, was first seen on Aug. 21, 1863; he had been ill for 2 days, and complained of almost total inability to swallow.

The voice was almost inaudible. He had very little cough, and the febrile reaction was slight. The fauces appeared almost normal: but, on examination with the finger, the epiglottis could be felt as a hard solid ball, filling up the lower end of the pharynx. The treatment consisted of calomel to slight salivation, and repeated puncturing of the swelling. On Sept 18th he was quite well.

The author has, after careful search, been able to meet with only the following cases:—2 by Burne in the 'Med. Gaz.' for May, 1830; 2 by Kesteven in the same journal for 1849; 3 by Sir H. Marsh in the 'Dubl. Med. Journ.,' vol. xiii; 1 by Mainwaring in 'Med. Facts and Observ.' for 1791; 3 in the 3rd vol. of 'Trans. of a Soc. for the Improvement of Medical Science' (1808); 3 by Prof. Larsen in 'Schmidt's Jahrb.' for 1852; there is also a short notice in Wunderlich's 'Handb. d. Path. u. Ther.' Only 1 of these cases died, though most of them appeared to be in great danger.

Dr. Gibb, Prof. Jaksch, and E. Wagner, foreign bodies ('Trans. Path. Soc.,' xiv, 41; 'Prag. Med. Wochenschr.,' 1864, p. 119; 'Arch. der Heilk.,' 1864, p. 347). M. Delore, and L. Türck, cases of internal division of stricture ('Gaz. Hebd.,' 1864, p. 186; 'Allg. Wien. Med. Zeit.,' 1863, p. 345).

M. Moura-Bourouillou on polypi of the larynx—simple serre-nœud ('Gaz. des Hôp.,' 1863, p. 451). J. Czermak on local treatment of laryngeal disease ('Prag. Med. Wochenschr.,' 1864, p. 17). Dr. J. Kühn, the artificial-opening of the air-passages (pp. 379, Leipz., C. F. Winter). A. North on tracheotomy, with 43 cases ('Amer. Med. Tim.,' 1863, ii, 239, &c.). Prof. Ruhle, case of tracheotomy in aneurism of the aorta, &c. ('Greifsw. Med. Beitr.,' i, Report, p. 16). Prof. Balassa on tracheotomy in angina diphtheritica ('Wien. Med. Wochenschr.,' 1864, pp. 273, 289). A. Lücke on anomalies of the arteria innominata with reference to tracheotomy ('Arch. für klin. Chir.,' iv, 589). H. Smith and G. Buchanan on tracheotomy in diphtheria ('Med. Mirror,' i, 65, 129; 'Brit. Med. Journ.,' 1864, ii, 323; 'Glasg. Med. Journ.,' xi, 420). Dr. König and P. Matiejovsky on tracheotomy in croup ('Arch. der Heilk.,' 1864, p. 265; 'Prag. Med. Wochenschr.,' 1864, p. 253). J. Kovacs on laryngo-tracheotomy in croup ('Berl. Klin. Wochenschr.,' 1864, p. 337). M. Bourdon on tracheotomy in strictures of the trachea ('Gaz. Hebd.,' 1864, p. 75). H. Rohlf's, tracheo-perforation, a new operation ('Deutsche Klin.,' 1864, p. 331).\*

## MAMMA.

M. Jobert on galactocœle ('Gaz. des Hôp.,' 1863, p. 525). M. Broca on compression in adenoma, &c. (Schmidt's 'Jahrb.,' vol. 120, p. 213). A. v. Franque, mastodynia associated with carcinoma of the liver and stomach ('Wien. Med. Halle,' 1864, p. 265). T. Bryant, clinical report on inflammation and tumours ('Guy's Hosp. Reports,' x, 85).

*Chest.*—Dr. König on wounds of the lung ('Arch. der Heilk.,' 1864,

\* G. H. Porter on excising a portion of the windpipe in tracheotomy ('Dubl. Quart. Journ.,' vol. 37, p. 6). J. Spence on tracheotomy in diphtheritic croup ('Edinb. Med. Journ.,' ix, 777).

p. 147, &c.). R. M'Donnell, laceration of the lungs without fracture of the ribs ('Dubl. Quart. Journ.,' vol. xxxviii, p. 205). F. H. Hamilton on gunshot injuries ('Amer. Med. Tim.,' 1864, i, 109, &c.). D. Giraud, case of sudden death after thoracentesis ('Spit. Zeit.,' 1864, p. 222). W. Roser on the treatment of fistula after empyema ('Arch. der Heilk.,' 1864, p. 84).

#### ABDOMEN.

*M. Boinet on the treatment of hydatid cysts of the liver* ('Gaz. Hebd.,' 1864, pp. 84, 97).—After referring to incision of the cyst and Récamier's method, the author discusses the value of puncture with a very fine trocar. Although a case thus treated by M. Moissenet soon terminated fatally, the author does not consider this little operation dangerous *per se*, "for out of 48 capillary punctures in 14 cases of cyst of the liver, none was followed immediately by any accident." On the other hand, it by no means always succeeds, and in many cases it excites suppuration. The first case successfully treated by this means was published by Martinet in 1825; a patient of Lenoir's recovered after 10 punctures; one of Robert's after a single exploratory puncture; MM. Legroux, Laugier, Velpeau, Vigla, Demarquay, have each had a successful case. The examples in which it fails are still more numerous; such have been observed by MM. Aran, Demarquay, Maligne, &c. The author has seen several cases, where, after the evacuation of acephalocysts, the fluid, clear and limpid as spring water, was reproduced, even after repeated punctures. He is inclined to believe that the puncture may answer when the cyst is single; but that when it contains numerous hydatid vesicles, the latter continue to live, the liquid reforms, and a cure does not ensue. Hence if after several capillary punctures the cyst refills, we may diagnose the existence of a number of hydatids; if the liquid and hydatids become purulent, the latter must be promptly removed, or the patient will perish. The indication is to form a large aperture, which will allow the immediate evacuation of the whole contents of the cyst.

The following case will show the method followed by Dr. Boinet. In a girl, about eight and a half years old, there were the characteristic symptoms of a large cyst of the liver. Dr. Boinet recommended a trial of capillary punctures which sometimes cause a radical cure, the punctures to be repeated so long as the fluid should continue limpid; to have recourse to puncture followed by an iodine injection, if the fluid should become clouded, yellowish, or purulent, after the first, second, third, &c., puncture; finally, if such fluid was rapidly re-formed after the iodine injection, to open the cyst freely, and to continue the iodine injections. The sac was first punctured on the 9th August; there escaped about 1400 grammes of limpid fluid, which did not coagulate when heated. Three days afterwards the little patient appeared perfectly well, but ten or twelve days later the tumour was evidently reforming and suppurating; the appetite was lost, in the evening she was feverish, there were night-sweats, emaciation, &c. Dr. Boinet accordingly on the 25th August made a puncture with a trocar larger than an exploratory but less than a hydrocele trocar, and then injected a solution

of equal parts of tincture of iodine and of water; about 1200 grammes of a greenish purulent matter escaped; the injection gave no pain, and after seven or eight minutes was again entirely evacuated. For a little time the patient appeared much better, but again the same symptoms showed the formation of a purulent cyst. Caustics were now applied as in the method of Récamier, but owing to the resistance of the child, were ineffective. The symptoms were rapidly becoming threatening; it appeared quite necessary to freely open the cyst. On the 7th Oct. a large trocar, such as is used for ovarian tumours, was introduced through the part where caustics had been applied; a quantity of greenish, stinking pus (1250 grammes), mixed with numerous remnants of hydatids, escaped. A large gum-elastic catheter was slipped through the canula, and the latter was then removed; injections of tepid water, to cleanse the cyst and force out all hydatid remains, were many times repeated; the operation was concluded by injecting a solution composed of equal parts of tincture of iodine and water. The iodine injections were repeated morning and evening; under their influence the pus soon lost its unpleasant odour. The general condition improved, the fever and the night-sweats disappeared, sleep and a better appetite returned. A cure would have ensued, if the hydatids could have escaped by the catheter; the latter was still retained not only with a view of facilitating the discharge of pus and of allowing injections, but also with that of causing adhesions between the cyst and abdominal wall. On the 14th October the catheter was replaced by one still larger, and again two days later by another larger still. Dr. Boinet being then quite certain that there were firm adhesions around the seat of puncture, washed the cyst out, withdrew the catheter, and introduced in its place a large curved trocar with the sharp point drawn back within the canula. Having passed it up towards the ensiform cartilage, he raised the abdominal wall with the end of the canula, so as to be able to feel it with the fingers of the left hand; this point being determined, he pressed the stilette forwards, forcing it through the abdominal wall. This fresh aperture was five centimetres above the former one, towards the spot where the cyst had probably originated. An elastic catheter pierced with lateral holes was now passed through the canula, and the latter was withdrawn. The catheter would thus act as a hollow seton, allowing the cyst to be washed out and injected, and also permitting a continued discharge of the contents; the author's principal object was, however, to cause adhesions, not only around the fresh aperture but also along the space between the two punctures, so as to fix the cyst firmly to the abdominal parietes and allow him to incise it sufficiently freely for the exit of hydatids, without danger of effusion into the peritoneal cavity. On the 1st November he carried an incision about three centimetres long from the upper towards the lower aperture; a mass of hydatids escaped. The drainage-tube and injections were continued; no reaction followed. The cyst rapidly contracted, hardly admitting 80 to 100 grammes of fluid eight days later. Soon there was only a fistulous canal, yet fearing that the cyst might not be entirely obliterated, the author replaced the drainage-tube on the 20th of Nov. by a seton formed of some waxed threads. On the 1st December these

were definitely removed; by the 8th the lower and by the 15th the upper aperture had closed. Remarkable improvement in the general health followed the incision made on the 1st November. There is now, 4th February, no pain in the epigastrium; the latter is normally depressed; the percussion sound is clear, and the patient is in perfect health.

The catheter, which is to be introduced through the large trocar, should exactly fill it; the author thinks that this treatment exposes the patient to less danger of effusion into the peritoneal cavity than even a capillary puncture; for the catheter completely fills the aperture made by the trocar in the cyst, and through it the fluid constantly runs off as soon as secreted. For the same reasons the drainage-tube introduced after the formation of a second aperture should exactly fill the curved canula. After from 7 to 10 days, by which time adhesions will have formed, the catheter may be advantageously replaced by one still larger. We may sum up the treatment proposed by Dr. Boinet as follows:—If the cyst suppurates, a large trocar is introduced, and through it a catheter; after 7—10 days the latter is replaced by one still larger. A few days later, a puncture is made from within outwards near the edge of the right ribs, five or six centimetres above the first aperture, and a drainage-tube is passed in at one, and out at the other opening. After a sufficient lapse of time an incision, 2 to 3 centimetres long, is carried from the upper towards the lower aperture. The rest of the treatment consists of daily iodine injections. The tube must be retained till the cyst is completely obliterated.

In the discussion that followed ('Gaz. d. Hôp.,' 1864, p. 82, 107; 'Gaz. Hebd.,' 1864, p. 278), M. Voillemier defended the method of Récamier and severely criticised that of M. Boinet; he asserted that the experiments of Cruveilhier had decisively shown that caustics excite adhesive inflammation of the peritoneum, a result confirmed also by clinical experience.

J. Hutchinson, surgical treatment of hydatid tumours of the abdomen ('Brit. Med. Journ.,' 1864, i, 197).

Mr. Wood, deficiency of anterior wall (extroversio vesicæ), operation, ('Med. Circ.,' vol. xxiv, p. 228). T. Holmes, post-mortem examination of a case of extroversio vesicæ after operation, &c. ('Med. Times and Gaz.,' 1864, ii, 21). Mr. Couper, wound of intestine ('Trans. of the Pathol. Soc.,' vol. xiv, p. 160). On the treatment of penetrating wounds with escape of omentum ('Gaz. des Hôp.,' 1863, p. 545). Dr. Pelizäus, case of recovery after a wound of the small intestine ('Arch. für klin. Chir.,' vi, 207). F. Wysler, new suture for intestinal wounds (l. c., p. 210). C. R. Henrici, wounds of the stomach ('Deutsche Klin.,' 1864, p. 285, &c.). F. H. Hamilton on gunshot injuries of the abdomen ('Amer. Med. Times,' 1864, i, 217). D. C. Peters, gunshot wound of intestines and bladder, recovery (l. c., p. 3). C. S. Wood, three cases of recovery from gunshot wounds of the intestines (l. c., p. 172). C. H. Moore on perforations of the small intestines ('Lanc.,' 1864, ii, 373). E. Navratil on fæcal fistula ('Wien. Med. Halle,' 1864, p. 302, &c.). B. Stilling, extirpation of a tumour of the mesentery, recovery ('Deutsche Klin.,' 1864, p. 301).

## INTESTINAL OBSTRUCTION.

*D. Greig on insufflation as a remedy in intussusception* ('Edinb. Med. Journ.,' x, 306). The author records four examples of the successful use of this means in children. D. Greig says:—"To my mind the symptoms of an intussusception are unmistakable, and may shortly be said to be, the sudden seizure, the obstinate vomiting, the obstinate constipation, the paroxysms of pain, the hard tumour in the abdomen, and chiefly the passage of blood per anum; all these various symptoms may show themselves in other diseases, but when combined together, and especially when the last-mentioned symptom, the passing of blood per anum is present, I think no one can have any difficulty in forming a correct diagnosis, and must feel convinced that an intussusception is present, without the necessity of a post-mortem examination."

"As to treatment, purgatives in the first place naturally suggest themselves; but these are worse than useless, rarely remaining on the stomach, and if they do remain only stimulating the bowel and aggravating the disease. Warm-water enemata are useful, but can seldom be administered owing to the very peculiar irritable spasmodic condition in which the rectum usually is. In any case where this spasmodic condition is not present, or only to a slight degree, I have no doubt warm-water enemata, or, as I used in Case 3, warm water and air thrown in by a syringe would be useful. The ease, however, with which air is thrown into the spasmodically contracted rectum, when it is impossible even to introduce a teaspoonful of warm water, gives this agent a pre-eminence over all others, and astonishes all who have seen it used. The remedy is always at hand, even in the poorest cottage, no matter how far away from town. Its application is so simple as to require no direction for its use. The only necessity being that enough air be thrown into the bowel to distend it as far up as the neck of the invaginated portion, or, in other words, that the operation be continued until the child begins to be uneasy, and the belly distinctly tympanitic."

W. H. Morgan, case of ileus treated successfully by insufflation ('Madras Quart. Journ. of Med. Science'). Dr. Hermann, invagination of the ileum ('St. Petersb. Med. Zeitschr.,' vi, 36). S. Wells, intussusception replaced by gastrotomy, death ('Trans. Path. Soc.,' xiv, 170). M. Fourrier, artificial anus ('Gaz. des Hôp.,' 1863, p. 599). Mr. Hamilton, abdominal incision, death ('Med. Tim. and Gaz.,' 1864, i, 88). Prof. Laycock, paracentesis cæci, death (l. c., p. 421). Dr. Bierbaum ('Deutsche Klin.,' 1864, p. 42, &c.). J. C. Lehmann, case, &c. ('Schmidt's Jahrb.,' vol. 120, pp. 333, 337). F. Mosler ('Arch. der Heilk.,' 1864, p. 111). J. Adams on a case treated by Amussat's operation ('Med. Tim. and Gaz.,' 1864, i, 614). M. Müller, case of enterotomy ('Arch. für klin. Chir.,' vi, 222). G. H. Philipson on intussusception ('Brit. Med. Journ.,' 1864, ii, 357).

## HERNIA.

*G. H. Porter on the radical cure of reducible hernia* ('Dubl. Quart.

Journ. of Med. Science,' vol. xxxvi, p. 265).—"On the 21st May, 1863, a man aged 35 years, a carpenter by trade, was admitted under my care into the Meath Hospital, with a reducible oblique inguinal hernia on the right side, of which he had become the subject, 3 months previously, whilst lifting a weighty piece of timber. The tumour was not large, nor had it passed beyond the external ring. He suffered pain in coughing, sneezing, or when he made any unusual exertion at his trade. He was at first quite ignorant of the nature of his malady; but, when informed that it was a rupture, he begged that anything might be done which would secure him from the annoyance of wearing a truss, of the discomfort of which he had often heard people speak. Considering his age, good state of health, the small size of the tumour, and the length of time he was suffering from the disease, I regarded it as a favorable case, of which a radical cure might be attempted. Before describing the operation, I cannot do better, perhaps, than quote from Mr. Syme's work respecting the instruments and appliances required. He says:—"Instead of a complicated machine for distending the invaginated integument, I employed a piece of bougie, or gutta percha, to one end of which was attached a strong double thread. The plug, thus prepared and smeared with cantharides ointment, was drawn into its place by the threads, which by means of a curved needle, guided on the fingers fairly within the ring, were passed, at the distance of rather more than an inch from each other, through all the textures to the surface, where they were tied firmly together on a piece of bougie, to prevent undue pressure on the skin." The bougie with the cord attached, I may remark, is prepared by drilling a small hole in its top, and drawing the double thread through, when it can be made fast, without fear of giving way, by tying to it a little piece of paper or linen, which is drawn with the knot tightly into the hollow bougie. The strings should be made of stout hemp or silk, and about twelve inches in length. I used, on the occasion, a long needle, with a flat sharp point, slightly curved, like those employed in making post-mortem examinations; though I recommend 'Liston's needle,' fixed in a handle, as much more manageable.

"Operation, May 27th.—The patient, having had his bowels well freed by castor oil, taken the night previously, and his bladder emptied a few minutes before, was placed in the recumbent position on a table, with his legs hanging over, his feet supported, his shoulders slightly raised, and the right thigh flexed a little. Standing between his legs, I pushed up, with the forefinger of my left hand, a large plug of scrotal integument into the external abdominal ring; and, feeling fairly within its sides, I took the needle with one of the threads attached, and, guiding it along the finger so placed, I transfixed the external pillar and abdominal parietes. Then, taking the thread from the needle, an assistant threaded it with the second cord, when I passed it through the internal pillar, and made its point appear about an inch and one eighth internal to the first aperture. Having then withdrawn the finger, I pulled the portion of bougie, well smeared with cantharides ointment, by means of the two strings, into the situation previously occupied by my finger, invaginating the structures as it assumed its place; and, lastly, I tied tightly



the two threads across the second piece of bougie, to prevent any injury to the skin by pressure. The patient suffered scarcely any pain, wincing merely a little at each puncture of the needle. He was placed in bed after the operation, with the right thigh elevated slightly on a pillow, a small pledget of wet lint laid over the site of the ring, and a full opiate administered.

“May 28th.—Had slept well; in no pain; a faint redness visible about the needle-punctures. May 29th.—Rested easily; free from pain; and no tenderness whatever on pressure in the abdomen. He says that when he coughs he feels, to use his own phrase, ‘quite tight below.’ It would be tedious to give the details of this case from day to day. It will suffice to say that he went on as favorably as I could wish in every respect, and never had a bad symptom. I removed the bougie on the 7th June, and found that the punctures were slightly ulcerated near the threads, with a blush of redness about them. The site of the external abdominal ring presented a round swelling, the size of a large nut, and was very hard to the touch. This appeared to be formed by the invaginated structures and lymph, thrown out around the parts. The man coughed forcibly without in the least displacing the plug of skin, which was now firmly lodged in its new position—while there was some discharge from the excoriated surface inside the inverted integument. I then laid a compress of lint over the part, and applied a spica bandage. He was thus kept confined to bed until the 20th June, when I allowed him to walk about the ward with the bandage on. June 22nd I tested the result of the operation by making him cough violently, and jump from a chair to the ground several times; but notwithstanding this exertion not the least protrusion occurred, and the ring appeared permanently sealed up. I put a truss on him with a very light spring, and permitted him to leave the hospital on the 25th June, desiring him to wear it during the day, to avoid any great straining or exertion as much as possible, and to let me see him occasionally. I saw him very recently; and the disease is, to all appearance, cured. He is able to follow his trade with comfort, and the part feels as strong and unresisting as any other portion of the walls of the abdomen.

“I have performed Wutzer’s operation for the cure of hernia three times, and have seen Wood’s procedure done twice, and, as far as my opinion goes, must give the preference to this of Mr. Syme. I cannot conclude better than by repeating the three advantages it possesses, as stated by that able surgeon:—‘1st. That it may be executed by means which are in the possession of every surgeon, instead of the complicated, expensive, and not easily manageable apparatus, hitherto deemed indispensable. 2nd. That it may be accomplished with much more certainty through the secure guidance of a finger, than to trusting to a piece of wood, for gaining admission within the tendinous ring. 3rd. That the two threads, co-operating in their effect, render the chance of adhesion between the textures much greater than when it is attempted by the mere puncture of a needle.’”

*M. Nélaton on the reduction of voluminous herniæ by elastic pressure* (‘Med. Circ.’ vol. xxv, p. 123).—A man was admitted into

hospital for alleged hydrocele. The scrotum was the seat of a chronic enlargement of such considerable magnitude, that a superficial depression alone indicated the situation of the meatus. Sexual intercourse was utterly impracticable, and the patient complained of great inconvenience in walking; in addition, the contact of the urine with the skin gave rise to painful excoriation, colic was present, and the infirmity was altogether of a most distressing character.

The patient had been informed that he was affected with hydrocele; but this was a mistake. Both testicles were easily felt perfectly distinct from the mass—a circumstance incompatible with the existence of dropsy of the tunica vaginalis; on percussion, a degree of resonance was, moreover, perceptible. This tympanitic sound demonstrated the true nature of the disease, which consisted in enormous inguinal hernia, with a voluminous pedicle, presenting all the characteristics of enteroepiplocele.

There was in the last century an active controversy, which ended in such tumours being pronounced irreducible. Surgeons dreaded the restoration into the abdomen of organs which had long been displaced, and had lost what Jean Louis Petit called their "*droit de domicile*" within that cavity. M. Nélaton acknowledges that he once entertained a similar view, but on further reflection he has since altered his opinion, and now professes that the reduction of these herniæ may legitimately be attempted, and that it is possible to effect this desirable result without injury to the patient. This, however, cannot be accomplished at once; and the perils adverted to by Jean Louis Petit doubtless arose from the fact that the tumours were reduced in too precipitate a manner. Ravaton adopted a safer practice, and endeavoured to attain the same object more slowly; thus several of his patients remained for six weeks in bed with much ultimate benefit. M. Nélaton remarked, that, in a case of fracture of the femur in a man who for months had had a large unreduced hernia, M. Sanson took advantage of the compulsory rest, and gradually returned the intestine into the abdomen; no untoward accidents followed. M. Nélaton has since very frequently resorted, with advantage, to the same method. The time necessary to attain the desired result may be shortened, if to the indispensable position be added pressure with M. Maisonneuve's elastic bands. These measures were adopted in the case here alluded to, and the hernia is now entirely reduced. A well-made truss has been applied, and no functional disturbance has supervened to justify the apprehensions formerly suggested.

*M. Guyton on the mechanism of strangulation, and the use of chloroform during taxis* ('Gaz. Hebd.,' 1864, pp. 51, 68, 100, 132).—The author thinks sufficient attention has not been paid to the bowel in strangulated hernia, whilst too much influence has been generally assigned to the constricting agent, the rings and the neck of the sac. He does not believe that the mechanism of strangulation can be explained by pathological anatomy; he considers it a question for experimental physiology. He describes his theory at great length—shows its agreement with the phenomena; discusses the symptoms, course, and post-mortem appearances; and, besides many interesting remarks, en-

deavours to define more exactly what may with propriety be termed strangulated hernia. As some confirmation of his theory, he adduces the effect of chloroform so surprising in certain cases—sometimes, for example, a rupture which has obstinately resisted the surgeon's efforts, yields without difficulty after the patient has become unconscious.

The author especially urges the important influence exerted by the pressure of the abdominal walls, and asserts that the latter, soft and yielding in health, become from the very commencement of strangulation hard, rigid, and contracted; he has noticed this occurrence before, during, and after reduction in every case. We may exemplify the author's theory in the following manner:—A hernia usually retained by a truss descends, owing to some violent exertion, and becomes strangulated. The sudden pressure of the abdominal parietes has forced the bowel through a narrow aperture into a space surrounded by walls that present comparatively little resistance; here, therefore, the bowel expands; but, as a reflex effect, the abdominal parietes continue to press, and therefore force flatus into the prolapsed bowel. The latter, irritated by its displacement and dilatation, causes pain; the walls of the abdomen become more and more tense; the pressure at the neck of the sac increases; the circulation is impeded; strangulation is produced. Should this state remain, inflammation and its consequences gradually supervene. Pain, muscular contraction, irreductibleness, are three constant symptoms from the beginning of strangulation. Two stages may accordingly be distinguished in the history of strangulation—the first characterised by tenseness of the abdomen and of the hernia, the second by symptoms of inflammation.

During the first few hours after strangulation, reduction may often be effected. The result depends on the energy with which the abdominal muscles contract, the distension of the bowel, and the size of the aperture—the pressure of the surgeon's hand overcoming that of the abdominal parietes. The use of chloroform is obvious. As a further proof of this theory, the author quotes O'Beirne's experiments with a loop of bowel passed through a hole in a piece of cardboard.

The herniæ that are most liable to strangulation are notoriously those that escape after a truss has been worn, whilst those that are permanently unsupported rarely suffer in this way. The explanation is simple. In the former all the conditions are ready—abdominal pressure, narrow ring, distensible sac; but in the latter both the ring and sac are large, allowing great distension of the bowel without any special pressure at the neck.

Malgaigne has asserted, and the author admits the fact, that the bowel is never strangulated immediately after the formation of a hernia, except when it passes into the tunica vaginalis. Dr. Guyton rejects the supposed strangulation of large herniæ and of epiploceles. As he justly remarks, practitioners do not generally diagnose with sufficient care the nature and condition of hernial tumours. "Thus operations for herniæ that are not strangulated, for epiploceles that are only inflamed, worse still for masses of fat unconnected with the peritoneal cavity, are not very rare."

"On the 26th August, 1848, at 11 p.m., a woman with a left femoral

hernia of 24 years' standing was admitted into the Hôtel Dieu under Prof. Roux. The same morning she had been attacked with nausea and repeated vomiting. She sent for her medical man in the afternoon. His attention was at once directed to the tumour, of which a part was usually down. He considered it the cause of the symptoms, and endeavoured to reduce it by the usual means, baths, prolonged taxis, without success. In the evening he again, but unsuccessfully, attempted reduction. The nausea and vomiting continued; there was no motion. He sent the patient to the hospital where I was on duty that day. I commenced the examination by feeling the walls of the abdomen; they were not hard or contracted, but depressible and painless. The rupture, placed at the inner and upper part of the thigh, measured, in length 3, across 2 inches; the skin over it was red, and somewhat hot; the attempts at reduction had rendered it sensitive. I touched and percussed it; I found everywhere complete dulness, equal and firm resistance. I attempted to replace it, but without much force; I did not succeed. I satisfied myself afresh that the abdominal muscles were not contracted. The vomiting had ceased for some hours, but the sickness persisted. The woman, advanced in years, tolerably decrepit, was much depressed. She told me that, this very day, she had been much grieved; and she still appeared so much affected, that I did not think it right to question her. This influence continued whilst she remained in the hospital.

"Tranquillised by the absence of rigidity of the abdomen, by the dulness of the tumour, instructed by the previous attempts, I considered it useless to try the taxis further; I thought there might be only omentum, that the local symptoms might have been caused by the previous proceedings, and the general symptoms from the severe mental disturbance; moreover I perceived nothing very threatening: I ordered a large poultice, and recommended that the patient should be carefully watched. Next day she was a little relieved: she had slept; she had a motion, and the sickness ceased. During the next few days, the redness disappeared under the use of emollients and rest; the part became painless; to the touch it felt as before. A part of the tumour had been long irreducible; as it gave her no inconvenience, she neglected it, placing on it the truss which she constantly carried. The aid of a medical man had never been required, except this last time. In a week, everything had returned to its usual state; health was restored."

The author of course admits that such inflammations of the omentum, of large herniæ, or of the sac, may become dangerous; the inflammation may induce suppuration, gangrene, it may spread to the peritoneal cavity, &c. Such phenomena must, however, be distinguished from those caused by genuine strangulation.

*Max Langenbeck, a new mode of operating for hernia* ('Allg. Wien. Med. Zeit.,' 1863, p. 377, &c.).—An incision, only just large enough to allow the introduction of the index finger, is made at the inner side of the neck of the tumour. The finger is then pressed to the constricting part, the ligament of Gimbernat in a femoral, the external or internal ring in an inguinal hernia, and at the same time worked round the sac so as to separate it from the surrounding tissues. Then, with the nail

turned to the tumour, the finger is gently pressed into the ring; there is then, according to the author, no difficulty, as soon as the finger has been passed half the length of its distal phalanx into the ring, in tearing Gimbernat's ligament from its attachment to the bone, and a similar plan is followed with reference to the inguinal variety of rupture. In rare cases he admits the necessity of a small incision, which may be further dilated with the finger.

The author has followed this plan in 7 femoral and 3 inguinal herniæ; in no case did the operation take more than 5 minutes, in several only 2. The symptoms of strangulation immediately disappeared, and the wound healed in a few days: all the patients recovered. He thinks that this operation is less dangerous than the old method; the rapidity of convalescence is also of some importance.

He urges the advantages of not opening the sac and of very freely dilating the aperture, so that the bowel may suffer no injury. Should it appear for any reason advisable to open the sac, the subcutaneous wound can be readily enlarged by the bistoury.

*F. Jordan, a simplification of the extra-peritoneal operation in the several varieties of strangulated hernia* ('Med. Tim. and Gaz.,' 1864, i, 641; ii, 5).—Mr. Jordan recommends a proceeding in some respects similar to the one just described. He says:—"It is the object of this paper to show that all that is necessary in practice is to relieve the tension of Gimbernat's ligament in femoral hernia, of the conjoined tendon or fibrous apertures in inguinal hernia, and of the linea alba in umbilical and the more common forms of ventral hernia. As a rule, these structures can be reached and relaxed, the cutaneous tissues only being divided prior to the use of the hernia knife."

"A short incision is made through the skin and superficial fasciæ near the neck of the tumour, and sufficiently large to admit the end of the finger. The superficial fasciæ are divided (not necessarily completely) to an extent which will enable the finger-nail to detect the interstice or boundary line between the firm, immovable, unyielding apertural margin and the more movable and yielding tissues of the hernia. For example, in femoral hernia it is not necessary to cut through every flake of connective tissue down to Gimbernat's ligament. It is enough if the finger-nail discovers with ease and certainty the margin of that structure. As the hernia knife (blunt pointed, but cutting to the point) is insinuated along the finger-nail, close to the firm, constricting margin, it may advantageously carry before it a little connective tissue; thus all tissues are divided to the least possible extent, and the knife is much less liable to perforate the peritoneum. The practical rule, then, in all cases of hernia, is to divide the skin and just enough of the subcutaneous connective tissue to permit the tense margin to be felt, which it is proposed to relax. Anatomical knowledge is applied here not to determine how much tissue shall be divided—that is best decided by the touch—but to determine the precise direction in which, and the precise point to which, the finger-nail is to be carried. I regard it as an important feature of the pretaxoid operation that a lamina of tissue (crural sheath, fascia transversalis, &c.), shall, if possible, come between the peritoneal structures and the hernia knife.

The herniatome is next used in the most sparing manner, not only in the very limited application of the edge, but, which is even more important, in the limited introduction of the point, for the peritoneal structures are stretched thin and closely applied to the abdominal aspect of the apertural structures. In few cases should the herniatome pass beyond the finger-nail, and in umbilical hernia not at all. Incision of the tense margin is followed by pressure with the nail and tip of the finger, in the direction in which the incision was made. Pressure must on no account be made towards the abdominal cavity; neither fingers, directors, nor knives should be carried in this direction. If the finger be passed into the abdomen before the margin is relaxed, there is no strangulation, and no operation should have been performed; if strangulation be present, the introduction of the finger after the limited use of the herniatome is more likely to injure, and seriously injure, the bowel and peritoneum, than to effect any useful dilatation. Gentle and momentary application of the taxis to the unwounded coverings completes the operation."

In further explanation we may extract Mr. Jordan's description of its application to umbilical hernia. "The operation is especially applicable to umbilical hernia, as division of the cutaneous structures brings the finger so easily to the margin of the opening. It is most imperative here to carry the hernia knife as far as the nail only; where the margin of the linea alba projects after the manner of a short tube (as in a large irreducible strangulated case which occurred to me recently, in which convalescence followed the pretaxoid operation, but which ultimately terminated fatally in consequence of the grossest imprudence), the nail must precede the point of the knife step by step. The linea alba is thin; the fascia transversalis is extremely thin; the subperitoneal tissue is scanty, and, with the peritoneum, is pressed close to the margin of the outlet. In irreducible umbilical hernia it is of immense importance not to open these thinner structures except the linea alba."

J. Wood on hernia ('Med. Tim. and Gaz.,' 1864, i, 29, &c.). Dr. Friedberg on the influence of phimosis in the production of rupture during the first year of life ('Prag. Viertelj.,' 1864, i, 1). Mr. Couper, case of hernia without sac ('Lond. Hosp. Rep.,' i, 177). S. Wells on the diagnosis of ovarian hernia ('Med. Tim. and Gaz.,' 1864, i, 104). Dr. Abegg, reduction, *en bloc*, of a femoral hernia ('Deutsche Klin.,' 1863, p. 503). C. W. Streubel on the pseudo-reduction of herniæ, especially of strangulated herniæ (reprint from the 'Verhandl. d. med. Gesellsch. zu Leipz.,' vol. i). A. Fiedler, empty hernial sac with symptoms of strangulation, operation ('Arch. der Heilk.,' 1864, p. 286). W. Roser on the theory of strangulation (l. c., p. 85). E. Zeis describes two cases of hernia without sac in which the bowel was opened,—he imagines the sac had been ruptured during taxis; and one case in which he met with a double sac ('Arch. für klin. Chir.,' vi, 136).

*Inguinal hernia.*—R. Davies on the cure of inguinal hernia in children ('Med. Tim. and Gaz.,' 1864, i, 666). J. Scholz, case of wound of the epigastric ('Spit. Zeit.,' 1864, p. 236). J. Birkett, cases depending upon abnormal conditions of the vaginal process of the peritoneum ('Guy's Hosp. Reports,' x, 261).

*Femoral hernia*.—M. Fleury on hæmorrhage after an operation performed at the catamenial period ('Gaz. des Hôp.,' 1863, p. 546). Prof. Blazina, case of multilocular sac ('Prag. Med. Wochenschr.,' 1864, p. 71).

H. Lee, radical cure of *umbilical* hernia ('Brit. Med. Journ.,' 1863, ii, 543). Dr. Peacock, *diaphragmatic* hernia ('Trans. of the Path. Soc.,' xiv, 146). J. C. Forster, case of modified *obturator* (?) hernia ('Guy's Hosp. Reports,' x, 143).

## RECTUM.

*W. H. van Buren, certain points in the surgical treatment of diseases of the rectum* ('Amer. Med. Tim.,' 1864, i, 218).—The author explains the best mode of exploring the rectum by the aid of the speculum in the following words. "Before the employment of anæsthetics, even with the variety of specula devised for the purpose, this procedure was, in my experience, unsatisfactory. The power of rendering a patient unconscious has proved of immense assistance; but, in order to effect the object thoroughly, it is necessary, after the full influence of the anæsthetic has been produced, to place the patient in a particular position, as well as to secure the best possible light. The position which I have found most advantageous is that employed by our colleague, Dr. Marion Sims, in his very successful operations upon the vagina and neck of the uterus, the superiority of which he first recognised and pointed out, as detailed in his paper on 'Silver Sutures.'

"The patient is placed with the upper part of the trunk in a prone position, the front of the thorax in contact with the bed or table, the head on its left side, the left arm brought out at the left side and carried behind the back, the pelvis on its left side, with the thighs flexed at a right angle, and the buttocks exposed towards the light, and elevated sufficiently to permit the abdominal viscera to gravitate towards the diaphragm. These details may seem unnecessarily minute, but those who have witnessed the operations of Dr. Sims will bear witness that they are easily carried out in practice, and that the position secures great advantages to the operator by permitting the air to enter and freely expand the vagina, thus relieved from the pressure of superincumbent organs. In exploration of the rectum the same advantages are obtained as soon as the sphincter ani is dilated by the introduction of the speculum. The speculum I employ is a modification of that used for the vagina by Dr. Sims; the modifications consisting in the notch at its angle intended to receive the sphincter muscle, and thus to resist the tendency of the instrument to slip out when the muscle is put upon the stretch, and the alteration of the handle, which is so shaped as to clear the buttock when it is swept round, so as to bring all sides of the cavity of the gut into view. To facilitate still further this latter manœuvre, and to protect the stretched mucous membrane from abrasion, the edges of the blade are carefully rounded and turned inwards.

"The speculum being introduced and the sphincter put upon the stretch with one hand, the other hand is used to draw away the parts on the opposite side of the orifice; and, the handle of the instrument

being then gradually swept around, the light falls successively upon all sides of the exposed and expanded cavity. By the use of this manipulation applied to a patient in the position just described, I have frequently obtained a satisfactory view of the whole extent of the cavity of the rectum as high as its upper curve."

The next point to which the author alludes is *forcible dilatation* of the sphincter ani muscle. He considers it the proper remedy for fissure of the rectum; it need not confine the patient to his bed more than a single day, and its effects are as prompt and sure as those of the knife. The immediate cause of the peculiar and insupportable pain of an irritable ulcer of the rectum is the constant and involuntary spasmodic contraction of the sphincter ani muscle, by which the sensitive sore is continually squeezed and pinched. The pain thus produced varies both in degree and in duration. It may be slight and transient, or it may be almost insupportable in severity, and last eight or ten hours. The act of defecation itself is often accompanied by a slight degree only of soreness, and there is generally an interval of ease after the defecation before the peculiar pain of the disease sets in, and this interval is longer if the stool be solid in consistence.

As to the interval that elapses between the evacuation of the bowels and the occurrence of pain, the author says,—“To me it seems plain that the dilatation to which the orifice of the anus is subjected by the extrusion of fæces during the act of defecation is sufficient to prevent the fibres of the sphincter muscle from resuming their full tonic contractility for a short interval, and that the length of the interval depends entirely upon the size and hardness of the mass extruded, and the amount of stretching to which the orifice has been subjected.

“If this view be correct as to the cause of the pain in this disease, it follows that any means by which the contractile power of the sphincter is interrupted or temporarily abolished will relieve it at once. Its division by the knife illustrates the fact. Now, it is well known that forcible stretching of muscular tissue will temporarily impair its contractility. The paralysis of the bladder which so often follows its over-distention in retention of urine, is an example of this. And thus it is explained why forcible dilatation or stretching of the anal orifice arrests at once the pain of an irritable ulcer of the rectum, and is followed by its speedy cure.”

“Now, the operation of forcible dilatation, as I have been in the habit of performing it, by introducing the two thumbs into the anus, flexing them so as to include the breadth of the sphincter muscle, and then, taking a purchase with the outstretched hands from either buttock, drawing them forcibly asunder until arrested by the ischial tuberosities, effects such a stretching of its fibres as to paralyse the sphincter for at least a week, during which time the ulcer assumes a healthy appearance and rapidly heals, the pain ceasing entirely from the time of the operation.”

After relating some cases, the author remarks,—“I have been asked whether the paralysis of the sphincter ani, produced by forcible dilatation, is ever followed by incontinence or loss of control over the contents of the lower bowel. The relaxed and flabby appearance of the orifice



of the anus after the operation certainly suggests this idea, and the fact that when the patient is asked to contract his sphincter by voluntary effort he generally expresses his inability to do so, looks in the same direction. But, in answer to the question, I must say that in upwards of twenty cases which have come under my observation, I have never seen any indications of incontinence, and that I believe the internal sphincter to be equal to any emergency likely to arise during the temporary suspension of the functions of the more powerful external muscle.

“This remedial measure has a wider application than to the treatment of irritable ulcer of the rectum. In inflamed hæmorrhoidal tumours, or any painful inflammatory affections of the anus, where the spasmodic contractions of the sphincter constitute the principal source of the pain and obstruction to the circulation, the stretching of the sphincter, with or without the intervention of an anæsthetic, will afford prompt and certain relief. It is equally applicable to the affection described by some authors as ‘spasm,’ and by others as ‘painful contraction’ of the sphincter, and also in the ‘neuralgia of the anus’ of nervous subjects and hysterical women.

“I have been in the habit for several years past of employing this manœuvre after the operation for the cure of hæmorrhoidal tumours, whether by ligature or the use of the *écraseur*. The result has been always favorable. The patient is entirely saved from the severe pain, generally lasting several days, which is caused by the pinching of the tender and inflamed parts by the spasmodic contractions of the irritable sphincter. By throwing it out of play, the suffering after the operation is reduced to a very moderate degree of local soreness, and the necessity for the employment of the catheter, through sympathetic disturbance of the sphincter of the bladder, is abolished.”

*E. Hamilton* (‘Dublin Quart. Journ. of Med. Science,’ vol. xxxvii, p. 329) defends the use of the *écraseur* in the treatment of hæmorrhoids. It should, however, be employed only in the removal of internal piles of the longitudinal and pedunculated variety. He has himself repeatedly used it in such cases, and is not aware of a single instance in which the disease has reappeared or the patient has applied for the relief of symptoms which could be attributed to its use.

*Malformations.*—*M. Demarquay*, *Littre’s* operation, &c. (‘Gaz. des Hôp.,’ 1863, p. 513). *M. Lemaistre*, case (l. c., 1864, p. 54).

*Diseases.*—*H. Smith* on the clamp in hæmorrhoids and prolapsus (‘Lanc.,’ 1863, ii, 506). *J. R. Humphreys*, cancer—operation for artificial anus—temporary relief (‘Brit. Med. Journ.,’ 1864, i, 230).

#### GENITO-URINARY ORGANS.

*Spermatorrhœa.*—*W. Parker*, after describing the symptoms and treatment of this affection (‘Amer. Med. Tim.,’ 1864, i, 265, 289), refers “to two other conditions—one physical, and the other mental, and both difficult to overcome.

“The first is a discharge from the urethra while at stool, especially when the fæces are hard and dry; this discharge is called seminal, and

often excites very great alarm in the patient, and makes him almost frantic. The fact is, this discharge is not seminal, or only slightly so, but is a secretion from the vesiculæ seminales; and when this discharge amounts to much, it is the result of over-excitement in the parts, or the consequence of urethritis, and connected with epididymitis, and is, pathologically speaking, a catarrh or kind of gleet or leucorrhœa. When this discharge is copious, there are present the ordinary symptoms of nervous prostration both in mind and body. The prognosis on the whole is favorable. The treatment consists in attention to the bowels, keeping them in an easy condition. Good food, phosphoric acid, and strychnia, iron, and ergotine internally, and cold water injections into the rectum and bladder. The water should remain in the rectum, and not excite action of the organ.

“The second condition, or mental, to which I call your attention is a species of monomania. The patient labours under the conviction that he is impotent; that he is no man; that he is disqualified for marital relations; that he can never procreate, &c., &c., and he broods over this idea, and cannot be reasoned out of it, and exhibits his unsoundness of mind by his false reasoning—it is a genito-mania. If under an engagement to marry, as the time draws near, he will become much excited and wretched. He often will say to you he is sure of his impotency, for he has made the experiment with some woman of the town and has failed; the erection subsided, and he retired in disgust and despair. What are you to do with such cases? Can you, by argument, lead them to correct views? Generally you cannot, and they bring forward their *experimentum crucis*, which with them is conclusive. Some persons cannot pass water if they *think* some one is looking at them. You may take the ground boldly that they are not impotent; their *experimentum crucis* proves only that, while their mind was watching the action of the penis, they were not in a condition for successful copulation. I can say, as the result of experience, I have yet to see the *first case* of impotence among that class of persons. If engaged and prepared to marry, I recommend the consummation of the act; the sooner the better; and when they retire to their nuptial bed, to *be sure* and keep on their own side of it. This part of my advice they never follow long; they soon become sane in mind; and often, in the course of nine months or so, they prove themselves sound in body as well as in mind.”

M. R. Leroy attributes *urethral fever* to nephritis ('Gaz. Hebd.,' 1864, p. 467). M. Richard on forced dilatation in *spermatorrhœa* (l. c., p. 189). B. Schulz on *aspermatisms* from atrophy of the prostate ('Wien. Med. Wochenschr.,' 1864, pp. 68, 83). T. B. Curling, observations on *sterility* in man ('Brit. and For. Med.-Chir. Review.,' vol. xxxiii, p. 494). Prof. Rühle on *tabes dorsalis* ('Greifsw. Med. Beitr.,' i, 1; ii, Report, p. 11). Dr. Russell ('Med. Tim. and Gaz.,' 1863, ii, 455).

*Penis.*—Dr. Burrow recommends the local application of the acetate of alumina in balanitis ('Deutsche Klin.,' 1864, p. 178). He prescribes it in the following manner:—℞ Plumb. Acet. ʒj, Alum. crud. ʒv, Aq. Font. ʒviij. M. filt. A perfectly clear fluid is thus obtained;

it is applied to the affected parts by means of a piece of lint soaked three to six times daily in it. He employs this preparation also in the treatment of ulcers, and as a disinfecting agent; he says that the rapidity with which it destroys the fetid smell of ulcerations on the foot, is truly surprising.

A. Marten, congenital union of the penis with the scrotum ('Arch. für path. Anat.,' vol. xxviii, p. 555). L. le Fort on an error which may be caused by hypospadias ('Gaz. Hebdomadaire,' 1864, p. 593). M. Goyrand, operation for elephantiasis ('Gaz. Hebdomadaire,' 1863, p. 812). J. Thompson on paraphimosis ('Brit. Med. Journ.,' 1864, ii, 363). A. Verneuil, neurosis after a contusion ('Gaz. des Hôp.,' 1863, p. 610). J. Ressel on amputation by the galvano-caustic method ('Arch. Gén.,' 1864, i, 544, 688).

R. M'Donnell, case of *hæmatocele* ('Dubl. Quart. Journ.,' vol. xxxviii, p. 211).

H. Rohlf's on the radical cure of *hydrocele* (Bremen, H. Strack; 'Schmidt's Jahrb.,' vol. 119, p. 133). J. L. W. Thudichum on a hydrocele containing milky serum ('Lanc.,' 1864, i, 434).

*Testis*.—E. Müller, descent in an unusual direction ('Schweiz. Zeitsch. für Heilk.,' iii, 153). H. Smith on puncturing in acute orchitis ('Lanc.,' 1864, ii, 149). W. Petters, chronic epididymitis with hydrocele, &c. ('Prag. Med. Wochenschr.,' 1864, p. 233). F. C. Skey, ligature of the spermatic artery in disease ('Lanc.,' 1864, i, 32). M. Velpeau, encephaloid of testis ('Gaz. des Hôp.,' 1863, p. 581).

Mr. Canton, excision in case of hypertrophy of the *vulva* ('Lanc.,' 1863, ii, 448).

#### BLADDER.

*B. Holt*, chronic hypertrophy of the bladder, with frequent micturition ('Lanc.,' 1863, ii, 701).—A blacksmith, aged 19, a strong muscular man, was admitted on July 21st, 1863. The patient stated that, 3 years since, he fell across a log of wood, which at the time occasioned but little inconvenience; but about a week subsequently, after having taken a long walk, he experienced a very severe aching pain in the course of the urethra, and a constant desire to pass his urine, succeeded in about a week by a purulent discharge. This continued for a month or more unheeded by the patient; at the end of that time he was treated by a druggist, and afterwards by the parochial surgeon, for gonorrhœa. He was afterwards treated by several surgeons, but without finding relief.

"Having heard the man's statement, Mr. Holt examined his bladder, first without and subsequently with chloroform, without detecting any foreign body. The bladder was much contracted and roughened, and the prostate was slightly enlarged. The urine contained pus and mucus, with phosphatic crystals, the latter probably dependent on the condition of the bladder. He was compelled to urinate every half hour, and he experienced great pain afterwards; the bladder, even under chloroform, would only hold 2 ounces. Mr. Holt prescribed bromide of potassium, liquor potassæ, and chlorodyne, but without

relief; and the patient subsequently took, at different times, acetate of potash, liquor potassæ and opium, pareira brava and acid, with a like result. Finding that after a fair trial of various remedies they were of little benefit, Mr. Holt desired that his bladder should be injected every morning with a drachm of the tincture of opium to an ounce of water; but as this gave but transient ease, the sedative solution of opium was substituted for it; this after a few days gave considerable relief, and he was enabled to retain his urine for from three quarters of an hour to an hour, 3 ounces of urine being now the quantity that was usually passed. This treatment was continued for a month, the bladder still refusing to hold more than 3 ounces of urine. The injection was directed to be repeated in the evening, but the second passing of the catheter produced so much irritation that after a week's trial the injection was altogether omitted. He still continued to pass 3 ounces. The iodide of potassium was now prescribed in 5-grain doses, with directions to increase the dose every 3rd day; and after the lapse of a fortnight the daily injection of the solution of opium was resumed. The benefit of this treatment was soon apparent, for in a short time the bladder was found to contain  $3\frac{1}{2}$  ounces, and occasionally 3 ounces 7 drachms; the intervals being usually an hour and three quarters, and sometimes  $2\frac{1}{4}$  hours. This treatment is now being pursued, and apparently with the most satisfactory results."

Mr. Holt remarks that—"If the surgeon, under whose care this man first came, had carefully inquired into his history, he would have ascertained that the frequency of micturition *preceded* the discharge, and that the pain the patient complained of was after the bladder had been emptied, and not the ardor urinæ that accompanies an attack of gonorrhœa. The mischief was in the bladder, more especially at its neck; and although the proximate cause was the injury to the urethra, the serious symptoms depended on inflammation of the bladder. But supposing it had been otherwise, and the inflammation of the bladder had resulted from gonorrhœa, surely the bladder complication required the first attention, and could not be remedied by copaiba or cubebs."

On the diagnosis, Mr. Holt states that "during the time the patient was anæsthesiated I injected his bladder; but although he was perfectly unresisting, I could never force in more than 2 ounces of tepid water, which, taken in connection with the limited movement of the sound and the absence of any tumour or irregularity, assured me that he was suffering from hypertrophied bladder."

T. Smith, prolapsus of the ureters into the bladder ('Trans. Path. Soc.,' xiv, 185). Prof. Maschka, case of extra-peritoneal rupture, &c. ('Prag. Med. Wochenschr.,' 1864, p. 64). H. Teleky, case of rupture ('Wien. Med. Halle,' 1864, p. 332). H. Smith, removal of piece of tobacco-pipe ('Lanc.,' 1864, i, 350). J. Adams on retention of urine (l. c., 1863, ii, 557). T. Paget, case of retention, treated by puncture of the bladder and a permanent tube for micturition ('Brit. Med. Journ.,' 1864, ii, 213). M. Laugier, dysuria in a case of contusion of the hip ('Gaz. des Hôp.,' 1863, p. 569). Dr. Fürstenheim, case of disease, &c. ('Berl. klin. Wochenschr.,' 1864, p. 291). R. Schneider, two cases of enormous dilatation ('Schweiz. Zeitschr. für Heilk.,' ii, 453).

M. Richard, lithotomy for vesical neuralgia ('Gaz. Hebdomadaire,' 1864, p. 189).  
 M. Voillemier on subpubic puncture (l. c., 1863, p. 755).

*Prostate.*—F. M. Luther, case of vesical paracentesis in retention of urine from enlargement ('Dubl. Quart. Journ.,' vol. xxxvi, p. 233).  
 A. Mitscherlich, case of recto-vesical fistula in consequence of tubercular destruction ('Arch. für path. Anat.,' vol. xxix, p. 236). E. Rollett, cancer ('Spit. Zeit.,' 1864, pp. 233, 241).

#### URETHRA.

*B. Stilling on the cure of organic stricture of the urethra by internal division* ('Deutsche Klin.,' 1864, p. 353, &c.). The author has, on previous occasions, defended this method, and endeavoured to prove it the most rational mode of curing organic strictures. He admits under this method only such an incision as—

1. Divides the whole extent of the contracted portion.
2. Acts by longitudinal sections from the centre or free edge of the stricture towards its base.
3. At once restores, or allows the restoration of, the normal diameter of the urethra.
4. Avoids any injury to the urethra elsewhere than at (before or behind) the stricture.

He appends some interesting cases, and remarks that the first patient on whom he used his urethrotome in 1853, is still in excellent health, and without any sign of recurrence. The first case, which he now records, is to the following effect:—In the middle of Nov., 1855, Dr. Stilling was called in consultation to a gentleman, aged 48, who was supposed to be suffering from typhus fever. A small tumour was found in the perinæum; a catheter could be introduced as far as the membranous portion, but no instrument could be passed through the stricture; next day the scrotum was swollen, and on it there were some gangrenous spots; deep incisions were now made, &c. After a time the patient recovered. Dr. Stilling now learnt, that the patient had suffered from gonorrhœa in his 26th year (1833, thus 22 years before), which, through improper treatment, had become chronic; that he had again, at a later period, suffered an acute attack, and had from that time never been perfectly free from gleet for ten years. A great variety of treatment was employed; among other things mercurials were used for a lengthened period, both internally and externally, and bougies were regularly introduced. The patient became hypochondriacal; despairing of relief, he abandoned for a time all treatment. He gained strength by a course of hydropathic treatment, married, and had several healthy children. His sufferings, however, recurred with increased severity from time to time; he was once attacked by severe cystitis after an instrumental examination. He was again treated by bougies, and received relief for a time, but for a time only. In the autumn of 1855 he felt a violent pain in the perinæum after a nocturnal emission. During the following afternoon there was a rigor, in the evening fever;

the rigor recurred during the following days, and the fever was accompanied by extreme depression, violent sacral pains, and delirium. This was the state in which Dr. Stilling found the patient at his first visit.

On the 10th April, 1856, the stricture was divided from before backwards. No particular symptoms followed; the bougie or catheter was regularly introduced for some months. The patient then discontinued treatment. Dr. Stilling adds, that up to Sept., 1863, he had remained perfectly well.

The author thinks the laceration of the urethra was the result of the seminal emission. He asserts that the force with which the semen is pressed against the stricture is decidedly much greater than that exerted in passing urine. The perineal swelling was probably caused by extravasated semen, the urine not escaping into the cavity till afterwards. Dr. Stilling thinks that the latter might, perhaps, have been avoided, had it been possible to introduce a catheter, immediately after the seminal emission, into the bladder, and to retain it there for a few days, till the wound had become coated with lymph.

*M. H. Collis, practical observations on the treatment of organic stricture of the urethra, by means of sea-weed bougies\** ('Dubl. Quart. Journ. of Med. Science,' vol. xxxvii, p. 373).—"Freely growing along our shore, the *Laminaria digitata*, commonly known as the *sea-girdles* or *tangle*, supplies admirable material, in its tough perennial stem, for bougies of a superior description. The great tenacity and strength of this sea-plant must be familiar to all who have rambled along the shore; when dried, it becomes hard and capable of reduction into bougies of great strength and of very considerable finish. They will receive and retain any curve that may be given to them; and by dipping them into warm water and rubbing them between the fingers, their surface will become sufficiently soft and smooth for introduction into the urethra. Oil may be used with them as with other bougies, but in time its action upon their tenacity would be deleterious. When immersed in water they swell rapidly—in a few hours more than doubling their diameter." Dr. Sloan states that a tangle-tent freely exposed to moisture doubles its diameter in 4 hours, and in 48 hours increases to  $1\frac{1}{2}$  times. "Their dilating power is, therefore, great; it is also rapid. One case of very resisting organic stricture, in which I lately used them, may serve as an example:—in less than a week No. 9 could be passed with ease, although at first the stricture was with great difficulty traversed by No. 2. Only three times was an instrument introduced, and the entire number of hours that they were left in amounted to less than 3. Considering that the case was one of traumatic stricture, this result is singularly satisfactory. The amount of pain produced by these bougies is trifling, so long as they are left in contact with the mucous surface of the urethra, and not moved from the situation in which they have been first placed; but if moved backwards and forwards, after a lapse of 20 minutes or upwards, when they have begun to swell, much pain will be produced; this interference is unnecessary, and I only allude to it in order to caution surgeons against it. Once placed in the

\* These bougies are manufactured by Krohne of London,

position required, they should be kept there until it is judged proper to remove them. And this leads me to remark upon another point in connection with their rapid enlargement. When in free contact with moisture, they swell so much that their diameter is more than doubled. Now, although in the smaller numbers this increase in size may not be capable of producing any mischievous consequences, yet if we see fit to use such a size as No. 7 or 8, it will be most important to bear this property in mind: suppose such a bougie introduced fully into the bladder, beyond a stricture situated about the bulb, all that part of the bougie in contact with urine dilates to the full extent; that within the grasp of the stricture, only to the size of No. 10 or 11: hence we have a large and somewhat softened bulb at the distal side of the obstruction, and it is plain that its withdrawal will be both difficult and painful, even if the tenacity of the instrument be sufficient to prevent the serious accident of its fracture. Hence, the caution is imperative of not advancing the bougie into the bladder—in fact, the distance of the stricture from the orifice should be carefully measured before the bougie is finally settled into its place, and the point of the bougie should only just pass beyond the vesical end of the stricture.”

B. Stilling, congenital deficiency, formation of a new canal from meatus to bladder (*Deutsche Klin.*, 1864, p. 319). P. H. Watson, cases of injury (*Edinb. Med. Journ.*, ix, 923). C. Heath on extraction of a hair-pin from the male urethra (*Lanc.*, 1864, i, 120). Prof. Bardeleben, serious bleeding from the urethra (*Greifsw. Med. Beitr.*, ii, Report, p. 53). M. Notta, destruction of subpubic portion, operation, cure (*Gaz. des Hôp.*, 1864, p. 95). van Hoeter, cases of calculi, &c. (*Bull. Belge*, 1863, pp. 905, 916). M. Beyran, polypus in the male urethra (*Gaz. Méd. de Paris*, 21 Nov., 1863). Prof. Dittel on urethral fistulæ (*Allg. Wien. Med. Zeit.*, 1863, p. 249). E. Thoman, case of fistula (*Wien. Med. Halle*, 1864, p. 34). M. Lagneau on neuralgia (*Gaz. Hebd.*, 1864, p. 190). P. C. Smyly on the treatment of stricture by the more “immediate plan” (*Dubl. Quart. Journ.*, vol. xxxv, p. 80). Prof. v. Dumreicher on stricture (*Wien. Med. Halle*, 1864, p. 1, &c.). B. Holt on the uses of the stricture dilator (*Lanc.*, 1864, ii, 206).

## STONE.

Dr. Dolbeau, practical treatise on vesical calculus (Paris, A. Delahaye).

L. Porta, treatise on lithotritry (Leipz., Engelmann).

L. A. Mercier on a cause of recurrence after operations for stone (*Gaz. Hebd.*, 1864, p. 550).—The author endeavours to show that in every case of lithotomy or lithotritry in which the patient presents symptoms of advanced chronic nephritis with alkaline urine and a tendency to phosphatic deposit, the surgeon should be on the watch for exfoliation of patches of mucous membrane encrusted with these salts, for such patches might become the nuclei of secondary stones. He thinks that he has sometimes prevented recurrences by injections of very weak

dilutions of nitric or muriatic acid, continued for some weeks after the operation.

*Dr. Klien on calculus vesicæ and its treatment in Russia.* ('Arch. für klin. Chir.,' vi, 78).—The author has collected the cases which occurred during many years at the Moscow Clinic, and in 1860 gave an account of the results in an essay on lithotrity, written in the Russian language.

There are few countries, perhaps none, where stone is so common, as towards the centre of European Russia; the inhabitants of the land watered by the upper part of the Wolga appear to be specially liable to this disease. The more northern and southern portions of the empire present a relatively less proportion of cases, and in the western provinces, so far as the author is aware, stone is very rarely met with. The hospitals of the large cities, especially the clinics of Moscow and Kasan, receive the greater part of the patients; at certain times the fifth part of the surgical patients in the Moscow Clinic consists of cases of stone; on an average, rather more than 60 cases are treated at this hospital every year. These patients belong almost always to the agricultural class; the number of children is at least thrice that of adults; of 1792 patients treated at the Moscow Clinic between 1822-60, only 4 were females. Compound stones are the most common; pure uric-acid or oxalate-of-lime calculi rarely occur. Generally the nucleus is formed by uric acid or by a urate; then there is a layer of oxalate of lime, followed by one of phosphates.

The affection has generally existed a considerable period when the patients apply at the hospital; adults are, indeed, often in such a condition as not to admit of operation; the author observed no less than 36 such cases at the Moscow Clinic in the course of 10 years: even in children the stone was often of considerable size. At the latter age the stone not unfrequently passed into the urethra, and was lodged just behind the external orifice, or, as happened more often, in the region of the bulb.

In respect to lithotomy and lithotrity, the author adduces the statistics collected from the hospitals of Moscow and Smolensko by Prof. Bassoff (in his work on lithiasis), and by himself. These embrace a total of 4486 cases, of which 3934 recovered. The results of lithotomy,—in all cases the lateral operation was performed—are quite as good as those obtained in France or England, thus:—

	Cases of lithotomy.	Deaths.	
Hôpital de la Charité and Saucerotte . . . . .	2809	402	( $\frac{1}{7}$ )
England (Thompson) . . . . .	1002	136	( $\frac{1}{7}$ )
Russia (Moscow) . . . . .	4486	552	( $\frac{1}{8.1}$ )

Up to the year 1860 there had been 222 cases of lithotrity at the Moscow Clinic. In 24 the stone could not be entirely crushed, and lithotomy had to be secondarily performed; 19 recovered, 5 died. Lithotrity alone was used in the remaining 197 patients; 167 recovered, 31 died. The ratio is therefore as 1 to 6.35, or rather worse than in lithotomy; it must be remembered, however, that the average age of the patients was greater than that of those submitted to the knife. The



size of the stone was from 5 to 22 lines. In 62 cases lithotrity was performed in children between 1 and 15 years old; of these 6 died. In 24 cases a single operation only was required to crush the whole stone. The cause of death was almost invariably acute disease of the kidney; cystitis rarely occurred. The author states that in 20 cases of lithotrity examined after death, extensive renal disease was found 15 times, whilst after lithotomy urinary infiltration, cystitis, peritonitis, and pyæmia were more frequently present. He considers that renal disease is an almost decisive contra-indication of lithotrity, for even the most delicate manipulation may excite very serious symptoms in such cases.

To show how often lithotrity was preferred to lithotomy, the author adds that from 1849 to 1859 there were 405 patients with stone treated by operation at the Moscow Clinic; of these 293 were children (1—15 years), and 112 were adults (15—65 years); in the former lithotrity was performed 30 times, in the latter 55 times; thus out of 10 children about 9 were treated by incision, one by crushing; of 2 adults, 1 by incision and the other by lithotrity. The stone was crushed successfully in the 4 females.

*Dr. Sims on recto-vesical lithotomy* ('Lanc.,' 1864, i, 111).—Dr. Sims proposes to insert silver-wire sutures after the extraction of the stone, and it appears that a case was thus treated by Drs. Bauer and Sims in 1859. "The patient was placed on the left side, and my speculum was introduced into the rectum, exposing the anterior wall of the rectum, just as it would the vagina in the female. A sound was passed into the bladder. The Doctor entered the blade of a bistoury in the triangular space bounded by the prostate, the vesiculæ seminales, and the peritoneal reduplication. He passed the finger through this opening, felt the stone, and removed it with the forceps without the least trouble. The operation was done as quickly and as easily as it would have been in a female through the vaginal septum. After the removal of the stone, Dr. Bauer kindly asked me to close the wound with silver sutures, which I did, introducing some 5 or 6 wires with the same facility as in the vagina. There was no leakage of urine. The patient recovered without the least trouble of any sort. The wires were removed on the 8th day, and on the 9th day the patient rode in a carriage with Dr. Bauer a distance of 4 or 5 miles, to call on and report himself to our distinguished countryman, Dr. Mott."

*J. R. Lane*, referring to Dr. Sims' case ('Lanc.,' 1864, i, 151), objects to the incision through the base of the bladder, on account of the great risk of wounding the peritoneum. He records a case of recto-urethral fistula treated by operation. "A. B.—, aged 19, had suffered from stone in the bladder from a very early age. Two and a half years ago, a calculus the size of a walnut was removed by Mr. Lloyd, in St. Bartholomew's Hospital. The cicatrix showed that an incision had been made in the raphé of the perinæum through the sphincter into the rectum. Externally this wound was soundly healed, but on examining the interior of the rectum an opening was discovered behind the sphincter, leading into the urethra immediately in front of the prostate. The aperture was of such a size as to admit the end of a director. The urethra was otherwise healthy, and a full-sized catheter readily passed

into the bladder. A probe introduced from the rectum through the fistulous opening at once came in contact with the catheter in the urethra. The incision, in healing, had not left the anal aperture of the usual circular appearance, but had caused it to be prolonged forwards in a grooved or angular form. He had good retentive power over his fæces, but when he passed urine a considerable portion, after escaping through the fistula, flowed along this groove down his thighs. He stated that his urine was voided in about equal quantities in this way and by the penis; the annoyance, therefore, was very great, for his clothing was continually saturated with it. The escape, of course, was not constant, as in the case of a fistula leading into the bladder, but only took place periodically and during the act of micturition. Repeated applications of nitrate of silver and of the actual cautery having proved ineffectual, I determined to pare the edges and bring them together with sutures.

“*Operation*, Jan. 13th.—The large end of Bozeman’s speculum was introduced into the rectum, and, to afford increased facility for getting at the aperture, I made a slight incision through the skin and superficial fibres of the sphincter on each side. The edges of the fistula were then carefully denuded, and four silver-wire sutures passed. The ends of the sutures were brought through the apertures in a narrow leaden plate, after Bozeman’s method, and fastened with perforated shot. The silver catheter which had been held in the urethra and bladder during the operation was then tied in, and the patient sent to bed.

“The catheter was retained for two days, but being found to cause a good deal of pain and irritation, it was then dispensed with, and the patient was allowed to pass his urine by his own efforts along the urethra, which he did without pain and without any leakage through the wound. The leaden plate and the sutures were removed eight days after the operation, when the edges of the wound were found to be in good apposition and well united. There has been no escape of urine by the rectum since the operation, and, at the date of this report, 16 days afterwards, he passes the whole of his urine readily, and in a good stream, by the urethra.”

G. Seydel, cases of stone (*‘Deutsche Klin.,’* 1864, p. 339). Dr. Warncke, case of cystic calculus (*‘Med. Tim. and Gaz.,’* 1864, ii, 59). Dr. v. Thaden, case of spontaneous fracture (*‘Arch. für klin. Chir.,’* vi, 202).

*Lithotomy*.—G. M. Humphry (*‘Lanc.,’* 1864, i, 460, 515, &c.). H. Coote, causes of death (l. c., p. 61). B. Stilling (*‘Deutsche Klin.,’* 1864, pp. 197, 205). J. M. Warren on lithotomy in young persons (*‘Amer. Journ. of the Med. Sciences,’* vol. xlvii, p. 555). J. McCraith on lithotomy in Smyrna (*‘Med. Tim. and Gaz.,’* 1864, ii, 6, 32). J. Hutchinson, a new tube for use after lithotomy (*‘Lond. Hosp. Rep.,’* i, 93).

*Lithotrity*.—H. Thompson, G. Pollock, and T. P. Teale, on lithotrity without injections (*‘Lanc.,’* 1864, i, 209, &c.). B. Stilling (*‘Deutsche Klin.,’* 1864, p. 138). V. v. Ivanchich, cases (*‘Wien. Med. Wochenschr.,’* 1864, p. 119, &c.). W. Coulson, remarks (*‘Med. Mirror.,’* i, 193, 270).

*Very large calculi.*—D. Gilbert, cases ('Amer. Journ. of the Med. Sciences,' vol. 48, p. 92). Mr. Tyrrell ('Dubl. Quart. Journ.,' vol. xxxvi, p. 441).

*Stone in the female.*—S. Wells on lithotrity ('Med. Tim. and Gaz.,' 1864, i, 11). G. M. Humphry ('Lanc.,' 1864, ii, 114). T. Bryant, two cases treated by rapid urethral dilatation (l. c., 1864, i, 578).

## EXTREMITIES.

*M. Nélaton on sub-ungual exostosis* ('Med. Circ.,' vol. xxv, p. 122).—Twelve months ago, a working man, æt. 18, observed that the nail of the right great toe was gradually assuming an improper direction. The extremity of the nail was growing upwards, and caused inconvenience and even pain in walking. The incision of the exuberant portion of the nail gave but little relief, the outer edge of the toe became swelled and tender, and the patient applied to M. Nélaton. The professor easily detected in the painful part a small round tumour protruding beyond the point of the toe, and extending beneath the nail, which it raised; the tumour was red, and presented an orifice from which pressure forced a little drop of pus. The firm consistency pointed to the diagnosis; an osseous growth could alone cause the symptoms. The disease was that described by Dupuytren under the denomination of exostosis of the upper surface of the great toe or subungual exostosis.

The great toe is almost always the seat of the affection; once only M. Nélaton met with it in one of the fingers. It must further be remarked that in nine out of ten cases the exostosis occupies the wider part of the dorsal aspect of the bone, near its external edge, and at the juncture of the lower with the middle third of the phalanx. The tumour is conical, and contains a bony nucleus covered by cartilage.

In such a case, the incurvation of the nail upwards, and the consequent distress in walking, first attract the patient's attention. Paring the nail is, of course, employed, and sometimes suffices to relieve the pain; as, in many instances, a protecting horny covering, of moderate thickness, forms, the inconvenience becomes less. Yet it occasionally happens, as in the present case, that inflammation is excited by the friction of the shoe, and walking becomes difficult or impossible.

The treatment is then plain—the exostosis must be removed. M. Nélaton proceeds as follows:—A muslin bag filled with salt and pounded ice is applied for two or three minutes over the toe, in order to deaden sensation, and with a short and strong knife, the tumour is isolated and removed; sometimes the gouge and mallet must be used. The dressing should be of the simplest character, and in the course of twelve days or a fortnight, healthy granulations form, and a solid cicatrix follows. This was the treatment employed in the present case, and the result was in every respect satisfactory.

*Upper extremity.*—R. M. Hodges, injury of the arm common to children of from 1—4 years of age ('Boston. Med. and Surg. Journ.,' Sept., 1862). M. Verneuil on an injury of the forearm in young

children ('Gaz. des Hôp.,' 1864, p. 59). Dr. Eulenburg on contracted fingers ('Berl. klin. Wochenschr.,' 1864, pp. 224, 234).

*Lower extremity.*—A. Delsol on the perforating disease of the foot (pp. 68, Paris, A. Delahaye). J. Bär, case of ulcerating tubercular elephantiasis ('Prag. Med. Wochenschr.,' 1864, p. 241, &c.). C. Hueter on the etiology of talipes ('Arch. für klin. Chir.,' iv, 475). D. C. Enos on the treatment of deformities by the plaster bandage ('Amer. Med. Tim.,' 1863, ii, 246). J. Holmes, excision of the astragalus and scaphoid bones ('Trans. Path. Soc.,' xiv, 229).

*Orthopædic surgery.*—C. Heine on infantile paralysis ('Med. Tim. and Gaz.,' 1863, ii, 583). Dr. Heineke on the treatment of genu valgum, &c., by plaster and splint bandage ('Greifsw. Med. Beitr.,' ii, 65, 200). A. Eulenburg on traumatic paralysis of the nervus peronæus and the consequent deformities of the foot (l. c., p. 178). A Mitscherlich, congenital malformation of both elbows ('Arch. für klin. Chir.,' vi, 218).

# REPORT

ON

## MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

BY

JOHN MEABURN BRIGHT, M.D.,

ASSISTANT-SURGEON TO THE HOSPITAL FOR DISEASES OF WOMEN.

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### LITERATURE.

WE notice the following works and pamphlets published during the past year.

#### MIDWIFERY.

Prof. Hecker, 'Clinical Midwifery,' vol. 2, Leipsic. Schultze, 'The first three of a series of Chromo-Lithographic Plates illustrating Midwifery,' Leipsic, Günther. De Cristofori's 'Clinical Observations on Obstetrics,' Florence, Martini. Kehrer, F. A., 'Contributions to Practical Midwifery,' Giessen, Ferber. Hodges, H. L., M.D., 'Principles and Practice of Obstetrics,' Philadelphia, Blanchard. Ritter (of Rittershain), G., 'The Pathology and Treatment of Rachitis,' with plates, Berlin, Hirschwald. Pinchard, A., on 'The Induction of Premature Labour,' thesis, Strasbourg, Silbermann. Charpentier, on 'Puerperal Fevers,' Paris, Baillière. Matthews Duncan, M.D., on 'The Variations of the Fertility and Fecundity of Women according to Age,' pamphlet, Edinburgh. Salmon, A., on 'Retroversion of the Uterus during Pregnancy,' thesis, Paris, Baillière. Macari, F., on 'Eclampsia,' Turin, Biancardi. Perla, N., on 'Puerperal Diseases,' Aversa, Murtroffio. Swayne, G., 'Obstetric Aphorisms,' 3rd edition, London, Churchill. Banks, W. M., on 'The Wolffian Bodies of the Fœtus, and their remains in the Adult,' prize thesis, Edinburgh. Lee, Robert, M.D., 'Three Hundred Consultations in Midwifery,' London, Churchill. Hicks, Braxton, M.D., on 'Combined External and Internal Version,' London, Longmans. Hodges on 'The Pathology and Treatment of Puerperal Convulsions,' London, Churchill. Leishmann, on 'The Mechanism of Parturition,' London, Churchill. And the 'Transactions of the Obstetrical Society,' vol. 5, London, Longmans.

## DISEASES OF WOMEN.

Prof. Faye, on 'Diseases of the Female Sexual Organs,' Christiania. Byford, W. H., M.D., on 'Chronic Inflammation and Displacements of the Unimpregnated Uterus,' Philadelphia, Lindsay. Kœberlé, E. (Strasbourg), on 'Ovariectomy,' Strasbourg, Baillièrè. Manuel, on 'Pelvic Tumours,' Marburg, Elvert, pamphlet. Klob, on the 'Pathological Anatomy of the Female Sexual Organs,' Vienna, Braumüller. Maheux, on 'Sterility in Women,' Paris, Baillièrè. Freund and Betschler, 'Clinical Contributions on Diseases of Women,' Breslau. Churchill, F., M.D., on 'Diseases of Women,' 5th edition, Dublin, Fannin. And Dr. West, 'Diseases of Women,' 3rd edition.

## DISEASES OF CHILDREN.

Hennig, Dr. Carl, 'Manual of Diseases of Children,' 3rd edition, Leipsic, Winter. Pasquali, A., on 'Some Diseases of Infancy and Childhood,' Turin. Steffen, A., on 'Diseases of Children,' vol. 1, Berlin, Hirschwald. Bouchaud, J. B., on 'Death by Inanition, and Experimental Researches on Nutrition in New-born Children,' Paris, Delahaye. Héberlé, Ch., on 'The Treatment of the Asphyxia of New-born Children,' thesis, Strasbourg, Silbermann. Royer, H., on 'The Symptomatology of Diseases of Children,' Paris, Asselin.

## MIDWIFERY.

## STATISTICS, ETC.

Braxton Hicks, M.D., "The Fourth Report of the Guy's Hospital Lying-In Charity" ('Guy's Hospital Reports,' vol. 10, 1864).

"The Fourth Report of the Guy's Hospital Lying-In Charity" gives a summary of all the cases attended during the nine years ending Sept. 30, 1863. The operations of the charity have been before described ('Year-Book,' 1863, p. 339). The reports given are of cases occurring in out-door practice; and in computing the relative mortality of these cases with those of in-door charities, it must be remembered that in this charity the patients continue for a longer period under supervision, and seek admission into the hospital long after the ordinary term of attendance has expired.

The total number of women attended was 14,871, and of children born 14,999. Of these, 14,375, or 95·6 per cent., were born alive, and 623, or 4·6 per cent., stillborn. In 14,962 of whom the sex is mentioned 7825 were males and 7137 were females, or as 100 to 91. Of the children born alive the males constituted 52 per cent., while of 587 stillborn the males were 347, or 59·4 per cent. Hence the proportion of males to females stillborn was greater than the ratio of males to females born alive. Or, in other words, there is a greater relative loss of male infants in parturition, due, as shown below (Table II), to the greater prevalence of podalic and pelvic presentations.

TABLE I.—Of Presentations under which the Living Children were born.

	Males.	Females.	Total.	Per cent.
Vertex . . . . .	7323	6744	14,067	= 97·8
Vertex and funis . . . . .	6	0	6	= ·04
Vertex and hand . . . . .	7	6	13	= ·09
Transverse and varieties . . . . .	8	8	16	= ·11
Pelvic and podalic . . . . .	103	116	219	= 1·5
Funis (conditions not mentioned) . . . . .	4	3	7	= ·05
Face . . . . .	25	22	47	= ·32
<b>Total . . . . .</b>	<b>7476</b>	<b>6899</b>	<b>14,375</b>	

TABLE II.—Shows the Presentations under which the 623 Stillborn Children were delivered, of whom mention is made in 587; of these, 347 were males and 238 were females, or as 1 to ·67.

	Males.	Females.	Total.	Per cent.
Vertex . . . . .	{ Full term 225 } { Premature 33 } 258	{ Full term 141 } { Premature 21 } 162	420	... 67·0
Transverse and varieties . . . . .	{ Full term 16 } { Premature 1 } 17	{ Full term 16 } { Premature 3 } 19	36	... 5·7
Podalic and pelvic . . . . .	{ Full term 60 } { Premature 14 } 74	{ Full term 43 } { Premature 11 } 54	128	... 20·0
Face . . . . .	0	3	3	

Of the 14,871 mothers deaths from all causes occurred in 44 cases. This is about 2·94 cases per 1000, or about 1 in 340. The death-rate of the preceding 21 years was 1 in 140. This improved rate is much owing to the diminution of "puerperal fever," especially of the toxæmic varieties. In the present report there is less than 1 case in 1000, while in a 21 years' report it was 1 in 234 cases. This low rate of maternal mortality is a very satisfactory evidence of the advantage of home attendance over that of lying-in hospitals. Peritonitis is still the most actively fatal of all the dangers surrounding the lying-in woman, but it is very satisfactory to notice that in no instance has so-called puerperal fever been carried to any other patient. The rule of the charity requires the attendant to restrict himself to any case where it is suspected that any form of such disease is present; and no student who is dissecting or engaged in the post-mortem-inspection room is allowed to attend cases. The very satisfactory results thus obtained have been owing much to the assiduity and attention of gentlemen in attendance, as also to the resident obstetric clerks, under whose more immediate supervision the cases are managed.

The cases are arranged under different heads, indicating the abnormal presentation or other condition of departure from natural delivery. Peritonitis and pyæmia produced rather more than half the deaths, while hæmorrhage from various causes caused about a fourth. The exhausted and debilitated women that form the greater part of the

patients are ill able to bear any great loss, and rapidly succumb to hæmorrhage. Two cases of Cæsarean section occurred, but in both the child was already dead when extracted. There were 18 cases of eclampsia, of which 5 died, 2 of them undelivered. In all, where the urine was examined, albumen was found. Two cases of distinct arthritic pyæmia are reported, both proving fatal, after natural labour. It is worthy of remark that, although the attendants had in each case delivered from 15—20 cases before the character of this disease was recognised, yet to none of the patients was any disease communicated. Rupture of the uterus occurred in 3 cases, besides 2 where it happened during the operation of craniotomy. In every case it occurred in vertex presentations. The proportion to the whole number of cases is 1 in 4957. Craniotomy was performed in 18 cases, or 1 in 833 cases—in 17 of these for want of due relation between the foetal head and the passages. In 1 case the antero-posterior diameter was  $2\frac{1}{4}$  inches, while the child weighed  $10\frac{1}{2}$  lbs. Four deaths occurred. The forceps was applied in 82 cases—alone in 75 cases, followed by craniotomy in 5 cases and by turning in 2. No death occurred to the mothers. Of the children in 67 cases 12 were stillborn. Version was performed in 77 cases. The result to the children is only recorded in 53 cases. Of these, 15 were living and 38 dead. Of the mothers 6 died, all after hæmorrhage. Of transverse presentations 52 occurred, and of these, 16 were born alive and 36 were stillborn. The reports on retention of the placenta and post-partum hæmorrhage are probably in excess of these actual conditions; 105 cases of the former and 158 of the latter are recorded. Placenta prævia occurred in 21 cases, and 3 deaths resulted, in all of which version had been effected. The funis presented in 43 cases, of which 13 children were born living and 30 dead. Fifty cases of face presentation occurred, of which 46 were born alive. There were 3 cases of triplets and 113 cases of twins, or about 1 in 129 of the whole number of women delivered. Induction of premature labour was performed in 11 cases. Of these, 6 children died and 5 were born alive. One mother died. Contraction of the bony passages was the reason for the operation in all.

#### GENERAL ANATOMY AND PHYSIOLOGY.

Dr. Joulin, on "The Pelvis considered in various Races of Man" ('L'Union Méd.,' 71, 1864).

Breslau, Prof., "Experimental Researches on the continuance of the Life of the Fœtus after the Death of the Mother" ('Monatsschr. f. Geburtsh.,' August, 1864).

Dr. A. Hegar, "The Glands of the Decidua and the Hydrorrhœa Gravidarum" ('Mon. f. Geb.,' Dec., 1863).

Dr. Joulin submits the following conclusions as the result of his examination of the pelvis in different races of man:—(1) The most important features which have been pointed out as characterising the Negro and Mongolian races do not exist. (2) The slight differences which are observed in the pelvis of the three human races have



nothing truly characteristic. They appear only when the comparison is extended to a certain number of subjects; but they are not sufficiently marked to impart a well-marked character to an isolated pelvis. (3) The Mongolian and Negro races present an *identity* which does not permit them to be distinguished. If, then, by an examination of the cranium we can divide the human family into three principal races, the examination of the pelvis furnishes only two groups. In the first the author places the Aryan and Caucasian races; in the second the Mongolian and Negro. (4) In all the races, contrary to what has been said, the transverse diameter of the brim is greater than the antero-posterior. (5) In the pelvis of the Negress and Mongolian woman the oblique diameter of the brim differs only from the transverse by a few millimètres. In the Aryan the difference is a millimètre and a half. (6) The verticality of the ilia is more marked in the Mongolian and Negress than in the Aryan. (7) In the races the direction, more or less vertical, of the ilia, does not agree with the form of the cranium, but with that of the chest. In the dolicocephalous Negro, and in the brachicephalous Mongolian, the iliac fossæ have the same direction, because the thoracic conformation is the same. (8) In the Mongolian and Negro races the transparency of the iliac fossæ is almost always recognisable, but it is *in general less* than in the Aryan. (9) The highest point of the crista illii is in all three races at the middle. (10) It is not exact to say that in the Negro race the iliac crest always attains a higher point of the lumbar vertebræ than in the Aryan, but the variations in the degree of elevation are more frequent and more marked. In this respect, as in all the others, the Mongolian resembles the Negress. (11) The pelves of the yellow and Negro races have a less capacity than those of the white race; they are shallower, and the pubic arch is larger by some degrees. (12) There exists no correlation between the form of the head and that of the pelvis.

These conclusions are based upon an examination of 17 pelves of Negresses and 9 of Mongolian women, which are added to the memoir in two tables.

2.—Prof. Breslau has made a series of experiments upon the lower animals, in order to determine how long the fœtus can live after the mother's death. He begins by defining "life" and "death" in the mother, as well as in the fœtus. Death has occurred when the movements of the heart have fallen to the minimum, when there is no peripheral circulation, when the respiration has entirely ceased, when instinctive and reflex movements of entire limbs no longer occur. "Apparent death," *i. e.* a transition from life to death, or *vice versâ*, is sometimes difficult to determine, and is to be distinguished from real death in these experiments. When, therefore, the movements are few, feeble, the limbs relaxed, respiration difficult, interrupted and painful, and the circulation feeble, but still to be felt in the umbilical cord, and reflex movements slightly present on external irritation, then the fœtus is apparently dead. Twenty experiments are detailed and tabulated, made on hares, rabbits, and guinea-pigs; the principal difficulty

being to determine the period of utero-gestation in the two first-named animals. The following are the results:

1. In 9 experiments 32 fœtuses were found all dead. The modes of death of the mothers were, in 6 asphyxia, in 1 asphyxia and hæmorrhage, in 1 chloroform-narcosis, in 1 paralysis of the nervous centres. The 32 fœtuses were removed from the uterus, in one case 2 minutes after the death of the mother, in 2 cases 4 minutes, in 1 case 5 minutes in 2 cases 6 minutes, in the remaining 3 cases more than 10 minutes after the death of the mother.

2. Two fœtuses were dead, besides one "apparently dead" in one case. The mother was poisoned by cyanide of potassium. The fœtuses were extracted from the mother in the first minute after death.

3. All the fœtuses, in number 11, were "apparently dead" in 4 experiments. The modes of death of the mother's were, 1 by asphyxia, 1 by hæmorrhage, and 2 by chloroform. The 11 fœtuses were removed from the mother, 1 litter in the first minute after death, 1 in 2 minutes, 1 in  $4\frac{1}{2}$  minutes, and 1 in 5 minutes.

4. Three fœtuses were apparently dead, together with 6 living, in 3 experiments. The mothers died in 2 cases by hæmorrhage, in 1 by paralysis of the nerve-centres and hæmorrhage. In these 3 cases the "apparently dead" fœtuses were kept alive, in 1 case 3 minutes, in 1 case  $5\frac{1}{2}$  minutes, in 1 case 8 minutes after the mother's death. In addition to these the living fœtuses were kept alive in 1 case during the first minute after the death of the mother, in 1 case for 2 minutes, in 1 case for  $2\frac{1}{2}$  minutes after the mother's death.

5. All the fœtuses were alive, 9 in number, in 3 experiments. The mothers died, 1 from asphyxia, 1 from asphyxia and hæmorrhage, 1 from hæmorrhage. In these 3 experiments, the fœtuses were kept alive in 1 case during the first minute, in 1 case during 2 minutes, and in 1 case about 5 minutes.

The following are the conclusions drawn:

(1) The life of the fœtus always extends beyond the death of the mother, with a certain independence.

(2) The life of the fœtus in the dead mother is very soon in great danger, manifesting itself in violent convulsive movements, which from their character may be considered as premature respiratory movements, arising from the want of oxygen and the necessity for breathing.

(3) Apparent death, into which the fœtus commonly passes at the end of the first minute after the death of the mother, is maintained in the fœtus enclosed in the uterus in the most favorable case up to 8 minutes; generally death occurs much earlier.

(4) The fœtuses removed "apparently dead" from the body of the dead mother are nearer to death than to life, for they do not recover of themselves, but soon perish, almost without exception.

(5) Only rarely, and in the most favorable case, will the fœtus be removed alive within 5 minutes after the mother's death. Even in the third minute the probability of extracting a living fœtus is very slight.

(6) If we operate later than 5 minutes we cannot obtain a living

fœtus ; if we operate later than 8 minutes after the death of the mother we cannot even extract an "apparently dead" fœtus ; the young are by that time always dead.

(7) Death frequently occurs earlier with the unborn fœtus ; indeed, after a few minutes.

(8) The mode of death of the mother does not seem to be without influence upon the life and death of the fœtus. Death of the mother by asphyxia is unfavorable to the fœtus ; death by hæmorrhage is more favorable, as also death by chloroform and by paralysis of the nerve-centres.

(9) The fœtus of the hare, although at the end of utero-gestation proportionably smaller and less developed than that of the guinea-pig, appears to be more independent of the death of the mother than the latter.

(10) It appears to be of importance to the continuance of life whether the fœtus is mature or immature, but the experiments on this point convey no satisfactory evidence.

From these results the author considers the following applications may be made to the human fœtus, and to practical midwifery :

1. There can be no doubt that the human fœtus, like the brute, always survives its mother if the mode of death be rapid and violent—as from hæmorrhage, asphyxia, blows on the head, apoplexy, &c.

2. The power of resistance of the human fœtus is greater than that of the brute ; hence the human fœtus will longer survive the violent death of its mother.

3. The duty of every physician is always, after the proved death of the mother, to make the Cæsarean section as soon as possible, in order to save the life of the child. This, however, may be avoided if the previous death of the fœtus be certain, or if delivery can be accomplished more safely and speedily in the natural way.

4. The Cæsarean section, if not performed within the first 15 to 20 minutes after the death of the mother, will give no prospect of a living or "apparently dead" child.

5. If the mother have died from blood-disease, *e. g.* cholera, typhus, puerperal fever, either during pregnancy or labour, scarlatina, smallpox, &c., there is no hope of saving the child's life. The same will be the case in those poisonings of the mother which give rise to rapid decomposition of the blood, and thus affect the fœtus, as by prussic acid. Chloroform-death appears to be an exception, inasmuch as chloroform, as such, does not pass into the fœtal circulation, of which we may be convinced by any labour terminated under chloroform-narcosis.

In the discussion which followed upon this memoir in the Obstetrical Society of Berlin Prof. Martin observed that in none of the 4 cases in which he had performed the Cæsarean section after the mother's death had the child been extracted living. In 1 case the operation was performed 10 minutes after death, in the second case it was performed "very soon" after death, and in the other 2 it was done within half an hour. Dr. Boehr referred to the statistics of the operation in 'Casper's Wochenschrift,' in which, out of 147 cases, only *three* living children had been obtained.

3.—Dr. A. Hegar remarks on the inaccuracy of our knowledge in reference to the pathology of abortion, premature births, premature detachment of the placenta, &c., and points out some of the causes of this, of which the greatest is the difficulty of obtaining the whole of the structures, and hence the impossibility of distinguishing between primary and secondary affections. The early abortions of the fourth or fifth week are very often overlooked, or confounded with other morbid conditions. The so-called hæmorrhagic metritis often arises from retention of some of the ovum-remnants after miscarriage. So that if with an abortion, large portions of the decidua (vera or reflexa) be missing, hæmorrhage will probably follow. He submits the following as the results of his examination of various ova expelled at different periods of gestation:—(1) The glands of the decidua vera are found up to the fourth month of pregnancy as simple, undivided canals, provided with well-preserved epithelium, situated as thread-like formations upon the rough surface of the membranes detached during the abortion. In the serotina the glands were to be discovered in the vicinity of the placental edge up to the third month. (2) In the fifth and sixth months the glands were found existing in the same external form. They were less thickly set. The wall was formed by fibres branching out with inlaid nuclei. The contents showed no distinct epithelium. These consisted of a molecular mass, broken up for the most part, with numerous scattered nuclei. As, however, only deciduæ, with advanced premature fatty metamorphoses, were examined, and inasmuch as the existence of young gland-canals in the middle period of pregnancy were seen by Coste, Robin, and Kilian, it is probable that perfect, well-preserved glands exist in the vera in the fifth and sixth month also. (3) In the middle layer of the vera the glands run in spiral coils, like the sweat-glands. (4) In that layer of the mucous membrane which lies next to the free surface the presence and course of the glands is most difficult to recognise. (5) The mucous membrane of the uterus separates itself in abortion, or through artificial detachment, in sections of very different thickness, even in the same period of pregnancy. (6) The hydrorrhæa gravidarum depends upon a hypertrophic condition of the uterine mucous membrane with hyperæmia. The glands especially are very numerous and large. The copious effusions are explained by this anatomical condition. (7) The decidua vera is to be regarded, even in and after the middle of pregnancy, as a secreting organ, exercising functions. In favour of this view are the gradations from the small degrees of hydrorrhæa and the false waters even up to the most developed forms.

Two cases are related, in each of which hæmorrhages alternated with or coincided with the discharge of water.

## PREGNANCY.

Lane, James R., "Pregnancy after Closure of the Os Uteri by operation for Vesico-Uterine Fistula" ('Brit. Med. Journ.,' 1864, 1, 166).

Seanzoni, Prof., "Pregnancy without Immissio-Penis" ('Allgm. Wien. Med. Zeit.,' 1864, No. 4).

Routh, C. H. F., M.D., "Diagnosis of Pregnancy from Uterine Fibrous Tumours" ('Brit. Med. Journ.,' 1864, 1, 181).

Annan, Mr., "Protracted Gestation" ('Edin. Med. Journ.,' March, 1864).

Simpson, Dr. A. R., "A Case of Protracted Gestation" ('Edin. Med. Journ.,' April, 1864).

Braun, Prof., "On the Vomiting of Pregnancy" ('Wochen. der Zeitsch. der Aerzte in Wien.,' Nos. 47, 48, 1863).

Kidd, Dr. G. H., "On a case of Vomiting in the eighth month of Pregnancy" ('Dublin Quart. Journ.,' Aug., 1864).

1.—Mr. Lane's case is one of much interest. The patient, who stated her age to be 45, was first admitted into St. Mary's Hospital in May, 1862, with a fistula,—the result of a protracted labour,—which had been established between the bladder and the canal of the cervix uteri, about half an inch above the os. From the position of the fistula the only safe and feasible plan appeared to be to close the os uteri by a plastic operation, leaving the fistula itself uninterfered with, and depending upon it to afford an outlet through which the menstrual fluid could escape into the bladder. The operation was successfully performed on May 14, 1862, the patient having been told that future pregnancy would be impossible. The incontinence of urine was completely arrested, and she left the hospital well in 3 weeks. Menstruation came on about a week after the operation, and the discharge took place through the bladder without pain, and recurred during the three following months, after which she ceased to menstruate. Four months after, she had perfect control over her urine, and the os uteri appeared closed, but there was a tumour in the hypogastrium, like the enlarged uterus. It was thought that the fistula had closed, and that the menstrual fluid had accumulated in the uterus. On January 10, 1863, it was determined to reopen the os uteri and allow the accumulation to escape. A few drops of blood only appeared on the puncture being made, but a large quantity of watery fluid escaped during the same day. On the second night after this she was taken ill, and a foetus of about four months' date was expelled. The watery discharge which followed the puncture was probably, therefore, the liquor amnii. The patient recovered well from her miscarriage, but from the reopening of the os uteri the urine escaped as before the first operation, thus proving that no change had occurred in the condition of the fistula. She left the hospital after this, but soon returned, with an earnest desire to have the original operation repeated. This was done in the same way as before, and with the same result. She continued to menstruate regularly through the bladder for six months after the operation. It

is difficult to explain how impregnation could have occurred. It has been suggested that the semen passed through the urethra and bladder into the uterus. The author, however, rather inclines to the view that some minute capillary communication might have existed through the os uteri, or, possibly, along the track of one of the wire sutures. If this be the true explanation, it is remarkable that an aperture which was so minute as to be quite undiscoverable by repeated examination, and through which no urine or menstrual fluid ever escaped, should have sufficed for the purpose of impregnation.

2.—Prof. Scanzoni relates the case of a woman *æt.* 29, 4 months pregnant, although the orifice of the vagina was closed by a firm and tense membrane, in which an aperture, barely large enough to admit a probe, was discovered with much difficulty. The distance from this membrane (the hymen) up to the os uteri was about 4 inches. Immissio-penis was quite impossible, as the membrane only yielded very slightly. The opening enlarged during pregnancy, and the membrane lost somewhat of its tension and firmness. As labour progressed one finger could be passed through the opening, but, the density of the membrane preventing the passage of the head, a crucial incision was required to complete delivery. Scanzoni had never before met with a similar instance, and gives no opinion as to how impregnation could have been effected.

M. Mattei ('L'Union Méd.,' No. 36) relates a similar case of a woman who became pregnant after having been married 11 years. On examination a *cul-de-sac* was found, which, probably formed through the attempts at copulation, only admitted the finger to the extent of  $1\frac{1}{2}$  centimètre. The most careful examination by means of a speculum could not detect the aperture by which the semen must have entered. After severe labour for three days the structures in front of the head gave way, and admitted the finger. Delivery was completed by the forceps.

3.—Dr. Routh points out some of the difficulties in the diagnosis between pregnancy and fibrous tumours of the uterus, and relates cases of great interest bearing on the subject. The breasts have been found to be enlarged in cases of fibrous tumour, and even hypertrophied, and this not only from adipose deposit, but from enlargement of the lacteal vessels. The areola has been marked, and even œdematous; the follicles enlarged; and on pressure a fluid which, under the microscope, showed all the characters of colostrum, has been obtained. Add to this there is occasionally a *pseudo-ballottement* felt, which the author has detected in two cases.

1. The points of diagnosis in the condition of the breasts are—

(1) Their appearance is unsymmetrical. This is rare in pregnancy, but very common in fibroid and ovarian disease. There may be several follicles on one breast, on the other none or only one or two. The sizes of the follicles differ also on both sides. (2) The follicles are of the same colour as the areola, and do not become white on being tightened. (3) True vesicular or papuloid follicles, *i. e.* white follicles, separate or clustered, are never found in a pure case of fibroid tumour, but are common in pregnancy. (4) The follicles of the same colour as

the areola are most numerous near the nipple in fibroids ; very few, if any, being on the outer border of the areola. The reverse is the case in pregnancy. (5) The peculiar white honeycomb layer, external to the dark areola, is never found in cases of fibrous tumours.

In addition to these differences in the appearances of the breasts—

2. The double cardiac or single cardiac sound are so seldom absent in cases where fibrous tumours assume large proportions that their absence should alone make us doubtful. The aorta may, it is true, be heard through the child's body, but movement of the part at once extinguishes the sound.

3. The projecting umbilicus in pregnancy and its puckering in cases of fibrous tumour give a marked diagnostic difference.

. But more difficult still is the differential diagnosis between extra-uterine pregnancy and these tumours of the uterus ; and here the chief difficulty has relation to the value of the early symptoms, and especially the catamenia, which is *generally* suppressed in extra-uterine pregnancy, but increased at some period in the history of fibrous tumours.

4.—Mr. Annan's paper is in continuation of a paper on the same subject ('Ed. Med. Jour.,' Feb., 1857). Two further cases are now recorded.—(1) A woman, æt. 32, was in great physical and mental distress during her eighth pregnancy, and was delivered, 26 days after the period at which labour threatened, of a large female child, which weighed on the following day 11 lbs. 4 oz. (2) In the second case the woman was also in great distress, and by her own calculation she had exceeded the period of pregnancy by about five weeks. She suffered greatly during these latter weeks, and was delivered of a male child, which weighed 11 lbs. The author remarks on the connection between the mental emotion existing in both these cases with the prolonged pregnancy.

5.—In Dr. Simpson's case the patient menstruated in the beginning of January, but the period only lasted two days, instead of four, as generally. She quickened in May, and expected to be delivered about the end of September or the beginning of October. She was not delivered until November 29th. Assuming that she did not conceive till the period succeeding that at which the catamenia ceased, the duration of pregnancy could not have been less than 300 days ; but if—as the author thinks is more probable—from the short menstruation and the date of quickening, she conceived about the period in January, then utero-gestation continued for 329 days. The condition of the child at birth, and especially of the head, indicated a corresponding degree of development. It measured 21 inches long, and weighed more than  $10\frac{1}{2}$  pounds. The head measured more than  $14\frac{3}{4}$  inches in circumference ; the anterior fontanelle was small and the membrane firm, and the posterior fontanelle was so far obliterated that the corner of the occipital could not be depressed below the parietal bones.

6.—The vomiting of pregnancy is a reflex symptom, having its origin in some uterine or ovarian irritation. Cases are recorded in which some misplacement of the fundus, or inflammation and even ulceration of the os and cervix, or false membrane between the fetal membranes and the uterus, have been found, and in some cases

disease of the ovary, but in most cases no morbid appearance can be detected after death. The *symptoms* are twofold. There is, *first*, inverted peristaltic action, causing constipation and vomiting; and *secondly*, under the influence of perverted nervous action, morbid secretions are thrown out. The indications of treatment are — (1) To exhaust for a time the excitability of the nerves proceeding from the lower part of the abdomen, so as to prevent their carrying to the spinal cord the morbid impressions which are reflected to the stomach. (2) To restore the peristaltic action to its natural order, to be accomplished by the use of aperients given by the mouth or by enemata. (3) To remove the uterine or ovarian irritation, either by sedatives applied directly to the parts, as by suppositories, or, where there is evidence of inflammation, by the application of leeches, caustic, or other local treatment; and when these means fail, and the prostration is so great as to endanger the patient's life, by the induction of premature labour. Prof. Braun points out the immediate relief given by reposition of the uterus in a case in which constant vomiting was associated with ante flexion. In Dr. Kidd's case there was no sickness till the end of the seventh month. The vomiting was then almost incessant, and continued unrelieved for three days. An injection of turpentine and castor oil was then given, with a suppository of morphia afterwards; the vomiting ceased, and from this period convalescence was uninterrupted.

#### UNUSUAL LOCALITY OF PREGNANCY.

Schultze, B. S., "A fully matured Tubo-uterine Gestation, and Transmigration of the Ovum" ('Wurz. Med. Zeitsch.,' 1863, vol. 4).

Breslau, Prof., "Cases of Extra-uterine Gestation, with Polypi of the uterine end of the Fallopian Tube" ('Mon. f. Geb.,' 1863, suppl. heft.)

Matthews, Duncan, "A Case of Uterine Hæmatocele complicating Extra-uterine Gestation" ('Ed. Med. Journ.,' Jan., 1864).

Simpson, Prof., "A Case of Extra-uterine Pregnancy" ('Ed. Med. Journ.,' March, 1864).

Day, Edwin, "Extra-uterine Fœtation, followed by Intra-uterine Pregnancy; induction of Premature Labour" ('Obstet. Soc. Trans.,' vol. 5).

Ott, Alfred, "Case of Extra-uterine Gestation" ('Prag. Med. Wochensch.,' 12, 1864).

1.—A healthy primipara, æt. 22, menstruated last in June, 1862. Labour commenced on March 30, 1863. On the following day repeated attacks of convulsions occurred, with albuminous urine, rapid collapse, and death. The Cæsarean section was performed ten minutes after death. About a pint of bloody serum escaped from the abdominal cavity. The uterus was anæmic and flaccid, without trace of contraction. The child was dead, presenting in the first position. The uterus contracted on the removal of the child. The placenta was adherent to the posterior wall, and through an aperture in the right segment of the fundus the right foot of the child protruded. The right ovary lay



much nearer to the uterus than the left, was only half its size, and contained very few follicles. The *right* tube terminated at its abdominal end in a closed sac, without any trace of fimbriæ, and covered with pseudo-membranous cords. The peritoneal insertion of the tube in the uterus was 4'' distant from the right edge of the uterine rent. The *left* ovary contained the corpus luteum. The *left* tube was adherent to the uterus, and impervious in the outer third of its course. Two good illustrations help to explain the peculiarities of this case. The seat of rupture showed a defective muscular coat, forming a pouch, as if out of a dilatation of the uterine end of the *right* Fallopian tube. This pouch had been covered with decidua and peritoneum, and was the seat of the early development of the ovum, which had been received from the *left* ovary and tube, and had crossed over the fundus uteri towards the saccular dilatation formed by the uterine mouth of the *right* tube. The complete closure of the abdominal end of the *right* tube must have completely prevented the reception of the ovum in this tube; but the obstruction of the outer third of the *left* tube might have occurred after the passage of the ovum from the left ovary, which contained the corpus luteum.

2.—Dr. Breslau records two interesting cases of extra-uterine gestation. The first was a healthy woman, æt. 30, who six months after marriage was suddenly attacked, without any evident cause, with symptoms of abdominal hæmorrhage, and died in about 6 hours. After death, extensive effusion of blood was found in the abdominal cavity, and, at the point of opening of the left tube into the uterus, half belonging to the uterus parenchyma and half to the tube, was a ruptured sac, which still contained coagulated blood mixed with tufts of chorion-villi. From the size of the sac, the embryo, which could not be found, might have been  $2\frac{1}{2}$ —3 centimètres long, and the pregnancy have reached the 6th or 7th week. The internal mucous membrane of the uterus did not show the usual hypertrophied or hyperplastic condition known as the decidua, and which is generally seen in extra-uterine pregnancies. But the special point of interest in the case was a thin-stalked, oval, mucous polypus, about the size of an orange-pip, which was found just below the uterine orifice of the left tube. The author believes the polypus obstructed the passage of the ovum into the uterus. The Fallopian tube was not completely closed. Inasmuch as a portion of the tube and part of the muscular structure of the uterus had contributed to form the ovum-sac, this may be considered an interstitial or utero-tubal pregnancy.

The second case is contributed by Dr. Uhlig, who found in the body of a woman, æt. 60, a contracted cicatrix in the right lumbar region. The abdomen was distended, and above the right inguinal region a large, hard tumour was felt. The uterus was hypertrophied, and pressed towards the left side by a tumour attached to it, which was about the size of a child's head, and contained in its cavity numerous polypous excrescences of the mucous membrane; at the opening of the right tube was a polypus about the size of a fourpenny-piece, which, however, allowed a fine sound to pass. A second opening was found just below the first, which permitted a sound to pass about an inch. This opening

communicated with the tumour attached to the uterus. This tumour contained a mummy-like embryo, the size of a 4- or 5-months foetus. It was greyish-yellow in colour, encrusted with chalky masses, together with the leather-like sac itself. Around this latter, wax-like fat was deposited, which not only enveloped the foetus, but also the right tube and the right ovary forming the tumour which pressed towards the left. The woman had borne a child about 26 years before; had several times miscarried, the last time in her 50th year, after which she still menstruated regularly for some time. About 10 years before her death an abscess had formed, and discharged itself in the right inguinal region, and so caused the cicatrix.

3.—Dr. Matthews Duncan's case of uterine hæmatocele complicating extra-uterine gestation, occurred in a married woman, who had previously had a family, the catamenia ceasing 14 weeks before death. No other symptoms of pregnancy were present, and 2 days before death she expressed her positive disbelief of its existence. About a month before this menstruation began, and was accompanied by rigors, lumbar and hypogastric pain, chiefly on the right side, and bearing down. The discharge continued till 2 days before death, when all the painful symptoms had almost disappeared. The hæmatocele suddenly ruptured, and peritonitis and death rapidly followed. Physical examination during life revealed absolute dulness over a somewhat rectangular space above the right horizontal ramus of the pubis, measuring about 3 inches from above downwards. The uterus was anteflexed and hypertrophied, with very slight elongation of the cavity and enlargement, but no softening of the cervix. Behind the cervix, and occupying the posterior half of the upper region of the pelvis, there was great fulness, and in the centre a distinct tumour could be felt, with little tenderness.

*Autopsy.*—General peritonitis. Above the right horizontal ramus of the pubes, and behind the abdominal wall, was a cavity filled with bloody fluid. This cavity extended from the brim of the pelvis on the right to the crest of the left ilium, but on the left side was covered anteriorly by a layer of coherent small intestines. The bloody fluid was *intra*-peritoneal, the sac being formed by strong, but not old, peritoneal adhesions of the abdominal walls, small intestines, and other neighbouring parts. The left prolongation of the sac opened into the general peritoneal cavity. On laying back the bowels a tumour the size of an orange, containing elotted blood and a foetus of less than 2 months' growth, was found lying between the upper half of the sacrum and the uterus, adherent to a fold of small intestine. A large rupture was found in the lower part of the anterior wall of the cyst.

4.—Prof. Simpson records a case. A woman, æt. 33, who had borne 6 children, menstruated December 25th, 1862. Six weeks after, she suffered from symptoms of peritonitis. Similar attacks occurred up to her death, in April, 1863. Dr. Simpson saw her on April 26th, suffering from a paroxysm of pain, and found the uterus enlarged; the sound passed about 5 inches. Behind the cervix a fluctuating tumour was felt, and the foetal heart was heard over the abdomen. A puncture was made in the recto-vaginal space, in the hope of evacuating the

liquor amnii, and effecting the death and decomposition and expulsion of the foetus. Two days after, she died, the sounds of the foetal heart continuing almost up to the last. *Post-mortem*.—Universal peritonitis. The foetus lay in a pouch or sac formed by the enlarged uterus and broad ligaments, the pelvic walls, and the sigmoid flexure of the colon. The ovaries could not be traced. The foetus was about 6 months. The placenta, broad and thin, was attached to the posterior surface of the uterus and to the other parts forming the cyst. The uterus measured externally 7 inches in length and  $3\frac{1}{4}$  in breadth. Section of its wall measured 1 inch. The interior was covered all over, except at the fundus and cervix, with a thin layer of a dark, mottled, reddish, brain-like substance, which was readily scraped off. This consisted of areolar tissue, mingled with blood-vessels, amorphous matter, and oil-globules. Immediately beneath this lay the normal uterine tissue.

5.—A woman came under Dr. Day's care, at King's College Hospital, in her ninth pregnancy, with the history that an extra-uterine tumour had been discovered in her 6th labour, 4 years before, for which premature labour was induced at the 8th month in her next pregnancy. On examination a hard, nodulated tumour, about the size of a goose's egg, was found in the recto-vaginal pouch, feeling like a detached fibrous growth from the uterus. From the size of the tumour it was thought advisable to bring on labour at  $7\frac{1}{2}$  months. An air-dilator was employed, and delivery completed in about 48 hours, by version. The placenta was universally adherent, and very friable. Post-partum hæmorrhage occurred, and was soon checked, but it recurred 48 hours after delivery, and the patient sank under it. After death a foetus of 3—4 months was found in the recto-vaginal pouch, enclosed in a thin cyst, and attached to the peritoneum on the right side of the rectum. The Fallopian tube of the right side was attached to the base of the uterus, and contained an organized clot in its outer half. The left tube was attached to the fundus. The points of interest in the case are—(1) The escape of the ovum from the Fallopian tube without causing death or giving rise to any marked symptoms. (2) The position of the Fallopian tubes. (3) The mode of inducing labour, which the author thinks should be performed *gradually*, by alternately dilating and relaxing the cervix.

6.—The special interest in Dr. Ott's case is the simultaneous existence of uterine and extra-uterine pregnancy. A woman, æt. 35, had borne one child 8 years before. Menstruation ceased 5 months. A tumour was then discovered in the right iliac region. Three months after, profuse hæmorrhage and abortion took place, but the tumour continued. Rigors, with abdominal pain and vomiting, supervened, with hectic, emaciation, and death. After death 5 quarts of dark grumous matter were found in the abdomen, with an embryo of about 4 months lying loose in the fluid. The placenta was adherent in Douglas' sac, partly to the body of the uterus, partly to the right tube, which had burst near its middle.

## ANTEVERSION OF THE GRAVID UTERUS.

Dr. V. Hüter, "On Anteversion of the Gravid Uterus" ('Mon. f. Geb.,' Aug., 1863).—Dr. Hüter cites the various authors who have treated on anteversion of the gravid womb, and relates cases from Baudelocque, Madame Boivin, Hachmann, Wilcke, and Godefroy. A very constant symptom present in cases of retroversion of the uterus is retention of urine, and the absence of this in anteversion is a point in the diagnosis between the two conditions to which Dr. Hüter alludes. He explains it by the circumstance that in anteversion the uterus, falling upon the bladder from above, leaves the entrances of the ureters free below the seat of pressure; whilst in retroversion the uterus, rising from below, compresses the urethra or bladder below the entrance of the ureters. A full bladder is a great obstacle to the occurrence of anteversion. Dr. Hüter relates two cases. The following is a good example:

A very large and powerful woman had borne three children naturally. When four months pregnant, whilst washing the floor, she was seized with pain in the sacral region, and straining to void urine and fæces. This continued for two days, when profuse hæmorrhage from the vagina occurred. She was now seen by Dr. Hüter. Expulsive pains persisted, the catheter drew off very little urine; palpation of the abdomen was difficult from the contraction of the abdominal muscles, but a hard tumour could be felt immediately above the symphysis. The anterior wall of the vagina was deeply depressed by a smooth, hard, uniform tumour. The os uteri, with much difficulty, was felt high up and far back in the sacral cavity. The cervix was so bent upon the uterus that the lips of the os were in contact with the anterior wall of the vagina. Attempts were now made to raise the fundus from behind the symphysis, but with only partial success, though the more urgent symptoms were much relieved. The next day the patient was found in a semi-comatose condition, the bladder much distended, and hæmorrhage occurred. These symptoms passed off during the day, and from this time she recovered. During the remaining period of her pregnancy the patient suffered from frequent vomiting, and at irregular intervals from hydrorrhœa, but she passed through her labour naturally.

## RETROVERSION OF THE GRAVID WOMB.

Säxinger, "Three Cases of Retroversion of the Gravid Uterus" ('Prag. Med. Wochenschr.,' 1864, No. 3).

Atthill, L., M.B., "Case of Retroversion of the Pregnant Uterus, with Prolonged Retention in utero of a Blighted Ovum" ('Dublin Quarterly Journal,' Feb., 1864).

The cases recorded by Säxinger occurred in the clinique of Prof. Seyfert, and show the importance of carefully examining a patient *per vaginam* and *per rectum* who is suddenly attacked—especially if there be any antecedent history of pregnancy—with lumbar and sacral pain, a feeling of fulness and weight in the pelvis, with retention of urine

and difficulty in defæcation. In all three cases the retroversion was first discovered in the hospital, the vaginal examination having been previously omitted. All three cases presented very similar symptoms. All had reached the 3rd—4th month of pregnancy. In all reposition of the uterus was effected without difficulty by pressing upwards on the fundus with two fingers in the rectum, but in only one case pregnancy progressed. Abortion followed in both the other cases, and one terminated fatally with dysentery.

In Dr. Atthill's case, the patient, after over-exerting herself in the fourth month of pregnancy, suffered from sudden retention of urine. On examination, the uterus was found retroverted; reposition was effected without difficulty. A month later, after a long walk, hæmorrhage occurred with sharp pains, and continued at intervals for a fortnight. This ceased on the 28th of August, and from that time till November 10th the patient enjoyed excellent health. On that day, severe hæmorrhage occurred, with expulsion of a fœtus. This was blighted, and the author believes its development was arrested in the fourth month, at the time of the first hæmorrhage. During the three months it remained *in utero* the mother's health was very good, though she noticed that she did not increase in size. An interesting point in the case is the cessation of obstinate nausea, first on the uterus being retroverted, and secondly on the occurrence of the first hæmorrhage.

## ABORTION.

Hüter, Dr. V., "On Habitual Abortion, with Flexion of the Uterus" ('Mon. f. Geb.,' Sept., 1864).

Dr. Hüter points out the importance of ascertaining, if possible, the cause of each abortion, and maintains that in a great majority of cases this will be found to depend upon flexion of the uterus. He recommends that a very careful examination should be made in all cases after the occurrence of an abortion, and also in the second or third month of pregnancy after the first or second abortion, if no sufficient cause can be ascertained. Scanzoni ('Lehrbuch der Geburt.'), records that in 26 women in which flexion of the uterus existed 44 abortions occurred. The author fully admits that abortion does not *necessarily* occur with flexion, for Holst ('Mon. f. Geb.,' 4, 1863, p. 303), records six cases of undoubted flexion without abortion. Dr. Hüter relates very fully cases of which the following is a type. A patient aborted four times, between the 7th and 10th week, without any apparent cause. After the fourth abortion an examination revealed anteversion of the uterus, and this condition existing at the 5th week of the fifth pregnancy, mechanical treatment, by manual reposition of the flexed uterus, was adopted, with perfect rest in bed during the second and third months. This resulted in normal gestation and labour. Dr. Hüter maintains—

1. That a disposition to abort in consequence of one or more abortions does not exist, but that every abortion has its own special cause, which cannot always be discovered. 2. That the flexion of the uterus disappears during the progress of the abortion, on which ac-

count the diagnosis of the inflected uterus is only possible before the beginning of the abortion, or some time after its completion. 3. The abortion is not caused by the flexion of the uterus on itself, but by the accompanying version of this organ. 4. The treatment, therefore, during pregnancy must be directed against the ante- or retro-version. 5. In the third month the fundus uteri reaches above the level of the pelvic brim. 6. Dissection of the uterus in women who have suffered from flexion always shows chronic hyperæmia, affecting the mucous membrane and parenchyma, and the hyperæmia is much increased by pregnancy, the return of venous blood is impeded, and congestion thus results. This is probably the proximate cause of abortion.

#### MISSED LABOUR.

McClintock, Dr., "Observations on Missed Labour" ('Dublin Quart. Jour.,' Feb. and May, 1864).—Under the term "missed labour" have been classed certain very rare cases of uterine pregnancy in which, through failure of parturient action, the fœtus has been retained *in utero* for some indefinite period beyond the term of normal gestation. Very few undoubted instances of this occurrence have been recorded, and in every case the fœtus has apparently been dead at the time when labour should have taken place, and the liquor amnii has generally escaped at this time, or previously. All the cases have been very similar in their general features, though differing in detail. If, as usually happens, the membranes have been ruptured about the period at which labour should occur, a profuse putrid discharge soon follows, and continues for months or years, until all the soft parts of the fœtus have been decomposed and expelled. During this period, pelvic or uterine inflammation, or symptoms of general septicæmia, may result. In one case, related by Vonderfer, after the lapse of eleven years from the time of expected labour, the woman died with symptoms of purulent infection. After death, the remains of a putrid fœtus were found *in utero*. In some very rare cases, where the membranes have not ruptured and the entrance of air has been prevented, the fœtus appears to have been retained many years without undergoing any marked decomposition. In one case, related by Dr. Cheston ('Med.-Chir. Trans.,' 1814), the fœtus was perfectly preserved for *fifty-two* years. The whole of the fœtal bones are very rarely expelled by the uterus. They are either encysted *en masse* and retained *in utero*, as in the case last mentioned, or the uterus relieves itself by ulceration, as in Dr. Oldham's case. The duration of life, dating from the time when labour should have occurred, has varied in eleven cases from three months to 52 years.

In the *treatment*, Dr. McClintock urges the importance of early and *gradual* removal of the fœtal remains after dilatation of the os, and cites a case, reported by Schulz, in which a woman underwent a series of operations at the end of ten years from the time when labour was missed, by which one hundred and twenty pieces of bones were removed from the uterus, with a successful result. Any operation would, how-

ever, be contra-indicated in the presence of acute symptoms of hysteritis or peritonitis, or with probable ulceration in the uterine walls, or, lastly, where the case has been of long standing, and no symptoms exist of intolerance of the uterine tumour. The case related by Dr. McClintock was a large flabby woman, *æt.* 45, who had given birth to twelve living children, then a dead child at full term, soon after which she conceived again. Gestation proceeded naturally till about the 7th month, when the foetus probably died. Symptoms of labour set in at the end of the ninth month, but passed off without expulsion of the foetus. *Five weeks* after this she was seized with severe pains and hæmorrhage, and a foetal bone was removed from the vagina by the practitioner in attendance. *Sixty-two weeks* after this she came under the author's care, and during the greater part of this interval a horribly offensive and very profuse vaginal discharge was going on, and some few bones had come away, but hæmorrhage was absent, and she was not aware of the placenta having been expelled. She was admitted into a hospital, and, after eight attempts had been made to remove the bones,—of which about sixty pieces were extracted,—she died with symptoms of pyæmia. No post-mortem examination was obtained.

## MECHANISM OF DELIVERY.

Hodge, Dr. H. L., "On the Mechanism of Labour" ('Principles and Practice of Obstetrics,' 1864).

Dr. Hodge describes four parallel planes through which he believes the head passes in its course to the floor of the pelvis:—1. The brim of the pelvis. 2. A plane running from the sub-pubic ligament to the middle of the second bone of the sacrum. 3. A line on the level with the spines of the ischia, where the cavity becomes rapidly contracted, and where "rotation" begins. 4. A line extending round the extremity of the coccyx as a centre. From a consideration of these points Dr. Hodge believes that the top of the head descends in a straight line to the axis of the superior strait until it reaches the floor of the pelvis; that when it is as low as the coccyx the base of the cranium will reach above the level of the sub-pubic ligament; the head, therefore, has to depress the coccyx before the base can pass under the arch. Having done so, the nape of the neck remains directly under the pelvis, and the rest of the head describes the segment of a circle around the sub-pubic ligament as a centre, so that the true axis of the pelvis is formed by a line drawn from the centre of the superior strait through the centre of the radii of a circle thus formed, which line will be straight from the first to the second parallel plane, but curved from that point downwards. In tracing the head through the pelvis Dr. Hodge does not adopt M. Cazeaux' divisions, viz., those of flexion, descent, extension, rotation and external rotation, but recognises five periods:—(1) The passage of the head through the superior strait and through the os uteri. (2) The descent through the cavity of the pelvis, (3) The passage through the inferior strait. (4) That through the

os externum. (5) Delivery of the body of the foetus. As the head passes through the pelvis in the first position, *i. e.* where the occiput is directed towards the left anterior inclined plane, and the os frontis towards the right posterior inclined plane, Dr. Hodge believes the middle of the sagittal suture to be in the centre of the pelvis, and the head in a state of semiflexion, so that the posterior fontanelle is lower in the pelvis than the anterior, and the forehead is above the sacro-iliac joint; whereas the fontanelles are generally described as level, and the forehead as opposed to the sacro-iliac symphysis. Under the powerful contractions of the uterus, the membranes rupture, the head becomes completely flexed, the chin being in contact with the sternum and descending through the os uteri. The posterior part of the sagittal suture now occupies the centre of the pelvis, or, should the resistance have been great, the posterior fontanelle will be found here, while the right parietal protuberance will correspond to the right, and the left to the left acetabulum. The cervico-bregmatic diameter is parallel to the left oblique, and the bi-parietal to the right oblique diameter of the pelvis. In thus describing the position of the foetal head, Dr. Hodge differs from Naegele and his followers, and believes that their error has arisen from regarding the os vaginæ as the centre of the pelvis, instead of being, as it is, in the anterior portion. The head, having passed through the os uteri in this position, returns to a state of semiflexion, and as it descends in the pelvis becomes rotated in the following manner:—The occipital protuberance strikes upon the left anterior inclined plane, and is turned forwards and upwards, while the forehead makes a corresponding turn in a contrary direction, and, being extended, presses upon the coccyx; that bone yields, and thus descent, rotation, and extension, are going on at the same time. If a careful examination be made as the head is passing through the interior strait it will be found that the posterior fontanelle is in the centre covered by the perinæum, the bi-parietal corresponds to the transverse, the cervico-bregmatic is parallel to the antero-posterior diameter, in fact, precisely as the head entered the superior strait, the only difference being that at the brim the head was semiflexed, while here it is partially extended. The subsequent passage through the vaginal canal is that of continued extension; the rectum, the anus, the perinæum, each in its turn bearing the brunt of the downward pressure, until the direction of the orifice of the vagina is changed from forwards and downwards to an almost horizontal position. The head having passed, external rotation or restitution takes place.

#### ABNORMAL CONDITIONS OF THE PELVIS (IMPEDING DELIVERY).

Barnes, Robert, M.D., "On Spondylolisthesis, with an account of a case of Pelvic Contraction from this affection in which Premature Labour was induced by the Author's Method" ('Trans. Obst. Soc.,' vol. 5, 1865).

Under the name of spondylolisthesis, Kilian described an affection of the spine, the most interesting character of which is the sliding downward of the 4th or 5th lumbar vertebra into the true pelvis, so as to



contract the space at the brim and in the cavity. Kilian based his description\* upon three pelves. One of these he saw in the Maternité, at Brussels, in 1836; the second is preserved at Prague; the third is known as the Paderborn pelvis. In all these cases the Cæsarean section had been performed. This deformity has not been hitherto recognised or described in this country. Dr. Barnes now gives a brief account of its history, and relates some of the recorded cases.—(1) In the Brussels case the pelvis was quite normal, but the conjugate diameter was contracted to 3'' 3''' by the falling of the lumbar vertebræ in front of the sacrum, so that the promontory was formed by the 4th lumbar. (2) In the Prague case the patient died of hæmorrhage after the Cæsarean section, in 1849. The 4th and 5th lumbar vertebræ had sunk so low in the cavity of the pelvis that the promontory was formed, not by the junction of the 5th lumbar vertebra with the sacrum, but by the upper edge of the 4th. (3) In the Paderborn case the 1st and 3rd pregnancies terminated in premature labour, the second by the Cæsarean section, and the 4th in death after the Cæsarean section. The body of this patient was so bent forwards that she resembled a quadruped in her gait. The other cases are recorded by Robert, of Coblenz, Spaeth, Braun, Birnbaum, Hecker, Breslau (two cases),† and Lambl. In Dr. Barnes's case the patient, æt. 34, had had five children, and four years back an abortion. The first three labours were natural. In the fourth, which occurred seven years before, the midwife attending "had some trouble in gaining the head," and the patient complained of being severely pressed upon the back. From that time she has been unable to stoop, and has no strength in the left side. She had fever, described as rheumatic, following this labour; was much blistered to relieve the pain, and was admitted into the London Hospital, where she remained as in- or out-patient fifteen months. Some degree of paraplegia followed, and in the fifth labour, five years back, the child was stillborn, dying in its birth from obstruction to the passage of the shoulders. She reckoned that she was now 3½ months pregnant; suffers from great pain in the back, and cannot stoop. A marked depression of the last lumbar vertebra inwards was found on examination, above this, the three next lumbar vertebræ projected outwards in a curve; the right hip was higher than the left; she had no power to bend the spine, and in order to stoop was compelled to find a rest for her hands, and then to bend upon the hip-joints. Neither the true promontory formed by the sacrum, nor the assumed false one formed by the lumbar vertebræ, could be reached by the finger, and pressure on the sacrum gave pain. From the nature of the case, induction of labour was advised at the end of seven months' gestation. This was accordingly effected by Dr. Barnes's method, and in an hour uterine action was excited and the cervix nearly fully expanded. The membranes were then punctured, but, finding the head did not advance after waiting

\* 'De Spondylolisthesi gravissimæ pelvangustiæ, causa nuper detecta, Commentatio Anatomico-obstetricia,' Bonnæ, 1853; and 'Schilderungen neuer Beckenformen,' Mannheim, 1854.

† A summary of Breslau's second case will be found in the 'Year Book' for 1862.

three hours, the forceps was applied. Moderate traction was made, but without success. Chloroform was then given, and delivery completed by bimanual version. The extraction of the head occupied ten minutes; and although the child was not dead when born, the heart soon ceased to beat and it could not be restored. Its development indicated eight and a half months. On the left side of the head there was a scalp-bruise. The uterus contracted well, the whole operation having occupied 5 hours. Feverish symptoms, with abdominal pain and tenderness of the lumbar region, appeared 2 days after, but the patient ultimately recovered. The conjugate diameter is estimated by the author at 3" 6". The pelvis itself seemed normal, there being no evidence of disease of the bones elsewhere than in the part indicated; and had the patient not miscalculated her time, a living child might doubtless have been born.

In considering the nature and modes of origin of spondylolisthesis, it is important to distinguish this from the much less rare contraction of the pelvis caused by curvature of the spine. Such a case may be allied in form, but yet differ in nature from spondylolisthesis, the essential feature of which is an actual dislocation, with or without subsequent ankylosis of the lumbar vertebræ forwards and downwards into the cavity of the pelvis. Kilian assigns as the first condition of its origin a pathological process, the expression of some antecedent dyscrasia, probably scrofulous or tuberculous; as the second condition, a local softening between the last vertebræ and the sacrum, and in the ligaments, attended or followed by inflammation. He denies that the deformity is of congenital origin. On the other hand, 3 of the cases here cited go far to prove the opposite of this, since in these there was no trace of any local disease. In one case (Braun's) a supernumerary vertebral arch and spinous process existed between the sacrum and last lumbar vertebra. The cause of the development of this additional vertebra is not yet explained. Mr. Huxley states that a sixth lumbar vertebra sometimes occurs in man; and as this has been observed apart from any distortion, it may be inferred that it was not the result of antecedent disease. But the researches of Dr. Lambl appear to suggest, if not to prove, the hypothesis that the formation of a sixth lumbar vertebra may be the consequence of disease of the spinal column, as if the developmental force in early life were exerted to throw out a new protection for the spinal cord, to compensate for the loss or deficiency of parts of the natural vertebra. He examined five pelvises exemplifying spondylolisthesis, and discovered in all distinct traces of hydrorachis. His conclusions on this subject are—(1) There is lumbo-sacral hydrorachis, which constitutes the first condition of a deformation of the fifth lumbar vertebra. (2) There follows a lengthening and thinning of the vertebral arches and a widening of the canal. This gives rise to a displacement of the articular processes, and the inferior oblique processes undergo a torsion of their articular surfaces, which favours their sliding through the oblique processes of the sacrum. (3) Under these circumstances the strong hold which the body of the vertebra has in its articular processes is lost, and it acquires a disposition to slip down.

(4) The special size, compressibility, and extensibility of the intervertebral cartilage of the lumbo-sacral joint, to which the greater mobility of this part of the spinal column is due, cause the lumbar vertebra, as soon as its articular attachments are lost, to glide down under the weight of the body; and this is always forwards, the direction being determined by the shape of the body, which is higher in front, lower behind; by the normal anterior curvature of the lumbar vertebræ, and by the anterior obliquity of the articular surface of the sacrum. (5) In other cases the attachments of the articular processes may be abnormally modified. This happens through the formation and defective development of a supernumerary vertebra, which may occur in combination with a foetal hydrorachis. An incomplete intercalary vertebra forms between the last lumbar and the first sacral vertebræ a wedge, as it were, driven in from behind, which thrusts the lumbar vertebra forwards. Under this motion the intervertebral cartilage is inordinarily compressed, and at last its structure destroyed. The complete destruction of the intervertebral cartilage brings the bared surfaces of the bones into contact, whence other changes ensue—*e. g.* rounding off of the fore edge of the sacrum; compression of the opposed surfaces of the lumbar vertebra and sacrum; wedging in of the edge of the sacrum into the lower surface of the lumbar vertebra, or synostosis of the joint by means of a more or less complete fusion of the dislocated vertebra with the sacrum. (6) Consequent upon this dislocation there occurs a torsion of the pelvic axis. The plane is thrown more nearly into the vertical direction, and thus is caused the extreme prominence of the abdomen and the overhanging of the pregnant uterus, which have been remarked in cases of spondylolisthesis. Breslau and Barnes, however, dissent from these conclusions; and the observations of the latter show that the hiatus lumbalis, corresponding closely with the figures given by Lambl as indicating spina bifida, is not uncommon. It occurs frequently without displacement or deformity; it certainly is no constant mark of antecedent spina bifida. Again, the intercalary vertebra occurs quite independently of spina bifida; and, lastly, in none of the numerous cases of spina bifida examined by the author was there any spondylolisthesis or other lumbo-sacral or pelvic deformity. Rokitansky also differs from Lambl, and attributes the spondylolisthesis to primary atrophy of the intervertebral cartilage. The author concludes that the cases hitherto recorded are not sufficient to justify any absolute, much less exclusive, theory of the mode of origin of spondylolisthesis. (2) That, reasoning from the known cases of this condition, and from the surgical history of dislocation of the vertebræ in the dorsal and cervical regions, it cannot be denied that vertebral dislocation may occur from other than intra-uterine causes. (3) That, admitting the possibility of spondylolisthesis occurring as a consequence of spina bifida, in the mode Lambl describes, it must also be admitted that it may arise as a consequence of osteomalacic, scrofulous, or inflammatory disease of the bodies of the vertebræ, and from direct injury.

The history of the cases here collected show the formidable nature of true spondylolisthesis when pregnancy occurs. Of the 12 cases men-

tioned there is no obstetric history of 3. Of the remaining 9 one only besides Dr. Barnes's patient recovered after cephalotripsy. The obstetric difficulty occasioned appears to be twofold. In the first place, there is the body of the fifth lumbar vertebra overhanging the pelvic brim, and partially or entirely fallen into the pelvic cavity. Secondly, there is a great deviation from the normal axis of the brim. The projection of the lumbar vertebræ also causes an important deviation from the normal shape and position of the uterus; it throws the fundus so much forwards that the uterus is made to lie across the pubes like a sac. The obstacle presented to the entry of the head into the pelvis is far more serious than in simple contraction of the conjugate diameter from undue prominence of the promontory. In this latter case, unless the contraction be very great, it is generally possible to bring the head through by the forceps, by turning, or by craniotomy; but in spondylolisthesis, if the deformity be very marked, and especially if one or more vertebræ have fallen into the pelvis, delivery by turning, even after craniotomy, will be very likely impossible. Hence, in advanced cases there is no resource but the Cæsarean section. It is needless to point out that the indication is decided for the induction of premature labour whenever this can be performed.

#### ABNORMAL CONDITIONS OF THE UTERUS.

Birnbaum, Dr., "Two Cases of Variety of Form in the Uterus with Pregnancy" ('Mon. f. Geb.,' 1863, suppl. Heft).

Dr. Birnbaum (Cologne) communicates to the Obstetrical Society in Berlin two cases of varieties of form in the uterus with pregnancy. Both cases were under observation at the same time for some weeks.

*Case 1.*—Twin pregnancy, with uterus bicornis unicollis or acuatus. Interesting, because of the distinctness with which the form presented and developed itself. A primipara, æt. 26, strong and healthy; at the end of pregnancy the greatest prominence of the uterus was in the umbilical region, which was very much pointed and protruded; the circumference of the body here was 44". Above this the uterus presented a very marked saddle-like depression, so that the whole uterus was obliquely heart-shaped. One division of the uterus passed up from the depression high up into the left hypochondrium, ending in a more pointed fundus. A second division could be traced far up into the right hypochondrium, but this did not rise so high as the left division, and hence the fundus was broader. The uterus-walls were thin and very moveable, and especially in the navel region, where the foetal movements could be easily recognised. Foetal heart-sounds were heard on the left side, from the anterior superior spine of the ilium up to the lower border of the hypochondrium. The great quantity of liquor amnii prevented the discovery of the foetal parts, but the presence of twins—one in the right horn, the other in the left—could not be doubted. After the escape of the liquor amnii the uterine contractions began to empty the right horn first, making the form of

the whole still more remarkable. The expulsion of the first child was very painful and slow, in spite of energetic contractions. The head changed from the 4th to the 1st position. A living girl, weighing  $5\frac{1}{4}$  lbs., was born. The second child followed in ten minutes, the left horn of the uterus coming more into the centre, and contracting powerfully. The head rapidly changed from the 3rd to the 2nd position, and the child was also a girl, weighing  $5\frac{1}{4}$  lbs. The removal of the placenta required the introduction of the hand. It was single, with common chorion and divided amnion. The uterus maintained—as long as it was observed in the puerperal period—its broad and centrally indented form.

*Case 2.*—The pregnancy was simple, but the form of the uterus was much more striking and peculiar. The woman was a tall, muscular primipara, who had always been healthy, and first menstruated in her 16th year. The fundus of the uterus was felt in the median line, a hand's breadth above the projecting umbilicus. A complete division of the uterus was recognised into a large, lower, but broadly arched part, passing to the left, and a smaller one, ball-shaped, and passing over the first obliquely to the right. The first division was estimated to be of the size of a uterus in the eighth month of pregnancy, the other of about four months. The right division was nearly empty, although foetal movements could be sometimes felt in it. The head lay in the lower segment, which was much thinned; the cervix shortened, and directed backwards and to the right. When labour commenced both divisions of the uterus contracted uniformly, the double form thus being more marked. The membranes were punctured. Labour was still very painful and tedious, the pains being strong, with little or no advance. The fundus of the uterus appeared to expand obliquely from both sides. The patient was bled, and the forceps applied. This was accompanied with much hæmorrhage; the cord was curled three times round the child's neck and once round the body; the child, a boy, weighed  $6\frac{1}{2}$  lbs., and was stillborn. The placenta was removed by manual extraction. The irregular form of the uterus was observed during the puerperal period.

## PLURAL BIRTHS.

Dr. Abarbanell ('Mon. f. Geb.,' Oct., 1864), related to the Obstetrical Society of Berlin a case of twin labour protracted during three days—the first child was born on the 236th day after conception—and in the discussion which followed, Prof. Martin objected to the practice, followed in England, of immediately delivering the second child, and stated that, as a consequence, post-partum hæmorrhage was not uncommon. Dr. Kristeller considered it a favorable event if the expulsion of the two children did not follow too rapidly; the uterus could then more slowly contract, and gain power for the second delivery. Dr. Winckel dissented from this view, and mentioned cases in which severe hæmorrhage had occurred in the interval between the birth of the two

children, but related one case in which the second child was not born until six weeks after the first.

#### ABNORMAL PRESENTATIONS.

Dr. Christie, "Observations on Shoulder Presentations of the Fœtus" ('Ed. Med. Jour.,' July, 1864).

Dr. A. R. Simpson, "A Case of Complicated Labour, with remarks on the Postural Treatment of Prolapsus Funis, &c." ('Ed. Med. Jour.,' April, 1864).

Dr. Christie directs attention to a class of cases which appear to have hitherto been little noticed. Nægele\* divided shoulder presentations, according to the order of their occurrence, into two, viz., *the first* position of the shoulder, in which the back of the child, compared with its anterior surface, is turned more than twice as often to the anterior wall of the mother's abdomen; and *the second*, in which the same surface is turned towards the posterior wall. In either of these positions Nægele teaches that the head lies towards the one or the other iliac fossæ, and the body in an oblique direction over to the other side, the presenting shoulder forming the most depending part of the fœtus. In the great majority of cases this is true; but some cases occur in which the shoulder is the presenting part, and yet the body of the fœtus does not lie in the transverse direction to the extent generally assumed. It may be stated that wherever the long axis of the fœtus corresponds to the long axis of the uterus, no matter whether it be the vertex, the face, the breech, or the feet, which present, experience shows that labour, as a rule, terminates without any interference; and "in all cases of shoulder presentation, in order to make labour possible, the fœtus, whether mature or not, must undergo a change into the longitudinal position or be subjected to dismemberment. This may be effected in the following ways:—(1) By rectification of the fœtal position; (2) by spontaneous turning; (3) by spontaneous evolution; (4) by the technical turning by the head, the breech, one or both feet and one or both knees; and (5) by the decapitation of the fœtus, or by embryotomy or its evisceration." † But another means of effecting this has been almost wholly overlooked. Smellie, ‡ in speaking of the difficulties which may be encountered in presentation of the shoulder, contrasts the round form of the uterus, contracted close to the fœtus in the usual condition, with another state of the organ in which it resembles "a long sheath," with the child lying in it "lengthways," the head being "reflected over the pubes to the right shoulder and back, and the feet and breech stretched

\* 'Lehrbuch der Geburtshülfe Heidelberg,' 1844, p. 222.

† Braun, 'Lehrbuch der Geburtshülfe,' Wien, 1857, p. 597.

‡ 'A Treatise on the Theory and Practice of Midwifery,' 4th edit., vol. 1. p. 334.

up to the fundus," and thus describes a position of the foetus in which it may be expelled by the natural efforts without anything resembling spontaneous evolution or the other processes alluded to by Braun. Dr. Christie describes two cases, in both of which this position of the foetus was observed. The first case happened in a twin labour. One child had been delivered naturally, and the left arm of a second was found prolapsed into the vagina with the corresponding shoulder at the brim of the pelvis. The right hand was introduced for the purpose of turning, when the head of the child was found to lie forwards over the horizontal ramus of the left os pubis, while the neck was so bent that it lay in contact at the same time with the right shoulder. The breech and feet were also turned upwards towards the fundus; and the uterus contracted so closely round the body of the child, "in the form of a long sheath," that neither the feet nor ankle could be reached. An attempt was made to push up the presenting part, but the shoulder, neck, and head, all compressed together, "much in the form of the breech," came rapidly down to the perinaeum, swept over it in half an hour, and passed through the outlet of the pelvis "with the shoulder jammed against the arch of the pubes, until the upper part of the trunk, with the head turned over towards the right shoulder, and, as it were, imbedded in the neighbouring parts, was born, when the rest of the body followed in the usual mode." The child was dead, and for a twin was large, weighing 6 lbs. In the second case, the left shoulder also presented, with the arm and funis prolapsed, and great difficulty was experienced in the introduction of the hand from the close contraction of the uterus round the foetus in the same sheath-like form as before. The right knee was at length brought down, and traction made with a blunt hook in the direction of the axis of the pelvic inlet. The foot was thus gained, the shoulder was now pushed up, and traction made on the delivered leg, by which version was ultimately effected. Delivery was completed with some difficulty, but the woman recovered without a bad symptom.

Dr. A. R. Simpson records a case in which the prolapsed funis was successfully replaced by placing the patient on her knees and elbows, as first recommended by Dr. Thomas ('Trans of New York Acad. of Med.,' 1858, vol. 2). The patient was a multipara, with a very relaxed and dilatable cervix; the placenta was placed very low down on the uterine wall, and the umbilical cord, which was 21 inches in length, was inserted into the placenta within an inch of that part of its border.

As this mode of practice seems but little known, it may be worth recalling Dr. Thomas's conclusions, which are—First, that the causes of the persistence of prolapse of the funis, whatever may at first have produced it, reduce themselves to two—the slippery condition of the displaced part and the inclined plane offered it by the uterus by which to roll out of its cavity. Second, that the only rational mode of treatment would be to invert this plane, and thus turn to advantage, not only it, but the lubricity of the cord which ordinarily constitutes the main barrier to our success. This can be readily accomplished by placing the woman on her knees, with the head down upon the bed.

If it be remembered that the axis of the uterus is a line running from the umbilicus to the coccyx, it will be seen that by adopting the prone position this axis will be entirely inverted.

#### DISEASES, ETC., OF THE CHILD IMPEDING DELIVERY.

Dr. Gervis and Dr. Braxton Hicks, "Report upon the Case of a Child impeding Delivery" ('Obst. Soc. Trans.,' vol. 4, p. 284).

Extreme difficulty was experienced in the birth of this child after the passage of the head, owing to a great enlargement of the abdomen. Delivery was finally completed by traction, and the woman recovered well. The following report is given of the organs of generation:—The labia majora were very small. The vulva and vagina were wanting. The clitoris was prominent, and the urethra opened at its extremity. The uterus was greatly extended, globular in form, and contained about 15 oz. of flaky serous fluid. It presented two distinct cornua, which were closed at their free extremities, nor could any fimbria or other evidence of a Fallopian tube be discovered on either side. The ovaries were about half an inch in length, and attached to the side of the uterus at the base of each cornu. The uterus was divided internally into two cavities by a vertical septum presenting near the fundus, an oval opening permitting communication between the two sides, but there was no trace of either os or cervix, the double uterine cavity being thus completely closed. There was no indication of an anus, and the rectum terminated in a *cul-de-sac* attached to the posterior part of the uterus.

#### PLACENTA PRÆVIA.

Dr. Greenhalgh, "On Placenta Prævia" ('Obst. Soc. Trans.,' vol. 5, p. 140).

Dr. Greenhalgh first alludes to the great mortality in cases of placenta prævia, both to mothers and children, 1 in  $4\frac{1}{4}$  of the former and about two thirds of the latter, which he attributes mainly to the severe and repeated hæmorrhages, to the delay in effecting the delivery, and to the mode of turning usually resorted to in these cases. He then gives the history of 24 cases occurring in his own practice, and refers to statistics to show that the expulsion of the child generally takes place before the full period of utero-gestation, premature labour being the rule and not the exception; that nature, unaided, frequently terminates the delivery with safety both to mother and child; that complete and partial artificial separation of the placenta before the birth of the child has failed in many cases to arrest the hæmorrhage; and that these modes of practice and turning had proved most unsatisfactory. A close observation of the way in which nature terminates these cases with safety to mother and child is insisted upon, and the result of his observations enables the author to confidently recommend the following plan of treatment:—First, that in case of hæmorrhage, whether profuse or not, occurring after the second month of utero-gestation, and ascertained to be due to placenta prævia, artificial pre-



mature labour should be induced at once or as soon as the patient's condition will admit of it. Secondly, that in order to effect this without hæmorrhage, an air-ball, covered with spongio-piline, should be passed empty into the vagina, and then inflated so as effectually to fill the passage, while a bandage is placed firmly round the abdomen, and ergot and borax are to be administered in repeated doses. Dr. Greenhalgh concludes by strongly condemning the use of hæmostatic remedies, by which he is convinced many lives are lost. In the discussion which followed, Dr. Barnes objected to the use of a *vaginal* plug. It acted by exciting uterine contractions if the uterus was excitable; but in the worst cases the uterus was paralysed, and in these the plug was useless. If, in combination with rupturing the membranes, the placenta was detached from the cervical zone, the cervix then artificially expanded by means of his *cervical* dilators, and the bimanual mode of version, as practised by Dr. Hicks, resorted to, a much greater measure of success would be obtained than by any other special method.

## RUPTURE OF THE UTERUS.

Dr. Crichton, "Case of Rupture of the Uterus in which Gastrotomy was successfully performed" ('Edin. Med. Jour.,' Aug., 1864).

The carefully compiled statistics of Dr. Trask, of New York, give great encouragement in undertaking the apparently hopeless operation of gastrotomy in cases of rupture of the uterus; and yet since the date of their publication in 1856 the first successful case recorded as having occurred in this country is that of Dr. Crichton. The patient, æt. 28, had been delivered by the forceps in her first three labours, none of the children surviving, from the pressure on the head necessary to effect delivery. From the great projection of the promontory of the sacrum induction of labour was advised in her 4th pregnancy between the 7th and 8th month, but not carried out. After being in strong labour for some hours two unsuccessful attempts were made to deliver, first by the forceps, and afterwards by turning. A large opiate was then given, but shortly after, during a severe pain, the uterus ruptured. The position of the child could not be ascertained, but the unequal nodulated surface of the abdomen, the complete recession of the presenting part, the free discharge of blood from the vagina, and the total cessation of labour-pains, which had previously been very severe and constant, left no doubt as to the rupture and the escape of the child into the abdominal cavity. Gastrotomy was proposed, but, from the non-consent of the patient, was delayed 14 hours. The operation was performed in the usual manner. The child was found lying with its head downwards, resting on the firmly contracted uterus, with the placenta loose under it. The rupture was transverse, about the junction of the fundus with the cervix. Several large clots were removed, and some bloody fluid sponged out. The wound was closed by twisted sutures on long acupuncture needles passed through the peritoneum, and warm-water dressing applied. Jaundice, with vomiting and tympanitis,

occurred on the 3rd day, but the patient eventually made a good recovery.

#### LACERATION OF THE PERINÆUM.

Dr. Robinson, "The Treatment of Laceration of the Perinæum into the Rectum during Parturition" ('Med. Times,' vol. 2, p. 166).

Dr. Robinson records a case of severe recto-vaginal laceration, in which rapid recovery took place, with good union of the parts. This was obtained by keeping the patient strictly at rest, with the knees bound together, administering opium, and adopting a limited diet, containing very little solid food. In this case the rectum and vagina were laid open by a rent which was several inches in length.

### OPERATIONS IN MIDWIFERY.

#### INDUCTION OF PREMATURE LABOUR.

Prof. Braun and Dr. Kühn, "On the Induction of Premature Labour" ('Wiener Med. Wochensch.,' Feb., 1863).

Prof. Simpson and Dr. Moir, *ibid.* ('Edin. Med. Jour.,' Mar., 1864).

Dr. Kühn records the cases of induction of premature labour which have occurred in the practice of Prof. Braun, at the Vienna Lying-in Hospital during the last three years. Of the 20 cases, puncture of the membranes with the English elastic catheter or Simpson's sound was adopted in 4; intra-uterine catheterism with the elastic catheter or catgut bougie in 12 cases; puncturing the membranes with catheterism, twice; intra-uterine injection with the apparatus of Larazewitsch in 2 cases. The causes which necessitated the operation were as follows:—Contracted pelvis, 9 cases; uræmia, 4 cases; dyspnoea from Bright's disease, 2 cases; and once for each of the following—tetanic spasms, pneumonia, chronic bronchitis, acute tuberculosis, chronic tuberculosis. The operation was performed at the following periods:—1 in 23rd week of pregnancy; 1 in 24th; 1 in 29th; 3 in 30th; 6 in 32nd; 2 in 34th; 2 in 35th; 3 in 36th; and 1 in 37th. In 13 cases the child was born alive, but in 6 of these it died shortly after; in 7 the child was born dead. Of the women, 8 recovered perfectly; 1 died 8 weeks after, of phthisis; 1 recovered from the operation, but was attacked with acute inflammation of the knee; 10 died after labour—4 of puerperal fever, 4 of Bright's disease, 1 of acute phthisis, 1 from hæmorrhage. Of the different methods, the preference is given to catheterism—Dr. Simpson's mode—especially in those cases where no dilatation of the os is to be detected. The catheter is introduced with comparative ease through the long, soft, narrow cervix, and after the stilette is withdrawn pushed up on either side towards the fundus of the uterus, between it and the membranes, and left lying there. In the 12 cases

where it was employed the first pains supervened, on an average, 5½ hours; the child was born, on an average, 30 hours after its introduction. The operation was in no single instance followed by hæmorrhage, great care being taken to avoid the placenta. Puncture of the membranes with some blunt instrument is rather to be recommended in cases where the cervix is shortened, or where the os is dilated enough to admit of the introduction of the finger, *e.g.* in cases of contracted pelvis with head presentation. The intra-uterine injection is longer in operation than the catheter. Prof. Braun advises that the opening through which the water is injected shall be at the end of the catheter, and not at its side, in order that the stream of water may penetrate further; and states that the caoutchouc bladder of Lazarewitsch loses much of its injecting power by being softened with the warm water, so that it is not to be preferred to the common enema syringe. Dr. Moir thinks that the dilatation of the os uteri should be effected very slowly and gradually. He separates the membranes from within the os uteri by means of the forefinger passed within the os and turned round, so as at once to separate the membranes and slightly dilate the orifice. The importance of obtaining a head presentation in cases of premature labour, and avoiding the use of the forceps, if possible, is insisted upon. In one of the cases related dilatation was commenced a week before delivery, and repeated every day until labour set in.

#### TURNING.

Dr. Graily Hewitt, "On the operation of Turning in cases of Disproportion between the Fœtal Head and the Pelvis" ('Lancet,' 2, 1864, p. 232).

Dr. Braxton Hicks, "Three Cases of Obstructed Labour; Forceps and Craniotomy employed in former labours in each; delivered readily by Version" ('Med. Times,' vol. 1, 1864, p. 425).

In cases of pelvic narrowing, or of disproportion between the fœtal head and the pelvis, we have four alternatives:—(1) To wait and see what nature can do without assistance. (2) To apply the forceps. (3) To perform version; or (4) craniotomy. Dr. Hewitt remarks upon each of these modes of practice, and warmly advocates the practice of turning in such cases, when possible. The mechanical advantage obtained by turning arises from the fact that the diameter of the base of the fœtal skull which has first to pass the brim of the pelvis after turning is less than that of the upper part. Further, the transverse diameter, which requires to be lessened, is capable of being reduced to a greater extent when the head is made to enter the pelvis with the base lowest; and the rest of the head is more readily moulded to the shape of the pelvis so as to allow of its passage through the brim. Again, by turning we have the advantage of being able to make traction on the child with much hope of effecting its delivery alive. In comparing turning with the "high forceps operation"—a much more exact expression than delivery by the "long

forceps"—it frequently happens that the forceps cannot be applied on account of the contracted condition of the os uteri often present in cases of pelvic deformity. It is in these cases that Dr. Braxton Hicks's method of turning (described in 'Year Book,' 1863) will prove of the greatest value, especially in cases where the patient is seen early, and where the membranes are still unruptured. But even in the more difficult cases, where the waters have escaped and the uterus is tightly contracted round the child, turning can still be effected, by careful and steady introduction of the hand into the uterus, long after the occurrence of the impaction. In turning, carefully performed, we avoid the risk of laceration of the uterus connected with the application of the forceps in the high operation. While the delivery can doubtless be effected more easily by turning in these cases of deformity, the danger to the child is greater than in delivery by the forceps. If turning be resolved on, the following points are noteworthy. The operation may be performed very late, and even in cases of considerable impaction the head will be found to recede before the hand in the vagina with singular readiness. Contraction of the uterus is not an insuperable obstacle. Chloroform is not absolutely necessary, but generally advisable. The bladder and rectum must both be emptied before the operation. In all cases both legs should be brought down; much difficulty is often caused by neglect of this precaution. If the head, after turning, cannot be extracted, craniotomy is necessary, but is then not difficult. In extracting the child a lateral motion, together with traction in the direction forwards, will facilitate the passage of the head. The great point is to delay the first part of the extraction, but to hurry the delivery of the head.

Dr. Hicks's cases well illustrate the advantage of bimanual version over the forceps and craniotomy. In the first case there was coarctation of the brim. The patient had had four children; the first was very small, born naturally; the third delivered by craniotomy; the fourth by the forceps. Premature labour at  $7\frac{1}{2}$  months was advised in her fifth pregnancy. This was neglected until nearly the full term, when she consented, and delivery was effected in  $2\frac{1}{2}$  hours from the commencement of the dilatation. Both mother and child did well. In the second case a semi-elastic solid tumour in the cavity of the pelvis lessened its antero-posterior diameter one third; craniotomy had been performed in former labours. Bimanual version was performed early in labour, and a dead child delivered. She recovered rapidly. The third patient had been delivered of only one living child (premature) in eleven labours; in three craniotomy, in three forceps. A small brim obstructed the head, which required some traction after version. The mother did well.

#### THE FORCEPS.

Dr. Ryan, "An account of 1206 Midwifery Cases, in 977 of which the Forceps was used 101 times" ('Dub. Quart. Journ.,' Feb., 1864).

Dr. Halahan, "On Difficult Labour; Forceps Cases" ('Dub. Quart. Journ.,' May, 1864).

Dr. Ryan uses the forceps once in about  $9\frac{1}{2}$  cases, and justifies this frequent employment of the instrument by the low rate of mortality resulting to both mother and child as compared with that observed in cases of protracted labour where the forceps is either delayed or not used. Dr. Ryan states that none of the mothers died in the 977 cases where the forceps was used, that there were no perineal lacerations, no vesicovaginal fistulæ, that the recoveries were strikingly rapid, and that after-illnesses were very rare. Of the children born at full term, and presenting naturally, 9 were stillborn in the 229 cases in which the forceps was *not* used, or 1 in  $20\frac{4}{5}$ ; while of the 977 cases in which the child presented naturally, and the forceps was used, only 62 were stillborn, or 1 in  $488\frac{1}{2}$  cases. It should be added, however, that although it is stated that 49 of the 101 cases in which the forceps was used were primiparæ, no mention is made—(1) of the proportion of the cases to the whole number in which the forceps was used in the *second* stage; (2) of the duration of the *second* stage; (3) of the exact circumstances in which the instrument was used.

Dr. Halahan gives an outline, with carefully drawn up tables, of the cases in which the forceps and vectis were used in difficult labour, with the results, during the three years he acted as Assistant-Master of the Dublin Lying-in-Hospital. Of 3700 women delivered, the vectis was used in 22 cases, or 1 in 168; and the forceps in 56 cases, or 1 in 66. Of the 56 cases in which the forceps was used, 46 were primiparæ and 10 multiparæ; the labours lasting from 8 to 70 hours respectively, and the *second stage* from 1 to 18 hours. Of the mothers, 43 recovered and 13 died; but puerperal fever existed on two occasions in the hospital, and of the 13 deaths 4 occurred from this cause in one week. Of the children, 24 males and 16 females were born alive, and 11 males and 5 females were stillborn, *i. e.* respiration could not be fully established. In 22 cases the vectis was employed, the labours lasting from 7 to 65 hours respectively, and the *second stage* from 6 to 19 hours. Of the 22 cases, 17 were primiparæ and 5 multiparæ. Of the mothers, 18 recovered and 4 died (one from puerperal fever). Of the children, 9 males and 6 females were born alive, 4 males and 3 females stillborn. Of the 78 cases in which the forceps and vectis was employed, interference was indicated in 58, for inertia of the uterus; in 10 for disproportion between the pelvis and the head, in 5 of which the crotchet was afterwards used to effect delivery; in 1 for eclampsia; in 3 for feebleness of the foetal heart; in 2 for threatened rupture of the uterus; in 3 for inertia of the uterus, with feebleness of the foetal heart; in 1 for posterior displacement of the right arm. There were two cases of face presentation, both stillborn. In all these cases there was manifest and imminent danger, calling for instrumental interference, and Dr. Halahan thinks that the use of the forceps should be entirely restricted to such cases.

## CRANIOTOMY.

Powell, T., "The Forceps in Craniotomy" ('Dub. Quart. Journ.,' Feb., 1864).

Murphy, Prof., "On the Comparative Claims of Craniotomy and the

Cæsarean Section in a certain class of Labours, with a new Pelvimeter" ('Dub. Quart. Journ.,' May, 1864).

Meadows, A., M.D., "Difficult Labour; Craniotomy; Utility of Dr. Earle's Pelvimeter" ('Brit. Med. Journ.,' 1, 1864, p. 204).

1.—Mr. Powell advocates the use of the forceps in cases of craniotomy, after perforation, instead of the crotchet, and records two cases, in both of which a successful result quickly followed its employment after the crotchet had failed. The following advantages are obtained by this instrument:—(1) The avoidance of the failure and delay at times experienced with the crotchet, and of all danger to the mother by the slipping of the crotchet, or of wounds by the pieces of bone. (2) The injury to the child's head is reduced to a minimum, and the appearance of the child is preserved. (3) Traction can be made with the forceps in the most efficient manner; while (4) the whole operation, including perforation and extraction, may be performed in from 3 to 5 minutes, a rapidity unattainable with the crotchet. Mr. Powell considers Churchill's forceps the best to use after perforation. The advantages of this shape are—(1) That the widest part of the forceps, when in use, corresponds to the widest part of the child's head; (2) the forceps passes much more fully around and above the head, thus preventing the possibility of slipping; while (3) the blades in the act of introduction have a tendency to impinge upon, almost to hitch in, the foetal structures, thus conducing very much to the safety of the maternal structures, and to safety in the use of the instrument itself. Its disadvantage is that it is more difficult of application than the old form, particularly when the head is high up.

2.—Dr. Murphy records two cases as evidence in favour of the rule adopted by him, that "in the ovate deformity of the pelvis, if the conjugate axis be less than 2", craniotomy should not be attempted, but an effort made by the Cæsarean section to save the child."\* Both cases were brought into the hospital to have the Cæsarean section performed; but in both the children were already dead, and therefore craniotomy was performed, as being generally considered less dangerous to the mother. In the first case great difficulty was experienced in the delivery. After perforation the crotchet was used without success, the head separated from the trunk, one arm was then brought down and traction made, but delivery could not be completed until the second arm was brought down. The cause of the difficulty was enormous distension of the foetal abdomen from flatus. The patient was 53 hours in labour, was much exhausted and depressed, had bronchitis on admission, and died 20 hours after delivery. The pelvis presented the ovate deformity, and the conjugate diameter measured  $2\frac{1}{4}$  in. The second patient was 72 hours in labour, 4 hours of which were occupied in delivery. She died on the 7th day, from bronchitis. The conjugate diameter of the pelvis was  $2\frac{1}{5}$  inches. If the Cæsarean section had been performed early in either of these cases, there would have been at least an equal chance of saving the mother. Dr. Murphy describes a pelvimeter which is very similar to that invented by Dr. Earle.

3.—In Dr. Meadows' case the patient was a primipara, and had been in

\* Murphy's 'Midwifery,' 2nd edit., p. 336.

labour 28 hours. Dr. Earle's pelvimeter was applied without difficulty, and registered a conjugate diameter of  $2\frac{5}{8}$ ". Craniotomy was at once performed, and delivery accomplished in about a quarter of an hour. The patient went on well until the 3rd day, when acute mania set in, and she died 7 days after delivery. The pelvis, after removal of the soft parts, measured at the brim  $2\frac{3}{4}$ " in the conjugate,  $4\frac{7}{8}$ " in the transverse, and  $4\frac{5}{8}$ " in the oblique diameter.

## CEPHALOTRIPSY.

Dr. Ritchie, "On the Operation of Cephalotripsy as performed at Vienna by Prof. Braun" ('Obst. Soc. Trans.,' vol. 5, 1865).

Dr. Winckel, "On Cephalotripsy" ('Abhandl. der Obst. Gesellsch. zu Berlin,' Nov., 1864).

1.—Dr. Ritchie describes the instruments used in performing cephalotripsy, an operation which in Vienna is almost invariably substituted for the use of the crotchet. The perforator is intended to replace Smellie's scissors, and is a long curved trephine, in the use of which two persons are required. The cephalotribe differs from the French instruments in being smaller and less cumbersome. It is 16 inches long, with strong and non-fenestrated blades. When closed, they meet at the points, and nowhere does the distance between them, including the thickness, exceed  $2'' 2'''$ . Each blade is  $11'''$  broad, and  $2'''$  thick; but it is further strengthened by three ridges which project from its inner surface, and are intended to increase the tenacity with which the head is grasped.

2.—Dr. Winckel exhibited the skulls of three children who had been delivered by cephalotripsy, and the uniformity shown in the appearances of all three appeared to establish a general law.

In the application of the cephalotribe the instrument was generally applied in several diameters, one after the other, and from the consequent crushing it was said that the majority of the bones were broken up into small pieces. But an examination of these skulls showed that only one bone, and almost always, according to the position of the head, a parietal bone, was much crushed, while the opposite part of the head, and therefore generally the basis cranii, was only simply fractured. On all three skulls there was, however, a considerable indentation of the occipital bone, so that the effect of the cephalotribe appeared to be that at the first pressure, one, or sometimes also the second bone, was crushed, while at each further application a dislocation only of all the bones, especially of the occipital bone, was produced. From these results, Dr. Winckel concludes that cephalotripsy was, for the mother, the most favorable mode of breaking up the head, inasmuch as no sharp splinters of bone came in contact with the soft parts, and in many cases, also, the preceding process of trephining by the perforator was not necessary. In the discussion which followed, Strassman remarked that in the four cases in which he had used the cephalotribe he had not found that instrument sufficient in head presentations, and had therefore been obliged to perforate. In those cases, however, where version had been performed first, the head had followed after cephalotripsy alone. Prof. Martin agreed with Strassman on the latter point, and urged the importance of turning over perforation in all cases where the former is possible.

## CÆSAREAN SECTION.

Dr. Greenhalgh, "On the Cæsarean Section" ('Obst. Soc. Trans.,' vol. 5, 1865).

Dr. M. T. Sadler, "A Case of Cæsarean Section" ('Med. Times and Gaz.,' 2, 1864, p. 141).

Dr. J. W. Anderson, Jamaica, "A Successful Case of Cæsarean Section for both Mother and Child" ('Ed. Med. Jour.,' July, 1864).

1.—Dr. Greenhalgh urges that in difficult cases of craniotomy the lives of many of the mothers and most of the children would be saved by the timely performance of the Cæsarean section. In one case in which he had operated the woman was so weak from mollities ossium that it was thought impossible she could survive the operation. She lived, however, three weeks after, and then died from rupture of the transverse colon, the distortion causing occlusion of the rectum. The child was saved. Dr. Greenhalgh strongly urges the early performance of the operation, before the membranes rupture or the mother is exhausted. The incision should be made in the *linea alba*, and as nearly as possible through the centre of the body, and not through the neck of the uterus, in which, although there are fewer larger vessels, yet the contractile power is far less, and there is consequently a far greater liability to hæmorrhage. The abdominal and uterine wounds should be held together by the fingers of an assistant placed within the extremities of an incision; immediately after the extraction of the fœtus and secundines the finger should be passed from within through the neck of the uterus into the vagina, so as to secure a free exit for the discharges; the uterus should be firmly grasped by the hand, so as to obtain its free contraction; and when all fear of hæmorrhage is over the abdominal wound should be brought together by the interrupted suture, and further secured by broad strips of adhesive plaster. As a rule, the author administers no medicine, but treats each symptom as it arises. One remarkable case is related where the patient was up and about *five* days after the operation; she was, however, the subject of a very large umbilical hernia.

2.—In Dr. Sadler's case the patient was a primipara æt. 21, and the birth of the child was obstructed by an enormous hydatid cyst of the liver, which occupied the whole upper part of the abdomen, and extended downwards along the spine to the pelvis, being so compressed by the pressure of the uterus from above as to assume the character of a bony growth from the promontory of the sacrum. The operation was performed in the usual way, and a full-sized dead child was extracted, but the mother sank on the day after the operation.

3.—Dr. Anderson's patient was a black girl æt. 25. The pelvis was distorted from rickets, and the vagina barely admitted two fingers below and only one above. The operation was performed early, with the membranes unruptured. Much of the liquor amnii escaped into the abdominal cavity, and smart oozing occurred for some minutes from some of the large venous sinuses at the lower edge of the uterine wound. This was checked by the application of a sponge dipped in cold water. Severe



vomiting occurred soon after the operation, repeatedly causing the escape of nearly the whole of both large and small intestines. Acute peritonitis succeeded on the third day, and discharge of pus went on through a large sinus until the 27th day after the operation, when an acute abscess formed. Three days later a pint of fetid pus was discharged through the sinus; after this, convalescence was rapid, and the woman and child—both in good health—were dismissed on the 46th day after the operation. Opium and ammonia were given freely, with beef tea, milk, and brandy *ad libitum*.

## TRANSFUSION.

Dr. Aveling, "On Immediate Transfusion" ('Obst. Soc. Trans.,' vol. 5, 1865, p. 126).

Dr. Graily Hewitt, "Apparatus for the performance of Transfusion" (*ibid.*).

Dr. Aveling gives a brief history of the operation, and submits an instrument for its performance. This consists of two small silver tubes to enter the vessels, and of an india-rubber pipe by which they are united, and which has in its centre an elastic receptacle holding about two drachms. It is without valves, and is simply a continuous pipe with an expanded portion in the middle. The author suggests the following plan in operating:—While an assistant prepares the arm of the person who supplies the blood, an opening is to be made in the vein of the patient. The emittent vein is then to be opened as in ordinary bleeding, and the round-pointed tube inserted downwards. If the instrument be now held slanting upwards the blood will flow into it and expel the air. Lastly, the bevel-pointed tube is to be inserted into the recipient vein, and the blood may then be made to circulate through the pipe in the following manner:—If the pipe on the emittent side and the receptacle be compressed the blood will be thrown forward into the recipient vein. If, on the contrary, the pipe be compressed on the recipient side, and the receptacle allowed to expand, the blood will be drawn into it from the emittent vein. This part of the operation should be performed slowly. Each silver tube should be held in its place between the finger and thumb of an assistant. All other points should be managed as in the ordinary operation. The advantages of this immediate method of transfusion are—(1) The chances of coagulation are small—(a) because the blood glides through the pipes and comes in contact only with a thin coating of coagulated blood; (b) because the blood is removed from the action of the living vessels for only a few seconds; (c) because the blood is not exposed to the air. (2) The apparatus is effective, simple, portable, and inexpensive. And (3) The operation is safe, easy, uninterrupted, and a close imitation of nature.

Dr. Hewitt's instrument is the same as that exhibited and described by him at the Bristol Meeting of the British Medical Association.

## PART II.—DISEASES OF WOMEN.

## PHYSIOLOGY, ETC.

Grohe, "A Case of a Uterus with Three Ovaries" ('Wien. Medic. Halle,' 1863, 43).

Prof. Simon, "Congenital Atresia of the Left Half of the Vagina, with Double Uterus and Vagina; retention of the Menstrual Fluid in the closed half, with contemporaneous Metrorrhagia of the open half" ('Mon. f. Geb.,' October, 1864).

The uterus and ovaries of a woman *æt.* 40, who had been a prostitute, and had had three children, was seen by Grohe. Dissection showed one large ovary on the right side, and two small ones on the left, one of which was fixed close to the uterus by a ligament, while the other, further removed, rested on a fold of peritoneum. All three ovaries had exercised their functions. The author explains this rare anomaly, not by original formation, but by fissure formation, at an early period, through which the left ovary was divided into two.

Simon's case is of much interest. A girl *æt.* 15 was admitted into a hospital for a tumour in the vagina. She had menstruated at fourteen, but only for three months. A tumour gradually formed at the external genitals, with abdominal and pelvic pains, and well-marked menstrual molimina, with difficulty of micturition. Eight weeks after the first appearance of the tumour profuse hæmorrhage suddenly occurred, and her health improved. The pains ceased and the tumour disappeared; but on leaving her bed it returned with the same symptoms as before, with repeated hæmorrhages. Symptoms on admission—*anæmia*, præcordial and pelvic pressure, with abdominal and lumbar pain. The tumour became fluctuating, and caused pain and difficulty in walking. Hæmorrhages occurred with the least bodily exertion.

The tumour extended the whole length of the vagina, distending the uterus. On the right side of the tumour the finger could pass into the vagina, but the *os uteri* could not be reached without placing the patient under chloroform. It was then found in the extreme fundus *vaginæ*. A sound was passed into the uterus without difficulty. The diagnosis was difficult, and lay between extra-peritoneal pelvic hæmatocele, and atresia of the left half of the vagina, with double uterus and vagina and retention of menstrual fluid in the closed half. With two fingers introduced at the same time into both halves of the vagina, an *os* and *cervix uteri* could be felt in each half simultaneously, and the *septum vaginæ* in its whole extent was thus clearly established. Pressure on the tumour did not diminish its size nor increase the flow of blood from the osseous portion. Hence no communication could exist between the tumour and the vagina. An incision was made in the tumour, and about six ounces of tar-like fluid escaped, which continued to pass for several days. The patient recovered well. Menstruation was normally established. Two months after, the aperture made by the incision had become so small that two fingers could

be only passed with difficulty into the left half of the vagina, but it was considered unsafe to enlarge the opening. This case is said to be the first living case hitherto recorded.

## AFFECTIONS OF THE OS AND CERVIX UTERI.

Dr. H. A. Martyn, "Hypertrophy of the Os and Cervix Uteri, forming an External Tumour; removal by Excision" ('Amer. Jour. Med. Sci.,' 1, 1864).

Dr. Jackson Warren, "Hypertrophic Elongation of the Cervix Uteri of Twenty-six Years' standing, with protrusion beyond the External Organs; Ulceration, Hæmorrhage, Operation, Recovery" ('Amer. Jour. Med. Sci.,' Jan., 1864).

Dr. Henieke, "Case of Tetanus following an Operation for Cancer of the Cervix Uteri" ('Griefswalder Med. Beitrage,' 2, 2).

Dr. Keiller, "Cauliflower Excrescence of the Cervix Uteri removed by the Ecraseur" ('Ed. Med. Jour.,' April, 1864).

1.—In Dr. Martyn's case the following were the measurements of the tumour, which protruded from the vulva:—From the anterior commissure of the labia to the extremity of the tumour,  $4\frac{1}{2}$  in.; from the posterior commissure to the same point, 5 in. The transverse diameter measured  $3\frac{1}{2}$  in., the vertical  $3\frac{1}{4}$ . A catheter introduced into the os could be passed up 3 in. without any obstruction. At that point the canal narrowed, but by manipulation the instrument passed  $5\frac{1}{4}$  in. further, till its point touched the fundus. Amputation by the knife was performed at a point  $2\frac{3}{4}$  in. from the end of the tumour posteriorly, and  $2\frac{1}{2}$  in. from the end anteriorly. The hæmorrhage was slight, and easily checked by the perchloride of iron, and the patient recovered quickly.

2.—In Dr. Warren's case, the patient was anæmic and feeble, from repeated hæmorrhages arising from ulceration of the tumour. This was 3"—4" long, and 4" in circumference. The sound passed 5" through the os. The point of a catheter in the bladder could be felt half way down the tumour. The recto-uterine cul-de-sac was dragged down 2" external to the cavity of the pelvis. The body of the uterus could be felt normal in size and position. With the catheter in the bladder, section of the tumour was carefully made in front of the peritoneal cul-de-sac, the bladder being dissected from the body of the tumour. The hæmorrhage was not great, and the patient recovered well.

3.—Dr. Henieke's case was a delicate woman, æt. 32, who had previously borne two children. Villous cancer of the cervix was diagnosed, and the portio vaginalis was removed by galvano-caustic. Six days after, severe hæmorrhage occurred, and recurred again and again in spite of the employment of perchloride of iron and cold-water injections, so that she at length became greatly exhausted. From this, however, she rallied, and was steadily improving, when she was attacked with symptoms of trismus. Chloroform and atropine gave partial but only temporary relief. Four days later the muscles of the neck and spine became involved, and continuous tetanic spasm gradually attacked the muscles of the trunk and extremities. Chloroform and opium now failed to give relief, and she died on the eleventh day. Dr. Henieke attributes the tetanus to the long-

continued cold injections used to control the hæmorrhage rather than to the operation itself, for at the time of the attack the wound was healing kindly.

4.—Dr. Keiller remarks on a case of epithelial cancer of the cervix successfully removed by Prof. Simpson, and states that a permanent cure can never be reckoned on in such cases. All experience showed the opposite was the fact; nevertheless, the great relief afforded to the patient, and the undoubted prolongation of life, fully justified the operation where the case was seen early.

#### AMENORRHŒA.

Dr. H. R. Storer, "On the Surgical Treatment of Amenorrhœa" ('Amer. Jour. of Med. Science,' vol. 1, 1864, p. 81).

As a general rule, it will be found that amenorrhœa which has resisted the usual modes of treatment depends, in the absence of pregnancy, upon one or other of the following causes:—(1) That the uterus is absent; or (2) that it is imperfectly developed. (3) That it has undergone too complete involution after labour or abortion. (4) That the *nisus uterinus* of menstruation is in abeyance, even though the ovarian functions may be normal or complete. (5) That the cervical canal, or its inner orifice, is partially contracted—organically, or by tonic or clonic spasm. (6) That there is complete occlusion, congenital or acquired, of either the uterus, vagina, or external organs. (7) That there exists acute or chronic metritis, or a chronic retention within its cavity, *e. g.* foetal débris. (8) That there is lesion, usually inflammatory, of one or both ovaries. (9) That there is present either general toxæmia or some distant organic or functional disease, giving rise to a drain upon the general system, whether hæmorrhagic, diaphoretic, leucorrhœal, diabetic, or lacteal. Any of these varieties, but especially the latter, may be attended by vicarious menstruation.

In cases where the uterus is present, but undeveloped, the author recommends the use of an intra-uterine galvanic stem-pessary, similar in form to that of Prof. Simpson's, the stem being made of copper and zinc. This should readily enter both the outer and inner openings of the cervix, but not touch the fundus. No undue irritation need be feared if this be attended to. The amount of action produced is shown by the fact that upon withdrawing the instrument from the uterine cavity, while the copper portion remains almost entirely free from deposit, that of zinc is encrusted with a thick layer of foreign matter, which, upon chemical analysis, is resolved into the metallic salt usually found in similar circumstances. In the third, fourth, and fifth classes above alluded to the same treatment is indicated, and will be found to answer well. The atrophy which sometimes results after ordinary parturition is remarkable. The cavity of the uterus, instead of its normal size,  $2\frac{1}{2}$  in., measures only  $1\frac{1}{2}$  in., or even less than an inch, and complete cessation of menstruation occurs. For dilatation of the cervix the author prefers tents of the slippery-elm bark to sea-tangle. In cases of retention of the catamenia, under the sixth head, the author recommends a *free* incision, not a small one, "in order that the uterus should be emptied as rapidly and thoroughly as possible, even to the extent of completely rinsing its cavity by gentle injections of warm water, and subsequent compression through

the abdominal walls." And he accounts for many of the fatal cases occurring after the ordinary practice of a *small* incision by the contractions of the uterus forcing part of the retained inspissated fluid back through the Fallopian tubes into the abdominal cavity, and so setting up peritonitis. In all such and similar operations Dr. Clay's plan of giving ox gall for several days before the operation should be adopted, and the patient previously strengthened with a course of steel. In cases of amenorrhœa following metritis, the author finds the best results from the application of nitrate of silver to the cervical mucous membrane. All intra-uterine injections, with the single exception of that mentioned above, the author strongly condemns.

#### DYSMENORRHŒA.

Dr. Coglean, "On Dysmenorrhœa and Sterility" ('Med. Times,' vol. 2, 1864, p. 87).

Dr. Corlieu, "On the Employment of Apiol in Amenorrhœa and Dysmenorrhœa" ('Gaz. des Hôp.').

1.—Dr. Coglean deprecates the incision of the os and cervix uteri in all cases where a bougie will pass. Dilatation by the sea-tangle-tents or by the compressed pine-wood, will in many cases, in his opinion, effect a cure. The cases in which incision is most valuable are those in which the os and cervix are hypertrophied, the cavity of the cervix is obliterated, or the cervical canal is greatly contracted.

2.—Dr. Corlieu has employed apiol (the active principle of parsley) with success in some cases of amenorrhœa and dysmenorrhœa dependent on functional derangement of the nervous system.

On the other hand, it is contra-indicated in all cases where there is organic disease, or plethora, or anæmia existing, until these latter conditions have been rectified. The principal conditions for success in its use seems to be that the pain should be due to derangement of the vaso-motor innervation of the plexus, and that the time chosen for its administration shall correspond to a menstrual period. If the period has not been calculated, it may often be discovered by noticing the sympathetic derangements incidental to the time. Apiol does not relieve the nervous pains seated in branches of the lumbosacral nerves, and especially in the uterus, which appear or become intensified at the menstrual period, and may simulate dysmenorrhœa proper.

#### FLEXIONS AND VERSIONS OF THE UTERUS.

Dr. Priestley, "On Flexions and Versions of the Unimpregnated Uterus" ('Med. Times,' 1, 1864, p. 501).

Mr. B. Brown, "On Retroflexion of the Uterus" ('Lancet,' 2, 1864, p. 174).

Dr. Priestley confirms the views held by Rigby and others, that the painful symptoms seen in some cases of retroflexion are rather due to a morbid condition of one or both ovaries, associated with displacement, than to the displacement itself or to displacement combined with some morbid condition of the uterus. Dr. Priestley adds a very necessary

caution in using the uterine sound in certain cases of flexion of the uterus of old standing. Its introduction in some of these cases gives rise to much needless pain and suffering; and if attempts be made to replace the uterus when bound down by old adhesions, grievous and even fatal injury may be inflicted. Virchow, Scanzoni, and others, have also pointed out that in cases of prolonged retroflexion the cervical canal becomes extremely contracted at its upper extremity, and this contraction obstructs the introduction of the sound. This is due, in many cases, not to the simple flexion, but to organic narrowing of the canal at the situation of the os internum, produced by atrophy of the posterior wall at the seat of flexure; and, unless great care be exercised, the sound may easily be pushed through the wall at this point. In the *treatment*, Dr. Priestley remarks that, where there is uterine enlargement, with pain and tenderness, associated with displacement, the disease should be first treated. He advocates rest, the administration of the bromide and iodide of potassium, and strict attention to the management of the menstrual periods, the greatest care being taken to avoid ovarian and pelvic congestion. A very simple and efficacious pessary is invented and described by the author, which can readily be adapted to any alteration of curve the case may require.

Mr. Brown records two cases of retroflexion treated by simple incision of the os and cervix uteri. In one case the patient had been suffering from this condition for fourteen years, with the attendant pain and difficulty in defæcation, and was *immediately* cured by this operation. The author states that he has found the same treatment uniformly successful in private and hospital practice. He adds that the true source of uterine disturbance and displacement in both the married and the single is to be found very frequently in habits of delectation, and that in these cases excision of the clitoris can alone give permanent relief. In many cases it is also, he states, a cause of sterility, and in these dilatation of the cervix is useless, and excision of the clitoris is the only cure.

#### DISEASES OF THE UTERUS.—FIBROUS TUMOURS OF THE UTERUS.

Dr. Routh, "On Fibrous Tumours of the Uterus." The Lettsomian Lectures on Midwifery, 1863 ('Brit. Med. Jour.,' 1, 1864).

Mr. Hutchinson, "On the Surgical Treatment of Fibrous Tumours of the Uterus" (Holmes' 'System of Surgery,' vol. 4).

Dr. Matthews Duncan, "The Source of Hæmorrhage in a Case of Fibrous Tumour of the Uterus" ('Ed. Med. Jour.,' Jan., 1864).

Mr. Baker Brown, "On the Surgical Treatment of Fibrous Tumours of the Uterus" ('Obst. Soc. Trans.,' vol. 5, 1865).

1.—The simplest idea of a fibrous tumour is to regard it as a growth in which the fibro-cellular tissue predominates. In some cases there is less, in others more, cellular tissue present, and hence the division into fibrous and fibro-cellular tumours. Where the uterine tissue is more marked they are called "fleshy tubercles," or muscular tumours. Three classes of tumours are recognised:—(1) *Fibromas*, including *hysteromas* (*fibroids* of Lebert), which differ from fibromas in their benignity and in never ulcer-

ating spontaneously, identical in structure with that of the uterine tissue. (2) *Fibroids*, including the *recurrent*. (3) *Malignant fibroids*, as occurring both among fibromas and fibroids. From their position they may be (1) extra-uterine, situated just beneath the peritoneum; (2) intra-uterine (polypus); or (3) parietal or interstitial. The size varies from an orange to 74 lbs., the largest being the pedunculated. The *intrinsic changes* of these tumours may be—(1) Softening, which includes a sarcomatous change, œdema, the formation of pseudo or colloid cysts and true cysts, suppuration, and fatty degeneration. (2) Hardening, which may be peripheral or interstitial. (3) Absorption. True fibro-cystic disease is very rare. Suppuration is not so uncommon as is generally supposed. The hardening or calcareous transformation is much more common in the extra-uterine varieties. The absorption is generally synchronous with the climacteric change. The author believes sexual excitement to be one of the causes of fibrous tumours, since their occurrence immediately succeeds the age when sexual passion, frequency of marriages, and fecundity, were greatest, viz., between 27 and 35, and because, after menstruation ceases, they generally diminish in size, occasionally disappear, and rarely enlarge. Sterility is not necessarily associated with these tumours. Of 22 married women affected with fibrous tumours only 5 were barren. Of 24 affected with polypi only 3 were barren.

In reference to the *diagnosis*, the author remarks on the importance of being fully acquainted with all the details of the previous history, and then points out the necessity for—(1) examination of the patient in different positions, since by this the presence or absence of adhesions could be ascertained, and cases of short pedunculated ovarian tumour be diagnosed from uterine tumours; (2) careful observation of special symptoms, with their relative value; (3) especial reference to the differential diagnosis between pregnancy and ovarian disease, the two most common conditions likely to be mistaken for fibroid disease of the uterus. To determine the direction and position of the tumour, the author has devised a *pelvimeter*, which consists of two sounds, so adapted that they can be introduced separately, one into the bladder or rectum, the other into the uterus. The distance between them is then noted, and the exact measure of the tumour thus determined.

The *symptoms* of fibrous tumours are, generally—an enlarged abdomen, with a hard, rounded, and solid tumour, to be felt in and above the uterine region, extending sometimes as high as the epigastrium, both lumbar regions being clear on percussion, and the umbilicus sunken, not projecting; the uterus is found enlarged per vaginam, and the cavity increased;] menorrhagia is more or less intense, fluctuation is absent, and an occasional systolic souffle is to be heard over the tumour. *Auscultation* reveals four signs:—(1) A souffle, either (a) *vesicular*, heard also in some cases of ovarian disease, in pregnancy, and shortly, but not immediately after delivery, resembling the *bruit placentaire*, and probably due to an extended circulation; or (b) a *tubular* souffle, peculiar to fibroids and other solid tumours resting upon the aorta, and not destroyed by pressure. (2) A thrill, with musical note, very similar to an aneurismal sound, and never heard either in ovarian disease or pregnancy. (3) The double and single cardiac sounds—first, a *single* sound, synchronous with the systole

of the heart; secondly, two sounds synchronous with and representing the double sound of the organ. These sounds are also due to transmission from the aorta through the solid fibroid body. If the tumour be low down, they could be heard either by passing a common stethoscope per vaginam, and making it rest upon the tumour, or, better still, by the vaginoscope, an instrument which the author has devised, which consists of a long stethoscope, to the distal end of which is attached a wooden speculum.

Menorrhagia is common in fibroids, especially if these are intra-uterine. Of 48 cases, in 34 there was hæmorrhage, in 14 none. The larger number of the former were intra-uterine, of the latter extra-uterine. The diagnosis from pregnancy has been before referred to.\*

In the diagnosis from *ovarian* disease the following points are noted:—1. Some uterine fibroids grow *from one side*. 2. Fluctuation may be absent in ovarian tumours and present in fibroids, or in parts of them, under four conditions—(a) when soft, flabby, and fleshy; (b) when unusually vascular; (c) when œdema is present; (d) when cysts are present. Here the difficulty would be sometimes cleared up by the previous history, or by the induration of other parts of the growth, or by an exploratory puncture. The catamenia might also afford help. From an analysis of 150 cases, in 42 per cent. this was found regular, in 18 per cent. it was arrested, while in 9 per cent. it was profuse. Menorrhagia is general in fibroids, quite exceptional in ovarian disease. Lastly, in solid fibrous or fibro-cystic tumours of the ovary the diagnosis was most difficult, often impossible.

In the *treatment* the author has found the oxide of silver in large doses, with or without Indian hemp, sulphuric and gallic acids, and turpentine, the most effective remedies for restraining the hæmorrhage. For this, however, local measures are the best—(1) by injection of iodine or of the sesquichloride of iron *after* dilatation by sponge-tents; (2) by incision of the os uteri; (3) by cutting directly upon the uterine tumour. Of the so-called curative remedies, the author thinks the bichloride of mercury useful in hypertrophy or retarded involution of the uterus, especially if combined with local depletion. Chloride of calcium and bromine appear less effective in parietal tumours than in mere chronic enlargement. Electricity of high intensity is favorably mentioned. The *surgical* treatment of these tumours may be either enucleation of the tumour or removal by gastrotomy. Enucleation was either *primary*, when the tumour was wholly removed at one time; or *secondary* (also called enucleation “by inducing gangrene”), where part only was removed at the time, and the remainder came away by sloughing.

Of 18 cases of primary enucleation instanced by Mr. Hutchinson, 12 recovered.† Of enucleation by induction of gangrene Mr. Hutchinson mentioned 15 cases and 6 deaths; in 10 cases collected by the author 4 died, and in one the result was not stated. Mr. Hutchinson concluded that, if all cases were known, the results of primary and secondary enucleation would be the same; the author believed that,

\* *Vide* “Pregnancy,” p. 362.

† ‘Med. Times and Gaz.,’ 1857, vol. 2.



except where the tumours were very small, secondary enucleation was less fatal.

Simple incision of the os and cervix will, in some cases, cause the absorption of the tumour. Of the operation by gastrotomy, 33 cases are recorded, and of these, 10 recovered. As to the causes of death, 9 died from hæmorrhage, 5 from peritonitis, and the rest from "shock" a few hours after the operation. The author concludes that gastrotomy for fibroid tumours should not be performed except in the case of extra-uterine tumours, or where the tumour was high up so as to allow removal of *both the uterus and the ovaries*.

The cases of fibroid tumours which, in the author's opinion, justify operative interference are—(1) where, by their rapid growth, they threaten to interfere with vital functions; (2) where they are threatening to arrest micturition and defæcation; (3) where they interfere greatly with respiration and the cardiac circulation; (4) where hæmorrhage is excessive, and threatens life by exhaustion.

Enucleation was indicated in cases of tumours in the true pelvis. Gastrotomy was indicated in cases of tumours in or above the true pelvis, especially if these were fibro-cystic. In cases of excessive hæmorrhage patients were most liable to pyæmia. Injections should, if possible, precede enucleation or extirpation, to enable the patient to rally. In no case was it safe to operate for the removal of a fibroid tumour of the uterus unless the sound had been previously introduced into the uterus.

2.—Mr. Hutchinson states the following as conclusions arrived at from a careful study of the subject of fibrous tumours of the uterus, in reference to surgical treatment:—1. That surgical interference with interstitial fibrous tumours of the uterus is always attended with very considerable risk, and ought not to be practised except under circumstances of urgency or when the position of the growth is peculiarly tempting. 2. That when the tumour is not of very large size, and is already partially extruded, the operation is rendered comparatively devoid of danger, and ought to be performed at once. 3. That when the tumour is as yet wholly imbedded, and even when of large size, the enucleation treatment is yet warrantable if the patient's life be threatened by hæmorrhage. 4. That primary enucleation, where at all easily practicable, is much preferable to the secondary method. 5. That where the tumour is very large, or where found after the incisions to be firmly united to its capsule, the secondary plan should be preferred. 6. That whichever plan it is intended to adopt, the first incision should, excepting under unusual circumstances, be made from within the cavity of the cervix, and should be as free as possible. 7. That the danger of hæmorrhage from this incision is very slight. 8. That as much should be done as practicable at the first operation in freeing the tumour from its cyst. Thus, if the adhesion be found more loose than had been expected, a primary enucleation may be completed where the slower plan had been proposed. 9. That the after-treatment in cases of primary enucleation should consist in warding off the shock by opiates, in sustaining the strength, and in the free use of stimuli and nutritious diet. 10. That in cases of secondary enucleation the ergot of rye should be administered, so as to keep up vigorous uterine action, and that the greatest attention should be paid to sustaining the

patient's strength, and to the removal of discharge and shreds of slough as fast as formed. 11. That in cases of great exhaustion and threatened pelvic inflammation the internal use of turpentine is of great value. 12. That in cases of secondary enucleation, the surgeon need not be anxious about the removal of the tumours *en masse*, but may confidently expect that if it have taken on a sloughy state in its lower part, the death and piecemeal disintegration of the whole will follow. 13. That the "recurrent fibroid" tumours slough away yet more readily after interference than the true fibrous ones, although liable to return after a short interval. 14. That after a successful enucleation, complete, though gradual, restoration to good health may be expected.

Mr. Hutchinson lays down the following rules in the operation for *primary enucleation*:—(1) The tumour should be well depressed into the pelvis by an assistant. (2) The first incisions should be very free, and pass deeply into the tumour, thus not only dividing its capsule, but facilitating its bisection, should that afterwards be found requisite. This first incision should be made with a scalpel. In most cases it will be found convenient to pass the knife into the uterine cavity, and then, turning its edge on to the tumour, to cut downwards, and either forwards or backwards, according as the mass may occupy either the anterior or posterior wall. All experience goes to show that no important hæmorrhage is to be feared from this incision, and if directed in the manner indicated, the whole substance of the tumour will intervene between the knife and the peritoneum. (3) The opened capsule must be separated by the fingers, or, if needful, by blunt-pointed curved scissors, the finger being used as a director. Strong and large vulsella, with midwifery forceps, should be at hand, to be used for traction if necessary. (4) The grand object is to draw down, after separation of the tumour, the uterus, inverted, with the tumour to the external parts, or as near them as possible, as this much lessens the difficulty of the operation. To do this a large vulsellum should be carefully planted in the mass and traction carefully and steadily made in the axes of the pelvis. (5) After eversion has been completed, an examination should be made with the finger *per rectum*, and the remaining attachments of the tumour must be cautiously separated. The greatest care must be taken not to cut through an inverted pouch of peritoneum. (6) Throughout the operation the greatest patience must be exercised, and as much gentleness as is consistent with the requisite force. (7) The uterus is then returned; if necessary, a sponge-plug should be introduced, and a full dose of opium given. Ice, ergot, and stimulants, are to be given, as indicated by the symptoms.

3.—Dr. Matthews Duncan describes the source of fatal hæmorrhage in a case of fibrous tumour of the uterus. The uterus was situated centrally, with the os high in the pelvis, and the cervix hypertrophied and elongated  $1\frac{1}{2}$  inch. A globular fibrous tumour, 3 inches in diameter, occupied the fundus. Venous sinuses that would admit a small crowquill permeated it in various directions. It was everywhere surrounded by a covering of the proper tissue of the uterus. In the layer of uterine tissue covering the inner aspect of the tumour there was developed a reticulation of enormous uterine sinuses, such as are observed in the same part in pregnancy. These were largest above and below the tumour, and contracted in

dimensions as they approached the side of the uterus to emerge from it between the serous layers of the broad ligament. The mucous surface of the uterine cavity was pale, smooth, and healthy. A little clot, decolourised at its extremity (no hæmorrhage had occurred for some days before death), protruded through a small, empty, and flat uterine sinus, about the centre of the projecting tumour. The opening was  $\frac{1}{12}$ " in diameter, and through it a probe could be easily passed into the uterine sinuses. In ordinary circumstances the walls of these sinuses are nearly in contact. It was only during the periodical monthly congestion that blood passed along the open sinus, and thence into the uterine cavity. This case appears to indicate the value of those hæmostatic measures which diminish the impetus of the blood or moderate congestion in the pelvic viscera.

4.—The object of Mr. Brown's paper is to confirm by fourteen cases the good results of the practice he had previously advocated, and to show that in most cases incision of the os and cervix uteri alone would arrest the hæmorrhage and the development of the tumour. In some cases the tumour decreased, and, when small, it would entirely disappear, especially if of recent origin; and even if gouging was required, a less severe operation than that previously adopted is sufficient. The author now uses only a pair of blunt-pointed, curved scissors, finding that the slightest destruction of the capsule of the tumour is enough to ensure its disintegration. The following is the author's mode of incising the os and cervix :—The patient being in the lithotomy position, the perinæum is well depressed by means of Bozeman's speculum. The anterior lip of the os is then seized by a pair of vulsellum forceps, and held by the left hand of the operator, who then introduces the hysterotome, and, whilst firmly holding the forceps to the left side, cuts the os and cervix laterally to the right. Then reversing the hand, he holds the forceps towards the right side and cuts out towards the left. The cut surfaces are then well plugged with oiled lint, and the vagina also filled with lint, so as to ensure the most perfect pressure and exclusion of atmospheric air. If this be properly done, there is never any serious hæmorrhage; but an unequal or inefficient plugging is often followed by dangerous hæmorrhage or peritonitis. The operation of gouging the tumour should not be done sooner than a fortnight after the incision of the os and cervix. With the patient in the same position, the index finger of the left hand of the operator is inserted within the inner os, and a pair of long-handled, blunt pointed, curved scissors are passed up to the tumour and pressed through the capsule; the blades are then so opened as to break up the tumour. Oiled lint is then passed into the opening thus made, and the vagina plugged as before. The dressings are not to be removed under 48 hours, and the vagina is then to be washed out with a lotion of Condyl's fluid. Of the 14 cases related, 10 were cured of the hæmorrhage by the incision of the os and cervix alone, and 1 was relieved; in 2 only was the second operation necessary, and both were cured. In 6 cases the tumour had either entirely disappeared or materially decreased after incision alone. Of the 3 deaths, 1 occurred from peritonitis, 1 from pyæmia, and 1 from organic disease independent of the operation. The following conclusions are drawn:—1. The fact of the curability of these tumours is materially confirmed by these cases. 2. It is not necessary in

many cases to do more than incise the os and cervix. 3. The hæmorrhage is almost invariably arrested by this incision.

#### CARCINOMA.

Dr. Graily Hewitt, "On Cancer of the Fundus Uteri" ('Diseases of Women,' p. 348).

Prof. Simpson, "On Carcinoma of the Fundus Uteri" ('Ed. Med. Jour.,' April, 1864).

Säxinger, "On Primary Carcinoma of the Fundus Uteri" ('Prag. Med. Zeitsch.,' 1864).

Dr. Barnes, "On Cancer of the Cervix Uteri, with Lymphatic Obstruction" ('Med. Times,' 1, 1864, p. 35).

Prof. Habit, "A case of Recovery from Cancer of the Uterus and Vagina" ('Allgem. Wien. Med. Zeit.,' 1863).

1.—Dr. Simpson relates two well-marked cases, in one of which the diagnosis was confirmed by a post-mortem examination, and draws attention to a symptom which he has observed in most of these cases. This is the daily recurrence, usually observed at a regular hour, of intense paroxysms of pain, slight and intermittent, perhaps, at first, but soon reaching a high pitch of intensity, and then gradually passing off. This pain is quite independent of the ordinary lancinating pain usually observed in carcinoma. Dr. Simpson sums up the diagnosis of cancer of the fundus uteri with a recital of the following symptoms:—(1) The presence of a constant, profuse, and offensive discharge. (2) Frequent, profuse, and intractable menorrhagia. (3) The presence of a hard, rough, and irregular tumour in the cavity of the uterus, detected by the uterine sound, and felt by the finger after the dilatation of the cervix. (4) Recognition under the microscope of the morbid structures, as evidence of cancer. (5) The periodic recurrence of the pains above mentioned.

2.—Among 420 cases of cancer of the uterus observed in Vienna only one of primary cancer of the fundus was observed. Dr. West met with two in 120 cases of uterine cancer. Dr. Simpson thinks that out of 30 cases of cancer of the uterus 2 are of this kind. The deposit may, according to Dr. Simpson, be observed in the outer layer of the middle coat of the uterus or in the subperitoneal or peritoneal coat, or attacking the whole thickness of the uterine walls, or in the mucous or submucous coat of the body or fundus. In the diagnosis of these uncommon varieties of carcinoma uteri Dr. Graily Hewitt notices the following points:—The patient presents symptoms of uterine cancer; a vaginal examination fails to give evidence of it; a careful examination of the uterus above the pubes reveals the existence of an irregular, or possibly of a regular, tumour, which may be of considerable size; this tumour, which, in its physical character may resemble a fibrous tumour of the uterus, is distinguished from the latter by the presence of a more or less constant, offensive, and bloody discharge, and some of the constitutional symptoms of cancer.

3.—Säxinger records two cases occurring in Prof. Seyfert's clinique. In both cases the diagnosis was verified after death, and in neither did the disease extend to the cervix. Säxinger deprecates the use of the spe-

culum in such cases, for the disease is well marked and evident by digital examination, and, independently of the profuse hæmorrhage which generally results, traction of the vagina with the friable tissue may not unlikely result in perforation of the bladder or rectum.

2.—Dr. Barnes relates a series of cases of cancer of the cervix uteri, with systemic injection, of which the following is a good example. A woman *æt.* 45 had borne nine children, the last six years ago. Menstruates regularly, but has had repeated floodings during the last nine months. Complexion of a deep-straw colour. Vomiting incessant for four days before admission. Scirrhus of the cervix far advanced. A tense swelling of the right leg appeared a few days back. She had always had venectasis during pregnancy, but this had diminished greatly since the floodings. Bismuth and cyanide of potassium were prescribed with good effect. Irritative cough followed, the cervical glands became enlarged; the left elbow became swollen, red, and shiny. She was unable to extend the arm fully, and had a burning sensation in it. Cod-liver oil and hydrochloric acid were now given, and in a week the swelling in the arm had gone down, and she was much better and stronger. Nodular swellings, with induration of the glands and surrounding cellular tissues, were observed in the other cases. They appear to prove that cancerous matter finds its way into the circulation from the primary uterine cancer, by absorption into the veins and lymphatics. The matter thus carried into the blood in the form of emboli or septic fluid may give rise to—(1) Minute peripheral thromboses. (2) As emboli or irritating ichor, may cause larger thrombi in the large veins. (3) The cells, granules, or ichor, taken into the lymphatics and arrested in the glands, cause the knots and tumours seen in these cases. The good effect of cod-liver oil in arresting the general break-down of the system, and the further extension of the primary cancer, with diminution of the exhausting hæmorrhages, is very marked in these and similar cases.

3.—In Prof. Habit's case, the patient, *æt.* 53, had borne two children, the last 17 years ago. Menstruation appeared at 18 and ceased at 46, but 4 years after this hæmorrhage came on, and recurred regularly at monthly intervals. This was moderate in amount, and her health was not at first affected. In the intervals there was a profuse offensive and shreddy discharge, with frequent micturition. Two months before admission into the Imperial Hospital of Vienna, profuse hæmorrhage occurred, and at the same time she suffered from lumbar and hypogastric pains. Sleepless, emaciated, and enfeebled, she was at length unable to leave her bed. The vagina was filled with large granulations and fungous growths, the vaginal portion was fissured, the cervix funnel-shaped, and its surface soft and ulcerated, while the uterus itself was fixed. From the great tendency to hæmorrhage, the examination with the speculum was omitted. A profuse, thin, and most offensive ichorous discharge was constant.

The diagnosis was ulcerating medullary carcinoma of the uterus and vagina. The treatment was merely directed to relieve the symptoms. Gradually, however, the general health improved, and pain and discharge ceased. Seven weeks after admission, examination per vaginam disclosed a solid cicatrizing mass filling up the vagina. This mass consisted of easily bleeding, normal, and healthy granulations. No opening could be

found either with the finger or with the finest uterine sound. The uterus could not be felt through the rectum nor through the abdominal walls. A catheter passed into the bladder could be distinctly felt by the finger in the rectum. The author thinks this should be added to the very rare cases of healing of cancer which are described by Rokitansky, Kiwisch, Scanzoni, and Virchow.

#### PELVIC HÆMATOCELE.

Tuckwell, H. M., M.B., 'On Effusions of Blood in the neighbourhood of the Uterus. With a Synopsis of 98 Cases.' Oxford, Parker.

M'Clintock, A. H. M.D., "On Pelvic Hæmatocele" ('Diseases of Women,' p. 246).

Dr. Tuckwell gives an excellent résumé of all the known history and pathology of the so-called peri-uterine or pelvic hæmatocele. This lesion consists in an extravasation of blood into the pelvis, either within or external to the peritoneum. In the great majority of cases, the blood is poured out into the peritoneal sac, and occupies the recto-uterine cul-de-sac of Douglas. Hence Nélaton's term of "hæmatocèle rétro-utérine." None of the extravasated blood may, however, lie behind the uterus, and very rarely is it all round the uterus. In exceptional cases, the blood is *extra-peritoneal*, *i. e.* the effusion takes place into the loose connective tissue of the pelvis, holding the same relation to the surrounding organs as the pus to the ordinary pelvic abscess. In such cases, the effusion usually commences between the layers of the broad ligament, and from thence dissects its way either anteriorly, posteriorly, or laterally, pushing before it and separating from its attachments the vesico-uterine and recto-uterine reflexions of the peritoneum, or extending even into the iliac region and as high as the kidneys. This statement is disputed by MM. Nélaton and Voisin, who maintain that extra-peritoneal hæmatocele does not exist. On the other hand, Nonat and other authorities support the opinion held by the author, in favour of which Prost and Becquerel cite three well-authenticated cases. On this point the post-mortem evidence is decisive. In 38 out of 41 cases of which the post-mortem examinations have been carefully collected by the author, the blood was found to be *intra-peritoneal*. In 26 of these cases the blood was diffused, and in 12 it was circumscribed and limited to the retro-uterine cul-de-sac. In all the remaining 3 cases of the 41 the evidence was in favour of the blood being extra-peritoneal. But as the latter is a much less dangerous form than the intra-peritoneal, the opportunities for demonstrating it post mortem must be more rare, and it is not unlikely, as Dr. Matthews Duncan suggests, that this form of the disease is of much more frequent occurrence than is generally supposed.

M. Bernutz contends that the extra-peritoneal variety is only met with during pregnancy or the puerperal state, and that no example of its occurrence at any other time has ever been accurately recorded. The cases of *intra-peritoneal* hæmorrhage have been grouped under two heads, *viz.*, the *encysted* and the *non-encysted*. Hence the great differences observed in the post-mortem appearances. In the *non-encysted* variety the amount of extravasation is very great, with the blood part fluid, part

clotted, and only a general reddening and injection of the whole peritoneum. In the *encysted* variety, much the more common, the extravasation is smaller and more gradual. Adhesions form between the different pelvic organs, so that the upper part of the uterus becomes firmly united with the sigmoid flexure of the colon, and that part of the small intestines lying in contact with it, and the recto-uterine cul-de-sac is thus converted into a complete adventitious cyst, containing blood, limited anteriorly by the posterior surface of the uterus, upper part of the vagina, and posterior fold of the broad ligament, posteriorly by the rectum, and above by adhesions. If the effusion into this circumscribed space continue, the uterus and bladder are driven forwards and crushed against the pubis; the rectum is pressed back and flattened against the sacrum; the adhesions above and soft parts below gradually yield to the pressure, but at length give way, and the blood escapes by the rectum or vagina, or, breaking through the adhesions, causes rapid death by general peritonitis. The *sources* of the hæmorrhage are various. Excluding injuries to the walls of the abdomen and to the organs contained therein, Dr. Tuckwell mentions the following as sources from which the hæmatocele originates:—

(1) By obstruction to the natural outlet of the menstrual blood, which regurgitates into the peritoneal cavity, either through the ostia abdominalia of the Fallopian tubes or through a rent in some part of their walls. Of 44 cases terminating fatally from different causes, five are referred to under this head. In all, death followed an operation for the relief of the retained menstrual fluid. (2) By hæmorrhage into the Fallopian tube at the menstrual epoch, and escape of the blood, either by the ostium abdominale or by rupture from over-distension. The former condition occurred in 2 only out of 8 cases related in illustration of this cause; in the remaining 6 the tube was ruptured. (3) By rupture of the sac in extra-uterine foætation, more especially in tubal pregnancy. Of the 44 fatal cases related in the synopsis, 10 occurred from this cause, and 7 of these 10 were cases of tubal pregnancy. (4) By rupture of the investing tunic of a congested ovary, and escape of blood, either from a Graafian vesicle which is the seat of extraordinary hæmorrhage, or from the parenchyma of the organ into which a blood-vessel has burst. Eleven cases are related by the author in which the post-mortem showed this condition. (5) By rupture of a varicose vein in the pampiniform plexus of the ovary. Richet points out the fact that the veins of this plexus, being without valves, are especially liable to become varicose during pregnancy, or in women who have borne many children; and hence Bernutz suggests, that if hæmatocele occur in a pregnant woman who has varicose veins of the labia, or even of the legs, the probability is great that the veins of the pampiniform plexus are also varicose, and that one of them has burst. Four fatal cases occurred from this cause.

Among the *causes* predisposing to this hæmorrhage are — (1) *Age*. Of 91 cases in which the age was noted, 55 were under 30 and 16 between 30 and 40. Only 1 was above 40. (2) The *catamenial* period is the time at which the extravasation is most easily produced. (3) *Dysmenorrhœa*. (4) *Menorrhagia*. Of 76 cases, the first symptoms of the hæmorrhage occurred at the catamenial period in 36; in 40 menorrhagia was present at the time of, or shortly before, the attack. (5) *Childbirth*. Of

64 women, 58 had either borne children or miscarried. Among the most powerful *exciting* causes are intense mental emotion, over-fatigue, excessive or rude coition, especially if occurring at the menstrual period, and external injuries to the abdomen. The *symptoms*, though similar in all cases, yet differ so much in degree, according to the amount of blood effused and the rapidity of the effusion, that it will be convenient to regard them under three modes of invasion. In the *first* and most fatal form the patient is suddenly seized with acute hypogastric pain, followed by all the symptoms of perforation of the bowel, rapid collapse, and death in the course of a few hours. In the *second* group of cases the effusion is large, but more gradual; and if death follow at all, it is at a later period. The attack commences suddenly, as in the first group, but the symptoms are less severe, and the pain, at first so violent, abates, and is succeeded by much weight and bearing down. Great prostration, anæmia and either partial or complete retention of urine, with constipation, soon succeed, with the rapid development of a tumour behind the uterus or in the hypogastrium, or in both these situations, and thence extending into the umbilical, iliac, and lumbar regions; spreading generally to one side unequally; smooth, firm, and elastic to the touch, and fixed in the pelvis, with limits ill defined from, the presence of meteorismus. The cervix uteri cannot at first be felt by the finger in the vagina, which latter is very sensitive, and almost obliterated by a large doughy or semi-fluctuating tumour. In the great majority of cases the cervix is displaced forwards and against the symphysis pubis, but the body of the uterus cannot generally be followed. In exceptional cases, the tumour is felt projecting laterally or even *in front* of the vagina and uterus, which is then pushed to the side or backwards. On examination per rectum, the same tumour is found pressing the anterior wall against the posterior, and sometimes completely obstructing the canal. With one finger in the rectum, and the thumb of the same hand in the vagina, the thickness and density of the intervening portion of the tumour may often be determined, and whether there be fluctuation or not. Recamier and Tilt strongly insist on the utility of this mode of examination, especially in the diagnosis of medium-sized tumours, which are not large enough to rise above the brim of the pelvis, and may be small enough to escape identification by the finger in the rectum or vagina. In obscure cases, and if there be no possibility of the tumour being a retroverted gravid uterus, an exploring needle may be employed. A *third* class of cases—and probably by far the most common of all forms of hæmatocele—is characterised by symptoms essentially the same as in the last, but in a much milder and more chronic form. The pain is slight, the fever moderate, the effusion is seldom large enough to be felt above the pubis, but is detected on vaginal examination in the neighbourhood of the uterus, and most often in the cul-de-sac of Douglas. A few days, or at most a few weeks, suffice for recovery, the tumour disappearing almost as quickly as it formed. These are the cases most difficult of diagnosis, and are very liable to be mistaken for pelvic abscess or ovarian tumours. For a correct *diagnosis*, an accurate knowledge of the history of the case, and especially of the exact mode in which the attack commenced, is essential. The resemblance to other diseases is sometimes so close that



however carefully the symptoms present may be investigated, it will be found most difficult to distinguish between this and other pelvic tumours. The diseases for which it is most liable to be mistaken are—(1) *Retroversion of the uterus*. From this it may be distinguished by the far greater severity of the symptoms, by the absence of dysuria and of the signs of pregnancy, and by a very cautious use of the uterine sound. (2) *Pelvic cellulitis*. Here the diagnosis is more difficult, for in each case there are symptoms of local peritonitis, with fever and the formation of a tumour. The history of the case will generally decide the doubt. Cellulitis generally succeeds childbirth or miscarriage; the tumour is preceded by febrile symptoms, is slow in formation, always hard at first, and generally is more diffused than the hæmatocele, and is very rarely behind the cervix uteri. (3) *Ovarian cysts*, and especially *sanguineous cysts of the ovary*, sometimes descend into the retro-uterine pouch of the peritoneum, and communicate the same sensation to the finger as the hæmatocele. But in most cases, the uterus is displaced downwards, and to the opposite side of the ovarian tumour. If peritonitis occur, and the history be imperfect, the diagnosis must be regarded as almost impossible. (4) M. Bernutz cites a case under M. Goupil in which the differential diagnosis between *fibrous tumour of the uterus* and pelvic hæmatocele could not be established, so many features did the case possess in common with both these diseases. Here, again, the diagnosis will be much aided by the use of the exploring needle.

The *prognosis* can rarely be favorable, and in cases of menstrual retention, where regurgitation of the fluid has occurred, or in rupture of the sac from extra-uterine fœtation, death almost invariably results. The *treatment*, in the first stage, consists in keeping the patient strictly at rest, applying cold to the abdomen, and administering stimulants and opium. The peritonitis of the *second* stage must be carefully watched and treated with opium. If the tumour increase in size, the propriety of puncturing the cyst should be considered. In favour of this it may be urged that it relieves at once and most completely the painful symptoms caused by the pressure, and that, the tension removed, absorption of the remainder quickly follows. Prof. Braun and Dr. Matthews Duncan support this opinion. On the other hand, the dangers of the operation, pointed out by M. Bernutz and Dr. M'Clintock, are the possibility of wounding a blood-vessel in the vagina or cervix uteri, and the admission of air by the wound, giving rise to pyæmia. Of 25 cases in which the operation was performed only 2 died; all derived immediate relief, and 23 recovered.

## POLYPUS OF THE UTERUS.

Dr. Marion Sims, "On Uterine Polypi" ('Lancet,' vol. 2, 1864, pp. 457—542).

Mr. Hutchinson, "On Uterine Polypus" (Holmes' 'System of Surgery,' vol. 4, p. 497).

Uterine polypi may be soft or hard, mucous or fibrous. They are found in all ages above puberty—seldom before. They may grow on the os tinæ, in the cervical canal, or in the cavity of the uterus. Mucous

polypi seldom grow large, but the fibrous, if undetected, frequently attain an enormous size. They often, but not necessarily, prevent conception. In the case of small polypi growing from either lip of the os or from the canal of the cervix, Dr. Sims advocates excision by the scissors rather than torsion, and the subsequent application to the cut surface of lint saturated in a solution of perchloride of iron. This should not be removed until thrown off by suppuration. A little cotton or lint soaked in glycerine is applied daily till the wound be healed. This glycerine dressing, when applied to a pyogenic surface on the os or cervix uteri, produces a copious serous discharge, which depletes the tissues with which it lies in contact, and gives them a dry, clean, and healthy appearance. Dr. Sims strongly condemns the operation by the ligature, and in the case of large intra-uterine polypi recommends the dilatation of the cervix by sponge-tents, and the removal of the polypus by Chassaignac's *écraseur*, to which he has added a *porte-chaine*. This invention overcomes the previous objection to the use of this instrument, and may be described as a pair of dilating forceps, with spring blades, which render the chain stiff, so that it may be passed straight into the vagina or into the cavity of the uterus as easily as a sound or probang. The chain is afterwards expanded by the blades of the forceps. In cases of intra-uterine polypi, attached by a short thick pedicle at, or near to the fundus, great care should be taken not to lacerate the polypus by traction. The author relates a case of this kind in which it was found impossible to fix the chain round the pedicle; the tumour was much lacerated, and death resulted from pyæmia. On the other hand, extreme exhaustion is no barrier to the operation by the *écraseur*, since by this the danger of primary or secondary hæmorrhage is reduced to the minimum. The following case is a good example of this:—A woman was extremely prostrated by menorrhagia of many years' duration, and by a profuse muco-purulent vaginal discharge, which had existed for 6 or 8 months, whenever the hæmorrhage ceased. The uterus was found retroverted and much enlarged, the fundus filling up the hollow of the sacrum. The finger introduced through the cervix detected an enormous fibrous polypus, retained in utero by the retroflexion. Five days later, after violent expulsive pains, she passed into a state of complete exhaustion. A profuse dirty, offensive, sero-sanguinolent discharge flowed from the vagina, the pulse was small and rapid, she was anæmic, and presented all the appearances of blood-poisoning. The vagina was found filled with an immense, decomposing, fibroid polypus, with the pedicle attached (as is most usual) to the *anterior* wall of the uterus. *Écrasement* was at once performed by the author, and this, with vaginal washes, wine, and generous diet soon completed the cure.

Mr. Hutchinson points out the importance of examining the vagina, both by the finger and by the speculum, whenever frequent and long-continued irregular metrorrhagia has occurred and has resisted ordinary treatment. In such cases, if polypus exist, one of the following conditions may be found:—(a) A sessile soft growth, of small size, containing one or more mucous cysts, consisting of enlarged uterine follicles and hypertrophied cellular tissue. Dr. R. Lee states ('Med.-

Chir. Trans.,' vol. 19, p. 127) that one of the glandulæ nabothi may be converted into a cyst as large as a walnut, or even as a hen's egg, and hang by a slender peduncle. (*b*) A pedunculated growth of small size (a bean or nut), soft, vascular, and often multiple, consisting of pendulous mucous membrane, and analogous to the mucous polypus of the nares. (*c*) A growth of finer texture and larger size than the latter (a nut to an egg), more or less pedunculated, and made up of mucous membrane, with a large excess of cellular tissue. (*d*) A much firmer growth than any of the preceding, and usually a much larger one, either pedunculated or sessile, its attachment usually passing up into the interior of the uterus—the common fibrous polypus. (*e*) In rare instances, a form of tumour is developed within the cavity of the uterus which is closely analogous to the recurrent fibroid in other parts. This tumour grows rapidly, assumes a polypoid form, attains a large size, and causes much hæmorrhage. It can scarcely rank with true cancers, because it does not induce enlargements of the lymphatics or secondary deposits; but it differs from all the forms of simple polypus, in that it persistently grows again after removal. It, like the fibrous polypus, may be attached high up in the cavity of the uterus. Only three examples of this form of polypus are on record. Death occurred in all within seven years after the first appearance of the disease.

## DISEASES OF THE OVARIES.

Mr. Hutchinson, "On Organic Diseases of the Ovary" (Holmes's 'System of Surgery,' vol. 4, 518).

Dr. Priestley, "On Menorrhagia depending on Morbid Changes in the Ovaries" ('Med. Times and Gaz.,' 1, 1863, pp. 392—445).

I.—The organic diseases of the ovary may be classified under two groups, the solid and cystic growths:

I. The *solid growths* may be either—(1) Fibroid tumours. These are rare, and are usually small. Dense fibrous tissue first replaces, and is at length wholly substituted for, the normal stroma of the organ. (2) Malignant tumours. The form of cancer most frequent in the ovary is alveolar or colloid, and the tumour thus constituted is cystic rather than solid. In rare instances medullary cancer occurs as a primary disease in the ovary, and a very large tumour may be thus developed. Solid pedunculated tumours of the abdomen, whether springing from the ovary or the uterus, and whether believed to be innocent or malignant, should *not* be interfered with surgically. If innocent, they rarely cause death, and at a certain period of life almost always begin to shrink, whilst any attempt to remove them by abdominal section is attended by great danger.

II. *Cystic disease of the ovary* may occur either as *simple* or *proliferous* cysts, but the two are very closely allied, and the former may at any time pass into the latter. *Simple* cysts are probably developed by the dropsical dilatation of Graafian vesicles. They may attain a very large size, but the compound cysts have, as a rule, a more active growth, although some have but little tendency to reproduction. The

*compound* or proliferous cyst is of much the most frequent occurrence, and is closely homologous to the cystic disease of the breast and testis. The albuminous fluid contained in ovarian cysts is usually thin in simple cysts, more dense in compound ones, and presenting great varieties in colour, from a clear watery fluid to that like tar. The sero-purulent fluid occasionally seen is more common in simple than in compound cysts, and is usually a consequence of inflammation after tapping. The term "alveolar or colloid cancer" has been applied,—probably incorrectly,—to a not uncommon form of compound cyst, in which very numerous loculi exist, and the spaces are filled by a semi-solid tenacious substance. The term *cysto-sarcoma* has been applied by Müller to those cysts in which the fibro-intercystic substance equals or exceeds in quantity the contained fluid. But all degrees of structure may be observed in different tumours and in different parts of the same tumour, and hence it is impossible to divide the cystic tumours into different classes. Good typical examples of all—(a) the single, simple cyst; (b) the simple but multiple cyst; (c) the proliferous or compound cyst; (d) the same, with colloid contents; (e) the proliferous, with large sarcomatous formation—may frequently be met with, but in a large majority of cases ovarian tumours possess two or more of these varieties. The more active the proliferous tendency, and the further the departure from simplicity of organization, the more nearly the tumour approaches the malignant character. The dermoid cysts of the ovary, in many cases in no way connected with impregnation, and quite independent of any "included foetation," have the power of producing in their lining membrane all the appendages of the skin, hair, teeth, &c., and of secreting into their interior the ordinary excretions of that organ.

2.—The term "menorrhagia," although commonly applied to all cases in which unusual and profuse losses of blood occur from the unimpregnated uterus, is strictly applicable only to a limited number of such cases, since abnormal uterine hæmorrhage may be produced by several distinct pathological conditions, and is only one of the symptoms of disease of the uterus and its appendages. Ovarian menorrhagia, which is of not uncommon occurrence, is so designated because the ovaries are supposed to take the initiative in the production of the morbid flow of blood from the uterus, just as they do in the production of the normal catamenial discharge. Various circumstances may conduce to excite a state of hyperæmia in the uterus and ovaries at the catamenial period, which may thus cause menstruation to be excessive in degree or prolonged, or both excessive and prolonged. But, further, if one or both ovaries become congested, whatever be the cause, uterine hæmorrhage may result at any time in the interval between the catamenial periods. In this way an irregular and morbid form of menstruation may result, and yet the phenomena occurring—so far as anatomical conditions are concerned—in the same order as during healthy menstruation. Congestion and inflammation of the ovaries are not, however, always accompanied by menorrhagia, and in such cases the primary cause of the hæmorrhage is not always easy to discover. When no fibroid tumour is present, when there is no polypus, no

cancer, or other of the graver diseases which are commonly attended by hæmorrhage, the uterus may become congested from some derangement in the chylopoietic viscera, and hæmorrhage from the uterine mucous membrane is the result. Or the general condition of the blood may be so deteriorated and impoverished by kidney disease, or some other debilitating cause, that it can scarcely be retained in its customary channels, and so escapes from the uterus, because, in addition to the influence of gravitation, its mucous membrane is so constructed that blood can be easily poured out on its surface. Again, persistent congestion and even hypertrophy of the uterus are liable to result from such attacks of ovarian irritation as lead to uterine congestion and hæmorrhage. The tendency to hæmorrhage is hence increased, and the diagnosis rendered the more difficult. In some patients, ovarian irritation manifests itself as one of the forms of dysmenorrhœa, the regular periods being attended with much pain and large losses of blood; yet the hæmorrhage occurs only at these times, and subsides when the period is past. In these cases the symptoms are not usually explained by the condition of the uterus, but one or other ovary may frequently be felt prolapsed into the retro-uterine cul-de-sac, enlarged and sensitive to touch, in the interval between the periods, but especially so before and during menstruation.

The discharge is sometimes mixed, not only with coagula, but with distinct membranous shreds; and some authors regard this membranous dysmenorrhœa rather as the result of uterine congestion not primarily dependent on ovarian irritation. Rigby held an opposite opinion, and believed that the membranes, which are only the separated mucous laminæ from the interior of the uterus, were formed in sympathy with morbid changes occurring in the ovary, just as the true decidua is formed in consonance with those physiological changes which take place as the result of impregnation. The author believes ovarian menorrhagia is, in many cases, closely connected with "pelvic hæmatocele," since the subjects of the latter condition habitually menstruate profusely, and in a large proportion of cases menorrhagia precedes the extravasation of blood and the development of the attendant symptoms. In the statistics on hæmatocele which have been collected by M. Voisin \* we find that the extravasation of blood was occasioned by rupture of the ovary, or some of the vessels leading to it, in two thirds of the patients affected, and that in a considerable proportion of the cases the ovary had undergone some antecedent softening or degeneration, the progress of which had probably provoked the previous sympathetic menorrhagia.

In some cases of ovarian menorrhagia the author has had reason to believe that blood has escaped into the peritoneal cavity from rupture of the ovarian vessels, giving rise to acute symptoms, but not being sufficient in quantity to form such a tumour as is understood by the term hæmatocele, and of this he adduces a case in point.

The *causes* of ovarian menorrhagia may be briefly stated to be those producing morbid congestion of the ovaries, viz., imperfect recovery

\* 'De l'hæmatocele rétro-utérine,' 1860.

after delivery, the occurrence of abortion in the early months, when the ovary is yet large from the presence of a corpus luteum, and readily becomes morbidly congested at a subsequent menstrual period; a sudden chill during the period itself, or in the interval, and undue sexual excitement, not followed by pregnancy, which leads in many cases to permanent ovarian congestion. Absolute rest in the recumbent position, with astringents and the local application of sedatives, will form the appropriate treatment during the attack; while the local abstraction of blood in the interval, with laxatives and tonics, and the avoidance of all sexual excitement, will be most likely to lead to a successful result.

#### OVARIOTOMY.

Dr. West, "On Ovariectomy" ('Diseases of Women,' 3rd edit., 1865).

Mr. Hutchinson, "On Ovariectomy" (Holmes' 'System of Surgery,' vol. 4, p. 526).

Dr. E. R. Peaslee, "Successful Case of Double Ovariectomy" ('Amer. Journ. of Med.,' July, 1864).

Prof. Simpson, "On Ovariectomy, and First Tappings in Ovarian Dropsy" ('Ed. Med. Journ.,' March, 1864).

1.—Dr. West modifies his former opinions, and now admits ovariectomy as a legitimate operation. He thus sums up the indications and contra-indications for the operation:—(1) It is *not* to be performed in any case of single cyst which is not increasing, or is increasing but slowly, while it has not as yet interfered with the patient's general health. (2) It is not, as a general rule, to be performed until after the cyst has been tapped *once*. The reasons for this precaution are threefold:—(a) In some rare cases the fluid does not re-collect; (b) the amount of constitutional disturbance which follows tapping would be some index to the amount that might be apprehended from the more serious operation; (c) when the cyst is emptied, and during the process of its re-filling, its relations, and the presence or absence of adhesions, especially to parts within the pelvis, can be more readily ascertained. It is a question whether, in the case of simple cysts, ovariectomy ought not to be further limited to cases in which trial has been made of iodine injections sufficient to prove them to be inefficacious or unsafe. (3) It is *not* to be performed in any case in which a tumour is felt in the pelvis, retaining the same situation, but little changed, after tapping, and from which, by means of the sound, the uterus cannot be distinctly isolated. (4) It is further contra-indicated by the presence of albumen in the urine, or at least by its persistence after tapping, and also by the early occurrence of œdema of the legs, and by the presence of any considerable quantity of ascitic fluid in the abdominal cavity. (5) The previous occurrence of cyst inflammation and general peritonitis, as evidenced by attacks of sickness, shivering, fever, and abdominal pain, with pus in the fluid evacuated by puncture, renders the success of the operation very doubtful. Occasional attacks of abdominal pain, unattended by fever or by continued tenderness, do not contra-indicate the operation, since these may occur independently of inflammation.

On the other hand, it is not contra-indicated—(1) by the patient's youth or age, nor by the fact of her having previously undergone several tappings, nor by the irregularity or suppression of the menses, since complete suppression does not prove both ovaries to be implicated. (2) It is justifiable, and to be recommended in all cases of ovarian tumour, whatever its structure, and whether its existence be of long or of short duration, and whether tapping has or has not been frequently resorted to, where the disease is steadily and progressively increasing, and when the patient's health is beginning to suffer from this increase, but, as far as can be ascertained, from no other cause independent of the local mischief. The state of the patient's own mind and wishes should have much weight in considering the operation. Dread of the issue is a bad state of mind in which to undergo such an operation; indifference, perhaps, even worse. Moral considerations must be weighed as carefully as those furnished by the character of the tumour or the history of its growth.

2.—In describing the details of the operation, Mr. Hutchinson remarks on the following occasional difficulties and moot points of treatment:—(1) *The first incision* should be of medium extent—about 4 inches—and enlarged if needful. (2) *Adhesions*.—It is very important to detach adhesions as much as possible before the fluid is evacuated. If the adhesions are extensive, it is usually necessary to introduce the whole hand, and, carrying it between the peritoneum and cyst by a lateral movement, to break through all connecting bands. Not unfrequently, however, the more important adhesions are found behind the cyst, uniting it to the viscera or to the lumbar or pelvic peritoneum. These cannot, as a rule, be reached until the cyst has been partially emptied, and in separating them great care must be taken not to drag too forcibly on the peritoneum. Not only may injury be done by tearing up the serous membrane from its attachments, but lacerations of viscera or of large vessels may occur. The movement employed should be as much by a lateral sweep, and as little by direct traction, as possible. The peritoneum should be supported by the other hand, or by the other finger of the same hand. It is better under all circumstances to tear rather than cut; but when important viscera are involved, it may become necessary to dissect carefully. Adhesions to the omentum are very frequent, but are for the most part easily dealt with. If very vascular, the omentum may be tied and the end brought out into the wound.

(3) *A special difficulty caused by adhesions in front*.—In cases in which the adhesions to the parietal peritoneum at the place of incision are intimate great difficulty may occur in distinguishing the cyst. The operator may mistake the cellular interspace between the transversalis fascia and the parietal peritoneum for that between the cyst and the latter, and thus break down the connecting tissue. This error, hitherto little mentioned, has repeatedly occurred, and, if not quickly discovered, may lead to great injury; or another error may be made in avoiding this, and the surgeon may incise the visceral peritoneum of the cyst, and proceed to separate it. There is nothing to show the operator his mistake; and to avoid all risk of these two errors, the author advises that the wound shall be enlarged upwards, until the peritoneal cavity

is opened at a part where no adhesions exist. When once the operator's finger has touched the intestine, he may proceed to detach adhesions without any chance of mistake.

(4) *Multilocular cysts*.—If the cysts be very numerous, and many of them large, it will greatly expedite the operation to cut freely into the largest with a scalpel, and then introduce the hand and break down their dissepiments.

(5) *Prevention of escape of cyst-fluid into the abdominal cavity* is of great importance, and this is secured by turning the patient well over on to the side opposite to that from which the tumour is believed to originate. During the removal of the tumour an assistant should most carefully keep the edges of the wound pressed together, and after its completion a piece of flannel should be at once carried over the wound beneath the cyst. If by any chance cyst-fluid should escape into the cavity of the abdomen, it is doubtful practice to do much in the way of attempting to remove it.

(6) *Management of the pedicle*.—The advantages and drawbacks of the different methods are thus briefly summed up:—(a) The pedicle may be ligatured and returned into the abdomen, the ends of the ligatures being brought out at the wound. The advantages of this method are, that there is no traction on the pedicle, and by leaving the ligatures on they secure an open channel for the escape of pus, and also allow of their own safe removal when loose. Its disadvantages are that the sloughy stump of the peduncle, with its attached ligatures returned into the peritoneal sac, are very likely to set up peritonitis. (b) The pedicle may be tied as before; and then, the ligatures having been cut close off, the whole may be returned, and the abdominal wound closed. In this plan it is hoped that the external wound will heal, and the portions of ligature left in the peritoneum become encysted, and cause no irritation. Nothing but the large amount of success attendant on this mode can justify its adoption. Its disadvantages are the extreme probability of peritonitis, and the risk of hæmorrhage from slipping of the ligature. (c) The peduncle may be divided by the *écraseur*. The time employed in thus dividing the peduncle and the risk of subsequent intra-abdominal hæmorrhage are the drawbacks to this plan. Its advantages are, that it entirely obviates the dangers incident to dragging on the peduncle, and, at the same time, leaves neither sloughy tissue nor ligatures in the peritoneal sac. (d) The end of the peduncle may be kept altogether out of the abdomen, either by ligatures or by a metal clamp. The latter instrument has the advantage that it can be applied easily and speedily, and with greater security as regards hæmorrhage. The most simple, and probably the best, is one which resembles a pair of carpenter's calipers, but from which the handles are removable. It should be pressed tight with great force, and the screw by which it is fixed should be screwed down by forceps, to prevent all possibility of slipping. It is a good precaution to push two or three needles through the peduncle above the blades of the clamp, and absolutely essential to cut off the tumour at a considerable distance above it. In cases where the peduncle is long and slender the clamp acts most satisfactorily, but in those in which the peduncle is short, and still more in those in



which there is scarcely any peduncle, the application of a clamp is difficult and inconvenient, and dangerous traction on the uterus and peritoneum will be caused. How best to manage short peduncles is yet to be discovered. In some cases, after the tumour has been cut away, and when the mass left on above the clamp has shrunk, the clamp may be applied somewhat higher up. For this to succeed it is necessary to have two clamps, one applied above the other.

(7) *Closing of the external wound.*—This may be done with equal facility either by harelip pins or by silver wire. If pins are used, they must be gilt or silvered, not plain steel. The practice of Mr. Spencer Wells has proved that it is safe to pass the needles through the peritoneum; but it may be doubted whether any material advantage is obtained. If not through the peritoneum, the ligature or pin should pass close to it through everything else. They should be  $1\frac{1}{2}$  inch from the edge of the incision on each side, so as to have a firm grasp. They should not be more than  $\frac{3}{4}$  inch apart, and great care should be taken to carry the lowest as close as possible to the peduncle, and, indeed, it is always well to transfix the peduncle itself, and thus secure it firmly in the wound.

(8) *The after-treatment* will vary according to the special symptoms which present themselves, but the following suggestions of the author may be offered:—(1) It is very desirable, in order to avoid vomiting, that the patient should take nothing by the mouth during the first twelve hours excepting ice; above all, no opium or other medicine should be so given. (2) The chance of recovery has, in many instances, probably been much diminished by the too hasty and too free resort to opium and stimulants. These remedies should be given or withheld, as the patient's state may demand. In many cases, neither will be necessary.

(3) If the patient be low, she should be nourished by enemata of milk or beef tea, to which, if needful, wine or brandy may be added.

(4) If the stomach remain irritable for some days, the use of enemata should be continued instead of giving food by the mouth. (5) Fresh air should be admitted plentifully to the sick-room.

3.—Dr. Peaslee's case of double ovariotomy is one of great interest. The adhesions were very extensive and strong, and required great force to break down. The hæmorrhage was very free. The omentum was everywhere firmly adherent to the tumour. The tumour of the left ovary, the main one, was polycystic. The right ovary, also diseased, and the size of a hen's egg, was removed. "Perhaps a hundred vessels in the omentum were bleeding, and there was about a pint of blood in the abdominal cavity." Many ceased bleeding on exposure to the air. Ligatures of fine silk were applied to more than a dozen; these were cut close and left in the peritoneal cavity. Torsion was used to many others. The wound was closed by silver sutures, long needles, and superficial silk sutures. The patient had been nearly five hours under the influence of ether; opium was given freely. On the seventh day there were evident signs of blood poisoning. Dr. Peaslee therefore injected into the abdomen a pint of blood-warm water, and washed out more than half a pint of thick bloody matter. These injections were repeated two or three times a day during a period of 78 days. The

fluid injected sometimes consisted of one quart of water with two drachms of Liq. Sodæ Chlorinatæ, and sometimes of a weak solution of common salt. Dr. Peaslee relied much on quinine and beef tea, with brandy enemata. At the end of 94 days the last ligature was removed, and the patient was considered to have recovered.

4.—Prof. Simpson believes that the operation of tapping for ovarian dropsy is much more fatal than is generally represented. He had seen two fatal cases from first tapplings in 9 months. In one case there had been previous inflammation in the interior of the cyst, and the patient was very much reduced beforehand. The other was a case which was considered most favorable for ovariectomy, but in consequence of the husband being absent at sea it was thought desirable to tap; this was followed by inflammation of the cyst and the death of the patient. After tapping there is always the double risk of inflammation being set up in the interior of the cyst, and of the peritoneum also, the former of which was removed in the operation of ovariectomy. Of 110 cases of *first* tapping, collected by Lee and Kiwisch, 24 died within the month, or more than 1 in 5. And of 20 cases collected by Mr. Southam, including 15 recorded by Drs. Bright and Barlow, without any view to such an investigation, 4 died at once, and 3 more died within a month; and 14 in all died within 9 months after the first tapping.

The following table includes the latest published results of the operation.

Name of Operator.	Total number of completed Operations.	Recoveries.	Deaths.	Mortality per Cent.
Mr. Spencer Wells . . . . .	123	83	40	32
Dr. Clay (Manchester) . . . . .	110	76	34	30
Mr. Baker Brown . . . . .	74	42	32	43
Dr. Tyler Smith . . . . .	25	19	6	24
Dr. Keith . . . . .	20	14	6	30
Dr. A. Dunlap (Ohio) . . . . .	19	15	4	21
Mr. Bryant . . . . .	10	6	4	40

## DISEASES OF CHILDREN.

### CIRCULATION.

Dr. Lewis Smith, "On the Infantile Pulse in Health" ('Amer. Med. Times,' Dec., 1863).

The average pulse of the healthy infant, according to Trousseau, is 137 in the first and second months, 128 from the 3rd to the 6th month, and 120 from the 6th to the 12th month. Dr. Smith records the results of a series of observations on the pulse of infants under the age of one year, ascertained by auscultation during the three conditions of sleep, wakefulness and excitement. These observations, though agreeing closely in the main with those of Trousseau, show a marked diminution of the pulse in sleep, except in the first week of life. If the pulse of the infant when awake, but quiet, be taken as the standard, there is an average reduction of 21 beats per minute from the end of the 1st week till the end of the 1st month, 13 $\frac{3}{4}$  from

the end of the 1st till the end of the 3rd month, 21 from the end of the 3rd till the end of the 6th, and 18 $\frac{2}{5}$  in the last half of the year. These statistics also show that the pulse in infants may become as rapid by the emotions, and by active exercise, as in the gravest diseases.

## DISEASES OF RESPIRATION.

Dr. L. Buhl, "On Obstruction of the Air-passages, a cause of Death of the Child after Birth" ('Klinik der Geburtsh.,' 1863).

Prof. Bouchut, "On Mediastinal Tuberculosis" ('Jour. f. Kinderkrant.,' 1863, heft 9 and 10).

1.—Buhl states, that of 27 children dying from mechanical causes in labour, or shortly after birth, 11 were destroyed by obstruction of the air-passages with foreign matters, or presented this condition. Eight were born dead, and of those which were alive at birth none survived the first day of life. In 10 of the cases, the obstruction was caused by a greenish or greenish-brown shining mass, which often copiously filled the cavity of the larynx, and of the trachea as far as its bifurcation, or even completely filled its branches; or it was in less quantity, and permitted the passage of air and of fluids to an insignificant extent. In the former class, 6 cases, the lungs had their foetal position and texture unaltered; in the latter class, more or less numerous, small portions of lung were filled with air. Only in two, who died during parturition, could air be shown to be present in the lungs; but in only one of these two was the distension of the air-cells the result of instinctive respiratory movements; in the other air had been artificially injected. The parenchyma of the lungs, in the cases where they contained air, had a brownish-yellow discoloration, and from the surface of a section there could be expressed a similarly coloured, finely spumous fluid. Microscopical examination of the matters found in the air-passages always showed the presence of yellow, golden-reddish nuclei of colouring matter, of different sizes and irregular forms, very frequently of tabulæ of cholesterine, fat-drops, and cylindrical cells—circumstances which left no doubt that the substance examined was meconium. The superficial inspection of the larger tracheal plugs, and their comparison with the contents of the colon in the first instance, removed all doubt on the point, especially as the throat, mouth, and nose, were filled with the same, and the whole body and umbilical cord were smeared with it, and had from it a greenish tint. This condition of the skin almost establishes the diagnosis of the cause of the death before the autopsy is made. To complete the proof that the greenish coloration of the skin and of the contents of the air-passages is produced by meconium it is only necessary to add that this normal content of the child's large bowel was found only in the rectum, or was altogether absent. It is worthy of notice, that in cases where repeated attempts at respiration were made particles of meconium were *always* found, even in the parenchyma of the lungs, having been drawn as far as the air-cells themselves. In the pleural covering there were found small hæmorrhages corresponding to the larger accumu-

lations of these foreign matters, but lungs that remained in their entirely foetal condition showed only punctiform hæmorrhages. In two cases both cavities of the chest were filled with yellowish-red serum. From the researches of Hecker, Schwartz, and others, on premature respiratory movements, there cannot be a doubt that meconium reaches the air-passages only by inspiration, an instinctive intra-uterine act.

2.—Prof. Bouchut gives the following summary of his views:—1. Tuberculosis of the bronchial glands—a very common complication of tuberculosis of the lungs in children—is very rare as a *primary* or isolated affection. 2. The inflammations of the bronchial tubes and of the lungs are, in children of scrofulous diathesis, the exciting cause of the deposition of tuberculous matter in the bronchial glands. 3. No perceptible functional disturbance is in any way produced by this deposition in a single bronchial gland. It is only when several glands together, in consequence of this transformation, form a considerable mass in the mediastinum, that the neighbouring organs are pressed on by this mass, and then disturbances manifest themselves as the result of this pressure. 4. Compression of the bronchi, flattening of the large vessels, displacement of the œsophagus, and tension of the par vagum, are the most important mechanical effects of this pressure; but, as can well be imagined, the most serious and alarming symptoms arise from it, and from these alone the diagnosis may, in some measure, be made. 5. Œdema of the face, with enlargement of the cervical veins, epistaxis, or hæmoptysis, in children, may lead to the supposition that the superior vena cava and the pulmonary artery suffer pressure from some swelling, and that such pressure probably only proceeds from a tuberculous mass. 6. If a child have attacks of asthma, without disease of the heart or lungs being discovered, we have reason to fear the existence of a mediastinal tuberculosis. 7. Diminution or feebleness of the respiratory murmur in a lung-segment, accompanied with coexisting dulness over the sternum, increases the supposition of a mediastinal tuberculosis, and the consequent produced compression of the bronchi. 8. If tuberculosis of the lungs does not supervene and produce consumption, then the tuberculosis of the bronchial glands may alone result in a cure, especially by cretaceous degeneration; but this issue is very rare, and death here also results from sudden asphyxia or from hæmoptysis.

REPORT  
ON  
TOXICOLOGY AND MATERIA MEDICA.

BY  
C. HILTON FAGGE, M.D.,

DEMONSTRATOR OF ANATOMY AND LECTURER ON EXPERIMENTAL PHILOSOPHY  
AT GUY'S HOSPITAL; PHYSICIAN TO THE ROYAL INFIRMARY FOR THE  
DISEASES OF CHILDREN.

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GENERAL THERAPEUTICS.

IN a work entitled 'Stimulants and Narcotics, their Mutual Relations' (1864, Macmillan & Co.), Dr. Anstie endeavours to attach a more precise signification to these terms. He first gives an historical account of the various meanings under which the word "stimulation" has been used by different writers, in which he shows that the ordinary classification of remedies is based on metaphysical theories which will not stand the test of investigation at the present day. He then proceeds to criticise the different phenomena which have been regarded as proofs of the operation of a stimulus upon the organism. He thinks that the mental excitement produced by certain substances is not caused by stimulation of the brain, but is rather due to a poisonous and depressing action on the intellect, by which its control over the emotional and appetitive part of the mind is diminished. Taking neuralgia as a typical form, he shows that pain and increased sensibility are likewise effects of depressed vitality rather than of stimulation, and that this is true also of convulsive movements and of excessive secretion. The causes of acceleration of the pulse are next considered. He believes that when this is slight, and when the strength of the heart's action is at the same time maintained or increased, it is to be regarded as an effect of *stimulation*; but that too great rapidity always implies debility. Excess of formative action and of nutrition are equally far from being caused by stimuli.

Having thus cleared the ground, Dr. Anstie then proceeds in the endeavour to reconstruct a theory of stimulation on a firmer basis. He quotes John Hunter's definition of stimuli as "agents which increase some natural action or tendency, as opposed to irritants, which produce

actions which are altogether abnormal," and he proposes to take the idea of stimulation, "not from the notion of a sharp thorn plunged suddenly into a sensitive tissue, but from that of a goad applied to the sullen ox, whose sensibilities it wounds no further than is sufficient to remind him of work which he has to do, and which he can do very well if he likes to try." He gives the following as the genuine effects of stimulation:—Relief of pain; removal of muscular spasm, tremor, or convulsion; reduction of undue frequency of the circulation; reduction of excess in secretion; removal of general debility, or of special fatigue of muscles, brain, or digestive organs; removal of delirium or maniacal excitement, and production of healthy sleep; support of the organism in the absence of ordinary food; and, lastly, local increase of nutrition, where this is deficient. The agents which he classifies as *stimulants* according to this view are as follows:—1. Quickly digested and nutritious food. 2. Opium, in doses of 1 to 2 grains; or morphia, in doses of a  $\frac{1}{4}$  to  $\frac{1}{2}$  a grain. 3. Carbonate and muriate of ammonia, in doses of 5 and 10 grains respectively. 4. Alcohol, in doses just too small to produce flushing of the face or sweating of the brow. 5. Chloroform inhaled (in the proportion of about two parts in the hundred of air) for a short time, or taken internally, in doses of a few drops. 6. Certain fetid gum-resins. 7. Many aromatic volatile oils. 8. The bitters, pure and aromatic. 9. "Counter-irritation," as it is called—*stimulation*, as it should be termed—through the adjacent skin, with mustard, turpentine, &c., or with blisters.

It will be seen that the doses which produce stimulant effects are given in many instances. This forms, indeed, an important part of Dr. Anstie's views. Many of the substances which he classifies as stimulants are capable also of producing narcotic effects; but Dr. Anstie says that this depends altogether upon the quantity taken, and that the effect of a large dose is not physiologically continuous (so to speak) with that of a small quantity, but is of a totally different nature. Thus, he finds that opium taken in doses of a grain to 2 grains when he is hungry has a most remarkable influence in dispelling the desire for food, substituting for it a warm and comfortable feeling over the whole body, which lasts an hour or an hour and a half, and on subsiding leaves no trace of depression, except that caused by hunger. When suffering from influenza-like catarrh, attended with great depression, he experiences similar beneficial effects from opium; but if the quantity be increased, with the idea of making the cure more certain, the narcotic action comes into play, and the remedy fails. In doses of 5 grains the action of carbonate of ammonia is, he says, identical with that of grain-doses of opium, with the exception of differences in their taste and in the rapidity of their diffusion. He finds that the power of relieving pain possessed by ammonia is equal to that of opium, even when the pain is of an inflammatory kind; and alcohol exerts a similar action. He also relates a case of peritonitis, in which the injection of strong soup into the rectum gave marked relief to the pain, as a proof that food is rightly placed at the head of his list of stimulants.

Again, chloroform is found to cut short epileptic fits in doses far too small to produce narcotic effects, and he ascribes this to a stimulant

action. Similarly, a dose of ammonia or of brandy and water is often found to ward off an impending epileptic fit, and wine or brandy, in minute doses, has a most marked effect in arresting the convulsions of children. Delirium, again, is often checked by the action of stimulants, as was clearly proved by the practice of Dr. Todd.

The effects of stimulants and of foods being thus very similar, Dr. Anstie proceeds to discuss whether they present any points of difference. He denies altogether that stimulation leads invariably to reaction. He shows that the notion of a depressive recoil, following the action of stimuli, had its origin in the old vitalistic ideas, and that its occurrence is not required to make perfect the more modern theories. As a matter of fact, he shows that no depression occurs after the ingestion of a glass or two of wine, or of a small quantity of ammonia, or after taking a hot bath. Their effects after a time subside, just as do those of food, but they leave no depression behind them. It might appear to be an important difference between stimulants and foods that stimulant drugs make no considerable increment to the bulk of the tissues, but there is some evidence to prove that, under some circumstances, stimulants can take the place of ordinary food. Dr. Anstie relates cases of acute disease in which nothing but brandy or gin was taken for several days, and yet the patient recovered without much emaciation. He also records an extraordinary case, in which, according to the evidence, an old man lived for years on a bottle of gin daily, with only a small finger-length of bread and a few pipes of tobacco. Dr. Anstie does not appear to believe that this action of alcohol and of similar substances is due to a power of diminishing the amount of chemical change which occurs in the different tissues.

Passing on to the discussion of narcosis, Dr. Anstie considers that narcotics are best defined as *deadening agents which diminish the activity of the nervous system*, and whose direct tendency is, therefore, to produce death. He thinks that there is no advantage in separating sedatives from narcotics; and he uses the two terms as synonymous. Two of the agents said to be most markedly sedative, tobacco and digitalis, are regarded by him as stimulants when administered in certain doses; and he shows that the shock-like action on the heart is not peculiar to these and similar drugs, for under some circumstances opium may produce like effects. This sudden depression of the heart's action depends very much on the dose and on the circumstances under which it is taken.

The production of sleep, for which he uses the word "hypnotism," is not, according to Dr. Anstie, among the effects caused by narcotics. Their tendency is to produce coma, and he regards even the slighter forms of this, though they resemble sleep, as essentially different from it. He includes, however, among the effects of narcotics, not only clonic, but also tetanic, spasms, chiefly on the ground that they are produced in the lower animals, and sometimes in the human subject, by the action of true narcotics, such as opium.

The next point which he proceeds to consider is the relation between the stimulant and narcotic action of the same substances, such as opium and alcohol. If alcohol be taken in small quantities, frequently

repeated, the first action will be of a stimulant kind, not because such effects necessarily precede the narcotic symptoms, but because the blood at first contains only that quantity of the substance which produces stimulant effects; and even when a single large dose is swallowed the stimulant action will often appear before the narcotic, in consequence of the complete absorption of the substance requiring time. Inebriation is regarded by Dr. Anstie, not as a stimulant, but as a narcotic effect; and he supports this view by a careful analysis of the action of alcohol, chloroform, and hashish. From these he concludes that inebriation essentially consists in the destruction of the capacity of the brain for retaining or recalling moral and prudential impressions, and also for any kind of continuous intellectual labour; and that the apparent excitement of the emotions and desires is, in fact, but the unveiling of the lower part of our nature, which is in all men more or less ready to show itself when the customary checks are removed. Another curious set of phenomena belonging to inebriation are classified under the head of involuntary reminiscence, and are likewise ascribed to arrest of the higher functions of the brain.

The next chapter treats of certain bodily conditions which are unfavorable to the production of narcosis, and in which the substance, though taken in large quantities, fails to exert a narcotic action. The *poison-line* is shifted by the circumstances of the individual, as when large quantities of alcohol are administered in fevers or when large doses of opium are given in tetanus. Of this Dr. Anstie gives no explanation. The influence of habit, in enabling the system to bear large quantities of these substances is, he believes, due to a degradation in structure of the brain-substance, which renders the organ less sensitive to the action of the narcotic.

The last part of the book contains a series of special researches on the action of ether, chloroform, and alcohol. Dr. Anstie denies that a "period of excitement," as indicating an early stage separate from the "period of anæsthesia," occurs during the production of narcosis by these agents. The muscular rigidity, the half-delirious movements, the incoherent talk, and the hysteric laughter, observed in these cases, do not, he says, occur till the signs of advancing paralysis have already developed themselves. Among the points in which Dr. Anstie differs from most physiologists is his opinion as to the action of narcotics upon the pupil. He adopts the view of Rouget, that the iris is an erectile tissue, and he regards contraction and dilatation, not as opposed conditions, but as depending upon the degree of action of the poison upon the cranial sympathetic system. Hence he greatly doubts the theoretical accuracy of the supposition that opium is likely to be an antidote for belladonna, or *vice versâ*.

#### BRITISH PHARMACOPEIA.

Much has been written on this subject in the medical periodicals of the past year. Dr. Garrod's lectures before the College of Physicians are given in the 'Med. Times and Gaz.' (1864, vol. 1, p. 113 *et seq.*). Lectures on the chemical processes and preparations, by Prof. Red-



wood, are published in the 'Pharm. Journ.' (5, p. 406 *et seq.*); and another course on the organic materia medica, by Prof. Bentley, is given in the same periodical (p. 416 *et seq.*). The 'Lancet' also contains a series of "Critical and explanatory comments on the new Pharmacopœia," commencing in vol. 1, 1864, p. 78.

## INORGANIC SUBSTANCES.

*Carbonic Oxide Gas.*

Dr. Marten publishes, in 'Casper's Vjhrschrft.' (25, p. 197) several cases in which severe symptoms arose, apparently from the inhalation of this gas. The first was that of a man, æt. 61, who, after writing for some hours in his bureau in a smelting-house, was attacked with sudden pain in the head, giddiness and trembling, so that he fell to the ground soon after leaving his office. His pupils were dilated and insensible. He vomited, his breathing was stertorous, and he was quite unconscious. He did not recover his consciousness till the 3rd day. His memory was then much impaired; not only did he remember nothing of his attack, but he could not answer questions correctly for 2 days, and he was not able to resume his occupation for a month. Both Dr. Marten, who was summoned when this man was first attacked, and several other persons, suffered from slighter symptoms of the same nature, including, in several instances, clonic spasms of the extremities. These persons recovered their senses in from a quarter to half an hour, and on the following day were pretty well, complaining only of weakness and of headache, or of a confused feeling in the head.

The cause of these attacks remained for a time obscure, but 4 days afterwards the fire of the forge suddenly fell 2 feet. In order to ascertain the cause of this a deep trench was dug, and it was then found that under the hard floor there was a layer of slag 5 feet in thickness, which had become red hot. The gases which were generated by the combustion were prevented from escaping by the compactness of the floor. A channel, however, which was filled with loose cinders, led from the furnace towards the bureau. Along this the gases probably passed, and, accumulating beneath the floor of the bureau, passed between the planks into the room. The quantity of gas must have been considerable, for several of the windows of the bureau were broken, and one had an aperture of 2 square feet in it. The gas probably consisted chiefly of carbonic oxide. This gas was found to be present in the proportion of '0695 in 1000 in air taken from the bureau 4 days later, after all apertures into the room had been closed for some time. It is worth mentioning that blood taken from the arm of the man whose symptoms were most severe presented the ordinary appearance of venous blood, as Bernard has stated that in poisoning by carbonic oxide the blood is reddened. Dr. Marten has visited Dortmund, where metallic zinc is obtained from blende. The workmen there frequently suffer from the action of carbonic oxide gas. The symptoms caused by it are pain in the head, giddiness, depression, swoons (which last a shorter or longer time, and are followed by vomiting), trembling, and so great weakness that the men are obliged to leave off work.

*Oxalic Acid.*

Mr. R. Ellis relates ('Lancet,' 1864, 2, p. 265) a case of poisoning by oxalic acid in which recovery took place, although the quantity taken was accurately ascertained to be very nearly an ounce. The subject was a woman, aged about 50 years, who swallowed the poison in some beer. The usual symptoms came on in a few minutes, and treatment was commenced within half an hour. But few cases of recovery after so large a dose of this poison have hitherto been recorded.

*Iodine.*

A discussion appears to be going on in Italy between M. Bellini, of Florence, and M. de Renzi, of Naples, on the question whether iodine, when absorbed into the human circulation, can remain in the uncombined state, or whether it always becomes converted into iodic and hydriodic acids and their salts. M. de Pietra Santa, in a letter to M. C. Bernard ('Union Méd.,' 20, p. 481), gives a résumé of the chief points in this controversy.

M. Bellini, who experimented on rabbits and on guinea-pigs, believes that iodine enters into combination as soon as it has been absorbed into the blood. M. de Renzi opposes these conclusions; he places 2 or 3 grains of iodine in the mouth of frogs, and finds that the blood-corpuscles, seen under the microscope, assume a yellow colour, which could only be due to free iodine. He also asserts that when iodine and an alkali are mixed some time passes before they combine so completely that starch-paper ceases to give the blue colour. MM. Bellini and Pacini dispute these facts, and they also say that results obtained from frogs are not necessarily applicable to the higher animals. They find that a kilogramme of blood almost instantaneously converts 4 grammes of iodine into iodides and iodates, without losing its alkalinity. According to these data, 160 grammes (more than 5 ounces) of iodine could be at once converted into salts by the amount of blood in the human body. Now, 24 grains of iodine kill a rabbit in a few hours. A portion of the iodine is found in an uncombined state in the stomach, but the blood, the urine, and the tissues, contain only its salts. It therefore, appears certain that death must occur in man long before the blood became so loaded with iodine that any of that element would remain in it in the free state.

Bearing, perhaps, upon this question is a case recorded by Dr. Concato. He injected an ovarian cyst with iodine. In the evening the skin of the patient assumed a marked yellow colour, which lasted five or six days, and then rapidly disappeared. The conjunctiva was not coloured, and there was no evidence of any hepatic affection, but it was not conclusively shown that the coloration was not that of jaundice.

Dr. Gillespie relates ('Med. Tim. and Gaz.,' 1864, 2, p. 488) a case in which death followed the application of a saturated tincture of iodine *once* to each side of the face over an enlarged parotid gland. In five hours vomiting and purging came on; suppression of urine, great

restlessness and anxiety, a burning sensation in the abdomen, and great thirst, were among the other symptoms; and the patient, a native of Mauritius, died at the end of about 30 hours. The chief post-mortem appearance was an ecchymosed state of the mucous membrane of the stomach and small intestines. The urine found in the bladder gave slight indications of the presence of iodine.

*Iodide of Potassium.*—Mr. Clayton ('Phar. Journ.,' 6, p. 214) has investigated the purity of 15 specimens of this salt, obtained from different English and foreign druggists. He found very few impurities. Bromide of potassium was not present in a single instance. Iodate of potash was absent in all the English samples, and in all but two of the foreign ones. The amount of moisture varied from .6 to 3.7 per cent.: it was noticed to be greater when the salt had been crystallized from spirit.

#### *Phosphorus.*

Dr. Tüngel relates ('Virchow's Archiv,' 30, p. 270) an instance of poisoning by this agent, in which the fatal termination occurred much more rapidly than is usually the case. A girl was brought at 9 p. m., of the 14th April, into the hospital at Hamburg. She was in a state of collapse. Her breath smelt strongly of phosphorus, which led to the conclusion that she was poisoned by that substance. In half an hour she died. It was learnt afterwards that she had bought a box of phosphuretted matches that morning, and she could not well have taken the poison before 12 o'clock noon. On the surface of both lungs a few small ecchymoses were found, but none existed on the pericardium or on the peritoneum. The mucous membrane of the stomach was not in the least degree reddened, and was quite healthy. There was no trace of inflammation in any part of the alimentary canal. The blood was dark and fluid. The structure of the liver, kidneys, and heart, was healthy. Abundance of phosphorus was detected by Mitscherlich's test in the contents of the intestines. The liver also gave distinct evidence of its presence, though in smaller quantity.

#### *Arsenic.*

M. Ollivier ('Gaz. Méd. de Paris,' 18, p. 704) records the following case of poisoning by arseniuretted hydrogen. The subject was a young man employed in a manufactory of chemical products, who was making some investigations as to the aniline colours. In one of these experiments a considerable quantity of arseniuretted hydrogen was set free, and was diffused in the air of the room. He began work at 7.30 a. m. About 8.30 he felt a violent headache, which compelled him to open the window; but he nevertheless continued working till 10.30, when he had breakfast. An hour later the headache increased, and pain at the epigastrium came on, with vomiting of the food contained in the stomach. He was taken to the Charité about 2 p. m. His face and lips were then pale, and his extremities cold. He complained of thirst, sense of constriction at the base of the chest, intense frontal headache, and severe pain in the loins. There was no pain or

tenderness in the abdomen. He was treated with diuretics and a purgative draught, and at 10 p.m. was bled to 500 grammes, with great relief. The urine was abundant and of a red colour, but free from blood. The next day there was still a little headache, but the lumbar pain had disappeared. The patient was dull, and slow in answering questions. He passed no urine. On the following day a small quantity of red urine was passed, but on the fourth day none was excreted. On the fifth day he was much worse; he could scarcely answer the questions that were put to him. His tongue was dry and brown, and was with difficulty protruded from the mouth; his face was of a yellowish-brown colour. There was still no urine. He died the same evening at 6 o'clock. The post-mortem examination threw very little light on the case. There were no ecchymoses of the pleura or peritoneum. The stomach contained a greenish liquid, similar to that vomited. The intestines were not injected. The liver was large and congested; its cells unaltered. The spleen soft. The kidneys large and congested, especially the tubules, in which the cells were granular, and contained a few fatty globules. The bladder contained some reddish urine.

Dr. Taylor ('Guy's Hosp. Rep.,' 1864, p. 220) relates a case of fatal poisoning by the external application of arsenic; he also gives details of several similar instances, derived from different sources. His case is that of a girl, *æt.* 7, whose mother rubbed an ointment containing a large quantity of arsenious acid and of white precipitate into the scalp, for the purpose of killing lice. No serious effects appear to have been produced for five days, but no medical man was called in till just before the child's death, so that the history of the case is doubtful. Even when the child became ill there were none of the ordinary symptoms of poisoning, and she did not complain of pain till the eighth day, when diarrhoea also came on. Vomiting was altogether absent, but she became collapsed, and on the following day she died without convulsion. The scalp of the child was found to contain a large quantity of arsenic, two or three grains being estimated to be present in the portion of scalp examined. White precipitate was also present. The chief point of interest in the case was the question whether arsenic was also administered internally. Dr. Taylor decided this in the negative, on the ground that the lining membrane of the stomach, though showing some inflammatory patches at the greater end, was not softened nor ulcerated, and presented no spots or streaks of irritation. The contents were slightly acid, and of a brownish colour. No solid arsenic was present, but traces of that poison were found, not only in the stomach and intestines and in the liver, but also in the contents of the stomach, intimately combined with mucus. No mercury was detected in the viscera or in the mucous fluids.

Dr. Brisken reports a case ('Casper's Vjhrschrft.,' 25, p. 111) in which death apparently resulted from the introduction of some preparation of arsenic into the vagina, though the quantity used was not ascertained. The subject was a woman, *æt.* 25, who succeeded in bringing on an abortion, which was followed by much hæmorrhage. She afterwards suffered from abdominal pain, vomiting, &c., and later

from cramps, cold sweats, and great depression. She died on the eighteenth day after the abortion; among the later symptoms were delirium and a feeling of constriction in the throat. Nine days before, the medical attendant had removed from the vagina some foreign substance. This was not examined till after her death, and was then found to contain a considerable quantity of arsenic. The body was therefore examined. Arsenic was detected in the uterus and vagina, and also in the stomach and intestines. The other organs gave no evidence of its presence. The woman probably placed the poison in the vagina herself, with the idea of killing the foetus, for she had reasons for wishing her husband to be ignorant of her pregnancy. Apparently she was unaware that her own life might be endangered by the absorption of the arsenic.

Prof. Maschka ('Präg. Vjhrschrft.,' 1864, 1, p. 68) records the more important of the different medico-legal cases which came before him in the space of a year, from July, 1862, to July, 1863. Their total number was 167. The most important of them appears to have been a case of poisoning by arsenic, in which recovery took place, although five grains of the poison were obtained from the fluids vomited. The symptoms of irritant poisoning showed themselves half an hour after taking the food which contained the arsenic; after they had passed off, the patient suffered from loss of power and formication in both the upper and lower limbs. The absorption of the arsenic from the alimentary canal was probably impeded by its admixture with a greasy mass, made of flour, potatoes, and butter.

M. Blondlot ('Comp. Rend.,' 57, 596) has presented to the Academy of Sciences a memoir on the transformation of arsenic into the solid hydride by nascent hydrogen, under the influence of nitrous compounds. "It is well known," he says, "that acids set free hydrogen in presence of zinc or iron, and that when the nascent gas meets a soluble compound of arsenic it forms a gaseous hydride. Now, there is an exception to this general rule in the case of nitric acid and its derivatives, which, generating ammonia, produce under similar circumstances only a solid hydride, which is deposited on the zinc or floats in the liquid in the form of brown flocculi. The same thing occurs with all other acids when they contain even the smallest quantity of a nitrous compound. However, these reactions, which are of extreme delicacy, do not manifest themselves when the liquid contains in solution either organic substances, which almost all oppose the formation of the solid hydride, nor some metallic solutions, especially those of lead, which metal, being deposited on the zinc, also interferes with its formation. For this reason the experiment succeeds perfectly only when zinc and distilled acids are employed. A consequence of these facts is, that this reaction is not one suited for the medico-legal *detection* of arsenic; but it is nevertheless of great interest for toxicologists, for it indicates, in the employment of Marsh's process, a double danger, which was not hitherto suspected. The first is that of overlooking the presence of arsenic in liquids which contain it. This would take place if either in the sulphuric acid employed or in the liquids to be tested there should be the least trace of a nitrous compound, for the solid

hydride would then be formed instead of the gaseous. The converse error may also occur. Thus, if the sulphuric acid should contain at the same time traces of arsenic and of nitric acid the preliminary experiment would produce only the solid hydride. Now, if, relying on the purity of the materials, the chemist should introduce into the apparatus the suspected liquid, and if this, though free from arsenic, should contain a little organic matter incompletely destroyed, the reactions would at once change, and the arsenic which had all along been present in the apparatus would assume the gaseous form, and might thus give rise to a fatal error."

In the 'Ann. d'Hyg.' (21, p. 152) are contained some observations by M. Gaultier de Claubry on the same subject, which confirm the statements of M. Blondlot. He says that the action of nitric acid in preventing the formation of the gaseous compounds of hydrogen and arsenic is probably not one of oxidation, for chromic and chloric acids, though powerful oxygenants, produce no similar effect. He compares it rather to the generation of ammonia, which is known to take place when nitric acid acts upon zinc or tin in very dilute solutions. He also suggests another way in which it is possible that errors might arise in the application of Marsh's test. The solid hydride of arsenic, if exposed to the air, while adherent to the surface of metallic zinc, becomes after a time converted into arsenious acid. Under such circumstances arsenical stains might be obtained from zinc which some days before had appeared perfectly free from any trace of the poison, and its presence would therefore be ascribed to the substance which was undergoing examination. The following are the properties of the solid hydride. It is a brownish-black substance, without any crystalline form. It is insoluble in water, and is not converted into arsenious acid, even by ebullition. It is not dissolved by cold sulphuric or hydrochloric acid, whether diluted or concentrated; but if heat be applied it gives with sulphuric acid arsenious and sulphurous acids, with hydrochloric acid chloride of arsenic and the gaseous hydride. Nitric acid and chlorine dissolve it rapidly in the cold. When it is heated in an open tube arsenious acid and water are produced.

Dr. A. Gamgee ('Edin. Med. Journ.,' Nov., 1864, p. 408) made, at the suggestion of Dr. Maclagan, a series of experiments, with the object of testing the accuracy of M. Blondlot's statements. He finds that when the quantity of arsenious acid is very small, and the proportion of nitric acid in the sulphuric acid is large, no arsenical mirrors are produced by Marsh's process. Thus, sulphuric acid, containing 13 per cent. of anhydrous nitric acid, did prevent the formation of mirrors from about 1-500th grain of arsenic, but it did not do so when the quantity of arsenic amounted to 1-100th of a grain. On the other hand, with an acid containing about 3 per cent. of nitric acid good mirrors were obtained from 1-1000th of a grain of arsenic, though their development was to a certain extent checked. As commercial sulphuric acid is not likely to contain even 3 per cent. of anhydrous nitric acid, Dr. Gamgee therefore thinks that no practical objection to the employment of Marsh's test can arise from this source. His experiments led him to conclude that when nitric acid does prevent the forma-

tion of mirrors of arsenic the addition of an organic liquid, such as sugared water, exerts no influence in causing their appearance.

Dr. Gamgee also finds that when nitric acid thus interferes with Marsh's process it is not owing to the formation of a solid hydride of arsenic. He remarks that M. Blondlot has given no proof that the brown flocculi (which, in fact, are constantly formed when zinc is dissolved in sulphuric acid) consist of such a compound. He applied heat to a portion of the tube, which transmitted the gas, generated by the action of a mixture of sulphuric and nitric acids on zinc, with 1-5000th grain of arsenic. He then found that, though no mirror was produced, a ring of crystals of arsenious acid was deposited in the tube just beyond the part heated. This Dr. Gamgee explains by supposing that nitrous oxide gas is evolved by the action of the dilute nitric acid on the zinc, and that this gas oxidizes the arseniuretted hydrogen as it traverses the heated portion of the tube. The nitric acid, therefore, does not act by preventing the formation of arseniuretted hydrogen gas, but by interfering with its decomposition by heat into hydrogen and metallic arsenic.

MM. Bussy and Buignet ('Journ. de Pharm. et de Chim.,' Sept., 1863, p. 177; 'Rep. f. Phar.,' 13, p. 12) have made some investigations as to the best method of purifying sulphuric acid from arsenic. They find that in a large majority of cases this impurity is present, not in the form of arsenious acid, as is generally supposed, but as arsenic acid. This is not, however, absolutely a new discovery, for the experiments of Dupasquier led him to the same conclusion. It is proved by the fact that on distilling impure sulphuric acid with the necessary precautions the distillate is usually perfectly free from arsenic, which all remains in the retort. By still further concentrating this residue the characteristic red precipitate, with the ammonio-nitrate of silver, may also be obtained from it, indicating the presence of arsenic acid. In a few specimens of commercial sulphuric acid the arsenic was, however, found in the form of arsenious acid, and in this case small quantities of the arsenic pass over when the sulphuric acid is distilled. It is found that sulphuric acid, which contains arsenic in the form of the lower oxide, is always perfectly free from nitrous acid. This, indeed, might be expected from the fact that during the manufacture of the sulphuric acid the formation of arsenious or arsenic acid would depend on the predominance of the sulphurous acid or the nitric acid in the chamber. Thus, the presence or absence of nitrous acid, which is readily detected by its reaction with narcotine or with sulphate of iron, becomes an indication whether the arsenic is present in the form of the higher or the lower oxide.

The chief importance of these results refers to their application in the purification of the commercial acid. Sulphuric acid which contains nitrous acid may with certainty be rendered free from arsenic by distillation, a small quantity of sulphate of ammonia being added to decompose the nitrous compound. If the sulphuric acid be free from nitrous acid the addition of a little nitric acid is all that is required to convert the arsenious acid product into the higher oxide, and distillation will then give a pure sulphuric acid,

Buchner, on the other hand, prefers purifying sulphuric acid by passing a stream of hydrochloric acid gas into the hot liquid which converts the arsenious acid into the volatile chloride of arsenic. If arsenic acid be present it is necessary to reduce it to arsenious acid before acting on it with the gas. Bloxam, as well as Bussy and Buignet, have shown that without taking this precaution the stream of hydrochloric acid gas does not always purify the sulphuric acid completely from all traces of arsenic.

\* M. Blondlot ('Comp. Rend.,' 58, p. 769), while admitting the full importance of these observations, criticises the method recommended for the conversion of the arsenious acid into arsenic acid. He remarks that it is of the utmost importance for toxicological purposes that no trace of the nitrous compound should remain in the sulphuric acid. On the other hand, if the sulphate of ammonia, which is employed to remove the nitrous compound, be added in excess, it will reconvert the arsenic acid to the state of arsenious acid. These evils may be avoided by the use of a fixed substance as the oxidizing agent to convert the arsenious acid into arsenic acid in the first instance. Mr. Blondlot finds that the peroxide of manganese effects this in a complete manner.

MM. Bussy and Buignet ('Journ. de Phar. et de Chim.,' 45, p. 465) assert that M. Blondlot's objection to the use of sulphate of ammonia is without foundation in fact. They find by experiment that the salt, even when added in larger quantities than is necessary, does not convert the higher oxide of arsenic to the lower.

*Arsenic-eating.*—Dr. Maclagan, while in Styria, made some inquiries as to the reputed habit of eating arsenic in that country. The facts which he and Dr. Rutter, who accompanied him, ascertained are detailed in the 'Ed. Med. Jour.,' Sept., 1864, p. 200. They seem to prove conclusively that the practice exists, and that persons who are accustomed to it can take quantities of arsenic which are always regarded in this country as poisonous. Dr. Maclagan saw a young man, named Matthias H. Schober, who said that he had been in the habit of taking orpiment for a year and a half. He began by swallowing rather less than a grain every fortnight; he never experienced any ill effects from it, and he now took it twice a week. If he could not get it he felt a longing for it, which was relieved by the repetition of the usual dose. As he said that he took orpiment rather than white arsenic only because it was obtained more easily, they offered him some arsenious acid; he chose a piece such as he was in the habit of taking; this was weighed, and found to be nearly 5 grains. It was then powdered, placed on a piece of white bread, and put into his mouth. He chewed it and swallowed it, swallowing also another piece of bread immediately afterwards. Two hours later he passed some urine in the presence of Dr. Maclagan, which was brought to this country, analysed, and found to contain arsenic. Some urine passed 24 hours later also gave distinct evidence of the presence of that substance. Another man, who said that he had taken arsenic for 15 years, and who had the day before twice publicly eaten some of the sulphuret, swallowed about 6 grains of arsenious acid in the presence of Dr. Maclagan, taking a considerable quantity of water after it. He said that he was in the habit



of taking the same dose about once a week. He also stated that near Liegist many people eat arsenic, some taking it daily, and many in larger doses than he. They cannot get it by open purchase, in consequence of the strictness of the laws regarding the sale of poisons; and as taking it is generally considered a bad habit, it is concealed as much as possible. It is therefore, perhaps, less surprising that even in Vienna those who have not made special inquiries about it are sceptical as to the existence of this practice.

Dr. Parker records ('Ed. Med. Jour.,' 1864, Aug., p. 116) a case in which death was ascribed to the practice of arsenic-eating. A. C—, a photographic artist, was seized on Nov. 20th, 1862, with intense pain in the stomach, which was not, however, materially increased by pressure. The abdomen was much swollen and tympanitic, and there was incessant vomiting and intense thirst. The countenance was anxious and the features contracted; the complexion unnatural, having, as seen by gaslight, a dark-greenish hue. He stated that for two or three weeks he had suffered from "dyspepsia," with pain after his meals.

While Dr. Parker was examining him he abruptly asked whether the daily use of arsenic would produce such a disease. He said that for the last four years he had taken that poison daily, being induced to do so by an article in a newspaper on the subject of the arsenic-eating in Styria. He began with very small doses, measuring the quantity with the eye on the point of a pen knife. Sometimes it was taken rolled up in paper, at other times it was merely placed on the back of the tongue and swallowed. Dr. Parker estimated that his daily dose during the 5 months preceding this illness had been between 2 and 3 grains. The quantity taken on the 18th November was said to have been larger still. He had on several occasions discontinued taking it for a few days, and once for three or four weeks; but, fancying he was not so well as when under its influence, he resumed the practice. He believed that his spirits and general health were better under its use; it did not appear to improve his wind. He thought it stimulated his genital organs, and Dr. Parker states that he had been notorious for his amorous propensities. His complexion was, he said, often made dingy, and was not improved by it; but his friends stated that his pinkish complexion, as if he used paint, had of late frequently been remarked by them. For some time after commencing the practice he had a metallic taste in the mouth and throat.

In spite of the treatment adopted his severe symptoms were only temporarily relieved. On the 22nd the skin became cold, and the pulse so feeble that it could not be felt in the smaller arteries, and the heart's sounds could only just be detected by the stethoscope.

At this time, however, he retained his strength so completely that he went by himself to the night-chair, and he conversed in a firm tone of voice. The sickness and thirst had now passed off, but he suffered much from tenesmus and strangury. He passed only a few drops of urine in the 24 hours. On the morning of the 23rd he died.

Decomposition of the body was unusually rapid. Twenty-four hours after death the whole body was emphysematous, and the genital organs black and swollen. Air had collected between the mucous and

muscular coats of the intestines. The blood, both within the cranium and elsewhere, was black and very fluid. The brain itself was firm. The lungs much congested, especially posteriorly. The left ventricle of the heart hypertrophied. The stomach much congested towards the duodenal end; as well as the air, patches of extravasated blood existed between its coats. The small intestine was inflamed or congested throughout. The duodenum was almost black. There was a large patch of extravasated blood beneath the peritoneum covering the ileum, and numerous similar patches existed elsewhere on the small and large intestine. The colon was also congested, but lighter in colour than the small intestine. The rectum, however, was inflamed from its commencement, but especially near the sphincter. The liver and spleen were of a peculiar dark greenish-blue colour. The kidneys were much congested. The bladder empty and contracted.

On chemical analysis slight indications of arsenic were obtained from the liver by Marsh's test and by the ammonio-sulphate of copper. It could not be detected in the spleen or in the alimentary canal. The last dose of the poison was taken on the 18th November, about 60 hours before Dr. Parker saw him and 5 days before he died.

#### *Bismuth.*

Mr. Tichborne ('Phar. Journ.,' 5, p. 301) has analysed the "Liquor Bismuthi," and finds that it contains bismuth, citric acid, and ammonia; 1.1 grains of the teroxide of bismuth are present in each fluid-drachm of the solution.

#### *Copper.*

M. Chevallier publishes ('Jour. de Chim. Méd.,' 9, p. 401) the following medico-legal case, which is of some interest:—E. R— was accused of attempting to poison his father with some soup, containing a salt of copper. This metal was found in some bacon, and also in some earth taken from the spot on which the father threw the soup, suspecting it to be poisoned. Earth taken from a little distance off was proved to contain no copper. It was thought by the chemists who first investigated the case that, since the soup had been made in an iron saucepan, the greater part of the sulphate of copper must have been replaced by sulphate of iron, and therefore that no serious effects would have followed the ingestion of the soup. On trying the experiment, however, with the saucepan actually employed, placing in it 6 grammes of sulphate of copper, it was found that no decomposition of the salt took place. This was due to the fact that a layer of fatty matter which lined the saucepan interfered with the chemical action of the iron, for when a small portion of the interior of the vessel was cleaned by scraping it copper was at once deposited on the exposed metallic surface. The quantity of copper actually found in the bacon and in the earth was small, amounting only to .36 grain of the sulphate, but this was, of course, only a small portion of that which was contained in the soup. The prisoner was convicted.

*Mercury.*

*Corrosive Sublimate.*—Dr. Taylor relates ('Guy's Hosp. Rep.,' 1864, p. 183) a case of poisoning by about 5 or 10 grains of this poison, in which death occurred in 7 days. The patient felt a burning sensation in the throat immediately, and vomited freely. He soon suffered from pain at the pit of the stomach and from tenesmus, with bloody stools. There was complete suppression of urine during the first two days, and also towards the end of the case. The mouth became sore on the second day, and this symptom was again complained of on the last two days of the patient's life, but salivation did not occur. He died at the end of 6 days. The post-mortem examination showed extensive lobular pneumonia; the œsophagus was injected in longitudinal streaks, and contained shreds of lymph. The stomach was minutely injected, as were also part of the ileum and the ascending colon. This part of the intestine also presented some small scattered ulcers. The cæcum was but little affected. The rectum was of a dark-red colour, from extravasated blood. The kidneys were large and coarse in texture, but otherwise normal. The bladder was ecchymosed. Dr. Taylor remarks that the appearances found in the stomach resembled those of arsenic more than those of corrosive sublimate, but no arsenic was present. Mercury was obtained from the stomach, and also in very small quantity from the liver.

Dr. Anderseck and Dr. Hamberger ('Vjhrschrft. f. ger. Med.,' N. F. 1, p. 187) record 2 cases of fatal poisoning by an ointment containing corrosive sublimate. Two young girls suffered from an eruption, supposed to be scabies, and went to a barber for relief. He applied an ointment with his own hands, rubbing it into those parts of the skin which were affected by the disease. This was on the evening of April 15. A burning sensation was immediately experienced, and soon became intolerable. During the night vomiting came on, with great thirst. The next morning there was still violent burning and pricking over the whole surface of the skin, which was red and inflamed, and on the evening of the 16th presented at many points vesicles, such as show themselves in cases of scalding by hot fluids. These parts of the skin afterwards suppurated. On the 19th, the urine having been retained for some hours, a catheter was used; from one of the patients scarcely any urine was drawn off, from the other a large quantity. This last patient was, on the next morning (the 20th), apparently going on well. She had slept for some hours, and her intellect was clear. She still complained of pains over the whole body, and of transient numbness of the hands and feet. A fetid smell of the mouth, which had been noticed for 2 days, was now more marked, and ulcers existed on the gums and on the inner surface of the lips. Two hours after the visit of Dr. Hamberger she died unexpectedly.

The result of the other case was equally disastrous. This girl's mouth presented the same appearances as did that of the former patient. Complete suppression of urine also came on, except that on the 20th she passed a very small quantity. She then fell into a somnolent state,

from which she could at first be roused by questioning; vomiting and diarrhoea were also present, and she died on the evening of April 21, just 6 days after the inunction of the ointment. The autopsy showed that the stomach and small intestine were inflamed; both the serous and mucous surfaces of these viscera were of a bright-red colour. Mercury was found by chemical analysis in the kidneys of the first patient, and that metal was, perhaps, present also in some of the other organs. In the viscera of the second patient no trace of mercury was detected. The barber who practised the inunction appears to have used his naked hand, but suffered no ill effects from it. The quantity of corrosive sublimate in the ointment was never ascertained.

*Turpeth Mineral.*—Dr. Taylor ('Guy's Hosp. Rep.,' 1864, p. 180) relates a case of poisoning by this substance. Forty grains appear to have been taken, having been dispensed by a druggist by mistake for æthiops mineral. Violent purging and vomiting came on within 10 minutes, with slow and small pulse, cold and clammy skin. The patient also complained from the very first of soreness in the mouth and throat, and the saliva continually ran from his mouth. White of egg was administered to him, but was rejected from the stomach, mixed with a yellow powder, and afterwards mucus and blood were vomited in small quantities. The next morning the lips, gums, fauces, and tongue, were swollen, and mercurial fetor of the breath was noticed. Among the later symptoms were delirium, headache, and restlessness. He was sensible within a few hours of his death, which occurred at the end of 10 days from the time of his swallowing the poison. The mouth, lips, gums, palate, and fauces, were covered on their inner surface with black sloughs. The intestinal mucous membrane was softened and presented dark-coloured patches at intervals.

#### ORGANIC SUBSTANCES.

##### *Melanthaceæ.*

Dr. James Watson ('Edin. Med. Journ.,' Jan., 1864, p. 616) publishes some observations with reference to the physiological effects of the *veratrum viride*. It had been stated that this drug acts as an arterial sedative, without depressing the vital powers. Dr. Watson found that it had no such action. He took the tincture himself, and also administered it to patients in the wards of the Infirmary at Edinburgh. He states that it produced extreme and most painful nausea, and that it was only after this occurred that the rapidity of the pulse was diminished.

Prof. Schroff has made a series of experiments on rabbits, with the object of determining the relative activity of the *veratrum viride* and the *veratrum album* ('Wien. Ztschrift. Med. Jahrbücher,' 19, 2, p. 129, 1863; 'Schmidt,' 122, p. 31). The preparations which he used for this purpose were all made by himself from the two plants in the same way. On comparing the spirituous extracts, that of the *veratrum album* was found to be the poorer in extractive matters, but it contained a large quantity of crystals of different forms. These crystals had previously

been found by Schroff in the extract of the rootlets which are connected with the rhizome of the *veratrum album*; and as this extract is more active than that of the rhizome itself, he attributed to the crystals part of its efficacy. However, they do not give the reaction of veratrine with sulphuric acid, and he now believes that they consist simply of sugar. The difference between the action of the rhizome and that of the rootlets of *veratrum album* is essentially this, that the former produces chiefly reflex paralysis, while the latter cause reflex spasms, similar to those which follow the administration of veratrine.

As regards their action on the alimentary canal, Schroff finds that both species of *veratrum* accelerate the expulsion of fæces, but that neither, even when given in poisonous doses, causes diarrhoea (this is said to coincide with the observations of Gneding, and Pereira quotes 3 cases of poisoning by this drug in the human subject in which there was no purging). The tincture prepared by Schroff from the rhizome of the *veratrum viride* was somewhat weaker than that of the *veratrum album* prepared in the same way. On the other hand, the American tincture of the *veratrum viride* was stronger; but this is ascribed to the fact, which he afterwards ascertained, that the Americans use the rootlets as well as the rhizome in making the tincture.

Schroff also compared the action of the *cevadilla* seeds with that of the different species of *veratrum*. From 12 experiments he concludes that, in the same quantities, this drug is more powerful than the rhizome alone of the *veratrum album*, and more powerful than the rhizome with the rootlets of the *veratrum viride* and the *veratrum nigrum*, but less so than the rhizome with the rootlets of *veratrum album*. Veratrine was found by him to be three times as active as the alcoholic extract of the *cevadilla* seeds, thirty times as active as the seeds themselves. It is, however, only twice as powerful as the alcoholic extract of *veratrum album*. In the nature of their effects, the *cevadilla* seeds resemble most of the preparations of the *veratrum viride* and the *veratrum album*, producing spasms rather than paralysis. It would appear from these experiments that, in making preparations of these plants, the rootlets should always be employed, as well as the rhizome.

#### *Coniferæ.*

Dr. W. W. Ireland describes ('Edin. Med. Journ.,' Feb., 1864, p. 709) a very successful method of treating cases of chronic rheumatism, bronchitis, and other affections, which is employed at the town of Die, near Valence, in the south of France. It appears to have been for a long time the practice among the peasants of the district, when suffering from rheumatism, to expose themselves to the vapours of a pitch-furnace; but Dr. Chevandier was the first who employed this remedy in regular medical practice. The furnace used resembles a large baking-oven. The fire is below, and the resinous layers of pine-wood (*Pinus Cembrot*) are strewed upon the floor. The patient sits on a bench, wrapped in a porous covering of wool. The temperature is ordinarily from 140° to 158° Fahr. He remains in the bath from 15 to 20 minutes. After the feeling of overpowering heat

has passed off, the sensations are very agreeable. Abundant perspiration is produced, and the skin becomes red; the face is often very injected; but the determination of blood to the surface seems to prevent any tendency to cerebral congestion. The pulse ordinarily rises by 10 or 15 beats. When the patient leaves the bath he retires to bed, and remains there an hour or two. The urine gives out a terebinthine odour. The number of baths taken is from 15 to 20.

The medical practitioners at the baths state that no case of pure uncomplicated rheumatism has ever left their establishment uncured. Muscular rheumatism is especially benefited. Lumbago almost always disappears after 5 or 6 baths. Rheumatic endocarditis and pericarditis are said to yield more rapidly to this than to any other form of medication; but organic affections, and palpitation of the heart, and the hæmorrhagic diathesis, are regarded as contra-indicating the employment of these baths. It is doubtful whether this method of treatment does good in phthisis; but chronic bronchitis is rapidly relieved by it. Dr. Ireland has himself several times visited Die, and he says that all patients suffering from obstinate rheumatism or bronchitis should, if they possibly can, betake themselves to that place. The season lasts usually from June to September.

#### *Piperaceæ.*

*Cubebæ.*—Prof. Bernatzik ('Präg. Vjrschrft.,' 81, p. 9) has made a series of investigations with reference to the chemical composition and physiological action of cubebæ. All the active principles of this drug were found by him to be soluble in ether. The matters dissolved by this liquid amounted to 22 per cent. The residue was inodorous and tasteless. The ethereal extract is not adapted for medicinal use, as it gradually deposits a precipitate, consisting chiefly of crystallizable cubebin and of resinous matter.

Five substances altogether have been obtained from this ethereal extract of cubebæ. The volatile oil may be distilled from it by the action of aqueous vapour. It is a pale-greenish fluid, which possesses the pungent taste of the drug, and has a slight odour, which is not unpleasant. Its quantity depends very much on the freshness of the drug from which it is obtained, as in old specimens much of it is converted into resin; but it may be estimated at 10 per cent. The oil derived directly from the fruit has been said to deposit crystals on keeping, but Bernatzik has in no instance succeeded in obtaining them from the oil obtained from the ethereal extract. The residue after the distillation of the oil is a brownish-yellow, resinous substance, which has a bitter taste, with but little pungency. One part of it is insoluble in caustic alkali. This is the cubebin of Capitaine and Soubeiran, which appears to exist in two forms, the one crystallizable, the other amorphous. It contains no nitrogen, and is not an alkaloid. It is insoluble in water, and also in dilute acids and alkalies. It has been administered to patients suffering from blennorrhœa by Dr. Reder, and was found to be altogether inert.

That part of the resin which is dissolved by caustic potash consists

of two different substances. One of these is very similar to a resinous body, which may be obtained artificially from the oil of cubebs by oxidation, and probably is derived from the partial conversion of the oil into resin within the fruit. The other is a resinous acid, to which the name cubebic acid is given. It is a white, uncrystallizable solid, with silky lustre, and becomes dark on exposure to the air. It has a waxy taste, and sticks between the teeth. It is insoluble in water and in dilute acids, but is readily dissolved by alkalies, as well as by alcohol, ether, and chloroform. When treated with concentrated sulphuric acid it dissolves with a splendid purple-violet colour, and this and other reactions enable it to be distinguished from all other resinous acids.

In order to determine the differences in the action of these substances, experiments were made by Bernatzik on himself and on others. The cubebic acid combined with magnesia was twice taken in doses of 10 grmm. The ethereal oil was given once in a dose of 40 drops every 3 hours till 6 grmm. had been taken, and afterwards in larger quantity, so that 10 grmm. were taken in 3 doses within 6 hours. Lastly, 50 grmm. of the powdered cubebs were taken in several doses within 8 hours.

It was found from these experiments that the cubebic acid produced effects very different from those of the volatile oil. The urine passed after taking the resinous acid deposited an abundant precipitate, which was found to consist entirely of uric acid. The addition of nitric acid rendered this urine opalescent; but the precipitate thus formed, like that which had occurred spontaneously, was merely uric acid, and contained no resinous substance. By extraction with alcohol and ether the presence of cubebic acid in the urine was, however, demonstrated. Its quantity amounted in one experiment to .234 grm., in the other to .142 grm. The whole amount of uric acid present was 3 or 4 times as much as that contained in healthy urine. The greater part of the cubebic acid ingested was probably oxidized within the blood, for in one experiment the fæces were carefully examined for it, and only .4 grm. was found. Bernatzik thinks that the oxidation of the resin prevented the normal change of uric acid to urea and carbonic acid, and in this way he explains the increased excretion of uric acid.

After taking the volatile oil the urine was found to remain clear, giving no deposit of uric acid. Its smell was aromatic, resembling that of cubebs. On the addition of nitric acid it yielded a crystalline sediment of uric acid; but it remained turbid, and was not rendered clear even by filtration. Under the microscope it was found to contain innumerable minute granules, often aggregated together. These were at once dissolved by ether, and therefore evidently consisted of resin. By chemical analysis .890 grm. of resin was obtained from this urine. This substance possessed none of the properties of cubebic acid, while it had the pungent taste of the oil of cubebs, and was exactly similar to the resin obtained from the oil by artificial oxidation. The quantity of resin was also found to be in proportion to the amount of volatile oil ingested. For every 7 grmm. of the oil taken, about 1 grm. of resin made its appearance in the urine.

The urine which was passed after the administration of 50 grmm. of powdered cubebs possessed intermediate characters. It had the smell of the drug,<sup>3</sup> and it contained a considerable quantity (.77 grm.) of resin, of which only a small proportion was cubebic acid, but it also deposited uric acid spontaneously, and contained an excess of that substance.

As might be expected, the ingestion of such large quantities of a medicinal agent produced other effects besides the change in the composition of the urine. The temperature of the body was slightly increased for a time, and the pulse was quickened, but less markedly when the cubebic acid had been taken than after the volatile oil or the powdered cubebs. There was also more or less disorder of the stomach, and flatulence. Irritation of the urinary passages was produced in all these experiments. Sensations of cutting and of constriction after micturition were felt, even after the ingestion of cubebic acid; but this is ascribed by Bernatzik to the acidity of the urine, and to the deposition of uric-acid crystals within the bladder, for it would appear unlikely that cubebic acid should itself act as an irritant to the urinary organs.

From these observations it results that the volatile oil is the active constituent of this drug. The cubebic acid would probably exert rather an injurious influence in the treatment of gonorrhœa, from its tendency to make the urine acid. It may be mentioned that these results differ widely from those obtained by Weikart with balsam of copaiba. He found that nitric acid produced no opacity in the urine when oil of copaiba had been taken, but only after the ingestion of the balsam; and therefore he attributed this effect chiefly to the copaibic acid which it contained.

Pas and Grönewegen ('Bull. de Thér.,' 65, p. 122) describe a new form of cubebs, which have recently been introduced from the Dutch Indies. The fruit is considerably larger than that of the ordinary drug, resembling rather the pimento in size. They are of an ash-gray colour, passing into brownish-black. Their stalk is somewhat flat; the furrows on the surface of the berry are less regular and less deep than in the true cubebs. Their odour is less agreeable, and their taste less pungent. When thrown into water they sink to the bottom far more quickly; they also impart a dark-brown colour to the liquid, while the ordinary drug gives it a yellow hue. M. Pas considers them to be the ripe fruits of the *Cubeba officinalis*, Grönewegen believes them to be derived from the *Piper Anisatum*. They are cheaper than the true cubebs, but are said not to be an efficient substitute for medical purposes; they give only half the quantity of extract when treated with ether.

*Matico*.—Prof. Bentley ('Phar. Journ.,' 5, p. 290) gives an account of a new form of matico recently imported into this country from Panama. It appears to be derived from the *Artanthe adunca* (Miquel), a plant widely distributed in the tropical regions of America. It consists of the dried, more or less broken, fibrous leaves, together with a very few flower-spikes and small fragments of branches. The upper surface of the leaves is not so tessellated or rough as that of the ordi-



nary matico, and their under surface is less pubescent. The infusion resembles that made from ordinary matico in colour; its taste is somewhat more pungent and agreeable. Its chemical reactions are the same as those of the officinal drug. It contains a volatile oil, of peculiar odour; the best preparations of it would be an alcoholic extract and a tincture. The scarcity and dearness of ordinary matico at the present time, in consequence, apparently, of the American war, renders this new drug of importance.

### *Euphorbiaceæ.*

*Ricinus communis*.—Mr. Tuson ('Journ. of the Chem. Soc.,' ser. 2, vol. 2, p. 195) has discovered an alkaloid, provisionally termed "ricinine," in the seeds of this plant. This substance crystallizes in rectangular prisms and plates, has a feebly bitter taste, and is dissolved by water and alcohol, but is only slightly soluble in ether and in benzol. It is not the purgative principle of the castor-oil seeds. A similar alkaloid has been obtained by Mr. Tuson from croton seeds.

*Curcas purgans*.—In the 'Med. Tim. and Gaz.' (1864, 1, 703) are recorded several cases of poisoning by these seeds (Physic nuts, Jatropha nuts), which occurred at Birmingham, where three or four sacks of the nuts were sold by auction. These nuts were left on the floor, and some boys, getting access to them, put some into their pockets, and, finding their taste pleasant, not only ate some of them themselves, but gave others to their friends. In consequence, 33 persons were taken so ill as to be obliged to be carried to the General Hospital. Some of them had only eaten 3 or 4 of the nuts, but others ate as many as 50. Symptoms came on in some cases in 10 minutes, in others not till 2 hours or 2½ hours had elapsed. The chief effects were pain and burning in the throat; pain and distension of the abdomen; giddiness, vomiting, and drowsiness; and, after an interval, purging, the evacuations being copious, mucous, and not unlike the well-known rice-water stools. In some cases the depression was very great; in many there was dysuria; fever was always present as an after-effect. Dilatation of the pupils was believed to exist in those who took a large quantity of the poison. It was doubtful whether the drowsiness (from which the patients were easily roused) was a narcotic effect of the nut or whether it was simply caused by the great prostration. The treatment consisted in the administration of emetics and purgatives. Every case terminated in recovery.

### *Scrophulariaceæ.*

M. Mazel relates ('Jour. de Chim. Méd.,' 10, p. 430) a case of poisoning by infusion of digitalis, which was taken accidentally by a girl, æt. 22. The symptoms were those ordinarily observed, with the addition of suppression of urine. She passed no water for 50 hours. On the 5th day she appeared to be improving, and she was getting up out of bed without assistance, when she was suddenly seized with fatal syncope.

In a memoir presented to the Academy of Sciences M. Lefort ('Gaz.

Méd.,' 19, p. 396) states that two kinds of digitaline are used in France ; the one called " German " or " soluble," and manufactured according to a secret process by M. Merck, of Hesse Darmstadt ; the other, known by the name of " French " or " insoluble," and prepared by the method of MM. Homolle and Quevenne. The soluble form acquires a green colour under the action of hydrochloric acid much more slowly than the insoluble ; the colour is also less deep. Hydrochloric acid gas turns the insoluble digitaline of a dark green, while it gives a dark-brown hue to the soluble digitaline. This gas also develops the peculiar odour of digitalis by its action on the insoluble preparation, but if the soluble form be employed this smell is much less distinct. Under the microscope the soluble digitaline presents traces of crystals of indeterminate form ; the insoluble appears as an opaque granular magma, which is a mixture of two substances at least. The soluble form seems, therefore, to be the better defined body of the two. The principle, which is turned green by the hydrochloric acid, appears in each case to be independent of the digitaline itself. It is volatile, and probably is the same substance with that which gives to digitalis its peculiar odour. Both kinds of digitaline traverse the vegetable parchment, and can therefore be separated by dialysis from substances which contain this principle either naturally or by accident. The bitter taste possessed by both the French and German forms, their coloration with hydrochloric acid, and the special odour of digitalis which they give out when heated with hydrochloric acid gas, enable digitaline to be detected in substances which contain it in tolerably large quantity. The observations of M. Lefort are applicable to the substance as sold in this country also, for it appears that this is always obtained from abroad. M. Lefort does not seem to have made any experiments to determine whether the " German " or " soluble," which he supposes to be the more pure, is also the more active variety of this substance.

M. Grandeau has made a series of experiments (' Gaz. Méd.,' 19, p. 383) to test the method of dialysis as a means of separating digitaline from organic liquids. He found that when gr. .01 of this substance was added to urine the liquid which passed out of the dialyser contained nearly all of the poison. In another experiment gr. .04 of digitaline was mixed with the liquid in which the stomach and intestines of a dog had been macerated. The poison was readily detected in the diffusate. Morphia and brucia also gave satisfactory results in quantities of gr. .02.

The green colour which digitaline gives when dissolved in concentrated hydrochloric acid is not a sufficient test for this poison, for several other organic substances give the same reaction. M. Grandeau believes that the following colour test is characteristic of digitaline. When pure, it is coloured brown by concentrated sulphuric acid ; the addition of water turns it to a dirty green hue. When a dilute solution of digitaline is evaporated, and the residue is treated with sulphuric acid, the brown colour is replaced by a reddish-brown tint ; and in the case of very minute quantities of the poison a rose colour like that of the flowers of digitalis makes its appearance. Now, if the digitaline, moistened with sulphuric acid, be exposed to the vapours of bromine

it assumes a mauve or violet colour, the depth of the tint varying with the quantity of the alkaloid. This reaction succeeds perfectly with from gr. '005 to gr. '0005 of the poison.

MM. Tardieu and Roussin relate, in the 'Ann. d' Hyg.' (22, p. 80), those points in the celebrated case of Dr. Couty de la Pommerais, which are of medico-legal interest. It will be remembered that the prisoner, a medical man, was convicted, on the 17th May, 1864, of having murdered the widow Pauw, and that he was executed. The history of the investigations which had this termination is as follows:—In consequence of suspicions which were excited, the body of Mde. Pauw was exhumed 13 days after her death, and a regular autopsy was made. The tissues were comparatively free from decomposition, so that the slightest morbid appearances would have been readily detected, but no lesion was found which could account for her death. There was no trace of external injury. The organs were all healthy, except that certain parts of the intestines were found to be congested. The uterus contained a fœtus of about the 7th or 8th week. When the organs were analysed it was noticed that the stomach and intestines were remarkably free from decomposition. No mineral poison, however, could be detected in them. The extraordinary state of preservation in which the viscera were found is therefore no indication that death arose from poisoning rather than from disease, for, as was remarked by M. Hébert, vegetable poisons have not the power of retarding putrefaction, which is possessed by metallic substances.

The most important medical evidence for the prosecution was derived from an examination of the surface of the floor of Mme. Pauw's bedroom, at points where matters, which she had vomited, had fallen upon it. Some portions of the "parquet" stained by these fluids were removed by the expert who examined the room; these pieces of wood were carefully scraped, and the matters so obtained were added to some scrapings taken directly from other parts of the floor which had been soiled by the vomited fluids. They were then exhausted with hot alcohol. In this way more than 4 drachms of extract were obtained, which possessed a brown colour and a bitter taste. It was attempted to purify this by dialysis, but without any good result. With this extract M. Tardieu proceeded to make experiments on animals. About 80 grains of it were introduced into two incisions in the thighs of a healthy dog. In about  $3\frac{1}{2}$  hours the animal began to vomit. The pulsation of its heart fell at the same time from 110 to 94 in the minute, and became irregular and intermittent, and their frequency continued to decrease till it was only 40 in the minute. The animal became cold, and died 22 hours after the injection had been practised. It appeared to retain its intelligence to the last. On examination the ventricles of the heart were found to be contracted, while the auricles were dilated; all the cavities were filled with black, partly coagulated blood. A rabbit was killed in  $2\frac{3}{4}$  hours with 30 grains of the same extract, given by mouth. The symptoms and post-mortem appearances were similar.

For the sake of comparison, an extract was made from the scrapings of a part of the floor of Madame Pauw's bedroom which had been under the bed, and therefore was not touched by the fluids vomited,

Some of this, given to a rabbit, produced no poisonous effect. It was suggested for the defence that the room had formerly been occupied by a photographer, and that some of his chemicals might have fallen on to the floor. There was, however, no such stain as would have been produced by salts of gold or silver. Corrosive sublimate was proved to be absent, and cyanide of potassium would have been long before changed into carbonate of potass. These are the chief poisons employed by photographers.

Similar experiments were now performed on animals with the alcoholic and aqueous extracts obtained from the stomach and intestines of Madame Pauw. A drachm of these substances mixed killed a rabbit, but so quickly that some accidental complication was believed to be the cause of death. A dog, beneath whose skin about 80 grains were introduced, suffered from exactly similar symptoms to those observed in the dog to whom the extract of the scrapings of the parquet was administered, but this dog ultimately recovered. These effects on animals are very similar to those known to be produced by digitaline. There was also some reason for suspecting that Madame Pauw had taken this substance. M. de la Pommerais had bought from one chemist 46 grains of this substance on the 11th and 19th June, 1863, besides 8 grains which he had purchased in the year 1861. But only about 2 grains of this substance were found in his possession. For a homœopathic practitioner he also had a very large stock of several other very active poisons.

Some further experiments were made on frogs. The heart was laid bare in three of these animals. Six drops of a solution of pure digitaline, containing  $\cdot 00924$  grain of that substance, were introduced beneath the skin of the abdomen of one of the frogs, and another of the animals was treated with about 8 grains of the alcoholic extract of the scrapings of the floor (where the vomited matters had fallen). The third frog was simply left alone, for the sake of comparison. A diminution in frequency and an irregularity in the heart's action were soon observed in the first two frogs, while that organ continued to beat in the third with rhythm almost unaltered. The heart ceased to act in the first two frogs almost at the same time; and the ventricle after death remained in each case firmly contracted. These experiments upon frogs were several times repeated, and with an unvarying result. The extract of the parquet always produced "a diminution in the frequency of the heart's beats, with irregularity. This was so great that, in spite of the fulness of the slow contractions of the heart, the organ never succeeded in emptying itself completely of blood towards the end of the experiment." At the trial of M. de la Pommerais, M. C. Bernard gave evidence that these phenomena were well known to be among the principal effects of the action of digitaline upon the heart.

The illness which preceded the death of Madame Pauw was very short. She was quite well and pursued her usual occupations the evening before she died. In the night she was seized with repeated and violent attacks of vomiting, and with great depression. Dr. Blachez saw her, and states that she was pale, agitated, and bathed in cold sweats, and that she complained of intense headache. Her pulse

was irregular and intermittent, and became imperceptible before her death.

From these facts MM. Tardieu and Roussin draw the following conclusions:—(1) “Madame Pauw died from the effects of poison. (2) This poison was one of those poisons which, derived from the vegetable kingdom, leave no characteristic traces in the organs, and cannot be isolated by chemical analysis, but reveal their presence by their effects, and are discovered by the fatal action which they exert on living animals. . . . (4) The symptoms observed in Madame Pauw during life and those noticed in the experiments on animals detailed above have a great resemblance to the effects of digitaline; and though we cannot affirm it positively, a strong presumption leads us to believe that it was from poisoning by digitaline that she died.”

Of the other medical witnesses, M. Hébert was the one whose evidence was most favorable to the accused (‘Union Méd.’ 22, p. 325). He stated that he had himself experimented on frogs with solutions of digitaline, having injected subcutaneously 36—50 drops of a liquid containing a centigramme of the poison in 100 grammes of water. The animals were unaffected by it (the difference in quantity was probably the reason why his results were so different from those of Vulpian, alluded to below). He also denied that in poisoning by digitaline the ventricle is found contracted. M. Cl. Bernard stated that nothing in the history of the experiment No. 1 (with the dog) contradicted the supposition of poisoning by digitaline. He said that at the moment of death the heart is dilated in cases of poisoning by this agent among the higher animals. In a very few minutes, however, cadaveric rigidity of that organ comes on, and it passes into a state of persistent contraction.

M. Vulpian, after describing his experiments made in the year 1855, said that “in the great majority of cases the ventricle is pale and contracted (when the heart has ceased to beat) and the auricles are dilated. The peculiarity of this arrest of the heart’s action is that it takes place while the animal still preserves the power of movement.” The substances which produce similar effects are, according to M. Vulpian, the poison of toads and of the aquatic salamander, the upas antiar, the alcoholic extract of the *Tanghinia venenifera*, and the aqueous and alcoholic extracts of the *Helleborus viridis*. No other agents, introduced beneath the skin at a distance from the heart, have been found to arrest the heart’s action without evident disturbance of the other functions.

Dr. Faure publishes (‘Arch. gén.’ 1864, Oct., p. 413) some remarks on the effects of digitaline when administered in large doses. He finds that this poison acts much less powerfully upon dogs than upon the human subject. In the dog 5 centigrammes produce no effect; even with 10 or 15 centigrammes very severe symptoms do not necessarily result. This appears to render it unadvisable to use dogs as the subjects of physiological tests for digitaline. In these experiments M. Faure prevented the expulsion of the poison, not by ligature of the œsophagus, which is itself a fatal operation, but by tying a cord round the mouth. Vomiting then takes place; but the gastric contents, though they regurgitate into the throat, return into the stomach, and the full effect of

the dose administered is thus obtained. He thinks that the vomiting caused by digitaline differs in its nature from that produced by other emetic substances. The action of the stomach is not, he says, the principal thing, but is only the sequel of a series of convulsive contractions, which commence in the limbs and abdomen, and are followed by violent expiratory efforts on the part of the ribs. The matters vomited consist of bile and mucus stained with blood, in addition to the contents of the stomach. There are also pauses between the different attacks of vomiting, during which the animal appears well. So also, when death does not result from the administration of the poison, recovery is rapid. In some cases digitaline acts upon the intestinal canal; the animal then passes per anum, after most violent straining, a greenish glairy fluid, often stained with blood. M. Faure could never detect a primary action of digitaline upon the heart. Immediately after the vomiting its pulsations are accelerated, in the intervals they may be reduced; but it is necessary to guard against attaching too much importance to these changes. As Quevenne said, "Dogs are so impressible that looking at them is sufficient to excite the heart's action." The condition of the heart after death also usually presents nothing peculiar. In one experiment, in which the chest was opened immediately after cessation of the heart's action, a slight wave was seen to traverse the organ from apex to base. The ventricles in this case contained liquid blood. In other instances fibrinous clots have been found in the heart's cavities. Among the other effects of the poison noticed by M. Faure are dilatation of the pupils, and violent horripilation over the whole body. In many of these experiments the poison was applied endermically to the back of the neck. The vomiting was then equally severe, and the fatal result was more certain than when it was given by mouth. M. Faure remarks on the difficulty of detecting the administration of digitaline if it should be applied to an ulcer or to a blistered surface.

#### *Solanaceæ.*

*Atropine.*—A case of poisoning by this alkaloid is recorded in the 'Lancet,' 1864, 1, p. 8. The subject of it was a child 4 years old, who swallowed about 2 drachms of a solution containing 2 grains to the ounce. Among the symptoms recorded was a sort of tetanic spasm of the legs. The case terminated in recovery.

Dr. Hohl relates a case of poisoning by atropine ('De atropini effect., Diss. inaug. Halis Sax.,' 1863; 'Schmidt,' 123, p. 165), which is remarkable, not only on account of recovery occurring after so large a dose, but also because of the remote effects, which showed themselves some weeks after the poison was swallowed, and, perhaps, owed their origin to it. A woman, æt. 28, received atropine instead of caffenin by mistake on the part of a chemist, and took about noon a powder containing 2 grains of that alkaloid. The symptoms, which appeared almost at once, were of the usual kind, and reached a pitch of great severity, in spite of an emetic, which was given within an hour and a half. It was 6 days before the effects of the poison completely sub-

sided. The treatment consisted in the administration of tannin, iodide of potassium, and strong coffee, and in the use of cold affusion, and the application of ice to the head. Thirty-six hours after she swallowed the atropine her urine dilated the pupil of a rabbit to twice its size in less than 5 minutes.

The woman remained well for several weeks after her recovery, but at the end of that time she became affected with loss of sensation in the finger-tips, formication, sleeplessness, illusions of sense, headache, lassitude, and gastric disturbance. She also complained of attacks of palpitation at night, accompanied by great debility and distress. She remained anæmic, and no treatment succeeded in restoring her to her previous state of health.

#### *Convolvulaceæ.*

M. Guibourt ('Journ. de Phar. et de Chim.,' 44, p. 475) gives an account of a new form of jalap, as occurring in trade. It consists partly of a substance already described as the "faux jalap rouge," and which is said by Jourdanet to be an excrescence which forms on the trunk of the guava tree. The remainder is made up of tubercles which have been superficially coloured by some black liquid, readily removable by washing. Many of these tubercles are provided with radicles. M. Guibourt thinks that they are derived from the *Agave Americana*, or from some other plant of the same family. This kind of jalap came from New Orleans. Another variety of the drug, which reached Havre at the same time in a separate bale, is described by Guibourt as the "digitate jalap." It consists usually of 2 or 3 more or less fusiform tubercles, connected together, and terminating in an upturned point. They are usually small; their surface is of a grayish-black colour, and is deeply furrowed by desiccation. On section they are found to be white in the centre, gray at the circumference. Their internal structure resembles that of the true rather than that of the spurious fusiform jalap. The botanical source of this drug is unknown. It yields only 3.91 per cent. of resin, while true jalap should give 15—17 per cent. It should, therefore, not be substituted for the true drug, but may be used for extracting the resin, if this should be found equally active with that of ordinary jalap.

Vogl ('Med. Jahrbücher,' 1864, 1, p. 25) has subjected the root of the *Ipomœa Turbethum*, a drug formerly held in high estimation, to an examination similar to that of Bernatzik on jalap recorded in the last 'Year-Book.' It appears to contain convolvulin; it is a less active purgative than jalap.

#### *Arrow-poisons.*

Dr. Braidwood ('Edin. Med. Journ.,' Aug., 1864, p. 123) gives an account of the results which he attained in a series of experiments with dajaksch, an arrow-poison used in Borneo. The source of this substance appears not to be known. It is an extract which, when dry, has a dark-iron-gray colour. It is dissolved by cold water, especially in the presence of acids. It is slightly soluble in alcohol and

ether. Its solutions have an alkaline reaction. Its taste is bitter, and its odour resembles that of organic matter decaying in a moist place.

When administered subcutaneously, its first effects are restlessness and signs of slight irritation. The animal is then languid and lies still, and the respiration is slow, without being laboured. Fits of convulsions then come on, and paralysis, first of sensation, then of motion, follows. This paralytic stage shortly precedes death. The respiration also becomes heaving and irregular; and sometimes it is spasmodic, and occurs only at long intervals. Vomiting and expulsion of fæces and urine are usually among the symptoms observed in warm-blooded animals. This poison has a special action on the pupil. When 2 drops of a dilute solution are placed between the eyelids the iris contracts. This effect is also observed during the convulsive stage of general poisoning. When paralysis occurs the pupil dilates. It does not follow that contraction of the pupil would be caused in man by this substance, for many poisons produce this effect in animals without having the same action on the human subject.

The complete cessation of cardiac action is, however, the characteristic effect of *dajaksch*. After its introduction beneath the skin of a frog the heart's pulsations soon become feeble. The organ then begins to beat peristaltically (from the apex to the base) and irregularly, the auricles contracting twice as frequently as the ventricles. After a time the ventricles become motionless; some time afterwards the auricles are seen to pulsate more and more slowly, and at last they also cease to contract. Mechanical and electrical stimuli fail to produce any contraction when the heart has once become paralysed. The ventricles remain bloodless and pale, while the auricles contain blood. At the time when the heart ceases to act sensation and motion are still unimpaired, so that if released a frog will jump about briskly, with an immovable heart. In warm-blooded animals the effects are similar, but not so well defined.

Further physiological experiment, by excluding the influence of the vagus and of the spinal nerves, leads to the conclusion that the action of *dajaksch* upon the heart is caused by its paralysing the cardiac sympathetic ganglia. Kölliker, of Würzburg, found that the *upas antiar* (which is the active principle of the arrow-poison of Java) acts directly on the muscular fibres. This, therefore, would establish a difference between them, should further investigation confirm it.

#### *Loganiaceæ.*

A case of poisoning by strychnia is related by Casper ('*Vjhrschrift.*' N. F. I, p. 1).—It is of interest, because it is believed to be the first instance in which this substance has been used in Germany, or at least in Prussia, to destroy life. This is, no doubt, in great part due to the fact that phosphorus and arsenic are used in these countries to kill vermin, and not strychnia, which enters into the composition of some of the substances sold for this purpose in England. The subject of Casper's case was a man, æt. 30, who took, according to his own confession, 5 or 6 grains of this alkaloid about 5 p.m. on the 10th



December, 1863. Symptoms appear to have set in in about an hour, and presented the usual characters. Between the paroxysms, which occurred at intervals of about half an hour, the lower extremities lay extended and powerless. He died at 8.15 p.m. The application of cold to the head gave him comfort, and did not excite spasm, as did the slightest touch or movement of the limbs.

The post-mortem examination was made 41 hours after death. The rigor mortis was present, but was in no respect different from that observed in corpses of persons who have died from other causes. The lungs contained but little blood, but were œdematous. Casper noticed a peculiar dirty violet colour of the muscles of the pharynx and œsophagus, which he thinks worth looking for in future cases of a similar kind. The veins on the posterior surface of the spinal cord were rather full of blood, but he ascribes this appearance merely to hypostatic engorgement. The membranes of the brain were markedly injected with blood; and Casper remarks that this case certainly supports the statements that this appearance is a constant one of poisoning by strychnia. It is, however, so frequently found where death arises from other causes that it possesses scarcely any value. The right side of the heart was quite empty and contracted, and the left side contained scarcely half a table-spoonful of blood. The great vessels were also almost empty.

The contents of the stomach were extracted with amylic alcohol, according to the process of v. Uslar and Erdmann. After repeated purifications a residue of 3.1 grains' weight was obtained. This contained microscopic crystals, resembling those of strychnia, and gave the characteristic coloration with sulphuric acid and bichromate of potass. Dr. Sonnenschein, who made the analysis, finds that the alkaloid may be obtained in a pure state more quickly by another process, which is described in this paper. In this way he extracted, in a crystalline form, 1.7 grain of strychnia from a mixture of decomposing milk and meat, to which 2 grains had been added.

Casper is of opinion that neither the time at which symptoms commence in cases of poisoning by this substance nor the period at which death occurs can be very narrowly defined in the present state of our knowledge. He finds but little difficulty in distinguishing the symptoms from those of idiopathic tetanus. "If a man, without any other exciting cause, is attacked soon after swallowing a medicine or other substance likely to contain the poison with tetanic spasms, resembling in their course those caused by strychnia, there is a probability, approaching to certainty, that the poison is the cause of these symptoms." If the presence of strychnia in the interior of the body can be shown by chemical tests all doubt is removed, but the failure to discover the poison can never afford a proof to the contrary.

Dr. Lion, sen. ('Deutsche Klin.,' 1863, pp. 385 *et seq.*), gives a résumé of what is known as to poisoning by strychnia. He remarks that there is, perhaps, no one of the alkaloids which can be detected with so much certainty, even under unfavorable circumstances, and he fully agrees with those English authorities who have maintained that where this poison cannot be discovered it was not the cause of death.

A case of poisoning by strychnia, fatal in half an hour, is recorded in the 'Pharm. Journ.' (5, p. 581). The poison was sent instead of James's powder, from a chemist's shop. The ethereal extract of the contents of the stomach gave the colour reactions of strychnia. Tetanic spasms were also produced in frogs when a few drops were inserted under the skin.

### *Compositæ.*

*Santonine.*—Dr. Notta draws attention ('Journ. de Chim. Méd.,' 10, p. 111) to the fact that santonine, when taken internally, gives to the urine the property of turning of a cherry-red colour when it is boiled with caustic potass, or even when caustic potass is added to it in the cold. This reaction might easily lead to the conclusion that sugar is present in the urine. No result is obtained with the copper test, and therefore the application of this test will at once prevent any mistake in a doubtful case.

*Artemisia absinthium.*—M. Decaisne has presented a memoir on the use of absinthe to the Academy of Sciences ('Comptes Rend.,' 59, p. 229). His conclusions are as follows:—1. Absinthe produces far more injurious effects than eau de vie of the same alcoholic strength, taken in the same dose. 2. In equal doses it leads to intoxication far more quickly than eau de vie; both acute and chronic alcoholism show themselves much more readily under its use. The degree of concentration of the alcohol, usually high in absinthe, must not be forgotten in this head. 3. The action of absinthe on the nervous system is more marked than that of eau de vie, and resembles the effects of narcotic acrid poisons. 4. One of the greatest dangers of absinthe lies in the adulterations to which it is subject, and to which the attention of the authorities should be directed. 5. Even in moderate dose and of good quality (say, a glass or two daily) it is not free from ill effects, producing sooner or later, according to the constitution, digestive disorder. 6. The taking of absinthe, even in small quantities and of good quality, ought to be prohibited.

### *Cinchonaceæ.*

Mr. Howard ('Pharm. Journ.,' 5, p. 342) states that a large quantity of the root-bark is contained in the recent importations of calisaya bark from Bolivia. The curly shape in which it is found enables it to be at once recognised. It only yields 8·14 parts in 1000 of the purified alkaloids, and of these only 3·06 consist of a crystallized salt of quinine, the remainder being almost entirely composed of the quinidine of Pasteur. It has, therefore, only about one tenth the value of ordinary calisaya bark. Dr. de Vry, on the contrary ('Pharm. Journ.,' 5, p. 598), says that the root-barks of all the species of cinchona which he has investigated contain more of the alkaloids than the bark of the stem.

Mr. J. C. Braithwaite finds ('Pharm. Journ.,' 6, p. 280) that the amount of citrate of quinine in specimens of citrate of iron and quinine obtained from makers of repute is often small, even when it is stated

on the label that the drug contains 25 per cent. of citrate of quinine. Out of 15 such samples 6 contained less than 10 per cent. of that salt.

### *Rubiaceæ.*

M. Pécholier ('Bull. de Thér.,' 66, p. 205) has submitted to the Academy of Sciences a résumé of his researches as to the therapeutical action of ipecacuanha, a work which forms a natural complement to his well-known investigations as to the physiological action of this drug. His observations were made on patients suffering with pneumonia, acute febrile bronchitis, capillary bronchitis, and the pulmonary engorgement of typhoid fever. The results he obtained were the following:—1. Nausea and vomiting were not invariably produced, and often occurred only at the commencement of the treatment; sometimes, however, they persisted, and compelled the abandonment of the remedy; and generally when it was given for more than a week they returned and caused permanent intolerance. 2. The rapidity of the pulse and of the respiration, as well as the animal heat, were lowered. 3. The expectoration became more abundant and easy; the sputa in pneumonia less coloured. 4. The stethoscopic signs improved. 5. The powers were not lowered, while the violence of the disease and the morbid reaction were both checked, so that recovery was rapid and certain. In comparison with tartarised antimony, Pécholier found the action of ipecacuanha more rapid, less profound, and less prolonged. He does not recommend its employment in all cases of pneumonia, but especially in a form of the disease to which he gives the name "catarrhal pneumonia," and which would seem to be a milder affection than the inflammatory variety, in which last, according to Pécholier, venesection and antimony are required. In febrile bronchitis he finds that ipecacuanha hastens the disappearance of the fever and of the cough, and quickens the convalescence. In capillary bronchitis it is less useful. In these observations the remedy was always used in large doses, varying from four to six and even ten grammes daily, in the form of infusion. Small quantities of opium and of syrup of digitalis were usually combined with it.

### *Hydrangeaceæ.*

Prof. Bentley ('Pharm. Journ.,' 5, p. 310) gives an account of the *Hydrangea arborescens*. The root is the part employed in medicine. It has been found, on chemical analysis, not to contain anything to account for its reputed properties, except a quantity of mucilage. It is said to be very useful in calculous diseases, and to relieve the pain caused by the passage of a calculus through the ureter. It is administered as a fluid extract, in doses of a drachm twice or thrice daily.

### *Leguminosæ.*

*Physostigma venenosum*.—Jobst and Hesse ('Ann. d. Chem. u. Phar.,' 129, p. 115) have succeeded in isolating the active principle of the Calabar bean, to which they give the name physostigmin. It is ob-

tained from the alcoholic extract of the cotyledons of the seed. The extract is dissolved in water, and calcined magnesia is added till the liquid loses its acid reaction and assumes a brown colour. It is then gently evaporated, and the moist residue is taken up with filtering paper and agitated with ether till the brown colour of the paper has disappeared. The ether is then filtered, and a few drops of very dilute sulphuric acid are shaken up with it. The mixture separates into two layers, of which the lower is dark red and contains the sulphate of the alkaloid. This is again precipitated by magnesia and extracted by ether, from which the physostigmin is obtained on evaporation. The alkaloid is a brownish-yellow amorphous mass, soluble in ether, benzin, and alcohol, as well as in solutions of ammonia and soda, less readily dissolved by cold water. The aqueous solution has a slightly acid taste. No ultimate analysis of it has hitherto been made. It readily undergoes change, and therefore it is unlikely that it will take the place of the alcoholic extract of the bean in surgical practice; but it has all the active properties of that drug. Two drops of the aqueous solution, placed in the eye of a rabbit, caused in ten minutes contraction of the pupil, which lasted an hour. It even produced contraction of the pupil when applied to the conjunctiva of a rabbit recently killed.

Several cases of poisoning by the Calabar bean occurred at Liverpool on the 10th and 11th August, 1864. An account of them is contained in the 'Phar. Journ.' (6, pp. 99, 134). It appears that a quantity of rubbish, taken from a ship, was deposited on some waste ground in the town. The children playing near it found in it a number of beans, which they cracked and ate. The quantity taken by each child was from half a bean to six beans. The kernel of the nut was eaten, without the spermoderm. The children were mostly under 10 years of age, and the poison generally produced nausea and vomiting in half an hour. The secondary symptoms—trembling, dizziness, and loss of power in the limbs—came on within an hour. About three quarters of an hour after they had eaten the beans 46 of the children were taken to the Southern Hospital, and were at once treated with emetics. One case proved fatal, that of a child *æt.* 6, who was said to have eaten 4 beans. The emetics given to this boy failed to act, and death occurred from collapse within a quarter of an hour after his admission into the hospital. Purging was among the symptoms observed in this case. On post-mortem examination the intestines contained only a whitish semifluid emulsion, consisting partly of the bean and partly of the mustard which had been administered. The heart contained fluid blood and clot in all the four cavities. The blood itself was noticed to be very fluid. The bladder was empty and contracted.

Dr. J. B. Edwards made an analysis of the contents of the stomach and intestines. The alcoholic extract of the fluid from the stomach was further purified by ether, and was then applied to the eye of a rabbit, causing marked contraction of the pupil. A similar extract from the contents of the intestines was dissolved in water and gave the following reactions:—1. With caustic potash a pink colour, gradually increasing in intensity to a deep red; when chloroform was added it formed a deep-red solution, which separated from the clear-yellowish supernatant

liquid. 2. Strong sulphuric acid produced a red colour, with the separation of a resinoid coagulum. 3. Sulphuric acid, with crystals of bichromate of potass, gave a violet colour, changing to red. 4. Sulphuric acid and binoxide of manganese produced the same effect, the purple tint being retained for a long time. 5. Solution of iodine in iodide of potassium gave a yellow colour. 6. Terchloride of gold gave a yellow colour, with reduction of metallic gold. 7. Caustic ammonia struck a yellow colour, which, after exposure to the light for some hours, turned green, and finally deep blue. A few drops of this extract, inserted beneath the skin of a frog, killed it, producing paralysis, with complete flaccidity of the limbs, and insensibility to external irritation. Two mice were also paralysed and killed by it, and it caused contraction of the pupil when applied to the eye of a rabbit.

This was the only case which terminated fatally. Two other children were extremely ill; they are said to have suffered from severe griping pains, in addition to the symptoms mentioned above. That the effects were not more serious was ascribed partly to the fact that most of the children had had their dinners shortly before eating the beans. Dr. Edwards remarks that, though circumstances favoured the detection of the poison in this case, yet, had the purging been more severe, so as to expel the contents of the intestines and stomach, there would have been no evidence that death did not occur from cholera.

Dr. Cameron publishes a full account of these cases in the 'Med. Times and Gaz.' (1864, 2, p. 406). He states that in some of them effects were observed within 5 minutes. The loss of muscular power was the prominent symptom, and was one of the earliest, preceding the vomiting in some instances. Vomiting occurred in all the cases except 8, and nausea was absent only in the one which proved fatal. Diarrhœa was present in 15 cases, but was not severe, and was often observed only during recovery. Pain in the abdomen, on the other hand, was in every case experienced at first; but afterwards there was a remarkable freedom from suffering. The pupils were perfectly normal in most of those cases in which their state was observed. In 3 they were contracted, but in one of these the contraction existed only during sleep, and on rousing by the stimulus of galvanism the pupil became of the natural size. In the 2 other children this was not tested. Cerebral disturbance was present in 2 cases; giddiness, double vision, and ocular spectra, being the symptoms. The child who died, notwithstanding his prostration, was sensible a short time before he died. That the bean has the effect of impairing muscular irritability would appear from the fact that the muscles of his neck, chest, and arms, responded but very feebly to the stimulus of galvanism, employed in the hope that the heart's action was not completely arrested.

#### *Papaveraceæ.*

M. Cl. Bernard ('Comp. Rend.,' 59, p. 406) relates some experiments which he has made on animals with the alkaloids of opium. In these investigations he generally adopted the method of subcutaneous injections; and he is so much struck with the superiority of this mode of bringing an animal with certainty under the influence of a drug, that

he thinks it ought to be employed generally for the administration of powerful remedies to patients. He noticed the following differences in the action of the opium principles. Among morphia, narceine, codeia, narcotine, papaverine, and thebaina, only the first three produce sleep, and differences are observable in the kind of sleep which follows the administration of these substances. That which is caused by narceine is, for equal doses, by far the most deep; that of morphia is less profound, and that of codeia is still less so. There is least sensibility to noise after the administration of narceine; but insensibility to pain is most complete when morphia is the substance employed. The mode of waking also is different. When the effects of morphia are passing off, dogs (and also other animals) often appear alarmed; their eyes have a wild look, and their posterior extremities are half paralysed, so that their walk resembles that of the hyæna. When called they are terrified, and they do not recognise their master. At the end of 12 hours, however, they have regained their usual state of health. On the other hand, after the administration of codeia dogs awake without alarm and without disturbance of the intelligence, and the effects of narceine are similar. These observations accord with the fact that the sleep produced by codeia is not followed by headache in man, as is the case with morphia. Experiments are now being made to ascertain whether narceine resembles codeia in this respect in its effects upon man also.

The toxic powers of the different alkaloids are also very various, and have no direct relation to their soporific action. Bernard finds that thebaina is the most active poison among them, and that codeia is also fatal in a much smaller dose than morphia.\* All the opium principles produce convulsions when given in poisonous ones, with the exception of narceine. Animals poisoned by that substance die with relaxed muscles.

M. Berthé has obtained from codeia therapeutical effects such as would be expected from the experiments of Bernard ('Comp. Rend.,' 59, p. 914). In 45 cases in which he gave this alkaloid, with the object of inducing sleep, he obtained effects which seem to him to place this remedy in the first rank of sedatives and narcotics.

It is instructive to compare the high-flown language of M. Berthé with the statement of Dr. Garrod, in his lectures at the College of Physicians ('Med. Tim. and Gaz.,' 1864), that hydrochlorate of codeia failed altogether to produce sleep when given in doses of gr. 1—3 in cases of restlessness and wakefulness; and that 5 grains of it gave no relief in a case of neuralgia, in which the pain was repeatedly alleviated by half a grain of the hydrochlorate of morphia.

#### *Ranunculaceæ.*

*Aconitum Napellus*.—Messrs. T. and H. Smith, ('Phar. Journ.,' 5, p. 317) have obtained from this plant a new crystalline principle, to which they give the name of Aconella. It appears not to be poisonous, and its presence is probably the cause of the comparative inertness of some

\* These statements appear to rest on experiments made upon young sparrows.

specimens of aconitine. It seems very probable that aconella is identical with narcotine.

Dr. Taylor ('Guy's Hosp. Rep.,' 1864, p. 187) relates the case of W. Hunt, who poisoned himself by tincture of aconite, after killing his wife and children in a cab. An account of the symptoms observed was given to Dr. Taylor by Dr. Puckle, who was called to see him. Violent retching and great depression were the most obvious effects. When raised up from his seat he staggered across the room. The pupils were dilated. He dozed, and said that he had delightful dreams. He tried to write, but was unable to pen more than a few lines. He died in about an hour and three quarters; he had then lost all power of motion and all sensation for about a quarter of an hour. The appearance of the mucous membrane of the stomach strikingly resembled the effects of an irritant poison. The larger end was of a bright-red colour, from great capillary congestion. The whole mucous membrane was highly corrugated, and part of it was softened and separated. The alcoholic extract of its contents, when applied to the lips, produced the peculiar numbing sensation characteristic of aconite.

## ORGANIC CHEMICAL PRODUCTS.

*Hydrocyanic Acid.*—Dr. Otto ('Deut. Klin.,' 1863, p. 476) records the following case:—The stepmother of a photographer was found dead in her room. On post-mortem examination, made the next day, nothing was found to justify the suspicion that death arose from poisoning, but the stomach, and part of the intestines, with their contents, were reserved for analysis. They were placed in vessels covered with writing-paper. On opening the vessels the same day the smell was purely that of decomposition; nothing resembling the odour of prussic acid could be detected. The stomach and its contents were rendered feebly acid by sulphuric acid, and were separately distilled. The distillates had the same putrid smell, but chemical reagents showed the presence of hydrocyanic acid in large quantities, probably in the form of cyanide of potassium. The amount of this substance was estimated at half a drachm. Portions of the liver and spleen, which were examined later, gave only indistinct results.

MM. Bussy and Buignet ('Journ. de Phar. et de Chim.,' 44, p. 465) have made some experiments to determine the relative advantages of preparing hydrocyanic acid by the methods of Gay Lussac and of Gea Pessina, the former being by the action of hydrochloric acid on cyanide of mercury, the latter by the action of dilute sulphuric acid on ferrocyanide of potassium. The Codex of 1837 adopted the first of these processes. That of Pessina is the one ordinarily used in this country. MM. Bussy and Buignet also give it the preference; they find that the quantity of hydrocyanic acid obtained by it approaches more nearly to the theoretical amount than when the cyanide of mercury is employed, and with but little difficulty it may be modified so as to yield an anhydrous acid. This anhydrous acid, when diluted, gives a medicinal acid which is more stable than that obtained by Gay Lussac's process. The stability which had been previously observed in Pessina's acid,

therefore, does not depend on its being originally prepared in a state of dilution with water. In whatever way it may be made, dilute hydrocyanic acid tends to decompose in the same manner under the influence of light, the only difference being in the time required for this change to take place. Portions of the acid, prepared by different methods, were exposed to the direct light of the sun for an hour. Gay Lussac's acid began to turn yellow in 5 minutes; at the end of the hour it was quite brown. Pessina's acid, on the other hand, remained colourless. Both were then placed in the dark; the acid of Gay Lussac quickly became turbid. That of Pessina began to change at the end of a month, and after six months it was quite opaque. Chemical analysis showed that there was then no trace either of prussic acid or even of cyanide of ammonium, as might have been expected, in either liquid. This proves that changes, set up by the influence of light, may not be apparent at the time, but may go on long after the fluid has been again placed in darkness, for dilute hydrocyanic acid which had never been exposed to light was found to remain unaltered at the end of six months.

In a second paper ('Journ. de Chim. et de Phar.,' 45, p. 289) they explain why it is that Gay Lussac's process does not yield the amount of hydrocyanic acid which is obtained by calculation. It appears that the bichloride of mercury in the residue has an affinity for the hydrocyanic acid, which renders it fixed at the temperature ordinarily employed. The addition of sal ammoniac, in equivalent proportion, however, sets the acid free, and the quantity then obtained is 95 per cent. of the theoretical amount.

*Brandy.*—Dr. Taylor ('Guy's Hosp. Rep.,' 1864, p. 190) records a case of poisoning by brandy, in a girl, *æt.* 7. Death occurred in 12 hours. The mucous membrane of the stomach presented patches of intense redness, and was in some places thickened and softened. Portions of it were detached and hanging loosely in the stomach, and there were patches of black extravasation in it, evidently produced by altered blood. There had been no alcoholic smell in the breath of the child four hours after taking the brandy, and the greenish contents of the stomach also had no peculiar smell, but slight traces of alcohol were detected in this fluid by distillation. The vapour readily reduced chromic acid.

*Petroleum.*—Dr. R. Weinberger ('Wien. Med. Halle,' 4, 40, 1863; 'Schmidt,' 121, p. 34) relates two cases of asphyxia by petroleum vapour, probably the first instance recorded of poisoning by this substance. A day-labourer got over into a large vat, the upper edge of which was only about two feet from the roof, in order to cleanse its floor from the sediment of petroleum, which covered it to the thickness of about half a foot. After a short time he fell down insensible, and the same fate befell another man, who got into the vat in order to help him out; and the only way which could be devised of extricating them, was to make a hole in the bottom of the vat, which took half an hour to accomplish. The two men, who were both about 40 years old, and strong and healthy, were found in a state of complete asphyxia; their faces of a bluish-red colour, their eyes fixed and glassy, and their pupils contracted and insensible to light. Some parts of the skin, especially those on which they lay in the vat, were much reddened. No pulse



could be detected, nor any respiration or action of the heart. The skin was cold. Each of the men had passed an abundant semifluid evacuation, of a brownish-yellow colour. Cold affusions, washing with vinegar, and frictions with brushes, were first used, without success. After a venæsection the man who was the last to become insensible gave the first signs of life. The pulse and respiration became perceptible. The secretions from the mouth and nose, expelled with a hissing sound, smelt strongly of petroleum, and attacks of choking, coughing, and hiccough, came on. Irritation of the pharynx caused the ejection of a quantity of grayish-white mucus. After half an hour consciousness began gradually to return. Pneumonia on the right side appeared in the further course of the case, but quickly terminated in resolution. In the other patient (the one who first became insensible) no sign of life made its appearance till half an hour, in spite of the continued use of cold affusion, frictions, and artificial respiration. Exactly the same symptoms occurred as in the case first described, except that recovery was somewhat slower. At the end of four days both men were well. The effects produced in these cases were very similar to those caused by the inhalation of coal-gas or of the fire-damp of mines, which the vapour of petroleum also resembles in its chemical composition.

*Nitrite of Amyl.*—Dr. W. Richardson has investigated the physiological action of this substance ('Med. Tim. and Gaz.,' 1864, 2, p. 334), and read a paper upon the subject at the meeting of the British Association. Its effects appear to be the same whether it is administered by the stomach, skin, or lungs, or even if it be directly introduced into the tissues by inoculation. It causes first violent action of the heart, with dilatation of the capillaries, and afterwards diminished power of the heart and contraction of the extreme vessels. In some of the lower animals, such as frogs, it suspends animation, inducing a state of trance, from which recovery may, however, take place under favorable circumstances. In warm-blooded animals, in which the circulatory and respiratory systems are more complicated, and in which the skin, being less permeable, does not admit the spontaneous evaporation of the poison, the nitrite cannot actually stop the movements of respiration and circulation without destroying life; but even in these animals a condition of trance, lasting many hours, may be induced. This agent is not an anæsthetic; it does not destroy consciousness, except as a prelude to death. Dr. Richardson suggests the employment of nitrite of amyl in cases of tetanus.

*Nitro-glycerine.*—Prof. Albers has made a series of experiments with this substance ('Deut. Klin.,' 1864, p. 405). His conclusions are as follows:—1. Nitro-glycerine belongs to the active poisons, which produce their full effects within a few minutes. Its action on frogs is intermediate between that of strychnia and that of caffeine. 2. In warm-blooded animals it produces effects like those of hydrocyanic acid. Its action is exerted chiefly upon the brain and spinal cord, and less upon those parts which are presided over by the sympathetic nerve. The heart is only so far affected that its action ceases somewhat earlier, and its chambers are somewhat less full of blood than when death occurs in a natural way. The hearts of decapitated frogs beat much longer

than those of frogs poisoned by this substance. The brain and medulla of animals also present an anæmic appearance after the full action of nitro-glycerine. 3. In large doses it impairs the power of motion more than sensation. It has not yet been observed to produce that continued exaltation of sensibility which sometimes lasts for days, weeks, or even months, after the administration of strychnia. 4. In Albers' experiments its action commenced in 3 or 4 minutes, while that of strychnia first appeared at the end of 11—15 minutes. 5. In the cat nitro-glycerine produced only the effects of hydrocyanic acid. The sensibility was diminished; there were slight tonic spasms, affecting chiefly the glottis; the spasms were, however, much less marked than those caused by prussic acid, but the same giddiness was observed which ushers in the action of that poison.

Dr. R. Demme ('Rep. f. Pharm.,' 12, p. 431) has made some observations on the therapeutical action of this substance. He first experimented on himself, taking 2 or 3 drops of an alcoholic solution, containing 1-10th part of nitro-glycerine. It produced a tingling sensation in the throat and an increase in the secretion of saliva. At the end of 10 minutes, or somewhat later, he felt a sensation of giddiness and a dull pain in the head. When 5 or 6 drops of the solution were taken these effects followed more quickly, and were accompanied by a quivering sensation of the masseter muscles. After a dose of 10 drops the movements of the lower jaw were impeded, from contraction of the temporal and masseter muscles, and slight twitchings were felt in the muscles of the extremities. These effects lasted about half an hour, and gradually passed off.

The same solution was used with advantage in doses of from 2 to 4 drops, repeated 3 or 4, or even 6 times a day, in certain forms of paralysis, especially in those which appear not to arise from any organic lesion. In many cases it seemed to be more efficacious than the nux vomica. Its continued use did not produce any injurious effects, and there was no evidence of a cumulative action. It could not be detected either in the secretions or in the excretions of the patients to whom it had been given.

*Aniline Colours.*—Dr. E. Friedreich ('Deut. Klin.,' 1863, p. 461) relates a case which he considers to be one of poisoning by the aniline colours. The patient was a youth, æt. 18, who had been employed for two months in a warehouse, where he was occupied in packing these substances, during which time his hair, hands, and face, were stained blue by the dust which was given off from the fuchsin. The symptoms began with faintness and pain in the back of the head. The most characteristic of them were clonic cramps, affecting the face as well as the limbs, which appeared on the 5th day during sleep, and continued for about a week. Great weakness and depression of spirits and dilatation of the pupils were among the other symptoms; and this certainly coincides with the results of experiments upon animals with these substances. No aniline could be detected in the urine. Recovery took place after 17 days.

*Compound Camphor Liniment.*—Dr. Taylor ('Guy's Hosp. Rep.,' 1864, p. 190) relates a case of poisoning by this liquid, in a child 4½ days old, in which death occurred at the end of 32 hours.

REPORT  
ON  
FORENSIC MEDICINE.

BY  
DR. C. HILTON FAGGE.

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THE death of the great German medical jurist, Johann Ludwig Casper, which occurred suddenly on the 24th February, 1864, gives occasion for a short account of his life and writings in the April number of the periodical of which he was the editor. He was born in Berlin, in 1796, and graduated at Halle in 1819. After a visit to France and England he settled in practice in his native town. In the year 1825 he was appointed extraordinary, and in 1839 ordinary, professor at the University of Berlin. He lectured at first, not only upon legal medicine, but also upon the diseases of children and upon pathology and therapeutics, but during the last 20 years of his life he devoted himself entirely to medical jurisprudence. He was the founder and director of the practical course of instruction in this subject, in which he availed himself to the fullest extent of the various cases which came before him; and his lectures were attended by students in both law and medicine, as well as by medical practitioners and by foreigners. So great were his zeal and energy that it is stated that he never omitted an autopsy, or left it to be performed by his subordinates. In the year 1825 he entered the service of the state as "Medicinal-Bath," was made a member of the "Royal Scientific Deputation" in 1834, and was appointed "Gerichtlicher Physicus" at the Prussian capital in 1841. This post he held at the time of his death. Except during the last ten years of his life, he was also engaged in active private practice.

He was the author of several works on different medical subjects, but his fame will always rest on the additions which he made to medico-legal science. His 'Handbook of Forensic Medicine,' which is now being translated by the Sydenham Society, appeared in 1857. His last work was the 'Klinische Novellen,' published 1863. The 'Vierteljahrs-schrift für Gerichtliche Medicin' was begun in 1852, and continued up to April, 1864, which number completed the 25th volume. Since the death of the editor a new series has been commenced, under the guidance of W. Horn.

## BLOOD-STAINS.

Dr. Kunse ('Casper's Vjhrschrift.', 25, p. 262) has made some observations as to the value of the crystals of hæmin as a test for blood. He finds that these crystals can never be obtained from a blood-stain unless the blood-corpuscles still retain their form, so as to be recognised under the microscope. On the other hand, many spots in which the corpuscles are still clearly seen yield no crystals under chemical manipulation. The value of this test is therefore very small, except as corroborative evidence, and for those who, from want of experience, cannot trust to simple microscopical examination. The usual appearance of the crystals is best compared to that of a hemp-seed, but some also present a curious swallow-tail form at one end.

## WOUNDS AND INJURIES.

Prof. Tardieu gives in the 'Ann. d'Hyg.' (21, p. 415) a long account of the case of M. Armand, of Montpellier, a trial which excited the greatest interest both in France and in this country. On the 7th July, 1863, Maurice Roux, a servant of M. Armand, was found lying in a cellar in a state of asphyxia, with a cord round his neck and his feet and hands tied. He rapidly recovered, and in less than 3 hours was quite well, except that he was mute, being unable, not only to speak, but even to groan or to produce the slightest sound. The next morning he gave by signs a description of what had occurred. According to this statement, his master, M. Armand, came into the cellar, gave him a blow behind the head, and afterwards strangled him and tied his hands and feet. This took place about 8.30 a.m., that is to say, 11 hours before he was found in the cellar by the servant, who always went down at that time to fetch some wine.

M. Tardieu came to the conclusion that this accusation was false, and that M. Roux had fabricated the whole charge.

In forming an opinion as to the truth of the man's statement, it is, of course, of primary importance to ascertain whether the ligatures were so placed that they could not have been applied except by another person. Now, about this there can be no doubt. The cord round the neck encircled that part several times; according to one of the witnesses, as many as 10 times, while others gave 4 or 6 as the number of the turns. It was not fastened in any way. Its position was marked by several sugillations, which were quite recent and superficial and presented no ecchymoses. It is therefore clear that no great force was used in applying it; and the numerous turns and the absence of any knot are much more characteristic of suicide than of homicide. The hands were fastened behind the back. The cord by which this was effected was wound 10 times round the right wrist, and tied with a knot at each turn. The other hand was encircled by 3 turns of the cord, with but 1 knot. The portion of the cord between the two hands was of the length of a finger. It is therefore quite possible that Roux may have himself tied up his hands. The cord round the right wrist

was tight, and this is of importance, for the hand was not swollen, and this could hardly have been the case if the ligature had been applied for 11 hours.

The state in which Roux was found was extremely critical. His arms and forearms were cold, though his face and head were of the natural temperature. His respiration was stertorous, his pulse scarcely to be felt; his conjunctiva almost insensible. M. Surdun, who saw him a little later, says that his respiration was then nearly normal, his pulse feeble, regular, and very slow; his whole body cold, the chest and abdomen being the only parts at all warm. These descriptions are not quite congruous, but they seem to show that the pulse and respiration improved rapidly under the means which were used to restore animation. This renders it probable that the asphyxia was not of long duration, and certainly that it had not lasted, as said by Roux, for 11 hours. It is true that the gradual swelling of the tissues beneath the cord might tighten it, and so render dangerous a ligature which at first produced no ill effects; but it is contrary to all experience that asphyxia should last for so long a time without a fatal termination.

It was stated by Roux that his master stood before him, and gave him a blow with a stick or billet of wood on the neck, which rendered him insensible. M. Surdun examined the neck at the time without finding any injury, but the next morning he observed a small excoriation near the insertion of the right trapezius muscle. With reference to this, three questions were put to the experts, which well illustrate the disadvantages of putting theoretical propositions without reference to the actual case. These questions were—1. Can a blow on the neck occasion symptoms of concussion (“commotion”) or of syncope? 2. Must a blow upon that part be violent or very violent to produce such symptoms? 3. Must such an injury always leave well-marked traces of contusion, such as ecchymoses? The answers to these questions were—1. Yes. 2. No. 3. No. Yet, as M. Tardieu observes, it is most unlikely that a blow with a piece of wood, on a part so well protected by a large mass of muscles, should produce severe effects without causing more than a slight excoriation. It is much more probable that the injury was produced, as a similar one on the chest was no doubt produced, by the fragments of coal which covered the floor of the cellar.

Equally unsatisfactory is the statement of Roux as to what followed the blow on the head. He first described in signs that M. Armand tied a cord round his neck, fastened his hands behind his back, and afterwards bound his legs together with a handkerchief. The next morning he stated that the blow rendered him insensible. He even gave a third account, according to which he was stupefied and unable to move or to cry out; but it seemed to him that M. Armand practised some extraordinary action upon him, and that afterwards he became strangled and bound. He also said that he heard a noise in the adjacent cellars without being able to call out. This state of clairvoyance is certainly extremely improbable as the effect of a blow, and no less remarkable is the state of mutism in which he remained for 36 hours after his recovery. He could not speak a word, nor even cry out nor groan.

Yet he could make gestures, describing the way in which he was attacked. With the aid of an alphabet he answered clearly a long and minute interrogatory. When confronted with his master the play of his countenance indicated his feelings towards him, as well as the perfect state of his consciousness. The next morning his speech suddenly returned. There can hardly be any doubt that the mutism, like the rest of the case, was simulated.

In addition to the paper of M. Tardieu, the opinions of five other eminent physicians are given, expressing full agreement with his conclusions. As is well known, M. Armand was acquitted in the criminal court, but was afterwards heavily fined when the case was brought before a civil tribunal.\*

#### SUFFOCATION.

Dr. Wossidlo relates the following remarkable case ('Vjhrschrft. f. ger. Med.,' N. F. 1, p. 293). A young woman, about 20 years old, who had given birth to an illegitimate child 7 days before, died suddenly. Poisoning was suspected, but this was negated by the autopsy. The signs of death by suffocation were, however, very distinct. The eyes protruded, the face was swollen, the tongue projected between the lips. The outer surface of the neck was in vain examined for any sign of strangulation; but a large ball of hay, the size of a goose's egg, was found in the back of the throat, reaching down the pharynx at the back of the larynx, and just visible when the mouth was widely opened.

There was no doubt that this was the cause of death; the question was whether the case was one of suicide or of murder. She had just before left a room in which were several persons. The mistress of the house went out to seek her, and saw her standing on the floor of a hay loft, and noticed, when she got near her, that she trembled and breathed with difficulty. When the girl was asked what was the matter she made no answer. The woman therefore called to her son, and they got her down through a hole in the floor of the loft and led her indoors. Several women were present, and they thought that she was in a fit; she was blue in the face, trembled in the hands and feet, rolled her eyes, and from time to time opened her mouth, as if gasping for breath. After about a quarter of an hour she died.

In spite of the apparent improbability of the thing, there was no doubt that this was a case of suicide. There were no marks of violence, and the people in the house heard no cry. She had also full opportunity of drawing attention to the cause of her sufferings when she was first found standing in the loft. The case is a good illustration of the fact noticed by Casper, that the signs of asphyxia are best developed in those cases in which death is slow.

#### COLD.

Dr. Dieberg publishes in 'Casper's Vjhrschrft.' (25, p. 299) details of 100 medico-legal autopsies performed at Kasan; 28 of them were cases of fatal intoxication. It is well known that in Russia almost all

\* This decision has since been reversed by a superior court (Jan., 1865).

the lower classes habitually drink to excess. There were also 10 cases of death by cold, and in many of these drunkenness was the cause of the exposure which led to a fatal result. Dieberg thinks that the frost-erythema, and even the chilblains on the fingers of persons found dead in the snow, are not proofs that exposure took place during life. His chief reason for this opinion is the fact that these phenomena are often observed, *after thawing* has occurred, in corpses which had been exposed for 24 hours, or less, to the influence of cold, and of which the skin, while they remained frozen, was perfectly pale, and presented neither erythema nor chilblains. He admits, however, that further experiments are necessary in order to decide this question. Among the proofs that the *living* body was acted on by the cold he mentions a distended condition of the urinary bladder. As much as three pints of clear, odourless urine were often contained in it. The heart also is said to contain a larger quantity of blood in this than in any other form of death, in some cases reaching the enormous quantity of 24 oz. This blood was usually dark and fluid. Whether the blood in the body generally differed in colour from that ordinarily observed he did not notice. The stomach was not generally empty, as has been asserted.

## BURNS.

Duvernoy ('Würt. Corr. Bl.,' 1862, 32; 'Präg. Vjhrschrft.,' 1864, 2, p. 114) relates the following case, which is of interest as bearing upon the disputed question whether fire ever produces vesications on the dead body:—The corpse of a man was found who had committed suicide by means of a gunshot wound, which traversed the chest and had lacerated the heart throughout the whole length of that organ. It could, therefore, not be doubted that death was instantaneous. The explosion of the gun had set fire to his clothes, and also to the cushions on which he sat. His whole body was more or less severely burnt; at several points there were small vesications, and in the neck the skin was raised into large bullæ, which contained a bloody fluid.

## PREGNANCY.

Scanzoni ('Allg. Wien. Med. Zeit.,' 1864, p. 25) relates a case in which pregnancy occurred in spite of its being utterly impossible that intromission could have taken place. The subject was a healthy young woman, who was engaged to be married, and who applied to Scanzoni in order to know whether there was any obstacle to her fulfilling her engagement. She told him that she had always menstruated regularly up to the last 3 months, since which time the menses had not shown themselves, apparently in consequence of her having caught cold. On examination of the abdomen a tumour was found above the pubes, and the other signs of an early pregnancy were present. The girl herself did not deny the possibility of her being pregnant. On examining the external organs, however, the entrance of the vagina was found to be closed by a firm, tense membrane, in the middle of which was a small opening the size of a millet-seed, just large enough to admit a surgical

sound. The membrane was not yielding, so that it could not have been pushed up by the penis.

#### ABORTION.

Zechmeister ('Allg. Wien. Med. Zeit.,' 1864, p. 81) records the following remarkable case:—He was called in to see a woman, æt. 25, and found her suffering from an abscess situated over the lower end of the right sacro-iliac synchondrosis. Pressure on this part caused most offensive discharge from the vagina. On examining the genital passage with the finger a hard rough body was felt, which was at first supposed to be a portion of necrosed bone. This body was placed transversely in the pelvis, projecting at one end into the os uteri, while posteriorly it was fixed in the bone. It was carefully removed, and was then found to consist of a twig, apparently of the *Prunus spinosa*, wound round with a partially destroyed silk ribbon. The patient now admitted that, 5 months before, believing herself to be pregnant, she had gone to a woman, who had performed some manipulations within her genital organs which had given her great pain. Soon after this her disease made its appearance, the fetid discharge from the vagina commencing at the end of about 6 weeks. Zechmeister remarks that in Essegg it is not uncommon for abortion to be produced in the 5th and 6th month by women, who perforate the membranes, or even the foetal head, with a pointed instrument.

#### DELIVERY.

Dr. Taylor records ('Guy's Hosp. Rep.,' 1864, p. 253) the following interesting case, which occurred in Australia:—A woman died, undelivered, during confinement with her seventh child. The labour set in with shivering, and then one prolonged pain occurred; when this subsided the woman became very weak and delirious, and died in half an hour. The body was exhumed a week after death, and the dead and decomposed body of a fully developed child was then found lying between the woman's thighs. The abdomen was much distended with gas. The uterus was completely inverted, and extruded, lying between the thighs, above the child. A rupture about 6 inches long existed in its substance. The child was believed to have been expelled by the pressure of gas developed during decomposition.

#### INFANTICIDE.

A full account is given in the 'Brit. and For. Med.-Chir. Rev.' (66, April, 1864, p. 324) of certain modern German views on "respiration before birth," which have a bearing upon legal medicine. The chief original sources of these views are a paper by Kraemer, in the 'Deut. Klin.' (1852, p. 289), a volume by Schwartz, published in 1858, and entitled 'Die vorzeitigen Athembewegungen,' and a paper by Böhr in 'Henke's Zeitschrift für die Staatsarzneikunde' (1863, Heft. 1, p. 1). This last paper deals especially with the medico-legal aspects of the question. The evidence in favour of these new views is derived, in



great measure, from experiment on pregnant animals; and partly by these means, partly by clinical observation, it has been shown by Schwartz and Kraemer that when the circulation in the placenta is from any cause stopped, even before birth, the immediate effect on the foetus is the production of a *bésoin de respirer*, which leads it to make inspiratory efforts exactly similar to those which are normally made only after it reaches the external air. The results of these movements vary according to circumstances. If the child's mouth is, however indirectly, in relation with the external air, this will be drawn in; and it is suggested that this is the explanation of that rare occurrence, the "vagitus uterinus." If liquor amnii be in contact with the foetal mouth that liquid is sucked into the air-passages; and as movements of deglutition are often combined with those of inspiration, it frequently enters also the œsophagus and stomach. Moreover, the liquor amnii often contains portions of vernix caseosa and of meconium, as well as fine hairs from the surface of the body, and therefore these substances also are not rarely detected both in the air-tubes and digestive passages. On the other hand, if no fluid have access to the mouth, the effect of the respiratory efforts is to draw blood into the pulmonary and other intra-thoracic vessels, and this occurs so suddenly that extravasations frequently take place, chiefly in the form of subpleural ecchymoses. Hence these appearances, and especially the presence within the foetal air-passages of the various foreign substances mentioned above, are evidence that the infant was exposed, *before the completion of birth*, to an interruption of the placental circulation, which was very likely to have caused its death. "The great value of these observations, then, looked at from a medico-legal point of view, lies in their affording evidence by which a large proportion of stillborn children may be known to have died during birth, or at least to have been born with the cause of death actively working upon them. Most of the cases of suspected infanticide, in which the child died during birth from natural causes, would be at once cleared up by a careful post-mortem examination, in which attention was paid to these appearances."

"There are, however, certain limitations to their value which must not be overlooked. The *absence* of petechial extravasation of blood on the thoracic viscera is no proof that death did not occur during birth; for though Liman says that they are always present under these circumstances, this is shown by Böhr not to be the case."

Moreover, it is doubtful whether these ecchymoses, when present, are in themselves a positive proof that respiratory efforts took place before birth. Hecker thinks they are; but he is probably in error, for they are sometimes found in infants associated with ecchymoses in other parts of the body, the occurrence of which is not explained by the assumption of inspiratory action. When associated with the presence of liquor amnii, and of meconium in the air-tubes they, no doubt, prove conclusively that respiratory efforts took place before birth; but the two classes of effects are comparatively seldom combined, because blood is drawn into the chest with most force just in those cases in which no fluid finds access to it from without. It must be remembered also that though they indicate that the child was exposed to danger during

birth, they do not prove that it died before birth was completed. This is especially shown by the observations of Böhr, who found ecchymoses of the thoracic viscera in many children who, having been in a state of asphyxia during birth, recovered, but died soon afterwards from some other cause. Thus, a child extracted by him in consequence of a prolapse of the funis was born asphyxiated, but was restored by the warm bath, with cold affusion, only to die 3 hours later. In the body of this infant the petechial extravasations were well marked, and were evidently the results of respiratory efforts made before birth. In such a case a too rigid interpretation of these appearances might lead to the supposition that the death of the child arose from natural causes, and therefore to the acquittal of a guilty person. These cases are, however, rare; Krahmer appears to be right in considering the entrance of liquor amnii into the chest as far less injurious to the fœtus, than these pulmonary congestions and hæmorrhages; and recovery after they have occurred is therefore probably not common. Children undoubtedly often survive who have sucked liquor amnii into the air-tubes during birth, the fluid being expelled in the first few respirations which they make after being born.

It remains to consider whether the value of the hydrostatic and other tests, in which the presence or absence of air in the lungs is used as a criterion of live birth, is in any way diminished by these observations. Small quantities of air are not unfrequently found in lungs which afford evidence of fœtal asphyxia, but this is generally due to the fact, that the child made its last respiratory efforts after its expulsion from the vagina, and then died. "The presence of air in the lungs of embryos who died before birth is a very exceptional occurrence; Schwartz only found it in 4 cases. Böhr's tables do, indeed, give 23 per cent. as the proportion of cases in which more or less of the pulmonary tissue contained air, but it then only occupied a very small portion of the lungs, and especially the middle and upper lobes of the right lung, which are generally the first portions of the organ to become inflated when the supply of air is scanty. Moreover, in all the cases of Schwartz operative means were used to quicken delivery, and it is probable that this facilitated the access of air to the fœtal respiratory passages. In other cases the last inspiratory effort of the dying fœtus occurs after its head has been expelled from the vagina; and a third source of fallacy arises from the attempts at artificial inflation of the chest, which are almost always made in these cases with the hope of saving the child's life. In no one of the cases which form the basis of Böhr's tables could all these conditions be proved to be absent, so that his numbers have but a subordinate value. Now, the conditions under which birth has occurred in cases of suspected infanticide are almost always such that these causes may be left out of consideration with almost perfect certainty. It is true that it was not proved that the entrance of air into the lungs really arose in the way supposed" (it is only asserted that its origin from one of these causes could not be *disproved*); "and it must be admitted that cases have been related which seem to set at defiance the principles deduced from all other observation and experience. Such an instance is that recorded by Hecker, in which the lungs of a child,

born dead without operative interference, were found completely inflated with air. This case, it is said, caused Casper to modify somewhat the views which he held upon this subject. The only explanation which can be given of it is that some one may possibly have practised artificial inflation on the infant while it lay in the dissecting-room, though Hecker himself appears to have rejected this supposition. These difficulties have, however, long been known to attend the application of the hydrostatic test; and it may be safely asserted that the modern views do not in any way increase them."

The knowledge of the fact that meconium and liquor amnii may enter the foetal air-passages is of importance also because these substances might perhaps be mistaken for faeces and urine if the child were found in a privy or chamber-vessel. Their real nature, however, would readily be made out on careful examination. "Their detection often requires considerable skill and care. Schwartz tells us when he first began to make post-mortem examinations of stillborn children they were noticed but seldom, and only when their quantity was very large. But when his attention was directed to the subject, their presence was found to be almost constant. It is necessary to lay open cautiously the bronchial tubes before washing them; and in doubtful cases he recommends also slitting up the nose, and the careful examination of its chambers, as well as of the palate, pharynx, and buccal cavity. The trachea in its middle and lower part is generally empty or contains but little of these substances, but below its bifurcation they are usually present, and they often extend even into the finest ramifications of the bronchial tubes."

Dr. Dohow relates ('Vjhrschrift. f. ger. Med.,' N. F., 1, p. 123) a case of infanticide which is of some interest. The child was found in a box, among articles of clothing. The mother at first declared that it was born dead, but afterwards confessed that she had strangled it, as it lay under the bed-clothes between her thighs, by pinching its throat with the fingers of her right hand. No marks of injury were, however, found on the neck of the foetus, and therefore it was suggested by the medical men examined that this account was incorrect, and ultimately the mother altered her statement, and admitted that she sat up, drew the child to her, and compressed the neck against the bed-clothing, which, of course, would be less likely to leave traces of violence on the foetal body.

The lungs of the child in this case were fully inflated with air; but, in addition, the left lung presented on its surface about a dozen punctiform ecchymoses. The air-tubes contained no trace of liquor amnii or of meconium. There was no reason to suppose that intra-uterine respiratory efforts had taken place; and Dohow regards the ecchymoses as the effects of the slow death by asphyxia. The lungs were, however, not much congested, though the left contained more blood than the right lung. As this case was undoubtedly one of infanticide, it shows (as was, indeed, stated in the article above) that subpleural ecchymoses afford only a presumption, and not a proof, that death arose from natural causes.

In the 'Year-Book' for 1863 an account was given of some experiments of Dr. Liman, which tended to diminish the value of the entrance

of fluid into the air-passages and stomach, as evidence of immersion in the fluid during life, so far, at least, as infants are concerned. The same observer now publishes 2 cases ('Berl. Klin. Woch.,' 1, p. 29) which came before Casper, and in which a decision was arrived at in accordance with these views. The first case is one in which a child was found in a privy. The stomach contained human fæces, which were distinctly recognised both by their appearance and by their smell. The air-tubes were covered to their smaller subdivisions with a thin layer of fæcal matter, as was also the œsophagus. The throat also contained the same substance. On the surface of the lungs were a few vesicles arising from decomposition, but every part of them sank in water, and no crepitation was heard, nor any bloody foam seen, when they were incised. Here Casper decided that the child was not alive when thrown into the privy, but that it was born dead. The funis in this case was altogether wanting; at the umbilicus was an elongated wound in the skin, with jagged edges.

The other case was that of a child which was found beneath a sink. The condition of the lungs showed conclusively that it had been born alive, though decomposition was advanced. The throat, larynx, and œsophagus, contained thick, black, stinking mud. Casper, however, gave a positive opinion that death arose from apoplexy and suffocation, and not from drowning, because the membranes of the brain and the plexus choroides were injected, and because the lungs were not distended ("ballonirt"), as is the case in death by drowning. These cases deserve the attention of medical jurists in this country, for we doubt whether the same conclusions would have been arrived at here, and it is desirable that the grounds upon which such scientific questions are to be decided should be universally agreed upon.

Dr. Liman ('Vjhrschrft. f. ger. Med.,' N. F. 1, p. 50) publishes some observations on the medico-legal importance of "subpericranial effusions of blood in newly born infants." He gives 13 cases, the greater number of which were observed within a year in Berlin. These cases show that extravasations of blood in this position are far from being uncommon. They are frequently, but not necessarily, associated with the ordinary blood-tumour. In the cases given the larger number of children were born alive, but some were stillborn. Injuries to the bones were always absent; but in the first case some small extravasations existed also on the inner surface of the skull, between one parietal bone and the dura mater. These appearances are regarded by Casper and by Liman as affording no indication that death arose from violent causes. It is, of course, admitted that they may be the result of a fall or of a blow on the child's head, but it is contended that they may be caused, like the ordinary blood-tumour, by pressure during birth. In many of these cases the area occupied by the extravasation was apparently too extensive for it to have been caused by any ordinary injury; but they do not go far to prove the spontaneous origin of these appearances, for in most of them the child was found dead without anything being known of the circumstances of its birth, and in scarcely any of them can the idea of violence be with certainty rejected.

## DISEASE.

M. Tardieu publishes in the 'Ann. d'Hyg.' (20, 21) a "medico-legal study on diseases accidentally and involuntarily produced by imprudence, negligence, or contagion, including the medico-legal history of syphilis." These papers appear to contain very valuable facts and observations, but are incapable of condensation.

## INSANITY.

The editors of the 'Journal of Mental Science' publish, under the title of 'Insanity and Crime' (Churchill, 1864), a pamphlet on the subject of Townley's case. After giving a résumé of the case, and quoting the evidence of Dr. Winslow, on which the plea of insanity essentially depended, they discuss the question whether it is possible to refer the prisoner's state of mind to any of the recognised forms of partial insanity, intellectual, moral, or impulsive. By successively excluding each of these forms, they decide that Townley was not insane.

Dr. L. V. Marcé ('Ann. d'Hyg.,' 21, p. 379) discusses the value of the writings of the insane, in their bearings upon diagnosis and upon legal medicine. He remarks that they are of much more importance, when done by educated persons, than when they are the work of the illiterate. Shades of style, faults of orthography, badly formed letters, are valueless as evidence in the case of those who scarcely know how to write, and cannot freely express their thoughts on paper. The most striking and curious results are obtained in cases of general paralysis by the study of writings. After the death of the patient the diagnosis as to his mental state may depend altogether on such evidence. In the early stages of general paralysis the state of mental exaltation often leads the patient to write letters in which his ideas of grandeur or wealth are plainly expressed. Later in the case the writings, like the speech, become incoherent; words or sentences are left unfinished; the signature, date or address, is forgotten. In other cases the same line is repeated indefinitely, or the same letter is written over and over again to several different persons. In the early stages of this affection the handwriting is not itself altered, but it becomes changed after a time. Sometimes it is as large as that of a schoolboy who is beginning to learn, each letter being formed with scrupulous slowness. As the dementia and loss of muscular power become more marked the handwriting undergoes further change, and the trembling of the muscles is indicated by irregularities in the form of the long letters. At last the movements lose all precision, and the writings become unintelligible. M. Marcé gives some instances in which written documents were used as evidence in medico-legal cases, chiefly with reference to testamentary capacity. The paper contains two plates which illustrate the text.

# REPORT ON PUBLIC HEALTH.

BY

DR. C. HILTON FAGGE.

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## LITERATURE.

DR. PARKES publishes a 'Manual of Practical Hygiene' (London, Churchill and Sons, 1864). This book was prepared with especial reference to the requirements of the medical service of the army, and it contains full details as to the peculiarities of the foreign stations; but the chapters on ventilation, air and water, are of general interest, and they undoubtedly supply a want which has long been felt.

Dr. E. D. Mapother, Professor of Hygiene and Medical Officer of Health for the City of Dublin, publishes a course of 'Lectures on Public Health,' delivered before the Royal College of Surgeons. The chair of hygiene was founded in the Dublin College in the year 1844. Dr. Mapother's lectures appeared first in the 'Dublin Medical Press' (10, p. 1 *et seq.*), and they have since been issued in a separate form.

Dr. Fr. Oesterlen is the author of a work upon medical statistics ('Handbuch der Medicinischen Statistik,' Laupp u. Siebeck, Tübingen, 1864), which made its appearance in two parts. After an introduction, dealing generally with the numerical method, Oesterlen considers the "general statistical relations of the population," and the "statistics of disease and of other causes of death;" and concludes with the statistics of "morbidity," or of the liability to disease of different kinds under all the varied conditions of life.

## VACCINATION.

The 6th Report of the Medical Officer of the Privy Council (Appendix, p. 1) contains papers on the state of public vaccination in London, by Drs. Seaton and Buchanan; in Yorkshire, Herefordshire, and Wales, by Dr. Seaton; in Yorkshire, Lancashire, Cheshire, and Cumberland, by Dr. Stevens; and in Gloucester, Somerset, and Devon, by Dr. Sanderson. The results of these inquiries confirm those arrived at in previous investigations, and show that the working of the system is at present imperfect. The quality of the lymph supplied by the National Vaccine Establishment was, however, found by Dr. Seaton to be entirely satisfactory.

## HOSPITALS.

Dr. Bristowe and Mr. Holmes have investigated the influence of different sanitary circumstances as affecting the results of treatment in the various hospitals of the United Kingdom. The conclusions at which they arrived are given in the 6th Report, &c. (Appendix, p. 463). They are naturally incapable of condensation, but both they and the remarks upon them, made by Mr. Simon, contain much information. Mr. Simon criticises severely, and most justly, the statistics of the Registrar-General, which had been used by that officer to prove the comparative unhealthiness of the general hospitals of large towns. He suggests especially the importance of comparing the results of similar operations in various public institutions, after taking the utmost care to ensure exact similarity in all the other conditions. He also insists on the value and necessity of good scientific records, having a common basis, of the cases treated in the different hospitals.

## MALARIA.

Dr. Whitley reports (6th Report, &c.; Appendix, p. 430) on the frequency of malarious disease in the inhabitants of marsh districts. His conclusions are highly satisfactory. Ague appears now to be both rare and mild in form in those districts where it was formerly most severe, as in Norfolk, Lincolnshire, and Cambridgeshire, as well as in Hampshire and on the west coast north of Liverpool. This change is generally attributed to improved drainage, but it is stated by some, as by Dr. Christison ('Year-Book,' 1863, p. 456), that malaria began to decline before the drainage was commenced. The conversion of pastureland into arable is also supposed to have diminished the amount of malarious disease. Sheppey, Hoo, Spalding, Hull, New Romney, and Lewes, are mentioned as places where ague is still prevalent; and it is stated that at Huntspill and in the marshes on the banks of the Swale no improvement has as yet occurred.

The high rate of infantile mortality in certain marshy districts having attracted attention, Dr. Hunter was requested to report on it. The regions in which it occurs are chiefly 5, viz.—1. The districts of Howden, Goole, and Thorne, near the Humber estuary. 2. Around the Wash, in a large part of Norfolk, Lincolnshire, and Cambridgeshire. 3. The districts of Yarmouth and Mutford. 4. The inland fenny districts of Wayland and Guiltcross, lying in the middle of East Anglia. 5. The small district of Hoo, apposite Chatham, on the Medway. In these parts of England, though country districts, the infantile death-rate is from  $2\frac{1}{4}$  to nearly 3 times as high as in those parts which have the lowest mortality. The death-rate at Wisbeach is nearly as high as at Manchester.

With wonderful unanimity, the medical men in these neighbourhoods attributed this effect to the employment of women in field-labour, consequent on the improved drainage. The soil being light, women easily find occupation on it, and often work in large gangs. Their children are left to the care of others. They are therefore deprived of their

natural food; and as cow's-milk is dear, a mixture of bread, water, and sugar, is substituted for it. Moreover, opium is largely given to infants in these places. The people take it themselves to relieve rheumatism and neuralgia, and as a common stimulant; and they give it, in the form of Godfrey's cordial, to their children. Forty minims of *laudanum* is the maximum dose given to children under 1 year. The medical men agree that "ablactation and narcotism" would be the proper description of the causes of more than half the infantile mortality—of deaths certified as due to "premature birth," "debility from birth," "atrophy," "tabes," "marasmus," &c. Besides the influence which ought to be exercised personally by the clergyman, the surgeon, the coroner, and the registrar, in these districts, Dr. Hunter suggests two measures of public police:—1. The establishment of infant nurseries throughout the ganging districts. 2. The imposition of a license for the sale of opium, which would confine the traffic in it to the larger shops, would make it more difficult to get, and dearer, and would prevent the uncertainty which now exists as to the strength of the "Godfrey" which is given to infants.

#### VENTILATION.

M. Tripier publishes some interesting observations ('Ann. d'Hyg.,' 43, p. 5) on the different methods of ventilating, lighting, and warming theatres. He shows that the system of ventilation, in which the central chandelier is made to create an ascending current, is in many respects defective. It either produces draughts, which annoy the occupants of the boxes, or else it fails to remove the impure air which the boxes contain, and it is far from being favorable to the transmission of sound. He recommends an arrangement which is exactly the reverse of this. According to this plan, fresh air enters the theatre immediately above and in front of the curtain, as well as by another aperture at the back of the stage. The impure air escapes by a number of apertures—some in the floor of the pit, others in the roofs of the boxes, and others above the galleries. All these apertures lead into vertical tubes, in which the air is kept in motion by mechanical means or by heating apparatus. This system of ventilation is stated to have given satisfactory results when tried at Toulon in 1862. With reference to the illumination of theatres, M. Tripier shows that both the central chandelier and the footlights may with advantage be set aside, now that gas is used. The best method is that of having glass ceilings, above which the lights are placed. This plan, though expensive, is adopted at the theatre of the Châtelet, and at the Gaité, and is perfectly successful at the latter theatre. The next best method of illumination appears to be that in which a row of jets, or a series of small chandeliers, is placed round the theatre near the roof.

M. A. Morin ('Comp. Rend.,' 57, p. 720) has made some experiments which seem to show that water in the pulverized form, when dispersed in a current of air, has a further action upon the air beyond simply rendering it moist; that it causes, in fact, the generation of ozone and also of some acid substance which reddens litmus and is probably a



nitrous compound. In this way a jet of water in the finely divided state may exercise a powerful purifying influence on air, destroying the organic particles which it contains. The temperature of the air was also found to be lowered by  $1\frac{1}{2}^{\circ}$ — $2^{\circ}$  C. These observations were suggested to M. Morin by the arrangements made for purifying the air during the summer in the English House of Commons.

## WATER.

M. Fonssagrives ('Ann. d' Hyg.,' 21, p. 64) records the conclusions arrived at by a commission which had been directed to investigate the hygienic effects of the use of vessels coated on the inside with zinc for the preservation of water on board ship. It had been shown by a former commission that portions of metallic zinc placed in vessels containing drinking water are unaffected, unless part of the metal be exposed to the air. In this case the amount of the metal dissolved varies with the nature of the water. In experiments on the small scale distilled water acts more powerfully on zinc than does spring-water; while sea-water has a still more energetic action. On the other hand, when the vessels are large, sea-water is comparatively little impregnated with the metal. The surface of the zinc probably becomes coated with some compound which protects the vessel from the further action of the water; and, therefore, it has been suggested to place sea-water within such vessels, and to allow it to remain in them for some time before they are employed to contain fresh water. The compound which results from the action of water upon metallic zinc, appears to be chiefly the hydrated oxide, mixed in some instances with the carbonate. It is partly dissolved, partly suspended in the liquid. It would seem that new vessels are more acted on than those which have been in use for some time. The quantity of the oxide formed is, however, always small, not exceeding .07 gramme in each litre, and of this a part is deposited on the bottom of the vessel. The question whether water which has been kept in vessels lined on the inner surface with zinc is injurious to the health is, of course, not decided by these observations. It has, however, been practically settled by some experiments which were made at Brest. Six convicts were, during four months, supplied exclusively with water which had been left for seven months in zinc vessels on board ship. No ill effects whatever could be detected. It may, therefore, be concluded that the use of these vessels to contain water on board ship is perfectly safe and incapable of affecting injuriously the health of those who employ the water.

M. Roucher publishes ('Ann. d'Hyg.,' 22) the report of a commission as to the hygienic influence of the steeping of flax or hemp, with especial reference to the introduction of the cultivation of these plants into Algeria. The conclusion arrived at is that this operation renders the water injurious and unfit for drink if it is stagnant, and that even in the case of rivers and streams it causes "the disappearance, or at least the diminution, of the essential qualities of drinking waters." In all probability the process of steeping in stagnant water also renders the air in the neighbourhood unhealthy; but it is not likely that any

effect on the air is produced when the flax is steeped in running water, or when the water is constantly being changed. There appears to be no satisfactory evidence that either endemic or epidemic disease is ever traceable in France to this process as a cause. In Algeria the introduction of the cultivation of these plants is attended with special difficulties in consequence of the scarcity of water at most seasons of the year.

#### FOOD.

Dr. E. Smith reports (6th Rep., &c.; Appendix, p. 216) on the food of the poorer labouring classes in England. The plan he adopted was to investigate carefully the mode of living of certain representative men in different occupations. The food of the agricultural population appears to be in some English counties 50 per cent. better than in others, and the labourers in England are stated to be generally worse fed than those in either Scotland or Ireland.

*Meat.*—M. Delpech publishes ('Ann. d'Hyg.,' 21, pp. 1, 241) a paper on the measly condition of pork. He gives two cases which support the view that tænia in man may arise from the ingestion of raw beef as well as from eating pork. It is possible that the worm in these cases may have been the *T. mediocanellata*.

Mr. Gamgee ('Lancet,' 1864, 1, p. 182) relates a case which well illustrates the danger of slaughtering diseased cattle. A bull was taken ill on a certain farm, and a labourer, who had formerly been a butcher, volunteered to kill it. The disease from which the animal was dying is doubtful; it was said to be pleuro-pneumonia, but according to some it was too rapid in its course to be that affection. Four pigs died after eating part of the viscera of the bull, and two dogs nearly lost their lives from the same cause. The man who killed the bull had previously injured his hand with a spade. Soon afterwards he suffered from intense pain in the hand; inflammation of the cellular tissue extended up to the elbow; fever of a typhoid character came on, and he died on the fourth day after dressing the carcass. Mr. Gamgee says that this case is by no means a rare one. To his own knowledge four other men have died in the same county, under similar circumstances, within the last four years.

Mr. Kesteven ('Med. Tim. and Gaz.,' 1, p. 265) gives an account of the severe symptoms, resembling those of English cholera, which arose in twelve persons soon after partaking of a leg of roast pork. The cause of these effects could not be made out. The other parts of the same animal were eaten with impunity by other persons. No poison could be detected in the dripping from the joint which gave rise to the symptoms, and the meat appeared to be perfectly healthy. Dr. Ballard (ibid., p. 87) gives a table of the chief points to be inquired into in the investigation of cases of poisoning by diseased meat.

*Vinegar.*—M. A. Chevallier ('Ann. d'Hyg.,' 21, p. 86) gives an account of the adulterations of vinegar ordinarily practised in France. Out of 24 specimens seized at one time in one department of the country only one was pure and made from wine. Most of the others consisted of pyroigneous acid diluted with water, and either left colourless or

mixed with some foreign colouring matter. The different specimens also varied extremely in strength. The liquids used to give the proper tint to wood vinegar appear to be chiefly the juice of the elderberry (which, with alum, is the main constituent of the "teinte de Fismes"), the flowers of the hollyhock, and a substance called the "rasin vierge du Brésil," the botanical nature of which is unknown. It may, perhaps, be the fruit of the *Phytolacca decandra*, the employment of which would be likely to produce injurious effects. M. Chevallier strongly recommends that the term "vinegar" should be confined by law to that variety of acetic acid which is prepared from wine. For determining the strength of vinegar he recommends the acétimètre of Reveil, the principle of which is to neutralize the acid with a standard solution of borax coloured blue by litmus.

## MEDICINE.

Dr. A. Taylor (6th Rep., &c.; Appendix, p. 743) reports on the extent to which injury to health is caused by the carelessness and incompetence of persons engaged in retailing drugs, and on the unnecessary facilities for the purchase of poisons for criminal purposes.

## OCCUPATIONS.

*Tailors.*—Dr. E. Smith reports on the sanitary state of the tailors in London (6th Report, &c.; Appendix, p. 414). The more important of his conclusions are the following:—The sanitary conditions under which tailors live are exceedingly unfavorable to health. Over-crowding, ill-ventilation, and excessive heat, are especially found in shops; whilst irregularity in work and night-work are chiefly met with in those who work at home. (The extent to which overcrowding prevails in the workshops may be estimated from the fact that the average space for each man and gas-light is 156 cubic feet, the highest being 270, and the least 105 cubic feet. Such a state is, as far as Dr. Smith knows, unparalleled in workshops in other trades.) Men working in shops at the West End get better food than those who work at home, and much better food than their own families obtain at home. As a rule, tailors working in shops eat animal food of some kind 3 times a day, and are, whilst so working, sufficiently fed. Their moral and social habits have much improved of late years, but excess in the use of beer is still very common, and about one fifth or one sixth of them drink ardent spirits daily. Their diseases are chiefly colds, sore throats, muscular pains, rheumatism, indigestion, headache, bilious attacks, constipation, piles, asthma, and consumption. The amount of respiration, and therefore of vital action, is insufficient for health, and whilst perspiring, or with the skin exceedingly sensitive, they expose themselves to cold air, conditions tending directly to the production of chest diseases. The mortality, as shown by the Registrar-General's returns, is much higher than that of agricultural labourers. Consumption and other forms of chest affection are the most frequent of the fatal diseases to which they are subject, and constitute two thirds of all the causes of death.

Dr. Smith's own observations lead him to the belief that they are a

feeble and sensitive class. In addition to the defective hygienic conditions of the workshops, which he thinks ought to be inspected by the Government, he notices as causes of disease the prolonged maintenance of the sitting posture and the want of exercise and of regular meal times. He says that tailors usually sit with the back straight, and that the chest is seldom contracted, except in some of the younger men. He was surprised to find so few instances of roundness of the shoulders among them. The duration of work in the shops is about 12 or 13 hours daily.

Another source of injury to the operatives is the irregularity of income, which is probably irremediable, as it depends upon the varying wants of the public with the different seasons of the year. This leads to recklessness and unsteadiness of character. It occurs chiefly in the higher classes of work, that called slop and sank work being much more regular, but of course much less highly paid. The difference in the price paid for labour by the private shops and by the large advertising shops is very great, and appears to benefit the employers rather than the public.

*Printers.*—Dr. Edward Smith reports on the sanitary circumstances of printers in London (6th Report, &c. ; Appendix, p. 383). He states that the peculiarities of this occupation belong, among the adults, chiefly to the readers and the compositors. The former are generally men of some acquirements. They usually live in the suburbs, and breathe at home a tolerably pure air, besides the advantage of the walk to and from their work. They carry on their occupation in closets, which are almost always ill-ventilated and very small. These men are commonly “pale and thin, of a depressed and anxious aspect, very sensitive to the influence of temperature, of a nervous and irritable temperament, with a dainty yet not a bad appetite, an imperfect digestion, and a liability to headache, giddiness, and affections of the eyes, which assume the forms of inflammations, short sight, or blindness. Many also complain of much general debility and exhaustion, lassitude, and piles. Some suffer from prolapsus of the bowel, and from bronchitis; but consumption is the goal towards which they very generally tend. There are, however, some who are of moderately full habit, with good complexion and good appetite for food. The yearly mortality is 1 to 44 living.”

Compositors work in rooms occupied by several men together, which are usually dirty and very badly ventilated. The allowance of air is ordinarily 450 to 600 cubic feet for each man with his gas-light. The air of these rooms was analysed, and was found to contain a quantity of animal matter larger than that of private dwellings and 8 times greater than that of the open air. The time during which compositors labour is various, the work being divided into night-work and day-work. That which is exclusively night-work appears to be preferred. These men leave the office at 3—5 a.m., and return to it at 4—6 p.m.; and they thus have 2 or 3 hours to themselves in the middle of the day. Many of them work on for 20 to 30 years, and say that it is not injurious to their health. The men who work during the day are liable to extra work at times, which is admitted on all hands to be prejudicial. In some cases they undergo 2 days and 1 night of continuous

labour. They frequently take 1 or 2 meals in the room in which they work.

The diseases of compositors appear to arise from conditions incidental to their occupation rather than necessary to it, being caused partly by their unsteady habits, partly by the heat and defective ventilation of their workshops, and by over-work. Another great evil is the combustion of impure gas, containing sulphureous compounds; this is stated to produce asthma and a form of bronchitis. As a rule, they do not complain, but speak of themselves as healthy. They are usually thin and pale, with dilated pupils. They appear not to be subject to acute diseases, though they are very liable to take cold. Consumption is a very frequent cause of death. Snuff-taking is their besetting sin, and it is believed that drinking is also a prevalent habit. They appear to be subject to metallic poisoning from the type. Before distributing, the type is washed with solution of potass, which oxidizes the surface, and the salts so formed may be absorbed by the mouth or by wounds. The dust from the cases was analysed, and found to contain 9.44 per cent. of lead, 1.81 per cent. of copper, 1 per cent. of antimony, with traces of arsenic. Dr. Smith states that dropping of the wrists is certainly found among compositors. Their mortality in middle life is more than twice that of agricultural labourers.

The machine boys are, however, placed in far worse conditions than any other class of persons employed in printing offices. Even young boys often have to work two days and a night continuously, with only slight intermissions when the forms are changed, or at irregular periods. The case related by Dr. Smith is quite sufficient to prove that something ought to be done to improve their condition. Besides their long hours of work, they appear to be poorly fed. They are almost invariably thin and pale, and many of them complain that they are weak.

Dr. Smith's report concludes with a list of measures adapted to the improvement of the hygienic conditions under which printers work. The 'Times' office is a striking example of the possibility of effecting these changes; but it is, as he remarks, a singular result of these recent improvements that the ratio of sickness has rather increased since they were carried out.

*Dressmakers.*—Dr. Ord reports (6th Report, &c.; Appendix, p. 362) on the sanitary circumstances of dressmakers and other needle-women in London. The dressmakers may be divided into two distinct classes—those who board and sleep in the houses of their employers, and those who live at their own homes, and go to and from the houses of business at fixed hours. The first of these classes are almost entirely at the mercy of their employers, so far as the hours of work are concerned. As a rule, they appear to begin work at 8.30, after breakfast is finished, and to continue, with two intervals of half an hour for dinner and tea, till 8 or 9 o'clock at night. The work-rooms are in some houses closed at 4 or 5 p.m. on Saturdays. Many employers keep their workwomen employed from 8 a.m. to 10 p.m. In the season the earliest time of quitting work is in a large number of houses from 10 to 11 p.m., and under the pressure of court ceremonials the work is often carried far

into the night. The food given to these girls is generally good ; meat is provided at dinner, and when the hours are late also at supper. The time allowed for meals is ordinarily short. These girls rarely get any exercise. They usually have a holiday of from a fortnight to a month in the slack time of the year.

In 34 establishments Dr. Ord found that the allowance of cubic feet of air to each worker was in 4 cases more than 500, in 4 cases between 400 and 500, in 5 cases from 300 to 400, in 5 cases from 250 to 300, in 7 cases from 200 to 250, in 4 cases from 150 to 200, in 9 cases only from 100 to 150. Mr. Simon remarks that the largest of these allowances is but scanty for continuous work ; and Dr. Ord says that, though the rooms do not generally become close or overheated during the day, they are very unwholesome at night, from the number of gas-jets employed. Artificial ventilation is rarely attended to. The bedrooms occupied by these women appear to be tolerably healthy and seldom overcrowded, Indoor milliners seem to live to a great extent under the same conditions as the dressmakers, but their hours are more uniform, averaging 11 or 12 or 15 hours, inclusive of meals, throughout the year.

The position of outdoor dressmakers and milliners is in many respects different. Their hours are from 8 or 9 a.m. to 9 or 10 p.m., and they have the power of refusing over-work. Among skilled hands such refusals appear not to be uncommon. As the only meal supplied to these day-workers is their tea, the amount of their earnings is to them a matter of the greatest importance. The general minimum of wages appears to be 9s. a week, and the more skilful workwomen earn from 10s. to 14s. a week. They usually get only one good meal a day, namely, their supper, and Dr. Ord is of opinion that it is not possible for them to obtain proper nourishment for the small pittance which they can earn. They are therefore compelled to increase their earnings either by taking their work home or by taking in work on their own account, or by less praiseworthy means. Moreover, many of them find regular employment only during the season.

No statistics as to the health of these women can be obtained. They appear, however, to wear out rapidly, and after the age of 35 they find difficulty in getting employment. Their diseases seem to be chiefly the following:—1. Symptoms of brain distress, headache, and giddiness. 2. Dyspepsia. 3. Diseases of depressed vitality, phthisis, chlorosis, and hysteria. 4. Affections of vision, occurring chiefly in the day-workers. It is asserted that many of them enjoy the excitement of the heavy work which they go through before a drawing-room ; but close questioning shows, as might be expected, that they suffer much from exhaustion afterwards.

Of other needle-women, some, such as those occupied in collar-making, mantle-making, &c., work in large establishments. Among them the regular hours of work are usually moderate, but subject to extension at certain times. The wages vary from 5 or 6 shillings weekly to 20 or even 30 shillings. The workrooms present every variety of condition. The influence of the sewing machine appears in the City and East End houses to be favorable to the health of the workwomen. They earn more, and the muscles of their limbs and trunk

are brought into exercise. On the other hand, the cramped position is apt to cause pain in the chest and indigestion, and the continual noise is said, in some cases, to produce headache and giddiness. In the West End, where the machine is less common and is less continuously worked, its effects are less favorably regarded. Delicate girls, unused to muscular toil, seem to be greatly exhausted by it, and some of them get old with great rapidity at this kind of work.

*Potters.*—In a thesis, to which the gold medal of the University of Edinburgh was awarded, Dr. C. Parsons describes a form of bronchitis, simulating phthisis, which is very common in certain branches of the potting trade. It appears to be peculiar to the “hollow-ware pressers,” and to the “flat pressers.” These workmen are exposed, not only to great heat, but also to great changes of temperature. The stoves are usually close to where they work, and many of the men have to carry the moulds into these stoves themselves. Moreover, the workshops are filled with a fine dust, arising from portions of clay, which fall on to the ground and are pulverized by the feet of the boys who are constantly running about. These circumstances appear to be the chief exciting causes of the disease, which resembles that found in other artisans. Besides black, indurated masses, the lungs usually contain smaller pieces of mineral matter, which has not been analysed, but is conjectured by Dr. Parsons to consist in part of the fine dust inhaled, perhaps enveloped in a covering of phosphates, secreted by the mucous membrane of the air-passages.

*Manufacturers of chromates.*—M. Hillairet (*Bull. de l'Acad. de Méd.*, 29, p. 345) confirms the statement that the men who are employed in the manufacture of the chromates of potass are liable to perforation and destruction of the upper part of the cartilage of the septum nasi (v. *'Year-Book,'* 1863, p. 457).

It appears that MM. Zuber and Hermann (of Rixheim) had denied the accuracy of these observations.

*Verdigris manufacturers.*—MM. Pécholier and St. Pierre have submitted to the Academy of Sciences the results of their investigations as to the health of the workmen employed in the manufacture of verdigris (*'Arch. Gén.,'* Feb., 1864, p. 243). They conclude that this occupation does not exert any prejudicial influence. They have not observed a single case of colic. That the poison is absorbed is evident from the fact that they have detected copper in the urine of the workmen. Among 40 of the women employed there was not a single case of chlorosis; and they attribute to this metal properties similar to those known to be possessed by manganese and iron. Animals fed on the residue of the grapes used in this manufacture, in which a considerable quantity of copper is contained, suffer no ill effects, and become rapidly fat. The only evils produced by this occupation are slight forms of ophthalmia and other catarrhal affections, caused by the dust which is given off. Persons predisposed to phthisis and to other thoracic affections should therefore be kept out of the workshops.

*Workers in lead.*—Dr. Whitley has investigated (6th Report, &c.; Appendix, p. 350) the effects produced by lead and its salts on workmen who employ it in their business. The most serious of these effects

appear to occur in the manufacturers of white lead, and the steps of the process which are most injurious seem to be the unpacking of the stacks of jars in which the metallic lead has been converted into the carbonate, the transport of the dried article into the casks, and especially the packing in the casks, as this diffuses a quantity of the powder in the air. Dr. Whitley believes that the inhalation of the poison in the pulverulent form is far more injurious than its action on the skin. Colic seems to be not infrequent in these workmen, and gout, or rather rheumatic gout, is stated to be common; paralysis occurs but seldom. These effects have diminished of late years, and this is attributed partly to improved processes of manufacture, partly to sanitary precautions. The manufacture of red lead is stated to be much less injurious than that of white lead. Makers of sugar of lead are believed to suffer much from the poisonous action of the metal. Lead smelting is innocuous as it is now carried on.

Of the trades in which salts of lead are used the following appear to be the most important:—Among potters, the “dippers” have their hands and forearms immersed for 8 hours a day in a thick fluid containing  $\frac{1}{8}$  or  $\frac{1}{9}$  part of white lead, and they continue this employment for several years. Dr. Whitley examined several of these men, but only two admitted that they had suffered, and that but slightly. Several of them presented a blue line on the gums. Among painters lead-poisoning appears to be less frequent than is generally supposed; the improvement of late years is attributed to the adoption of an entire outer suit of clothing, which is frequently washed, and is worn only in working hours. Among plumbers disease has been much diminished by the substitution of machinery for hand labour, and by increased cleanliness. Compositors are believed to be no longer liable to lead-poisoning now that the type is distributed dry. A few cases occur among type-founders, especially in the “rubbers.” Shot-makers, floor-cloth manufacturers, and glass-makers, appear to be quite uninjured by the lead which they employ; and no cases of poisoning were heard of among the enamellers of cards or of dial-plates.

*Workers in mercury.*—Dr. Whitley reports (6th Rep., &c.; Appx., p. 350) on the subject of mercurial poisoning in artisans. Water-gilding is well-known to be the most injurious of the occupations in which mercury is used. It has been to a great extent superceded by electroplating, but not entirely. It is stated that, with few exceptions, all the workmen suffer, sooner or later, from mercurial poisoning. Men are seldom engaged in this work more than 2 or 3 days a week. However, it is probable that this process is carried on in private houses as well as in large establishments, and that its effects there are still more serious. This is the case also with those engaged in silvering mirrors, an occupation which gives employment to a much larger number of persons, but is far less injurious than water-gilding. Young men generally suffer slightly from salivation or from ulcers in the mouth in the first month during which they work at silvering; but temperance and cleanliness, and improved ventilation, are stated to have diminished the number of cases of poisoning. Among barometer-makers mercurial poisoning appears to be rare.



Salts of this metal are used by furriers in the preparation of their furs. Ill effects are, perhaps, rarely produced; but 2 cases are recorded. One was that of a woman, employed at a furrier's in Bermondsey, who suffered from salivation. It would appear that at this establishment several women have been affected; it was stated that red precipitate was used there instead of the nitrate, which is generally employed, but Dr. Whitley could not ascertain whether this was really the case. The other case is one which is related in full detail by Dr. Taylor in the 'Guy's Hospital Reports' (1864, p. 173). R. B—, æt 32, became a patient of Dr. Rees on Dec. 10th, 1863. For the last 4 years he had been occupied in *packing* the skins of animals which had been washed with an acid solution of mercury and then dried. He had nothing to do with any of the steps of this process, having simply to pack the furs. He suffered at first from salivation, which lasted 3 months; after this he remained tolerably healthy till twelve months before his admission, when his hand became unsteady, so that he could not shave; soon afterwards he lost control over his limbs when standing or moving about; and later he began to have slight twitchings when in bed. On his admission he could walk with a little assistance, but his limbs trembled even while he was in bed. He also suffered from headache and sleeplessness; the bowels were costive, but perspiration was profuse. After a day or two he became delirious; the urine, which was previously healthy, was retained, and was afterwards passed involuntarily. He became unconscious, and died on the 25th December.

On post-mortem examination the body was found to be well nourished, and the muscles were of the normal colour. The brain, spinal cord, and viscera, appeared free from disease. Mercury was detected in the kidney, and in smaller quantities in the liver and brain. It was more completely deposited on fine copper gauze than by the galvanic process with gold and zinc. The urine was examined soon after the man's admission as a patient at Guy's; no mercury could be discovered in twelve ounces of it.

A few fibres of fur prepared with mercury at the factory where this man worked gave a copious deposit of metallic mercury; Dr. Taylor thinks that the poison entered the system both by the skin of the hands and the mucous membrane of the air-passages. It is remarkable that while the case was under observation salivation, mercurial fetor, and the blue line on the gums, were all absent; and the symptoms resembled those of chorea rather than those of any other disease.

*Miners.*—During the present year the report of the commissioners appointed to inquire into the condition of mines in Great Britain has been presented to Parliament. It includes medical reports by Dr. Peacock and Mr. Bankart. It is, of course, full of information of the greatest value to those concerned, but which is hardly of sufficient novelty to bear reproduction in a very condensed form. It is shown that the mortality in metalliferous mines is greater than that in the coal mines, where, on account of the dangerous gases, more attention is paid to the proper ventilation of the mines, and this proves that bad air is the principal element in the production of this high death-rate. The main cause of death is pulmonary disease. This appears to be

chiefly of a bronchitic or asthmatic kind, tubercular phthisis being comparatively rare except in those hereditarily predisposed to it. The commissioners regret that the attention of medical men has not been more directed to the nature of these prevalent affections, for the evidence from post-mortem examinations is very scanty; but the distinction from tubercular phthisis is strongly indicated by the fact that the proportion of pulmonary disease, small in childhood, rapidly increases with advancing years. "The first symptoms of failing health among the miners are weakness in the limbs in climbing the ladders and beating the borer, shortness of breathing, giddiness, and pains in the head; their appetite fails, they are unable to take or digest a sufficient quantity of food, and often suffer from sickness and vomiting. These symptoms are followed by harassing cough; much expectoration, sometimes of mucus, occasionally of blood; tightness of chest, and failure of general strength. These affections precede total inability to work, followed by premature death." The delicate condition of the miners is in marked contrast to the vigorous health enjoyed by the women and children in the same districts. Besides improved ventilation, the commissioners recommend the construction of proper houses, conveniently situated, in which the men can change and dry their clothes, and the application of mechanical means to convey them to and from the surface when the mines are of great depth. The health of the miners is stated to have presented an evident improvement in those mines in which the man-engine has been in operation. The sanitary state of the miners appears to be worst in the mines of Devonshire and Cornwall, and it is but little better in the lead mines of the north of England. In the rock-salt mines of Cheshire and in the hæmatite iron mines of the Furness district in Lancashire the men are remarkably robust and healthy.

Dr. Angus Smith and Dr. Bernays give analyses of the air collected in various mines. The observation of Dr. Angus Smith, that minute crystals of sulphate or of nitrate of potass are readily detected in the air of mines after gunpowder explosions, appears to be of considerable importance.

*Sailors.*—Dr. R. Barnes (6th Report, &c.; Appendix, p. 330) reports on the occurrence of sea-scurvy in the mercantile marine, where this disease appears to be on the increase. Many cases are admitted annually into the Dreadnought and into the Sailor's Home, though very few such patients find their way into the great metropolitan hospitals. A large number of these men are employed by Liverpool and Hamburg owners, and the ships come chiefly from China, the East Indies, and the Mauritius. The duration of the voyages varied in the cases at Dreadnought from 56 to 168 days. The shortest time occurred in a ship from San Domingo, in which 2 bad scurvy cases existed at the end of a voyage of 56 days. The efficacy of lemon-juice as a preventive is well illustrated by the fact that in 3 instances the only man attacked by the disease was one who had refused to take the juice. Much of the lime-juice supplied to merchant ships appears to be of very inferior quality. Dr. Barnes recommends that the inspection of the stores of these ships before leaving port should be compulsory, and not, as at present, contingent on complaint by 3 of the crew, and that the penal-

ties imposed by the Merchant Seamen's Act should be strictly enforced.

## DEAF-MUTISM.

Dr. K uchler ('Henke's Zeitschrift,' 1864, 1, p. 36) gives some interesting statistical details as to the prevalence of deaf-mutism and of blindness (congenital and acquired) in the kingdom of Bavaria. The proportion of deaf-mutes is 616 to every million of population, while in the same number of persons there are 599 who are blind. These numbers have been decreasing of late years, especially so far as loss of sight is concerned. This is referred in great measure to the increase of confidence in medical skill. The slight diminution in the numbers of those who are deaf and dumb must arise from the improvement in the cultivation of the people and the increase in the means of communication. Deaf-mutism is found chiefly in the country districts, and males preponderate decidedly over females among those so afflicted. The number of deaf-mutes is markedly greater among Jews than among those who profess other religions. In 1840 the proportion was, among Jews, 1299 in the million, while among Catholics it was only 601, and in Protestants 737 in the million. In 1858 the difference was less striking. There were then 852 deaf-mutes among a million Jews, while the numbers for Catholics and Protestants were 560, 626, respectively. These facts go far to confirm the views of those who see in the intermarriages of relations a cause for this affection. The number of persons who have lost their sight is, however, also decidedly greater among the Jews. In four fifths of the deaf-mutes the affection dates from birth; this is the case only in one tenth of those who are blind. The question as to the frequency with which deaf-mutism is hereditary can probably be answered only approximatively from these data, owing to the difficulty of obtaining full and accurate information; but the following are the conclusions given in this paper:—In the case of 7.9 per cent. of deaf and dumb children, the sense of hearing was imperfect in one or both parents; and in 2.1 per cent. bad health, or some bodily defect, existed in either the father or the mother. Deaf-mutism was present in some blood-relation in the case of 9.5 per cent. of such children. The parents were more or less closely related before marriage in 3.3 per cent. of the cases. The repetition of this defect in children of the same parents is less frequent than might be expected. In 1000 families, in which there is a deaf-mute child, there are 79 in which there are 2 such children, 20 in which there are 3, and 3 families in which there are 4 children affected with deaf-mutism.

It may be interesting to compare these Bavarian statistics with those obtained from the census of Ireland for 1851 and 1861 ('Dubl. Quart. Journ.,' 37, p. 380). In that country the number of congenital mutes in one million of the population was, in 1851, 636, while in 1861 it was 730. The increase appears to be due to emigration, for there is, of course, a tendency for the healthy to go, leaving the infirm behind them.

In Ireland, as in Bavaria, there are more male than female deaf-

mutism (100 to 80·58 in 1861, 100 to 74·50 in 1851). Congenital deaf-mutism is found least among the civic, and most among the rural population. Only 1 deaf-mute is returned as a Jew in Ireland.

The total number of congenital deaf-mutes was 4010. In 242 instances the parents were related in the degrees of either first, second, third, or fourth cousins. There were 10 instances of twins, in which both children were deaf and dumb. In 3138 cases there was one mute in each family; and this is stated to have been most generally a first child. In 357 cases there were 2 mutes in each family. In 159 instances 3 mutes were born of the same parents; in 36 instances 4 mutes. Thirteen families had 5 mutes each. Six mutes in a family occurred 5 times, and 7 in 1 case. With reference to hereditary transmission, it is remarkable that from the marriage of 91 deaf-mutes 213 children were born, only 3 of whom were mutes; and not a single instance of deaf-mutism occurred among 12 children forming three families in which both parents were deaf and dumb.

## I N D E X.

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- Abarbanell, case of twin labour extending over three days, 377
- Abdomen, surgery of, authors on, 330
- Abortion, habitual, with flexion of uterus (Hüter), 369
- pointed twig left *in utero*, abscess (Zechmeister), 460
- Accommodation and refraction, authors on, 307
- Acne rosacea, treatment of (Ker), 179
- Aconite, new crystalline principle in (Smith), 450
- poisoning by the tincture of (Taylor), 451
- Acute diseases, on some (Smoler), 36
- Ague, influence of, on insanity (Nasse), 109
- Air-passages, obstruction of, causing death of new-born child (Buhl), 415
- catheterization of, in children born asphyxiated (Hüter), 415
- Albers, effect of nitro-glycerine, 453
- Albumen, osmosis of (Schmidt), 2
- Albuminoid substance, new, in milk (Millon and Commaile), 19
- substances, digestion of, by pancreas (Corvisart), 19
- Albuminuria, aphonia in (Fauvel, Gibb), 128
- in children, treatment of (Dickinson), 166
- in cases of lead poisoning (Olivier, Lancereaux, Danjoy), 167
- perchloride of iron and ergot of rye in (Socquet and Chatin), 166
- Alcohol in typhus fever (Gairdner), 45
- Alopecia and tinea, on (Ziemssen, Hillier), 176
- Althaus, mineral waters of England and Continent, 189
- Amaurosis, coincident with oxaluria (Mackenzie), 312
- with albuminuria in lead poisoning (Danjoy), 168
- from tobacco (?) (Hutchinson), 312
- authors on, 314
- Amenorrhœa, apiol in (Corlieu), 393
- surgical treatment of (Storer), 392
- Amputations, major, for injuries (Sidell), 293
- different kinds near ankle (Weber), 294
- Pirogoff's (Hewson), 292
- authors on, 295
- Amyl, nitrate of, effects of (Richardson), 453
- Anæsthesia of chloroform prolonged by subcutaneous injection of morphia (Nussbaum), 204
- Anæsthetics (Anstie), 420
- Anderseck and Hamberger, poisoning by corrosive sublimate, 431
- Anderson, J. W., case of Cæsarean section successful, 388
- Aneurism, abdominal, lumbar pain in (Cockle), 122
- of abdominal aorta cured by pressure (Murray), 122
- of aorta opening into superior vena cava (Gull), 122
- of innominata, successful ligature of (Rogers), 264
- of subclavian (Sabine), 261
- thoracic (Moore), 121
- and tumours implicating vagi nerves (Habershon), 121
- do. thoracic (Waters), 123
- new method of consolidating fibrin in (Moore), 265
- authors on, 267
- Angina pectoris, relation of, to sub-paralysis of heart (Eichwald), 118
- post-mortem (Lancereaux), 118
- Aniline colours, poisoning by (Friedreich), 454
- Annan, protracted gestation, 363
- Anstie, on stimulants and narcotics, 417
- Anstie, F. E., treatment of diabetes, 168
- Anthrax, treatment by pressure (Collis, Smyly), 251
- Antisell, T., constituents of bile, 20
- Aphonia, albuminuric (Fauvel, Gibb), 128
- functional (Mackenzie), 129
- hysterical, treated by etherization (Hutchinson), 97
- Apiol in a- and dys-menorrhœa (Corlieu), 393

- Apoplexy of pons, recovery (Möller), 88  
 Apoplexy, analysis of 40 fatal cases (Jones), 89  
 — from heat (Bonnyman), 72  
 Arlt, cancer of eyelid, 304  
 Arm, surgical diseases of, authors on, 351  
 Armand, M., trial of, for assault on Roux (Tardieu), 456  
 Arrow poisons, effects of (Braidwood), 443  
 Arsenic, death from external application of (Taylor), 424  
 — do. to vagina (Briskin), 424  
 — recovery from (Maschka), 425  
 — rabbits fed on (Roussin), 27  
 — errors in Marsh's test for (Blondlot, Gaultier, Gamgee), 425-6  
 — purifying of  $SO_3$  from (Bussy and Buignet, Buchner, Blondlot), 428  
 Arsenic-eating, death from (Parker), 329  
 — in Styria (Maclagan), 428  
 Arseniuretted hydrogen, poisoning by (Olivier), 423  
 Artanthe adunca, new kind of matico (Bentley), 436  
 Artemisia absinthium, evil effects of (Decaisne), 446  
 Arteries, large, treatment of wounds of (Reed), 259  
 — surgery of, authors on, 260  
 Articulation, difficult, and sub-occipital pain, from dilatation of (Ramskill), 120  
 Asché, H., glanders, as occurring in man, 40  
 Asthma, chloroform in (Salter), 133  
 — pot. iod. in do. 132  
 — dietary in (Smith), 132  
 Assimilation of isomorphous substances (Roussin), 27.  
 Ataxie locomotrice, degeneration of spinal cord in (Axenfeld), 86  
 — state of sympathetic nerve in (Duchenne), 85  
 — cured by cupping (?) (Montineja), 86  
 — improved by arg. nit. (Bourillon), 84  
 Atropine, case of poisoning by, recovery, 442  
 — new mode of applying (Hornberger), 302  
 Atthill, L., retroversion of gravid uterus, with retention, 369  
 Aveling, on immediate transfusion, 389  
 Axenfeld, atrophic degeneration of spinal cord, 68  
  
 Bacteria, as cause of disease and infection (Davaine), 198  
 Bankart, diseases of miners, 477  
 Barker, E., atrophy of tongue and muscles of speech, 110  
  
 Barnes, cancer of cervix uteri, with lymphatic obstruction, 401  
 — increase of scurvy at sea, 478  
 Barnes, R., on spondylolisthesis, and premature labour in, 372  
 Bärwinkel, degeneration of cord in ataxie, 87  
 Bastion, H. C., mode of origin of secondary cancerous growths, 272  
 Baudelot, functions of encephalon in mæm-malia and fishes, 31  
 Beau, pleurisy giving rise to phthisis, 142  
 Beer and Billroth, pathological changes in the spleen, 170  
 Begbie, W. J., observations on favus, 173  
 Behier, thoracentesis in pleuritic effusion, 140  
 Behrend, bromide of potassium in insomnia, 95  
 Beigel, H., on spirometry, 143  
 Bellini, on the absorption of iodine, 422  
 Benedikt, M., observations on hysteria, 75  
 Bentley, analysis of *Hydrangea arborescens*, 447  
 — new kind of matico, 436  
 Bernard, Cl., experiments with the alkaloids of opium, 449  
 — influence of reflex action on secretion, 22  
 Bernatz, on pelvic hæmatocele, 402  
 Bernatzik, examination of cubebs, 434  
 Bernouilli, tetanus in the tropics, 232  
 Bernays, air of mines, 473  
 Berthé (and Garrod), on codeia, 450  
 Bickersteth, E. R., new operation for un-united fracture, 280  
 Bidwell, the tongue in malarious disease, 60  
 Bile secreted from hepatic artery (Oré), 19  
 — effect of alkalies on secretion of (Nasse), 20  
 — constituents of (Antisell), 20  
 — biliary acids in icterus (Huppert and Bischoff), 21  
 Billroth and Beer, pathological changes in the spleen, 170  
 Birnbaum, variety in form of uterus with pregnancy, 376  
 Bischoff and Huppert, biliary acids in icterus, 21  
 Bismuthi liquor, composition of (Tichborne), 430  
 Bites by men, mortification after (Pribram), 206  
 Blachez, on facial phlebitis, 267  
 Bladder, chronic hypertrophy of (Holt), 343  
 — epidermoid transformation of epithelium of (Lowenson), 169  
 — diseases of, authors on, 344

- Bladder, extroversion of, authors on, 330
- Bleeding from the ranine vein (Pissin), 128
- Blondeau, Ch., formation of fat from casein, 26
- Blondlot, errors in testing for arsenic, 425  
— purifying  $\text{SO}_3$  from arsenic, 428
- Blood, changes in composition of, from inanition, 26  
— cause of change of colour in (Schmidt), 2; (Stokes), 14  
— corpuscles, amœboid of (Preyer), 1  
— crystallization of (Schmidt), 3  
— subpericranial effusions of, in the newly born (Liman), 464
- Bloodletting, use of in disease (Markham), 61  
— in pneumonia in Iceland (Hjaltelin), 137  
— do. Vienna Hospital, 138
- Blood-stains, hæmin as test for (Kunse), 456
- Blood-vessels, contribution to pathology of (Wedl), 123  
— share of in new formations (Weber), 12
- Böhr, respiration before birth, 460
- Boinet, treatment of hydatid cysts of the liver, 328
- Bone, inflammation of, authors on, 278
- Bonnyman, J., on heat apoplexy, 72
- Böttger, H., spontaneous rupture of heart, 121
- Bouchut, on mediastinal tuberculosis, 415  
— tuberculosis of bronchial glands, 141  
— arg. nit. in paraplegia of children, 84
- Boudet, cause of the respiratory murmur, 17
- Bourdon and Moissenet, syphilitic narrowing of trachea, 131
- Bourillon, ataxie locomotrice, improved by arg. nit., 84
- Boussingault, effect of light on vegetable light, 66
- Braidwood, effects of arrow poisons, 443
- Brain, apoplexy of (Wilks), 109
- Braithwaite, quality of citrate of iron and quinine, 446
- Bronchitis, chronic, tincture of larch in (Greenhow), 134
- Braun, cephalotripsy as performed by (Ritchie), 387  
— vomiting of pregnancy, 363  
— and Kühn, induction of premature labour, 382
- Breslau, life of foetus after death of mother, 357  
— extra-uterine gestation with Fallopian polypi, 365
- Bridger, J., diphtheria, post-mortem appearances in 24 cases, 55
- Briskin, poisoning by arsenic in vagina 424
- Bromide of potassium in infantile convulsions, 95  
— in insomnia (Behrend), 95
- Bromine, use of, in hospital gangrene, erysipelas, &c. (Post, Moses, Weeks), 27, 222
- Bronchial glands, tuberculosis of (Kreuser, Bouchut), 141
- Brown, B., retroflexion of uterus, 394  
— surgical treatment of fibrous tumours of uterus, 399
- Bruit de souffle, causes of (Marey), 10  
— subclavian, in men (Palmer), 119
- Bryson, epidemic pleuro-pneumonia in Mediterranean fleet (1860), 139
- Buchanan, G., tracheotomy in croup and diphtheria, 130
- Buchner, purifying  $\text{SO}_3$  from arsenic, 428
- Buhl, L., obstructions of the air-passages causing death of child after birth, 415
- Bulley, F. A., hard tumour of tongue cured by Galium aperine, 147
- Bumstead, J. F., venereal diseases of anus and rectum, 235
- Buren, W. H. van, surgery of the rectum, 339
- Burggraëve, use of the sulphites in pyæmia, 226
- Burns, severe, belladonna internally in, 209  
— after death producing vesication (Duvernoy), 459  
— by phosphorus, treatment of (Lembert), 208
- Busch, W., forcible extension of contractions of knee and hip, 282
- Bussy and Boignet, preparation of hydrocyanic acid, 451  
— purifying  $\text{SO}_3$  from arsenic, 427-8
- Butyric acid injected into veins, effects of (Weber), 228
- Cæsarean section, cases of (Greenhalgh, Sadler, Anderson), 388  
— compared with craniotomy (Murphy), 386  
— results of (Martin), 359
- Calabar bean, active principle of (Jobst and Hesse), 447  
— poisoning by, at Liverpool, 448  
— authors on, 307
- Calvi, Marchal de, cerebral lesions in diabetes, 168
- Cameron, J., case of hydrophobia, 72
- Cancer, epithelial, case of (Fleming), 276  
— of eyelid (Arlt), 394  
— secondary, mode of origin of (Bastion), 272

- Cancer of uterus (Simpson, Hewitt, Säxinger, Barnes, Habit), 400  
 — authors on, 276  
 — of eye, authors on, 307  
 Cappie, case of double vagina, 390  
 Carbonic oxide gas, poisoning by (Marten), 421  
 Carbuncle, treatment by pressure (Collis), 184  
 Caries of joints indicated by temperature (Heineke), 203  
 — authors on, 278  
 Casper, J. L., notice of life of, 455  
 — fatal case of poisoning by strychnia, 444  
 Cataract, on (Von Graefe), 308  
 — form of extraction knives (Zehender), 309  
 — authors on, 309  
 Catalytic diseases, alkaline and earthy sulphites in (De Ricci), 191  
 Catheterization of air-tube in children born asphyxiated (Hüter), 415  
 Cerebellum, structure and functions of (Luys), 31  
 — abscess in, 89  
 — syphilitic disease of, recovery under mercury (Duplay), 96  
 — syphilitic tumour of (?), recovery under mercury (Leven), 88  
 Cervix uteri, disease of, removal, 391  
 Cevadilla seeds, action of (Schroff), 433  
 Chancre, indurated, diagnosis from epithelioma (Mauder), 242  
 — do. excision of (Veale), 239  
 — do. do. (Humphry), 241  
 Chaplin, T., the fevers of Jerusalem, 186  
 Chapman, J., on sea-sickness, 150  
 Charcot, J. M., influence of lead poisoning on gout, 61  
 Charrier, on hereditary syphilis, 64  
 Chauffard, influence of race on results of operations, 193  
 Chaussit, so-called acute parasitic disease of skin, 172  
 Chest, surgical disease of, authors on, 327  
 Chevallier, A., adulterations of vinegar in France, 470  
 — poisoning by copper from iron vessel, 430  
 Child, disease of, impeding delivery (Gervis, Hicks), 380  
 Children, pulse in health in (Smith), 414  
 — diseases of, authors on, 354, 414  
 Chloroform in asthma (Salter), 133  
 — facial spasm cured by (Costes), 99  
 Choroid, affections of, authors on, 310  
 Christie, on shoulder presentations of the fœtus, 378  
 Chromates, manufacturers of, disease of nose among (Hillairet), 475  
 Cinchonia, as substitute for quina (Turner), 60  
 Cinchona bark, inferior quality of (Howard), 446  
 Clark, Andrew, lectures in London Hospital reports, 192  
 Clarke, J. L., pathology of tetanus, 81, 232  
 — do. paraplegia, 84, 96  
 Clayton, purity of iodide of potassium, 423  
 Cockle, J., lumbar pain in abdominal aneurism, 122  
 Coglean, on dysmenorrhœa and sterility, 393  
 Cold, condition of body in death from (Dieberg), 458  
 — influence of, on nerves (Rosenthal), 97  
 Colen, G., differences between right and left cavities of heart, 12  
 Collis, H., treatment of anthrax by pressure, 184, 251  
 — treatment of gonorrhœa, 237  
 Collis, M. H., Laminaria digit. bougies in organic stricture, 346  
 Collis, W., treatment of anæsthetic leprosy, 179  
 Concato, on the absorption of iodine, 422  
 Conjunctiva, authors on, 307  
 Contractions of knee and hip treated by forcible extension (Busch), 282  
 Convulsions, infantile, pot. bromid. in (Jones), 95  
 — unilateral (Jackson), 66  
 Copper, poisoning by, from iron vessel (Chevallier), 430  
 Cord, umbilical, prolapsus of, treatment (Simpson, Thomas), 379  
 Corlieu, apiol in amenorrhœa and dysmenorrhœa, 393  
 Cornea, authors on, 307  
 Cornil, alterations in nerves and muscles in hemiplegic contraction, 100  
 Corpora quadrigemina, tuberculosis of (Hennoch and Steffen), 89  
 Corrosive sublimate, poisoning by (Taylor, Anderseck), 431  
 Corvisart, L., digestion of albuminoid substances by the pancreas, 19  
 Coste, production of ciliated animalculæ, 5  
 Costes, histrionic facial spasm cured by chloroform, 99  
 Cousins, J. W., cases of myelitis, 83  
 Cotton, R. P., therapeutic agents in phthisis, 141  
 Craniotomy, case of, Earle's pelvimeter (Meadows), 386



- Craniotomy, comparative claims of, and Cæsarean section; Earle's pelvimeter (Murphy), 386  
 — forceps in (Powell), 385  
 Crichton, gastrotomy successful in case of ruptured uterus, 381  
 Croup, diphtheritic, tracheotomy in (Spence), 130  
 Cubebs, examination of (Bernatzik), 434  
 — new form of (Pas and Grönewegen), 436  
 Curcas purgans, poisoning by, at Birmingham, 437  
 Czermak, J., laryngeal mirror in case of foreign body in pharynx, 319
- Dajaksch. See *Arrow poisons*.  
 Danjoy, albuminuria in lead poisoning, 167  
 Dancel, influence of fluid on obesity, 24  
 Dareste, C., effect of heat locally applied on development, 5  
 Davaine, on bacteria, 198  
 Davis, H., acute rheumatism treated by free blistering, 56  
 Day, E., extra-uterine fœtation, followed by intra-uterine pregnancy, 367  
 Deaf-mutism, anomalous condition of internal ear in (Dardel), 318  
 — and blindness in Bavaria and Ireland (Kuchler), 479  
 Death, hour of, in acute and chronic disease (Haviland), 192  
 Decaisne, evil effects of absinthe, 446  
 Decidua, glands of, and hydrorrhœa gravidarum (Hegar), 360  
 Délioux de Savignac, musk and acetate of ammonia in severe pneumonia with delirium, 134  
 Delirium of fever, &c., and insanity, diagnosis of (Dumesnil), 108  
 Delirium tremens, recovery under digitalis, 6 cases (Reed), 71  
 Delivery after death, case of (Taylor), 460  
 Delivery. See *Labour*.  
 Delpech, on measly pork and worms from raw beef, 470  
 Demarquay and Leconte, physiological effects of oxygen, 6  
 Demme, H., pathology of tetanus, 232  
 — curare in tetanus, 233  
 Demme, R., therapeutical use of nitroglycerine, 454  
 Development, effect of heat locally applied on (Dareste), 5  
 Devers, spontaneous malignant pustule, 183  
 Diabetes, cerebral symptoms in (De Calvi), 168  
 — chloride of arsenic in (Rees), 169  
 — diet in (Smith), 168  
 — treatment of (Anstie), 168
- Diarrhœa, trisnitate of bismuth in (Trask), 150  
 — reports of Vienna Hospital, 1860-2, 149  
 Diatheses, hereditary (Sutton), 58  
 Dirotism of pulse (Marey, Kaschlakoff, Landois), 9-11  
 Dickinson, W. H., treatment of albuminuria in children, 166  
 Die, treatment by vapour of pitch-furnaces at (Ireland), 433  
 Dieberg, condition of body in death from cold, 458  
 Diet in emaciation (Smith), 36  
 — obesity do. 37  
 Dietary in disease (Smith)—asthma, 132; phthisis, 142  
 Digestion, impaired, fermentation in (Schultze), 22  
 Digitaline, characters of (Lefort), 438  
 — dialysis and other tests for (Grandeau), 438  
 — effects of, on the heart (Vulpian), 441  
 — do. in large doses (Faure), 441  
 — poisoning of Mad. Pauw by (Tardieu and Roussin), 439  
 Digitalis, poisoning by infusion of (Mazel), 437  
 Diphtheria, bromine in (Post), 217  
 — in Campbeltown (Gibson), 55  
 — heart disease in, post-mortem in 24 cases (Bridger), 55  
 Diphtheritic wounds (Hutchinson), 207  
 Dislocation of humerus, forearm torn off in reduction (Guerin), 287  
 — rupture of axillary vein from (Harley), 287  
 — authors on, 288  
 Dobell, H., assimilation of fat in phthisis, 143  
 Dohow, case of infanticide, 463  
 Dönitz, structure of intestinal mucous membrane, 18  
 Doutrelepont, operative treatment of pyæmia, 226  
 Down, J. L., on polysarcia and its treatment, 39  
 — ammonia in scarlatina, 55  
 Drainage tube in pleuritic effusion (Kidd), 140  
 Dressmakers, sanitary condition of, in London, 473  
 Dron, A., syphilitic disease of epididymis, 172  
 Dropsy, renal, diuretics in large doses in (Wade), 163  
 — spontaneous diuresis in acute (Johnson), 166  
 Duchenne, state of sympathetic nerve in ataxie locomotrice, 85

- Duchesne-Duparc, treatment of prurigo, 177  
 Ductus Botallii, puncture of (Schnitzler and Rokitansky), 119  
 Dumesnil, diagnosis of insanity from delirium, 108  
 Duncan, M., source of hæmorrhage in fibrous tumour of uterus, 398  
 Durham, A. E., osteomalacia and porous hyperostosis, 279  
 Duvernoy, vesication by burn after death, 459  
 Dysentery, on, naval medical contributions (Mackay), 152  
 Dysmenorrhœa and sterility, on (Coglan), 393  
 — use of apiol in (Corlieu), 393  
 Dysphagia, tracheal (Salter), 144
- Ear, internal disease of, producing abscess in cerebellum (Edwards), 89  
 — do., authors on, 317  
 — do., trephining mastoid process in (Pagenstecher), 314  
 Eberbeck and Eichberg, report of asylums at (Gräser), 108  
 Ectropium, cases of (Koller), 304  
 Eczema, on (Wilson), 181  
 — (Meade), 182  
 Edmunds, J., tetanus treated by ice to spine, 79  
 Edwards and Cameron, poisoning by calabar bean, 448  
 Eichwald, angina pectoris and its relation to sub-paralysis of the heart, 118  
 Electricity, non-effect of induced, and power of constant, current on paralysed muscles (Neumann), 85  
 Elephantiasis, case of amputation for (Fiddes), 251  
 — case of (Steffen), 251  
 Ellis, R., recovery from oxalic acid, 422  
 Emaciation, dietetic treatment of, 36  
 Embolism (Jackson), 66  
 — pulmonary, sudden death from, in fracture, &c. (Azam), 193  
 — do., after removal of a tumour (Wahl), 193  
 Emphysema, hypertrophy of left heart in (Waters), 120  
 — (report of the Vienna Hospital), 134  
 Epidemic occurrence of some surgical diseases (Billroth), 193  
 Epidemic of spotted fever near Philadelphia, 1863 (Gerhard and Lamb), 42  
 — do. in Rhode Island, 1863 (Wales), 43  
 Epididymis, syphilitic disease of (Dron), 172  
 Epiglottis, functions of (Schiff), 27  
 — inflammation of, cases (Windsor), 130
- Epilepsy, clinical lectures on (Ramskill), 77  
 — bromide of potassium in (M'Donnell, Rogers), 78  
 — hemiplegia, &c. (Jackson), 66  
 Epithelioma, diagnosis from indurated chancre (Maunder), 242  
 Erysipelas, on (Mackay), 61  
 — indicated by temperature (Heineke), 203  
 — use of bromine in (Post), 217  
 Estor and St. Pierre, cause of the red colour in inflammation, 4  
 Eustachian tube, authors on, 318  
 Excision of elbow (Doutrelepoint), 290  
 — of knee (Fergusson), 288  
 — do., longitudinal incision in (Hüter), 291  
 — of lower jaw, preventing disfigurement after, 299  
 — authors on, 292  
 Exertion and food, relation of (Pettenkofer and Voit), 25  
 Exophthalmic goitre, authors on, 306  
 Exophthalmos (Knapp and Rothmund), 306  
 — cardio-thyroidean (Graefe), 70  
 — clinical lecture on (Laycock), 70  
 Exostosis in left nasal fossa and pharynx removed (Legouest), 278  
 — sub-ungual (Nélaton), 351  
 Eye, surgery of, authors on, 301-314  
 Eyes, luminous (Stellwag, v. Corion), 302  
 Eyelid, cancer of (Arlt), 304
- Fabricius Hildanus, memoir of (Meyer-Ahrens), 193  
 Falconer, R. W., tetanus, recovery after ice to spine, 80  
 Fat, formation of, from casein (Blondeau), 26  
 Fatigue, sense of (Laségue), 76  
 Faure, effects of digitaline in large doses, 441  
 Favus, clinical observations on, 173  
 Fenwick, S., condition of stomach and intestines in scarlatina, 147  
 Fergusson, W., on excision of knee, 288  
 — non-removal of skin in excision of tumours, 272  
 — threatened non-union in operation for hare-lip, 318  
 Fever, enteric, with heart disease (London), 118  
 — produced by injection of blood from septicæmic animals, 230  
 — intermittent, urine in (Nicholson), 59  
 — do. sulphate of cinchonia in (Turner), 60  
 — malarious, treatment of (Hare), 60  
 — of East Central Africa (Meller), 60  
 — rheumatic, obscure forms of (Sutton), 57

- Fever, typhoid, miasmatic (Levick), 52  
 — typhus, alcoholic stimulants in (Gairdner), 45  
 — do. and typhoid, condition of urine in (Spanton), 47  
 — do. analysis of 300 cases of (Russell), 49  
 — resembling typhus at first, typhoid afterwards (Gull, Wilks), 48  
 — spotted, epidemic of, near Philadelphia (Gerhard and Lamb), 42  
 — do. do. in Rhode Island, 1863 (Wales), 43  
 — syphilitic (Güntz), 242  
 Fevers of Jerusalem (Chaplin), 186  
 Fiddes, case of amputation for elephantiasis, 251  
 Fistula, recto-vesical, operation (Lane), 349  
 Fleet, Mediterranean, pleuro-pneumonia epidemic (Bryson), 139  
 Fleming, C., case of epithelial cancer, 276  
 Fœtus, life of, after death of mother (Breslau), 357  
 Fonsagrives, zinc vessels for water, 469  
 Food of labouring classes (Smith), 470  
 — and excretion, relation of (Pettenkofer and Voit), 25  
 — authors on, 470  
 Forceps in craniotomy (Powell), 385  
 — in difficult labour (Ryan, Halahan), 384  
 Fox, T., on impetigo contagiosa, 173  
 — on so-called parasites of the skin, 174  
 Fracture, new operation for ununited (Bickersteth), 280  
 — ununited, of tibia, cure (Reid), 281  
 — authors on, 281  
 Franque, Von A., case of hæmorrhagic sweat, 179  
 — on prosopalgia, 99  
 Friedreich, E., poisoning by aniline colours, 454  
 Frumentel, experiments on spontaneous generation, 4  
 Fuller, H. W., clinical lecture on sciatica, 59  
 Gairdner, use of alcoholic stimulants in typhus fever, 45  
 Gangce, A., errors in testing for arsenic, 426  
 — death from slaughtering a diseased bull, 470  
 Gangrene, on the spread of (Wahl), 231  
 — hospital, nature of (Thomson, Parker), 217  
 — do. in successive epidemics of, (Pryer), 28  
 — without previous wound (Hamilton), 218  
 Gangrene, hospital, bromine in (Thomson, Parker, Hamilton), 217-18  
 — do. opium and ammonia in (Pick), 220  
 — permanganate of potash in (Hinkle), 220  
 — do. (Moses, Stanford, Weeks, Post), 223-4  
 — do. authors on, 225-232  
 Garibaldi, report on wound of (Basile and Ripari), 215  
 Garrod (and Berthé), properties of codeia, 450  
 Gastro-intestinal catarrh, Vienna Hospital reports, 1860-2, 149  
 Gastrotomy, successful in case of ruptured uterus (Crichton), 381  
 Gaultier de Claubry, errors in testing for arsenic, 426  
 Genito-urinary system, diseases of, authors on, 342  
 Gerhard and Lamb, epidemic of spotted fever near Philadelphia, 42  
 Gerhardt, direct treatment of icterus catarrhalis, 159  
 Gervis (and Hicks), disease of child impeding delivery, 380  
 Gibb, G., on albuminuric aphonia, 128  
 — disease of trachea and bronchi, 128  
 Gillespie, death after local application of iodine, 422  
 Glanders in man, (Asché), 40  
 Glauber's salt, influence of, on metamorphosis of matter (Seegen), 26  
 Glaucoma, authors on, 310  
 Gleet, treatment of (Collis), 237-8  
 — authors on, 238  
 Gout, influence of lead poisoning on development of (Charcot), 61  
 Graefe, on cardio-thyroidean exophthalmia, 70  
 Graefe, von, on cataract, 308  
 — diagnosis between cellulitis and periostitis in the orbit, 305  
 — facial spasm, division of nerve, 82  
 Gräser, report of asylums of Eberbeck and Eichberg, 108  
 Grehaut, N., interchange of gases in lungs, 16  
 Greig, D., insufflation as remedy in intussusception, 151, 331  
 Greenhalgh, on placenta prævia, 380  
 Greenhow, H., tinct. of larch in chronic bronchitis, 134  
 Guerin, A., forearm torn off during reduction of dislocation, 287  
 Guibourt, new form of jalap, 443  
 Guinea worm (Bastian), 235  
 Gull, W. W., aneurism of aorta opening into superior vena cava, 122

- Gull, W.W., fever, appearing at first typhus, then typhoid, 48
- Gunshot wounds in the army of the Cumberland (Moses), 210
- reflex paralysis as a result of (Mitchell, Morehouse, Keen), 211
- Güntz, E., on syphilitic fever, 242
- Guyton, mechanism of strangulation in hernia, and use of chloroform during taxis, 334
- Habershon, S. O., implication of vagi nerves in aneurisms and tumours, 121
- Habit, case of recovery from cancer of uterus and vagina, 401
- Hæmatocele, pelvic (McClintock, Tuckwell), 402
- Hæmaturia of Cape of Good Hope (Harley), 163
- Hæmorrhoids, forcible dilatation of sphincter in (Van Buren), 340
- écraseur in internal (Hamilton), 341
- Hæmorrhage and hæmorrhagic diathesis, authors on, 268
- cerebral, analysis of 40 fatal cases (Jones), 89
- Halahan, difficult labour, forceps cases, 384
- Hamberger and Anderseck, poisoning by corrosive sublimate, 431
- Hamilton, E., écraseur in treatment of hæmorrhoids, 341
- Hamilton, F. H., hospital gangrene without previous wound, 218
- treatment of hospital gangrene, 222
- Hare, treatment of malarious fever, 60
- Hare-lip, threatened non-union after operation (Fergusson), 318
- authors on, 319
- Harley, G., on uro-hæmatin, 160
- Harley, J., hæmaturia of Cape of Good Hope, 163
- Hassall, A. H., blood and urine in degeneration of kidneys, 163
- Harland, A., hour of death in acute and chronic disease, 192
- Head, surgery of (Teevan, Hewett), 296
- authors on, 299
- Headache in nervous women, turpentine in (Teissier), 97
- Heart, differences between right and left cavities of (Colen), 12
- dilatation of left, with difficulty of articulation and suboccipital pain (Ramskill), 120
- enfeebled, slowness of pulse a sign of (Peacock), 125
- experiments upon action of (Marey, Koschlakoff, Landois), 7-11
- Heart, enfeebled, digitalis in (Stirling), 128
- hypertrophy of left, in emphysema (Waters), 120
- influence of gaseous contents of blood upon action of (Thiry), 7
- insufficiency of valves of (Skoda), 119
- malformation of (Lebert), 120
- rupture of septum from kick of horse (Höring), 120
- signs of disease of, by pulse, 10
- spontaneous rupture of (Böttger), 121
- disease of, connection with apoplexy (Jones), 93
- disease, pathology of (Ormerod), 111
- Heat apoplexy (Bonnyman), 72
- Heat, local, effect of, on development (Dareste), 5
- Hegar, A., glands of the decidua and hydrorrhœa gravidarum, 360
- Heineke, value of measurements of temperature in surgical cases, 203
- tetanus after operation for cancer of cervix uteri, 391
- Hemeralopia, authors on, 314
- Hemiplegic contractures, alterations in nerves and muscles in (Cornil), 100
- Hemiplegia, with loss of speech (Jackson), 66; (Russell), 68
- Henoch and Steffen, tuberculosis of corp. quadrig., 89
- Herapath, W. B., indigo in purulent discharges, 215
- Hereditary insanity (Stewart), 103
- Hermann, F., on scurvy, 116
- Hernia, mechanism of strangulation, and use of chloroform during taxis (Guyton), 334
- new mode of operating for (Langenbeck), 336
- radical cure of reducible (Porter), 331
- reduction of voluminous, by elastic pressure (Nélaton), 333
- simplification of the extra-peritoneal operation (Jordan), 337
- authors on, 338-9
- Hewitt, G., apparatus for transfusion, 389
- cancer of fundus uteri, 400
- delivery by turning, 384
- Hewitt, P. G., caries and necrosis of bones of skull, 297
- Hewson, A., on Pirogoff's amputation, 292
- Hicks, B., delivery by turning, 383
- statistics of Guy's Lying-in Charity, 354
- Hillairet, disease of nose in manufacturers of chromate of potass, 475
- Hillier, T., on alopecia and tinea, 176

- Hinkle, F., permanganate of potash in hospital gangrene, 220
- Hippuric acid in urine (Mattschersky), 21
- Hjaltelin, J., epidemic pneumonia in Iceland, 1863, 135
- Hodge, H. L., on the mechanism of labour, 371
- Hohl, case of poisoning by atropine, recovery, 442
- Holmes, T., congenital innocent tumours, 268
- Holt, chronic hydrarthrosis of knee, 282
- Holt, B. chronic hypertrophy of bladder, 343
- Holt, R., anomalous case of hysteria, 75
- Homberger, J., new mode of applying atropine, 302
- Höring, rupture of septum of heart from kick of a horse, 120
- Hospitals, investigation of (Bristowe, Holmes), 467
- Hospital gangrene. See *Gangrene*.
- Howard, ice to spine in hysterical opisthotonos, 82
- root-bark in cinchona, 446
- Humphry, treatment of chancre by mercury, 241
- Huppert and Bischoff, the biliary acids in icterus, 21
- Hutchinson, J., amaurosis from tobacco (?), 312
- belladonna in severe burns, 208
- diphtheritic or pellicular wounds, 207
- five cases of true leprosy, 39
- leucoderma, and its diagnosis from Addison's disease, 185
- on organic diseases of the ovaries, 407
- surgical treatment of fibrous tumour of uterus, 396
- on uterine polypi, 406
- Hutchinson, J. H., hysterical aphonia and deafness, etherized, 97
- Hüter, catheterization of the air-tube in children born asphyxiated, 415
- Hüter, V., anteversion of gravid uterus, 368
- habitual abortion, with flexion of uterus, 369
- Hydatid of liver, treatment of (Boinet) 328
- authors on, 330
- Hydrangea arborescens, analysis of (Bentley), 447
- Hydrocele, authors on, 343
- Hydrocyanic acid, poisoning by (Otto), 451
- mode of preparing (Bussy and Buiguet), 451
- Hydrophobia, case of (Whittle), 70; (Cameron), 71
- Hydrophobia, authors on, 234
- Hysteria case of anomalous (Holt), 75
- Hysterical anæsthetic ataxia (Laségne), 76
- aphonia and deafness cured by etherization (Hutchinson), 97
- opisthotonos, ice to spine in (Howard), 97
- paralysis and loss of speech (Wilks), 68
- do. observations on (Benedikt), 75
- Ice to spine in opisthotonos (Howard), 82
- Iceland, epidemic pneumonia in (Hjaltelin), 135
- Impetigo contag., on (Fox), 173
- Impotence, imaginary (Parker), 341
- Inanition, changes produced in composition of blood (Panum), 26
- Indigo in purulent discharges (Herapath), 215
- Infanticide, signs of (Böhr, Kraemer, Liman, and others), 460-3
- case of (Dohow), 463
- Infection, purulent, infusoria as agents in (Wells), 194
- Infectious diseases, isolation of (Murchison), 41
- Inflammation, cause of the red colour in (Estor and St. Pierre), 4
- influence of trophic nerves on (Weber), 33
- of serous membranes, textural changes in (Turner), 34
- Influenza, epidemic of, 1861, 1863, &c. (Levick), 135
- Insane, on the writings of (Marcé), 465
- Townley not, 465
- Insanity, hereditary, on (Stewart), 103
- influence of ague on (Nasse), 109
- refusal of food in (Williams), 110
- syphilitic (Jacksch), 65
- and delirium, diagnosis of (Dumesnil), 108
- and rheumatism (Sander), 107
- authors on, 103
- Intestine, wounds of, authors on, 330
- Intestinal mucous membrane, structure of (Dönitz), 18
- obstruction, 331
- Intussusception, insufflation in (Greig), 151
- authors on, 331
- Iodide of potassium, purity of (Clayton), 423
- Iodine, experiments on absorption of (Bellini, Renzi, Concato), 442
- death after local application of (Gillespie), 422
- Ipecacuanha, effects of, in disease (Pecholier), 447
- Ipomea turbethum, analysis of (Vogl), 443

- Ireland, W. W., vapour of pitch-furnaces in medicine, 433
- Iridectomy for artificial pupil (Windsor), 307
- in operation for cataract (Von Graefe), 308
- Iris, affections of, authors on, 308
- Jacksch, syphilis of internal organs, 65
- Jackson, H., diseases of nervous system, 96
- loss of speech, and other nervous affections, embolism in, 66
- Jalap, examination of new form of, (Guibourt), 443
- Jatropha nuts, poisoning by, at Birmingham, 437
- Jaundice, biliary acids in (Huppert and Bischoff), 21
- Jaundice, catarrhal, direct treatment of (Gerhardt), 159
- Jaw, lower, excision of, prevention of disfigurement (Langenbeck), 299
- surgery of, authors on, 301
- Jaws, immobility of (Heath), 318
- Jerusalem, fevers of (Chaplin), 186
- Jobst and Hesse, active principle of calabar bean, 447
- Johnson, G., spontaneous diuresis in acute renal dropsy, 166
- Joints, disease of, authors on, 287
- contractures of (Busch), 282
- Jones, T., analysis of 40 fatal cases of cerebral hæmorrhage, 89
- Jones, J., pot. bromid. in infantile convulsions, 95
- Jodin, F. V., effect of light on vegetable life, 5
- Jordan, F., simplification of the extra-peritoneal operation in hernia, 337
- Joulin, the pelvis in various races of man, 356
- Kalb, treatment of scabies, 179
- Keiller, excrescence of cervix uteri removed by écraseur, 391
- Kempff, V., on scurvy, 116
- Ker, T. F., treatment of acne rosacea, 179
- Kesteven, poisoning from leg of pork, 470
- Kidd, vomiting in the eighth month of pregnancy, 364
- Kidd, G. H., drainage tube for removal of fluids from pleura, 140
- Kidney, degeneration of, blood and urine in, 163
- Kidneys, disease of, connection with apoplexy (Jones), 93
- Klein, on stone and its treatment in Russia, 348
- Knee, chronic hydrarthrosis of, cure (Holt), 282
- contractions of, treated by extension (Busch), 282
- opening, in abscess of (Moses), 210
- Koller, R., cases of ectropium, 304
- Koschlakoff, character of pulse, 11
- Krahmer, signs of infanticide, 460
- Kreatin and kreatinin, presence of, in muscle (Sarokow, Newbauer), 24
- effects in producing fatigue of muscle (Ranke), 23
- Kreuser, tuberculosis of bronchial glands, 141
- Klüchler, deaf mutism and blindness in Bavaria and Ireland, 479
- Kühn and Braun, induction of premature labour, 382
- Kunse, hæmin as test for blood-stains, 456
- Kussmaul, pathology of the urinary organs, 164
- Labour, mechanism of (Hodge), 371
- missed (M'Clintock, Schulz), 370
- premature, in spondylolisthesis (Barnes), 372
- twin, extending over 3 days (Abarbanell), 377
- abnormal presentations, prolapsus funis (Christie, Simpson, Thomas), 378
- impeded by disease of child (Gervis, Hicks), 380
- induction of premature, method and statistics of (Kühn, Simpson, Moir, Barnes), 382
- delivery by turning (Hicks, Hewitt), 383
- do. forceps (Ryan, Halahan), 384
- craniotomy in (Murphy, Meadows, Powell), 385
- cephalotripsy in (Ritchie, Winckel), 387
- Cæsarean section in (Greenhalgh, Sadler, Anderson), 388
- Lachrymal apparatus, authors on, 307
- Laminaria digitata bougies in organic stricture (Collis), 346
- Lancereaux albuminuria in lead poisoning, 167
- angina pectoris, post-mortem, 118
- syphilitic lesions of internal viscera, 61, 246
- Landois, character of pulse, 11
- Lane, J. R., operation for recto-urethral fistula, 349
- pregnancy after operative closure of os uteri, 361

- Lange, tetanus, recovery after use of tobacco, 79
- Langenbeck, means of preventing disfigurement after excision of lower jaw, 299  
— perforations of hard palate, 319
- Langenbeck, B., new mode of rhinoplasty, 204
- Langenbeck, M., new mode of operating for hernia, 336
- Laryngoscopy, illumination in (Walker, Mackenzie), 130  
— notes on (Mackenzie), 129
- Larynx and trachea, disease of, authors on, 327
- Laségue, A., hysterical anæsthesia and ataxia, 76
- Laugier, suture of nerves, 259
- Law, R., treatment of acute rheumatism, 56
- Laycock, T., on exophthalmos, 70
- Lead, diseases of workers in (Whitley), 475  
— poisoning, albuminuria in (Olivier, Lanceraux, Danjoy), 167  
— influence of, on development of gout (Charcot), 61
- Leared, A., tubercular meningitis (?), recovery under pot. iod., 95
- Lebert, malformation of heart, 120
- Lefort, on digitaline, 438
- Leg, surgical diseases of, authors on, 352
- Lemaire, J., presence of microzoa in the air, 4
- Lembert, treatment of burns by phosphorus, 308
- Lens, affections of, authors on, 309
- Leprosy, five cases of true (Hutchinson), 39  
— of India, treatment of (Collis), 179
- Leucocythæmia, recovery from (Martyn), 117  
— fatal cases of (Merbach), 117
- Leucoderma, diagnosis, &c., of (Hutchinson), 185
- Leven, syphilitic tumour in cerebellum (?), recovery, 88
- Levick, J., epidemic influenza of 1861 and 1863, 135
- Levick, J. J., miasmatic typhoid fever, 52
- Lichen, treatment of (Naylor), 180
- Lidell, J. A., major amputations for injuries, 293
- Ligature of arteries, preliminary discussion on, in Acad. des Sc., 202
- Lightning, 3 persons struck by (Mackintosh), 186
- Liman, signs of infanticide by drowning, 463  
— subpericranial effusions of blood in the newly born, 464
- Liniment, compound camphor, poisoning by (Taylor), 454
- Lion, résumé of poisoning by strychnia 445
- Lithotomy, recto-vesical (Jones, Bauer, Lane), 349  
— in Russia (Klein), 348  
— and lithotrity, authors on, 350
- Liver, abscess in, treatment of (Martin), 154  
— cases of echinococcus in (Storch), 160  
— direct treatment of catarrhal jaundice (Gerhardt), 159  
— diseases of, authors on, 154  
— functions of (Oré), 19  
— syphilis of (Oppolzer), 157  
— do. case (Stewart), 159
- London, B., enteric fever with disease of muscle of heart, 118
- Lowenson, epidermoid transformation of epithelium of bladder, 169
- Luminous eyes (Stellwag, v. Corion), 302
- Luys, structure and functions of cerebellum, 31
- Martyn, S., infra-mammary pain, 69  
— recovery from leucocythæmia, 117
- Maschka, poisoning by arsenic, recovery, 425
- Mastoid process, trephining (Pagenstecher), 314
- Matico, new form of (Bentley), 436
- Matthews, D., uterine hæmatocele with extra-uterine gestation, 366
- Mattschersky, hippuric acid in urine, 21
- Maunder, C. F., diagnosis of indurated chancre, 242
- Mauzevin, J. and C., new treatment of malignant pustule, 185, 234
- Mazel, poisoning by digitalis, case, 437
- Meade, R. H., treatment of eczema, 182
- Meadows, A., craniotomy, Earle's pelvimeter, 386
- Meat, diseased, poisoning from (Gamgee, Kesteven, Delpech), 470
- Membrana tympani, authors on, 318
- Meningitis, tubercular (?), recovery under iodine (Leared), 95
- Merbach, fatal case of leucocythæmia, 117
- Mercier, L. A., cause of recurrence after operations for stone, 347
- Mercury, diseases of workers in (Whitley, Taylor), 476  
— poisoning by (Taylor, Anderseck, Hamberger), 431-2  
— do. from packing hides (Taylor), 477
- Metamorphosis of matter, influence of Glauber's salt on (Seegen), 26
- Miasmatic typhoid fever (Levick), 52

- Midwifery, statistics of Guy's Lying-in Charity, 354  
 — authors on, 353  
 M'Clintock, observations on missed labour, 370  
 — on pelvic hæmatocele, 402  
 M'Donnell, R., bromide of potassium in certain forms of epilepsy, 78  
 Mackay, A. E., on erysipelas, 61  
 Mackay, on dysentery (naval medical contributions), 152  
 Mackenzie, M., notes on laryngoscopy, 129  
 — light-condenser in do., 130  
 Mackenzie, W., amaurosis with albuminuria, 312  
 Mackintosh, D., three persons struck by lightning, 186  
 Maclagan, arsenic-eating in Styria, 428  
 Malaria, frequency of, in marshy districts (Whitley), 467  
 Malarious fever due to heat (Bonnyman), 74  
 — the tongue in (Bidwell), 60  
 — cinchonia in, as substitute for quinia (Turner), 60  
 — treatment of (Hare), 60  
 Mamma, disease of, authors on, 327  
 Mania from sun-stroke (Paterson), 72  
 Marcé, L. V., on the writings of the insane, 465  
 Marey, experiments on pulse, 7  
 Marowski, L., on the social relations of syphilis, 64  
 Marshy districts, frequency of malarious disease in (Whitley), 467  
 Marten, poisoning by carbonic oxide, 421  
 — results of Cæsarean section, 359  
 Martin, J. R., treatment of acute suppuration in liver, 154  
 Martyn, H. A., os and cervix uteri forming external tumour, excision, 391  
 Milk, new albuminoid substance in (Millon and Commaille), 19  
 Millon and Commaille, new albuminoid substance in milk, 19  
 Mineral waters of England and Continent (Althaus), 189  
 — Swiss Alps (Weber), 190  
 Miners, diseases of (Peacock, Bankart), 477  
 Mines, air of (Smith and Bernays), 478  
 Moir, induction of premature labour, 383  
 Moissenet and Bourdon, syphilitic narrowing of trachea, 131  
 Moles, tumours under (Paget), 271  
 Möller, apoplexy of pons Varolii, recovery, 88  
 Mollities ossium. See *Osteomalacia*.  
 Montineja, A. de, cupping to spine in ataxie locomotrice, 86  
 Moore, C. H., new method of consolidating fibrin in aneurism, 265  
 — wounds of pharynx, 319  
 Moore, W., diagnosis and treatment of thoracic aneurism, 121  
 Morin, A., purifying of air by pulverized water, 468  
 Morphina, hypodermic injections, case of long-continued, 256  
 Mortality in Norwich Hospital under different treatments (Richardson), 192  
 Moses, J., bromine in hospital gangrene, 222  
 — notes of gunshot wounds in the army of the Cumberland, 210  
 Mountain climate, effects of (Weber), 190  
 Mouth, diseases of, authors on, 318  
 Munk, P., on uræmia, 165  
 Murchison, on the isolation of infectious diseases, 41  
 Murphy, craniotomy and Cæsarean section, Earle's pelvimeter, 386  
 Murray, W., aneurism of abdominal aorta cured by pressure, 122  
 Muscles, changes in, during action (Sarkow), 24  
 — chemical conditions of fatigue of (Ranke), 23  
 — of speech and others, progressive atrophy of (Barker), 110  
 — voluntary, tumours in (Teevan), 254  
 — and tendons, authors on, 255  
 Musk and acetate of ammonia in pneumonia, 134  
 Myelitis, cases of acute and chronic (Coussins), 83  
 — do. (Radcliffe), 83  
 Nagel, A., peculiar affection of retina, 310  
 Narcotics and stimulants, on (Anstie), 417  
 Nasse, H., effect of alkalies on secretion of bile, 20  
 Nasse, W., influence of ague on insanity, 109  
 Nayler, G., treatment of lichen, 180  
 Neck, disease of, authors on, 325  
 Necrosis of bones of skull (Hewitt), 297  
 — from phosphorus (Wahl), 276  
 — authors on, 278  
 Needlewomen, sanitary condition of, in London (Ord), 473  
 Nélaton, on sub-ungual exostosis, 351  
 — reduction of large herniæ by elastic pressure, 333  
 — suture of nerves, 259  
 Nélaton's probe, on the use of (Hamilton), 209



- Nerves, division of, in facial spasm (v. Graefe), 82  
 — influence of cold on sensory and motor (Rosenthal), 97  
 — resections of (Schuh), 99  
 — paralysis from injury to (Paget), 255  
 — neuralgic affections from injury to (Warren), 256  
 — pneumogastric, implicated in aneurisms or tumours (Habershon), 121  
 — suture of (Laugier, Nélaton), 259  
 — trophic, influence of, on inflammation (Weber), 33  
 — and muscles, changes in, in hemiplegic contractures (Cornil), 100
- Nervous action, development of heat by (Valentin), 32  
 — centres, functions of, in birds, reptiles, and fishes (Renzi), 28  
 — do. fishes (Baudelot), 31  
 — do. (Luys), 31  
 — system, diseases of, authors on, 96
- Neubauer, kreatin and kreatinin in muscle, 24
- Neumann, E., induced and constant current in paralysis, 85
- Neumann, O., dirotism of pulse, 12
- Neuralgia, on (Trousseau), 98  
 — case of (v. Franque), 99  
 — from wounds of nerves (Warren), 256  
 — do. authors on, 258
- Nicholson, E., urine in intermittent fever, 59
- Nitro-glycerine, effects of (Albers), 453  
 — therapeutical use of (Demme), 454
- Nitrate of silver in ataxie locomotrice (Bourillon), 84  
 — in diphtheritic paralysis (Raciborski), 96  
 — in paraplegia of children (Bouchut), 84
- Nose, new mode of treating diseases of cavity of (Thudichum), 131  
 — disease of, authors on, 325
- Notta, santonine simulating sugar in urine, 446
- Nussbaum, prolongation of chloroform-anæsthesia for several hours by morphia injections, 204
- Obesity, fluid producing (Dancel), 24  
 — treatment of (Smith), 37  
 — do. (Radcliffe), 38 ; (Down), 39
- Occupations, healthiness of (Smith), 471
- Œsophagus, authors on, 324
- Ogle, J. W., 75 cases of scrofulous disease of brain and cord, 96  
 — tetanus, nicotine unsuccessful, 79
- Ollivier, albuminuria in lead poisoning, 167  
 — poisoning by arseniuretted hydrogen, 423
- Operations, influence of race on results of (Chauffard), 193  
 — causes of excessive mortality after (Wells), 194  
 — scarlatina after (Paget), 200
- Ophthalmiæ, external, sulphate of copper in, 301
- Opium, alkaloids of, experiments with (Bernard), 450
- Oppolzer, syphilis of liver, 157
- Orbit, cellulitis in, and periostitis, diagnosis between (v. Graefe), 305
- Ord, sanitary condition of dressmakers and needlewomen in London, 473
- Oré, functions of portal vein, 19
- Ormerod, E. L., present state of cardiac pathology, 111
- Orthopædic surgery, authors on, 352
- Osteomalacia and porous hyperostosis (Durham), 279
- Ott, A., case of extra-uterine gestation, 367
- Otto, poisoning by hydrocyanic acid, 451
- Ovaries, case of uterus with three (Grohe), 390  
 — organic diseases of (Hutchinson), 407  
 — menorrhagia from morbid changes in (Priestley), 407
- Ovariectomy, on (West), 410  
 — latest statistics of, 414  
 — authors on, 410
- Oxalic acid, recovery from (Ellis), 422
- Oxaluria, amaurosis with (Mackenzie), 312
- Oxygen, physiological effects of (Demarquay and Leconte), 6
- Ozone, generated by current of pulverized water (Morin), 468
- Pagenstecher, on trephining mastoid process and petrous bone, 314
- Paget, J., scarlatina after operations, 200  
 — treatment of paralysis from injury to nerve-trunks, 255  
 — tumours under moles, 271
- Pain, infra-mammary, physiological meaning of (Martyn), 69
- Palate, accidental perforations of hard (Langenbeck), 319  
 — scrofulous disease of (Langenbeck), 323  
 — disease of, authors on, 324
- Palm, fatal case of verminous disease, 153
- Palmer, T., subclavian murmur in men, 119
- Pancreas, digestion of albuminoid substances by (Corvisart), 19

- Panum, changes in the blood from inanition, 26
- Paracentesis capitis, successful case (Thompson), 94
- Paraplegia of children, arg. nit. in (Bouchut), 84
- pathology of (Clarke), 84
- Paralysed muscles, effect of induced and constant current on (Neumann), 85
- Paralysis, central (Salomon), 88
- case of, pathology (Reynolds and Clarke), 96
- diphtheritic, nitrate of silver in (Racioborski), 96
- from injury to nerve-trunks (Paget), 255
- and loss of speech in hysteria (Wilks), 68
- reflex, as result of gunshot wounds (Mitchell, Morehouse, and Keen), 211
- Paresis, general, pathology of (Sankey), 101
- authors on, 103
- Parker, case of death from arsenic-eating, 429
- hospital gangrene, cause of, 217
- do. treatment of, 222
- Parker, W., on spermatorrhœa, 341
- Parotid tumour, removal of (Verneuil), 325
- Parsons, bronchitis of potters, 475
- Pas and Grönewegen, new form of cubebs, 436
- Pasteur, researches of, as explaining hospital mortality (Wells), 194
- Paterson, A. S., mania produced by sun-stroke, 72
- Pauw, Mad., poisoning of (Tardieu and Roussin, Bernard, Hébert), 439
- Peacock, T. B., cases of unusual slowness of the pulse, 125
- Peacock, diseases of miners, 477
- Pécholier, effects of ipecacuanha in disease, 447
- and St. Pierre, healthiness of verdigris manufacture, 475
- Pelvimeter, Earle's, utility of (Murphy, Meadows), 386
- Pelvis, the, in various races of men (Joulin), 356
- conditions of, impeding delivery (Barnes), 373
- Pemphigus dependent on disease of nerves (Russell), 177
- syphilitic (Roger), 244
- Penis, surgery of, authors on, 343
- treatment of balanitis (Burow), 342
- Perinæum, laceration of, treatment (Robinson), 382
- Peritoneal areolar tissue, inflammation of (Oppolzer), 151
- Pettenkofer and Voit, relation of food and excretion, 25
- Petroleum, asphyxia from (Weinberger), 452
- Pharmacopœia, British (authors on), 420
- Pharynx, wounds of (Moore), 319
- foreign body in, laryngeal mirror (Czermak), 319
- Phlebitis, facial (Blachez), 267
- Phosphorus, rapid poisoning by (Tüngel), 423
- disease of palate (Langenbeck), 320
- necrosis (Wahl, Wulff), 276-8
- Phthisis, assimilation of fat in (Dobell), 143
- cure by living in open air in California (Blake), 144
- developed by pleurisy (Beau), 142
- dietary in (Smith), 142
- influence of medicines upon (Cotton), 141
- tannin in (Woillez), 142
- Physostigma venenosum. See *Calabar bean*.
- Pick, T. P., treatment of hospital gangrene (St. George's), 220
- Pirogoff's amputation (Hewson), 292
- Pissin, bleeding from the ranine vein, 128
- Pitch-furnace, vapour of, in bronchitis, &c. (Ireland), 433
- Placenta prævia, on (Greenhalgh), 380
- Pleurisy giving rise to phthisis (Bean), 142
- Pleuritic effusion, drainage tube in (Kidd), 140
- thoracentesis in (Béhier), 140
- Pneumogastric nerves, pulmonary lesions from section of (Roddaert), 17
- influence of, on heart, 7
- relation of, to respiration, 16
- Pneumonia with delirium, musk and acetate of ammonia in (Délioux), 134
- epidemic in Iceland in 1863 (Hjaltelin), 135
- pleuro-, epidemic in Mediterranean fleet (Bryson), 139
- report of the Vienna Hospital on, 1860-2, 137
- Polypi, laryngeal, 327
- nasal, authors on, 325
- uterine (Sims, Hutchinson), 406
- Polysarcia and its treatment (Smith, Radcliffe, Down), 37-39
- Pommerais, Dr. Couty de la, poisoning of Mad. Pauw by, 439
- Pons Varolii, apoplexy of, recovery (Möller), 88
- primary tuberculosis of (Stein), 96
- Portal vein, functions of (Oré), 19
- Porter, G. H., radical cure of reducible hernia, 331

- Post, use of bromine in erysipelas, hospital gangrene, and diphtheria, 217, 225
- Potash, permanganate of, in hospital gangrene (Hinkle), 220
- Potters, bronchitis of (Parsons), 475
- Pouchet, production of ciliated animalculæ, 5
- Powell, T., forceps in craniotomy, 385
- Pregnancy after operative closure of os uteri (Lane), 361
- without intromission (Scanzoni, Mattei), 362, 459
- diagnosis from uterine tumours (Routh), 362
- protracted (Annan, Simpson), 363
- vomiting of (Braun), 363
- do. in eighth month of (Kidd), 364
- extra-uterine (Simpson, Ott), 366-7
- do. with complications (Breslau, Schultze, Matthews, Day), 364-7
- Presentations, abnormal (Christie, Simpson, Thomas), 378
- Preyer, W., on amœboid blood-corpuscles, 1
- Pribram, A., mortification after bites by men, 206
- Priestley, flexions and versions of unimpregnated uterus, 393
- menorrhagia from morbid changes in the ovaries, 407
- Printers in London, sanitary state of (Smith), 471
- Probe, Nélaton's (Hamilton), 209
- Prosopalgia (v. Franque), 99
- Prostate, diseases of, authors on, 345
- Prurigo, treatment of (Duchesne-Duparc), 177
- Pryer, W. C., successive epidemics of hospital gangrene, one constitutional, one local, 218
- Psoriasis, non-syphilitic, on (Spender), 180
- Public health, authors on, 466
- Pulse, characters of, by sphygmograph (Marey, &c.), 7-11
- infantile, in health (Smith), 414
- cases of unusual slowness of (Peacock), 125
- Purulent diathesis and septic infection, on (Wahl, v.), 40
- Pustule, malignant (Mauzevin and Batut), 234-5
- spontaneous (Devers), 183
- new treatment of (Mauzevin), 185
- Pyæmia, operative treatment of (Doutrelepont), 226
- sulphites in (Burggræve), 226
- authors on, 227
- Quinine and iron, citrate of, quinine in (Braithwaite), 446
- Race, influence of, on results of operations (Chauffard), 193
- Raciborski, nitrate of silver in diphtheritic paralysis, 96
- Radcliffe, C. B., case of acute myelitis, fatal, 83
- a few words concerning Bantingism, 38
- Ramskill, J. S., dilatation of left ventricle, with difficulty of speech and suboccipital pain, 120
- on epilepsy, 77
- Ranke, chemical conditions of the fatigue of muscles, 23
- Rectum, exploration and surgery of (van Buren), 339
- malformations of, authors on, 341
- stricture of, venereal (Bumstead, Gosselin), 235
- authors on, 341
- Rees, O., chloride of arsenic in diabetes, 169
- Reflex action, influence of, on secretion (Bernard), 22
- case of control of (Ranke), 23
- Refraction and accommodation, authors on, 307
- Reid, A. G., case of ununited fracture of tibia, 281
- treatment of wound of large artery, 259
- Reid, J. W., delirium tremens treated by digitalis, 72
- Renard, tendinous rheumatism treated by external use of sulphur, 59
- Renzi, on the absorption of iodine, 422
- functions of nervous centres in fishes, reptiles, and birds, 28
- Respiration, change produced in blood by (Stokes), 14
- interchange of gases in (Grehaut), 16
- relation of the vagi to the movements of (Rosenthal), 16
- Respiratory murmur, cause of the (Boudet), 17
- Retina, analysis of, by the stereoscope (Towne), 32
- peculiar affection of (? gray degeneration) (Nagel) 310
- disease of, authors on, 311
- Reynolds, R., case of paralysis, pathology, 96
- Rheumatic fever, obscure forms of, 57
- Rheumatism, acute, statistics of (Roth), 56
- tendinous, external use of sulphur in, 59
- treatment of (Law, Robertson, Davies), 56
- and mental disorder (Sander), 107

- Rhinocopy, authors on, 325  
 Rhinoplasty, new mode of performing (Langenbeck), 204  
 Ricci, H. R. de, alkaline and earthy sulphates in catalytic diseases, 191  
 Richardson, B. W., effects of nitrate of amyl, 453  
 — mortality in Norwich Hospital under different treatments, 192  
 Ricinus communis, alkaloid in seeds of (Tuson), 437  
 Ritchie, cephalotripsy, at Vienna, by Braun, 387  
 Robertson, J., treatment of acute rheumatism, 56  
 Robinson, laceration of perinæum, recovery, 382  
 Roddaert, R., pulmonary lesions from section of the pneumogastriacs, 17  
 Roger, on the slight form of scarlatina and dropsy, 54  
 — hereditary syphilis, 244  
 Rogers, D. L., successful ligature of the art. innominata, 264  
 Roncher, effect on water of steeping flax, 469  
 Rosenthal, relation of the vagi to movements of respiration, 16  
 Rosenthal, M., influence of cold on sensory and motor nerves, 97  
 Roth, F. R., statistics of acute rheumatism, 53  
 Roussin, assimilation of isomorphous substances, 27  
 Routh, diagnosis of pregnancy from tumours, 362  
 — on fibrous tumours of uterus, 394  
 Roux, trial of M. Armand, for assault on (Tardieu), 456  
 Rühle, syphilis of larynx simulating phthisis, 243  
 Russell, J. B., analysis of 300 cases of typhus, 49  
 Russell, J., pemphigus dependent on disease of nerves, 177  
 Ryan, use of forceps in midwifery, 384
- Sabine, T. T., treatment of subclavian aneurism, 261  
 Sadler, M. T., case of Cæsarean section, 388  
 Salisbury, benefit of sanitary measures in, 189  
 Salter, H., chloroform in asthma, 133  
 — pot. iod. in do., 132  
 — on tracheal dysphagia, 144  
 Sander, on rheumatism and mental disorder, 107
- Sanitary measures in Salisbury, benefit of 189  
 Sankey, W. H. O., pathology of general paresis, 101  
 Santonine simulating sugar in urine (Notta), 446  
 Sarokow, changes in muscle during action, 24  
 Säxinger, cases of retroversion of gravid uterus, 368  
 — primary cancer of fundus uteri, 400  
 Scabies, treatment of (Kalb), 179  
 Scanzoni, pregnancy without intromission, 362, 459  
 Scapula, excision of (Syme), 202  
 Scarlatina, condition of stomach and intestines in (Fenwick), 147  
 — after operations (Paget), 200  
 — do. (Harrison, Wilks, May, Edmunds), 201  
 — slight, followed by dropsy, on the form of (Roger), 54  
 — treatment by ammonia sesquicarb. (Down), 55  
 Schiff, functions of epiglottis, 27  
 Schmidt, A., osmosis of albumen, 2  
 — cause of change of colour of the blood, 2  
 — crystallization of blood, 3  
 Schmitzler and Rokitansky, persistence of ductus Botallii, 119  
 Schroff, effects of veratrum viride and album, 432  
 Schuh, 11 cases of resections of nerves, 99  
 Schulz, operations ten years after missed labour, 370  
 Schultze, B. S., tubo-uterine gestation, 364  
 Schultze, O., fermentation in impaired digestion, 22  
 Sciatica, clinical lecture on (Fuller), 59  
 Scurvy in St. Petersburg (Hermann), 116  
 — blood-serum drawn from chest in (Kempff), 117  
 — increase of, at sea (Barnes), 478  
 Sea-sickness, on (Chapman), 150  
 Secretion, influence of reflex action on (Bernard), 22  
 Seegen, influence of Glauber's salt on the metamorphosis of matter, 26  
 Septic infection and purulent diathesis (Wahl), 40  
 Septicæmia, cases (Wahl), 231  
 — experiments on (Weber), 227  
 Serous membranes, textural changes in inflammation of (Turner), 34  
 Sewell, coma removed by green tea, 97  
 Simon, congenital atresia of left half of double vagina, retention of menstrual fluid on one side, 390

- Simpson, carcinoma of fundus uteri, 400  
 — case of extra-uterine pregnancy, 366  
 Simpson, A. R., case of protracted gestation, 363  
 — case of double uterus, 390  
 — induction of premature labour, 383  
 — treatment of prolapsus funis, 379  
 Sims, on recto-vesical lithotomy, 349  
 Sims, M., on uterine polypi, 406  
 Skin, absorption by (Villemin), 18  
 — parasitic diseases of, so-called acute (Chausset), 172  
 — do. nature of (Fox), 174  
 — do. authors on, 172  
 Skoda, insufficiency of valves of heart, 119  
 Skull, caries and necrosis of bones of (Hewitt), 297  
 — wounds of, cause of form of (Teevan), 296  
 Smell, affections of, in epilepsy (Jackson), 68  
 Smith, A., air of mines, 478  
 Smith, E., diet in diabetes, 168  
 — dietary in disease, emaciation, 36, 132  
 — do. phthisis, 142  
 — food of the labouring classes, 470  
 — sanitary state of printers in London, 472  
 — do. tailors in London, 471  
 — on obesity, 37  
 Smith, L., on the infantile pulse in health, 414  
 Smith, T. and H., new crystalloid from aconite, 450  
 Smoler, M., on some acute diseases, 36  
 Socquet and Chatin, perchloride of iron and ergot of rye in albuminuria, 166  
 Spanton, D., typhus and typhoid fever, urine in, 47  
 Spasm, facial, division of nerves in (v. Graefe), 82  
 — do. histrionic, cure by chloroform (Cqstes), 99  
 Speech, defects of, from cerebral lesions (Merkel, Jackson), 66  
 — loss of, and paralysis in hysteria (Wilks), 68  
 Spence, J., tracheotomy in diphtheritic croup, 130  
 Spender, J. K., on non-syphilitic psoriasis, 180  
 Spermatorrhœa, on (Parker), 341  
 Spinal cord, atrophic degeneration of (Axenfeld, Bärwinkel), 86  
 — or brain, 75 cases of scrofulous disease of (Ogle), 96  
 — syphilitic disease of (Winge), 245  
 Spine, diseases of, authors on, 280  
 Spirometry, on (Beigel), 143  
 Spleen, pathological changes in (Billroth, Beer), 170  
 Spondylolisthesis, on, and premature labour in (Barnes), 372  
 Stanford, R. L., bromine in hospital gangrene, 224  
 Stein, J., tetanus, recovery, 78  
 — tuberculosis of pons Varolii, 96  
 Stellwag, K., on luminous eyes, 302  
 Stenocardia. See *Angina pectoris*.  
 Stereoscope, analysis of retina by (Towne), 32  
 Sterility, authors on, 342  
 Stewart, G., case of syphilis of liver, 159  
 — traumatic tetanus, recovery, 80  
 Stewart, H. G., on hereditary insanity, 103  
 Stilling, B., cure of organic stricture of urethra, 345  
 Stimulants and narcotics, action of (Anstie), 417  
 Stirling, digitalis in cardiac disease, 128  
 Stokes, change produced in blood by oxygen, 14  
 Stone, recurrence after operation for (Mercier), 347  
 — treatment of, in Russia (H. Klein), 348  
 — authors on, 347, 350  
 Storch, O., cases of echinococcus in liver, 160  
 Storer, H. R., surgical treatment of amenorrhœa, 392  
 Stricture, internal incision in (Stilling), 345  
 — organic, laminaria bougies in (Collis), 346  
 — authors on, 347  
 Strychnia, case of poisoning by, fatal (Casper), 444-5  
 — poisoning, résumé of (Lion), 444  
 Sturges, O., cases of Addison's disease, 172  
 Suffocation, case of suicide by means of ball of hay (Wossidlo), 458  
 Sugar in urine, santonine simulating (Notta), 446  
 Sulphites in septicæmia, 230  
 Sulphuric acid, purification of, from arsenic (Bussy and Bignet, Buchner, Blondlot), 428-9  
 Sulphuretted hydrogen injected into veins effects of (Weber), 228  
 Sun-stroke, mania from (Paterson), 72  
 Suppuration, authors on, 215-16  
 Supra-renal capsules, bronzing, with disease of (Sturges), 172  
 Surgery, military, authors on, 194  
 — operative, 194  
 — plastic, 204  
 — authors on, 193, 203-4-6  
 Surgical cases, medical treatment of, 203  
 Sutton, cases of obscure forms of rheumatic fever, 57

- Sweat, hæmorrhagic (v. Franque), 179  
 Swiss Alps, climate and spas of (Weber), 190  
 Sycosis, on (Ziemssen), 175  
 Syme, J., excision of scapula, 202  
 Sympathetic nerve, state of, in ataxie locomotrice (Duchenne), 85  
 Synechia, universal posterior, iridectomy in (Windsor), 307  
 Syphilis, constitutional, visceral lesions connected with (Lancereaux), 246  
 — hereditary (Roger), 244  
 — do. (Charrier), 64  
 — of larynx simulating phthisis (Rühle), 243  
 — of liver (Oppolzer), 157  
 — mercury in, authors on, 251  
 — transmission of, by vaccination (Bohn), 245  
 — social relations of (Marowski), 64  
 — authors on, 235-7-8, 242  
 — congenital, authors on, 244  
 — constitutional, authors on, 242-3-8  
 Syphilitic albuminuria, &c., pot. iod. in (Wade), 163  
 — caries and necrosis of skull (Hewitt), 297  
 — disease of epididymis (Dron), 172  
 — disease of spinal cord (Winge), 245  
 — fever (Güntz), 242  
 — lesions of internal viscera (Lancereaux), 61  
 — do. (Jacksch), 65  
 — narrowing of trachea (Moissenet and Bourdon), 131  
 — pemphigus (Roger), 244  
 — tumours in muscles (Teevan), 254  
 Syphilization, report of committee upon, 248
- Tailors in London, sanitary state of (Smith), 471  
 Tape-worms, report on (Meissner), 152  
 Tardieu, on diseases produced by imprudence, 465  
 — trial of Armand for assault on Roux, 456  
 Tardieu and Roussin, digitalin, as cause of Mad. Pauw's death, 439  
 Taylor, delivery after death, 460  
 — poisoning by tr. of aconite, 450  
 — fatal poisoning by external use of arsenic, 424  
 — poisoning by brandy (æt. 7), 452  
 — do. corrosive sublimate, 431  
 — do. lin. camph. co., 454  
 — do. turpeth mineral, 432  
 Tea, green, coma removed by, 4 cases (Sewell), 97  
 Teevan, W. F., inquiries into certain wounds of skull, 296
- Teevan, W. F., tumours in voluntary muscles, 254  
 Teissier, turpentine in nervous headache, 97  
 Temperature, measurements of, in surgical cases (Heineke), 203  
 Tendo Achillis, resection of an inch of, and suture (Webster), 254  
 Tendons and muscles, authors on, 255  
 Testis, diseases of, authors on, 343  
 Tetanus, pathology of (L. Clarke, H. Demme), 81, 232  
 — from bathing, recovery (Stein), 78  
 — following operation for cancer of cervix uteri (Keiller), 391  
 — curare in (Demme), 238  
 — ice to spine in hysterical (Howard), 82  
 — recovery after ice to spine (Edmunds), 79  
 — do. (Falconer, Adams), 80  
 — nicotine unsuccessful in (Ogle), 79  
 — rheumatic, recovery after use of tobacco (Lange), 79  
 — traumatic, recovery after use of nicotine (Tyrrell), 80  
 — do. (Stewart), 80  
 — in the tropics (Bernouilli), 232  
 — authors on, 233  
 Thiry, L., influence of gaseous contents of blood upon action of heart, 7  
 Thomas, treatment of prolapsus funis, 379  
 Thompson, T. Y., successful case of paracentesis capitis, 94  
 Thomson, W., discharge in hospital gangrene, 217  
 — treatment of do., 222  
 Thoracentesis in pleuritic effusion (Béhier), 140  
 Thudichum, J. L., new mode of treating diseases of the cavity of the nose, 131  
 Thyroid gland, disease of, authors on, 325  
 Tichborne, composition of liquor bismuthi, 430  
 Tinea and alopecia, contagion in (Hillier), 176  
 Tobacco, amaurosis from (?) (Hutchinson), 312  
 Tongue, the, in malarious disease, 60  
 — hard tumour of, disappearing under galium aperin. (Bulley), 147  
 — affections of, authors on, 319  
 — and muscles of speech, &c., atrophy of (Barker), 110  
 Tonsils, disease of, authors on, 325  
 Towne, analysis of retina by the stereoscope, 32  
 Townley, insanity of, 465  
 Trachea, syphilitic narrowing of (Moissenet and Bourdon), 131

- Trachea and bronchi, disease of (Gibb), 128  
 — and larynx, disease of, authors on, 327  
 Tracheotomy in croup or diphtheria, 6 cases (Buchanan), 130  
 — in diphtheritic croup (Spence), 130  
 — in syphilitic narrowing of trachea (Moissenet), 131  
 Transfusion (Panum), 268  
 — apparatus for (Hewitt), 389  
 — immediate (Aveling), 389  
 Trask, J. B., trisnitrate of bismuth in diarrhoea, 150  
 Trichina disease (Meissner), 191  
 Tripiet, ventilating, lighting, and warming theatres, 468  
 Trousseau on neuralgias, 98  
 Tuberculosis, 75 cases of brain and cord (Ogle), 96  
 — of corpora quadr. (Hench and Steffen), 89  
 — mediastinal (Bouchut), 415  
 — primary, of pons Varolii (Stein), 96  
 Tuckwell, H. M., effusions of blood in neighbourhood of uterus, 402  
 Tumours of bone, authors on, 278  
 — congenital innocent (Holmes), 268  
 — fibrous, of uterus (Routh, Hutchinson, Duncan, Brown), 394  
 — malignant, authors on, 276  
 — under moles (Paget), 271  
 — vascular, authors on, 268  
 — in voluntary muscles (Teevan), 254  
 — share of blood-vessels in formation of (Weber), 12  
 — on the removal of skin in excision of (Fergusson), 272  
 — authors on, 272  
 Tüngel, rapid poisoning, phosphorus, 423  
 Turner, A. P., cinchonia in 100 cases of intermittent fever, 60  
 Turner, W., textural changes in inflammation of serous membranes, 34  
 Turning, delivery by (Hicks, Hewitt), 383  
 Turpeth mineral, poisoning by (Taylor), 432  
 Tuson, alkaloid in castor-oil seeds, 437  
 Typhus and typhoid. See *Fever*.  
 Tyrrell, tetanus from wound of nose, recovery after tobacco, 80  
 Uræmia, on (Munk), 165  
 Uranoplasty, authors on, 324  
 Urea, paralysing the reflex function (Ranke), 23  
 Urethra, diseases of, authors on, 347  
 Urinary organs, pathology of (Kussmaul), 164  
 Urine, colouring matter of, oxaluria, &c. (Harley), 160  
 Urine in intermittent fever (Nicholson), 59  
 Uterus, carcinoma of (Simpson, Hewitt, Säxinger, Barnes), 400  
 — do. recovery from (Habit), 401  
 — effusions of blood in neighbourhood of 402  
 — fibrous tumours of (Routh, Hutchinson, Duncan, Brown), 394  
 — polypus of (Sims, Hutchinson), 406  
 — gravid, anteversion of (Hüter), 368  
 — do., retroversion of (Säxinger, Atthill), 368-9  
 — do., flexion of, as cause of abortion (Hüter), 369  
 — do., flexions and versions of, 393  
 — case of double (Simpson, Simon), 390  
 — do., with three ovaries (Grohe), 390  
 — diseases of cervix (Martyn, Warren, Heneike, Keiller), 391  
 — rupture of, gastrotomy, successful (Crichton), 381  
 — variety in form of, with pregnancy (Birnbaum), 376  
 Vaccination, reports on, 466  
 Vagina, case of double (Cappie), 390  
 — congenital atresia of left half, double uterus, partial retention of menstrual fluid (Simon), 390  
 Valentin, development of heat by nervous action, 32  
 Varix, authors on, 268  
 Veale, N., excision of indurated chancre, 239  
 Vegetable life, effect of light on (Jodin, Boussingault), 5  
 Veins, passage of air into, without ill effect (Verneuil), 326  
 — authors on, 267  
 Veratrum viride, comparison with v. album (Schroff), 432  
 — physiological effects of (Watson), 432  
 Venereal disease. See *Syphilis* and *Gonorrhœa*.  
 Verdigris manufacture, innocuousness of (Pécholier and St. Pierre), 475  
 Ventilation by current of pulverized water (Morin), 468  
 — lighting, and warming of theatres (Tripiet), 468  
 Verneuil, A., removal of a parotid tumour, 325  
 Vienna Hospital, gastro-intestinal catarrh (1860-2), 149  
 — report of (1860-2), 42, 134, 137  
 Villemin, absorption by the skin, 18  
 Vinegar, adulterations of, in France (Chevallier), 470  
 Vitreous humour, affections of, authors on, 310

- Vogl, analysis of *Ipomœa turbethum*, 443  
 Vulpian, effects of digitaline upon the heart, 441  
 Vulva, excision in hypertrophy of (Canton), 343
- Wade, diuretics in renal dropsy, 163  
 — pot. iod. in syphilitic albuminuria, 163  
 Wahl, E. von, clinical history of septic infection, 231  
 — on the spread of gangrene, 231  
 — on phosphorus necrosis, 276  
 — purulent diathesis and septic infection, 40
- Wales, P. S., spotted fever in Rhode Island, 1863, 43  
 Walker, T. J., globe condenser in laryngoscopy, 130  
 Warlomont, free use of sulphate of copper in external ophthalmiæ, 301  
 Warren, J., cervix uteri projecting externally, excision, 391  
 Warren J. M., neuralgia from injury of nerves, 256  
 Water, pulverized current producing ozone, &c. (Morin), 468  
 — zinc vessels for (Fonssagrives), 469  
 — effects of steeping flax in, 469  
 Waters, A. T. H., hypertrophy, of left breast in emphysema, 120  
 — thoracic aneurisms and thoracic tumours, 123  
 Watson, J., effects of *veratrum viride*, 432  
 Weber, on the trophic nerves, and their influence on inflammation, 33  
 Weber, C. O., methods of amputation near ankle-joint, 294  
 Weber, H., spas and climate of the Swiss Alps, 190  
 Weber, O., and Urfey, experiments on septicæmia, 227  
 Weber, share of the blood-vessels in new formations, 12  
 Webster, W., resection of one inch of tendo Achillis and suture, 254
- Wedl, contributions to the pathology of the blood-vessels, 123  
 Weeks, G. R., bromine in hospital gangrene, 224  
 Weinberger, R., asphyxia from petroleum, 452  
 Wells, T. S., causes of excessive mortality after operations, 194  
 Whitley, malarious disease in marshy districts, 467  
 — effects of working in lead, 475  
 — do. mercury, 476  
 Whittle, E., case of hydrophobia, 71  
 Wilks, S., atrophy of brain, 109  
 — loss of speech and paralysis in hysterical women, 68  
 Williams, S. W. O., refusal of food by the insane, 110  
 Wilson, E., on eczema, 181  
 Winckel, on cephalotripsy, 387  
 Windsor, J., inflammation of epiglottis, 130  
 Windsor, T., iridectomy for artificial pupil, 307  
 Winge, syphilitic disease of spinal cord, 245  
 Woillez, tannin in phthisis, 142  
 Women, diseases of, authors on, 354  
 Worms (*ascaris lumbr.*), fatal case of (Palm), 153  
 Wounds, diphtheritic or pellicular (Hutchinson), 207  
 — gunshot, 209-215  
 — of nerves, neuralgia from (Warren), 256  
 — do. paralysis from (Paget), 255  
 — pretended (in case of Roux), 456  
 — authors on, 206-8  
 Wulff, phosphorus necrosis, 278
- Zechmeister, abscess from attempted abortion, a twig left *in utero*, 460  
 Zehender, W., form of extraction knives, 309  
 Ziemssen, on sycosis, 175  
 Zinc, chloride of, in epithelial cancer (Fleming), 276











